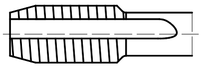
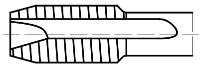
# Tools for threads

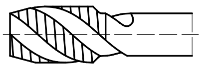

**Catalogue -** edition **18**

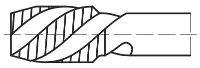
Detailed information on the website **www.fanar.eu**


## Execution-flutes

**C**  Straight flutes

**B**  Straight flutes with spiral point

**R**  Right spiral flutes

**L**  Left spiral flutes

## Coolant

| | |
|---|---|
| **E** | Emulsion |
| **O** | Oil |
| **P** | Threading paste |

## Coating

| | |
|---|---|
| **HL** | TiAlN + WC/C |
| **TC** | TiN + TiCN |
| **TB** | $TiB_2$ |
| **TN2** | TiAlN + TiN |
| **AT** | AlTiN |

## Cutting speed Vc (m/min)

| | |
|---|---|
| 10-15 | Tool recommented |
| 10-15 | Tool can be used |
| | Manual processing |

The speed values are orientational.
The speed should be adjust experimentally

| Material example | Material number | Type of chips | | Material group |
|---|---|---|---|---|
| 11SMnPb30, 10SPb20, 35S20, 11SMn37 | 1.0718, 1.0722, 1.0726, 1.0736 | short | P1 | P |
| S235JR,S275JR, C22, C45 | 1.0038, 1.0044, 1.0402, 1.0503 | long | P2 | |
| C55, C60, C60E | 1.0535, 1.0601, 1.1221 | long | P3 | |
| C25E, C53G, G18Mo5, 16Mo5 | 1.1158, 1.1213, 1.5422, 1.5423 | long | P4 | |
| C55, C55E, C60E | 1.0535, 1.1203, 1.1221 | long | P5 | |
| 36Mn5, 107CrV3, 100Cr6, 20NiCrMo2-2, 41Cr4 | 1.1167, 1.2210, 1.3505, 1.6523, 1.7035 | long | P6 | |
| 34Cr4, 25CrMo4, Weldox 700, Weldox 900 | 1.7033, 1.7218 | long | P7 | |
| 36NiCr6, 34CrNiMo6, 55Cr3, 51CrV4 | 1.5710, 1.6582, 1.7176, 1.8159 | long | P8 | |
| 55Si7, 60SiCr7, 55NiCrMoV6, 40CrMoV13-9 | 1.0904, 1.0961, 1.2713, 1.8523 | long | P9 | |
| X210Cr12, X100CrMoV5-1, HS6-5-2-5, HS6-5-2 | 1.2080, 1.2363, 1.3243, 1.3343 | middle | P10 | |
| HS6-5-2-5, HS18-1-2-5, HS 10-2-5-8, HS 6-5-3-8 | 1.3243, 1.3255, 1.3253, 1.3294 | middle | P11 | |
| X30WCrV9-3 | 1.2581 | middle | P12 | |
| X6Cr13, X12Cr13, X14CrMoS17, X6CrMo17-1 | 1.4000, 1.4006, 1.4104, 1.4113 | long | P13 | |
| X12Cr13, GX20Cr14, X19CrNi17-2 , X45CrSi9-3-1 | 1.4006, 1.4027, 1.4057, 1.4718 | long | P14 | |
| X5CrNi18-10, X5CrNiMo17-12-2, X2CrNiMo18-14-3, X12NiCrSi36-16 | 1.4301, 1.4401, 1.4435 ,1.4864 | long | M1 | M |
| X9CrNi18-8, X53CrMnNiN21-9 | 1.4310, 1.4871 | long | M2 | |
| X2CrNiN23-4, X2CrNiMoN17-13-3, X2CrNiMoN22-5-3, X2CrNiMoCuN25-6-3 | 1.4362, 1.4429, 1.4462, 1.4507 | long | M3 | |
| EN-GJL-100 , EN-GJL-200, EN-GJL-300, EN-GJL-400 | 0.6010, 0.6020, 0.6030, 0.6040 | very short | K1 | K |
| EN-GJV-300, EN-GJV-400, EN-GJV-500, EN-GJV-550 | - | short/middle | K2 | |
| EN-GJMW-300-26, EN-GJMB-350-10, EN-GJMB-450-6 | 0.8035, 0.8135, 0.8145 | short/middle | K3 | |
| EN-GJMB-550-4, EN-GJMB-700-2, EN-GJMB-800-1 | 0.8155, 0.8170, 0.8180 | short/middle | K4 | |
| EN-GJS-400-15, EN-GJS-500-7, EN-GJS-700-2 | 0.7040, 0.7050, 0.7070 | short/middle | K5 | |
| EN-GJS-800-8, EN-GJS-1200-2, EN-GJS-1400-1 | - | short/middle | K6 | |
| ENAW-Al99.5, ENAW-AlSi1MgMn (PA4), ENAW-AlMg0.7Si (PA38), ENAW-AlMg3 (PA11) | 3.0255, 3.2315, 3.3206, 3.3535 | long | N1 | N |
| ENAW-AlCu6BiPb, ENAW-AlCu4MgSi(A) (PA6), ENAW-AlZn5.5MgCu (PA9) ENAW-AlMg4.5Mn0.7 (PA13) | 3.1655, 3.1325, 3.4365, 3.3547 | long | N2 | |
| ENAC-AlSi12, ENAC-AlSi12(Fe), ENAC-AlSi12(Cu), ENAC-AlMg5 | 3.2581, 3.2582, 3.2583, 3.3561 | short/middle | N3 | |
| ENAC-AlCu4MgTi, ENAC-AlSi7Mg0.3, ENAC-AlSi9Mg, ENAC-AlSi10Mg(a) | 3.1371, 3.2371, 3.2373, 3.2381 | short/middle | N4 | |
| ENAC-AlSi17Cu4Mg | - | short | N5 | |
| EN-MAMgMn1, EN-MCMgRE3Zn2Zr, EN-MCMgRE2Ag2Zr, EN-MCMgAl4Si | 3.5101, 3.5103, 3.3506, 3.5470 | short | N6 | |
| Cu-OF, Cu-DHP, CuZn35Mn2Al1Fe1-C, CuAl10Ni5Fe4 | 2.0040, 2.0090, 2.0592, 2.0966 | extra long | N7 | |
| CuZn37 (M63), CuAl10Ni5Fe4, CuSn8P | 2.0321, 2.0966, 2.1030 | long | N8 | |
| CuZn40Pb2 (M58)(MO58), CuSn7Zn4Pb7-C, CuSn5Zn5Pb5-C, CuSn10Pb10-C | 2.0402, 2.1090, 2.1096, 2.1176 | short | N9 | |
| AMPCO 8, AMPCO 21, AMPCO M4 | - | long | N10 | |
| Incoloy 909, Multimet 155, X10NiCrAlTi3220 (Incoly 800), X40CoCrNi2020 | 1.4876, 1.4977 | long | S1 | S |
| Incoloy A-286, Unitemp 212 | - | long | S2 | |
| Incoloy 864, Nimocast 713 | - | long | S3 | |
| Inconel 718, Nimonic 80A | - | long | S4 | |
| GMR 235*, Jessop G81* | - | long | S5 | |
| Ti 99.8, TiCu2 | 3.7025, 3.7124 | extra long | S6 | |
| Ti-6Al-4V, Ti-6Al-2Mo-2Cr, Ti-6Al-6Mo-4Zr-2Sn | 3.7165 | short/middle | S7 | |
| Ti-10V-2Fe-3Al, Ti-13V-11Cr-3Al | - | short/middle | S8 | |
| Weldox 1100, Weldox 1300, Hardox 500 | - | short | H1 | H |
| Hardox 550, Hardox 600, Armox 600 T | - | short | H2 | |
| Hardox Extreme | - | short | H3 | |
| GX260NiCr42, GX330NiCr42, GX300CrMoNi15-2-1 | 0.9620, 0.9625, 0.9640 | short | H4 | |

# Tool Factory Fanar Joint Stock Company is a leading manufacturer of cutting tools for metalworking.

For many years, we focus on innovation, quality and continous development. Our knowledge and experience, which is supported by **newest technology and modern stock of machine tools** allow us to offer innovative products meeting highest quality requirements. We are trusted supplier in the country and abroad. We are cooperating with the world's biggest producers of such industries as: automotive, aerospace, medical, home appliances and many others.

A wide range of products supported by service, technical advice, and IT new solutions in customer service ensure a high level of customer satisfaction.


## We are producer with global reach

Our tools are distributed to more than **40 countries**. More and more recognizable brand of producer of the highest quality allows for further international expansion. Looking for **tools of the highest quality thread** take advantage of our global distribution network. The current list of official distributors available on the **www.fanar.pl**

# Technical informations

## Groups of Tools by Applications

| | | | |
|---|---|---|---|
| MASTERTAP | Group of machine taps intended for high performance thread cutting in a wide range of materials, such as **steel, stainless steel, cast iron, non-ferrous metals and heat-resistant alloys, and titanium alloys.** | GG | For processing of grey and nodular cast iron |
| 800X | Innovative variety of machine tap 800, designed also for **processing of stainless steel.** The innovative manufacturing technologies may even double durability and processing performance we had so far. | GAL | For cast aluminum alloys with the Si content of max 12% |
| 800 | For structural, free machining and low alloy steels with the tensile strength of Rm ≤ 800 Mpa | HRC | For materials, which have been hardened. The number next to the symbol indicates the maximum hardness of the material to be processed, in the HRC scale |
| FAN-1200 | For tool and difficult to process steels with the tensile strength of 800 MPa ≤ Rm ≤ 1200 MPa, and for heat treated steels up to 38 HRC | S-NC | For synchronized tapping on CNC machines with the "rigid tapping" function for a wide range of materials with the high cutting speeds |
| 1400 | For difficult to process and heat resistant steels with the tensile strength of 1200 MPa ≤ Rm ≤ 1400 MPa, and for heat treated steels up to 44 HRC | Ms | For brass and short chip bronze |
| INOX | For high alloy steel, stainless and acid resistant steels with a tensile strength of Rm ≤ 1000 MPa | WGN | Forming taps for machining materials with limited ductility |

| Hole type | | Designation |
|---|---|---|
| Throught | | ● **Available from stock** |
| Blind | | ○ **On request** |

| | |
|---|---|
| Annealed | A |
| Tempered | QT |
| Hardened and tempered | HT |
| Precipitation hardened | PH |

| Material group | | Range of application -material | | | Rm | HB | HRC |
|---|---|---|---|---|---|---|---|
| P | | **Steel** | | | | | |
| | P1 | Non-alloyed steel | Free cutting steel | A | 750 | 220 | |
| | P2 | | C ≤ 0,55 % | A | 650 | 190 | - |
| | P3 | | C > 0,55 % | A | 650 | 190 | - |
| | P4 | | C ≤ 0,55 % | QT | 700 | 210 | - |
| | P5 | | C > 0,55 % | QT | 1000 | 300 | 32 |
| | P6 | Low-alloyed steel | | A | 600 | 175 | - |
| | P7 | | | QT | 1000 | 300 | 32 |
| | P8 | | | QT | 1200 | 380 | 41 |
| | P9 | | | QT | 1400 | 420 | 45 |
| | P10 | High-alloyed steel and high-alloyed tool steel | | A | 700 | 210 | - |
| | P11 | | | A | 1000 | 300 | 32 |
| | P12 | | | HT | 1400 | 420 | 45 |
| | P13 | Stainless steel | Ferritic/martensitic | A | 700 | 210 | - |
| | P14 | | Martensitic | QT | 1100 | 330 | 34 |
| M | | **Stainless steel** | | | | | |
| | M1 | Stainless steel | Austenitic | | 700 | 210 | - |
| | M2 | | Austenitic | PH | 1000 | 300 | 32 |
| | M3 | | Duplex | | 800 | 240 | 23 |
| K | | **Cast iron** | | | | | |
| | K1 | Grey cast iron(GJL) | | | 400 | 120 | - |
| | K2 | Cast iron with vermicular graphite (GJV) CGI | | | 550 | 160 | - |
| | K3 | Malleable cast iron (GJMW / GJMB) | | | 500 | 150 | - |
| | K4 | Malleable cast iron (GJMB) | | | 800 | 240 | - |
| | K5 | Cast iron with spheroidal graphite (GJS) | | | 700 | 210 | - |
| | K6 | Cast iron with spheroidal graphite (GJS) ADI | | | 1400 | 420 | 45 |
| N | | **Non-ferrous metals** | | | | | |
| | N1 | Aluminium wrought alloys | | | 200 | - | - |
| | N2 | | | PH | 500 | 152 | - |
| | N3 | Cast aluminium alloys | Si ≤ 12% | | 250 | 75 | - |
| | N4 | | Si ≤ 12% | PH | 300 | 90 | - |
| | N5 | | Si> 12 % | | 450 | 130 | - |
| | N6 | Magnesium alloys | | | 250 | 70 | - |
| | N7 | Copper and copper alloys | Pure, Non-alloyed | | 350 | 100 | - |
| | N8 | | Cu-alloys, long-chipping | | 600 | 180 | - |
| | N9 | | Cu-alloys, short-chipping | | 400 | 120 | - |
| | N10 | | High-strength, | | 1000 | 300 | 32 |
| S | | **Superalloys and titanium** | | | | | |
| | S1 | Heat-resistant alloys | Fe-based | A | 675 | 200 | - |
| | S2 | | | PH | 950 | 280 | 29 |
| | S3 | | Ni / Co base | A | 850 | 250 | 25 |
| | S4 | | | PH | 1200 | 350 | 38 |
| | S5 | | | C | 1100 | 320 | 34 |
| | S6 | Titanium alloys | Pure titanium | | 675 | 200 | - |
| | S7 | | α and β alloys | | 1250 | 375 | 40 |
| | S8 | | β alloys | | 1400 | 410 | 44 |
| H | | **Hard materials** | | | | | |
| | H1 | Hardened steel | | HT | | | 50 |
| | H2 | | | HT | | | 55 |
| | H3 | | | HT | | | 60 |
| | H4 | Hardened and tempered cast iron | | HT | | | 55 |

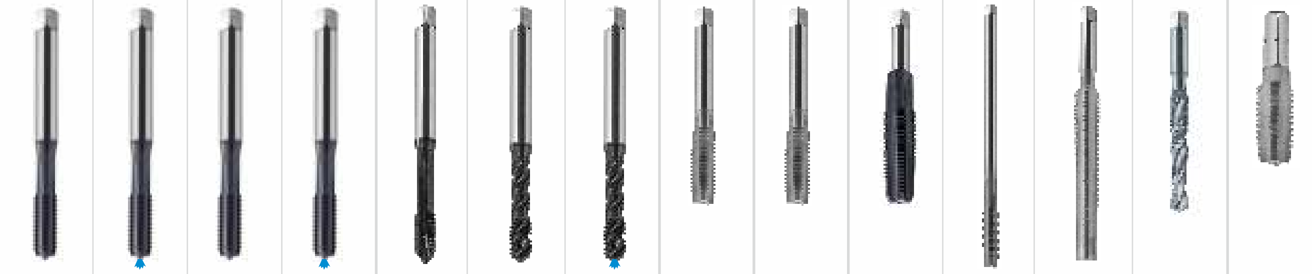
| MASTERTAP | | | | | | 800X | | | 800 | | | FAN-1200 | | Name | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-HL | B-IKR-HL | C-R45-HL | C-R45-IK-HL | E-R45-HL | E-R45-IK-HL | C-TN2 | B-TN2 | C-R40-TN2 | C | B | C-R40 | B-TC | C-R40-TC | | |
|  | | | | | | | | | | | | | | | |
| 15 / 16 | 15 / 16 | 15 / 16 | 15 / 16 | 15 / 16 | 15 / 16 | 17 / 18 | 17 / 18 | 17 / 18 | 19 / 20 | 19 / 20 / 23 | 21 / 22 / 23 | 24 | 24 | M | Page number |
| 35 / 36 | 35 / 36 | 35 / 36 | 35 / 36 | 35 / 36 | 35 / 36 | 37 / 38 / 39 | 37 / 38 / 39 | 37 / 38 / 39 | 40 / 41 | 40 / 41 / 42 | 40 / 41 / 42 | 43 /44 | 43 / 44 | MF | |
| 58 | | 58 | | | | | 59 | 59 | | 60 | 60 | | | UNC | |
| 62 | | 62 | | | | | 63 | 63 | | 64 | 64 | | | UNF | |
| | | | | | | | | | | | | | | UN-8 | |
| | | | | | | | 66 | 66 | | 67 | 67 | | | UNEF | |
| 68 | | 68 | | | | 69 | 69 | 69 | 70 | 70 | 70 | | | G | |
| | | | | | | | | | 74 | | | | | Rp | |
| | | | | | | | | | | 74 | | | | RC | |
| | | | | | | | | | 75 | | | | | NPT | |
| | | | | | | | | | 76 | | | | | NPTF | |
| | | | | | | | | | 77 | | | | | NPSF | |
| | | | | | | | | | | 78 | | | | BSW | |
| | | | | | | | | | | | | | | BSF | |
| 79 | | | | 79 | | | | | | | | | | EG M | |
| 80 | | | | 80 | | | | | | | | | | EG UNC | |
| 81 | | | | 81 | | | | | | | | | | EG UNF | |
| | | | | | | | | | | | | | | Pg | |
| | | | | | | | | | | | | | | Tr | |
| HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE | HSSE | HSSE | HSSE | HSSE | HSSE | HSSE-PM | HSSE-PM | Material | |
| B/4-5P | B/4-5P | C/2-3P | C/2-3P | E/1,5-2P | E/1,5-2P | C/2-3P | B/4-5P | C/2-3P | C/2-3P | B/4-5P | C/2-3P | B/4-5P | C/2-3P | Chamfer | |
| < 3xD | < 3xD | < 2,5xD | < 2,5xD | < 2,5xD | < 2,5xD | < 1,5xD | < 3xD | < 2,5xD | < 1,5xD | < 3xD | < 2,5xD | < 3xD | < 2,5xD | Hole type | |
| E/O/P | E/O/MQL | E/O/P | E/O/MQL | E/O/P | E/O/MQL | E/O/P | E/O/P | E/O/P | E/O/P | E/O/P | E/O/P | E/O/P | E/O/P | Coolant | |
| Vc (m/min) | | | | | | | | | | | | | | | |
| 10-40 | 20-50 | 10-40 | 20-50 | 10-40 | 20-50 | 10-35 | 10-35 | 10-35 | 5-20 | 5-20 | 5-20 | 10-35 | 10-35 | P1 | P |
| 10-40 | 20-50 | 10-40 | 20-50 | 10-40 | 20-50 | 10-35 | 10-35 | 10-35 | 5-20 | 5-20 | 5-20 | 10-35 | 10-35 | P2 | |
| 10-40 | 20-50 | 10-40 | 20-50 | 10-40 | 20-50 | 10-35 | 10-35 | 10-35 | 5-20 | 5-20 | 5-20 | 10-35 | 10-35 | P3 | |
| 10-40 | 20-50 | 10-40 | 20-50 | 10-40 | 20-50 | 10-35 | 10-35 | 10-35 | 5-20 | 5-20 | 5-20 | 10-35 | 10-35 | P4 | |
| 10-40 | 20-50 | 10-40 | 20-50 | 10-40 | 20-50 | 5-20 | 5-20 | 5-20 | | | | 5-20 | 5-20 | P5 | |
| 10-40 | 20-50 | 10-40 | 20-50 | 10-40 | 20-50 | 10-35 | 10-35 | 10-35 | 5-20 | 5-20 | 5-20 | 10-35 | 10-35 | P6 | |
| 10-40 | 20-50 | 10-40 | 20-50 | 10-40 | 20-50 | 5-20 | 5-20 | 5-20 | | | | 5-20 | 5-20 | P7 | |
| 10-40 | 20-50 | 10-40 | 20-50 | 10-40 | 20-50 | | | | | | | 5-20 | 5-20 | P8 | |
| 5-15[1)] | 5-15[1)] | | | | | | | | | | | | | P9 | |
| 10-40 | 20-50 | 10-40 | 20-50 | 10-40 | 20-50 | 10-35 | 10-35 | 10-35 | 5-20 | 5-20 | 5-20 | 10-35 | 10-35 | P10 | |
| 10-40 | 20-50 | 10-40 | 20-50 | 10-40 | 20-50 | | | | | | | 5-20 | 5-20 | P11 | |
| 5-15[1)] | 5-15[1)] | | | | | | | | | | | | | P12 | |
| 5-15 | 5-25 | 5-15 | 5-25 | 5-15 | 5-25 | 5-15 | 5-15 | 5-15 | | | | 5-15 | 5-15 | P13 | |
| 5-15 | 5-25 | 5-15 | 5-25 | 5-15 | 5-25 | 5-15 | 5-15 | 5-15 | | | | 5-15 | 5-15 | P14 | |
| 5-15 | 5-25 | 5-15 | 5-25 | 5-15 | 5-25 | 5-15 | 5-15 | 5-15 | | | | | | M1 | M |
| 5-15 | 5-25 | 5-15 | 5-25 | 5-15 | 5-25 | 5-15 | 5-15 | 5-15 | | | | 5-10 | 5-10 | M2 | |
| 5-15 | 5-25 | 5-15 | 5-25 | 5-15 | 5-25 | 5-15 | 5-15 | 5-15 | | | | 5-10 | 5-10 | M3 | |
| 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 | 5-15 | 5-15 | | 5-15 | 5-15 | | 5-15 | 5-15 | K1 | K |
| 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 | 5-15 | 5-15 | | 5-15 | 5-15 | | 5-15 | 5-15 | K2 | |
| 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 | 10-25 | 10-25 | 10-25 | 5-15 | 5-15 | 5-15 | 10-25 | 10-25 | K3 | |
| 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 | 10-25 | 10-25 | 10-25 | 5-15 | 5-15 | 5-15 | 10-25 | 10-25 | K4 | |
| 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 | 10-25 | 10-25 | 10-25 | 5-15 | 5-15 | 5-15 | 10-25 | 10-25 | K5 | |
| 5-15[1)] | 5-15[1)] | 5-15[1)] | 5-15[1)] | 5-15[1)] | 5-15[1)] | | | | | | | | | K6 | |
| 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 | | | | | | | | | N1 | N |
| 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 | | | | | | | | | N2 | |
| 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-30 | | 10-25 | 10-25 | | 10-30 | 10-30 | N3 | |
| 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-30 | | 10-25 | 10-25 | | 10-30 | 10-30 | N4 | |
| 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-30 | | 5-20 | 5-20 | | 10-30 | 10-30 | N5 | |
| 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 | | | | | | | | | N6 | |
| 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-30 | 10-30 | 5-20 | 5-20 | 5-20 | 10-30 | 10-30 | N7 | |
| 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-30 | 10-30 | 5-20 | 5-20 | 5-20 | 10-30 | 10-30 | N8 | |
| 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 | | | | | | | | | N9 | |
| 5-25 | 5-25 | 5-25 | 5-25 | 5-25 | 5-25 | | | | | | | 10-30 | 10-30 | N10 | |
| 1-8[1)] | 1-8[1)] | 1-8[1)] | 1-8[1)] | 1-8[1)] | 1-8[1)] | | | | | | | | | S1 | S |
| 1-8[1)] | 1-8[1)] | 1-8[1)] | 1-8[1)] | 1-8[1)] | 1-8[1)] | | | | | | | | | S2 | |
| | | | | | | | | | | | | | | S3 | |
| | | | | | | | | | | | | | | S4 | |
| | | | | | | | | | | | | | | S5 | |
| 1-8[1)] | 1-8[1)] | 1-8[1)] | 1-8[1)] | 1-8[1)] | 1-8[1)] | | | | | | | | | S6 | |
| | | | | | | | | | | | | | | S7 | |
| | | | | | | | | | | | | | | S8 | |
| | | | | | | | | | | | | | | H1 | H |
| | | | | | | | | | | | | | | H2 | |
| | | | | | | | | | | | | | | H3 | |
| | | | | | | | | | | | | | | H4 | |

| Name | 1400 | | | INOX | | | | GG | | | | | GAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C-TC | B-TC | C-R15-TC | B | B-HL | C-R40 | C-R40-HL | C-TC | C-IK-TC | E-TC | E-IK-TC | E-IKR-TC | C-R15-TC | E-R15-IK-TC |

| Page number | C-TC | B-TC | C-R15-TC | B | B-HL | C-R40 | C-R40-HL | C-TC | C-IK-TC | E-TC | E-IK-TC | E-IKR-TC | C-R15-TC | E-R15-IK-TC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 24 | 24 | 24 | 25 / 26 | 25 / 26 | 25 / 26 | 25 / 26 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| MF | 43 / 44 | 43 / 44 | 43 / 44 | 45 / 46 /47 | 45 / 46 /47 | 45 / 46 /47 | 45 / 46 /47 | 49 | 49 | 49 | 49 | 49 | 49 | 49 |
| UNC | | | | | | | | | | | | | | |
| UNF | | | | | | | | | | | | | | |
| UN-8 | | | | | | | | | | | | | | |
| UNEF | | | | | | | | | | | | | | |
| G | | | | | | | | | | | | | | |
| Rp | | | | | | | | | | | | | | |
| RC | | | | | | | | | | | | | | |
| NPT | | | | | | | | | | | | | | |
| NPTF | | | | | | | | | | | | | | |
| NPSF | | | | | | | | | | | | | | |
| BSW | | | | | | | | | | | | | | |
| BSF | | | | | | | | | | | | | | |
| EG M | | | | | | | | | | | | | | |
| EG UNC | | | | | | | | | | | | | | |
| EG UNF | | | | | | | | | | | | | | |
| Pg | | | | | | | | | | | | | | |
| Tr | | | | | | | | | | | | | | |
| **Material** | HSSE-PM | HSSE-PM | HSSE-PM | HSSE | HSSE | HSSE | HSSE | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM |
| **Chamfer** | C/2-3P | B/4-5P | C/2-3P | B/4-5P | B/4-5P | C/2-3P | C/2-3P | C/2-3P | C/2-3P | E/1,5-2P | E/1,5-2P | E/1,5-2P | C/2-3P | E/1,5-2P |
| **Hole type** | < 1,5xD | < 2,5xD | < 1,5xD | < 3xD | < 3xD | < 2,5xD | < 2,5xD | < 2xD | < 2,5xD | < 2xD | < 2,5xD | < 2,5xD | < 2,5xD | < 2,5xD |
| **Coolant** | E/O/P | E/O | E/O/P | E/O/P | E/O/P | E/O/P | E/O/P | E/O | E/O/MQL | E/O | E/O/MQL | E/O/MQL | E/O/P | E/O/MQL |

Vc (m/min)

| | | C-TC | B-TC | C-R15-TC | B | B-HL | C-R40 | C-R40-HL | C-TC | C-IK-TC | E-TC | E-IK-TC | E-IKR-TC | C-R15-TC | E-R15-IK-TC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | P1 | | | | | | | | | | | | | | |
| | P2 | | | | | | | | | | | | | | |
| | P3 | | | | | | | | | | | | | | |
| | P4 | | | | | | | | | | | | | | |
| | P5 | 5-20 | 5-20 | 5-20 | | | | | | | | | | | |
| | P6 | | | | | | | | | | | | | | |
| | P7 | 5-20 | 5-20 | 5-20 | | | | | | | | | | | |
| | P8 | 5-20 | 5-20 | 5-20 | | | | | | | | | | | |
| | P9 | 1-5 | 1-5 | 1-5 | | | | | | | | | | | |
| | P10 | | | | | | | | | | | | | | |
| | P11 | 5-20 | 5-20 | 5-20 | | | | | | | | | | | |
| | P12 | 1-5 | 1-5 | 1-5 | | | | | | | | | | | |
| | P13 | | | | | | | | | | | | | | |
| | P14 | | | | | | | | | | | | | | |
| M | M1 | | | | 5-15 | 5-25 | 5-15 | 5-25 | | | | | | | |
| | M2 | 5-10 | 5-10 | 5-10 | 5-15 | 5-25 | 5-15 | 5-25 | | | | | | | |
| | M3 | 1-8 | 1-8 | 1-8 | 5-10 | 5-10 | 5-10 | 5-10 | | | | | | | |
| K | K1 | 10-20 | 10-20 | 10-20 | | | | | 20-60 | 20-60 | 20-60 | 20-60 | 20-60 | | |
| | K2 | | | | | | | | 15-30 | 15-30 | 15-30 | 15-30 | 15-30 | | |
| | K3 | 10-20 | 10-20 | 10-20 | | | | | 15-30 | 15-30 | 15-30 | 15-30 | 15-30 | | |
| | K4 | 10-20 | 10-20 | 10-20 | | | | | 15-30 | 15-30 | 15-30 | 15-30 | 15-30 | | |
| | K5 | 10-20 | 10-20 | 10-20 | | | | | 15-30 | 15-30 | 15-30 | 15-30 | 15-30 | | |
| | K6 | 1-5 | 1-5 | 1-5 | | | | | 5-10 | 5-10 | 5-10 | 5-10 | 5-10 | | |
| N | N1 | | | | | | | | | | | | | | |
| | N2 | | | | | | | | | | | | | | |
| | N3 | | | | | | | | | | | | | 10-30 | 10-30 |
| | N4 | | | | | | | | | | | | | 10-30 | 10-30 |
| | N5 | | | | | | | | | | | | | 10-30 | 10-30 |
| | N6 | | | | | | | | | | | | | | |
| | N7 | | | | | | | | | | | | | | |
| | N8 | | | | | | | | | | | | | | |
| | N9 | 10-20 | 10-20 | 10-20 | | | | | | | | | | | |
| | N10 | | | | | | | | | | | | | | |
| S | S1 | | | | | | | | | | | | | | |
| | S2 | | | | | | | | | | | | | | |
| | S3 | | | | | | | | | | | | | | |
| | S4 | | | | | | | | | | | | | | |
| | S5 | | | | | | | | | | | | | | |
| | S6 | | | | | | | | | | | | | | |
| | S7 | | | | | | | | | | | | | | |
| | S8 | | | | | | | | | | | | | | |
| H | H1 | | | | | | | | | | | | | | |
| | H2 | | | | | | | | | | | | | | |
| | H3 | | | | | | | | | | | | | | |
| | H4 | | | | | | | | | | | | | | |



| Name | HRC60 | | | | S-NC | | | DIN-352 | Ms | NUTAP | NGMF | NGST | KOMBI | BIT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C-HM-TC | C-IK-HM-TC | D-HM-TC | D-IK-HM-TC | B-TC | C-R45-TC | C-R45-IK-TC | | | | | TRAPEZE | | |
| **Page number** | | | | | | | | | | | | | | |
| **M** | 28 | 28 | 28 | 28 | 29 | 29 | 29 | 30 | | 31 | 32 | | 33 | 34 |
| **MF** | | | | | 50 / 51 | 50 / 51 | 50 / 51 | 52 / 53 / 54 | | 55 | 56 / 57 | | | |
| **UNC** | | | | | | | | 61 | | | | | | |
| **UNF** | | | | | | | | 65 | | | | | | |
| **UN-8** | | | | | | | | | | | | | | |
| **UNEF** | | | | | | | | | | | | | | |
| **G** | | | | | | | | 72 | 71 | | | | | |
| **Rp** | | | | | | | | | | | | | | |
| **RC** | | | | | | | | | | | | | | |
| **NPT** | | | | | | | | | | | | | | |
| **NPTF** | | | | | | | | | | | | | | |
| **NPSF** | | | | | | | | | | | | | | |
| **BSW** | | | | | | | | | | | | | | |
| **BSF** | | | | | | | | | | | | | | |
| **EG M** | | | | | | | | | | | | | | |
| **EG UNC** | | | | | | | | | | | | | | |
| **EG UNF** | | | | | | | | | | | | | | |
| **Pg** | | | | | | | | | | | | | | |
| **Tr** | | | | | | | | | | | | 82 | | |
| **Material** | VHM | VHM | VHM | VHM | HSSE-PM | HSSE-PM | HSSE-PM | HSS | HSSE | HSSE | HSS | HSS | HSS | HSS |
| **Chamfer** | C/2-3P | C/2-3P | D/3,5-5P | D/3,5-5P | B/4-5P | C/2-3P | C/2-3P | ~3P | F/1P | 12P | 12P | 24P | D/4P | D/4P |
| **Hole type** | < 1,5xD | < 1,5xD | < 1,5xD | < 1,5xD | < 2,5xD | < 3xD | < 3xD | < 1,5xD | < 2xD | < 1,5xD | < 1,5xD | < 2xD | < 1,5xD | < 1,5xD |
| **Coolant** | E/O/P | E/O/MQL | E/O/P | E/O/MQL | E/O/P | E/O/P | E/O/MQL | E/O/P | E/O/P | E/O/P | E/O/P | E/O/P | E/O/P | E/O/P |
| | Vc (m/min) | | | | | | | | | | | | | |
| **P** P1 | | | | | 10-50 | 10-50 | 20-60 | 5-20 | | 5-20 | 5-20 | 5-20 | 5-15 | 5-15 |
| P2 | | | | | 10-50 | 10-50 | 20-60 | 5-20 | | 5-20 | 5-20 | 5-20 | 5-15 | 5-15 |
| P3 | | | | | 10-50 | 10-50 | 20-60 | 5-20 | | 5-20 | 5-20 | 5-20 | 5-15 | 5-15 |
| P4 | | | | | 10-50 | 10-50 | 20-60 | 5-20 | | 5-20 | 5-20 | 5-20 | 5-15 | 5-15 |
| P5 | | | | | 10-50 | 10-50 | 20-60 | | | 5-15 | | | | |
| P6 | | | | | 10-50 | 10-50 | 20-60 | 5-20 | | 5-20 | 5-20 | 5-20 | 5-15 | 5-15 |
| P7 | | | | | 10-50 | 10-50 | 20-60 | | | 5-15 | | | | |
| P8 | | | | | 10-50 | 10-50 | 20-60 | | | 5-10 | | | | |
| P9 | | | | | 5-15[1] | | | | | | | | | |
| P10 | | | | | 10-50 | 10-50 | 20-60 | 5-20 | | 5-20 | 5-20 | 5-20 | 5-15 | 5-15 |
| P11 | | | | | 10-50 | 10-50 | 20-60 | | | 5-15 | | | | |
| P12 | | | | | 5-15[1] | | | | | | | | | |
| P13 | | | | | 5-20 | 5-20 | 5-30 | | | | | | | |
| P14 | | | | | 5-15 | 5-15 | 5-25 | | | | | | | |
| **M** M1 | | | | | 5-20 | 5-20 | 5-30 | | | | | | | |
| M2 | | | | | 5-15 | 5-15 | 5-25 | | | | | | | |
| M3 | | | | | 5-20 | 5-20 | 5-30 | | | | | | | |
| **K** K1 | | | | | 10-40 | 10-40 | 10-60 | | | | 6-15 | 6-15 | | |
| K2 | | | | | 10-40 | 10-40 | 10-60 | | | | | | | |
| K3 | | | | | 10-40 | 10-40 | 10-60 | | | | | | | |
| K4 | | | | | 10-40 | 10-40 | 10-60 | | | | | | | |
| K5 | | | | | 10-40 | 10-40 | 10-60 | | | | | | | |
| K6 | | | | | 5-15[1] | 5-15[1] | 5-15[1] | | | | | | | |
| **N** N1 | | | | | 10-40 | 10-40 | 10-60 | | | | | | | |
| N2 | | | | | 10-40 | 10-40 | 10-60 | | | | | | | |
| N3 | | | | | 10-40 | 10-40 | 10-60 | | | | | | | |
| N4 | | | | | 10-40 | 10-40 | 10-60 | | | | | | | |
| N5 | | | | | 10-40 | 10-40 | 10-60 | | | | | | | |
| N6 | | | | | 10-40 | 10-40 | 10-60 | | | | | | | |
| N7 | | | | | 10-40 | 10-40 | 10-60 | | | | | | | |
| N8 | | | | | 10-40 | 10-40 | 10-60 | | | | | | | |
| N9 | | | | | 10-40 | 10-40 | 10-60 | | 10-25 | | 6-15 | 6-15 | 6-15 | 6-15 |
| N10 | | | | | 5-25 | 5-25 | 5-30 | | | | | | | |
| **S** S1 | | | | | 1-8[1] | 1-8[1] | 1-8[1] | | | | | | | |
| S2 | | | | | 1-8[1] | 1-8[1] | 1-8[1] | | | | | | | |
| S3 | | | | | | | | | | | | | | |
| S4 | | | | | | | | | | | | | | |
| S5 | | | | | | | | | | | | | | |
| S6 | | | | | 1-8[1] | 1-8[1] | 1-8[1] | | | | | | | |
| S7 | | | | | | | | | | | | | | |
| S8 | | | | | | | | | | | | | | |
| **H** H1 | 1-4 | 1-4 | 1-4 | 1-4 | | | | | | | | | | |
| H2 | 1-4 | 1-4 | 1-4 | 1-4 | | | | | | | | | | |
| H3 | 1-4 | 1-4 | 1-4 | 1-4 | | | | | | | | | | |
| H4 | 1-4 | 1-4 | 1-4 | 1-4 | | | | | | | | | | |

| Name | WGN | | | | | | CTM |
|---|---|---|---|---|---|---|---|
| | C-TN2 | C-SR-TN2 | C-SR-TC | E-SR-TC | E-SR-IK-TC | E-SR-IKR-TC | |
| |  |  |  |  |  |  |  |
| *Page number* M | 85 | 85 | 85 | 85 | 85 | 85 | 92 |
| MF | | 86 | 86 | | | | 92 |
| UNC | | 87 | | | | | |
| UNF | | 88 | | | | | |
| UNEF | | | | | | | |
| G | | 89 | | | | | |
| Material | PM/HSSE | PM/HSSE | PM/HSSE | PM/HSSE | PM/HSSE | PM/HSSE | VHM |
| Chamfer | C/2-3P | C/2-3P | C/2-3P | E/1,5-2P | E/1,5-2P | E/1,5-2P | - |
| Hole type | < 3xD | < 3xD | < 3xD | < 3xD | < 3xD | < 3xD | |
| Coolant | E/O | E/O | E/O | E/O | E/O/MQL | E/O/MQL | E/O |
| | Vc (m/min) | | | | | | |
| P P1 | 10-30 | 10-30 | 10-30 | 10-30 | 15-50 | 15-50 | 100-250 |
| P2 | 10-30 | 10-30 | 10-30 | 10-30 | 15-50 | 15-50 | 100-250 |
| P3 | 10-30 | 10-30 | 10-30 | 10-30 | 15-50 | 15-50 | 100-250 |
| P4 | 10-30 | 10-30 | 10-30 | 10-30 | 15-50 | 15-50 | 100-250 |
| P5 | 10-25 | 10-25 | 10-25 | 10-25 | 10-30 | 10-30 | 100-250 |
| P6 | 10-30 | 10-30 | 10-30 | 10-30 | 15-50 | 15-50 | 110-180 |
| P7 | 10-25 | 10-25 | 10-25 | 10-25 | 10-30 | 10-30 | 110-180 |
| P8 | | | | | | | 110-180 |
| P9 | | | | | | | 110-180 |
| P10 | 10-30 | 10-30 | 10-30 | 10-30 | 15-50 | 15-50 | 90-160 |
| P11 | | | 10-25 | 10-25 | 10-30 | 10-30 | 90-160 |
| P12 | | | | | | | 90-160 |
| P13 | | | 10-25 | 10-25 | 10-30 | 10-30 | 60-160 |
| P14 | | | | | | | 60-160 |
| M M1 | 10-25 | 10-25 | 10-25 | 10-25 | 10-25 | 10-25 | 60-120 |
| M2 | 10-25 | 10-25 | 10-25 | 10-25 | 10-25 | 10-25 | 60-120 |
| M3 | | | 10-25 | 10-25 | 10-25 | 10-25 | 60-120 |
| K K1 | | | | | | | 70-150 |
| K2 | | | | | | | 70-150 |
| K3 | | | | | | | 70-150 |
| K4 | | | | | | | 70-150 |
| K5 | | | | | | | 70-150 |
| K6 | | | | | | | 70-150 |
| N N1 | 20-40 | 20-40 | 20-60 | 20-60 | 20-60 | 20-60 | 150-350 |
| N2 | 20-40 | 20-40 | 20-60 | 20-60 | 20-60 | 20-60 | 150-350 |
| N3 | 20-40 | 20-40 | 20-60 | 20-60 | 20-60 | 20-60 | 150-350 |
| N4 | | | 20-60 | 20-60 | 20-60 | 20-60 | 150-350 |
| N5 | | | 20-60 | 20-60 | 20-60 | 20-60 | 150-350 |
| N6 | | | | | | | 150-350 |
| N7 | 20-40 | 20-40 | 20-60 | 20-60 | 20-60 | 20-60 | 150-350 |
| N8 | 20-40 | 20-40 | 20-60 | 20-60 | 20-60 | 20-60 | 150-350 |
| N9 | | | | | | | |
| N10 | | | | | | | |
| S S1 | | | | | | | 20-80 |
| S2 | | | | | | | 20-80 |
| S3 | | | | | | | 20-80 |
| S4 | | | | | | | 20-80 |
| S5 | | | | | | | 20-80 |
| S6 | | | | | | | 20-80 |
| S7 | | | | | | | 20-80 |
| S8 | | | | | | | 20-80 |
| H H1 | | | | | | | |
| H2 | | | | | | | |
| H3 | | | | | | | |
| H4 | | | | | | | |

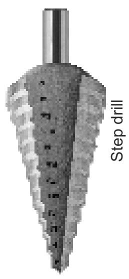
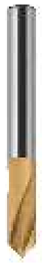
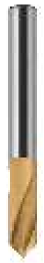
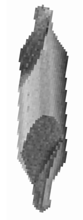
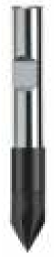
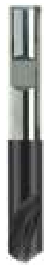
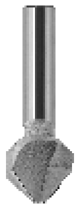
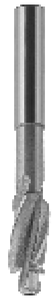
| | | *INOX* | | *HRC40* | Name | |
|---|---|---|---|---|---|---|
| KPL/2 | KPL/3 | KPL/3-P | KPL/3-P-TN2 | KPL/3-P-TC | | |

| KPL/2 | KPL/3 | KPL/3-P | KPL/3-P-TN2 | KPL/3-P-TC | | |
|---|---|---|---|---|---|---|
| 95 / 96 / 97 | 95 / 96 / 97 | 98 | 99 | 100 | **M** | *Page number* |
| 101 / 102 / 103 | | | | 104 | **MF** | |
| | 105 | | | | **UNC** | |
| 106 | | | | | **UNF** | |
| 107 | | 108 | | 109 | **G** | |
| | 110 | | | | **BSW** | |
| 111 | | | | | **BSF** | |
| 112 | | | | | **Pg** | |
| | | | | | | |
| HSS | HSS | HSSE | HSSE | HSSE-PM | **Material** | |
| C/2-3P | C/2-3P | C/2-3P | C/2-3P | C/2-3P | **Chamfer** | |
| < 2,5xD | < 2,5xD | < 2,5xD | < 2,5xD | < 1,5xD | **Hole type** | |
| E/O/P | E/O/P | E/O/P | E/O/P | E/O/P | **Coolant** | |
| ✋ | ✋ | ✋ | ✋ | | P1 | P |
| ✋ | ✋ | ✋ | ✋ | | P2 | P |
| ✋ | ✋ | ✋ | ✋ | | P3 | P |
| ✋ | ✋ | ✋ | ✋ | | P4 | P |
| | | | | ✋ | P5 | P |
| ✋ | ✋ | ✋ | ✋ | | P6 | P |
| | | | | ✋ | P7 | P |
| | | | | ✋ | P8 | P |
| | | | | ✋ | P9 | P |
| ✋ | ✋ | ✋ | ✋ | | P10 | P |
| | | | | ✋ | P11 | P |
| | | | | | P12 | P |
| | | ✋ | ✋ | | P13 | P |
| | | ✋ | ✋ | | P14 | P |
| | | ✋ | ✋ | | M1 | M |
| | | ✋ | ✋ | | M2 | M |
| | | ✋ | ✋ | | M3 | M |
| | | | | | K1 | K |
| | | | | | K2 | K |
| | | | | | K3 | K |
| | | | | | K4 | K |
| | | | | | K5 | K |
| | | | | | K6 | K |
| | | | | | N1 | N |
| | | | | | N2 | N |
| | | | | | N3 | N |
| | | | | | N4 | N |
| | | | | | N5 | N |
| | | | | | N6 | N |
| | | | | | N7 | N |
| | | | | | N8 | N |
| | | | | | N9 | N |
| | | | | | N10 | N |
| | | | | | S1 | S |
| | | | | | S2 | S |
| | | | | | S3 | S |
| | | | | | S4 | S |
| | | | | | S5 | S |
| | | | | | S6 | S |
| | | | | | S7 | S |
| | | | | | S8 | S |
| | | | | | H1 | H |
| | | | | | H2 | H |
| | | | | | H3 | H |
| | | | | | H4 | H |

| | Name | 800 | 800 SPN | Ms | INOX |
|---|---|---|---|---|---|
| | |  |  |  |  |
| Page number | M | 115 | 115 | 115 | 115 |
| | MF | 116 / 117 / 118 | 116 / 117 / 118 | 116 / 117 / 118 | 116 / 117 / 118 |
| | UNC | 119 | | | |
| | UNF | 120 | | | |
| | G | 121 | 121 | 121 | 121 |
| | R | 122 | | | |
| | BSW | 123 | | | |
| | BSF | 124 | | | |
| | NPT | 125 | | | |
| | Execution | | SPN - spiral point | Lapped; special geometry | Lapped; special geometry |
| | Material | HSS | HSS | HSS | HSSE |
| | Chamfer | 1,75P | 1,75P | 1,25P | 2,25P |
| | Coolant | E/O/P | E/O/P | E/O/P | E/O/P |
| P | P1 | 4-8 | 4-8 | | 4-8 |
| | P2 | 3-6 | 3-6 | | 3-6 |
| | P3 | 3-6 | 3-6 | | 3-6 |
| | P4 | 2-5 | 2-5 | | 3-6 |
| | P5 | 2-5 | 2-5 | | 3-6 |
| | P6 | | | | |
| | P7 | | | | |
| | P8 | | | | |
| | P9 | | | | |
| | P10 | 1-3 | 1-3 | | 1-5 |
| | P11 | | | | 1-5 |
| | P12 | | | | |
| | P13 | | | | 2-6 |
| | P14 | | | | 2-6 |
| M | M1 | | | | 2-6 |
| | M2 | | | | 2-6 |
| | M3 | | | | |
| K | K1 | | | 5-8 | |
| | K2 | | | 5-8 | |
| | K3 | | | 5-8 | |
| | K4 | | | 2-5 | |
| | K5 | | | 2-5 | |
| | K6 | | | | |
| N | N1 | | | | |
| | N2 | | | | |
| | N3 | 10-20 | 10-20 | | 10-20 |
| | N4 | 10-20 | 10-20 | | 10-20 |
| | N5 | | | | 5-15 |
| | N6 | | | | 1-5 |
| | N7 | 7-12 | 7-12 | 10-15 | 10-15 |
| | N8 | 10-15 | 10-15 | 12-18 | 10-15 |
| | N9 | | | 20-30 | 15-25 |
| | N10 | | | 6-10 | 8-12 |
| S | S1 | | | | |
| | S2 | | | | |
| | S3 | | | | |
| | S4 | | | | |
| | S5 | | | | |
| | S6 | | | | |
| | S7 | | | | |
| | S8 | | | | |
| H | H1 | | | | |
| | H2 | | | | |
| | H3 | | | | |
| | H4 | | | | |

| MASTERDRILL | | 1300 | | | | | | 1300 micro | AL | | INOX | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIN-6537 3xD | DIN-6537 5xD | DIN-6597 3xD | DIN-6597 3xD | DIN-6537 5xD | DIN-6537 5xD | DIN-6537 8xD | DIN-6537 | DIN-6539 | DIN-6597 5xD | DIN-6597 5xD | DIN-338 | DIN-338 | **Norm** | |
| m7 | m7 | m7 | m7 | m7 | m7 | m7 | m7 | h7 | m7 | m7 | h8 | h8 | **Tolerance** | |
| 129 /130 /131 | 132 / 133 /134 | 129 /130 / 131 | 129-131 | 132-134 | 132-134 | 135 / 136 / 137 | 139 / 140 / 141 | 138 | 142 / 143 / 144 | 142 / 143/ 144 | 145 / 146 / 147 | 145 / 146 / 147 | **Page number** | |
| λ35°÷40° δ140° | λ35°÷40° δ140° | λ35°÷40° δ140° | λ35°÷40° δ140° | λ35°÷40° δ140° | λ35°÷40° δ140° | λ35°÷40° δ140° | λ35°÷40° δ140° | λ35°÷40° δ118° | λ15° δ130° | λ15° δ130° | λ36° δ130° | λ36° δ130° | **Geometry** | |
| IK | IK | | IK | | IK | IK | | | IK | IK | | | **External coolant** | |
| VHM | VHM | VHM | VHM | VHM | VHM | VHM | VHM | VHM | VHM | VHM | HSSE | HSSE | **Material** | |
| AT | AT | AT | AT | AT | AT | AT | AT | - | - | TB | - | TN2 | **Coating** | |
| 3÷20 | 3÷20 | 3÷20 | 3÷20 | 3÷20 | 3÷20 | 3÷20 | 2,35÷14 | 0,75÷2,9 | 3÷20 | 3÷20 | 1÷16 | 1÷16 | **Range of diameter** | |
| | | | | | | Vc (m/min) | | | | | | | | |
| 110 c | 100 c | 70 c | 90 c | 60 c | 80 c | 50 c | 70 a | 55 a | - | - | 35 c | 40 c | P1 | P |
| 110 c | 100 c | 70 c | 90 c | 60 c | 80 c | 50 c | 70 a | 55 a | - | - | 28 b | 32 b | P2 | |
| 100 c | 90 c | 70 c | 90 c | 60 c | 80 c | 50 c | 70 a | 55 a | - | - | 28 b | 32 b | P3 | |
| 110 c | 100 c | 50 b | 70 b | 45 b | 60 b | 40 b | 50 a | 40 a | - | - | 18 b | 21 b | P4 | |
| 100 c | 90 c | 50 b | 70 b | 45 b | 60 b | 40 b | 50 a | 40 a | - | - | 18 b | 21 b | P5 | |
| 95 c | 85 c | 50 b | 70 b | 45 b | 60 b | 40 b | 50 a | 40 a | - | - | 18 b | 21 b | P6 | |
| 85 c | 75 c | 40 b | 50 b | 35 b | 40 b | 30 b | 40 a | 30 a | - | - | - | - | P7 | |
| 65 c | 55 c | 40 b | 50 b | 35 b | 40 b | 30 b | 40 a | 30 a | - | - | - | - | P8 | |
| 65 c | 55 c | 30 b | 40 b | 30 b | 35 b | 25 b | 30 a | 25 a | - | - | - | - | P9 | |
| 60 c | 50 c | 50 b | 70 b | 45 b | 60 b | 40 b | 50 a | 40 a | - | - | 18 b | 21 b | P10 | |
| 55 c | 45 c | 40 b | 50 b | 35 b | 40 b | 30 b | 40 a | 30 a | - | - | - | - | P11 | |
| 55 c | 45 c | 30 b | 40 b | 30 b | 35 b | 25 b | 30 a | 25 a | - | - | - | - | P12 | |
| 60 c | 50 c | 50 b | 60 b | 45 b | 55 b | 40 b | 50 a | 40 a | - | - | 13 b | 15 b | P13 | |
| 60 c | 50 c | 50 b | 60 b | 45 b | 55 b | 40 b | 50 a | 40 a | - | - | 13 b | 15 b | P14 | |
| 60 b | 50 b | 30 b | 40 b | 30 b | 35 b | 25 b | 30 a | 25 a | - | - | 10 b | 12 b | M1 | M |
| 60 b | 50 b | - | - | - | - | - | - | - | - | - | - | - | M2 | |
| 60 b | 50 b | 30 b | 40 b | 30 b | 35 b | 25 b | 30 a | 25 a | - | - | - | - | M3 | |
| 120 d | 110 d | 100 d | 120 d | 90 d | 110 d | 80 d | 100 b | 80 b | - | - | 35 d | 40 d | K1 | K |
| 95 d | 85 d | - | - | - | - | - | - | - | - | - | - | - | K2 | |
| 120 d | 110 d | 80 d | 100 d | 70 d | 90 d | 60 d | 80 b | 60 b | - | - | - | - | K3 | |
| 100 d | 90 d | 80 d | 100 d | 70 d | 90 d | 60 d | 80 b | 60 b | - | - | - | - | K4 | |
| 85 d | 75 d | 65 d | 80 d | 60 d | 70 d | 50 d | 65 b | 50 b | - | - | - | - | K5 | |
| 85 d | 75 d | 65 d | 80 d | 60 d | 70 d | 50 d | 65 b | 50 b | - | - | - | - | K6 | |
| 250 e | 220 e | 200 e | 250 e | 180 e | 220 e | 160 e | 200 b | 160 b | 250 e | 250 e | 37 d | 43 d | N1 | N |
| 250 e | 220 e | 200 e | 250 e | 180 e | 220 e | 160 e | 200 b | 160 b | 250 e | 250 e | 37 d | 43 d | N2 | |
| 250 e | 220 e | 200 e | 250 e | 180 e | 220 e | 160 e | 200 b | 160 b | 250 e | 250 e | 27 c | 31 c | N3 | |
| 250 e | 220 e | 200 e | 250 e | 180 e | 220 e | 160 e | 200 b | 160 b | 250 e | 250 e | 27 c | 31 c | N4 | |
| 200 e | 180 e | 160 e | 200 e | 150 e | 180 e | 130 e | 160 a | 125 a | 200 e | 200 e | 32 d | 37 d | N5 | |
| 200 e | 180 e | - | - | - | - | - | - | - | 150 d | 150 d | - | - | N6 | |
| 120 c | 110 d | 100 c | 120 c | 90 c | 110 c | 80 c | 100 b | 80 b | 200 c | 200 c | 38 c | 44 c | N7 | |
| 150 c | 135 c | 120 c | 150 c | 110 c | 135 c | 100 c | 120 b | 100 b | 200 c | 200 c | 41 b | 47 b | N8 | |
| 150 c | 135 c | 120 c | 150 c | 110 c | 135 c | 100 c | 120 b | 100 b | 200 c | 200 c | 41 b | 47 b | N9 | |
| 150 c | 135 c | | | | | | | | 200 c | 200 c | | | N10 | |
| 25 a | 22 a | 20 a | 25 a | 18 a | 22 a | 15 a | 20 a | 16 a | - | - | 9 b | 10 b | S1 | S |
| 25 a | 22 a | 20 a | 25 a | 18 a | 22 a | 15 a | 20 a | 16 a | - | - | 9 b | 10 b | S2 | |
| 25 a | 22 a | - | - | - | - | - | - | - | - | - | - | - | S3 | |
| 25 a | 22 a | - | - | - | - | - | - | - | - | - | - | - | S4 | |
| 25 a | 22 a | - | - | - | - | - | - | - | - | - | - | - | S5 | |
| 60 b | 50 b | 40 b | 50 b | 35 b | 45 b | 30 b | 40 a | 30 a | - | - | 24 b | 28 b | S6 | |
| 60 b | 50 b | 30 b | 40 b | 30 b | 35 b | 25 b | 30 a | 25 a | - | - | 12 a | 14 a | S7 | |
| 60 b | 50 b | 30 b | 40 b | 30 b | 35 b | 25 b | 30 a | 25 a | - | - | 12 a | 14 a | S8 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | H1 | H |
| - | - | - | - | - | - | - | - | - | - | - | - | - | H2 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | H3 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | H4 | |

*The table contains recommended cutting speeds Vc in m/min and the symbols of feed groups on next page*

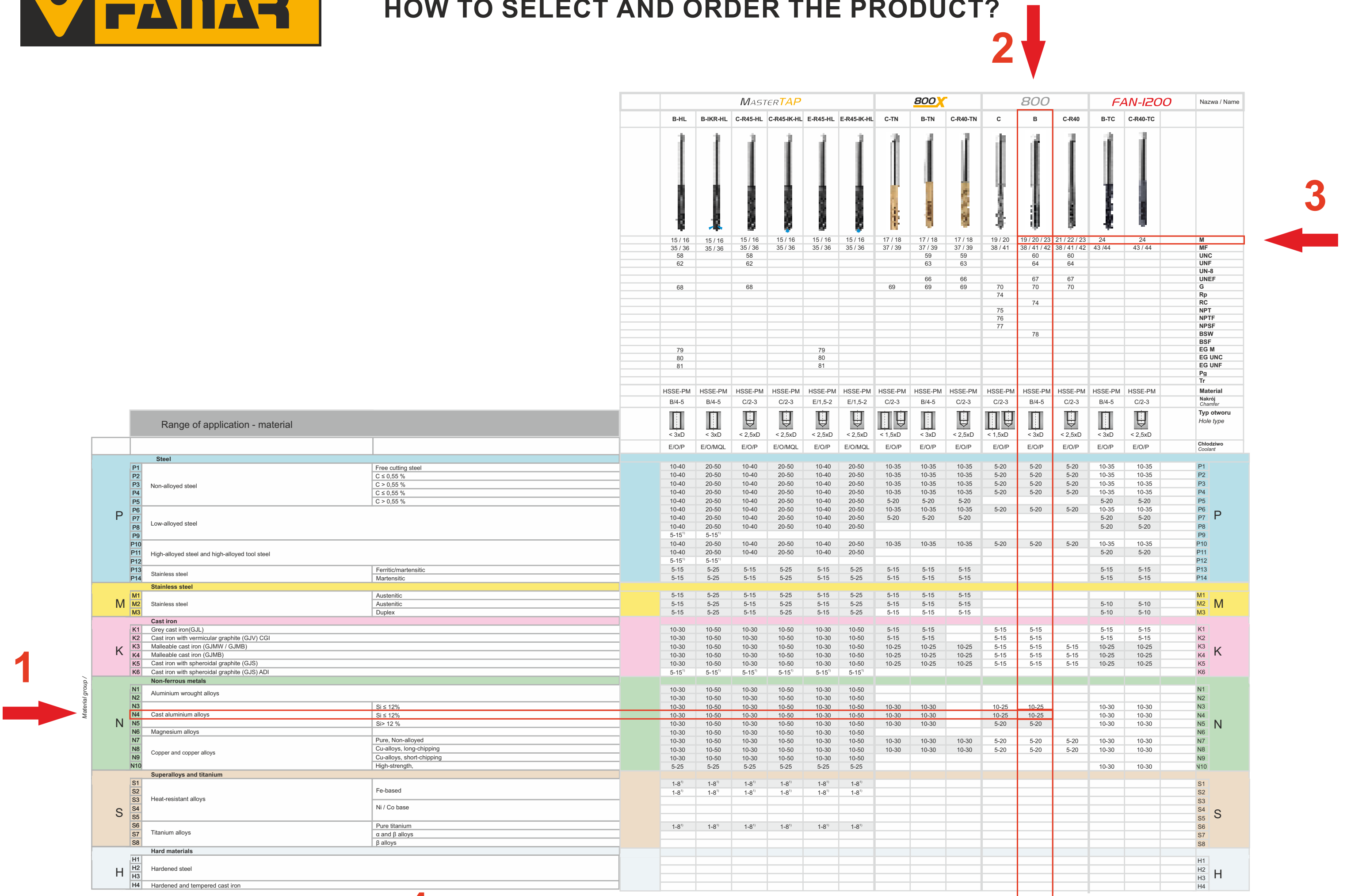
| | WST | WDG | Center drills | | | Deburring tools | | Countersinks | | | | | Taper reamers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Deburring tool PF | with solid pilot | |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Norm** | | | NC | NC | DIN-333A | DIN-6537L | DIN-6537L | DIN-335 | DIN-335 | DIN-335 | | DIN-373 | |
| **Tolerance** | | | | | | | | | | | | | |
| **Page number** | 148 | 149 | 150 | 150 | 151 | 152 | 152 | 153 | 153 | 153 | 155 | 156 | 157 |
| **Geometry** | | | δ90° | δ120° | | δ60° | δ90° | δ90° | δ90° | δ90° | δ30/45/60° | | |
| **External coolant** | | | | | | | | | | | | | |
| **Material** | HSS | VHM | HSSE | HSSE | HSS | VHM | VHM | HSS/ HSSE | HSS/ HSSE | HSSE-Co8 | | HSS | HSS |
| **Coating** | - | AT | TN2 | TN2 | - | AT | AT | - | TN2 | TC | - | - | - |
| **Range of diameter** | | 2,5÷10,2 | 3÷16 | 2,5÷10,2 | 0,8÷10 | 4÷20 | 4÷20 | | | | | | |

## TABLE OF RECOMMENDED FEED MM/REV. FOR DRILLS

| Group | Drill diameter | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ć 1 | Ć 2 | Ć 3 | Ć 4 | Ć 5 | Ć 6 | Ć8 | Ć10 | Ć12 | Ć14 | Ć16 | Ć20 |
| **a** | 0,015 | 0,030 | 0,038 | 0,047 | 0,053 | 0,060 | 0,075 | 0,090 | 0,100 | 0,120 | 0,127 | 0,160 |
| **b** | 0,020 | 0,050 | 0,070 | 0,085 | 0,100 | 0,120 | 0,150 | 0,180 | 0,200 | 0,230 | 0,250 | 0,270 |
| **c** | 0,023 | 0,080 | 0,100 | 0,130 | 0,150 | 0,180 | 0,250 | 0,270 | 0,280 | 0,300 | 0,330 | 0,370 |
| **d** | 0,030 | 0,100 | 0,160 | 0,180 | 0,220 | 0,240 | 0,300 | 0,370 | 0,400 | 0,450 | 0,480 | 0,500 |
| **e** | 0,035 | 0,120 | 0,200 | 0,250 | 0,270 | 0,300 | 0,350 | 0,450 | 0,470 | 0,500 | 0,530 | 0,550 |
| **f** | 0,050 | 0,150 | 0,220 | 0,250 | 0,320 | 0,400 | 0,490 | 0,620 | 0,650 | 0,720 | 0,850 | 0,900 |
| **g** | 0,070 | 0,160 | 0,250 | 0,270 | 0,360 | 0,470 | 0,620 | 0,830 | 0,900 | 0,950 | 1,100 | 1,200 |
| **h** | 0,090 | 0,200 | 0,270 | 0,300 | 0,400 | 0,520 | 0,750 | 1,000 | 1,100 | 1,200 | 1,300 | 1,350 |

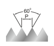
**The symbols of feed groups are given in the drills selection table by the recommended cutting speed**

# HOW TO SELECT AND ORDER THE PRODUCT?



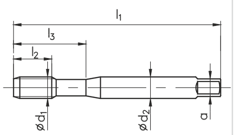

4

## ISO Metric thread DIN-13

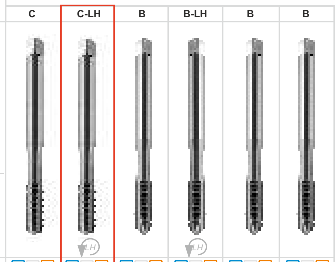


HSSE PM

HSSE




| | 800 | | | | | |
|---|---|---|---|---|---|---|
| | C | C-LH | B | B-LH | B | B |



| | | | | | | |
|---|---|---|---|---|---|---|
| Workpiece Material | P K N | P K N | P K N | P K N | P K N | P K N |
| Hole type | < 1,5d | < 1,5d | < 3d | < 3d | < 3d | < 3d |
| Material | HSSE | HSSE | HSSE | HSSE | HSSE | HSSE |
| Coating | | | | | | |
| Chamfer | C / 2-3P | C / 2-3P | B / 4-5P | B / 4-5P | B / 4-5P | B / 4-5P |

| M Ćd1 | P | l1 | l2 | l2 R40 R45 | l3 | Ćd2 | a | d | INDEX | DIN-371 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | C4-121102 | | C4-111102 | | | |
| Tolerancja / *Tolerance* | | | | | | | | | | ISO1(4H) | | ISO1(4H) | | | |
| M1 | 0,25 | 40 | 6 | - | - | 2,5 | 2,1 | 0,75 | 0010 | ● | | ● | | | |
| M1,1 | 0,25 | 40 | 6 | - | - | 2,5 | 2,1 | 0,85 | 0011 | ● | | ● | | | |
| M1,2 | 0,25 | 40 | 6 | - | - | 2,5 | 2,1 | 0,95 | 0012 | ● | | ● | | | |
| M1,4 | 0,30 | 40 | 7 | - | - | 2,5 | 2,1 | 1,10 | 0014 | ● | | ● | | | |

| M Ćd1 | P | l1 | l2 | l2 R40 R45 | l3 | Ćd2 | a | d | INDEX | DIN-371 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | C4-121101 | | C4-111101 | | | |
| Tolerancja / *Tolerance* | | | | | | | | | | ISO2 (6H) | | ISO2 (6H) | | | |
| M1,6 | 0,35 | 40 | 8 | - | - | 2,5 | 2,1 | 1,25 | 0016 | ● | | ● | | | |
| M1,7 | 0,35 | 40 | 8 | - | - | 2,5 | 2,1 | 1,35 | 0017 | ● | | ● | | | |
| M1,8 | 0,35 | 40 | 8 | - | - | 2,5 | 2,1 | 1,45 | 0018 | ● | | ● | | | |
| M2 | 0,40 | 45 | 10 | - | - | 2,8 | 2,1 | 1,60 | 0020 | ● | | ● | | | |
| M2,2 | 0,45 | 45 | 10 | - | - | 2,8 | 2,1 | 1,75 | 0022 | ● | | ● | | | |
| M2,3 | 0,40 | 45 | 10 | - | - | 2,8 | 2,1 | 1,90 | 0023 | ● | | ● | | | |
| M2,5 | 0,45 | 50 | 9 | - | - | 2,8 | 2,1 | 2,05 | 0025 | ● | | ● | | | |
| M2,6 | 0,45 | 50 | 9 | - | - | 2,8 | 2,1 | 2,15 | 0026 | ● | | ● | | | |

5

| M Ćd1 | P | l1 | l2 | l2 R40 R45 | l3 | Ćd2 | a | d | INDEX | DIN-371 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | C2-121101 | C2-221101 | C2-111101 | C2-211101 | C2-111103 | C2-111104 |
| Tolerancja / *Tolerance* | | | | | | | | | | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) | ISO3 (6G) | 7G |
| M3 | 0,50 | 56 | 10 | - | 18 | 3,5 | 2,7 | 2,50 | 0030 | ● | ● | ● | ● | ● | ○ |
| M3,5 | 0,60 | 56 | 12 | - | 20 | 4,0 | 3,0 | 2,90 | 0035 | ○ | ○ | ● | | | |
| M4 | 0,70 | 63 | 12 | - | 21 | 4,5 | 3,4 | 3,30 | 0040 | ● | ● | ● | ● | ● | ○ |
| M4,5 | 0,75 | 70 | 14 | - | 25 | 6,0 | 4,9 | 3,80 | 0045 | ○ | ○ | ● | | | |
| M5 | 0,80 | 70 | 14 | - | 25 | 6,0 | 4,9 | 4,20 | 0050 | ● | ● | ● | ● | ● | ○ |
| M6 | 1,00 | 80 | 18 | - | 30 | 6,0 | 4,9 | 5,00 | 0060 | ● | ● | ● | ● | ● | ○ |
| M7 | 1,00 | 80 | 18 | - | 30 | 7,0 | 5,5 | 6,00 | 0070 | ○ | ○ | ● | | | |
| M8 | 1,25 | 90 | 20 | - | 35 | 8,0 | 6,2 | 6,80 | 0080 | ● | ● | | | | |
| M9 | 1,25 | 90 | 20 | - | 35 | 9,0 | 7,0 | 7,80 | 0090 | ○ | ○ | ○ | | | |
| M10 | 1,50 | 100 | 20 | - | 39 | 10,0 | 8,0 | 8,50 | 0100 | ● | ● | ● | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M4,5 | 0,75 | 70 | 14 | - | 25 | 6,0 | 4,9 | 3,80 | 0045 | ○ | | ● | | | | |
| M5 | 0,80 | 70 | 14 | - | 25 | 6,0 | 4,9 | 4,20 | 0050 | ● | ● | ● | ● | ● | ○ | |
| M6 | 1,00 | 80 | 18 | - | 30 | 6,0 | 4,9 | 5,00 | 0060 | ● | ● | ● | ● | ● | ○ | |
| M7 | 1,00 | 80 | 18 | - | 30 | 7,0 | 5,5 | 6,00 | 0070 | ○ | | ● | | | | |
| M8 | 1,25 | 90 | 20 | - | 35 | 8,0 | 6,2 | 6,80 | 0080 | ● | ● | ● | ● | ● | ○ | |
| M9 | 1,25 | 90 | 20 | - | 35 | 9,0 | 7,0 | 7,80 | 0090 | ○ | | ○ | | | | |
| M10 | 1,50 | 100 | 20 | - | 39 | 10,0 | 8,0 | 8,50 | 0100 | ● | ● | ● | ● | ● | ○ | |

| ISO | Vc (m/min) | | | | | | |
|---|---|---|---|---|---|---|---|
| P | 5-35 | 5-20 | 5-20 | 5-20 | 5-20 | 5-20 | |
| M | 5-15 | - | - | - | - | - | |
| K | 10-25 | 5-15 | 5-15 | 5-15 | 5-15 | 5-15 | |
| N | 10-35 | 5-25 | 5-25 | 5-25 | 5-25 | 5-25 | |
| S | | | | | | | |

7

1. In the selection table locate the workpiece material
2. Select execution of tool
3. Find the page number in the catalog for the selected type of thread
4. Find the tool execution on specified page
5. Select the correct thread size
6. Make an index and name
7. Read recommended cutting data

6

Example
**C2-221101-0080**
**Tap 800 M8-6H DIN-371 C LH HSSE**


One solution, no limits
MASTERTAP


FIND OUT WHY X CHANGES SO MUCH
800X

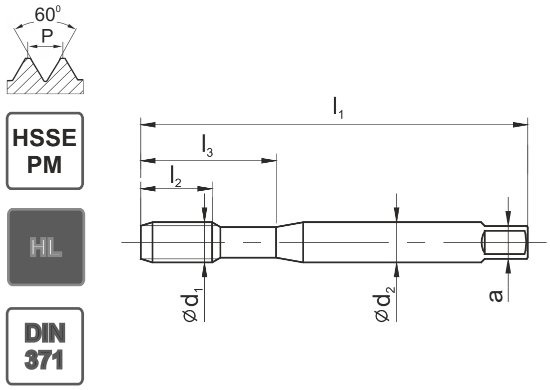
# CONTENTS

# Machine Taps

# MACHINE TAPS

PAGE

## ISO Metric coarse thread DIN-13




MASTERTAP

| | B-HL | B-IKR-HL | C-R45-HL | C-R45-IK-HL | E-R45-HL | E-R45-IK-HL |
|---|---|---|---|---|---|---|
| Material groups | P M K N S H | P M K N S H | P M K N S H | P M K N S H | P M K N S H | P M K N S H |
| Hole type | < 3d | < 3d | < 2,5d | < 2,5d | < 2,5d | < 2,5d |
| Quality of material | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM |
| Coating | HL | HL | HL | HL | HL | HL |
| Chamfer | B / 4-5P | B / 4-5P | C / 2-3P | C / 2-3P | E / 1,5-2P | E / 1,5-2P |

| M Ć $d_1$ | P | $l_1$ | $l_2$ | $l_3$ | Ć $d_2$ | a | d | Norm | DIN-371 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | ISO1(4H) | | ISO1(4H) | | | | |
| | | | | | | | | INDEX | C4-118M02 | | C4-528M02 | | | | |
| M1 | 0,25 | 40 | 6 | 13 | 2,5 | 2,1 | 0,75 | 0010 | ● | | ● | | | | |
| M1,1 | 0,25 | 40 | 6 | 13 | 2,5 | 2,1 | 0,85 | 0011 | ● | | ● | | | | |
| M1,2 | 0,25 | 40 | 6 | 13 | 2,5 | 2,1 | 0,95 | 0012 | ● | | ● | | | | |
| M1,4 | 0,30 | 40 | 8 | 13 | 2,5 | 2,1 | 1,10 | 0014 | ● | | ● | | | | |

| M Ć $d_1$ | P | $l_1$ | $l_2$ | $l_3$ | Ć $d_2$ | a | d | Norm | DIN-371 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | ISO2 (6H) | | ISO2 (6H) | | | | |
| | | | | | | | | INDEX | C4-118M01 | | C4-528M01 | | | | |
| M1,6 | 0,35 | 40 | 8 | 13 | 2,5 | 2,1 | 1,25 | 0016 | ● | | ● | | | | |
| M1,7 | 0,35 | 40 | 8 | 13 | 2,5 | 2,1 | 1,35 | 0017 | ● | | ● | | | | |
| M1,8 | 0,35 | 40 | 8 | 13 | 2,5 | 2,1 | 1,45 | 0018 | ● | | ● | | | | |
| M2 | 0,40 | 45 | 10 | 13 | 2,8 | 2,1 | 1,60 | 0020 | ● | | ● | | | | |
| M2,2 | 0,45 | 45 | 10 | 13 | 2,8 | 2,1 | 1,75 | 0022 | ● | | ● | | | | |
| M2,3 | 0,40 | 45 | 10 | 13 | 2,8 | 2,1 | 1,90 | 0023 | ● | | ● | | | | |
| M2,5 | 0,45 | 50 | 9 | 14 | 2,8 | 2,1 | 2,05 | 0025 | ● | | ● | | | | |
| M2,6 | 0,45 | 50 | 9 | 14 | 2,8 | 2,1 | 2,15 | 0026 | ● | | ● | | | | |

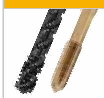
| M Ć $d_1$ | P | $l_1$ | $l_2$ | $l_3$ | Ć $d_2$ | a | d | Norm | DIN-371 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | 6HX | 6HX | 6HX | 6HX | 6HX | 6HX | |
| | | | | | | | | INDEX | C4-118M01 | C4-118M61 | C4-528M01 | C4-528M51 | C4-718M01 | C4-718M51 | |
| M3 | 0,50 | 56 | 5 | 18 | 3,5 | 2,7 | 2,50 | 0030 | ● | - | ● | - | ● | - | |
| M3,5 | 0,60 | 56 | 6 | 20 | 4,0 | 3,0 | 2,90 | 0035 | ● | - | ● | - | ● | - | |
| M4 | 0,70 | 63 | 7 | 21 | 4,5 | 3,4 | 3,30 | 0040 | ● | - | ● | - | ● | - | |
| M4,5 | 0,75 | 70 | 7,5 | 25 | 6,0 | 4,9 | 3,80 | 0045 | ● | - | ● | - | ● | - | |
| M5 | 0,80 | 70 | 8 | 25 | 6,0 | 4,9 | 4,20 | 0050 | ● | ● | ● | ● | ● | ○ | |
| M6 | 1,00 | 80 | 10 | 30 | 6,0 | 4,9 | 5,00 | 0060 | ● | ● | ● | ● | ● | ○ | |
| M7 | 1,00 | 80 | 10 | 30 | 7,0 | 5,5 | 6,00 | 0070 | ● | ○ | ○ | ○ | ○ | ○ | |
| M8 | 1,25 | 90 | 13 | 35 | 8,0 | 6,2 | 6,80 | 0080 | ● | ● | ● | ● | ● | ○ | |
| M9 | 1,25 | 90 | 13 | 35 | 9,0 | 7,0 | 7,80 | 0090 | ○ | ○ | ○ | ○ | ○ | ○ | |
| M10 | 1,50 | 100 | 15 | 39 | 10,0 | 8,0 | 8,50 | 0100 | ● | ● | ● | ● | ● | ○ | |

● Available from stock
○ **On request**

| ISO | Vc (m/min) | | | | | | |
|---|---|---|---|---|---|---|---|
| P | 5-40 | 5-50 | 5-40 | 5-50 | 5-40 | 5-50 | |
| M | 5-15 | 5-25 | 5-15 | 5-25 | 5-15 | 5-25 | |
| K | 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 | |
| N | 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 | |
| S | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | |

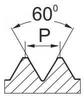
**Example of order**

**C4-118M01-0100**
**MasterTAP M10-6HX DIN-371 B HSSE-PM HL**



MASTERTAP

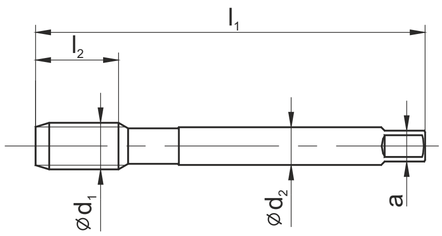
## ISO Metric coarse thread DIN-13




HSSE PM

HL

DIN 376




**MASTERTAP**

| | B-HL | B-IKR-HL | C-R45-HL | C-R45-IK-HL | E-R45-HL | E-R45-IK-HL |
|---|---|---|---|---|---|---|
| Material groups | P M K N S H | P M K N S H | P M K N S H | P M K N S H | P M K N S H | P M K N S H |
| Hole type | < 3d | < 3d | < 2,5d | < 2,5d | < 2,5d | < 2,5d |
| Quality of material | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM |
| Coating | HL | HL | HL | HL | HL | HL |
| Chamfer | B / 4-5P | B / 4-5P | C / 2-3P | C / 2-3P | E / 1,5-2P | E / 1,5-2P |

| M Ćd1 | P | l1 | l2 | l3 | Ćd2 | a | d | Norm | DIN-376 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | 6HX | 6HX | 6HX | 6HX | 6HX | 6HX |
| | | | | | | | | INDEX | D4-118M01 | D4-118M61 | D4-528M01 | D4-528M51 | D4-718M01 | D4-718M51 |
| M8 | 1,25 | 90 | 15 | - | 6,0 | 4,9 | 6,80 | 0080 | ● | ○ | ● | ○ | ○ | ○ |
| M10 | 1,50 | 100 | 17 | - | 7,0 | 5,5 | 8,50 | 0100 | ● | ○ | ● | ○ | ○ | ○ |
| M12 | 1,75 | 110 | 18 | - | 9,0 | 7,0 | 10,20 | 0120 | ● | ● | ● | ● | ● | ○ |
| M14 | 2,00 | 110 | 20 | - | 11,0 | 9,0 | 12,00 | 0140 | ● | ● | ● | ● | ● | ○ |
| M16 | 2,00 | 110 | 20 | - | 12,0 | 9,0 | 14,00 | 0160 | ● | ● | ● | ● | ● | ○ |
| M18 | 2,50 | 125 | 25 | - | 14,0 | 11,0 | 15,50 | 0180 | ● | ○ | ● | ○ | ○ | ○ |
| M20 | 2,50 | 140 | 25 | - | 16,0 | 12,0 | 17,50 | 0200 | ● | ○ | ● | ○ | ○ | ○ |
| M22 | 2,50 | 140 | 25 | - | 18,0 | 14,5 | 19,50 | 0220 | ● | ○ | ● | ○ | ○ | ○ |
| M24 | 3,00 | 160 | 30 | - | 18,0 | 14,5 | 21,00 | 0240 | ● | ○ | ● | ○ | ○ | ○ |
| M27 | 3,00 | 160 | 30 | - | 20,0 | 16,0 | 24,00 | 0270 | ● | ○ | ● | ○ | ○ | ○ |
| M30 | 3,50 | 180 | 35 | - | 22,0 | 18,0 | 26,50 | 0300 | ● | ○ | ● | ○ | ○ | ○ |
| M33 | 3,50 | 180 | 35 | - | 25,0 | 20,0 | 29,50 | 0330 | ● | ○ | ● | ○ | ○ | ○ |
| M36 | 4,00 | 200 | 40 | - | 28,0 | 22,0 | 32,00 | 0360 | ● | ○ | ● | ○ | ○ | ○ |

| ISO | Vc (m/min) | | | | | |
|---|---|---|---|---|---|---|
| P | 5-40 | 5-50 | 5-40 | 5-50 | 5-40 | 5-50 |
| M | 5-15 | 5-25 | 5-15 | 5-25 | 5-15 | 5-25 |
| K | 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 |
| N | 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 |
| S | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 |

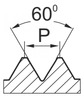
MASTERTAP

**Example of order**

**D4-118M01-0120**
**MasterTAP M12-6H DIN-376 B HSSE-PM HL**

● **Available from stock**
○ **On request**

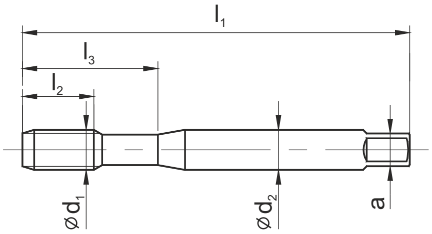
## ISO Metric coarse thread DIN-13




HSSE

TN2

DIN 371




800X

| | C-TN2 | B-TN2 | C-R40-TN2 |
|---|---|---|---|
| |  | | |
| Material groups | P M K N | P M K N | P M K N |
| Hole type | < 1.5d | < 3d | < 2,5d |
| Quality of material | HSSE | HSSE | HSSE |
| Coating | TN2 | TN2 | TN2 |
| Chamfer | C / 2-3P | B / 4-5P | C / 2-3P |

| M Ćd1 | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | INDEX (Norm: DIN-371; Tol.) | C2-123X01 ISO2 (6H) | C2-113X01 ISO2 (6H) | C2-513X01 ISO2 (6H) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M 3 | 0,50 | 56 | 10 | 5 | 18 | 3,5 | 2,7 | 2,50 | 0030 | ● | ● | ● |
| M 3,5 | 0,60 | 56 | 12 | 6 | 20 | 4,0 | 3,0 | 2,90 | 0035 | ● | ● | ● |
| M 4 | 0,70 | 63 | 12 | 7 | 21 | 4,5 | 3,4 | 3,30 | 0040 | ● | ● | ● |
| M 4,5 | 0,75 | 70 | 14 | 7,5 | 25 | 6,0 | 4,9 | 3,80 | 0045 | ● | ● | ● |
| M 5 | 0,80 | 70 | 14 | 8 | 25 | 6,0 | 4,9 | 4,20 | 0050 | ● | ● | ● |
| M 6 | 1,00 | 80 | 18 | 10 | 30 | 6,0 | 4,9 | 5,00 | 0060 | ● | ● | ● |
| M 7 | 1,00 | 80 | 18 | 10 | 30 | 7,0 | 5,5 | 6,00 | 0070 | ● | ● | ● |
| M 8 | 1,25 | 90 | 20 | 13 | 35 | 8,0 | 6,2 | 6,80 | 0080 | ● | ● | ● |
| M 9 | 1,25 | 90 | 20 | 13 | 35 | 9,0 | 7,0 | 7,80 | 0090 | ● | ● | ● |
| M10 | 1,50 | 100 | 20 | 15 | 39 | 10,0 | 8,0 | 8,50 | 0100 | ● | ● | ● |

| ISO | Vc (m/min) | | |
|---|---|---|---|
| P | 5-35 | 5-35 | 5-35 |
| M | 5-15 | 5-15 | 5-15 |
| K | 5-25 | 5-25 | 10-25 |
| N | 10-30 | 10-30 | 10-30 |
| S | - | - | - |

800X

**Example of order**

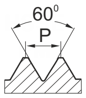
**C2-123X01-0030**
**Tap 800X M3-6H DIN-371 C HSSE TN2**

● **Available from stock**
○ **On request**

1

800X

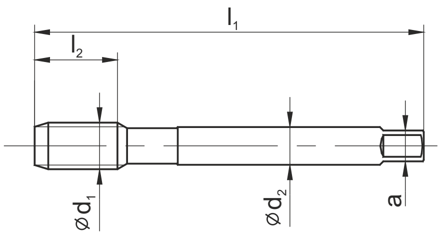
## ISO Metric coarse thread DIN-13




HSSE

TN2

DIN 376




| | 800X | | |
|---|---|---|---|
| | C-TN2 | B-TN2 | C-R40-TN2 |

| | C-TN2 | B-TN2 | C-R40-TN2 |
|---|---|---|---|
| Material groups | P M K N | P M K N | P M K N |
| Hole type | < 1.5d | < 3d | < 2,5d |
| Quality of material | HSSE | HSSE | HSSE |
| Coating | TN2 | TN2 | TN2 |
| Chamfer | C / 2-3P | B / 4-5P | C / 2-3P |

| M Ćd1 | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm / Tol. / INDEX | DIN-376 ISO2 (6H) D2-123X01 | DIN-376 ISO2 (6H) D2-113X01 | DIN-376 ISO2 (6H) D2-513X01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M3 | 0,50 | 56 | 11 | 5 | - | 2,2 | 1,8 | 2,50 | 0030 | ○ | ○ | ○ |
| M4 | 0,70 | 63 | 12 | 8 | - | 2,8 | 2,1 | 3,30 | 0040 | ● | ● | ● |
| M5 | 0,80 | 70 | 14 | 10 | - | 3,5 | 2,7 | 4,20 | 0050 | ● | ● | ● |
| M6 | 1,00 | 80 | 18 | 12 | - | 4,5 | 3,4 | 5,00 | 0060 | ● | ● | ● |
| M8 | 1,25 | 90 | 20 | 15 | - | 6,0 | 4,9 | 6,80 | 0080 | ● | ● | ● |
| M10 | 1,50 | 100 | 20 | 17 | - | 7,0 | 5,5 | 8,50 | 0100 | ● | ● | ● |
| M12 | 1,75 | 110 | 24 | 18 | - | 9,0 | 7,0 | 10,20 | 0120 | ● | ● | ● |
| M14 | 2,00 | 110 | 25 | 20 | - | 11,0 | 9,0 | 12,00 | 0140 | ● | ● | ● |
| M16 | 2,00 | 110 | 32 | 20 | - | 12,0 | 9,0 | 14,00 | 0160 | ● | ● | ● |
| M18 | 2,50 | 125 | 32 | 25 | - | 14,0 | 11,0 | 15,50 | 0180 | ● | ● | ● |
| M20 | 2,50 | 140 | 32 | 25 | - | 16,0 | 12,0 | 17,50 | 0200 | ● | ● | ● |
| M22 | 2,50 | 140 | 32 | 25 | - | 18,0 | 14,5 | 19,50 | 0220 | ● | ● | ● |
| M24 | 3,00 | 160 | 38 | 30 | - | 18,0 | 14,5 | 21,00 | 0240 | ● | ● | ● |
| M27 | 3,00 | 160 | 38 | 30 | - | 20,0 | 16,0 | 24,00 | 0270 | ● | ● | ● |
| M30 | 3,50 | 180 | 40 | 35 | - | 22,0 | 18,0 | 26,50 | 0300 | ● | ● | ● |
| M33 | 3,50 | 180 | 45 | 35 | - | 25,0 | 20,0 | 29,50 | 0330 | ● | ● | ● |
| M36 | 4,00 | 200 | 50 | 40 | - | 28,0 | 22,0 | 32,00 | 0360 | ● | ● | ● |
| M39 | 4,00 | 200 | 55 | 40 | - | 32,0 | 24,0 | 35,00 | 0390 | ● | ● | ● |
| M42 | 4,50 | 200 | 60 | 45 | - | 32,0 | 24,0 | 37,50 | 0420 | ● | ● | ● |
| M45 | 4,50 | 220 | 60 | 45 | - | 36,0 | 29,0 | 40,50 | 0450 | ○ | ○ | ○ |
| M48 | 5,00 | 250 | 65 | 50 | - | 36,0 | 29,0 | 43,00 | 0480 | ○ | ○ | ○ |
| M52 | 5,00 | 250 | 65 | 50 | - | 40,0 | 32,0 | 47,00 | 0520 | ○ | ○ | ○ |

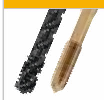
| ISO | Vc (m/min) | | |
|---|---|---|---|
| P | 5-35 | 5-35 | 5-35 |
| M | 5-15 | 5-15 | 5-15 |
| K | 5-25 | 5-25 | 10-25 |
| N | 10-30 | 10-30 | 10-30 |
| S | - | - | - |



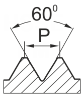
**Example of order**

**D2-123X01-0390**
**Tap 800X M39-6H DIN-376 C HSSE TN2**

● **Available from stock**
○ **On request**

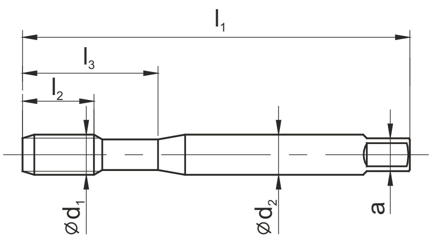


## ISO Metric coarse thread DIN-13




HSSE

DIN 371




800


| | C | C-LH | B | B-LH | B | B |
|---|---|---|---|---|---|---|
| Material groups | P M K / N S H | P M K / N S H | P M K / N S H | P M K / N S H | P M K / N S H | P M K / N S H |
| Hole type | < 1,5d | < 1,5d | < 3d | < 3d | < 3d | < 3d |
| Quality of material | HSSE | HSSE | HSSE | HSSE | HSSE | HSSE |
| Coating | | | | | | |
| Chamfer | C / 2-3P | C / 2-3P | B / 4-5P | B / 4-5P | B / 4-5P | B / 4-5P |

| M Ć$d_1$ | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć$d_2$ | a | d | Norm | DIN-371 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO1(4H) | | ISO1(4H) | | | |
| | | | | | | | | | INDEX | C4-121102 | | C4-111102 | | | |
| M1 | 0,25 | 40 | 6 | - | 13 | 2,5 | 2,1 | 0,75 | 0010 | ● | | ● | | | |
| M1,1 | 0,25 | 40 | 6 | - | 13 | 2,5 | 2,1 | 0,85 | 0011 | ● | | ● | | | |
| M1,2 | 0,25 | 40 | 6 | - | 13 | 2,5 | 2,1 | 0,95 | 0012 | ● | | ● | | | |
| M1,4 | 0,30 | 40 | 7 | - | 13 | 2,5 | 2,1 | 1,10 | 0014 | ● | | ● | | | |

| M Ć$d_1$ | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć$d_2$ | a | d | Norm | DIN-371 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) | | ISO2 (6H) | | | |
| | | | | | | | | | INDEX | C4-121101 | | C4-111101 | | | |
| M1,6 | 0,35 | 40 | 8 | - | 13 | 2,5 | 2,1 | 1,25 | 0016 | ● | | ● | | | |
| M1,7 | 0,35 | 40 | 8 | - | 13 | 2,5 | 2,1 | 1,35 | 0017 | ● | | ● | | | |
| M1,8 | 0,35 | 40 | 8 | - | 13 | 2,5 | 2,1 | 1,45 | 0018 | ● | | ● | | | |
| M2 | 0,40 | 45 | 10 | - | 13 | 2,8 | 2,1 | 1,60 | 0020 | ● | | ● | | | |
| M2,2 | 0,45 | 45 | 10 | - | 13 | 2,8 | 2,1 | 1,75 | 0022 | ● | | ● | | | |
| M2,3 | 0,40 | 45 | 10 | - | 13 | 2,8 | 2,1 | 1,90 | 0023 | ● | | ● | | | |
| M2,5 | 0,45 | 50 | 9 | - | 14 | 2,8 | 2,1 | 2,05 | 0025 | ● | | ● | | | |
| M2,6 | 0,45 | 50 | 9 | - | 14 | 2,8 | 2,1 | 2,15 | 0026 | ● | | ● | | | |

| M Ć$d_1$ | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć$d_2$ | a | d | Norm | DIN-371 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) | ISO3 (6G) | 7G |
| | | | | | | | | | INDEX | C2-121101 | C2-221101 | C2-111101 | C2-211101 | C2-111103 | C2-111104 |
| M3 | 0,50 | 56 | 10 | - | 18 | 3,5 | 2,7 | 2,50 | 0030 | ● | ● | ● | ● | ● | ○ |
| M3,5 | 0,60 | 56 | 12 | - | 20 | 4,0 | 3,0 | 2,90 | 0035 | ● | ○ | ● | ○ | ○ | ○ |
| M4 | 0,70 | 63 | 12 | - | 21 | 4,5 | 3,4 | 3,30 | 0040 | ● | ● | ● | ● | ● | ○ |
| M4,5 | 0,75 | 70 | 14 | - | 25 | 6,0 | 4,9 | 3,80 | 0045 | ● | ○ | ● | ○ | ○ | ○ |
| M5 | 0,80 | 70 | 14 | - | 25 | 6,0 | 4,9 | 4,20 | 0050 | ● | ● | ● | ● | ● | ○ |
| M6 | 1,00 | 80 | 18 | - | 30 | 6,0 | 4,9 | 5,00 | 0060 | ● | ● | ● | ● | ● | ○ |
| M7 | 1,00 | 80 | 18 | - | 30 | 7,0 | 5,5 | 6,00 | 0070 | ● | ○ | ● | ○ | ○ | ○ |
| M8 | 1,25 | 90 | 20 | - | 35 | 8,0 | 6,2 | 6,80 | 0080 | ● | ● | ● | ● | ● | ○ |
| M9 | 1,25 | 90 | 20 | - | 35 | 9,0 | 7,0 | 7,80 | 0090 | ● | ○ | ● | ○ | ○ | ○ |
| M10 | 1,50 | 100 | 20 | - | 39 | 10,0 | 8,0 | 8,50 | 0100 | ● | ● | ● | ● | ● | ○ |

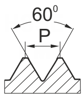
● **Available from stock**
○ **On request**

| ISO | Vc (m/min) | | | | | |
|---|---|---|---|---|---|---|
| P | 5-20 | 5-20 | 5-20 | 5-20 | 5-20 | 5-20 |
| M | - | - | - | - | - | - |
| K | 5-15 | 5-15 | 5-15 | 5-15 | 5-15 | 5-15 |
| N | 5-25 | 5-25 | 5-25 | 5-25 | 5-25 | 5-25 |
| S | - | - | - | - | - | - |

**Example of order**

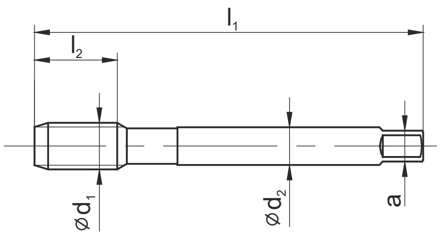
**C4-121101-0100**
**Tap 800 M10-6H DIN-371 C HSSE**

## ISO Metric coarse thread DIN-13




**HSSE**

**DIN 376**





| | 800 | | | | | |
|---|---|---|---|---|---|---|
| | C | C-LH | B | B-LH | B | B |
| Material groups | P M K N S H | P M K N S H | P M K N S H | P M K N S H | P M K N S H | P M K N S H |
| Hole type | < 1,5d | < 1,5d | < 3d | < 3d | < 3d | < 3d |
| Quality of material | HSSE | HSSE | HSSE | HSSE | HSSE | HSSE |
| Coating | | | | | | |
| Chamfer | C / 2-3P | C / 2-3P | B / 4-5P | B / 4-5P | B / 4-5P | B / 4-5P |

| M Ćd1 | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm | DIN-376 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) | ISO3 (6G) | 7G |
| | | | | | | | | | INDEX | D2-121101 | D2-221101 | D2-111101 | D2-211101 | D2-111103 | D2-111104 |
| M3 | 0,50 | 56 | 11 | - | - | 2,2 | 1,8 | 2,50 | 0030 | ● | ○ | ● | ○ | ○ | ○ |
| M4 | 0,70 | 63 | 12 | - | - | 2,8 | 2,1 | 3,30 | 0040 | ● | ○ | ● | ○ | ○ | ○ |
| M5 | 0,80 | 70 | 14 | - | - | 3,5 | 2,7 | 4,20 | 0050 | ● | ○ | ● | ○ | ○ | ○ |
| M6 | 1,00 | 80 | 18 | - | - | 4,5 | 3,4 | 5,00 | 0060 | ● | ○ | ● | ○ | ○ | ○ |
| M8 | 1,25 | 90 | 20 | - | - | 6,0 | 4,9 | 6,80 | 0080 | ● | ○ | ● | ○ | ○ | ○ |
| M10 | 1,50 | 100 | 20 | - | - | 7,0 | 5,5 | 8,50 | 0100 | ● | ○ | ● | ○ | ○ | ○ |
| M12 | 1,75 | 110 | 24 | - | - | 9,0 | 7,0 | 10,20 | 0120 | ● | ● | ● | ● | ● | ○ |
| M14 | 2,00 | 110 | 25 | - | - | 11,0 | 9,0 | 12,00 | 0140 | ● | ○ | ● | ○ | ○ | ○ |
| M16 | 2,00 | 110 | 32 | - | - | 12,0 | 9,0 | 14,00 | 0160 | ● | ● | ● | ● | ● | ○ |
| M18 | 2,50 | 125 | 32 | - | - | 14,0 | 11,0 | 15,50 | 0180 | ● | ○ | ● | ○ | ○ | ○ |
| M20 | 2,50 | 140 | 32 | - | - | 16,0 | 12,0 | 17,50 | 0200 | ● | ● | ● | ● | ● | ○ |
| M22 | 2,50 | 140 | 32 | - | - | 18,0 | 14,5 | 19,50 | 0220 | ● | ○ | ● | ○ | ○ | ○ |
| M24 | 3,00 | 160 | 38 | - | - | 18,0 | 14,5 | 21,00 | 0240 | ● | ● | ● | ● | ○ | ○ |
| M27 | 3,00 | 160 | 38 | - | - | 20,0 | 16,0 | 24,00 | 0270 | ● | ○ | ● | ○ | ○ | ○ |
| M30 | 3,50 | 180 | 40 | - | - | 22,0 | 18,0 | 26,50 | 0300 | ● | ○ | ● | ○ | ○ | ○ |
| M33 | 3,50 | 180 | 45 | - | - | 25,0 | 20,0 | 29,50 | 0330 | ● | ○ | ● | ○ | ○ | ○ |
| M36 | 4,00 | 200 | 50 | - | - | 28,0 | 22,0 | 32,00 | 0360 | ● | ○ | ● | ○ | ○ | ○ |
| M39 | 4,00 | 200 | 55 | - | - | 32,0 | 24,0 | 35,00 | 0390 | ● | ○ | ● | ○ | ○ | ○ |
| M42 | 4,50 | 200 | 60 | - | - | 32,0 | 24,0 | 37,50 | 0420 | ● | ○ | ● | ○ | ○ | ○ |
| M45 | 4,50 | 220 | 60 | - | - | 36,0 | 29,0 | 40,50 | 0450 | ● | ○ | ● | ○ | ○ | ○ |
| M48 | 5,00 | 250 | 65 | - | - | 36,0 | 29,0 | 43,00 | 0480 | ● | ○ | ● | ○ | ○ | ○ |
| M52 | 5,00 | 250 | 65 | - | - | 40,0 | 32,0 | 47,00 | 0520 | ● | ○ | ● | ○ | ○ | ○ |

| ISO | Vc (m/min) | | | | | |
|---|---|---|---|---|---|---|
| P | 5-35 | 5-20 | 5-20 | 5-20 | 5-20 | 5-20 |
| M | - | - | - | - | - | - |
| K | 10-25 | 5-15 | 5-15 | 5-15 | 5-15 | 5-15 |
| N | 10-35 | 5-25 | 5-25 | 5-25 | 5-25 | 5-25 |
| S | - | - | - | - | - | - |



**Example of order**

**D2-221101-0120**
**Tap 800 M12-6H DIN-376 C LH HSSE**

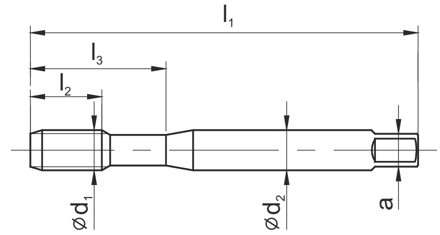
● **Available from stock**
○ **On request**

## ISO Metric coarse thread DIN-13

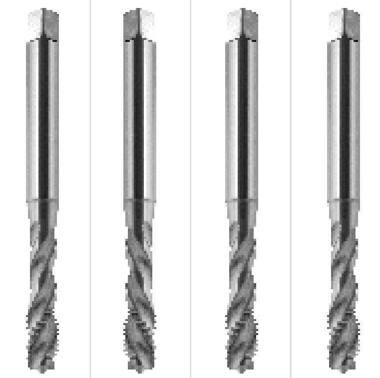
60°
P

HSSE

DIN 371




| | 800 | | | |
|---|---|---|---|---|
| | C-R40 | C-LH-L40 | C-R40 | C-R40 |
| | | LH | 6G | 7G |
| Material groups | P K N | P K N | P K N | P K N |
| Hole type | < 2,5d | < 2,5d | < 2,5d | < 2,5d |
| Quality of material | HSSE | HSSE | HSSE | HSSE |
| Coating | | | | |
| Chamfer | C / 2-3P | C / 2-3P | C / 2-3P | C / 2-3P |



| M Ćd1 | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm | DIN-371 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO1(4H) |
| | | | | | | | | | INDEX | C4-511102 |
| M1 | 0,25 | 40 | - | 6 | 13 | 2,5 | 2,1 | 0,75 | 0010 | ● |
| M1,1 | 0,25 | 40 | - | 6 | 13 | 2,5 | 2,1 | 0,85 | 0011 | ● |
| M1,2 | 0,25 | 40 | - | 6 | 13 | 2,5 | 2,1 | 0,95 | 0012 | ● |
| M1,4 | 0,30 | 40 | - | 8 | 13 | 2,5 | 2,1 | 1,10 | 0014 | ● |

| M Ćd1 | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm | DIN-371 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) |
| | | | | | | | | | INDEX | C4-511101 |
| M1,6 | 0,35 | 40 | - | 8 | 13 | 2,5 | 2,1 | 1,25 | 0016 | ● |
| M1,7 | 0,35 | 40 | - | 8 | 13 | 2,5 | 2,1 | 1,35 | 0017 | ● |
| M1,8 | 0,35 | 40 | - | 8 | 13 | 2,5 | 2,1 | 1,45 | 0018 | ● |
| M2 | 0,40 | 45 | - | 10 | 13 | 2,8 | 2,1 | 1,60 | 0020 | ● |
| M2,2 | 0,45 | 45 | - | 10 | 13 | 2,8 | 2,1 | 1,75 | 0022 | ● |
| M2,3 | 0,40 | 45 | - | 10 | 13 | 2,8 | 2,1 | 1,90 | 0023 | ● |
| M2,5 | 0,45 | 50 | - | 5 | 14 | 2,8 | 2,1 | 2,05 | 0025 | ● |
| M2,6 | 0,45 | 50 | - | 5 | 14 | 2,8 | 2,1 | 2,15 | 0026 | ● |

| M Ćd1 | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm | DIN-371 | DIN-371 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | C2-511101 | C2-591101 | C2-511103 | C2-511104 |
| | | | | | | | | | INDEX | ISO2 (6H) | ISO2 (6H) | ISO3 (6G) | 7G |
| M3 | 0,50 | 56 | - | 5 | 18 | 3,5 | 2,7 | 2,50 | 0030 | ● | ● | ● | ○ |
| M3,5 | 0,60 | 56 | - | 6 | 20 | 4,0 | 3,0 | 2,90 | 0035 | ● | ○ | ○ | ○ |
| M4 | 0,70 | 63 | - | 7 | 21 | 4,5 | 3,4 | 3,30 | 0040 | ● | ● | ● | ○ |
| M4,5 | 0,75 | 70 | - | 7,5 | 25 | 6,0 | 4,9 | 3,80 | 0045 | ● | ○ | ○ | ○ |
| M5 | 0,80 | 70 | - | 8 | 25 | 6,0 | 4,9 | 4,20 | 0050 | ● | ● | ● | ○ |
| M6 | 1,00 | 80 | - | 10 | 30 | 6,0 | 4,9 | 5,00 | 0060 | ● | ● | ● | ○ |
| M7 | 1,00 | 80 | - | 10 | 30 | 7,0 | 5,5 | 6,00 | 0070 | ● | ○ | ○ | ○ |
| M8 | 1,25 | 90 | - | 13 | 35 | 8,0 | 6,2 | 6,80 | 0080 | ● | ● | ● | ○ |
| M9 | 1,25 | 90 | - | 13 | 35 | 9,0 | 7,0 | 7,80 | 0090 | ● | ○ | ○ | ○ |
| M10 | 1,50 | 100 | - | 15 | 39 | 10,0 | 8,0 | 8,50 | 0100 | ● | ● | ● | ○ |

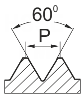
● **Available from stock**
○ **On request**

| ISO | Vc (m/min) | | | |
|---|---|---|---|---|
| P | 5-20 | 5-20 | 5-20 | 5-20 |
| M | - | - | - | - |
| K | 5-15 | 5-15 | 5-15 | 5-15 |
| N | 5-25 | 5-25 | 5-25 | 5-25 |
| S | - | - | - | - |

**Example of order**

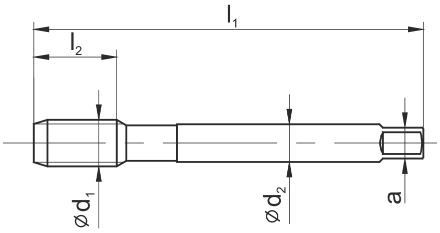
**C4-511102-0010**
**Tap 800 M1-4H DIN-371 C R40 HSSE-PM**

## ISO Metric coarse thread DIN-13

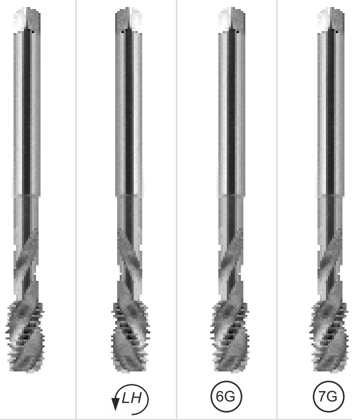



HSSE

DIN 376




| | 800 | | | |
|---|---|---|---|---|
| | C-R40 | C-LH-L40 | C-R40 | C-R40 |
| | | LH | 6G | 7G |
| Material groups | P K N | P K N | P K N | P K N |
| Hole type | < 2,5d | < 2,5d | < 2,5d | < 2,5d |
| Quality of material | HSSE | HSSE | HSSE | HSSE |
| Coating | | | | |
| Chamfer | C / 2-3P | C / 2-3P | C / 2-3P | C / 2-3P |



| M Ć$d_1$ | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć$d_2$ | a | d | Norm | DIN-376 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | ISO3 (6G) | 7G |
| | | | | | | | | | INDEX | D2-511101 | D2-591101 | D2-511103 | D2-511104 |
| M3 | 0,50 | 56 | - | 5 | - | 2,2 | 1,8 | 2,50 | 0030 | ● | ○ | ○ | ○ |
| M4 | 0,70 | 63 | - | 8 | - | 2,8 | 2,1 | 3,30 | 0040 | ● | ○ | ○ | ○ |
| M5 | 0,80 | 70 | - | 10 | - | 3,5 | 2,7 | 4,20 | 0050 | ● | ○ | ○ | ○ |
| M6 | 1,00 | 80 | - | 12 | - | 4,5 | 3,4 | 5,00 | 0060 | ● | ○ | ○ | ○ |
| M8 | 1,25 | 90 | - | 15 | - | 6,0 | 4,9 | 6,80 | 0080 | ● | ○ | ○ | ○ |
| M10 | 1,50 | 100 | - | 17 | - | 7,0 | 5,5 | 8,50 | 0100 | ● | ○ | ○ | ○ |
| M12 | 1,75 | 110 | - | 18 | - | 9,0 | 7,0 | 10,20 | 0120 | ● | ● | ● | ○ |
| M14 | 2,00 | 110 | - | 20 | - | 11,0 | 9,0 | 12,00 | 0140 | ● | ○ | ○ | ○ |
| M16 | 2,00 | 110 | - | 20 | - | 12,0 | 9,0 | 14,00 | 0160 | ● | ● | ● | ○ |
| M18 | 2,50 | 125 | - | 25 | - | 14,0 | 11,0 | 15,50 | 0180 | ● | ○ | ○ | ○ |
| M20 | 2,50 | 140 | - | 25 | - | 16,0 | 12,0 | 17,50 | 0200 | ● | ● | ● | ○ |
| M22 | 2,50 | 140 | - | 25 | - | 18,0 | 14,5 | 19,50 | 0220 | ● | ○ | ○ | ○ |
| M24 | 3,00 | 160 | - | 30 | - | 18,0 | 14,5 | 21,00 | 0240 | ● | ● | ○ | ○ |
| M27 | 3,00 | 160 | - | 30 | - | 20,0 | 16,0 | 24,00 | 0270 | ● | ○ | ○ | ○ |
| M30 | 3,50 | 180 | - | 35 | - | 22,0 | 18,0 | 26,50 | 0300 | ● | ○ | ○ | ○ |
| M33 | 3,50 | 180 | - | 35 | - | 25,0 | 20,0 | 29,50 | 0330 | ● | ○ | ○ | ○ |
| M36 | 4,00 | 200 | - | 40 | - | 28,0 | 22,0 | 32,00 | 0360 | ● | ○ | ○ | ○ |
| M39 | 4,00 | 200 | - | 40 | - | 32,0 | 24,0 | 35,00 | 0390 | ● | ○ | ○ | ○ |
| M42 | 4,50 | 200 | - | 45 | - | 32,0 | 24,0 | 37,50 | 0420 | ● | ○ | ○ | ○ |
| M45 | 4,50 | 220 | - | 45 | - | 36,0 | 29,0 | 40,50 | 0450 | ● | ○ | ○ | ○ |
| M48 | 5,00 | 250 | - | 50 | - | 36,0 | 29,0 | 43,00 | 0480 | ● | ○ | ○ | ○ |
| M52 | 5,00 | 250 | - | 50 | - | 40,0 | 32,0 | 47,00 | 0520 | ● | ○ | ○ | ○ |

| ISO | Vc (m/min) | | | |
|---|---|---|---|---|
| P | 5-20 | 5-20 | 5-20 | 5-20 |
| M | - | - | - | - |
| K | 5-15 | 5-15 | 5-15 | 5-15 |
| N | 5-25 | 5-25 | 5-25 | 5-25 |
| S | - | - | - | - |

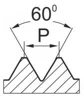


**Example of order**

**D2-511101-0030**
**Tap 800 M3-6H DIN-376 C R40 HSSE**

● **Available from stock**
○ **On request**

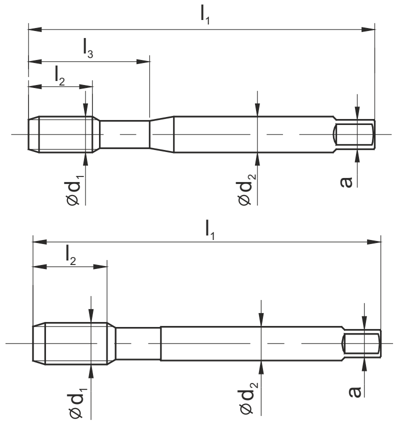
## ISO Metric coarse thread DIN-13




HSSE

DIN 371-EL

DIN 376-EL




| | 800 | |
|---|---|---|
| | B | C-R40 |
| |  | |
| Material groups | P, K, N | P, K, N |
| Hole type |  < 3d | < 2,5d |
| Quality of material | HSSE | HSSE |
| Coating | | |
| Chamfer | B / 4-5P | C / 2-3P |

| M Ćd1 | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm | DIN-371-EL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) |
| | | | | | | | | | INDEX | C2-111121 | C2-511121 |
| M3 | 0,50 | 100 | 10 | 5 | 18 | 3,5 | 2,7 | 2,50 | 0030 | ● | ● |
| M3,5 | 0,60 | 100 | 12 | 6 | 20 | 4,0 | 3,0 | 2,90 | 0035 | ○ | ○ |
| M4 | 0,70 | 125 | 12 | 7 | 21 | 4,5 | 3,4 | 3,30 | 0040 | ● | ● |
| M4,5 | 0,75 | 140 | 14 | 7,5 | 25 | 6,0 | 4,9 | 3,80 | 0045 | | |
| M5 | 0,80 | 140 | 14 | 8 | 25 | 6,0 | 4,9 | 4,20 | 0050 | ● | ● |
| M6 | 1,00 | 160 | 18 | 10 | 30 | 6,0 | 4,9 | 5,00 | 0060 | ● | ● |

| M Ćd1 | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm | DIN-376-EL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | | |
| | | | | | | | | | INDEX | D2-111121 | D2-511121 |
| M8 | 1,25 | 180 | 20 | 15 | - | 6,0 | 4,9 | 6,80 | 0080 | ● | ● |
| M10 | 1,50 | 200 | 20 | 17 | - | 7,0 | 5,5 | 8,50 | 0100 | ● | ● |
| M12 | 1,75 | 220 | 24 | 18 | - | 9,0 | 7,0 | 10,20 | 0120 | ● | ● |
| M14 | 2,00 | 220 | 25 | 20 | - | 11,0 | 9,0 | 12,00 | 0140 | ○ | ○ |
| M16 | 2,00 | 220 | 32 | 20 | - | 12,0 | 9,0 | 14,00 | 0160 | ● | ● |
| M20 | 2,50 | 250 | - | 25 | - | 16,0 | 12,0 | 17,50 | 0200 | ○ | ○ |

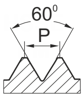
| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-20 | 5-20 |
| M | - | - |
| K | 5-15 | 5-15 |
| N | 5-25 | 5-25 |
| S | - | - |

**Example of order**

**C2-111121-0030**
**Tap 800 M3-6H DIN-371 EL C HSSE**

● **Available from stock**
○ **On request**

## ISO Metric coarse thread DIN-13

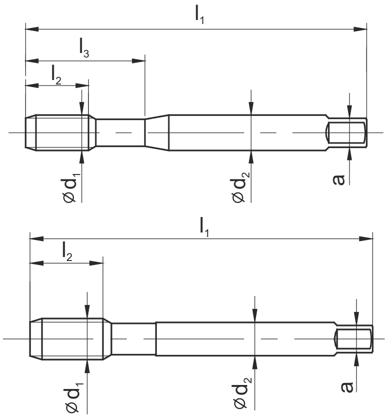



HSSE PM

TC

DIN 371

DIN 376




| | FAN-1200 | | 1400 | | |
|---|---|---|---|---|---|
| | B-TC | C-R40-TC | C-TC | B-TC | C-R15-TC |
| Material groups | P M K N S H | P M K N S H | P M K N S H | P M K N S H | P M K N S H |
| Hole type | < 3d | < 2,5d | < 1,5d | < 2,5d | < 1,5d |
| Quality of material | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM |
| Coating | TC | TC | TC | TC | TC |
| Chamfer | B / 4-5P | C / 2-3P | C / 2-3P | B / 4-5P | C / 2-3P |

| M Ćd1 | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm | DIN-371 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | 6HX | 6HX | 6HX |
| | | | | | | | | | INDEX | C4-115001 | C4-565001 | C4-125901 | C4-115901 | C4-505901 |
| M 3 | 0,50 | 56 | 10 | 5 | 18 | 3,5 | 2,7 | 2,50 | 0030 | ● | ● | ● | ● | ● |
| M 4 | 0,70 | 63 | 12 | 7 | 21 | 4,5 | 3,4 | 3,30 | 0040 | ● | ● | ● | ● | ● |
| M 5 | 0,80 | 70 | 14 | 8 | 25 | 6,0 | 4,9 | 4,20 | 0050 | ● | ● | ● | ● | ● |
| M 6 | 1,00 | 80 | 18 | 10 | 30 | 6,0 | 4,9 | 5,00 | 0060 | ● | ● | ● | ● | ● |
| M 8 | 1,25 | 90 | 20 | 13 | 35 | 8,0 | 6,2 | 6,80 | 0080 | ● | ● | ● | ● | ● |
| M10 | 1,50 | 100 | 20 | 15 | 39 | 10,0 | 8,0 | 8,50 | 0100 | ● | ● | ● | ● | ● |

| M Ćd1 | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm | DIN-376 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | 6HX | 6HX | 6HX |
| | | | | | | | | | INDEX | D4-115001 | D4-565001 | D4-125901 | D4-115901 | D4-505901 |
| M8 | 1,25 | 90 | 20 | 15 | - | 6,0 | 4,9 | 6,80 | 0080 | ● | ● | ● | ● | ● |
| M10 | 1,50 | 100 | 20 | 17 | - | 7,0 | 5,5 | 8,50 | 0100 | ● | ● | ● | ● | ● |
| M12 | 1,75 | 110 | 24 | 18 | - | 9,0 | 7,0 | 10,20 | 0120 | ● | ● | ● | ● | ● |
| M14 | 2,00 | 110 | 25 | 20 | - | 11,0 | 9,0 | 12,00 | 0140 | ● | ● | ● | ● | ● |
| M16 | 2,00 | 110 | 32 | 20 | - | 12,0 | 9,0 | 14,00 | 0160 | ● | ● | ● | ● | ● |
| M18 | 2,50 | 125 | 32 | 25 | - | 14,0 | 11,0 | 15,50 | 0180 | ● | ● | ○ | ○ | ○ |
| M20 | 2,50 | 140 | 32 | 25 | - | 16,0 | 12,0 | 17,50 | 0200 | ● | ● | ● | ● | ● |
| M22 | 2,50 | 140 | 32 | 25 | - | 18,0 | 14,5 | 19,50 | 0220 | ● | ● | ○ | ○ | ○ |
| M24 | 3,00 | 160 | 38 | 30 | - | 18,0 | 14,5 | 21,00 | 0240 | ● | ● | ● | ● | ● |
| M27 | 3,00 | 160 | 38 | 30 | - | 20,0 | 16,0 | 24,00 | 0270 | ● | ● | ○ | ○ | ○ |
| M30 | 3,50 | 180 | 40 | 35 | - | 22,0 | 18,0 | 26,50 | 0300 | ● | ● | ○ | ○ | ○ |
| M33 | 3,50 | 180 | 45 | 35 | - | 25,0 | 20,0 | 29,50 | 0330 | ● | ● | ○ | ○ | ○ |
| M36 | 4,00 | 200 | 50 | 40 | - | 28,0 | 22,0 | 32,00 | 0360 | ● | ● | ○ | ○ | ○ |

| ISO | Vc (m/min) | | | | |
|---|---|---|---|---|---|
| P | 5-35 | 5-35 | 1-20 | 1-20 | 1-20 |
| M | 5-15 | 5-10 | 1-10 | 1-10 | 1-10 |
| K | 5-25 | 5-25 | 1-20 | 1-20 | 1-20 |
| N | 10-30 | 10-30 | 10-20 | 10-20 | 10-20 |
| S | - | - | - | - | - |

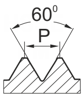


**Example of order**

**C4-115001-0030**
**Tap FAN-1200 M3-6H DIN-371 B HSSE-PM TC**

● **Available from stock**
○ **On request**

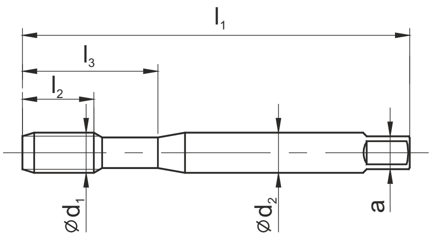
## ISO Metric coarse thread DIN-13




HSSE

HL

DIN 371




**INOX**

| | B | B-HL | C-R40 | C-R40-HL | | | |
|---|---|---|---|---|---|---|---|
| Material groups | P M K N S H | P M K N S H | P M K N S H | P M K N S H | | | |
| Hole type | < 3d | < 3d | < 2,5d | < 2,5d | | | |
| Quality of material | HSSE | HSSE | HSSE | HSSE | | | |
| Coating | | HL | | HL | | | |
| Chamfer | B / 4-5P | B / 4-5P | C / 2-3P | C / 2-3P | | | |

| M Ć $d_1$ | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć $d_2$ | a | d | Norm | DIN-371 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) | | | |
| | | | | | | | | | INDEX | C2-111801 | C2-118801 | C2-511801 | C2-518801 | | | |
| M3 | 0,50 | 56 | 10 | 5 | 18 | 3,5 | 2,7 | 2,50 | 0030 | ● | ● | ● | ● | | | |
| M4 | 0,70 | 63 | 12 | 7 | 21 | 4,5 | 3,4 | 3,30 | 0040 | ● | ● | ● | ● | | | |
| M5 | 0,80 | 70 | 14 | 8 | 25 | 6,0 | 4,9 | 4,20 | 0050 | ● | ● | ● | ● | | | |
| M6 | 1,00 | 80 | 18 | 10 | 30 | 6,0 | 4,9 | 5,00 | 0060 | ● | ● | ● | ● | | | |
| M8 | 1,25 | 90 | 20 | 13 | 35 | 8,0 | 6,2 | 6,80 | 0080 | ● | ● | ● | ● | | | |
| M10 | 1,50 | 100 | 20 | 15 | 39 | 10,0 | 8,0 | 8,50 | 0100 | ● | ● | ● | ● | | | |

| ISO | Vc (m/min) | | | | | | |
|---|---|---|---|---|---|---|---|
| P | - | - | - | - | | | |
| M | 5-15 | 5-15 | 5-15 | 5-15 | | | |
| K | - | - | - | - | | | |
| N | - | - | - | - | | | |
| S | - | - | - | - | | | |

**Example of order**

**C2-111801-0080**
**Tap INOX M8-6H DIN-371 B HSSE**

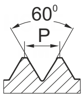
● **Available from stock**
○ **On request**

FANAR®





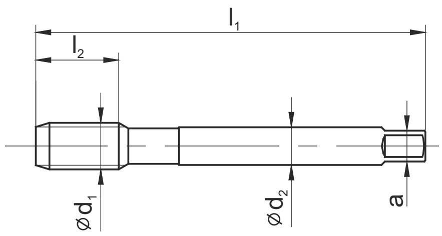
## ISO Metric coarse thread DIN-13




HSSE

HL

DIN 376




| | INOX | | | |
|---|---|---|---|---|
| | B | B-HL | C-R40 | C-R40-HL |
| Material groups | P M K N S H | P M K N S H | P M K N S H | P M K N S H |
| Hole type | < 3d | < 3d | < 2,5d | < 2,5d |
| Quality of material | HSSE | HSSE | HSSE | HSSE |
| Coating | - | HL | - | HL |
| Chamfer | B / 4-5P | B / 4-5P | C / 2-3P | C / 2-3P |

| M Ć $d_1$ | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć $d_2$ | a | d | Norm | DIN-376 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) |
| | | | | | | | | | INDEX | D2-111801 | D2-118801 | D2-511801 | D2-518801 |
| M8 | 1,25 | 90 | 20 | 15 | - | 6,0 | 4,9 | 6,80 | 0080 | ● | ● | ● | ● |
| M10 | 1,50 | 100 | 20 | 17 | - | 7,0 | 5,5 | 8,50 | 0100 | ● | ● | ● | ● |
| M12 | 1,75 | 110 | 24 | 18 | - | 9,0 | 7,0 | 10,20 | 0120 | ● | ● | ● | ● |
| M14 | 2,00 | 110 | 25 | 20 | - | 11,0 | 9,0 | 12,00 | 0140 | ● | ● | ● | ● |
| M16 | 2,00 | 110 | 32 | 20 | - | 12,0 | 9,0 | 14,00 | 0160 | ● | ● | ● | ● |
| M18 | 2,50 | 125 | 32 | 25 | - | 14,0 | 11,0 | 15,50 | 0180 | ● | ● | ● | ● |
| M20 | 2,50 | 140 | 32 | 25 | - | 16,0 | 12,0 | 17,50 | 0200 | ● | ● | ● | ● |
| M22 | 2,50 | 140 | 32 | 25 | - | 18,0 | 14,5 | 19,50 | 0220 | ● | ● | ● | ● |
| M24 | 3,00 | 160 | 38 | 30 | - | 18,0 | 14,5 | 21,00 | 0240 | ● | ● | ● | ● |
| M27 | 3,00 | 160 | 38 | 30 | - | 20,0 | 16,0 | 24,00 | 0270 | ● | ○ | ● | ○ |
| M30 | 3,50 | 180 | 40 | 35 | - | 22,0 | 18,0 | 26,50 | 0300 | ● | ○ | ● | ○ |
| M33 | 3,50 | 180 | 45 | 35 | - | 25,0 | 20,0 | 29,50 | 0330 | ● | ○ | ● | ○ |
| M36 | 4,00 | 200 | 50 | 40 | - | 28,0 | 22,0 | 32,00 | 0360 | ● | ○ | ● | ○ |

| ISO | Vc (m/min) | | | |
|---|---|---|---|---|
| P | - | - | - | - |
| M | 5-15 | 5-15 | 5-15 | 5-15 |
| K | - | - | - | - |
| N | - | - | - | - |
| S | - | - | - | - |

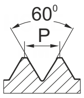


**Example of order**

**D2-111801-0080**
**Tap INOX M8-6H DIN-376 B HSSE**

● **Available from stock**
○ **On request**

## ISO Metric coarse thread DIN-13

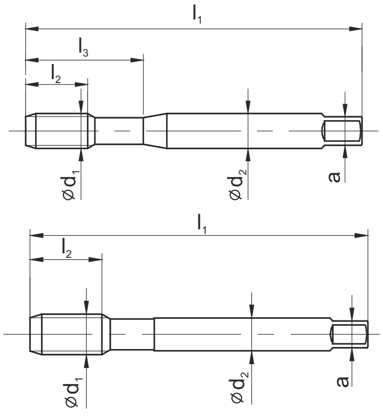



HSSE PM

TC

DIN 371

DIN 376




| | GG | | | | | GAL | |
|---|---|---|---|---|---|---|---|
| | C-TC | C-IK-TC | E-TC | E-IK-TC | E-IKR-TC | C-R15-TC | E-R15-IK-TC |
| Material groups | K | K | K | K | K | N | N |
| Hole type | < 2d | < 2,5d | < 2d | < 2,5d | < 2,5d | < 2,5d | < 2,5d |
| Quality of material | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM |
| Coating | TC | TC | TC | TC | TC | TC | TC |
| Chamfer | C / 2-3P | C / 2-3P | E / 1,5-2P | E / 1,5-2P | E / 1,5-2P | C / 2-3P | E / 1,5-2P |

| M Ć$d_1$ | P | $l_1$ | $l_2$ | $l_3$ | Ć$d_2$ | a | d | Norm | DIN-371 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | 6HX | 6HX | 6HX | 6HX | 6HX | 6HX | 6HX |
| | | | | | | | | INDEX | C4-125501 | C4-125551 | C2-145501 | C4-145551 | C4-145561 | C4-505601 | C4-655651 |
| M 3 | 0,50 | 56 | 10 | 18 | 3,5 | 2,7 | 2,50 | 0030 | ● | - | ○ | - | - | ● | - |
| M 4 | 0,70 | 63 | 12 | 21 | 4,5 | 3,4 | 3,30 | 0040 | ● | - | ● | - | - | ● | - |
| M 5 | 0,80 | 70 | 14 | 25 | 6,0 | 4,9 | 4,20 | 0050 | ● | ● | ● | ● | ● | ● | ○ |
| M 6 | 1,00 | 80 | 18 | 30 | 6,0 | 4,9 | 5,00 | 0060 | ● | ● | ● | ● | ● | ● | ○ |
| M 7 | 1,00 | 80 | 18 | 30 | 7,0 | 5,5 | 6,00 | 0070 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| M 8 | 1,25 | 90 | 20 | 35 | 8,0 | 6,2 | 6,80 | 0080 | ● | ● | ● | ● | ● | ● | ○ |
| M 9 | 1,25 | 90 | 20 | 35 | 9,0 | 7,0 | 7,80 | 0090 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| M10 | 1,50 | 100 | 20 | 39 | 10,0 | 8,0 | 8,50 | 0100 | ● | ● | ● | ● | ● | ● | ○ |

| M Ć$d_1$ | P | $l_1$ | $l_2$ | $l_3$ | Ć$d_2$ | a | d | Norm | DIN-376 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | 6HX | 6HX | 6HX | 6HX | 6HX | 6HX | 6HX |
| | | | | | | | | INDEX | D4-125501 | D4-125551 | D2-145501 | D4-145551 | D4-145561 | D4-505601 | D4-655651 |
| M6 | 1,00 | 80 | 18 | - | 4,5 | 3,4 | 5,00 | 0060 | ● | ○ | ● | ○ | ○ | ● | ○ |
| M8 | 1,25 | 90 | 20 | - | 6,0 | 4,9 | 6,80 | 0080 | ● | ● | ● | ● | ○ | ● | ○ |
| M10 | 1,50 | 100 | 20 | - | 7,0 | 5,5 | 8,50 | 0100 | ● | ● | ● | ● | ○ | ● | ○ |
| M12 | 1,75 | 110 | 24 | - | 9,0 | 7,0 | 10,20 | 0120 | ● | ● | ● | ● | ● | ● | ● |
| M14 | 2,00 | 110 | 25 | - | 11,0 | 9,0 | 12,00 | 0140 | ● | ○ | ○ | ○ | ○ | ● | ○ |
| M16 | 2,00 | 110 | 32 | - | 12,0 | 9,0 | 14,00 | 0160 | ● | ● | ○ | ● | ● | ● | ● |
| M18 | 2,50 | 125 | 32 | - | 14,0 | 11,0 | 15,50 | 0180 | ● | ○ | ○ | ○ | ○ | ● | ○ |
| M20 | 2,50 | 140 | 32 | - | 16,0 | 12,0 | 17,50 | 0200 | ● | ○ | ○ | ○ | ○ | ● | ○ |

| ISO | Vc (m/min) | | | | | | |
|---|---|---|---|---|---|---|---|
| P | - | - | - | - | - | - | - |
| M | - | - | - | - | - | - | - |
| K | 1-60 | 5-60 | 1-60 | 5-60 | 5-60 | - | - |
| N | - | - | - | - | - | 10-30 | 10-30 |
| S | - | - | - | - | - | - | - |

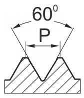
**Example of order**

**C2-125501-0030**
**Tap GG M3-6HX DIN-371 C HSSE-PM TC**

● **Available from stock**
○ **On request**

1

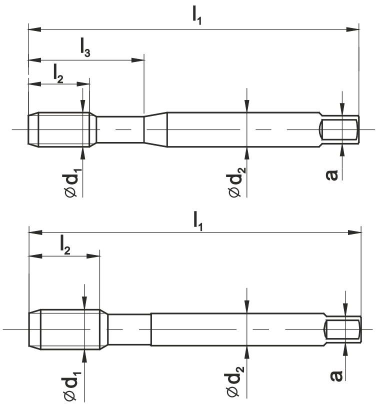
## ISO Metric coarse thread DIN-13




VHM

TC

DIN 371 | DIN 376




| | HRC60 | | | | | | |
|---|---|---|---|---|---|---|---|
| | C-HM-TC | C-IK-HM-TC | D-HM-TC | D-IK-HM-TC | | | |
| Material groups | H | H | H | H | | | |
| Hole type | < 1,5d | < 1,5d | < 1,5d | < 1,5d | | | |
| Quality of material | VHM | VHM | VHM | VHM | | | |
| Coating | TC | TC | TC | TC | | | |
| Chamfer | C / 2-3P | C / 2-3P | D / 4-5P | D / 4-5P | | | |

| M Ćd1 | P | l1 | l2 | l3 | Ćd2 | a | d | Norm | DIN-371 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | 6HX | | | | | | |
| | | | | | | | | INDEX | C9-125F01 | C9-125F51 | C9-135F01 | C9-135F51 | | | |
| M3 | 0,50 | 56 | 5 | 18 | 3,5 | 2,7 | 2,50 | 0030 | ● | - | ● | - | | | |
| M4 | 0,70 | 63 | 7 | 21 | 4,5 | 3,4 | 3,30 | 0040 | ● | - | ● | - | | | |
| M5 | 0,80 | 70 | 8 | 25 | 6,0 | 4,9 | 4,20 | 0050 | ● | - | ● | - | | | |
| M6 | 1,00 | 80 | 10 | 30 | 6,0 | 4,9 | 5,00 | 0060 | ● | ● | ● | ● | | | |
| M8 | 1,25 | 90 | 13 | 35 | 8,0 | 6,2 | 6,80 | 0080 | ● | ● | ● | ● | | | |
| M10 | 1,50 | 100 | 15 | 39 | 10,0 | 8,0 | 8,50 | 0100 | ● | ● | ● | ● | | | |

| M Ćd1 | P | l1 | l2 | l3 | Ćd2 | a | d | Norm | DIN-376 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | 6HX | | | | | | |
| | | | | | | | | INDEX | D9-125F01 | D9-125F51 | D9-135F01 | D9-135F51 | | | |
| M12 | 1,75 | 110 | 18 | - | 9,0 | 7,0 | 10,20 | 0120 | ● | ● | ● | ● | | | |
| M14 | 2,00 | 110 | 20 | - | 11,0 | 9,0 | 12,00 | 0140 | ● | ● | ● | ● | | | |
| M16 | 2,00 | 110 | 20 | - | 12,0 | 9,0 | 14,00 | 0160 | ● | ● | ● | ● | | | |

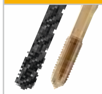
| ISO | Vc (m/min) | | | | | | |
|---|---|---|---|---|---|---|---|
| P | - | - | - | - | | | |
| M | - | - | - | - | | | |
| K | - | - | - | - | | | |
| N | - | - | - | - | | | |
| S | - | - | - | - | | | |
| H | 1-4 | 1-4 | 1-4 | 1-4 | | | |



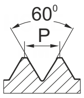
**Example of order**

**C9-125F01-0030**
**Tap HRC60 M3-6HX DIN-371 C VHM TC**

● **Available from stock**
○ **On request**



## ISO Metric coarse thread DIN-13

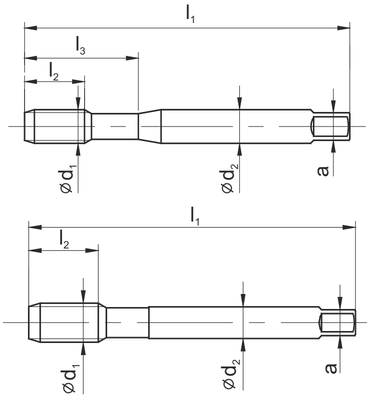



HSSE PM

TC

DIN 371

DIN 376




S-NC

| | B-TC | C-R45-TC | C-R45-IK-TC |
|---|---|---|---|
| |  | | |
| Material groups | P M K N S H | P M K N S H | P M K N S H |
| Hole type | < 2,5d | < 3d | < 3d |
| Quality of material | HSSE-PM | HSSE-PM | HSSE-PM |
| Coating | TC | TC | TC |
| Chamfer | B / 4-5P | C / 2-3P | C / 2-3P |

| M Ćd1 | P | l1 | l2 | l3 | Ćd2 | a | d | Norm | DIN-371 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | 6HX | 6HX | 6HX |
| | | | | | | | | INDEX | C4-115301 | C4-525301 | C4-525351 |
| M3 | 0,50 | 56 | 5 | 18 | 3,5 | 2,7 | 2,50 | 0030 | ● | ● | - |
| M4 | 0,70 | 63 | 7 | 21 | 4,5 | 3,4 | 3,30 | 0040 | ● | ● | - |
| M5 | 0,80 | 70 | 8 | 25 | 6,0 | 4,9 | 4,20 | 0050 | ● | ● | ● |
| M6 | 1,00 | 80 | 10 | 30 | 6,0 | 4,9 | 5,00 | 0060 | ● | ● | ● |
| M8 | 1,25 | 90 | 13 | 35 | 8,0 | 6,2 | 6,80 | 0080 | ● | ● | ● |
| M10 | 1,50 | 100 | 15 | 39 | 10,0 | 8,0 | 8,50 | 0100 | ● | ● | ● |

| M Ćd1 | P | l1 | l2 | l3 | Ćd2 | a | d | Norm | DIN-376 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | 6HX | 6HX | 6HX |
| | | | | | | | | INDEX | D4-115301 | D4-525301 | D4-525351 |
| M12 | 1,75 | 110 | 18 | - | 9,0 | 7,0 | 10,20 | 0120 | ● | ● | ● |
| M14 | 2,00 | 110 | 20 | - | 11,0 | 9,0 | 12,00 | 0140 | ● | ● | ● |
| M16 | 2,00 | 110 | 20 | - | 12,0 | 9,0 | 14,00 | 0160 | ● | ● | ● |

| ISO | Vc (m/min) | | |
|---|---|---|---|
| P | 5-50 | 5-50 | 5-60 |
| M | 5-20 | 5-20 | 5-30 |
| K | 10-40 | 10-40 | 10-60 |
| N | 10-40 | 10-40 | 10-60 |
| S | 1-8 | 1-8 | 1-8 |

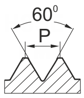
**Example of order**

**C4-115301-0030**
**Tap S-NC M3-6HX DIN-371 B HSSE-PM TC**

● **Available from stock**
○ **On request**

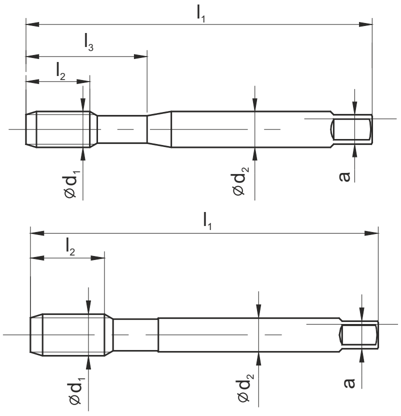
## ISO Metric coarse thread DIN-13

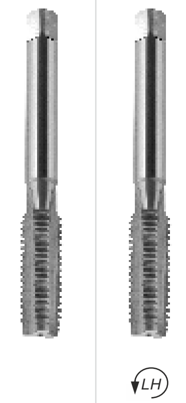
60° P



HSS

DIN 352




| | | LH |
|---|---|---|
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 1,5d | < 1,5d |
| Quality of material | HSS | HSS |
| Coating | | |
| Chamfer | ~3P | ~3P |

| M Ć $d_1$ | P | $l_1$ | $l_2$ | $l_3$ | Ć $d_2$ | a | d | Norm / Tol. / INDEX | DIN-352 ISO2 (6H) E1-131001 | DIN-352 ISO2 (6H) E1-231001 |
|---|---|---|---|---|---|---|---|---|---|---|
| M3 | 0,50 | 40 | 11 | 18,0 | 3,5 | 2,7 | 2,5 | 0030 | ● | ○ |
| M3,5 | 0,60 | 45 | 13 | 21,0 | 4,0 | 3,0 | 2,9 | 0035 | ● | ○ |
| M4 | 0,70 | 45 | 13 | 21,0 | 4,5 | 3,4 | 3,3 | 0040 | ● | ○ |
| M4,5 | 0,75 | 50 | 16 | 25,0 | 6,0 | 4,9 | 3,7 | 0045 | ○ | ○ |
| M5 | 0,80 | 52 | 16 | 26,0 | 6,0 | 4,9 | 4,2 | 0050 | ● | ○ |
| M6 | 1,00 | 56 | 18 | 27,0 | 6,0 | 4,9 | 5,0 | 0060 | ● | ○ |
| M7 | 1,00 | 56 | 18 | - | 6,0 | 4,9 | 6,0 | 0070 | ○ | ○ |
| M8 | 1,25 | 63 | 20 | - | 6,0 | 4,9 | 6,8 | 0080 | ● | ○ |
| M9 | 1,25 | 63 | 20 | - | 7,0 | 5,5 | 7,8 | 0090 | ○ | ○ |
| M10 | 1,50 | 70 | 22 | - | 7,0 | 5,5 | 8,5 | 0100 | ● | ○ |
| M11 | 1,50 | 70 | 22 | - | 8,0 | 6,2 | 9,5 | 0110 | ○ | ○ |
| M12 | 1,75 | 80 | 24 | - | 9,0 | 7,0 | 10,2 | 0120 | ● | ○ |
| M14 | 2,00 | 80 | 26 | - | 11,0 | 9,0 | 12,0 | 0140 | ● | ○ |
| M16 | 2,00 | 80 | 27 | - | 12,0 | 9,0 | 14,0 | 0160 | ● | ○ |
| M18 | 2,50 | 95 | 30 | - | 14,0 | 11,0 | 15,5 | 0180 | ● | ○ |
| M20 | 2,50 | 95 | 32 | - | 16,0 | 12,0 | 17,5 | 0200 | ● | ○ |
| M22 | 2,50 | 100 | 32 | - | 18,0 | 14,5 | 19,5 | 0220 | ● | ○ |
| M24 | 3,00 | 110 | 34 | - | 18,0 | 14,5 | 21,0 | 0240 | ● | ○ |
| M27 | 3,00 | 110 | 36 | - | 20,0 | 16,0 | 24,0 | 0270 | ● | ○ |
| M30 | 3,50 | 125 | 40 | - | 22,0 | 18,0 | 26,5 | 0300 | ● | ○ |
| M33 | 3,50 | 125 | 40 | - | 25,0 | 20,0 | 29,5 | 0330 | ○ | ○ |
| M36 | 4,00 | 150 | 50 | - | 28,0 | 22,0 | 32,0 | 0360 | ● | ○ |
| M39 | 4,00 | 150 | 50 | - | 32,0 | 24,0 | 35,0 | 0390 | ○ | ○ |
| M42 | 4,50 | 150 | 56 | - | 32,0 | 24,0 | 37,5 | 0420 | ● | ○ |
| M45 | 4,50 | 160 | 58 | - | 36,0 | 29,0 | 40,5 | 0450 | ○ | ○ |
| M48 | 5,00 | 180 | 65 | - | 36,0 | 29,0 | 43,0 | 0480 | ○ | ○ |
| M52 | 5,00 | 180 | 65 | - | 40,0 | 32,0 | 47,0 | 0520 | ○ | ○ |
| M56 | 5,50 | 180 | 70 | - | 40,0 | 32,0 | 50,5 | 0560 | ○ | ○ |
| M60 | 5,50 | 200 | 70 | - | 45,0 | 35,0 | 54,5 | 0600 | ○ | ○ |
| M64 | 6,00 | 220 | 75 | - | 50,0 | 39,0 | 58,0 | 0640 | ○ | ○ |
| M68 | 6,00 | 220 | 75 | - | 50,0 | 39,0 | 62,0 | 0680 | ○ | ○ |

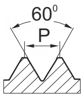
● Available from stock
○ On request

| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-20 | 5-20 |
| M | - | - |
| K | - | - |
| N | - | - |
| S | - | - |

**Example of order**

**E1-131001-0060**
**Tap M6-6H DIN-352 HSS**

## ISO Metric coarse thread DIN-13




HSSE

TC

| | NUT-TAP soldered | NUT-TAP torsioned | | | |
|---|---|---|---|---|---|
| |  | | | | |
| Material groups | P M K N S H | P M K N S H | | | |
| Hole type | < 1,5d | < 1,5d | | | |
| Quality of material | HSSE | HSSE | | | |
| Coating | TC | TC | | | |
| Chamfer | 12P | 12P | | | |

| M Ćd1 | P | Overall dimensions | d | | On request | | | | |
|---|---|---|---|---|---|---|---|---|---|
| M12 | 1,75 | On request | 10,2 | | ○ | ○ | | | |
| M14 | 2,00 | | 12,0 | | ○ | ○ | | | |
| M16 | 2,00 | | 14,0 | | ○ | ○ | | | |
| M18 | 2,50 | | 15,5 | | ○ | ○ | | | |
| M20 | 2,50 | | 17,5 | | ○ | ○ | | | |
| M22 | 2,50 | | 19,5 | | ○ | ○ | | | |
| M24 | 3,00 | | 21,0 | | ○ | ○ | | | |
| M27 | 3,00 | | 24,0 | | ○ | ○ | | | |
| M30 | 3,50 | | 26,5 | | ○ | ○ | | | |
| M33 | 3,50 | | 29,5 | | ○ | ○ | | | |
| M36 | 4,00 | | 32,0 | | ○ | ○ | | | |

| ISO | Vc (m/min) | | | | |
|---|---|---|---|---|---|
| P | 5-20 | 5-20 | | | |
| M | - | - | | | |
| K | - | - | | | |
| N | - | - | | | |
| S | - | - | | | |

**Example of order**

**NUT-TAP M24-ISO2 HSSE TC**

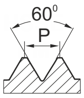
● **Available from stock**
○ **On request**

FANAR®

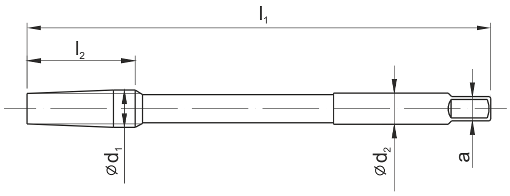


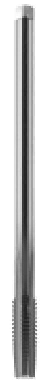
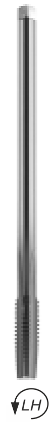


## ISO Metric coarse thread DIN-13




HSS




| | NGMf | |
|---|---|---|
| | | LH |
| |  |  |
| Material groups | P K N | P K N |
| Hole type | < 1,5d | < 1,5d |
| Quality of material | HSS | HSS |
| Coating | | |
| Chamfer | 12P | 12P |

| M<br>Ć $d_1$ | P | $l_1$ | $l_2$ | Ć $d_2$ | a | d | Norm / Tol. / INDEX | NGMf ISO2 (6H) F1-151001 | NGMf ISO2 (6H) F1-251001 |
|---|---|---|---|---|---|---|---|---|---|
| M3 | 0,5 | 70 | 10 | 2,2 | 1,8 | 2,50 | 0030 | ○ | ○ |
| M4 | 0,70 | 90 | 14 | 2,8 | 2,2 | 3,30 | 0040 | ● | ● |
| M4,5 | 0,75 | 100 | 16 | 3,2 | 2,5 | 3,80 | 0045 | ○ | ○ |
| M5 | 0,80 | 110 | 16 | 3,5 | 2,8 | 4,20 | 0050 | ● | ● |
| M6 | 1,00 | 120 | 20 | 4,5 | 3,6 | 5,00 | 0060 | ● | ● |
| M7 | 1,00 | 120 | 20 | 5,6 | 4,5 | 6,00 | 0070 | ○ | ○ |
| M8 | 1,25 | 140 | 25 | 6,3 | 5,0 | 6,80 | 0080 | ● | ● |
| M10 | 1,50 | 160 | 30 | 8,0 | 6,3 | 8,50 | 0100 | ● | ● |
| M12 | 1,75 | 180 | 36 | 9,0 | 7,1 | 10,20 | 0120 | ● | ● |
| M14 | 2,00 | 180 | 40 | 10,0 | 8,0 | 12,00 | 0140 | ● | ○ |
| M16 | 2,00 | 200 | 40 | 12,5 | 10,0 | 14,00 | 0160 | ● | ● |
| M18 | 2,50 | 200 | 50 | 14,0 | 11,2 | 15,50 | 0180 | ● | ○ |
| M20 | 2,50 | 220 | 50 | 16,0 | 12,5 | 17,50 | 0200 | ● | ● |
| M22 | 2,50 | 220 | 50 | 18,0 | 14,0 | 19,50 | 0220 | ● | ○ |
| M24 | 3,00 | 250 | 60 | 18,0 | 14,0 | 21,00 | 0240 | ● | ● |
| M27 | 3,00 | 250 | 60 | 20,0 | 16,0 | 24,00 | 0270 | ● | ○ |
| M30 | 3,50 | 280 | 70 | 22,4 | 18,0 | 26,50 | 0300 | ● | ● |
| M33 | 3,50 | 280 | 70 | 25,0 | 20,0 | 29,50 | 0330 | ● | ● |
| M36 | 4,00 | 320 | 80 | 28,0 | 22,4 | 32,00 | 0360 | ● | ● |

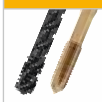
| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-20 | 5-20 |
| M | - | - |
| K | 6-15 | 6-15 |
| N | 6-15 | 6-15 |
| S | - | - |



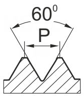
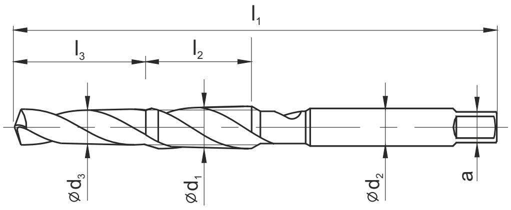
**Example of order**

**F1-151001-0040**
**Tap M4-6H NGMf HSS**

● **Available from stock**
○ **On request**



## ISO Metric coarse thread DIN-13

| | KOMBI |
|---|---|
| | D-R30 |
|  HSS  |  |
| Material groups | P N |
| Hole type |  |
| Quality of material | HSS |
| Coating | - |
| Chamfer | D/4P |

| M Ćd1 | P | l1 | l2 | l3 | Ćd2 | a | d | Norm / Tol. / INDEX | KOMBI / ISO2 (6H) / G1-051001 |
|---|---|---|---|---|---|---|---|---|---|
| M 3 | 0,50 | 56 | 11 | 16 | 3 | 2,4 | 2,5 | 0030 | ● |
| M 4 | 0,70 | 63 | 14 | 18 | 4 | 3,0 | 3,3 | 0040 | ● |
| M 5 | 0,80 | 71 | 18 | 20 | 5 | 3,8 | 4,2 | 0050 | ● |
| M 6 | 1,00 | 80 | 22 | 22 | 6 | 4,9 | 5,0 | 0060 | ● |
| M 8 | 1,25 | 95 | 25 | 26 | 8 | 6,2 | 6,8 | 0080 | ● |
| M 10 | 1,50 | 106 | 31 | 30 | 10 | 8,0 | 8,5 | 0100 | ● |
| M 12 | 1,75 | 115 | 35 | 32 | 12 | 9,0 | 10,2 | 0120 | ● |

| ISO | Vc (m/min) |
|---|---|
| P | 5-15 |
| M | - |
| K | - |
| N | 6-15 |
| S | - |

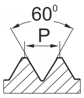
**Example of order**

**G1-051001-0030**
**Tap M3-6H KOMBI D-R30 HSS**

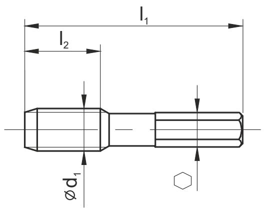
● **Available from stock**
○ **On request**

## ISO Metric coarse thread DIN-13

| | BIT |
|---|---|
| | D |




HSS




| | |
|---|---|
| Material groups | P N |
| Hole type | < 1,5d |
| Quality of material | HSS |
| Coating | - |
| Chamfer | D/4P |

| M Ćd1 | P | l1 | l2 | l3 | Ćd2 | ⬡ | d | Norm | BIT |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | ISO2 (6H) |
| | | | | | | | | INDEX | G1-031001 |
| M3 | 0,50 | 33 | 11 | - | - | 1/4" | 2,5 | 0030 | ● |
| M4 | 0,70 | 35 | 12 | - | - | 1/4" | 3,3 | 0040 | ● |
| M5 | 0,80 | 36 | 15 | - | - | 1/4" | 4,2 | 0050 | ● |
| M6 | 1,00 | 39 | 18 | - | - | 1/4" | 5,0 | 0060 | ● |
| M8 | 1,25 | 40 | 19 | - | - | 1/4" | 6,8 | 0080 | ● |
| M10 | 1,50 | 41 | 21 | - | - | 1/4" | 8,5 | 0100 | ● |

| ISO | Vc (m/min) |
|---|---|
| P | 5-15 |
| M | - |
| K | - |
| N | 6-15 |
| S | - |

Bit set page 206



**Example of order**

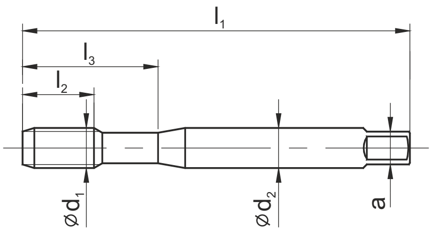
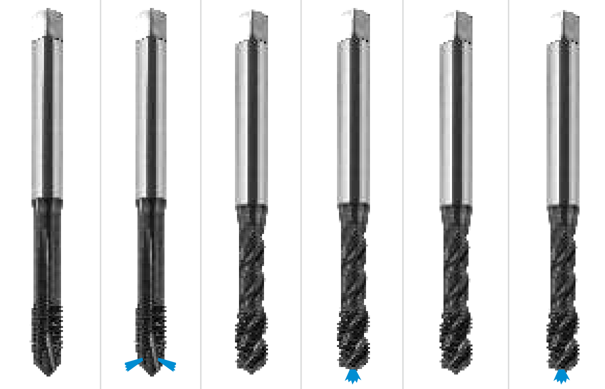
**G1-031001-0030**
**Tap M3-6H BIT HSS**

● **Available from stock**
○ **On request**

1

## ISO Metric fine thread DIN-13

MASTERTAP

| | B-HL | B-IKR-HL | C-R45-HL | C-R45-IK-HL | E-R45-HL | E-R45-IK-HL |
|---|---|---|---|---|---|---|
| 60° P; HSSE PM; HL; DIN 371  |  | | | | | |
| Material groups | P M K N S H | P M K N S H | P M K N S H | P M K N S H | P M K N S H | P M K N S H |
| Hole type | < 3d | < 3d | < 2,5d | < 2,5d | < 2,5d | < 2,5d |
| Quality of material | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM |
| Coating | HL | HL | HL | HL | HL | HL |
| Chamfer | B / 4-5P | B / 4-5P | C / 2-3P | C / 2-3P | E / 1,5-2P | E / 1,5-2P |

| MF Ć $d_1$ | P | $l_1$ | $l_2$ | $l_3$ | Ć $d_2$ | a | d | Norm | DIN-371 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | 6HX | 6HX | 6HX | 6HX | 6HX | 6HX |
| | | | | | | | | INDEX | C4-118M01 | C4-118M61 | C4-528M01 | C4-528M51 | C4-718M01 | C4-718M51 |
| M3x0,35 | 0,35 | 56 | 5 | 18 | 3,5 | 2,7 | 2,65 | 0031 | ● | - | ● | - | ○ | - |
| M3,5x0,35 | 0,35 | 56 | 5 | 20 | 4,0 | 3,0 | 3,15 | 0036 | ● | - | ● | - | ○ | - |
| M4x0,5 | 0,50 | 63 | 7 | 21 | 4,5 | 3,4 | 3,50 | 0041 | ● | - | ● | - | ○ | - |
| M5x0,5 | 0,50 | 70 | 8 | 25 | 6,0 | 4,9 | 4,50 | 0051 | ● | ○ | ● | ○ | ○ | ○ |
| M6x0,5 | 0,50 | 80 | 10 | 30 | 6,0 | 4,9 | 5,50 | 0061 | ● | ○ | ● | ○ | ○ | ○ |
| M6x0,75 | 0,75 | 80 | 10 | 30 | 6,0 | 4,9 | 5,20 | 0062 | ● | ○ | ● | ○ | ○ | ○ |
| M8x0,75 | 0,75 | 80 | 10 | 30 | 8,0 | 6,2 | 7,20 | 0082 | ● | ○ | ● | ○ | ○ | ○ |
| M8x1 | 1,00 | 90 | 13 | 35 | 8,0 | 6,2 | 7,00 | 0083 | ● | ● | ● | ● | ● | ● |
| M10x0,75 | 0,75 | 90 | 13 | 35 | 10,0 | 8,0 | 9,20 | 0102 | ● | ○ | ● | ○ | ○ | ○ |
| M10x1 | 1,00 | 90 | 13 | 35 | 10,0 | 8,0 | 9,00 | 0103 | ● | ● | ● | ● | ● | ● |
| M10x1,25 | 1,25 | 100 | 15 | 39 | 10,0 | 8,0 | 8,80 | 0104 | ● | ○ | ● | ○ | ○ | ○ |

| ISO | Vc (m/min) | | | | | |
|---|---|---|---|---|---|---|
| P | 5-40 | 5-50 | 5-40 | 5-50 | 5-40 | 5-50 |
| M | 5-15 | 5-25 | 5-15 | 5-25 | 5-15 | 5-25 |
| K | 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 |
| N | 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 |
| S | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 |

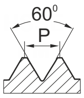
MASTERTAP

**Example of order**

**C4-118M01-0041**
**MasterTAP M4x0,5-6HX DIN-371 B HSSE-PM HL**

● **Available from stock**
○ **On request**

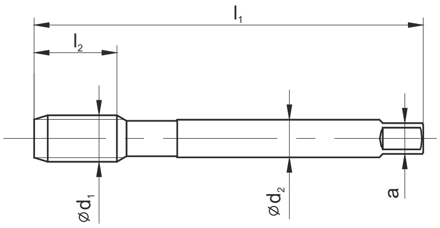
## ISO Metric fine thread DIN-13




HSSE PM

HL

DIN 374




| | MASTERTAP | | | | | |
|---|---|---|---|---|---|---|
| | B-HL | B-IKR-HL | C-R45-HL | C-R45-IK-HL | E-R45-HL | E-R45-IK-HL |
| Material groups | P M K N S H | P M K N S H | P M K N S H | P M K N S H | P M K N S H | P M K N S H |
| Hole type | < 3d | < 3d | < 2,5d | < 2,5d | < 2,5d | < 2,5d |
| Quality of material | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM |
| Coating | HL | HL | HL | HL | HL | HL |
| Chamfer | B / 4-5P | B / 4-5P | C / 2-3P | C / 2-3P | E / 1,5-2P | E / 1,5-2P |

| MF Ćd1 | P | l1 | l2 | l3 | Ćd2 | a | d | Norm / Tol. / INDEX | DIN-374 6HX D4-118M01 | DIN-374 6HX D4-118M61 | DIN-374 6HX D4-528M01 | DIN-374 6HX D4-528M51 | DIN-374 6HX D4-718M01 | DIN-374 6HX D4-718M51 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M8x1 | 1,00 | 90 | 10 | - | 6,0 | 4,9 | 7,00 | 0083 | ● | ● | ● | ● | ● | ○ |
| M10x0,75 | 0,75 | 90 | 10 | - | 7,0 | 5,5 | 9,20 | 0102 | ○ | ○ | ○ | ○ | ○ | ○ |
| M10x1 | 1,00 | 90 | 10 | - | 7,0 | 5,5 | 9,00 | 0103 | ● | ● | ● | ● | ● | ○ |
| M10x1,25 | 1,25 | 100 | 15 | - | 7,0 | 5,5 | 8,80 | 0104 | ○ | ○ | ○ | ○ | ○ | ○ |
| M12x1 | 1,00 | 100 | 10 | - | 9,0 | 7,0 | 11,00 | 0123 | ● | ○ | ● | ○ | ○ | ○ |
| M12x1,25 | 1,25 | 100 | 15 | - | 9,0 | 7,0 | 10,80 | 0124 | ● | ○ | ● | ○ | ○ | ○ |
| M12x1,5 | 1,50 | 100 | 15 | - | 9,0 | 7,0 | 10,50 | 0125 | ● | ● | ● | ● | ● | ○ |
| M14x1 | 1,00 | 100 | 10 | - | 11,0 | 9,0 | 13,00 | 0143 | ○ | ○ | ○ | ○ | ○ | ○ |
| M14x1,25 | 1,25 | 100 | 15 | - | 11,0 | 9,0 | 12,80 | 0144 | ○ | ○ | ○ | ○ | ○ | ○ |
| M14x1,5 | 1,50 | 100 | 15 | - | 11,0 | 9,0 | 12,50 | 0145 | ● | ● | ● | ● | ● | ○ |
| M15x1 | 1,00 | 100 | 10 | - | 12,0 | 9,0 | 14,00 | 0153 | ○ | ○ | ○ | ○ | ○ | ○ |
| M16x1 | 1,00 | 100 | 10 | - | 12,0 | 9,0 | 15,00 | 0163 | ○ | ○ | ○ | ○ | ○ | ○ |
| M16x1,5 | 1,50 | 100 | 15 | - | 12,0 | 9,0 | 14,50 | 0165 | ● | ● | ● | ● | ● | ○ |
| M18x1 | 1,00 | 110 | 13 | - | 14,0 | 11,0 | 17,00 | 0183 | ○ | ○ | ○ | ○ | ○ | ○ |
| M18x1,5 | 1,50 | 110 | 17 | - | 14,0 | 11,0 | 16,50 | 0185 | ● | ○ | ● | ○ | ○ | ○ |
| M18x2 | 2,00 | 125 | 20 | - | 14,0 | 11,0 | 16,00 | 0186 | ○ | ○ | ○ | ○ | ○ | ○ |
| M20x1 | 1,00 | 125 | 13 | - | 16,0 | 12,0 | 19,00 | 0203 | ○ | ○ | ○ | ○ | ○ | ○ |
| M20x1,5 | 1,50 | 125 | 17 | - | 16,0 | 12,0 | 18,50 | 0205 | ● | ○ | ● | ○ | ○ | ○ |
| M20x2 | 2,00 | 140 | 20 | - | 16,0 | 12,0 | 18,00 | 0206 | ○ | ○ | ○ | ○ | ○ | ○ |
| M22x1 | 1,00 | 125 | 13 | - | 18,0 | 14,5 | 21,00 | 0223 | ○ | ○ | ○ | ○ | ○ | ○ |
| M22x1,5 | 1,50 | 125 | 17 | - | 18,0 | 14,5 | 20,50 | 0225 | ● | ○ | ● | ○ | ○ | ○ |
| M22x2 | 2,00 | 140 | 20 | - | 18,0 | 14,5 | 20,00 | 0226 | ○ | ○ | ○ | ○ | ○ | ○ |
| M24x1 | 1,00 | 140 | 13 | - | 18,0 | 14,5 | 23,00 | 0243 | ○ | ○ | ○ | ○ | ○ | ○ |
| M24x1,5 | 1,50 | 140 | 20 | - | 18,0 | 14,5 | 22,50 | 0245 | ● | ○ | ● | ○ | ○ | ○ |
| M24x2 | 2,00 | 140 | 20 | - | 18,0 | 14,5 | 22,00 | 0246 | ○ | ○ | ○ | ○ | ○ | ○ |

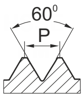
| ISO | Vc (m/min) | | | | | |
|---|---|---|---|---|---|---|
| P | 5-40 | 5-50 | 5-40 | 5-50 | 5-40 | 5-50 |
| M | 5-15 | 5-25 | 5-15 | 5-25 | 5-15 | 5-25 |
| K | 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 |
| N | 10-30 | 10-50 | 10-30 | 10-50 | 10-30 | 10-50 |
| S | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 |

MASTERTAP

**Example of order**
**D4-118M01-0083**
**MasterTAP M8x1-6HX DIN-374 B HSSE-PM HL**

● **Available from stock**
○ **On request**

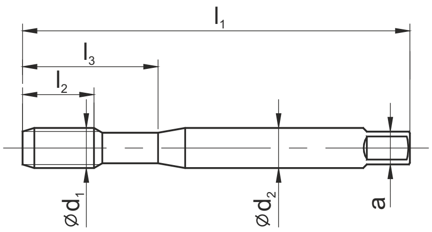
## ISO Metric fine thread DIN-13




HSSE

TN2

DIN 371




**800X**

| | C-TN2 | B-TN2 | C-R40-TN2 |
|---|---|---|---|
| |  | | |
| Material groups | P M K N | P M K N | P M K N |
| Hole type | < 1.5d | < 3d | < 2,5d |
| Quality of material | HSSE | HSSE | HSSE |
| Coating | TN2 | TN2 | TN2 |
| Chamfer | C / 2-3P | B / 4-5P | C / 2-3P |

| MF Ć $d_1$ | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć $d_2$ | a | d | Norm | DIN-371 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) |
| | | | | | | | | | INDEX | C2-123X01 | C2-113X01 | C2-513X01 |
| M4x0,5 | 0,50 | 63 | 12 | 7 | 21 | 4,5 | 3,4 | 3,50 | 0041 | ○ | ○ | ○ |
| M5x0,5 | 0,50 | 70 | 14 | 8 | 25 | 6,0 | 4,9 | 4,50 | 0051 | ○ | ○ | ○ |
| M6x0,75 | 0,75 | 80 | 14 | 10 | 30 | 6,0 | 4,9 | 5,20 | 0062 | ○ | ○ | ○ |
| M8x0,75 | 0,75 | 80 | 18 | 10 | 30 | 8,0 | 6,2 | 7,20 | 0082 | ○ | ○ | ○ |
| M8x1 | 1,00 | 90 | 20 | 13 | 35 | 8,0 | 6,2 | 7,00 | 0083 | ● | ● | ● |
| M10x0,75 | 0,75 | 90 | 20 | 13 | 35 | 10,0 | 8,0 | 9,20 | 0102 | ○ | ○ | ○ |
| M10x1 | 1,00 | 90 | 20 | 13 | 35 | 10,0 | 8,0 | 9,00 | 0103 | ● | ● | ● |
| M10x1,25 | 1,25 | 100 | 20 | 15 | 39 | 10,0 | 8,0 | 8,80 | 0104 | ○ | ● | ● |

| ISO | Vc (m/min) | | |
|---|---|---|---|
| P | 5-35 | 5-35 | 5-35 |
| M | 5-15 | 5-15 | 5-15 |
| K | 5-25 | 5-25 | 5-25 |
| N | 10-30 | 10-30 | 10-30 |
| S | - | - | - |

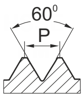
800X

**Example of order**

**C2-123X01-0083**
**Tap 800X M8x1-6H DIN-371 C HSSE TN2**

● **Available from stock**
○ **On request**

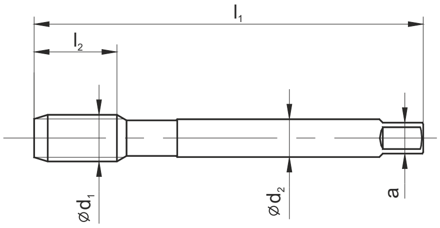
## ISO Metric fine thread DIN-13




HSSE

TN2

DIN 374




| 800X | C-TN2 | B-TN2 | C-R40-TN2 |
|---|---|---|---|
| Material groups | P M K N | P M K N | P M K N |
| Hole type | < 1.5d | < 3d | < 2,5d |
| Quality of material | HSSE | HSSE | HSSE |
| Coating | TN2 | TN2 | TN2 |
| Chamfer | C / 2-3P | B / 4-5P | C / 2-3P |

| MF Ćd1 | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm | DIN-374 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) |
| | | | | | | | | | INDEX | D2-123X01 | D2-113X01 | D2-513X01 |
| M8x1 | 1,00 | 90 | 20 | 10 | - | 6,0 | 4,9 | 7,00 | 0083 | ● | ● | ● |
| M9x1 | 1,00 | 90 | 20 | 10 | - | 7,0 | 5,5 | 8,00 | 0093 | ○ | ○ | ○ |
| M10x0,75 | 0,75 | 90 | 18 | 10 | - | 7,0 | 5,5 | 9,20 | 0102 | ● | ● | ● |
| M10x1 | 1,00 | 90 | 20 | 10 | - | 7,0 | 5,5 | 9,00 | 0103 | ● | ● | ● |
| M10x1,25 | 1,25 | 100 | 20 | 15 | - | 7,0 | 5,5 | 8,80 | 0104 | ● | ● | ● |
| M11x1 | 1,00 | 90 | 20 | 10 | - | 8,0 | 6,2 | 10,00 | 0113 | ○ | ○ | ○ |
| M12x1 | 1,00 | 100 | 20 | 10 | - | 9,0 | 7,0 | 11,00 | 0123 | ● | ● | ● |
| M12x1,25 | 1,25 | 100 | 20 | 15 | - | 9,0 | 7,0 | 10,80 | 0124 | ● | ● | ● |
| M12x1,5 | 1,50 | 100 | 20 | 15 | - | 9,0 | 7,0 | 10,50 | 0125 | ● | ● | ● |
| M14x1 | 1,00 | 100 | 20 | 10 | - | 11,0 | 9,0 | 13,00 | 0143 | ● | ● | ● |
| M14x1,25 | 1,25 | 100 | 20 | 15 | - | 11,0 | 9,0 | 12,80 | 0144 | ● | ● | ● |
| M14x1,5 | 1,50 | 100 | 20 | 15 | - | 11,0 | 9,0 | 12,50 | 0145 | ● | ● | ● |
| M15x1 | 1,00 | 100 | 20 | 10 | - | 12,0 | 9,0 | 14,00 | 0153 | ○ | ○ | ○ |
| M16x1 | 1,00 | 100 | 20 | 10 | - | 12,0 | 9,0 | 15,00 | 0163 | ● | ● | ● |
| M16x1,5 | 1,50 | 100 | 20 | 15 | - | 12,0 | 9,0 | 14,50 | 0165 | ● | ● | ● |
| M18x1 | 1,00 | 110 | 24 | 13 | - | 14,0 | 11,0 | 17,00 | 0183 | ○ | ○ | ○ |
| M18x1,5 | 1,50 | 110 | 24 | 17 | - | 14,0 | 11,0 | 16,50 | 0185 | ● | ● | ● |
| M18x2 | 2,00 | 125 | 27 | 20 | - | 14,0 | 11,0 | 16,00 | 0186 | ● | ● | ● |
| M20x1 | 1,00 | 125 | 24 | 13 | - | 16,0 | 12,0 | 19,00 | 0203 | ○ | ○ | ○ |
| M20x1,5 | 1,50 | 125 | 24 | 17 | - | 16,0 | 12,0 | 18,50 | 0205 | ● | ● | ● |
| M20x2 | 2,00 | 140 | 27 | 20 | - | 16,0 | 12,0 | 18,00 | 0206 | ● | ● | ● |
| M22x1 | 1,00 | 125 | 24 | 13 | - | 18,0 | 14,5 | 21,00 | 0223 | ○ | ○ | ○ |
| M22x1,5 | 1,50 | 125 | 24 | 17 | - | 18,0 | 14,5 | 20,50 | 0225 | ● | ● | ● |
| M22x2 | 2,00 | 140 | 27 | 20 | - | 18,0 | 14,5 | 20,00 | 0226 | ● | ● | ● |
| M24x1 | 1,00 | 140 | 27 | 13 | - | 18,0 | 14,5 | 23,00 | 0243 | ○ | ○ | ○ |
| M24x1,5 | 1,50 | 140 | 27 | 20 | - | 18,0 | 14,5 | 22,50 | 0245 | ● | ● | ● |
| M24x2 | 2,00 | 140 | 27 | 20 | - | 18,0 | 14,5 | 22,00 | 0246 | ● | ● | ● |
| M25x1,5 | 1,50 | 140 | 27 | 20 | - | 18,0 | 14,5 | 23,50 | 0255 | ○ | ○ | ○ |
| M26x1,5 | 1,50 | 140 | 27 | 20 | - | 18,0 | 14,5 | 24,50 | 0265 | ○ | ○ | ○ |
| M27x1,5 | 1,50 | 140 | 27 | 20 | - | 20,0 | 16,0 | 25,50 | 0275 | ● | ● | ● |
| M27x2 | 2,00 | 140 | 27 | 20 | - | 20,0 | 16,0 | 25,00 | 0276 | ● | ● | ● |
| M28x1,5 | 1,50 | 140 | 27 | 20 | - | 20,0 | 16,0 | 26,50 | 0285 | ○ | ○ | ○ |

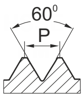
● **Available from stock**
○ **On request**

| ISO | Vc (m/min) | | |
|---|---|---|---|
| P | 5-35 | 5-35 | 5-35 |
| M | 5-15 | 5-15 | 5-15 |
| K | 5-25 | 5-25 | 5-25 |
| N | 10-30 | 10-30 | 10-30 |
| S | - | - | - |

**Example of order**

**D2-123X01-0083**
**Tap 800X M8x1-6H DIN-374 C HSSE TN2**

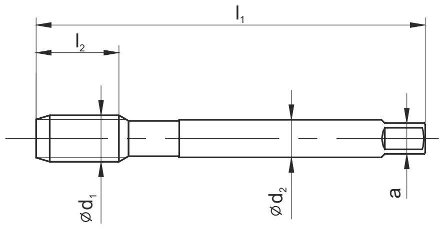
## ISO Metric fine thread DIN-13




HSSE

TN2

DIN 374




800X

| | C-TN2 | B-TN2 | C-R40-TN2 |
|---|---|---|---|
| |  | | |
| Material groups | P M K N S H | P M K N S H | P M K N S H |
| Hole type | < 1.5d | < 3d | < 2,5d |
| Quality of material | HSSE | HSSE | HSSE |
| Coating | TN2 | TN2 | TN2 |
| Chamfer | C / 2-3P | B / 4-5P | C / 2-3P |

| MF Ćd1 | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm / Tol. / INDEX | DIN-374 ISO2 (6H) D2-123X01 | DIN-374 ISO2 (6H) D2-113X01 | DIN-374 ISO2 (6H) D2-513X01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M28x2 | 2,0 | 140 | 27 | 20 | - | 20,0 | 16,0 | 26,00 | 0286 | ○ | ○ | ○ |
| M30x1,5 | 1,5 | 150 | 27 | 22 | - | 22,0 | 18,0 | 28,50 | 0305 | ● | ● | ● |
| M30x2 | 2,0 | 150 | 27 | 22 | - | 22,0 | 18,0 | 28,00 | 0306 | ● | ● | ● |
| M32x1,5 | 1,5 | 150 | 27 | 22 | - | 22,0 | 18,0 | 30,50 | 0325 | ○ | ○ | ○ |
| M32x2 | 2,0 | 150 | 27 | 22 | - | 22,0 | 18,0 | 30,00 | 0326 | ○ | ○ | ○ |
| M33x1,5 | 1,5 | 160 | 30 | 22 | - | 25,0 | 20,0 | 31,50 | 0335 | ○ | ○ | ○ |
| M33x2 | 2,0 | 160 | 30 | 24 | - | 25,0 | 20,0 | 31,00 | 0336 | ○ | ○ | ○ |
| M34x1,5 | 1,5 | 170 | 30 | 22 | - | 28,0 | 22,0 | 32,50 | 0345 | ○ | ○ | ○ |
| M35x1,5 | 1,5 | 170 | 30 | 22 | - | 28,0 | 22,0 | 33,50 | 0355 | ○ | ○ | ○ |
| M36x1,5 | 1,5 | 170 | 30 | 22 | - | 28,0 | 22,0 | 34,50 | 0365 | ○ | ○ | ○ |
| M36x2 | 2,0 | 170 | 30 | 24 | - | 28,0 | 22,0 | 34,00 | 0366 | ○ | ○ | ○ |
| M36x3 | 3,0 | 200 | 50 | 30 | - | 28,0 | 22,0 | 33,00 | 0367 | ○ | ○ | ○ |
| M38x1,5 | 1,5 | 170 | 30 | 24 | - | 28,0 | 22,0 | 36,50 | 0385 | ○ | ○ | ○ |
| M39x1,5 | 1,5 | 170 | 30 | 25 | - | 32,0 | 24,0 | 37,50 | 0395 | ○ | ○ | ○ |
| M39x2 | 2,0 | 170 | 30 | 25 | - | 32,0 | 24,0 | 37,00 | 0396 | ○ | ○ | ○ |
| M39x3 | 3,0 | 200 | 50 | 30 | - | 32,0 | 24,0 | 36,00 | 0397 | ○ | ○ | ○ |
| M40x1,5 | 1,5 | 170 | 30 | 25 | - | 32,0 | 24,0 | 38,50 | 0405 | ○ | ○ | ○ |
| M40x2 | 2,0 | 170 | 30 | 25 | - | 32,0 | 24,0 | 38,00 | 0406 | ○ | ○ | ○ |
| M42x1,5 | 1,5 | 170 | 30 | 25 | - | 32,0 | 24,0 | 40,50 | 0425 | ○ | ○ | ○ |
| M42x2 | 2,0 | 170 | 30 | 25 | - | 32,0 | 24,0 | 40,00 | 0426 | ○ | ○ | ○ |
| M42x3 | 3,0 | 200 | 50 | 30 | - | 32,0 | 24,0 | 39,00 | 0427 | ○ | ○ | ○ |
| M45x1,5 | 1,5 | 180 | 30 | 27 | - | 36,0 | 29,0 | 43,50 | 0455 | ○ | ○ | ○ |
| M45x2 | 2,0 | 180 | 30 | 27 | - | 36,0 | 29,0 | 43,00 | 0456 | ○ | ○ | ○ |
| M45x3 | 3,0 | 200 | 50 | 30 | - | 36,0 | 29,0 | 42,00 | 0457 | ○ | ○ | ○ |
| M48x1,5 | 1,5 | 190 | 30 | 27 | - | 36,0 | 29,0 | 46,50 | 0485 | ○ | ○ | ○ |
| M48x2 | 2,0 | 190 | 30 | 27 | - | 36,0 | 29,0 | 46,00 | 0486 | ○ | ○ | ○ |
| M48x3 | 3,0 | 225 | 50 | 33 | - | 36,0 | 29,0 | 45,00 | 0487 | ○ | ○ | ○ |
| M50x1,5 | 1,5 | 190 | 30 | 27 | - | 36,0 | 29,0 | 48,50 | 0505 | ○ | ○ | ○ |
| M50x2 | 2,0 | 190 | 30 | 33 | - | 36,0 | 29,0 | 48,00 | 0506 | ○ | ○ | ○ |
| M52x1,5 | 1,5 | 190 | 32 | 27 | - | 40,0 | 32,0 | 50,50 | 0525 | ○ | ○ | ○ |
| M52x2 | 2,0 | 190 | 32 | 33 | - | 40,0 | 32,0 | 50,00 | 0526 | ○ | ○ | ○ |
| M52x3 | 3,0 | 225 | 50 | 33 | - | 40,0 | 32,0 | 49,00 | 0527 | ○ | ○ | ○ |

● **Available from stock**

○ **On request**

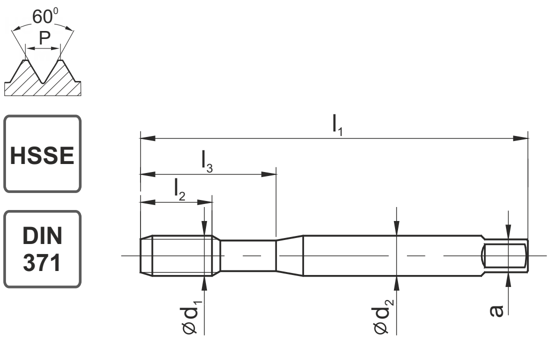
| ISO | Vc (m/min) | | |
|---|---|---|---|
| P | 5-35 | 5-35 | 5-35 |
| M | 5-15 | 5-15 | 5-15 |
| K | 5-25 | 5-25 | 5-25 |
| N | 10-30 | 10-30 | 10-30 |
| S | - | - | - |

**Example of order**

**D2-123X01-0305**
**Tap 800X M30x1,5-6H DIN-374 C HSSE TN2**

1

## ISO Metric fine thread DIN-13




| | 800 | | |
|---|---|---|---|
| | C | B | C-R40 |
| Material groups | P K N | P K N | P K N |
| Hole type | < 1.5d | < 3d | < 2,5d |
| Quality of material | HSSE | HSSE | HSSE |
| Coating | | | |
| Chamfer | C / 2-3P | B / 4-5P | C / 2-3P |

| MF Ćd1 | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm / Tol. / INDEX | DIN-371 ISO2 (6H) C2-121101 | DIN-371 ISO2 (6H) C2-111101 | DIN-371 ISO2 (6H) C2-511101 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M3x0,35 | 0,35 | 56 | 10 | 5 | 18 | 3,5 | 2,7 | 2,65 | 0031 | ● | ● | ● |
| M3,5x0,35 | 0,35 | 56 | 10 | 5 | 20 | 4,0 | 3,0 | 3,15 | 0036 | ● | ● | ● |
| M4x0,5 | 0,50 | 63 | 12 | 7 | 21 | 4,5 | 3,4 | 3,50 | 0041 | ● | ● | ● |
| M5x0,5 | 0,50 | 70 | 14 | 8 | 25 | 6,0 | 4,9 | 4,50 | 0051 | ● | ● | ● |
| M6x0,75 | 0,75 | 80 | 14 | 10 | 30 | 6,0 | 4,9 | 5,20 | 0062 | ● | ● | ● |
| M8x0,75 | 0,75 | 80 | 18 | 10 | 30 | 8,0 | 6,2 | 7,20 | 0082 | ● | ● | ● |
| M8x1 | 1,00 | 90 | 20 | 13 | 35 | 8,0 | 6,2 | 7,00 | 0083 | ● | ● | ● |
| M10x0,75 | 0,75 | 90 | 20 | 13 | 35 | 10,0 | 8,0 | 9,20 | 0102 | ● | ● | ● |
| M10x1 | 1,00 | 90 | 20 | 13 | 35 | 10,0 | 8,0 | 9,00 | 0103 | ● | ● | ● |
| M10x1,25 | 1,25 | 100 | 20 | 15 | 39 | 10,0 | 8,0 | 8,80 | 0104 | ● | ● | ● |

| ISO | Vc (m/min) | | |
|---|---|---|---|
| P | 5-20 | 5-20 | 5-20 |
| M | - | - | - |
| K | 5-15 | 5-15 | 5-15 |
| N | 5-25 | 5-25 | 5-25 |
| S | - | - | - |

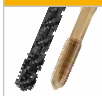


**Example of order**

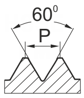
**C2-121101-0041**
**Tap 800 M4x0,5-6H DIN-371 C HSSE**

● **Available from stock**
○ **On request**

1

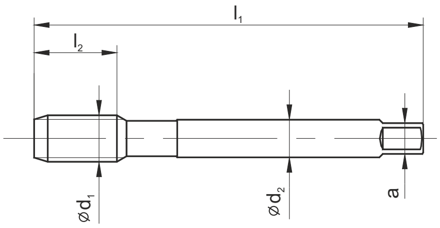


## ISO Metric fine thread DIN-13




HSSE

DIN 374




| | 800 | | |
|---|---|---|---|
| | C | B | C-R40 |
| |  | | |
| Material groups | P K N | P K N | P K N |
| Hole type | < 1.5d | < 3d | < 2,5d |
| Quality of material | HSSE | HSSE | HSSE |
| Coating | | | |
| Chamfer | C / 2-3P | B / 4-5P | C / 2-3P |

| MF Ć$d_1$ | P | $l_1$ | $l_2$ | $l_2$ R40 R45 | $l_3$ | Ć$d_2$ | a | d | Norm / Tol. / INDEX | DIN-374 ISO2 (6H) D2-121101 | DIN-374 ISO2 (6H) D2-111101 | DIN-374 ISO2 (6H) D2-511101 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M8x1 | 1,00 | 90 | 20 | 10 | - | 6,0 | 4,9 | 7,00 | 0083 | ● | ● | ● |
| M9x1 | 1,00 | 90 | 20 | 10 | - | 7,0 | 5,5 | 8,00 | 0093 | ○ | ○ | ○ |
| M10x0,75 | 0,75 | 90 | 18 | 10 | - | 7,0 | 5,5 | 9,20 | 0102 | ● | ● | ● |
| M10x1 | 1,00 | 90 | 20 | 10 | - | 7,0 | 5,5 | 9,00 | 0103 | ● | ● | ● |
| M10x1,25 | 1,25 | 100 | 20 | 15 | - | 7,0 | 5,5 | 8,80 | 0104 | ● | ● | ● |
| M11x1 | 1,00 | 90 | 20 | 10 | - | 8,0 | 6,2 | 10,00 | 0113 | ○ | ○ | ○ |
| M12x1 | 1,00 | 100 | 20 | 10 | - | 9,0 | 7,0 | 11,00 | 0123 | ● | ● | ● |
| M12x1,25 | 1,25 | 100 | 20 | 15 | - | 9,0 | 7,0 | 10,80 | 0124 | ● | ● | ● |
| M12x1,5 | 1,50 | 100 | 20 | 15 | - | 9,0 | 7,0 | 10,50 | 0125 | ● | ● | ● |
| M14x1 | 1,00 | 100 | 20 | 10 | - | 11,0 | 9,0 | 13,00 | 0143 | ● | ● | ● |
| M14x1,25 | 1,25 | 100 | 20 | 15 | - | 11,0 | 9,0 | 12,80 | 0144 | ● | ● | ● |
| M14x1,5 | 1,50 | 100 | 20 | 15 | - | 11,0 | 9,0 | 12,50 | 0145 | ● | ● | ● |
| M15x1 | 1,00 | 100 | 20 | 10 | - | 12,0 | 9,0 | 14,00 | 0153 | ○ | ○ | ○ |
| M16x1 | 1,00 | 100 | 20 | 10 | - | 12,0 | 9,0 | 15,00 | 0163 | ● | ● | ● |
| M16x1,5 | 1,50 | 100 | 20 | 15 | - | 12,0 | 9,0 | 14,50 | 0165 | ● | ● | ● |
| M18x1 | 1,00 | 110 | 24 | 13 | - | 14,0 | 11,0 | 17,00 | 0183 | ○ | ○ | ○ |
| M18x1,5 | 1,50 | 110 | 24 | 17 | - | 14,0 | 11,0 | 16,50 | 0185 | ● | ● | ● |
| M18x2 | 2,00 | 125 | 27 | 20 | - | 14,0 | 11,0 | 16,00 | 0186 | ● | ● | ● |
| M20x1 | 1,00 | 125 | 24 | 13 | - | 16,0 | 12,0 | 19,00 | 0203 | ○ | ○ | ○ |
| M20x1,5 | 1,50 | 125 | 24 | 17 | - | 16,0 | 12,0 | 18,50 | 0205 | ● | ● | ● |
| M20x2 | 2,00 | 140 | 27 | 20 | - | 16,0 | 12,0 | 18,00 | 0206 | ● | ● | ● |
| M22x1 | 1,00 | 125 | 24 | 13 | - | 18,0 | 14,5 | 21,00 | 0223 | ○ | ○ | ○ |
| M22x1,5 | 1,50 | 125 | 24 | 17 | - | 18,0 | 14,5 | 20,50 | 0225 | ● | ● | ● |
| M22x2 | 2,00 | 140 | 27 | 20 | - | 18,0 | 14,5 | 20,00 | 0226 | ● | ● | ● |
| M24x1 | 1,00 | 140 | 27 | 13 | - | 18,0 | 14,5 | 23,00 | 0243 | ○ | ○ | ○ |
| M24x1,5 | 1,50 | 140 | 27 | 20 | - | 18,0 | 14,5 | 22,50 | 0245 | ● | ● | ● |
| M24x2 | 2,00 | 140 | 27 | 20 | - | 18,0 | 14,5 | 22,00 | 0246 | ● | ● | ● |
| M25x1,5 | 1,50 | 140 | 27 | 20 | - | 18,0 | 14,5 | 23,50 | 0255 | ○ | ○ | ○ |
| M26x1,5 | 1,50 | 140 | 27 | 20 | - | 18,0 | 14,5 | 24,50 | 0265 | ○ | ○ | ○ |
| M27x1,5 | 1,50 | 140 | 27 | 20 | - | 20,0 | 16,0 | 25,50 | 0275 | ● | ● | ● |
| M27x2 | 2,00 | 140 | 27 | 20 | - | 20,0 | 16,0 | 25,00 | 0276 | ● | ● | ● |
| M28x1,5 | 1,50 | 140 | 27 | 20 | - | 20,0 | 16,0 | 26,50 | 0285 | ○ | ○ | ○ |

● Available from stock

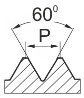
○ On request

| ISO | Vc (m/min) | | |
|---|---|---|---|
| P | 5-20 | 5-20 | 5-20 |
| M | - | - | - |
| K | 5-15 | 5-15 | 5-15 |
| N | 5-25 | 5-25 | 5-25 |
| S | - | - | - |

**Example of order**

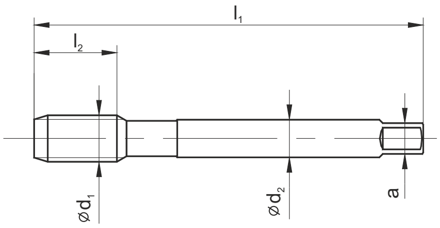
**D2-121101-0083**
**Tap 800 M8x1-6H DIN-374 C HSSE**

## ISO Metric fine thread DIN-13




HSSE

DIN 374




| | 800 | | |
|---|---|---|---|
| | C | B | C-R40 |
| Material groups | P K N | P K N | P K N |
| Hole type | < 1.5d | < 3d | < 2,5d |
| Quality of material | HSSE | HSSE | HSSE |
| Coating | | | |
| Chamfer | C / 2-3P | B / 4-5P | C / 2-3P |

| MF Ćd1 | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm / Tol. / INDEX | DIN-374 ISO2 (6H) D2-121101 | DIN-374 ISO2 (6H) D2-111101 | DIN-374 ISO2 (6H) D2-511101 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M28x2 | 2,0 | 140 | 27 | 20 | - | 20,0 | 16,0 | 26,00 | 0286 | ○ | ○ | ○ |
| M30x1,5 | 1,5 | 150 | 27 | 22 | - | 22,0 | 18,0 | 28,50 | 0305 | ● | ● | ● |
| M30x2 | 2,0 | 150 | 27 | 22 | - | 22,0 | 18,0 | 28,00 | 0306 | ● | ● | ● |
| M32x1,5 | 1,5 | 150 | 27 | 22 | - | 22,0 | 18,0 | 30,50 | 0325 | ○ | ○ | ○ |
| M32x2 | 2,0 | 150 | 27 | 22 | - | 22,0 | 18,0 | 30,00 | 0326 | ○ | ○ | ○ |
| M33x1,5 | 1,5 | 160 | 30 | 22 | - | 25,0 | 20,0 | 31,50 | 0335 | ● | ● | ● |
| M33x2 | 2,0 | 160 | 30 | 24 | - | 25,0 | 20,0 | 31,00 | 0336 | ● | ● | ● |
| M34x1,5 | 1,5 | 170 | 30 | 22 | - | 28,0 | 22,0 | 32,50 | 0345 | ○ | ○ | ○ |
| M35x1,5 | 1,5 | 170 | 30 | 22 | - | 28,0 | 22,0 | 33,50 | 0355 | ○ | ○ | ○ |
| M36x1,5 | 1,5 | 170 | 30 | 22 | - | 28,0 | 22,0 | 34,50 | 0365 | ● | ● | ● |
| M36x2 | 2,0 | 170 | 30 | 24 | - | 28,0 | 22,0 | 34,00 | 0366 | ● | ● | ● |
| M36x3 | 3,0 | 200 | 50 | 30 | - | 28,0 | 22,0 | 33,00 | 0367 | ○ | ○ | ○ |
| M38x1,5 | 1,5 | 170 | 30 | 24 | - | 28,0 | 22,0 | 36,50 | 0385 | ○ | ○ | ○ |
| M39x1,5 | 1,5 | 170 | 30 | 25 | - | 32,0 | 24,0 | 37,50 | 0395 | ○ | ○ | ○ |
| M39x2 | 2,0 | 170 | 30 | 25 | - | 32,0 | 24,0 | 37,00 | 0396 | ○ | ○ | ○ |
| M39x3 | 3,0 | 200 | 50 | 30 | - | 32,0 | 24,0 | 36,00 | 0397 | ○ | ○ | ○ |
| M40x1,5 | 1,5 | 170 | 30 | 25 | - | 32,0 | 24,0 | 38,50 | 0405 | ○ | ○ | ○ |
| M40x2 | 2,0 | 170 | 30 | 25 | - | 32,0 | 24,0 | 38,00 | 0406 | ○ | ○ | ○ |
| M42x1,5 | 1,5 | 170 | 30 | 25 | - | 32,0 | 24,0 | 40,50 | 0425 | ○ | ○ | ○ |
| M42x2 | 2,0 | 170 | 30 | 25 | - | 32,0 | 24,0 | 40,00 | 0426 | ○ | ○ | ○ |
| M42x3 | 3,0 | 200 | 50 | 30 | - | 32,0 | 24,0 | 39,00 | 0427 | ○ | ○ | ○ |
| M45x1,5 | 1,5 | 180 | 30 | 27 | - | 36,0 | 29,0 | 43,50 | 0455 | ○ | ○ | ○ |
| M45x2 | 2,0 | 180 | 30 | 27 | - | 36,0 | 29,0 | 43,00 | 0456 | ○ | ○ | ○ |
| M45x3 | 3,0 | 200 | 50 | 30 | - | 36,0 | 29,0 | 42,00 | 0457 | ○ | ○ | ○ |
| M48x1,5 | 1,5 | 190 | 30 | 27 | - | 36,0 | 29,0 | 46,50 | 0485 | ○ | ○ | ○ |
| M48x2 | 2,0 | 190 | 30 | 27 | - | 36,0 | 29,0 | 46,00 | 0486 | ○ | ○ | ○ |
| M48x3 | 3,0 | 225 | 50 | 33 | - | 36,0 | 29,0 | 45,00 | 0487 | ○ | ○ | ○ |
| M50x1,5 | 1,5 | 190 | 30 | 27 | - | 36,0 | 29,0 | 48,50 | 0505 | ○ | ○ | ○ |
| M50x2 | 2,0 | 190 | 30 | 33 | - | 36,0 | 29,0 | 48,00 | 0506 | ○ | ○ | ○ |
| M52x1,5 | 1,5 | 190 | 32 | 27 | - | 40,0 | 32,0 | 50,50 | 0525 | ○ | ○ | ○ |
| M52x2 | 2,0 | 190 | 32 | 33 | - | 40,0 | 32,0 | 50,00 | 0526 | ○ | ○ | ○ |
| M52x3 | 3,0 | 225 | 50 | 33 | - | 40,0 | 32,0 | 49,00 | 0527 | ○ | ○ | ○ |

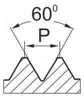
● Available from stock
○ On request

| ISO | Vc (m/min) | | |
|---|---|---|---|
| P | 5-20 | 5-20 | 5-20 |
| M | - | - | - |
| K | 5-15 | 5-15 | 5-15 |
| N | 5-25 | 5-25 | 5-25 |
| S | - | - | - |

**Example of order**

**D2-121101-0286**
**Tap 800 M28x2-6H DIN-374 C HSSE**

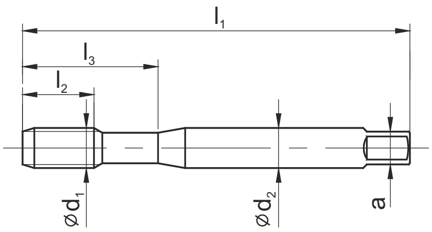
## ISO Metric fine thread DIN-13




HSSE PM

TC

DIN 371




| | FAN-1200 | | 1400 | | |
|---|---|---|---|---|---|
| | B-TC | C-R40-TC | C-TC | B-TC | C-R15-TC |

| | B-TC | C-R40-TC | C-TC | B-TC | C-R15-TC |
|---|---|---|---|---|---|
| Material groups | P M K N | P M K N | P M K N | P M K N | P M K N |
| Hole type | < 3d | < 2,5d | < 1,5d | < 2,5d | < 1,5d |
| Quality of material | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM |
| Coating | TC | TC | TC | TC | TC |
| Chamfer | B / 4-5P | C / 2-3P | C / 2-3P | B / 4-5P | C / 2-3P |

| MF Ć $d_1$ | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć $d_2$ | a | d | Norm | DIN-371 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | 6HX | 6HX | 6HX |
| | | | | | | | | | INDEX | C4-115001 | C4-565001 | C4-125901 | C4-115901 | C4-505901 |
| M4x0,5 | 0,50 | 63 | 12 | 7 | 21 | 4,5 | 3,4 | 3,50 | 0041 | ○ | ○ | ○ | ○ | ○ |
| M5x0,5 | 0,50 | 70 | 14 | 8 | 25 | 6,0 | 4,9 | 4,50 | 0051 | ○ | ○ | ○ | ○ | ○ |
| M6x0,75 | 0,75 | 80 | 14 | 10 | 30 | 6,0 | 4,9 | 5,20 | 0062 | ○ | ○ | ○ | ○ | ○ |
| M8x0,75 | 0,75 | 80 | 18 | 10 | 30 | 8,0 | 6,2 | 7,20 | 0082 | ○ | ○ | ○ | ○ | ○ |
| M8x1 | 1,00 | 90 | 20 | 13 | 35 | 8,0 | 6,2 | 7,00 | 0083 | ● | ● | ● | ● | ● |
| M10x0,75 | 0,75 | 90 | 20 | 13 | 35 | 10,0 | 8,0 | 9,20 | 0102 | ○ | ○ | ○ | ○ | ○ |
| M10x1 | 1,00 | 90 | 20 | 13 | 35 | 10,0 | 8,0 | 9,00 | 0103 | ● | ● | ● | ● | ● |
| M10x1,25 | 1,25 | 100 | 20 | 15 | 39 | 10,0 | 8,0 | 8,80 | 0104 | ○ | ○ | ○ | ○ | ○ |

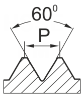
| ISO | Vc (m/min) | | | | |
|---|---|---|---|---|---|
| P | 5-35 | 5-35 | 1-20 | 1-20 | 1-20 |
| M | 5-15 | 5-15 | 1-10 | 1-10 | 1-10 |
| K | 5-25 | 5-25 | 1-20 | 1-20 | 1-20 |
| N | 10-30 | 10-30 | 10-20 | 10-20 | 10-20 |
| S | - | - | - | - | - |

**Example of order**

**C4-115001-0062**
**FAN-1200 M6x0,75-6H DIN-371 B HSSE-PM TC**

● **Available from stock**
○ **On request**

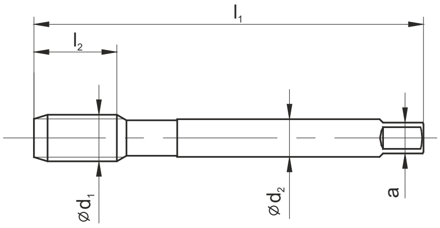
## ISO Metric fine thread DIN-13




HSSE PM

TC

DIN 374




| | FAN-1200 | | 1400 | | |
|---|---|---|---|---|---|
| | B-TC | C-R40-TC | C-TC | B-TC | C-R15-TC |
| Material groups | P M K N | P M K N | P M K N | P M K N | P M K N |
| Hole type | < 3d | < 2,5d | < 1,5d | < 2,5d | < 1,5d |
| Quality of material | PM/HSSE | PM/HSSE | PM/HSSE | PM/HSSE | PM/HSSE |
| Coating | TC | TC | TC | TC | TC |
| Chamfer | B / 4-5P | C / 2-3P | C / 2-3P | B / 4-5P | C / 2-3P |

| MF Ć $d_1$ | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć $d_2$ | a | d | Norm | DIN-374 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | 6HX | 6HX | 6HX |
| | | | | | | | | | INDEX | D4-115001 | D4-565001 | D4-125901 | D4-115901 | D4-505901 |
| M8x1 | 1,00 | 90 | 20 | 10 | - | 6,0 | 4,9 | 7,00 | 0083 | ● | ● | ● | ● | ● |
| M10x0,75 | 0,75 | 90 | 18 | 10 | - | 7,0 | 5,5 | 9,20 | 0102 | ○ | ○ | ○ | ○ | ○ |
| M10x1 | 1,00 | 90 | 20 | 10 | - | 7,0 | 5,5 | 9,00 | 0103 | ● | ● | ● | ● | ● |
| M10x1,25 | 1,25 | 100 | 20 | 15 | - | 7,0 | 5,5 | 8,80 | 0104 | ○ | ○ | ○ | ○ | ○ |
| M12x1 | 1,00 | 100 | 20 | 10 | - | 9,0 | 7,0 | 11,00 | 0123 | ● | ● | ● | ● | ● |
| M12x1,25 | 1,25 | 100 | 20 | 15 | - | 9,0 | 7,0 | 10,80 | 0124 | ● | ● | ● | ● | ● |
| M12x1,5 | 1,50 | 100 | 20 | 15 | - | 9,0 | 7,0 | 10,50 | 0125 | ● | ● | ● | ● | ● |
| M14x1 | 1,00 | 100 | 20 | 10 | - | 11,0 | 9,0 | 13,00 | 0143 | ○ | ○ | ○ | ○ | ● |
| M14x1,25 | 1,25 | 100 | 20 | 15 | - | 11,0 | 9,0 | 12,80 | 0144 | ○ | ○ | ○ | ○ | ○ |
| M14x1,5 | 1,50 | 100 | 20 | 15 | - | 11,0 | 9,0 | 12,50 | 0145 | ● | ● | ● | ● | ● |
| M16x1 | 1,00 | 100 | 20 | 10 | - | 12,0 | 9,0 | 15,00 | 0163 | ● | ● | ● | ● | ● |
| M16x1,5 | 1,50 | 100 | 20 | 15 | - | 12,0 | 9,0 | 14,50 | 0165 | ● | ● | ● | ● | ● |
| M18x1 | 1,00 | 110 | 24 | 13 | - | 14,0 | 11,0 | 17,00 | 0183 | ○ | ○ | ○ | ○ | ○ |
| M18x1,5 | 1,50 | 110 | 24 | 17 | - | 14,0 | 11,0 | 16,50 | 0185 | ● | ● | ● | ● | ● |
| M18x2 | 2,00 | 125 | 32 | 27 | - | 14,0 | 11,0 | 16,00 | 0186 | ● | ○ | ○ | ○ | ○ |
| M20x1 | 1,00 | 125 | 24 | 13 | - | 16,0 | 12,0 | 19,00 | 0203 | ○ | ○ | ○ | ○ | ○ |
| M20x1,5 | 1,50 | 125 | 24 | 17 | - | 16,0 | 12,0 | 18,50 | 0205 | ● | ● | ● | ● | ● |
| M20x2 | 2,00 | 140 | 32 | 27 | - | 16,0 | 12,0 | 18,00 | 0206 | ○ | ○ | ○ | ○ | ○ |
| M22x1 | 1,00 | 125 | 24 | 13 | - | 18,0 | 14,5 | 21,00 | 0223 | ○ | ○ | ○ | ○ | ○ |
| M22x1,5 | 1,50 | 125 | 24 | 17 | - | 18,0 | 14,5 | 20,50 | 0225 | ○ | ○ | ○ | ○ | ○ |
| M22x2 | 2,00 | 140 | 32 | 27 | - | 18,0 | 14,5 | 20,00 | 0226 | ○ | ○ | ○ | ○ | ○ |
| M24x1 | 1,00 | 140 | 27 | 13 | - | 18,0 | 14,5 | 23,00 | 0243 | ○ | ○ | ○ | ○ | ○ |
| M24x1,5 | 1,50 | 140 | 27 | 20 | - | 18,0 | 14,5 | 22,50 | 0245 | ○ | ○ | ○ | ○ | ○ |
| M24x2 | 2,00 | 140 | 27 | 20 | - | 18,0 | 14,5 | 22,00 | 0246 | ○ | ○ | ○ | ○ | ○ |

| ISO | Vc (m/min) | | | | |
|---|---|---|---|---|---|
| P | 5-35 | 5-35 | 1-20 | 1-20 | 1-20 |
| M | 5-15 | 5-15 | 1-10 | 1-10 | 1-10 |
| K | 5-25 | 5-25 | 1-20 | 1-20 | 1-20 |
| N | 10-30 | 10-30 | 10-20 | 10-20 | 10-20 |
| S | - | - | - | - | - |

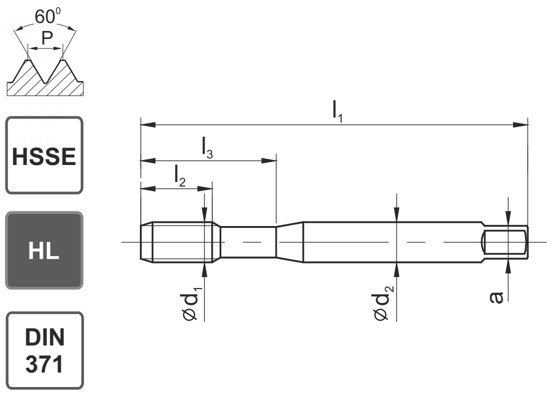


**Example of order**

**D4-115001-0083**
**Tap FAN-1200 M8x1-6H DIN-374 B HSSE-PM TC**

● **Available from stock**
○ **On request**

## ISO Metric fine thread DIN-13




HSSE

HL

DIN 371

| | *INOX* | | | | | |
|---|---|---|---|---|---|---|
| | **B** | **B-HL** | **C-R40** | **C-R40-HL** | | |
| Material groups | M | M | M | M | | |
| Hole type | < 3d | < 3d | < 2,5d | < 2,5d | | |
| Quality of material | HSSE | HSSE | HSSE | HSSE | | |
| Coating | | HL | | HL | | |
| Chamfer | B / 4-5P | B / 4-5P | C / 2-3P | C / 2-3P | | |

| MF Ćd1 | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć$d_2$ | a | d | Norm | DIN-371 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) | | |
| | | | | | | | | | INDEX | C2-111801 | C2-118801 | C2-511801 | C2-518801 | | |
| M4x0,5 | 0,50 | 63 | 12 | 7 | 21 | 4,5 | 3,4 | 3,50 | 0041 | ● | ● | ● | ● | | |
| M5x0,5 | 0,50 | 70 | 14 | 8 | 25 | 6,0 | 4,9 | 4,50 | 0051 | ● | ● | ● | ● | | |
| M6x0,75 | 0,75 | 80 | 14 | 10 | 30 | 6,0 | 4,9 | 5,20 | 0062 | ● | ● | ● | ● | | |
| M8x0,75 | 0,75 | 80 | 18 | 10 | 30 | 8,0 | 6,2 | 7,20 | 0082 | ● | ● | ● | ● | | |
| M8x1 | 1,00 | 90 | 20 | 13 | 35 | 8,0 | 6,2 | 7,00 | 0083 | ● | ● | ● | ● | | |
| M10x0,75 | 0,75 | 90 | 20 | 13 | 35 | 10,0 | 8,0 | 9,20 | 0102 | ● | ● | ● | ● | | |
| M10x1 | 1,00 | 90 | 20 | 13 | 35 | 10,0 | 8,0 | 9,00 | 0103 | ● | ● | ● | ● | | |
| M10x1,25 | 1,25 | 100 | 20 | 15 | 39 | 10,0 | 8,0 | 8,80 | 0104 | ● | ● | ● | ● | | |

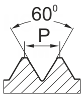
| ISO | Vc (m/min) | | | | | |
|---|---|---|---|---|---|---|
| P | - | - | - | - | | |
| M | 5-15 | 5-15 | 5-15 | 5-15 | | |
| K | - | - | - | - | | |
| N | - | - | - | - | | |
| S | - | - | - | - | | |

**Example of order**

**C2-111801-0041**
**Tap INOX M4x0,5-6H DIN-371 B HSSE**

● **Available from stock**
○ **On request**

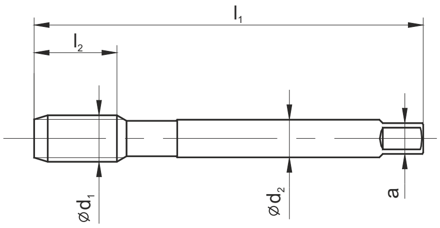
## ISO Metric fine thread DIN-13




HSSE

HL

DIN 374




| | INOX | | | |
|---|---|---|---|---|
| | B | B-HL | C-R40 | C-R40-HL |
| Material groups | M | M | M | M |
| Hole type | < 3d | < 3d | < 2,5d | < 2,5d |
| Quality of material | HSSE | HSSE | HSSE | HSSE |
| Coating | | HL | | HL |
| Chamfer | B / 4-5P | B / 4-5P | C / 2-3P | C / 2-3P |

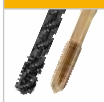
| MF Ćd1 | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm | DIN-374 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) |
| | | | | | | | | | INDEX | D2-111801 | D2-118801 | D2-511801 | D2-518801 |
| M8x1 | 1,00 | 90 | 20 | 10 | - | 6,0 | 4,9 | 7,00 | 0083 | ● | ○ | ● | ○ |
| M10x0,75 | 0,75 | 90 | 18 | 10 | - | 7,0 | 5,5 | 9,20 | 0102 | ● | ○ | ● | ○ |
| M10x1 | 1,00 | 90 | 20 | 10 | - | 7,0 | 5,5 | 9,00 | 0103 | ● | ● | ● | ● |
| M10x1,25 | 1,25 | 100 | 20 | 15 | - | 7,0 | 5,5 | 8,80 | 0104 | ● | ○ | ● | ○ |
| M12x1 | 1,00 | 100 | 20 | 10 | - | 9,0 | 7,0 | 11,00 | 0123 | ● | ○ | ● | ○ |
| M12x1,25 | 1,25 | 100 | 20 | 15 | - | 9,0 | 7,0 | 10,80 | 0124 | ● | ○ | ● | ○ |
| M12x1,5 | 1,50 | 100 | 20 | 15 | - | 9,0 | 7,0 | 10,50 | 0125 | ● | ● | ● | ● |
| M14x1 | 1,00 | 100 | 20 | 10 | - | 11,0 | 9,0 | 13,00 | 0143 | ○ | ○ | ○ | ○ |
| M14x1,25 | 1,25 | 100 | 20 | 15 | - | 11,0 | 9,0 | 12,80 | 0144 | ○ | ○ | ○ | ○ |
| M14x1,5 | 1,50 | 100 | 20 | 15 | - | 11,0 | 9,0 | 12,50 | 0145 | ● | ○ | ● | ○ |
| M15x1 | 1,00 | 100 | 20 | 10 | - | 12,0 | 9,0 | 14,00 | 0153 | ○ | ○ | ○ | ○ |
| M16x1 | 1,00 | 100 | 20 | 10 | - | 12,0 | 9,0 | 15,00 | 0163 | ● | ○ | ● | ○ |
| M16x1,5 | 1,50 | 100 | 20 | 15 | - | 12,0 | 9,0 | 14,50 | 0165 | ● | ● | ● | ● |
| M18x1 | 1,00 | 110 | 24 | 13 | - | 14,0 | 11,0 | 17,00 | 0183 | ○ | ○ | ○ | ○ |
| M18x1,5 | 1,50 | 110 | 24 | 17 | - | 14,0 | 11,0 | 16,50 | 0185 | ● | ○ | ● | ○ |
| M18x2 | 2,00 | 125 | 27 | 20 | - | 14,0 | 11,0 | 16,00 | 0186 | ○ | ○ | ○ | ○ |
| M20x1 | 1,00 | 125 | 24 | 13 | - | 16,0 | 12,0 | 19,00 | 0203 | ○ | ○ | ○ | ○ |
| M20x1,5 | 1,50 | 125 | 24 | 17 | - | 16,0 | 12,0 | 18,50 | 0205 | ● | ● | ● | ● |
| M20x2 | 2,00 | 140 | 27 | 20 | - | 16,0 | 12,0 | 18,00 | 0206 | ○ | ○ | ○ | ○ |
| M22x1 | 1,00 | 125 | 24 | 13 | - | 18,0 | 14,5 | 21,00 | 0223 | ○ | ○ | ○ | ○ |
| M22x1,5 | 1,50 | 125 | 24 | 17 | - | 18,0 | 14,5 | 20,50 | 0225 | ● | ○ | ● | ○ |
| M22x2 | 2,00 | 140 | 27 | 20 | - | 18,0 | 14,5 | 20,00 | 0226 | ○ | ○ | ○ | ○ |
| M24x1 | 1,00 | 140 | 27 | 13 | - | 18,0 | 14,5 | 23,00 | 0243 | ○ | ○ | ○ | ○ |
| M24x1,5 | 1,50 | 140 | 27 | 20 | - | 18,0 | 14,5 | 22,50 | 0245 | ○ | ○ | ○ | ○ |
| M24x2 | 2,00 | 140 | 27 | 20 | - | 18,0 | 14,5 | 22,00 | 0246 | ○ | ○ | ○ | ○ |
| M26x1,5 | 1,50 | 140 | 27 | 20 | - | 18,0 | 14,5 | 24,50 | 0265 | ○ | ○ | ○ | ○ |
| M27x1,5 | 1,50 | 140 | 27 | 20 | - | 20,0 | 16,0 | 25,50 | 0275 | ○ | ○ | ○ | ○ |
| M27x2 | 2,00 | 140 | 27 | 20 | - | 20,0 | 16,0 | 25,00 | 0276 | ○ | ○ | ○ | ○ |
| M28x1,5 | 1,50 | 140 | 27 | 20 | - | 20,0 | 16,0 | 26,50 | 0285 | ○ | ○ | ○ | ○ |

| ISO | Vc (m/min) | | | |
|---|---|---|---|---|
| P | - | - | - | - |
| M | 5-15 | 5-15 | 5-15 | 5-15 |
| K | - | - | - | - |
| N | - | - | - | - |
| S | - | - | - | - |

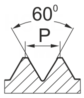
● Available from stock
○ On request

**Example of order**

**D2-118801-0083**
**Tap INOX M8x1-6H DIN-374 B HSSE HL**



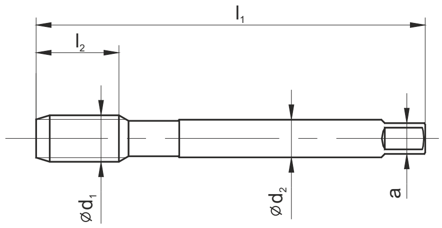
## ISO Metric fine thread DIN-13




HSSE

HL

DIN 374




| | INOX | | | |
|---|---|---|---|---|
| | B | B-HL | C-R40 | C-R40-HL |
| |  | | | |
| Material groups | M | M | M | M |
| Hole type | < 3d | < 3d | < 2,5d | < 2,5d |
| Quality of material | HSSE | HSSE | HSSE | HSSE |
| Coating | | HL | | HL |
| Chamfer | B / 4-5P | B / 4-5P | C / 2-3P | C / 2-3P |

| MF Ćd1 | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm | DIN-374 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) |
| | | | | | | | | | INDEX | D2-111801 | D2-118801 | D2-511801 | D2-518801 |
| M28x2 | 2,0 | 140 | 27 | 20 | - | 20,0 | 16,0 | 26,00 | 0286 | ○ | ○ | ○ | ○ |
| M30x1,5 | 1,5 | 150 | 27 | 22 | - | 22,0 | 18,0 | 28,50 | 0305 | ○ | ○ | ○ | ○ |
| M30x2 | 2,0 | 150 | 27 | 22 | - | 22,0 | 18,0 | 28,00 | 0306 | ○ | ○ | ○ | ○ |
| M32x1,5 | 1,5 | 150 | 27 | 22 | - | 22,0 | 18,0 | 30,50 | 0325 | ○ | ○ | ○ | ○ |
| M32x2 | 2,0 | 150 | 27 | 22 | - | 22,0 | 18,0 | 30,00 | 0326 | ○ | ○ | ○ | ○ |
| M33x1,5 | 1,5 | 160 | 30 | 22 | - | 25,0 | 20,0 | 31,50 | 0335 | ○ | ○ | ○ | ○ |
| M33x2 | 2,0 | 160 | 30 | 24 | - | 25,0 | 20,0 | 31,00 | 0336 | ○ | ○ | ○ | ○ |
| M34x1,5 | 1,5 | 170 | 30 | 22 | - | 28,0 | 22,0 | 32,50 | 0345 | ○ | ○ | ○ | ○ |
| M35x1,5 | 1,5 | 170 | 30 | 22 | - | 28,0 | 22,0 | 33,50 | 0355 | ○ | ○ | ○ | ○ |
| M36x1,5 | 1,5 | 170 | 30 | 22 | - | 28,0 | 22,0 | 34,50 | 0365 | ○ | ○ | ○ | ○ |
| M36x2 | 2,0 | 170 | 30 | 24 | - | 28,0 | 22,0 | 34,00 | 0366 | ○ | ○ | ○ | ○ |
| M36x3 | 3,0 | 200 | 50 | 30 | - | 28,0 | 22,0 | 33,00 | 0367 | ○ | ○ | ○ | ○ |

| ISO | Vc (m/min) | | | |
|---|---|---|---|---|
| P | - | - | - | - |
| M | 5-15 | 5-15 | 5-15 | 5-15 |
| K | - | - | - | - |
| N | - | - | - | - |
| S | - | - | - | - |

**Example of order**

**D2-118801-0325**
**Tap INOX M32x1,5-6H DIN-374 B HSSE HL**

● **Available from stock**
○ **On request**

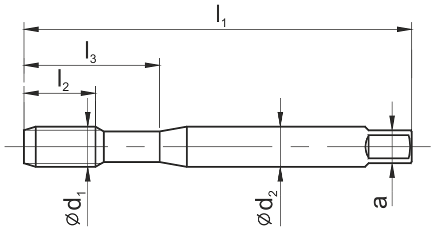
## ISO Metric fine thread DIN-13

60° P

HSSE PM

TC

DIN 371




| | GG | | | | | GAL | |
|---|---|---|---|---|---|---|---|
| | C-TC | C-IK-TC | E-TC | E-IK-TC | E-IKR-TC | C-R15-TC | E-R15-IK-TC |
| Material groups | K | K | K | K | K | N | N |
| Hole type | < 2d | < 2,5d | < 2d | < 2,5d | < 2,5d | < 2,5d | < 2,5d |
| Quality of material | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM |
| Coating | TC | TC | TC | TC | TC | TC | TC |
| Chamfer | C / 2-3P | C / 2-3P | E / 1,5-2P | E / 1,5-2P | E / 1,5-2P | C / 2-3P | E / 1,5-2P |

| MF Ćd1 | P | l1 | l2 | l3 | Ćd2 | a | d | Norm | DIN-371 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | 6HX | 6HX | 6HX | 6HX | 6HX | 6HX | 6HX |
| | | | | | | | | INDEX | C2-125501 | C4-125551 | C2-145501 | C4-145551 | C4-145561 | C2-505601 | C4-655601 |
| M8x1 | 1,00 | 90 | 20 | 35 | 8,0 | 6,2 | 7,00 | 0083 | ● | ○ | ● | ○ | ○ | ● | ○ |
| M10x0,75 | 0,75 | 90 | 20 | 35 | 10,0 | 8,0 | 9,20 | 0102 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| M10x1 | 1,00 | 90 | 20 | 35 | 10,0 | 8,0 | 9,00 | 0103 | ● | ○ | ● | ○ | ○ | ● | ○ |
| M10x1,25 | 1,25 | 100 | 20 | 39 | 10,0 | 8,0 | 8,80 | 0104 | ○ | ○ | ● | ○ | ○ | ● | ○ |

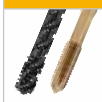
| ISO | Vc (m/min) | | | | | | |
|---|---|---|---|---|---|---|---|
| P | - | - | - | - | - | - | - |
| M | - | - | - | - | - | - | - |
| K | 1-60 | 1-60 | 1-60 | 1-60 | 1-60 | - | - |
| N | - | - | - | - | - | 10-30 | 10-30 |
| S | - | - | - | - | - | - | - |



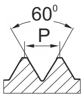
**Example of order**

**C2-125501-0083**
**Tap GG M8x1-6HX DIN-371 C HSSE-PM TC**

● **Available from stock**
○ **On request**



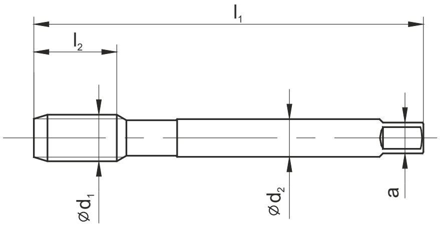
## ISO Metric fine thread DIN-13




HSSE PM

TC

DIN 374




| | GG | | | | | GAL | |
|---|---|---|---|---|---|---|---|
| | C-TC | C-IK-TC | E-TC | E-IK-TC | E-IKR-TC | C-R15-TC | E-R15-IK-TC |
| Material groups | K | K | K | K | K | N | N |
| Hole type | < 2d | < 2,5d | < 2d | < 2,5d | < 2,5d | < 2,5d | < 2,5d |
| Quality of material | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM |
| Coating | TC | TC | TC | TC | TC | TC | TC |
| Chamfer | C / 2-3P | C / 2-3P | E / 1,5-2P | E / 1,5-2P | E / 1,5-2P | C / 2-3P | E / 1,5-2P |

| MF Ćd1 | P | l1 | l2 | Ćd2 | a | d | Norm | DIN-374 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Tol. | 6HX | 6HX | 6HX | 6HX | 6HX | 6HX | 6HX |
| | | | | | | | INDEX | D2-125501 | D4-125551 | D2-145501 | D4-145551 | D4-145561 | D2-505601 | D4-655651 |
| M8x1 | 1,00 | 90 | 20 | 6,0 | 4,9 | 7,00 | 0083 | ● | ○ | ● | ○ | ○ | ● | ○ |
| M10x0,75 | 0,75 | 90 | 18 | 7,0 | 5,5 | 9,2 | 0102 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| M10x1 | 1,00 | 90 | 20 | 7,0 | 5,5 | 9,00 | 0103 | ● | ● | ● | ○ | ○ | ● | ● |
| M10x1,25 | 1,25 | 100 | 20 | 7,0 | 5,5 | 8,80 | 0104 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| M12x1 | 1,00 | 100 | 20 | 9,0 | 7,0 | 11,00 | 0123 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| M12x1,25 | 1,25 | 100 | 20 | 9,0 | 7,0 | 10,80 | 0124 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| M12x1,5 | 1,50 | 100 | 20 | 9,0 | 7,0 | 10,50 | 0125 | ● | ● | ● | ○ | ○ | ● | ● |
| M14x1 | 1,00 | 100 | 20 | 11,0 | 9,0 | 13,00 | 0143 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| M14x1,25 | 1,25 | 100 | 20 | 11,0 | 9,0 | 12,80 | 0144 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| M14x1,5 | 1,50 | 100 | 20 | 11,0 | 9,0 | 12,50 | 0145 | ● | ● | ● | ○ | ○ | ● | ● |
| M16x1 | 1,00 | 100 | 20 | 12,0 | 9,0 | 15,00 | 0163 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| M16x1,5 | 1,50 | 100 | 20 | 12,0 | 9,0 | 14,50 | 0165 | ● | ● | ● | ○ | ○ | ● | ● |
| M18x1 | 1,00 | 110 | 24 | 14,0 | 11,0 | 17,00 | 0183 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| M18x1,5 | 1,50 | 110 | 24 | 14,0 | 11,0 | 16,50 | 0185 | ● | ○ | ● | ○ | ○ | ○ | ○ |
| M18x2 | 2,00 | 125 | 27 | 14,0 | 11,0 | 16,00 | 0186 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| M20x1 | 1,00 | 125 | 24 | 16,0 | 12,0 | 19,00 | 0203 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| M20x1,5 | 1,50 | 125 | 24 | 16,0 | 12,0 | 18,50 | 0205 | ● | ○ | ○ | ○ | ○ | ○ | ○ |
| M20x2 | 2,00 | 140 | 27 | 16,0 | 12,0 | 18,00 | 0206 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

| ISO | Vc (m/min) | | | | | | |
|---|---|---|---|---|---|---|---|
| P | - | - | - | - | - | - | - |
| M | - | - | - | - | - | - | - |
| K | 1-60 | 1-60 | 1-60 | 1-60 | 1-60 | - | - |
| N | - | - | - | - | - | 10-30 | 10-30 |
| S | - | - | - | - | - | - | - |

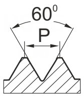
**Example of order**

**D2-125501-0103**
**Tap GG M10x1-6HX DIN-374 C HSSE-PM TC**

● **Available from stock**
○ **On request**

1

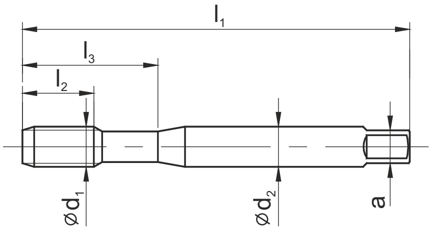
## ISO Metric fine thread DIN-13




HSSE PM

TC

DIN 371




| | S-NC | | |
|---|---|---|---|
| | B-TC | C-R45-TC | C-R45-IK-TC |
| |  | | |
| Material groups | P M K N S H | P M K N S H | P M K N S H |
| Hole type | < 3d | < 2,5d | < 2,5d |
| Quality of material | HSSE-PM | HSSE-PM | HSSE-PM |
| Coating | TC | TC | TC |
| Chamfer | B / 4-5P | C / 2-3P | C / 2-3P |

| MF Ćd1 | P | $l_1$ | $l_2$ | $l_2$ R45 | $l_3$ | Ćd2 | a | d | Norm | DIN-371 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | 6HX | 6HX | 6HX |
| | | | | | | | | | INDEX | C4-115301 | C4-525301 | C4-525351 |
| M4x0,5 | 0,50 | 63 | 12 | 7 | 21 | 4,5 | 3,4 | 3,50 | 0041 | ○ | ○ | ○ |
| M5x0,5 | 0,50 | 70 | 14 | 8 | 25 | 6,0 | 4,9 | 4,50 | 0051 | ○ | ○ | ○ |
| M6x0,75 | 0,75 | 80 | 14 | 10 | 30 | 6,0 | 4,9 | 5,20 | 0062 | ○ | ○ | ○ |
| M8x0,75 | 0,75 | 80 | 18 | 10 | 30 | 8,0 | 6,2 | 7,20 | 0082 | ● | ● | ○ |
| M8x1 | 1,00 | 90 | 20 | 13 | 35 | 8,0 | 6,2 | 7,00 | 0083 | ○ | ○ | ○ |
| M10x0,75 | 0,75 | 90 | 20 | 13 | 35 | 10,0 | 8,0 | 9,20 | 0102 | ○ | ○ | ○ |
| M10x1 | 1,00 | 90 | 20 | 13 | 35 | 10,0 | 8,0 | 9,00 | 0103 | ● | ● | ○ |
| M10x1,25 | 1,25 | 100 | 20 | 15 | 39 | 10,0 | 8,0 | 8,80 | 0104 | ○ | ○ | ○ |

| ISO | Vc (m/min) | | |
|---|---|---|---|
| P | 5-50 | 5-50 | 5-60 |
| M | 5-20 | 5-20 | 5-30 |
| K | 5-40 | 5-40 | 5-60 |
| N | 5-40 | 5-40 | 5-60 |
| S | 1-8 | 1-8 | 1-8 |

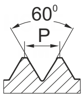


**Example of order**

**C4-115301-0041**
**Tap S-NC M4x0,5-6HX DIN-371 B HSSE-PM TC**

● **Available from stock**
○ **On request**

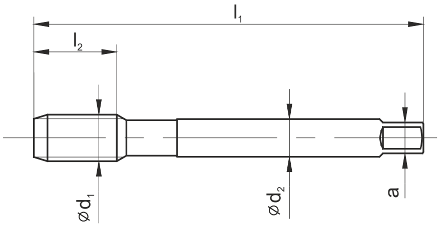
## ISO Metric fine thread DIN-13




HSSE PM

TC

DIN 374




*S-NC*

| | B-TC | C-R45-TC | C-R45-IK-TC | | | |
|---|---|---|---|---|---|---|
| |  | | | | | |
| Material groups | P M K N S H | P M K N S H | P M K N S H | | | |
| Hole type | < 3d | < 2,5d | < 2,5d | | | |
| Quality of material | PM/HSSE | PM/HSSE | PM/HSSE | | | |
| Coating | TC | TC | TC | | | |
| Chamfer | B / 4-5P | C / 2-3P | C / 2-3P | | | |

| MF Ć$d_1$ | P | $l_1$ | $l_2$ | $l_2$ R45 | $l_3$ | Ć$d_2$ | a | d | Norm / Tol. / INDEX | DIN-374 / 6HX / D4-115301 | DIN-374 / 6HX / D4-525301 | DIN-374 / 6HX / D4-525351 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M8x1 | 1,00 | 90 | 20 | 10 | - | 6,0 | 4,9 | 7,00 | 0083 | ○ | ○ | ○ | | | |
| M10x1 | 1,00 | 90 | 20 | 10 | - | 7,0 | 5,5 | 9,00 | 0103 | ○ | ○ | ○ | | | |
| M10x1,25 | 1,25 | 100 | 20 | 15 | - | 7,0 | 5,5 | 8,80 | 0104 | ○ | ○ | ○ | | | |
| M11x1 | 1,00 | 90 | 20 | 10 | - | 8,0 | 6,2 | 10,00 | 0113 | ○ | ○ | ○ | | | |
| M12x1 | 1,00 | 100 | 20 | 10 | - | 9,0 | 7,0 | 11,00 | 0123 | ○ | ○ | ○ | | | |
| M12x1,25 | 1,25 | 100 | 20 | 15 | - | 9,0 | 7,0 | 10,80 | 0124 | ○ | ○ | ○ | | | |
| M12x1,5 | 1,50 | 100 | 20 | 15 | - | 9,0 | 7,0 | 10,50 | 0125 | ● | ● | ○ | | | |
| M14x1 | 1,00 | 100 | 20 | 10 | - | 11,0 | 9,0 | 13,00 | 0143 | ○ | ○ | ○ | | | |
| M14x1,25 | 1,25 | 100 | 20 | 15 | - | 11,0 | 9,0 | 12,80 | 0144 | ○ | ○ | ○ | | | |
| M14x1,5 | 1,50 | 100 | 20 | 15 | - | 11,0 | 9,0 | 12,50 | 0145 | ● | ● | ○ | | | |
| M15x1 | 1,00 | 100 | 20 | 10 | - | 12,0 | 9,0 | 14,00 | 0153 | ○ | ○ | ○ | | | |
| M16x1 | 1,00 | 100 | 20 | 10 | - | 12,0 | 9,0 | 15,00 | 0163 | ○ | ○ | ○ | | | |
| M16x1,5 | 1,50 | 100 | 20 | 15 | - | 12,0 | 9,0 | 14,50 | 0165 | ● | ● | ○ | | | |

| ISO | Vc (m/min) | | | | | |
|---|---|---|---|---|---|---|
| P | 5-50 | 5-50 | 5-60 | | | |
| M | 5-20 | 5-20 | 5-30 | | | |
| K | 5-40 | 5-40 | 5-60 | | | |
| N | 5-40 | 5-40 | 5-60 | | | |
| S | 1-8 | 1-8 | 1-8 | | | |

**Example of order**

**D4-115301-0144**
**Tap S-NC M14x1,25-6HX DIN-374 B HSSE-PM TC**

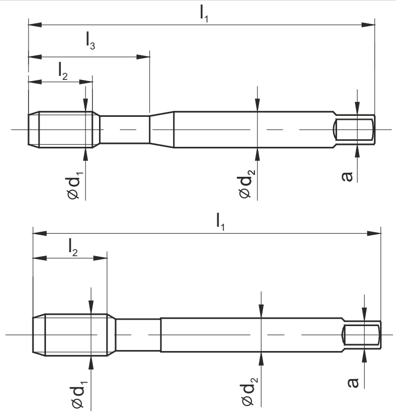
● **Available from stock**
○ **On request**

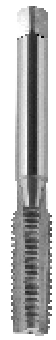
## ISO Metric fine thread DIN-13

60°
P

HSS

DIN 2181



| | |
|---|---|
| Material groups | P M K N S H |
| Hole type | < 1,5d |
| Quality of material | HSS |
| Coating | |
| Chamfer | ~3P |

| MF Ć $d_1$ | P | $l_1$ | $l_2$ | $l_3$ | Ć $d_2$ | a | d | Norm / Tol. / INDEX | DIN-2181 / ISO2 (6H) / E1-131001 |
|---|---|---|---|---|---|---|---|---|---|
| M4x0,5 | 0,50 | 45 | 10 | 18,0 | 4,5 | 3,4 | 3,5 | 0041 | ○ |
| M4,5x0,5 | 0,50 | 50 | 12 | 22,0 | 6,0 | 4,9 | 4,0 | 0046 | ○ |
| M5x0,5 | 0,50 | 52 | 13 | 22,0 | 6,0 | 4,9 | 4,5 | 0051 | ○ |
| M5,5x0,5 | 0,50 | 56 | 13 | 24,0 | 6,0 | 4,9 | 5,0 | 0056 | ○ |
| M6x0,75 | 0,75 | 56 | 14 | 24,0 | 6,0 | 4,9 | 5,2 | 0062 | ● |
| M7x0,75 | 0,75 | 56 | 14 | - | 6,0 | 4,9 | 6,2 | 0072 | ○ |
| M8x0,75 | 0,75 | 63 | 14 | - | 6,0 | 4,9 | 7,2 | 0082 | ● |
| M8x1 | 1,00 | 63 | 17 | - | 6,0 | 4,9 | 7,0 | 0083 | ● |
| M9x0,75 | 0,75 | 63 | 14 | - | 7,0 | 5,5 | 8,2 | 0092 | ○ |
| M9x1 | 1,00 | 63 | 17 | - | 7,0 | 5,5 | 8,0 | 0093 | ○ |
| M10x0,75 | 0,75 | 63 | 18 | - | 7,0 | 5,5 | 9,2 | 0102 | ○ |
| M10x1 | 1,00 | 63 | 18 | - | 7,0 | 5,5 | 9,0 | 0103 | ● |
| M10x1,25 | 1,25 | 70 | 22 | - | 7,0 | 5,5 | 8,8 | 0104 | ● |
| M11x0,75 | 0,75 | 63 | 18 | - | 8,0 | 6,2 | 10,2 | 0112 | ○ |
| M11x1 | 1,00 | 63 | 18 | - | 8,0 | 6,2 | 10,0 | 0113 | ○ |
| M12x1 | 1,00 | 70 | 18 | - | 9,0 | 7,0 | 11,0 | 0123 | ● |
| M12x1,25 | 1,25 | 70 | 20 | - | 9,0 | 7,0 | 10,8 | 0124 | ● |
| M12x1,5 | 1,50 | 70 | 20 | - | 9,0 | 7,0 | 10,5 | 0125 | ● |
| M14x1 | 1,00 | 70 | 18 | - | 11,0 | 9,0 | 13,0 | 0143 | ○ |
| M14x1,25 | 1,25 | 70 | 20 | - | 11,0 | 9,0 | 12,8 | 0144 | ● |
| M14x1,5 | 1,50 | 70 | 20 | - | 11,0 | 9,0 | 12,5 | 0145 | ● |
| M15x1 | 1,00 | 70 | 18 | - | 12,0 | 9,0 | 14,0 | 0153 | ○ |
| M15x1,5 | 1,50 | 70 | 20 | - | 12,0 | 9,0 | 13,5 | 0155 | ○ |
| M16x1 | 1,00 | 80 | 18 | - | 12,0 | 9,0 | 15,0 | 0163 | ○ |
| M16x1,25 | 1,25 | 80 | 18 | - | 18,0 | 9,0 | 14,8 | 0164 | ○ |
| M16x1,5 | 1,50 | 80 | 22 | - | 12,0 | 9,0 | 14,5 | 0165 | ● |
| M17x1 | 1,00 | 80 | 18 | - | 12,0 | 9,0 | 16,0 | 0173 | ○ |
| M17x1,5 | 1,50 | 80 | 22 | - | 12,0 | 9,0 | 15,5 | 0175 | ○ |
| M18x1 | 1,00 | 80 | 18 | - | 14,0 | 11,0 | 17,0 | 0183 | ○ |
| M18x1,5 | 1,50 | 80 | 22 | - | 14,0 | 11,0 | 16,5 | 0185 | ● |
| M18x2 | 2,00 | 80 | 22 | - | 14,0 | 11,0 | 16,0 | 0186 | ○ |
| M20x1 | 1,00 | 80 | 18 | - | 16,0 | 12,0 | 19,0 | 0203 | ○ |

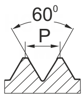
● **Available from stock**
○ **On request**

| ISO | Vc (m/min) |
|---|---|
| P | 5-20 |
| M | - |
| K | - |
| N | - |
| S | - |

**Example of order**

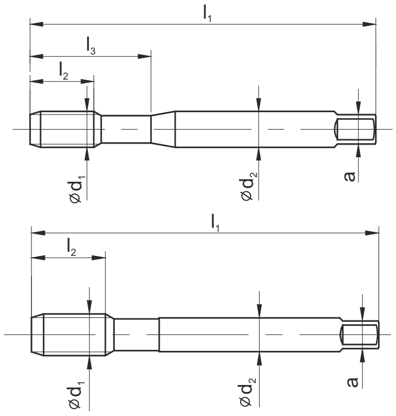
**E1-131001-0062**
**Tap M6x0,75-6H DIN-2181 HSS**

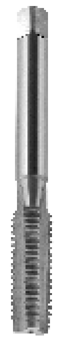
## ISO Metric fine thread DIN-13

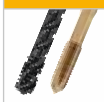



HSS

DIN 2181





| | |
|---|---|
| Material groups | P M K N S H |
| Hole type | < 1,5d |
| Quality of material | HSS |
| Coating | |
| Chamfer | ~3P |

| MF Ćd1 | P | l1 | l2 | l3 | Ćd2 | a | | Norm / Tol. / INDEX | DIN-2181 / ISO2 (6H) / E1-131001 |
|---|---|---|---|---|---|---|---|---|---|
| M20x1,5 | 1,50 | 80 | 22 | - | 16 | 12,0 | 18,5 | 0205 | ● |
| M20x2 | 2,00 | 80 | 22 | - | 16 | 12,0 | 18,0 | 0206 | ○ |
| M22x1 | 1,00 | 80 | 18 | - | 18 | 14,5 | 21,0 | 0223 | ○ |
| M22x1,5 | 1,5 | 80 | 22 | - | 18 | 14,5 | 20,5 | 0225 | ● |
| M22x2 | 2,0 | 80 | 22 | - | 18 | 14,5 | 20,0 | 0226 | ○ |
| M24x1 | 1,0 | 90 | 18 | - | 18 | 14,5 | 23,0 | 0243 | ○ |
| M24x1,5 | 1,5 | 90 | 22 | - | 18 | 14,5 | 22,5 | 0245 | ● |
| M24x2 | 2,0 | 90 | 22 | - | 18 | 14,5 | 22,0 | 0246 | ● |
| M25x1 | 1,0 | 90 | 18 | - | 18 | 14,5 | 24,0 | 0253 | ○ |
| M25x1,5 | 1,5 | 90 | 22 | - | 18 | 14,5 | 23,5 | 0255 | ● |
| M25x2 | 2,0 | 90 | 22 | - | 18 | 14,5 | 23,0 | 0256 | ○ |
| M26x1,5 | 1,5 | 90 | 22 | - | 18 | 14,5 | 24,5 | 0265 | ● |
| M27x1 | 1,0 | 90 | 20 | - | 20 | 16,0 | 26,0 | 0273 | ○ |
| M27x1,5 | 1,5 | 90 | 22 | - | 20 | 16,0 | 25,5 | 0275 | ○ |
| M27x2 | 2,0 | 90 | 22 | - | 20 | 16,0 | 25,0 | 0276 | ○ |
| M28x1 | 1,0 | 90 | 20 | - | 20 | 16,0 | 27,0 | 0283 | ○ |
| M28x1,5 | 1,5 | 90 | 22 | - | 20 | 16,0 | 26,5 | 0285 | ○ |
| M28x2 | 2,0 | 90 | 22 | - | 20 | 16,0 | 26,0 | 0286 | ○ |
| M30x1 | 1,0 | 90 | 22 | - | 22 | 18,0 | 29,0 | 0303 | ○ |
| M30x1,5 | 1,5 | 90 | 22 | - | 22 | 18,0 | 28,5 | 0305 | ● |
| M30x2 | 2,0 | 90 | 22 | - | 22 | 18,0 | 28,0 | 0306 | ○ |
| M30x3 | 3,0 | 125 | 36 | - | 22 | 18,0 | 27,0 | 0307 | ○ |
| M32x1,5 | 1,5 | 90 | 22 | - | 22 | 18,0 | 30,5 | 0325 | ○ |
| M32x2 | 2,0 | 90 | 22 | - | 22 | 18,0 | 30,0 | 0326 | ○ |
| M33x1,5 | 1,5 | 100 | 25 | - | 25 | 20,0 | 31,5 | 0335 | ○ |
| M33x2 | 2,0 | 100 | 25 | - | 25 | 20,0 | 31,0 | 0336 | ○ |
| M33x3 | 3,0 | 125 | 36 | - | 25 | 20,0 | 30,0 | 0337 | ○ |
| M35x1,5 | 1,5 | 100 | 25 | - | 28 | 22,0 | 33,5 | 0355 | ○ |
| M36x1,5 | 1,5 | 100 | 25 | - | 28 | 22,0 | 34,5 | 0365 | ○ |
| M36x2 | 2,0 | 125 | 36 | - | 28 | 22,0 | 34,0 | 0366 | ○ |
| M36x3 | 3,0 | 125 | 36 | - | 28 | 22,0 | 33,0 | 0367 | ○ |
| M38x1,5 | 1,5 | 100 | 25 | - | 28 | 22,0 | 36,5 | 0385 | ○ |

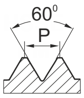
● **Available from stock**
○ **On request**

| ISO | Vc (m/min) |
|---|---|
| P | 5-20 |
| M | - |
| K | - |
| N | - |
| S | - |

**Example of order**

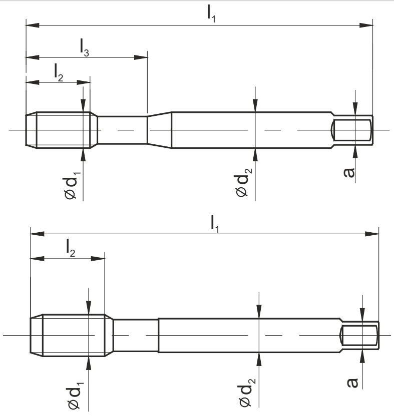
**E1-131001-0205**
**Tap M20x1,5-6H DIN-2181 HSS**

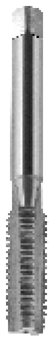
## ISO Metric fine thread DIN-13

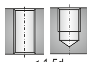



HSS

DIN 2181



| | |
|---|---|
| Material groups | P M K N S H |
| Hole type |  < 1,5d |
| Quality of material | HSS |
| Coating | |
| Chamfer | ~3P |

| MF Ćd1 | P | l1 | l2 | l3 | Ćd2 | a | d | Norm | DIN-2181 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | ISO2 (6H) |
| | | | | | | | | INDEX | E1-131001 |
| M39x1,5 | 1,5 | 110 | 25 | - | 32 | 24 | 37,5 | 0395 | ○ |
| M39x2 | 2,0 | 125 | 36 | - | 32 | 24 | 37,0 | 0396 | ○ |
| M39x3 | 3,0 | 125 | 36 | - | 32 | 24 | 36,0 | 0397 | ○ |
| M40x1,5 | 1,5 | 110 | 25 | - | 32 | 24 | 38,5 | 0405 | ○ |
| M40x2 | 2,0 | 125 | 36 | - | 32 | 24 | 38,0 | 0406 | ○ |
| M40x3 | 3,0 | 125 | 36 | - | 32 | 29 | 37,0 | 0407 | ○ |
| M42x1,5 | 1,5 | 110 | 25 | - | 32 | 24 | 40,5 | 0425 | ○ |
| M42x2 | 2,0 | 125 | 36 | - | 32 | 24 | 40,0 | 0426 | ○ |
| M42x3 | 3,0 | 125 | 36 | - | 32 | 24 | 39,0 | 0427 | ○ |
| M42x4 | 4,0 | 150 | 50 | - | 32 | 24 | 38,0 | 0428 | ○ |
| M45x1,5 | 1,5 | 110 | 25 | - | 36 | 29 | 43,5 | 0455 | ○ |
| M45x2 | 2,0 | 125 | 36 | - | 36 | 29 | 43,0 | 0456 | ○ |
| M45x3 | 3,0 | 125 | 36 | - | 36 | 29 | 42,0 | 0457 | ○ |
| M45x4 | 4,0 | 160 | 50 | - | 36 | 29 | 41,0 | 0458 | ○ |
| M48x1,5 | 1,5 | 140 | 30 | - | 36 | 29 | 46,5 | 0485 | ○ |
| M48x2 | 2,0 | 140 | 36 | - | 36 | 29 | 46,0 | 0486 | ○ |
| M48x3 | 3,0 | 140 | 36 | - | 36 | 29 | 45,0 | 0487 | ○ |
| M48x4 | 4,0 | 180 | 55 | - | 36 | 29 | 44,0 | 0488 | ○ |
| M50x1,5 | 1,5 | 140 | 30 | - | 36 | 29 | 48,5 | 0505 | ○ |
| M50x2 | 2,0 | 140 | 36 | - | 36 | 29 | 48,0 | 0506 | ○ |
| M50x3 | 3,0 | 140 | 36 | - | 36 | 29 | 47,0 | 0507 | ○ |
| M52x1,5 | 1,5 | 140 | 30 | - | 40 | 32 | 50,5 | 0525 | ○ |
| M52x2 | 2,0 | 140 | 36 | - | 40 | 32 | 50,0 | 0526 | ○ |
| M52x3 | 3,0 | 140 | 40 | - | 40 | 32 | 49,0 | 0527 | ○ |
| M52x4 | 4,0 | 180 | 55 | - | 40 | 32 | 48,0 | 0528 | ○ |

| ISO | Vc (m/min) |
|---|---|
| P | 5-20 |
| M | - |
| K | - |
| N | - |
| S | - |

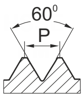


**Example of order**

**E1-131001-0395**
**Tap M39x1,5-6H DIN-2181 HSS**

● **Available from stock**
○ **On request**

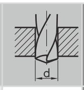
## ISO Metric fine thread DIN-13




HSSE

TC

| | NUTAP | |
|---|---|---|
| | soldered | torsioned |
| |  |  |
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 1,5d | < 1,5d |
| Quality of material | HSSE | HSSE |
| Coating | TC | TC |
| Chamfer | 12P | 12P |

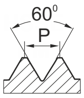
| M Ć $d_1$ | P | Overall dimensions |  d | | On request | |
|---|---|---|---|---|---|---|
| M8x1 | 1,0 | On request | 7,0 | | | |
| M10x1 | 1,0 | | 9,0 | | | |
| M12x1 | 1,0 | | 11,0 | | | |
| M12x1,5 | 1,5 | | 10,5 | | | |
| M14x1,5 | 1,5 | | 12,5 | | | |
| M16x1 | 1,0 | | 15,0 | | | |
| M16x1,5 | 1,5 | | 14,5 | | | |
| M18x1,5 | 1,5 | | 16,5 | | | |
| M20x1,5 | 1,5 | | 18,5 | | | |
| M20x2 | 2,0 | | 18,0 | | | |
| M22x1,5 | 1,5 | | 20,5 | | | |
| M22x2 | 2,0 | | 20,0 | | | |
| M24x1,5 | 1,5 | | 22,5 | | | |
| M24x2 | 2,0 | | 22,0 | | | |
| M27x1,5 | 1,5 | | 25,5 | | | |
| M27x2 | 2,0 | | 25,0 | | | |

| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-20 | 5-20 |
| M | - | - |
| K | - | - |
| N | - | - |
| S | - | - |

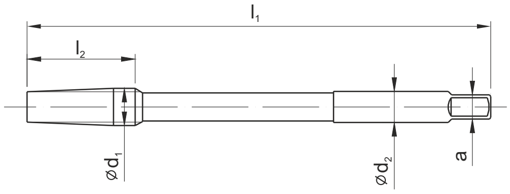
Example of order
NUT-TAP M24x1,5 ISO2 HSSE TC

● Available from stock
○ On request

## ISO Metric fine thread DIN-13




**HSS**




| | NGMf | NGMf LH |
|---|---|---|
| |  | |
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 1,5d | < 1,5d |
| Quality of material | HSS | HSS |
| Coating | | |
| Chamfer | 12P | 12P |

| MF Ćd1 | P | l1 | l2 | Ćd2 | a | d | Norm / Tol. / INDEX | NGMf ISO2 (6H) F1-151001 | NGMf ISO2 (6H) F1-251001 |
|---|---|---|---|---|---|---|---|---|---|
| M4,5x0,5 | 0,50 | 100 | 10 | 3,2 | 2,5 | 4,0 | 0046 | ○ | ○ |
| M5x0,5 | 0,50 | 110 | 10 | 3,6 | 2,8 | 4,5 | 0051 | ○ | ○ |
| M5,5x0,5 | 0,50 | 110 | 10 | 4,5 | 3,6 | 5,0 | 0056 | ○ | ○ |
| M6x0,75 | 0,75 | 120 | 16 | 4,5 | 3,6 | 5,2 | 0062 | ○ | ○ |
| M7x0,75 | 0,75 | 120 | 16 | 5,6 | 4,5 | 6,2 | 0072 | ○ | ○ |
| M8x0,75 | 0,75 | 140 | 16 | 6,3 | 5,0 | 7,2 | 0082 | ○ | ○ |
| M8x1 | 1,00 | 140 | 20 | 6,3 | 5,0 | 7,0 | 0083 | ● | ○ |
| M10x0,75 | 0,75 | 160 | 16 | 8,0 | 6,3 | 9,2 | 0102 | ○ | ○ |
| M10x1 | 1,00 | 160 | 20 | 8,0 | 6,3 | 9,0 | 0103 | ● | ○ |
| M10x1,25 | 1,25 | 160 | 25 | 8,0 | 6,3 | 8,8 | 0104 | ● | ○ |
| M12x1 | 1,00 | 180 | 20 | 9,0 | 7,1 | 11,0 | 0123 | ● | ○ |
| M12x1,25 | 1,25 | 180 | 25 | 9,0 | 7,1 | 10,8 | 0124 | ● | ○ |
| M12x1,5 | 1,50 | 180 | 30 | 9,0 | 7,1 | 10,5 | 0125 | ● | ○ |
| M14x1 | 1,00 | 180 | 20 | 10,0 | 8,0 | 13,0 | 0143 | ○ | ○ |
| M14x1,25 | 1,25 | 180 | 25 | 10,0 | 8,0 | 12,8 | 0144 | ● | ○ |
| M14x1,5 | 1,50 | 180 | 30 | 10,0 | 8,0 | 12,5 | 0145 | ● | ○ |
| M15x1 | 1,00 | 180 | 20 | 12,5 | 10,0 | 14,0 | 0153 | ○ | ○ |
| M15x1,5 | 1,50 | 180 | 30 | 12,5 | 10,0 | 13,5 | 0155 | ○ | ○ |
| M16x1 | 1,00 | 200 | 20 | 12,5 | 10,0 | 15,0 | 0163 | ○ | ○ |
| M16x1,5 | 1,50 | 200 | 30 | 12,5 | 10,0 | 14,5 | 0165 | ● | ○ |
| M17x1 | 1,00 | 200 | 20 | 14,0 | 11,2 | 16,0 | 0173 | ○ | ○ |
| M17x1,5 | 1,50 | 200 | 30 | 14,0 | 11,2 | 15,5 | 0175 | ○ | ○ |
| M18x1 | 1,00 | 200 | 20 | 14,0 | 11,2 | 17,0 | 0183 | ○ | ○ |
| M18x1,5, | 1,50 | 200 | 30 | 14,0 | 11,2 | 16,5 | 0185 | ○ | ○ |
| M18x2 | 2,00 | 200 | 40 | 14,0 | 11,2 | 16,0 | 0186 | ○ | ○ |
| M20x1 | 1,00 | 220 | 20 | 16,0 | 12,5 | 19,0 | 0203 | ○ | ○ |
| M20x1,5 | 1,50 | 220 | 30 | 16,0 | 12,5 | 18,5 | 0205 | ● | ○ |
| M20x2 | 2,00 | 220 | 40 | 16,0 | 12,5 | 18,0 | 0206 | ○ | ○ |
| M22x1 | 1,00 | 220 | 20 | 18,0 | 14,0 | 21,0 | 0223 | ○ | ○ |
| M22x1,5 | 1,50 | 220 | 30 | 18,0 | 14,0 | 20,5 | 0225 | ○ | ○ |
| M22x2 | 2,00 | 220 | 40 | 18,0 | 14,0 | 20,0 | 0226 | ○ | ○ |
| M24x1 | 1,00 | 250 | 20 | 18,0 | 14,0 | 23,0 | 0243 | ○ | ○ |

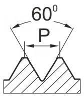
● **Available from stock**
○ **On request**

| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-20 | 5-20 |
| M | - | - |
| K | 6-15 | 6-15 |
| N | 6-15 | 6-15 |
| S | - | - |

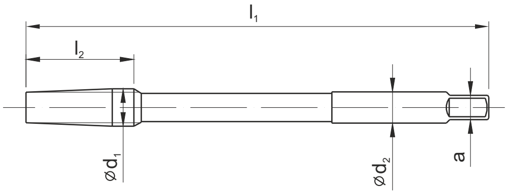
**Example of order**

**F1-151001-0083**
**Tap M8x1-6H NGMf HSS**

## ISO Metric fine thread DIN-13




**HSS**





| | NGMf | |
|---|---|---|
| | | LH |
| Material groups | P K N | P K N |
| Hole type | < 1,5d | < 1,5d |
| Quality of material | HSS | HSS |
| Coating | | |
| Chamfer | 12P | 12P |

| MF Ćd1 | P | l1 | l2 | Ćd2 | a | d | INDEX | F1-151001 | F1-251001 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Norm | NGMf | NGMf |
| | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) |
| M24x1,5 | 1,50 | 250 | 30 | 18,0 | 14,0 | 22,5 | 0245 | o | o |
| M24x2 | 2,00 | 250 | 40 | 18,0 | 14,0 | 22,0 | 0246 | o | o |
| M25x1 | 1,00 | 250 | 20 | 20,0 | 16,0 | 24,0 | 0253 | o | o |
| M25x1,5 | 1,50 | 250 | 30 | 20,0 | 16,0 | 23,5 | 0255 | o | o |
| M25x2 | 2,00 | 250 | 40 | 20,0 | 16,0 | 23,0 | 0256 | o | o |
| M26x1,5 | 1,50 | 250 | 30 | 20,0 | 16,0 | 24,5 | 0265 | o | o |
| M27x1 | 1,00 | 250 | 20 | 20,0 | 16,0 | 26,0 | 0273 | o | o |
| M27x1,5 | 1,50 | 250 | 30 | 20,0 | 16,0 | 25,5 | 0275 | o | o |
| M27x2 | 2,00 | 250 | 40 | 20,0 | 16,0 | 25,0 | 0276 | o | o |
| M28x1 | 1,00 | 250 | 20 | 22,4 | 18,0 | 27,0 | 0283 | o | o |
| M28x1,5 | 1,50 | 250 | 30 | 22,4 | 18,0 | 26,5 | 0285 | o | o |
| M28x2 | 2,00 | 250 | 40 | 22,4 | 18,0 | 26,0 | 0286 | o | o |
| M30x1 | 1,00 | 280 | 20 | 22,4 | 18,0 | 29,0 | 0303 | o | o |
| M30x1,5 | 1,50 | 280 | 30 | 22,4 | 18,0 | 28,5 | 0305 | o | o |
| M30x2 | 2,00 | 280 | 40 | 22,4 | 18,0 | 28,0 | 0306 | o | o |
| M30x3 | 3,00 | 280 | 60 | 22,4 | 18,0 | 27,0 | 0307 | o | o |
| M32x1,5 | 1,50 | 280 | 30 | 25,0 | 20,0 | 30,5 | 0325 | o | o |
| M32x2 | 2,00 | 280 | 40 | 25,0 | 20,0 | 30,0 | 0326 | o | o |
| M33x1,5 | 1,50 | 280 | 30 | 25,0 | 20,0 | 31,5 | 0335 | o | o |
| M33x2 | 2,00 | 280 | 40 | 25,0 | 20,0 | 31,0 | 0336 | o | o |
| M33x3 | 3,00 | 280 | 60 | 25,0 | 20,0 | 30,0 | 0337 | o | o |
| M35x1,5 | 1,50 | 280 | 30 | 28,0 | 22,4 | 33,5 | 0355 | o | o |
| M36x1,5 | 1,50 | 280 | 30 | 28,0 | 22,4 | 34,5 | 0365 | o | o |
| M36x2 | 2,00 | 280 | 40 | 28,0 | 22,4 | 34,0 | 0366 | o | o |
| M36x3 | 3,00 | 280 | 60 | 28,0 | 22,4 | 33,0 | 0367 | o | o |

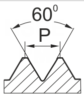
| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-20 | 5-20 |
| M | - | - |
| K | 6-15 | 6-15 |
| N | 6-15 | 6-15 |
| S | - | - |

**Example of order**

**F1-151001-0245**
**Tap M24x1,5-6H NGMf HSS**

● **Available from stock**
○ **On request**

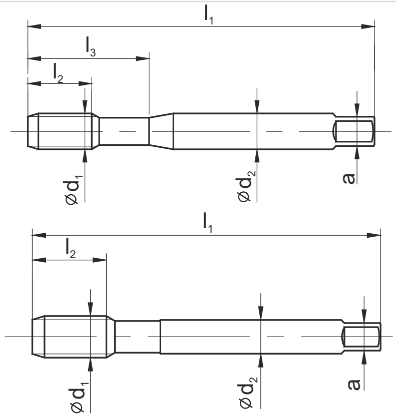
## American unified coarse thread
## UNC, ANSI B-1.1




HSSE PM

HL

DIN 371 | DIN 376




| | MASTERTAP B-HL | MASTERTAP C-R45-HL |
|---|---|---|
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 3d | < 2,5d |
| Quality of material | HSSE-PM | HSSE-PM |
| Coating | HL | HL |
| Chamfer | B / 4-5P | C / 2-3P |

| UNC | Ćd1 | 1"/P | P | l1 | l2 | l3 | Ćd2 | a | d | Norm / Tol. / INDEX | DIN-371 2BX C4-118M01 | DIN-371 2BX C4-528M01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No2-56 | 2,184 | 56 | 0,455 | 45 | 10 | 13 | 2,8 | 2,1 | 1,85 | 4102 | ○ | ○ |
| No4-40 | 2,844 | 40 | 0,635 | 56 | 5 | 18 | 3,5 | 2,7 | 2,35 | 4104 | ● | ● |
| No5-40 | 3,175 | 40 | 0,635 | 56 | 7 | 18 | 3,5 | 2,7 | 2,65 | 4105 | ● | ● |
| No6-32 | 3,505 | 32 | 0,794 | 56 | 6 | 20 | 4,0 | 3,0 | 2,85 | 4106 | ● | ● |
| No8-32 | 4,165 | 32 | 0,794 | 63 | 7 | 21 | 4,5 | 3,4 | 3,50 | 4108 | ● | ● |
| No10-24 | 4,826 | 24 | 1,058 | 70 | 8 | 25 | 6,0 | 4,9 | 3,90 | 4110 | ● | ● |
| No12-24 | 5,486 | 24 | 1,058 | 80 | 10 | 30 | 6,0 | 4,9 | 4,50 | 4112 | ● | ● |
| 1/4-20 | 6,350 | 20 | 1,270 | 80 | 13 | 30 | 7,0 | 5,5 | 5,10 | 4127 | ● | ● |
| 5/16-18 | 7,938 | 18 | 1,411 | 90 | 13 | 35 | 8,0 | 6,0 | 6,60 | 4128 | ● | ● |
| 3/8-16 | 9,525 | 16 | 1,588 | 100 | 15 | 39 | 10,0 | 8,0 | 8,00 | 4129 | ● | ● |

| UNC | Ćd1 | 1"/P | P | l1 | l2 | l3 | Ćd2 | a | d | Norm / Tol. / INDEX | DIN-376 2BX D4-118M01 | DIN-376 2BX D4-528M01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7/16-14 | 11,112 | 14 | 1,814 | 100 | 15 | - | 8,0 | 6,2 | 9,40 | 4130 | ● | ● |
| 1/2-13 | 12,700 | 13 | 1,954 | 110 | 18 | - | 9,0 | 7,0 | 10,80 | 4131 | ● | ● |
| 9/16-12 | 14,288 | 12 | 2,117 | 110 | 20 | - | 11,0 | 9,0 | 12,20 | 4132 | ● | ● |
| 5/8-11 | 15,875 | 11 | 2,309 | 110 | 22 | - | 12,0 | 9,0 | 13,50 | 4133 | ● | ● |

| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-40 | 5-40 |
| M | 5-15 | 5-15 |
| K | 10-30 | 10-30 |
| N | 10-30 | 10-30 |
| S | 1-8 | 1-8 |

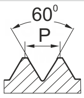


**Example of order**

**C4-118M01-4104**
**MasterTAP No5-40 UNC 2BX DIN-371 B HSSE-PM HL**

● **Available from stock**
○ **On request**

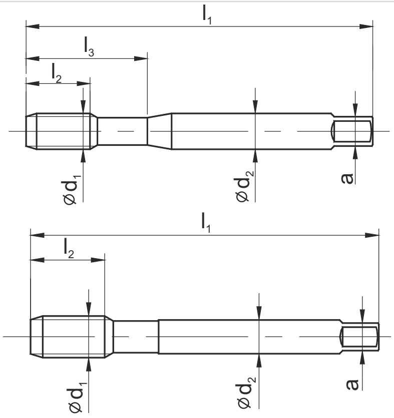
## American unified coarse thread
## UNC, ANSI B-1.1




HSSE

TN2

DIN 371 | DIN 376




800X

| | B-TN2 | C-R40-TN2 |
|---|---|---|
| |  | |
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 3d | < 2,5d |
| Quality of material | HSSE | HSSE |
| Coating | TN2 | TN2 |
| Chamfer | B / 4-5P | C / 2-3P |

| UNC | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć $d_2$ | a | d | Norm / Tol. / INDEX | DIN-371 2B C2-113X01 | DIN-371 2B C2-513X01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No2-56 | 2,184 | 56 | 0,455 | 45 | 10 | 10 | 13 | 2,8 | 2,1 | 1,85 | 4102 | ○ | ○ |
| No4-40 | 2,844 | 40 | 0,635 | 56 | 10 | 5 | 18 | 3,5 | 2,7 | 2,35 | 4104 | ● | ● |
| No5-40 | 3,175 | 40 | 0,635 | 56 | 10 | 7 | 18 | 3,5 | 2,7 | 2,65 | 4105 | ● | ● |
| No6-32 | 3,505 | 32 | 0,794 | 56 | 12 | 6 | 20 | 4,0 | 3,0 | 2,85 | 4106 | ● | ● |
| No8-32 | 4,165 | 32 | 0,794 | 63 | 12 | 7 | 21 | 4,5 | 3,4 | 3,50 | 4108 | ● | ● |
| No10-24 | 4,826 | 24 | 1,058 | 70 | 14 | 8 | 25 | 6,0 | 4,9 | 3,90 | 4110 | ● | ● |
| No12-24 | 5,486 | 24 | 1,058 | 80 | 18 | 10 | 30 | 6,0 | 4,9 | 4,50 | 4112 | ● | ● |
| 1/4-20 | 6,350 | 20 | 1,270 | 80 | 18 | 13 | 30 | 7,0 | 5,5 | 5,10 | 4127 | ● | ● |
| 5/16-18 | 7,938 | 18 | 1,411 | 90 | 20 | 13 | 35 | 8,0 | 6,0 | 6,60 | 4128 | ● | ● |
| 3/8-16 | 9,525 | 16 | 1,588 | 100 | 20 | 15 | 39 | 10,0 | 8,0 | 8,00 | 4129 | ● | ● |

| UNC | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć $d_2$ | a | d | Norm / Tol. / INDEX | DIN-376 2B D2-113X01 | DIN-376 2B D2-513X01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7/16-14 | 11,112 | 14 | 1,814 | 100 | 22 | 15 | - | 8,0 | 6,2 | 9,40 | 4130 | ● | ● |
| 1/2-13 | 12,700 | 13 | 1,954 | 110 | 24 | 18 | - | 9,0 | 7,0 | 10,80 | 4131 | ● | ● |
| 9/16-12 | 14,288 | 12 | 2,117 | 110 | 25 | 20 | - | 11,0 | 9,0 | 12,20 | 4132 | ● | ● |
| 5/8-11 | 15,875 | 11 | 2,309 | 110 | 32 | 22 | - | 12,0 | 9,0 | 13,50 | 4133 | ● | ● |
| 3/4-10 | 19,050 | 10 | 2,504 | 125 | 32 | 25 | - | 14,0 | 11,0 | 16,50 | 4135 | ● | ● |
| 7/8-9 | 22,225 | 9 | 2,822 | 140 | 32 | 30 | - | 18,0 | 14,5 | 19,50 | 4137 | ● | ● |
| 1-8 | 25,400 | 8 | 3,175 | 160 | 38 | 30 | - | 20,0 | 16,0 | 22,25 | 4139 | ● | ● |
| 1.1/8-7 | 28,575 | 7 | 3,629 | 180 | 40 | 40 | - | 22,0 | 18,0 | 25,00 | 4141 | ○ | ○ |
| 1.1/4-7 | 31,750 | 7 | 3,629 | 180 | 40 | 40 | - | 22,0 | 18,0 | 28,00 | 4143 | ○ | ○ |
| 1.3/8-6 | 34,925 | 6 | 4,233 | 200 | 50 | 40 | - | 28,0 | 22,0 | 30,75 | 4145 | ○ | ○ |
| 1.1/2-6 | 38,100 | 6 | 4,233 | 200 | 55 | 40 | - | 28,0 | 22,0 | 34,00 | 4147 | ○ | ○ |

| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-35 | 5-35 |
| M | 5-15 | 5-15 |
| K | 5-25 | 5-25 |
| N | 10-30 | 10-30 |
| S | - | - |

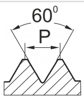
**Example of order**

**C2-113X01-4105**
**Tap 800X No5-40 UNC 2B DIN-371 HSSE TN2**

● **Available from stock**
○ **On request**

1

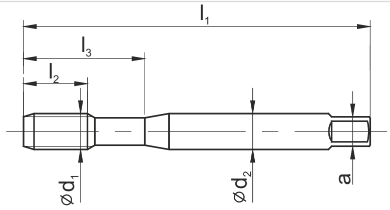
## American unified coarse thread
## UNC, ANSI B-1.1

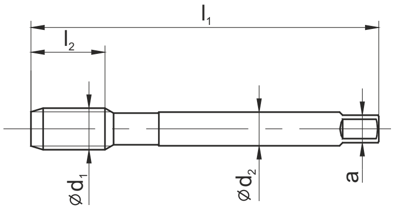


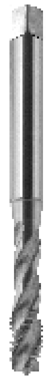

HSSE

DIN 371

DIN 376




| | 800 | |
|---|---|---|
| | B | C-R40 |
| |  |  |
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 3d | < 2,5d |
| Quality of material | HSSE | HSSE |
| Coating | | |
| Chamfer | B / 4-5P | C / 2-3P |

| UNC | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć $d_2$ | a | d | Norm / Tol. / INDEX | DIN-371 2B C2-111101 | DIN-371 2B C2-511101 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No2-56 | 2,184 | 56 | 0,455 | 45 | 10 | 10 | 13 | 2,8 | 2,1 | 1,85 | 4102 | ○ | ○ |
| No4-40 | 2,844 | 40 | 0,635 | 56 | 10 | 5 | 18 | 3,5 | 2,7 | 2,35 | 4104 | ● | ● |
| No5-40 | 3,175 | 40 | 0,635 | 56 | 10 | 7 | 18 | 3,5 | 2,7 | 2,65 | 4105 | ● | ● |
| No6-32 | 3,505 | 32 | 0,794 | 56 | 12 | 6 | 20 | 4,0 | 3,0 | 2,85 | 4106 | ● | ● |
| No8-32 | 4,165 | 32 | 0,794 | 63 | 12 | 7 | 21 | 4,5 | 3,4 | 3,50 | 4108 | ● | ● |
| No10-24 | 4,826 | 24 | 1,058 | 70 | 14 | 8 | 25 | 6,0 | 4,9 | 3,90 | 4110 | ● | ● |
| No12-24 | 5,486 | 24 | 1,058 | 80 | 18 | 10 | 30 | 6,0 | 4,9 | 4,50 | 4112 | ● | ● |
| 1/4-20 | 6,350 | 20 | 1,270 | 80 | 18 | 13 | 30 | 7,0 | 5,5 | 5,10 | 4127 | ● | ● |
| 5/16-18 | 7,938 | 18 | 1,411 | 90 | 20 | 13 | 35 | 8,0 | 6,0 | 6,60 | 4128 | ● | ● |
| 3/8-16 | 9,525 | 16 | 1,588 | 100 | 20 | 15 | 39 | 10,0 | 8,0 | 8,00 | 4129 | ● | ● |

| UNC | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć $d_2$ | a | d | Norm / Tol. / INDEX | DIN-376 2B D2-111101 | DIN-376 2B D2-511101 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7/16-14 | 11,112 | 14 | 1,814 | 100 | 22 | 15 | - | 8,0 | 6,2 | 9,40 | 4130 | ● | ● |
| 1/2-13 | 12,700 | 13 | 1,954 | 110 | 24 | 18 | - | 9,0 | 7,0 | 10,80 | 4131 | ● | ● |
| 9/16-12 | 14,288 | 12 | 2,117 | 110 | 25 | 20 | - | 11,0 | 9,0 | 12,20 | 4132 | ● | ● |
| 5/8-11 | 15,875 | 11 | 2,309 | 110 | 32 | 22 | - | 12,0 | 9,0 | 13,50 | 4133 | ● | ● |
| 3/4-10 | 19,050 | 10 | 2,504 | 125 | 32 | 25 | - | 14,0 | 11,0 | 16,50 | 4135 | ● | ● |
| 7/8-9 | 22,225 | 9 | 2,822 | 140 | 32 | 30 | - | 18,0 | 14,5 | 19,50 | 4137 | ● | ● |
| 1-8 | 25,400 | 8 | 3,175 | 160 | 38 | 30 | - | 20,0 | 16,0 | 22,25 | 4139 | ● | ● |
| 1.1/8-7 | 28,575 | 7 | 3,629 | 180 | 40 | 40 | - | 22,0 | 18,0 | 25,00 | 4141 | ● | ● |
| 1.1/4-7 | 31,750 | 7 | 3,629 | 180 | 40 | 40 | - | 22,0 | 18,0 | 28,00 | 4143 | ● | ● |
| 1.3/8-6 | 34,925 | 6 | 4,233 | 200 | 50 | 40 | - | 28,0 | 22,0 | 30,75 | 4145 | ● | ● |
| 1.1/2-6 | 38,100 | 6 | 4,233 | 200 | 55 | 40 | - | 28,0 | 22,0 | 34,00 | 4147 | ● | ● |

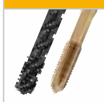
| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-20 | 5-20 |
| M | - | - |
| K | 5-15 | 5-15 |
| N | 5-25 | 5-25 |
| S | - | - |



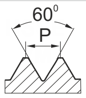
**Example of order**

**C2-111101-4106**
**Tap 800 No5-40 UNC 2B DIN-371 HSSE**

● **Available from stock**
○ **On request**

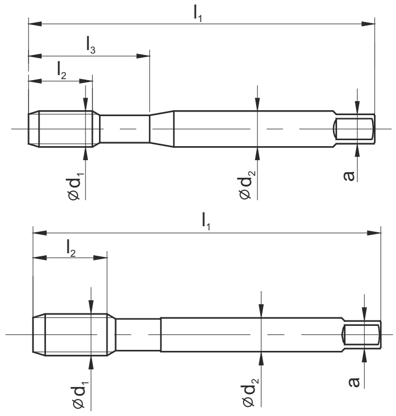


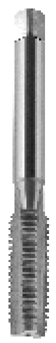
## American unified coarse thread
## UNC, ANSI B-1.1

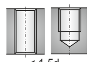



HSS

DIN 352



| | |
|---|---|
| Material groups | P M K N S H |
| Hole type |  < 1,5d |
| Quality of material | HSS |
| Coating | |
| Chamfer | D/~3P |

| UNC | Ćd1 | 1"/P | P | l1 | l2 | l3 | Ćd2 | a | d | Norm / Tol. / INDEX | DIN-352 / 2B / E1-131001 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No4-40 | 2,844 | 40 | 0,635 | 40 | 10 | 18 | 3,5 | 2,7 | 2,35 | 4104 | ○ |
| No5-40 | 3,175 | 40 | 0,640 | 42 | 10 | 18 | 3,5 | 2,7 | 2,65 | 4105 | ○ |
| No6-32 | 3,505 | 32 | 0,794 | 45 | 11 | 18 | 4,0 | 3,0 | 2,85 | 4106 | ● |
| No8-32 | 4,166 | 32 | 0,794 | 48 | 12 | 23 | 4,5 | 3,4 | 3,50 | 4108 | ○ |
| No10-24 | 4,826 | 24 | 1,060 | 52 | 14 | 26 | 6,0 | 4,9 | 3,90 | 4110 | ○ |
| No12-24 | 5,486 | 24 | 1,060 | 56 | 16 | 27 | 6,0 | 4,9 | 4,50 | 4112 | ○ |
| 1/4-20 | 6,350 | 20 | 1,270 | 56 | 16 | 27 | 6,0 | 4,9 | 5,20 | 4127 | ● |
| 5/16-18 | 7,938 | 18 | 1,411 | 63 | 20 | - | 6,0 | 4,9 | 6,60 | 4128 | ● |
| 3/8-16 | 9,525 | 16 | 1,588 | 70 | 22 | - | 7,0 | 5,5 | 8,00 | 4129 | ● |
| 7/16-14 | 11,112 | 14 | 1,814 | 70 | 22 | - | 8,0 | 6,2 | 9,40 | 4130 | ○ |
| 1/2-13 | 12,700 | 13 | 1,954 | 80 | 25 | - | 9,0 | 7,0 | 10,80 | 4131 | ● |
| 9/16-12 | 14,288 | 12 | 2,117 | 80 | 26 | - | 11,0 | 9,0 | 12,20 | 4132 | ○ |
| 5/8-11 | 15,875 | 11 | 2,309 | 80 | 27 | - | 12,0 | 9,0 | 13,50 | 4133 | ● |
| 3/4-10 | 19,050 | 10 | 2,504 | 95 | 30 | - | 14,0 | 11,0 | 16,50 | 4135 | ● |
| 7/8-9 | 22,225 | 9 | 2,822 | 100 | 32 | - | 18,0 | 14,5 | 19,50 | 4137 | ○ |
| 1-8 | 25,400 | 8 | 3,175 | 110 | 36 | - | 18,0 | 14,5 | 22,25 | 4139 | ○ |
| 1.1/8-7 | 28,575 | 7 | 3,629 | 125 | 40 | - | 22,0 | 18,0 | 25,00 | 4141 | ○ |
| 1.1/4-7 | 31,750 | 7 | 3,629 | 125 | 40 | - | 22,0 | 18,0 | 28,00 | 4143 | ○ |
| 1.3/8-6 | 34,925 | 6 | 4,233 | 150 | 50 | - | 28,0 | 22,0 | 30,75 | 4145 | ○ |
| 1.1/2-6 | 38,100 | 6 | 4,233 | 150 | 50 | - | 28,0 | 22,0 | 34,00 | 4147 | ○ |
| 1.3/4-5 | 44,450 | 5 | 5,080 | 160 | 58 | - | 36,0 | 29,0 | 39,50 | 4151 | ○ |
| 2-4.1/2 | 50,800 | 4 1/2 | 5,644 | 180 | 65 | - | 40,0 | 32,0 | 45,00 | 4155 | ○ |

| ISO | Vc (m/min) |
|---|---|
| P | 5-20 |
| M | - |
| K | - |
| N | - |
| S | - |

**Example of order**

**E1-131001-4106**
**Tap No6-32 UNC 2B DIN-352 HSS**

● **Available from stock**
○ **On request**

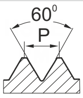
FANAR®





## American unified fine thread UNF, ANSI B-1.1

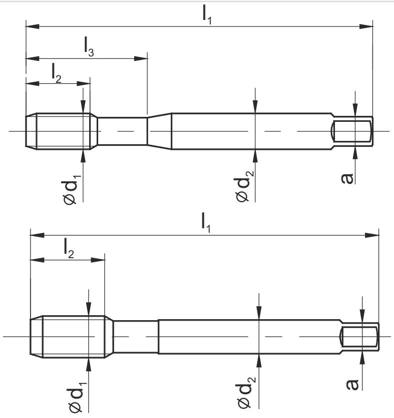
MASTERTAP




HSSE PM

HL

DIN 371




| | B-HL | C-R45-HL |
|---|---|---|
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 3d | < 2,5d |
| Quality of material | HSSE-PM | HSSE-PM |
| Coating | HL | HL |
| Chamfer | B / 4-5P | C / 2-3P |

| UNF | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | $l_3$ | Ć $d_2$ | a | d | Norm | DIN-371 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Tol. | 2BX | 2BX |
| | | | | | | | | | | INDEX | C4-118M01 | C4-528M01 |
| No4-48 | 2,844 | 48 | 0,529 | 56 | 5 | 18 | 3,5 | 2,7 | 2,40 | 4204 | ● | ● |
| No5-44 | 3,175 | 44 | 0,557 | 56 | 7 | 18 | 3,5 | 2,7 | 2,70 | 4205 | ● | ● |
| No6-40 | 3,505 | 40 | 0,635 | 56 | 6 | 20 | 4,0 | 3,0 | 2,95 | 4206 | ● | ● |
| No8-36 | 4,165 | 36 | 0,705 | 63 | 7 | 21 | 4,5 | 3,4 | 3,50 | 4208 | ● | ● |
| No10-32 | 4,826 | 32 | 0,794 | 70 | 8 | 25 | 6,0 | 4,9 | 4,10 | 4210 | ● | ● |
| No12-28 | 5,486 | 28 | 0,907 | 80 | 10 | 30 | 6,0 | 4,9 | 4,60 | 4212 | ● | ● |
| 1/4-28 | 6,350 | 28 | 0,907 | 80 | 10 | 30 | 7,0 | 5,5 | 5,50 | 4227 | ● | ● |
| 5/16-24 | 7,938 | 24 | 1,058 | 90 | 13 | 35 | 8,0 | 6,0 | 6,90 | 4228 | ● | ● |
| 3/8-24 | 9,525 | 24 | 1,058 | 100 | 15 | 39 | 10,0 | 8,0 | 8,50 | 4229 | ● | ● |

| UNF | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | $l_3$ | Ć $d_2$ | a | d | Norm | DIN-374 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Tol. | 2BX | 2BX |
| | | | | | | | | | | INDEX | D4-118M01 | D4-528M01 |
| 7/16-20 | 11,112 | 20 | 1,270 | 100 | 15 | - | 8,0 | 6,2 | 9,90 | 4230 | ● | ● |
| 1/2-20 | 12,700 | 20 | 1,270 | 100 | 15 | - | 9,0 | 7,0 | 11,50 | 4231 | ● | ● |
| 9/16-18 | 14,288 | 18 | 1,411 | 100 | 15 | - | 11,0 | 9,0 | 12,90 | 4232 | ● | ● |
| 5/8-18 | 15,875 | 18 | 1,411 | 100 | 15 | - | 12,0 | 9,0 | 14,50 | 4233 | ● | ● |

| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-40 | 5-40 |
| M | 5-15 | 5-15 |
| K | 10-30 | 10-30 |
| N | 10-30 | 10-30 |
| S | 1-8 | 1-8 |

MASTERTAP



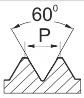
**Example of order**

**C4-118M01-4210**
**MasterTAP No10-32 UNF 2BX DIN-371 B HSSE-PM HL**

● **Available from stock**
○ **On request**

## American unified fine thread UNF, ANSI B-1.1

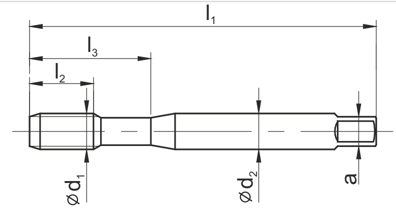
800X

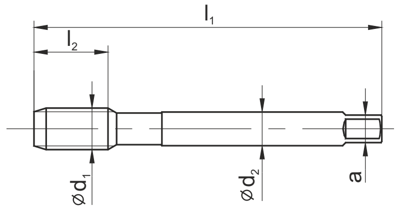



HSSE

TN2

DIN 371 | DIN 374




| | B-TN2 | C-R40-TN2 |
|---|---|---|
| |  |  |
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 3d | < 2,5d |
| Quality of material | HSSE | HSSE |
| Coating | TN2 | TN2 |
| Chamfer | B / 4-5P | C / 2-3P |

| UNF | Ćd1 | 1"/P | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm | DIN-371 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Tol. | 2B | 2B |
| | | | | | | | | | | | INDEX | C2-113X01 | C2-513X01 |
| No6-40 | 3,505 | 40 | 0,635 | 56 | 12 | 6 | 20 | 4,0 | 3,0 | 2,95 | 4206 | ○ | ○ |
| No8-36 | 4,165 | 36 | 0,705 | 63 | 12 | 7 | 21 | 4,5 | 3,4 | 3,50 | 4208 | ○ | ○ |
| No10-32 | 4,826 | 32 | 0,794 | 70 | 14 | 8 | 25 | 6,0 | 4,9 | 4,10 | 4210 | ● | ● |
| No12-28 | 5,486 | 28 | 0,907 | 80 | 18 | 10 | 30 | 6,0 | 4,9 | 4,60 | 4212 | ● | ● |
| 1/4-28 | 6,350 | 28 | 0,907 | 80 | 18 | 10 | 30 | 7,0 | 5,5 | 5,50 | 4227 | ● | ● |
| 5/16-24 | 7,938 | 24 | 1,058 | 90 | 20 | 13 | 35 | 8,0 | 6,0 | 6,90 | 4228 | ● | ● |
| 3/8-24 | 9,525 | 24 | 1,058 | 100 | 20 | 15 | 39 | 10,0 | 8,0 | 8,50 | 4229 | ● | ● |

| UNF | Ćd1 | 1"/P | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm | DIN-374 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Tol. | 2B | 2B |
| | | | | | | | | | | | INDEX | D2-113X01 | D2-513X01 |
| 7/16-20 | 11,112 | 20 | 1,270 | 100 | 20 | 15 | - | 8,0 | 6,2 | 9,90 | 4230 | ● | ● |
| 1/2-20 | 12,700 | 20 | 1,270 | 100 | 20 | 15 | - | 9,0 | 7,0 | 11,50 | 4231 | ● | ● |
| 9/16-18 | 14,288 | 18 | 1,411 | 100 | 20 | 15 | - | 11,0 | 9,0 | 12,90 | 4232 | ● | ● |
| 5/8-18 | 15,875 | 18 | 1,411 | 100 | 20 | 15 | - | 12,0 | 9,0 | 14,50 | 4233 | ● | ● |
| 3/4-16 | 19,050 | 16 | 1,588 | 110 | 24 | 17 | - | 14,0 | 11,0 | 17,50 | 4235 | ● | ● |
| 7/8-14 | 22,225 | 14 | 1,814 | 125 | 24 | 17 | - | 18,0 | 14,5 | 20,40 | 4237 | ● | ● |
| 1-12 | 25,400 | 12 | 2,117 | 140 | 27 | 20 | - | 18,0 | 14,5 | 23,25 | 4239 | ● | ● |
| 1.1/8-12 | 28,575 | 12 | 2,117 | 150 | 27 | 22 | - | 22,0 | 18,0 | 26,50 | 4241 | ○ | ○ |
| 1.1/4-12 | 31,750 | 12 | 2,117 | 150 | 27 | 22 | - | 22,0 | 18,0 | 29,50 | 4243 | ○ | ○ |
| 1.3/8-12 | 34,925 | 12 | 2,117 | 170 | 30 | 22 | - | 28,0 | 22,0 | 32,75 | 4245 | ○ | ○ |
| 1.1/2-12 | 38,100 | 12 | 2,117 | 170 | 30 | 24 | - | 28,0 | 22,0 | 36,00 | 4247 | ○ | ○ |

| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-35 | 5-35 |
| M | 5-15 | 5-15 |
| K | 5-25 | 10-25 |
| N | 10-30 | 10-30 |
| S | - | - |

**Example of order**

**C2-113X01-4208**
**Tap 800X No8-36 UNF 2B DIN-371 B HSSE TN2**

● **Available from stock**
○ **On request**

FANAR®

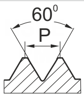




## American unified fine thread UNF, ANSI B-1.1

800

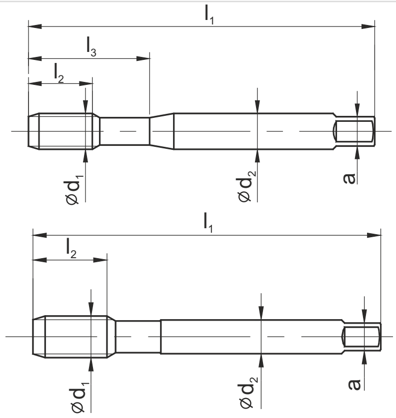
| | B | C-R40 |
|---|---|---|

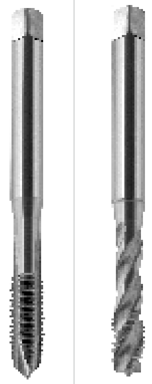



HSSE

DIN 371

DIN 374



| | B | C-R40 |
|---|---|---|
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 3d | < 2,5d |
| Quality of material | HSSE | HSSE |
| Coating | | |
| Chamfer | B / 4-5P | C / 2-3P |

| UNF | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć $d_2$ | a | d | Norm | DIN-371 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Tol. | 2B | 2B |
| | | | | | | | | | | | INDEX | C2-111101 | C2-511101 |
| No6-40 | 3,505 | 40 | 0,635 | 56 | 12 | 6 | 20 | 4,0 | 3,0 | 2,95 | 4206 | ○ | ○ |
| No8-36 | 4,165 | 36 | 0,705 | 63 | 12 | 7 | 21 | 4,5 | 3,4 | 3,50 | 4208 | ○ | ○ |
| No10-32 | 4,826 | 32 | 0,794 | 70 | 14 | 8 | 25 | 6,0 | 4,9 | 4,10 | 4210 | ● | ● |
| No12-28 | 5,486 | 28 | 0,907 | 80 | 18 | 10 | 30 | 6,0 | 4,9 | 4,60 | 4212 | ● | ● |
| 1/4-28 | 6,350 | 28 | 0,907 | 80 | 18 | 10 | 30 | 7,0 | 5,5 | 5,50 | 4227 | ● | ● |
| 5/16-24 | 7,938 | 24 | 1,058 | 90 | 20 | 13 | 35 | 8,0 | 6,0 | 6,90 | 4228 | ● | ● |
| 3/8-24 | 9,525 | 24 | 1,058 | 100 | 20 | 15 | 39 | 10,0 | 8,0 | 8,50 | 4229 | ● | ● |

| UNF | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć $d_2$ | a | d | Norm | DIN-374 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Tol. | 2B | 2B |
| | | | | | | | | | | | INDEX | D2-111101 | D2-511101 |
| 7/16-20 | 11,112 | 20 | 1,270 | 100 | 20 | 15 | - | 8,0 | 6,2 | 9,90 | 4230 | ● | ● |
| 1/2-20 | 12,700 | 20 | 1,270 | 100 | 20 | 15 | - | 9,0 | 7,0 | 11,50 | 4231 | ● | ● |
| 9/16-18 | 14,288 | 18 | 1,411 | 100 | 20 | 15 | - | 11,0 | 9,0 | 12,90 | 4232 | ● | ● |
| 5/8-18 | 15,875 | 18 | 1,411 | 100 | 20 | 15 | - | 12,0 | 9,0 | 14,50 | 4233 | ● | ● |
| 3/4-16 | 19,050 | 16 | 1,588 | 110 | 24 | 17 | - | 14,0 | 11,0 | 17,50 | 4235 | ● | ● |
| 7/8-14 | 22,225 | 14 | 1,814 | 125 | 24 | 17 | - | 18,0 | 14,5 | 20,40 | 4237 | ● | ● |
| 1-12 | 25,400 | 12 | 2,117 | 140 | 27 | 20 | - | 18,0 | 14,5 | 23,25 | 4239 | ● | ● |
| 1.1/8-12 | 28,575 | 12 | 2,117 | 150 | 27 | 22 | - | 22,0 | 18,0 | 26,50 | 4241 | ○ | ○ |
| 1.1/4-12 | 31,750 | 12 | 2,117 | 150 | 27 | 22 | - | 22,0 | 18,0 | 29,50 | 4243 | ○ | ○ |
| 1.3/8-12 | 34,925 | 12 | 2,117 | 170 | 30 | 22 | - | 28,0 | 22,0 | 32,75 | 4245 | ○ | ○ |
| 1.1/2-12 | 38,100 | 12 | 2,117 | 170 | 30 | 24 | - | 28,0 | 22,0 | 36,00 | 4247 | ○ | ○ |

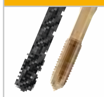
| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-20 | 5-20 |
| M | - | - |
| K | 5-15 | 5-15 |
| N | 5-25 | 5-25 |
| S | - | - |



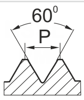
**Example of order**

**C2-111101-4210**
**Tap 800 No10-32 UNF 2B DIN-371 B HSSE**

● **Available from stock**
○ **On request**

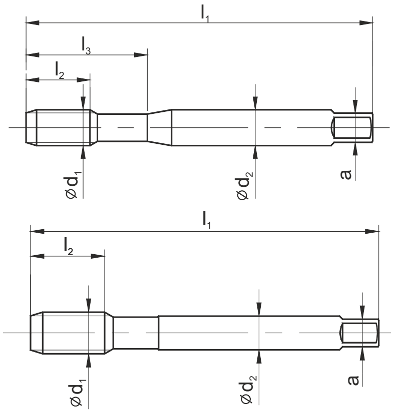


## American unified fine thread UNF, ANSI B-1.1




HSS

DIN 2181




| | |
|---|---|
| Material groups | P M K N S H |
| Hole type | < 1,5d |
| Quality of material | HSS |
| Coating | |
| Chamfer | ~3P |

| UNC | Ø $d_1$ | 1"/P | P | $l_1$ | $l_2$ | $l_3$ | Ø $d_2$ | a | d | Norm / Tol. / INDEX | DIN-2181 / 2B / E1-131001 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No5-44 | 3,175 | 44 | 0,577 | 42 | 10 | 18 | 3,5 | 2,7 | 2,70 | 4205 | ○ |
| No6-40 | 3,505 | 40 | 0,635 | 45 | 11 | 18 | 4,0 | 3,0 | 2,95 | 4206 | ○ |
| No8-36 | 4,165 | 36 | 0,705 | 48 | 12 | 23 | 4,5 | 3,4 | 3,50 | 4208 | ○ |
| No10-32 | 4,826 | 32 | 0,794 | 52 | 14 | 22 | 6,0 | 4,9 | 4,10 | 4210 | ○ |
| No12-28 | 5,486 | 28 | 0,907 | 56 | 16 | 24 | 6,0 | 4,9 | 4,60 | 4212 | ○ |
| 1/4-28 | 6,350 | 28 | 0,907 | 56 | 16 | 24 | 6,0 | 4,9 | 5,50 | 4227 | ● |
| 5/16-24 | 7,938 | 24 | 1,058 | 63 | 17 | - | 6,0 | 4,9 | 6,90 | 4228 | ● |
| 3/8-24 | 9,525 | 24 | 1,058 | 63 | 18 | - | 7,0 | 5,5 | 8,50 | 4229 | ● |
| 7/16-20 | 11,112 | 20 | 1,270 | 70 | 22 | - | 8,0 | 6,2 | 9,90 | 4230 | ● |
| 1/2-20 | 12,700 | 20 | 1,270 | 70 | 20 | - | 9,0 | 7,0 | 11,50 | 4231 | ● |
| 9/16-18 | 14,288 | 18 | 1,411 | 80 | 20 | - | 11,0 | 9,0 | 12,90 | 4232 | ● |
| 5/8-18 | 15,875 | 18 | 1,411 | 80 | 20 | - | 12,0 | 9,0 | 14,50 | 4233 | ● |
| 3/4-16 | 16,050 | 16 | 1,588 | 80 | 22 | - | 14,0 | 11,0 | 17,50 | 4235 | ● |
| 7/8-14 | 22,225 | 14 | 1,814 | 80 | 22 | - | 18,0 | 14,5 | 20,40 | 4237 | ○ |
| 1-12 | 25,400 | 12 | 2,117 | 90 | 22 | - | 18,0 | 14,5 | 23,25 | 4239 | ○ |
| 1.1/8-12 | 28,575 | 12 | 2,117 | 90 | 22 | - | 22,0 | 18,0 | 26,50 | 4242 | ○ |
| 1.1/4-12 | 31,750 | 12 | 2,117 | 90 | 22 | - | 22,0 | 18,0 | 29,50 | 4243 | ○ |
| 1.3/8-12 | 34,925 | 12 | 2,117 | 125 | 36 | - | 28,0 | 22,0 | 32,75 | 4245 | ○ |
| 1.1/2-12 | 38,100 | 12 | 2,117 | 125 | 36 | - | 28,0 | 22,0 | 36,00 | 4247 | ○ |

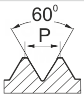
| ISO | Vc (m/min) |
|---|---|
| P | 5-20 |
| M | - |
| K | - |
| N | - |
| S | - |

**Example of order**

**E1-131001-4227**
**Tap 1/4-28 UNF 2B DIN-2181 HSS**

● **Available from stock**
○ **On request**

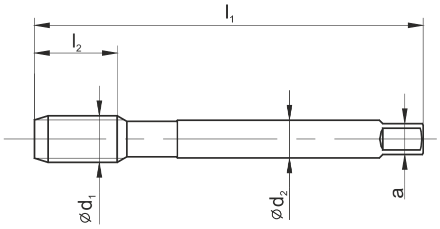
## American unified fine thread UNEF, ANSI B-1.1




HSSE

TN2

DIN ~374




800X

| | B-TN2 | C-R40-TN2 |
|---|---|---|
| Material groups | P M K N | P M K N |
| Hole type | < 3d | < 2,5d |
| Quality of material | HSSE | HSSE |
| Coating | TN2 | TN2 |
| Chamfer | B / 4-5P | C / 2-3P |

| UNEF | Ćd1 | 1"/P | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | INDEX | B-TN2 | C-R40-TN2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Norm | ~DIN-374 | |
| | | | | | | | | | | | Tol. | 2B | 2B |
| | | | | | | | | | | | INDEX | D2-113X01 | D2-513X01 |
| 1/4-32 | 6,350 | 32 | 0,794 | 80 | 14 | 8 | - | 4,5 | 3,4 | 5,55 | 4327 | ○ | ○ |
| 5/16-32 | 7,938 | 32 | 0,794 | 80 | 14 | 8 | - | 6,0 | 4,9 | 7,15 | 4328 | ○ | ○ |
| 3/8-32 | 9,525 | 32 | 0,794 | 90 | 18 | 8 | - | 7,0 | 5,5 | 8,70 | 4329 | ○ | ○ |
| 7/16-28 | 11,112 | 28 | 0,907 | 90 | 18 | 10 | - | 8,0 | 6,2 | 10,20 | 4330 | ○ | ○ |
| 1/2-28 | 12,700 | 28 | 0,907 | 100 | 18 | 10 | - | 9,0 | 7,0 | 11,80 | 4331 | ○ | ○ |
| 9/16-24 | 14,288 | 24 | 1,058 | 100 | 18 | 11 | - | 11,0 | 9,0 | 13,20 | 4332 | ○ | ○ |
| 5/8-24 | 15,875 | 24 | 1,058 | 100 | 18 | 11 | - | 12,0 | 9,0 | 14,80 | 4333 | ○ | ○ |
| 3/4-20 | 19,050 | 20 | 1,270 | 110 | 25 | 13 | - | 14,0 | 11,0 | 17,80 | 4335 | ○ | ○ |
| 7/8-20 | 22,225 | 20 | 1,270 | 125 | 25 | 13 | - | 18,0 | 14,5 | 20,95 | 4337 | ○ | ○ |
| 1-20 | 25,400 | 20 | 1,270 | 140 | 28 | 13 | - | 18,0 | 14,5 | 24,15 | 4339 | ○ | ○ |

| ISO | Vc (m/min) B-TN2 | Vc (m/min) C-R40-TN2 |
|---|---|---|
| P | 5-35 | 5-35 |
| M | 5-15 | 5-15 |
| K | 5-25 | 10-25 |
| N | 10-30 | 10-30 |
| S | - | - |





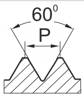
**Example of order**

**C2-11X01-4327**
**Tap 800X 1/4-32 UNEF 2B DIN-374 B HSSE TN2**

● **Available from stock**
○ **On request**

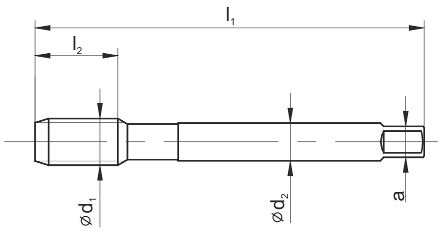
## American unified fine thread UNEF, ANSI B-1.1

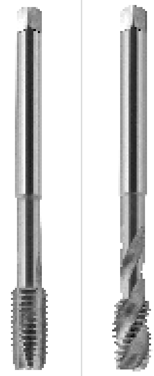
800

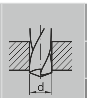



HSSE

DIN ~374




| | B | C-R40 |
|---|---|---|
| |  | |
| Material groups | P K N | P K N |
| Hole type | < 3d | < 2,5d |
| Quality of material | HSSE | HSSE |
| Coating | | |
| Chamfer | B / 4-5P | C / 2-3P |



| UNEF | Ćd1 | 1"/P | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | INDEX | B: Norm ~DIN-374, Tol. 2B, D2-111101 | C-R40: Norm ~DIN-374, Tol. 2B, D2-511101 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/4-32 | 6,350 | 32 | 0,794 | 80 | 14 | 8 | - | 4,5 | 3,4 | 5,55 | 4327 | ○ | ○ |
| 5/16-32 | 7,938 | 32 | 0,794 | 80 | 14 | 8 | - | 6,0 | 4,9 | 7,15 | 4328 | ○ | ○ |
| 3/8-32 | 9,525 | 32 | 0,794 | 90 | 18 | 8 | - | 7,0 | 5,5 | 8,70 | 4329 | ○ | ○ |
| 7/16-28 | 11,112 | 28 | 0,907 | 90 | 18 | 10 | - | 8,0 | 6,2 | 10,20 | 4330 | ○ | ○ |
| 1/2-28 | 12,700 | 28 | 0,907 | 100 | 18 | 10 | - | 9,0 | 7,0 | 11,80 | 4331 | ○ | ○ |
| 9/16-24 | 14,288 | 24 | 1,058 | 100 | 18 | 11 | - | 11,0 | 9,0 | 13,20 | 4332 | ○ | ○ |
| 5/8-24 | 15,875 | 24 | 1,058 | 100 | 18 | 11 | - | 12,0 | 9,0 | 14,80 | 4333 | ○ | ○ |
| 3/4-20 | 19,050 | 20 | 1,270 | 110 | 25 | 13 | - | 14,0 | 11,0 | 17,80 | 4335 | ○ | ○ |
| 7/8-20 | 22,225 | 20 | 1,270 | 125 | 25 | 13 | - | 18,0 | 14,5 | 20,95 | 4337 | ○ | ○ |
| 1-20 | 25,400 | 20 | 1,270 | 140 | 28 | 13 | - | 18,0 | 14,5 | 24,15 | 4339 | ○ | ○ |

| ISO | Vc (m/min) B | Vc (m/min) C-R40 |
|---|---|---|
| P | 5-20 | 5-20 |
| M | - | - |
| K | 5-15 | 5-15 |
| N | 5-25 | 5-25 |
| S | - | - |

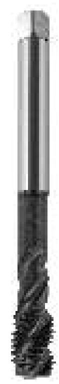
**Example of order**

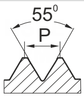
**C2-111101-4327**
**Tap 800 1/4-32 UNEF 2B ~DIN-374 B HSSE**

● **Available from stock**
○ **On request**

## Whitworth pipe thread G, DIN-ISO 228

MASTERTAP

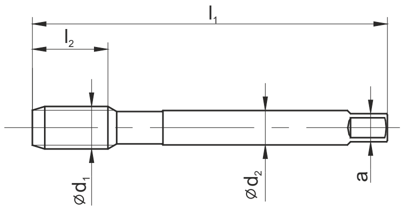
| | B-HL | C-R45-HL |
|---|---|---|
| |  |  |
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 3d | < 2,5d |
| Quality of material | HSSE-PM | HSSE-PM |
| Coating | HL | HL |
| Chamfer | B / 4-5P | C / 2-3P |




HSSE PM

HL

DIN 5156




| G | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | $l_3$ | Ć $d_2$ | a | d | Norm / Tol. / INDEX | DIN-5156 D4-118M01 | DIN-5156 D4-528M01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G1/16 | 7,723 | 28 | 0,907 | 90 | 10 | | 6,0 | 4,9 | 6,80 | 3121 | ○ | ○ |
| G1/8 | 9,728 | 28 | 0,907 | 90 | 10 | | 7,0 | 5,5 | 8,80 | 3123 | ● | ● |
| G1/4 | 13,157 | 19 | 1,337 | 100 | 14 | | 11,0 | 9,0 | 11,80 | 3127 | ● | ● |
| G3/8 | 16,662 | 19 | 1,337 | 100 | 15 | | 12,0 | 9,0 | 15,25 | 3129 | ● | ● |
| G1/2 | 20,955 | 14 | 1,814 | 125 | 17 | | 16,0 | 12,0 | 19,00 | 3131 | ● | ● |
| G5/8 | 22,911 | 14 | 1,814 | 125 | 20 | | 18,0 | 14,5 | 21,00 | 3133 | ● | ● |
| G3/4 | 26,441 | 14 | 1,814 | 140 | 20 | | 20,0 | 16,0 | 24,50 | 3135 | ● | ● |
| G7/8 | 30,201 | 14 | 1,814 | 150 | 22 | | 22,0 | 18,0 | 28,25 | 3137 | ● | ● |
| G1 | 33,249 | 11 | 2,309 | 160 | 24 | | 25,0 | 20,0 | 30,75 | 3139 | ● | ● |

| ISO | Vc (m/min) | |
|---|---|---|
| P | 10-40 | 10-40 |
| M | 5-15 | 5-15 |
| K | 10-30 | 10-30 |
| N | 10-50 | 10-50 |
| S | 1-8 | 1-8 |

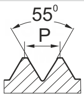
MASTERTAP

Example of order

D4-528M01-3123
Tap MasterTAP G-1/8" DIN-5156 C HSSE-PM HL

● Available from stock
○ On request

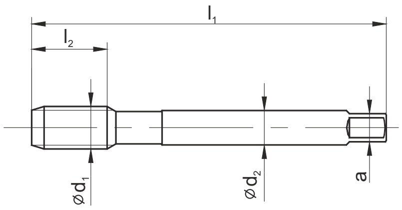
## Whitworth pipe thread G, DIN-ISO 228




HSSE

TN2

DIN 5156




800X

| | C-TN2 | B-TN2 | C-R40-TN2 |
|---|---|---|---|
| Material groups | P M K N | P M K N | P M K N |
| Hole type | < 1.5d | < 3d | < 2,5d |
| Quality of material | HSSE | HSSE | HSSE |
| Coating | TN2 | TN2 | TN2 |
| Chamfer | C / 2-3P | B / 4-5P | C / 2-3P |

| G | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | $l_2$ R40 | Ć $d_2$ | a | d | Norm / Tol. / INDEX | D2-123X01 | D2-113X01 | D2-513X01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Norm | DIN-5156 | | |
| G1/16 | 7,723 | 28 | 0,907 | 90 | 17 | 10 | 6,0 | 4,9 | 6,80 | 3121 | ○ | ○ | ○ |
| G1/8 | 9,728 | 28 | 0,907 | 90 | 18 | 10 | 7,0 | 5,5 | 8,80 | 3123 | ● | ● | ● |
| G1/4 | 13,157 | 19 | 1,337 | 100 | 22 | 14 | 11,0 | 9,0 | 11,80 | 3127 | ● | ● | ● |
| G3/8 | 16,662 | 19 | 1,337 | 100 | 22 | 15 | 12,0 | 9,0 | 15,25 | 3129 | ● | ● | ● |
| G1/2 | 20,955 | 14 | 1,814 | 125 | 25 | 17 | 16,0 | 12,0 | 19,00 | 3131 | ● | ● | ● |
| G5/8 | 22,911 | 14 | 1,814 | 125 | 25 | 20 | 18,0 | 14,5 | 21,00 | 3133 | ● | ● | ● |
| G3/4 | 26,441 | 14 | 1,814 | 140 | 28 | 20 | 20,0 | 16,0 | 24,50 | 3135 | ● | ● | ● |
| G7/8 | 30,201 | 14 | 1,814 | 150 | 30 | 22 | 22,0 | 18,0 | 28,25 | 3137 | ● | ● | ● |
| G1 | 33,249 | 11 | 2,309 | 160 | 32 | 24 | 25,0 | 20,0 | 30,75 | 3139 | ● | ● | ● |
| G1.1/8 | 37,907 | 11 | 2,309 | 170 | 34 | 24 | 28,0 | 22,0 | 35,50 | 3141 | ○ | ○ | ○ |
| G1.1/4 | 41,910 | 11 | 2,309 | 170 | 34 | 25 | 32,0 | 24,0 | 39,50 | 3143 | ○ | ○ | ○ |
| G1.1/2 | 47,800 | 11 | 2,309 | 190 | 36 | - | 36,0 | 29,0 | 45,25 | 3147 | ○ | ○ | - |
| G1.3/4 | 53,756 | 11 | 2,309 | 190 | 36 | - | 40,0 | 32,0 | 51,00 | 3151 | ○ | ○ | - |
| G2 | 59,614 | 11 | 2,309 | 220 | 40 | - | 45,0 | 35,0 | 57,00 | 3155 | ○ | ○ | - |

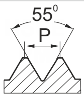
| ISO | Vc (m/min) | | |
|---|---|---|---|
| P | 5-35 | 5-35 | 5-20 |
| M | 5-15 | 5-15 | 5-15 |
| K | 5-25 | 10-25 | 5-15 |
| N | 10-30 | 10-30 | 5-25 |
| S | - | - | - |

**Example of order**

**D4-123X01-3139**
**Tap 800X G-1" DIN-5156 C HSSE TN2**

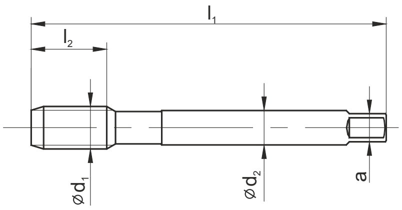
● **Available from stock**
○ **On request**

## Whitworth pipe thread G, DIN-ISO 228




HSSE

DIN ~5156




| | 800 | | |
|---|---|---|---|
| | C | B | C-R40 |
| |  | | |
| Material groups | P K N | P K N | P K N |
| Hole type | < 1,5d | < 3d | < 2,5d |
| Quality of material | HSSE | HSSE | HSSE |
| Coating | | | |
| Chamfer | C / 2-3P | B / 4-5P | C / 2-3P |

| G | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | $l_2$ R40 | $l_3$ | Ć $d_2$ | a | d | Norm / Tol. / INDEX | DIN-5156 D2-121101 | D2-111101 | D2-511101 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G1/16 | 7,723 | 28 | 0,907 | 90 | 17 | 10 | | 6,0 | 4,9 | 6,80 | 3121 | ○ | ○ | ○ |
| G1/8 | 9,728 | 28 | 0,907 | 90 | 18 | 10 | | 7,0 | 5,5 | 8,80 | 3123 | ● | ● | ● |
| G1/4 | 13,157 | 19 | 1,337 | 100 | 22 | 14 | | 11,0 | 9,0 | 11,80 | 3127 | ● | ● | ● |
| G3/8 | 16,662 | 19 | 1,337 | 100 | 22 | 15 | | 12,0 | 9,0 | 15,25 | 3129 | ● | ● | ● |
| G1/2 | 20,955 | 14 | 1,814 | 125 | 25 | 17 | | 16,0 | 12,0 | 19,00 | 3131 | ● | ● | ● |
| G5/8 | 22,911 | 14 | 1,814 | 125 | 25 | 20 | | 18,0 | 14,5 | 21,00 | 3133 | ● | ● | ● |
| G3/4 | 26,441 | 14 | 1,814 | 140 | 28 | 20 | | 20,0 | 16,0 | 24,50 | 3135 | ● | ● | ● |
| G7/8 | 30,201 | 14 | 1,814 | 150 | 30 | 22 | | 22,0 | 18,0 | 28,25 | 3137 | ● | ● | ● |
| G1 | 33,249 | 11 | 2,309 | 160 | 32 | 24 | | 25,0 | 20,0 | 30,75 | 3139 | ● | ● | ● |
| G1.1/8 | 37,907 | 11 | 2,309 | 170 | 34 | 24 | | 28,0 | 22,0 | 35,50 | 3141 | ○ | ○ | ○ |
| G1.1/4 | 41,910 | 11 | 2,309 | 170 | 34 | 25 | | 32,0 | 24,0 | 39,50 | 3143 | ○ | ○ | ○ |
| G1.1/2 | 47,800 | 11 | 2,309 | 190 | 36 | - | | 36,0 | 29,0 | 45,25 | 3147 | ○ | ○ | - |
| G1.3/4 | 53,756 | 11 | 2,309 | 190 | 36 | - | | 40,0 | 32,0 | 51,00 | 3151 | ○ | ○ | - |
| G2 | 59,614 | 11 | 2,309 | 220 | 40 | - | | 45,0 | 35,0 | 57,00 | 3155 | ○ | ○ | - |

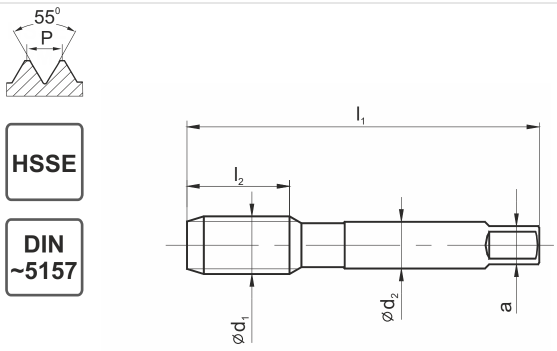
| ISO | Vc (m/min) | | |
|---|---|---|---|
| P | 5-20 | 5-20 | 5-20 |
| M | - | - | - |
| K | 5-15 | 5-15 | 5-15 |
| N | 5-25 | 5-25 | 5-25 |
| S | - | - | - |

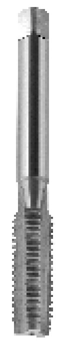
**Example of order**

**D2-121101-3123**
**Tap 800 G-1/8" DIN-5156 C HSSE**

● **Available from stock**
○ **On request**

## Whitworth pipe thread G, DIN-ISO 228



| | Ms F |
|---|---|
| Material groups | N |
| Hole type | < 1,5d |
| Quality of material | HSSE |
| Coating | |
| Chamfer | F / 1P |

| G | Ć d1 | 1"/P | P | l1 | l2 | l3 | Ć d2 | a | d | INDEX | ~DIN-5157 E2-141401 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| G3/8 | 16,662 | 19 | 1,337 | 70 | 22 | - | 12 | 9 | 15,25 | 3129 | ● |
| G1/2 | 20,965 | 14 | 1,814 | 80 | 22 | - | 16 | 12 | 19,00 | 3131 | ● |
| G3/4 | 26,441 | 14 | 1,814 | 90 | 22 | - | 20 | 16 | 24,50 | 3135 | ● |
| G1 | 33,259 | 11 | 2,309 | 100 | 25 | - | 25 | 20 | 30,75 | 3139 | ● |

| ISO | Vc (m/min) |
|---|---|
| P | - |
| M | - |
| K | - |
| N | 10-25 |
| S | - |

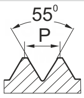
**Example of order**

**E1-141401-3129**
**Tap Ms G-3/8" ~DIN-5157 F HSSE**

● **Available from stock**
○ **On request**

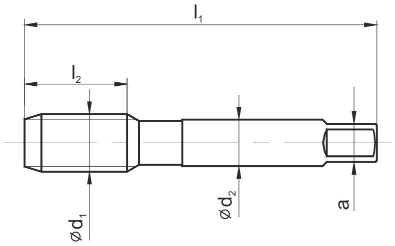
1

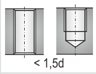
## Whitworth pipe thread G, DIN-ISO 228




**HSS**

**DIN 5157**




| | DIN-5157 |
|---|---|
| Material groups | P M K N S H |
| Hole type |  < 1,5d |
| Quality of material | HSS |
| Coating | |
| Chamfer | ~3P |

| G | Ćd1 | 1"/P | P | l1 | l2 | l3 | Ćd2 | a | d | Norm / Tol. / INDEX | DIN-5157 / E1-131001 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| G1/16 | 7,723 | 28 | 0,907 | 56 | 22 | - | 6 | 4,9 | 6,80 | 3121 | ○ |
| G1/8 | 9,728 | 28 | 0,907 | 63 | 20 | - | 7 | 5,5 | 8,80 | 3123 | ○ |
| G1/4 | 13,157 | 19 | 1,337 | 70 | 22 | - | 11 | 9,0 | 11,80 | 3127 | ● |
| G3/8 | 16,662 | 19 | 1,337 | 70 | 22 | - | 12 | 9,0 | 15,25 | 3129 | ● |
| G1/2 | 20,955 | 14 | 1,814 | 80 | 22 | - | 16 | 12,0 | 19,00 | 3131 | ● |
| G5/8 | 22,911 | 14 | 1,814 | 80 | 22 | - | 18 | 14,5 | 21,00 | 3133 | ○ |
| G3/4 | 26,441 | 14 | 1,814 | 90 | 22 | - | 20 | 16,0 | 24,50 | 3135 | ● |
| G7/8 | 30,201 | 14 | 1,814 | 90 | 22 | - | 22 | 18,0 | 28,25 | 3137 | ○ |
| G1 | 33,249 | 11 | 2,309 | 100 | 25 | - | 25 | 20,0 | 30,75 | 3139 | ● |
| G1.1/8 | 37,897 | 11 | 2,309 | 125 | 36 | - | 28 | 22,0 | 35,50 | 3141 | ○ |
| G1.1/4 | 41,910 | 11 | 2,309 | 125 | 36 | - | 32 | 24,0 | 39,50 | 3143 | ○ |
| G1.3/8 | 44,323 | 11 | 2,309 | 125 | 36 | - | 36 | 29,0 | 41,75 | 3145 | ○ |
| G1.1/2 | 47,803 | 11 | 2,309 | 140 | 40 | - | 36 | 29,0 | 45,25 | 3147 | ○ |
| G1.3/4 | 53,769 | 11 | 2,309 | 140 | 40 | - | 40 | 32,0 | 51,00 | 3151 | ○ |
| G2 | 59,614 | 11 | 2,309 | 160 | 40 | - | 45 | 35,0 | 57,00 | 3155 | ○ |

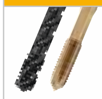
| ISO | Vc (m/min) |
|---|---|
| P | 5-20 |
| M | - |
| K | - |
| N | - |
| S | - |



**Example of order**

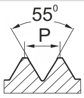
**E1-131001-3127**
**Tap G-1/4" DIN-5157 HSS**

● **Available from stock**
○ **On request**

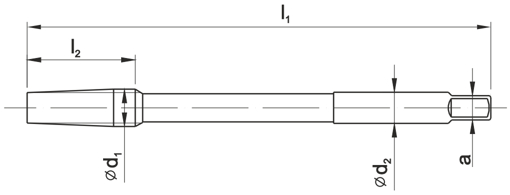


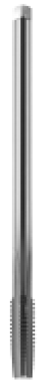
## Whitworth pipe thread G, DIN-ISO 228

**NGRf**




HSS



| | NGRf |
|---|---|
| Material groups | P K N |
| Hole type | < 1,5d |
| Quality of material | HSS |
| Coating | |
| Chamfer | 12P |

| G | Ćd1 | 1"/P | P | l1 | l2 | l3 | Ćd2 | a | d | Norm / Tol. / INDEX | NGRf F1-151001 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| G1/16 | 7,723 | 28 | 0,907 | 140 | 20 | - | 6,0 | 4,5 | 6,80 | 3121 | ○ |
| G1/8 | 9,728 | 28 | 0,907 | 140 | 20 | - | 7,0 | 6,3 | 8,80 | 3123 | ○ |
| G1/4 | 13,157 | 19 | 1,337 | 180 | 30 | - | 11,0 | 8,0 | 11,80 | 3127 | ○ |
| G3/8 | 16,662 | 19 | 1,337 | 200 | 30 | - | 12,0 | 10,0 | 15,25 | 3129 | ○ |
| G1/2 | 20,955 | 14 | 1,814 | 220 | 40 | - | 16,0 | 12,5 | 19,00 | 3131 | ● |
| G5/8 | 22,911 | 14 | 1,814 | 220 | 40 | - | 18,0 | 14,0 | 21,00 | 3133 | ○ |
| G3/4 | 26,441 | 14 | 1,814 | 250 | 40 | - | 20,0 | 16,0 | 24,00 | 3135 | ○ |
| G7/8 | 30,201 | 14 | 1,814 | 280 | 40 | - | 22,0 | 18,0 | 28,25 | 3137 | ○ |
| G1 | 33,249 | 11 | 2,309 | 280 | 60 | - | 25,0 | 20,0 | 30,75 | 3139 | ○ |
| G1.1/8 | 37,907 | 11 | 2,309 | 280 | 60 | - | 28,0 | 22,4 | 35,50 | 3141 | |
| G1.1/4 | 41,910 | 11 | 2,309 | 280 | 60 | - | 32,0 | 25,0 | 39,50 | 3143 | ○ |
| G1.3/8 | 44,323 | 11 | 2,309 | 280 | 60 | - | 32,0 | 25,0 | 42,00 | 3145 | |
| G1.1/2 | 47,800 | 11 | 2,309 | 280 | 60 | - | 36,0 | 28,0 | 45,00 | 3147 | ○ |
| G1.3/4 | 53,756 | 11 | 2,309 | 280 | 60 | - | 40,0 | 28,0 | 51,00 | 3151 | |
| G2 | 59,614 | 11 | 2,309 | 280 | 60 | - | 45,0 | 31,5 | 57,00 | 3155 | ○ |

| ISO | Vc (m/min) |
|---|---|
| P | 5-20 |
| M | - |
| K | 6-15 |
| N | 6-15 |
| S | - |

**Example of order**

**F1-151001-3131**
**Tap G-1/2"-6H NGRf HSS**

● **Available from stock**
○ **On request**

1

## Whitworth pipe thread Rp, PN-ISO 7/1, DIN EN 10226-1

55° P

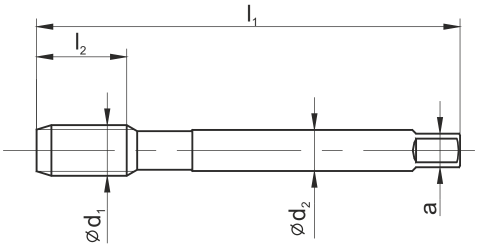
## Tapere Whitworth pipe thread Rc, PN-ISO 7/1, DIN EN 10226-2

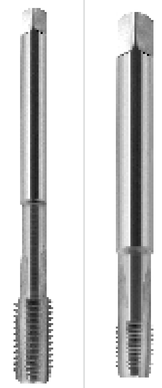
55° P 1:16

**HSSE**

**DIN 5156**

**DIN ~5156**



| | 800 | |
|---|---|---|
| | C | C |
| Material groups | P K N | P K N |
| Hole type | < 1,5d | < 1,5d |
| Quality of material | HSSE | HSSE |
| Coating | | |
| Chamfer | C / 2-3P | C / 2-3P |

| Rp | Ćd1 | 1"/P | P | l1 | l2 | l3 | Ćd2 | a | d | Norm | DIN-5156 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Tol. | |
| | | | | | | | | | | INDEX | D2-121101 |
| Rp-1/16" | 7,723 | 28 | 0,907 | 90 | 17 | - | 6,0 | 4,9 | 6,55 | 3221 | ○ |
| Rp-1/8" | 9,728 | 28 | 0,907 | 90 | 18 | - | 7,0 | 5,5 | 8,60 | 3223 | ○ |
| Rp-1/4" | 13,157 | 19 | 1,337 | 100 | 22 | - | 11,0 | 9,0 | 11,50 | 3227 | ○ |
| Rp-3/8" | 16,662 | 19 | 1,337 | 100 | 22 | - | 12,0 | 9,0 | 15,00 | 3229 | ○ |
| Rp-1/2" | 20,955 | 14 | 1,814 | 125 | 25 | - | 16,0 | 12,0 | 18,50 | 3231 | ○ |
| Rp-3/4" | 26,441 | 14 | 1,814 | 140 | 28 | - | 20,0 | 16,0 | 24,00 | 3235 | ○ |
| Rp-1" | 33,249 | 11 | 2,309 | 160 | 32 | - | 25,0 | 20,0 | 30,25 | 3239 | ○ |

| Rc | Ćd1 | 1"/P | P | l1 | l2 | l3 | Ćd2 | a | d | Norm | | ~DIN-5156 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Tol. | | |
| | | | | | | | | | | INDEX | | D2-121101 |
| Rc-1/16" | - | 28 | 0,907 | 90 | 17 | - | 6,0 | 4,9 | 6,15 | 3321 | | ○ |
| Rc-1/8" | - | 28 | 0,907 | 90 | 18 | - | 7,0 | 5,5 | 8,15 | 3323 | | ● |
| Rc-1/4" | - | 19 | 1,337 | 100 | 22 | - | 11,0 | 9,0 | 10,85 | 3327 | | ● |
| Rc-3/8" | - | 19 | 1,337 | 100 | 22 | - | 12,0 | 9,0 | 14,30 | 3329 | | ● |
| Rc-1/2" | - | 14 | 1,814 | 125 | 25 | - | 16,0 | 12,0 | 17,80 | 3331 | | ○ |
| Rc-3/4" | - | 14 | 1,814 | 140 | 28 | - | 20,0 | 16,0 | 23,20 | 3335 | | ○ |
| Rc-1" | - | 11 | 2,309 | 160 | 33 | - | 25,0 | 20,0 | 29,20 | 3339 | | ○ |

**Conical reamer 1:16 on page 157**

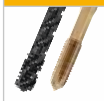
| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-20 | 5-20 |
| M | - | - |
| K | 5-15 | 5-15 |
| N | 10-25 | 10-25 |
| S | - | - |

**Information concerning dimensions of the holes for tapered threads in the technical part of the catalogue on page 267**

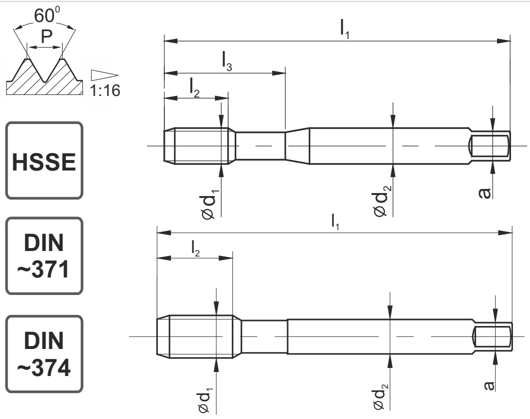
**Example of order**

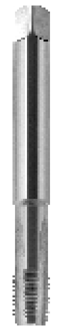
**D2-121101-3221**
**Tap Rp-1/16" DIN-5156 C HSSE**

● **Available from stock**
○ **On request**



## American tapered pipe thread NPT 1:16, ANSI B-1.20.1




| | 800 |
|---|---|
| | C |
| |  |
| Material groups | P K N |
| Hole type | < 1,5d |
| Quality of material | HSSE |
| Coating | |
| Chamfer | C / 2-3P |

| NPT | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | $l_3$ | Ć $d_2$ | a | d | Norm / Tol. / INDEX | ~DIN-371 / C2-121101 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/8 | - | 27 | 0,941 | 90 | 13 | 33 | 10,0 | 8,0 | 8,50 | 4623 | ● |
| 1/4 | - | 18 | 1,411 | 100 | 19,5 | 34,5 | 14,0 | 11,0 | 11,10 | 4627 | ● |

| NPT | 1"/P | P | $l_1$ | $l_2$ | $l_3$ | Ć $d_2$ | a | d | Norm / Tol. / INDEX | ~DIN-374 / D2-121101 |
|---|---|---|---|---|---|---|---|---|---|---|
| 3/8 | 18 | 1,411 | 110 | 22 | - | 14,0 | 11,0 | 14,40 | 4629 | ● |
| 1/2 | 14 | 1,814 | 140 | 27 | - | 18,0 | 14,5 | 17,80 | 4631 | ● |
| 3/4 | 14 | 1,814 | 140 | 28 | - | 20,0 | 16,0 | 23,15 | 4635 | ● |
| 1 | 11.1/2 | 2,209 | 160 | 35 | - | 25,0 | 20,0 | 29,05 | 4639 | ● |

| ISO | Vc (m/min) |
|---|---|
| P | 5-20 |
| M | - |
| K | 5-15 |
| N | 10-25 |
| S | - |

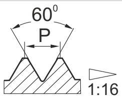
**Example of order**

**C2-121101-4623**
**Tap 800 1/8" NPT DIN-371 C HSSE**

● **Available from stock**
○ **On request**

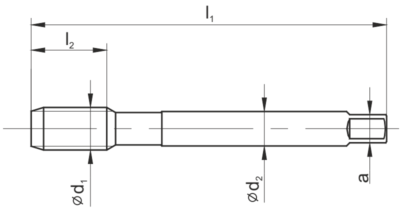
1

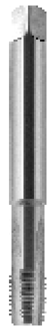
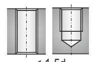
## American tapered pipe thread NPTF 1:16, ANSI B-1.20.1




**HSSE**

**DIN ~374**




| | 800 |
|---|---|
| | C |
| |  |
| Material groups | P M K N S H |
| Hole type |  < 1,5d |
| Quality of material | HSSE |
| Coating | |
| Chamfer | C / 2-3P |

| NPTF | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | Ć $d_2$ | a | d | Norm / Tol. / INDEX | ~DIN-374 / D2-121101 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1/8 | - | 27 | 0,941 | 90 | 15 | 7,0 | 5,5 | 8,45 | 4723 | ● |
| 1/4 | - | 18 | 1,411 | 100 | 20 | 11,0 | 9,0 | 10,90 | 4727 | ○ |
| 3/8 | - | 18 | 1,411 | 110 | 22 | 14,0 | 11,0 | 14,30 | 4729 | ○ |
| 1/2 | - | 14 | 1,814 | 140 | 27 | 18,0 | 14,5 | 17,60 | 4731 | ○ |

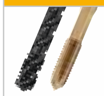
| ISO | Vc (m/min) |
|---|---|
| P | 5-20 |
| M | - |
| K | 5-15 |
| N | 10-25 |
| S | - |



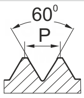
**Example of order**

**D2-121101-4723**
**Tap 800 1/8" NPTF ~DIN-374 C HSSE**

● **Available from stock**
○ **On request**

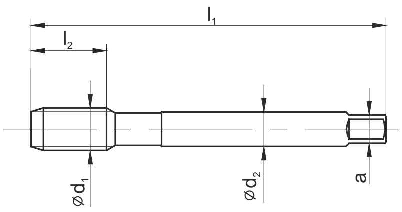


## American parallel pipe threads NPSF, ANSI B 1.20.3




HSSE

DIN ~5156




| | 800 |
|---|---|
| | C |
| |  |
| Material groups | P K N |
| Hole type | < 1,5d |
| Quality of material | HSSE |
| Coating | |
| Chamfer | C / 2-3P |

| NPSF | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | Ć $d_2$ | a | d | INDEX | C |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Norm | ~DIN-5156 |
| | | | | | | | | | Tol. | |
| | | | | | | | | | INDEX | D2-121101 |
| 1/16 | 7,582 | 27 | 0,941 | 90 | 17 | 6,0 | 4,9 | 6,35 | 4521 | o |
| 1/8 | 9,929 | 27 | 0,941 | 90 | 18 | 7,0 | 5,5 | 8,70 | 4523 | o |
| 1/4 | 13,236 | 18 | 1,411 | 100 | 22 | 11,0 | 9,0 | 11,30 | 4527 | o |
| 3/8 | 16,673 | 18 | 1,411 | 100 | 22 | 12,0 | 9,0 | 14,75 | 4529 | o |
| 1/2 | 20,814 | 14 | 1,814 | 125 | 25 | 16,0 | 12,0 | 18,20 | 4531 | o |
| 3/4 | 26,166 | 14 | 1,814 | 140 | 28 | 20,0 | 16,0 | 23,50 | 4535 | o |
| 1 | 32,718 | 11.1/2 | 2,209 | 160 | 30 | 25,0 | 20,0 | 29,50 | 4539 | o |

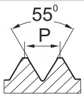
| ISO | Vc (m/min) |
|---|---|
| P | 5-20 |
| M | - |
| K | 5-15 |
| N | 5-25 |
| S | - |

**Example of order**

**D2-121101-4723**
**Tap 800 1/8" NPSF ~DIN-5156 C HSSE**

● **Available from stock**
○ **On request**

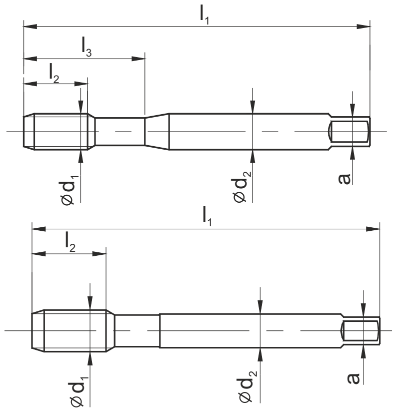
## Whitworth thread BSW, BS-84:1956

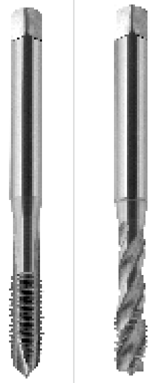



HSSE

DIN 371

DIN 376




| | 800 | |
|---|---|---|
| | B | C-R40 |
| |  | |
| Material groups | P K N | P K N |
| Hole type |  < 3d | < 2,5d |
| Quality of material | HSSE | HSSE |
| Coating | | |
| Chamfer | B / 4-5P | C / 2-3P |

| BSW | Ćd1 | 1"/P | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm: DIN-371(~DIN2182) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Tol. | normal | normal |
| | | | | | | | | | | INDEX | C2-111101 | C2-511101 |
| 1/8-40 | 3,175 | 40 | 0,635 | 56 | 10 | 5 | 18 | 3,5 | 2,7 | 2,55 | 7123 | ○ | ○ |
| 3/16-24 | 4,762 | 24 | 1,058 | 70 | 14 | 8 | 25 | 6,0 | 4,9 | 3,70 | 7125 | ○ | ○ |
| 1/4-20 | 6,350 | 20 | 1,270 | 80 | 18 | 13 | 30 | 7,0 | 5,5 | 5,10 | 7127 | ○ | ○ |
| 5/16-18 | 7,938 | 18 | 1,411 | 90 | 20 | 20 | 35 | 8,0 | 6,0 | 6,50 | 7128 | ○ | ○ |
| 3/8-16 | 9,525 | 16 | 1,588 | 100 | 21 | 20 | 39 | 10,0 | 8,0 | 7,90 | 7129 | ○ | ○ |

| BSW | Ćd1 | 1"/P | P | l1 | l2 | l2 R40 | l3 | Ćd2 | a | d | Norm | DIN-376(~DIN2182) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Tol. | | |
| | | | | | | | | | | | INDEX | D2-111101 | D2-511101 |
| 7/16-14 | 11,112 | 14 | 1,814 | 100 | 22 | 15 | - | 8,0 | 6,2 | 9,25 | 7130 | ○ | ○ |
| 1/2-12 | 12,700 | 12 | 2,117 | 110 | 24 | 18 | - | 9,0 | 7,0 | 10,50 | 7131 | ○ | ○ |
| 5/8-11 | 15,875 | 11 | 2,309 | 110 | 32 | 22 | - | 12,0 | 9,0 | 13,50 | 7133 | ○ | ○ |
| 3/4-10 | 19,050 | 10 | 2,540 | 125 | 32 | 25 | - | 14,0 | 11,0 | 16,40 | 7135 | ○ | ○ |
| 7/8-9 | 22,225 | 9 | 2,822 | 140 | 32 | 30 | - | 18,0 | 14,5 | 19,25 | 7137 | ○ | ○ |
| 1-8 | 25,400 | 8 | 3,175 | 160 | 38 | 30 | - | 20,0 | 16,0 | 22,00 | 7139 | ○ | ○ |

| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-20 | 5-20 |
| M | - | - |
| K | 5-15 | 5-15 |
| N | 5-25 | 5-25 |
| S | - | - |

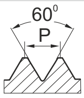
Example of order

C2-111101-7123
Tap 800 1/8-40 BSW DIN-371 C HSSE

● Available from stock
○ On request

## ISO Metric coarse thread DIN 8140-2

MASTERTAP

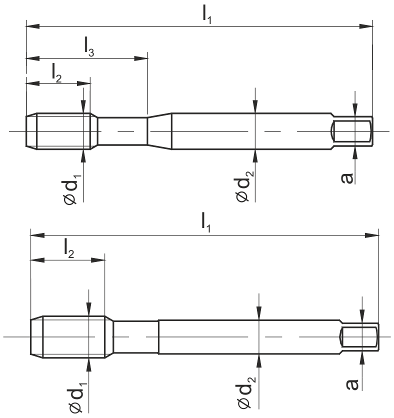



HSSE PM

HL

DIN ~371

DIN ~376

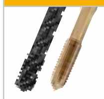



| | B-HL | E-R45-HL |
|---|---|---|
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 3d | < 2,5d |
| Quality of material | HSSE-PM | HSSE-PM |
| Coating | HL | HL |
| Chamfer | B / 4-5P | E / 1,5-2P |

| EG M (STI) | Ćd1 | P | l1 | l2 | l2 R45 | l3 | Ćd2 | a | d | Norm | ~DIN-371(DIN-40435) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Tol. | 6H mod. | 6H mod. |
| | | | | | | | | | | INDEX | C4-118M01 | C4-718M01 |
| M2 | 2,520 | 0,40 | 50 | 9 | 5 | 14 | 2,8 | 2,1 | 2,10 | 6020 | ● | ● |
| M2,5 | 3,084 | 0,45 | 56 | 10 | 5 | 18 | 3,5 | 2,7 | 2,65 | 6025 | ● | ● |
| M3 | 3,650 | 0,50 | 63 | 12 | 5 | 21 | 4,5 | 3,4 | 3,15 | 6030 | ● | ● |
| M4 | 4,910 | 0,70 | 70 | 14 | 8 | 25 | 6,0 | 4,9 | 4,20 | 6040 | ● | ● |
| M5 | 6,040 | 0,80 | 80 | 18 | 10 | 30 | 6,0 | 4,9 | 5,25 | 6050 | ● | ● |
| M6 | 7,300 | 1,00 | 90 | 18 | 10 | 35 | 8,0 | 6,2 | 6,30 | 6060 | ● | ● |
| M8 | 9,624 | 1,25 | 100 | 20 | 16 | 39 | 10,0 | 8,0 | 8,40 | 6080 | ● | ● |

| EG M (STI) | Ćd1 | P | l1 | l2 | l2 R45 | l3 | Ćd2 | a | d | Norm | ~DIN-376(DIN-40435) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Tol. | 6H mod. | 6H mod. |
| | | | | | | | | | | INDEX | D4-118M01 | D4-718M01 |
| M10 | 11,948 | 1,50 | 100 | 15 | 15 | - | 9,0 | 7,0 | 10,50 | 6100 | ● | ● |
| M12 | 14,274 | 1,75 | 110 | 20 | 20 | - | 11,0 | 9,0 | 12,50 | 6120 | ● | ● |
| M14 | 16,598 | 2,00 | 110 | 20 | 20 | - | 12,0 | 9,0 | 14,50 | 6140 | ● | ● |
| M16 | 18,598 | 2,00 | 125 | 20 | 20 | - | 14,0 | 11,0 | 16,50 | 6160 | ● | ● |
| M18 | 21,248 | 2,50 | 140 | 27 | 27 | - | 18,0 | 14,5 | 18,75 | 6180 | ● | ● |
| M20 | 23,248 | 2,50 | 160 | 30 | 30 | - | 18,0 | 14,5 | 20,75 | 6200 | ● | ● |

| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-40 | 5-40 |
| M | 5-15 | 5-15 |
| K | 10-30 | 10-30 |
| N | 10-30 | 10-30 |
| S | 1-8 | 1-8 |



MASTERTAP

**Example of order**

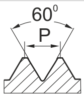
**C4-118M01-6030**
**MasterTAP M3-6H mod. DIN-371 B HSSE-PM HL**

● **Available from stock**
○ **On request**

## American unified fine thread UNC, ASME B18.29.1

MASTERTAP

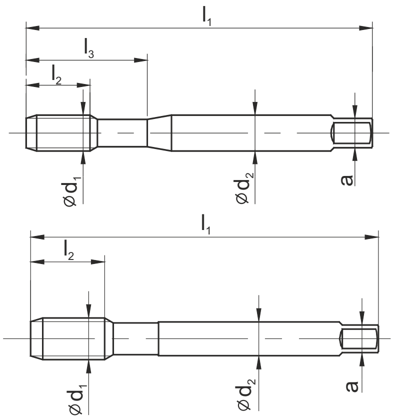
| | B-HL | E-R45-HL |
|---|---|---|




HSSE PM

HL

DIN ~371 | DIN ~376




| | B-HL | E-R45-HL |
|---|---|---|
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 3d | < 2,5d |
| Quality of material | HSSE-PM | HSSE-PM |
| Coating | HL | HL |
| Chamfer | B / 4-5P | E / 1,5-2P |

| EG UNC (STI) | Ø$d_1$ | 1/P | $l_1$ | $l_2$ | $l_2$ R45 | $l_3$ | Ø$d_2$ | a | d | Norm / Tol. / INDEX | ~DIN-371(DIN-40435) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Tol. | 2B | 2B |
| | | | | | | | | | | INDEX | C4-118M01 | C4-718M01 |
| No4-40 | 3,671 | 40 | 63 | 13 | 7 | 21 | 4,5 | 3,4 | 3,10 | 6804 | ○ | ○ |
| No6-32 | 4,536 | 32 | 70 | 14 | 8 | 25 | 6,0 | 4,9 | 3,80 | 6806 | ○ | ○ |
| No8-32 | 5,197 | 32 | 80 | 16 | 10 | 30 | 6,0 | 4,9 | 4,40 | 6808 | ○ | ○ |
| No10-24 | 6,200 | 24 | 80 | 17 | 12 | 30 | 7,0 | 5,5 | 5,20 | 6810 | ○ | ○ |
| 1/4-20 | 8,002 | 20 | 90 | 20 | 15 | 35 | 8,0 | 6,2 | 6,70 | 6827 | ○ | ○ |
| 5/16-18 | 9,771 | 18 | 100 | 22 | 18 | 39 | 10,0 | 8,0 | 8,40 | 6828 | ○ | ○ |

| EG UNC (STI) | Ø$d_1$ | 1/P | $l_1$ | $l_2$ | $l_2$ R45 | $l_3$ | Ø$d_2$ | a | d | Norm | ~DIN-376(DIN-40435) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Tol. | 2B | 2B |
| | | | | | | | | | | INDEX | D4-118M01 | D4-718M01 |
| 3/8-16 | 11,587 | 16 | 100 | 15 | 15 | - | 9 | 7 | 10 | 6829 | ○ | ○ |
| 7/16-14 | 13,469 | 14 | 110 | 18 | 18 | - | 11 | 9 | 11,6 | 6830 | ○ | ○ |
| 1/2-13 | 15,237 | 13 | 110 | 18 | 18 | - | 12 | 9 | 13,3 | 6831 | ○ | ○ |
| 9/16-12 | 17,039 | 12 | 110 | 20 | 20 | - | 12 | 9 | 14,9 | 6832 | ○ | ○ |
| 5/8-11 | 18,875 | 11 | 125 | 20 | 20 | - | 14 | 11 | 16,5 | 6833 | ○ | ○ |
| 3/4-10 | 22,349 | 10 | 140 | 25 | 25 | - | 18 | 14,5 | 19,75 | 6835 | ○ | ○ |

| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-40 | 5-40 |
| M | 5-15 | 5-15 |
| K | 10-30 | 10-30 |
| N | 10-30 | 10-30 |
| S | 1-8 | 1-8 |

MASTERTAP

**Example of order**

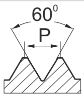
**C4-118M01-6804**
**MasterTAP No4-40-2B ~DIN-371 B HSSE-PM HL**

● **Available from stock**
○ **On request**

1

## American unified fine thread UNF, ASME B18.29.1

MASTERTAP

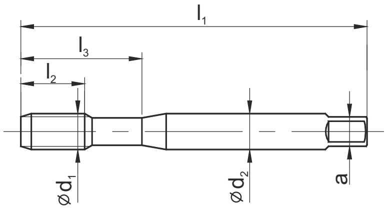


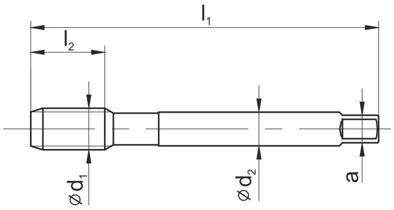

HSSE PM

HL

DIN ~371

DIN ~376



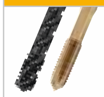

| | B-HL | E-R45-HL |
|---|---|---|
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 3d | < 2,5d |
| Quality of material | HSSE-PM | HSSE-PM |
| Coating | HL | HL |
| Chamfer | B / 4-5P | E / 1,5-2P |

| EG UNF (STI) | Ć$d_1$ | 1/P | $l_1$ | $l_2$ | $l_2$ R45 | $l_3$ | Ć$d_2$ | a | d | Norm / Tol. / INDEX | ~DIN-371(DIN-40435) 2B C4-118M01 | ~DIN-371(DIN-40435) 2B C4-718M01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No4-56 | 3,533 | 56 | 48 | 9 | 6 | 20 | 4 | 3 | 3 | 6904 | ○ | ○ |
| No6-40 | 4,330 | 40 | 70 | 10 | 7 | 25 | 6 | 4,9 | 3,7 | 6906 | ○ | ○ |
| No8-36 | 5,083 | 36 | 80 | 13 | 9 | 30 | 6 | 4,9 | 4,4 | 6908 | ○ | ○ |
| No10-32 | 5,858 | 32 | 80 | 13 | 9 | 30 | 6 | 4,9 | 5,1 | 6910 | ○ | ○ |
| 1/4-28 | 7,528 | 28 | 90 | 17 | 10 | 35 | 8 | 6,2 | 6,6 | 6927 | ○ | ○ |
| 5/16-24 | 9,312 | 24 | 90 | 18 | 12 | 35 | 10 | 8 | 8,3 | 6928 | ○ | ○ |

| EG UNF (STI) | Ć$d_1$ | 1/P | $l_1$ | $l_2$ | $l_2$ R45 | $l_3$ | Ć$d_2$ | a | d | Norm / Tol. / INDEX | ~DIN-376(DIN-40435) 2B D4-118M01 | ~DIN-376(DIN-40435) 2B D4-718M01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3/8-24 | 10,899 | 24 | 90 | 12 | 12 | - | 8 | 6 | 9,8 | 6929 | ○ | ○ |
| 7/16-20 | 12,763 | 20 | 100 | 15 | 15 | - | 9 | 7 | 11,5 | 6930 | ○ | ○ |
| 1/2-20 | 14,352 | 20 | 100 | 15 | 15 | - | 11 | 9 | 13,1 | 6931 | ○ | ○ |
| 9/16-18 | 16,121 | 18 | 100 | 15 | 15 | - | 12 | 9 | 14,7 | 6932 | ○ | ○ |
| 5/8-18 | 17,709 | 18 | 110 | 15 | 15 | - | 14 | 11 | 16,25 | 6933 | ○ | ○ |
| 3/4-16 | 21,112 | 16 | 125 | 17 | 17 | - | 16 | 12,0 | 19,5 | 6935 | ○ | ○ |

| ISO | Vc (m/min) | |
|---|---|---|
| P | 5-40 | 5-40 |
| M | 5-15 | 5-15 |
| K | 10-30 | 10-30 |
| N | 10-30 | 10-30 |
| S | 1-8 | 1-8 |

MASTERTAP

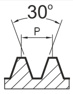


**Example of order**

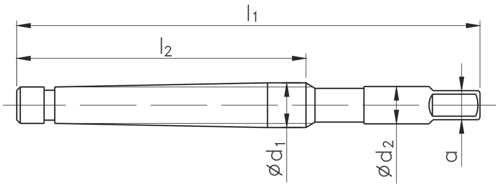
**C4-118M01-6904**
**MasterTAP No4-56-2B ~DIN-371 B HSSE-PM HL**

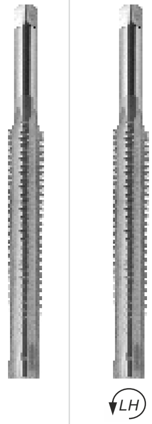
● **Available from stock**
○ **On request**

## Trapezoidal thread Tr, DIN-103




**HSS**




| | NGSt | |
|---|---|---|
| | | LH |
| |  | |
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 2d | < 2d |
| Quality of material | HSS | HSS |
| Coating | - | - |
| Chamfer | 24P | 24P |

| Tr Ć $d_1$ | P | $l_1$ | $l_2$ | Ć $d_2$ | a | d | Norm | NGSt | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Tol. | 7H | 7H |
| | | | | | | | INDEX | G1-701002 | G1-751002 |
| Tr 10x1,5 | 1,5 | 100 | 45 | 7 | 5,5 | 8,5 | 8008 | ○ | ○ |
| Tr 10x2 | 2 | 115 | 76 | 7 | 5,5 | 8 | 8009 | ● | ○ |
| Tr 12x2 | 2 | 120 | 74 | 8 | 6,3 | 10 | 8014 | ● | ○ |
| Tr 12x3 | 3 | 155 | 104 | 8 | 6,3 | 9 | 8015 | ● | ○ |
| Tr 14x2 | 2 | 130 | 74 | 10 | 8 | 12 | 8018 | ● | ○ |
| Tr 14x3 | 3 | 160 | 104 | 10 | 8 | 11 | 8019 | ● | ○ |
| Tr 16x2 | 2 | 135 | 74 | 11,2 | 9 | 14 | 8022 | ● | ○ |
| Tr 16x4 | 4 | 200 | 132 | 11,2 | 9 | 12 | 8024 | ● | ○ |
| Tr 18x2 | 2 | 140 | 74 | 12,5 | 10 | 16 | 8030 | ○ | ○ |
| Tr 18x4 | 4 | 205 | 132 | 12,5 | 10 | 14 | 8032 | ○ | ○ |
| Tr 20x2 | 2 | 145 | 74 | 14 | 11,2 | 18 | 8033 | ○ | ○ |
| Tr 20x4 | 4 | 210 | 132 | 14 | 11,2 | 16 | 8034 | ○ | ○ |
| Tr 22x3 | 3 | 185 | 104 | 16 | 12,5 | 19 | 8035 | ○ | ○ |
| Tr 22x5 | 5 | 250 | 165 | 16 | 12,5 | 17 | 8037 | ○ | ○ |
| Tr 24x3 | 3 | 190 | 104 | 18 | 14 | 21 | 8040 | ○ | ○ |
| Tr 24x5 | 5 | 255 | 165 | 18 | 14 | 19 | 8042 | ○ | ○ |
| Tr 26x3 | 3 | 195 | 104 | 20 | 16 | 23 | 8045 | ○ | ○ |
| Tr 26x5 | 5 | 265 | 165 | 20 | 16 | 21 | 8047 | ○ | ○ |
| Tr 28x3 | 3 | 205 | 104 | 22,4 | 18 | 25 | 8050 | ○ | ○ |
| Tr 28x5 | 5 | 270 | 165 | 22,4 | 18 | 23 | 8052 | ○ | ○ |
| Tr 30x3 | 3 | 205 | 104 | 22,4 | 18 | 27 | 8055 | ○ | ○ |
| Tr 30x6 | 6 | 305 | 206 | 22,4 | 18 | 24 | 8057 | ○ | ○ |
| Tr 32x6 | 6 | 315 | 206 | 25 | 20 | 26 | 8062 | ○ | ○ |
| Tr 36x6 | 6 | 325 | 206 | 28 | 22,4 | 30 | 8072 | ○ | ○ |

| ISO | Vc (m/min) | |
|---|---|---|
| P | 2-6 | 2-6 |
| M | - | - |
| K | 2-6 | 2-6 |
| N | 2-8 | 2-8 |
| S | - | - |

**Example of order**

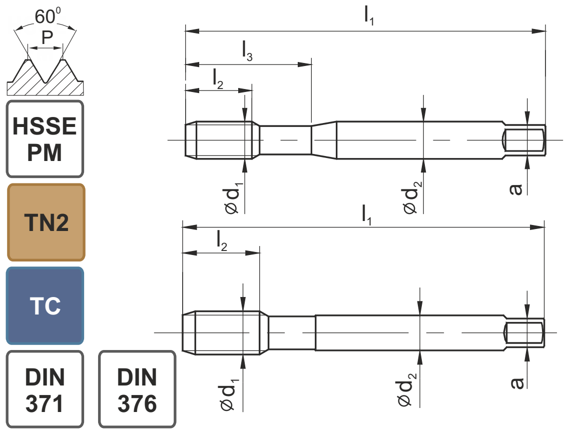
**G1-701002-8009**
**Tap Tr10x2-7H NGSt HSS**

● **Available from stock**
○ **On request**

# Forming Taps

# FORMING TAPS

## ISO Metric coarse thread DIN-13




**WGN**


| | C-TN2 | C-SR-TN2 | C-SR-TN2 | C-SR-TC | E-SR-TC | E-SR-IK-TC | E-SR-IKR-TC |
|---|---|---|---|---|---|---|---|
| Material groups | P M N | P M N | P M N | P M N | P M N | P M N | P M N |
| Hole type | < 3d | < 3d | < 3d | < 3d | < 3d | < 3d | < 3d |
| Quality of material | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM | HSSE-PM |
| Coating | TN2 | TN2 | TN2 | TC | TC | TC | TC |
| Chamfer | C / 2-3P | C / 2-3P | C / 2-3P | C / 2-3P | E / 1,5-2P | E / 1,5-2P | E / 1,5-2P |

| M Ćd1 | P | l1 | l2 | l3 | Ćd2 | a | d | Norm | DIN-371 (~DIN-2174) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | 6HX | 6HX | 6GX | 6HX | 6HX | 6HX | 6HX |
| | | | | | | | | INDEX | C4-903005 | C4-923005 | C4-923006 | C4-925005 | C4-945005 | C4-945055 | C4-945065 |
| M 1,6 | 0,35 | 40 | 8 | 8 | 2,5 | 2,1 | 1,47 | 0016 | ● | ● | - | - | - | - | - |
| M 2 | 0,40 | 45 | 8 | 8 | 2,8 | 2,1 | 1,85 | 0020 | ● | ● | - | - | - | - | - |
| M 2,5 | 0,45 | 50 | 9 | 9 | 2,8 | 2,1 | 2,33 | 0025 | ● | ● | - | - | - | - | - |
| M 3 | 0,50 | 56 | 10 | 18 | 3,5 | 2,7 | 2,80 | 0030 | ● | ● | ● | ● | ● | - | - |
| M 3,5 | 0,60 | 56 | 12 | 20 | 4 | 3 | 3,25 | 0035 | ○ | ○ | ○ | ○ | ○ | - | - |
| M 4 | 0,70 | 63 | 7 | 21 | 4,5 | 3,4 | 3,70 | 0040 | ● | ● | ● | ● | ● | - | - |
| M 5 | 0,80 | 70 | 8 | 25 | 6 | 4,9 | 4,65 | 0050 | ● | ● | ● | ● | ● | ● | ● |
| M 6 | 1,00 | 80 | 10 | 30 | 6 | 4,9 | 5,60 | 0060 | ● | ● | ● | ● | ● | ● | ● |
| M 7 | 1,00 | 80 | 10 | 30 | 7 | 5,5 | 6,60 | 0070 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| M 8 | 1,25 | 90 | 13 | 35 | 8 | 6,2 | 7,45 | 0080 | ● | ● | ● | ● | ● | ● | ● |
| M 9 | 1,25 | 90 | 13 | 35 | 9 | 7 | 8,45 | 0090 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| M 10 | 1,50 | 100 | 15 | 39 | 10 | 8 | 9,35 | 0100 | ● | ● | ● | ● | ● | ● | ● |

| M Ćd1 | P | l1 | l2 | l3 | Ćd2 | a | d | Norm | DIN-376 (~DIN-2174) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | 6HX | 6HX | 6GX | | | | |
| | | | | | | | | INDEX | D4-903005 | D4-923005 | D4-923006 | | | | |
| M6 | 1 | 80 | 10 | - | 4,5 | 3,4 | 5,60 | 0060 | ● | ● | ● | | | | |
| M8 | 1,25 | 90 | 13 | - | 6 | 4,9 | 7,45 | 0080 | ● | ● | ● | | | | |
| M 10 | 1,5 | 100 | 15 | - | 7 | 5,5 | 9,35 | 0100 | ● | ● | ● | | | | |
| M 12 | 1,75 | 110 | 18 | - | 9 | 7 | 11,25 | 0120 | ● | ● | ● | | | | |
| M 14 | 2 | 110 | 20 | - | 11 | 9 | 13,10 | 0140 | ● | ● | ● | | | | |
| M 16 | 2 | 110 | 20 | - | 12 | 9 | 15,10 | 0160 | ● | ● | ● | | | | |
| M 18 | 2,5 | 125 | 32 | - | 14 | 11 | 16,85 | 0180 | ● | ● | ● | | | | |
| M 20 | 2,5 | 140 | 32 | - | 16 | 12 | 18,85 | 0200 | ● | ● | ● | | | | |

| ISO | Vc (m/min) | | | | | | |
|---|---|---|---|---|---|---|---|
| P | 10-30 | 10-30 | 10-30 | | | | |
| M | 10-25 | 10-25 | 10-25 | | | | |
| K | - | - | - | | | | |
| N | 20-40 | 20-40 | 20-40 | | | | |
| S | - | - | - | | | | |

**Example of order**

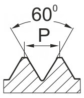
**C4-903005-0100**
**Forming tap WGN M10-6HX DIN-371 C HSSE-PM TN2**

● **Available from stock**
○ **On request**

2

## ISO Metric fine thread DIN-13

| | WGN | |
|---|---|---|
| | C-SR-TN2 | C-SR-TC |



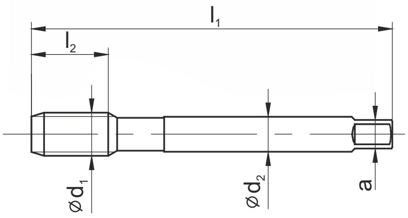

HSSE PM

TN2

TC

DIN 371

DIN 374




| | C-SR-TN2 | C-SR-TC |
|---|---|---|
| Material groups | P M N | P M N |
| Hole type | < 3d | < 3d |
| Quality of material | HSSE-PM | HSSE-PM |
| Coating | TN2 | TC |
| Chamfer | C / 2-3P | C / 2-3P |

| MF Ć $d_1$ | P | $l_1$ | $l_2$ | $l_3$ | Ć $d_2$ | a | d | Norm / Tol. / INDEX | DIN-371 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | 6HX | 6HX |
| | | | | | | | | INDEX | C4-923005 | C4-925005 |
| M 4 x 0,5 | 0,5 | 63 | 7 | 21 | 4,5 | 3,4 | 3,80 | 0041 | ● | ● |
| M 5 x 0,5 | 0,5 | 70 | 8 | 25 | 6 | 4,9 | 4,80 | 0051 | ● | ● |
| M 6 x 0,5 | 0,5 | 80 | 10 | 30 | 6 | 4,9 | 5,80 | 0061 | ● | ● |
| M 6 x 0,75 | 0,75 | 80 | 10 | 30 | 7 | 5,5 | 5,70 | 0062 | ● | ● |
| M 8 x 1 | 1 | 90 | 13 | 35 | 8 | 6,2 | 7,60 | 0083 | ● | ● |
| M 10 x 1 | 1 | 90 | 13 | 35 | 9 | 7 | 9,60 | 0103 | ● | ● |
| M 10 x 1,25 | 1,25 | 100 | 15 | 39 | 10 | 8 | 9,45 | 0104 | ● | ● |

| MF Ć $d_1$ | P | $l_1$ | $l_2$ | $l_3$ | Ć $d_2$ | a | d | Norm / Tol. / INDEX | DIN-374 (~DIN-2174) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | 6HX | 6HX |
| | | | | | | | | INDEX | D4-923005 | D4-925005 |
| M 6 x 0,5 | 0,5 | 80 | 10 | - | 4,5 | 3,4 | 5,80 | 0061 | ○ | ○ |
| M 6 x 0,75 | 0,75 | 80 | 10 | - | 4,5 | 3,4 | 5,70 | 0062 | ○ | ○ |
| M 8 x 1 | 1 | 90 | 10 | - | 6,0 | 4,9 | 7,60 | 0083 | ● | ● |
| M 10 x 1 | 1 | 90 | 10 | - | 7,0 | 5,5 | 9,60 | 0103 | ● | ● |
| M 10 x 1,25 | 1,25 | 100 | 15 | - | 7,0 | 5,5 | 9,45 | 0104 | ● | ● |
| M 12 x 1 | 1 | 100 | 10 | - | 9,0 | 7 | 11,60 | 0123 | ● | ● |
| M 12 x 1,25 | 1,25 | 100 | 15 | - | 9,0 | 7 | 11,45 | 0124 | ● | ● |
| M 12 x 1,5 | 1,5 | 100 | 15 | - | 9,0 | 7 | 11,35 | 0125 | ● | ● |
| M 16 x 1,5 | 1,5 | 100 | 15 | - | 12 | 9 | 15,35 | 0165 | ● | ● |
| M 18 x 1,5 | 1,5 | 110 | 17 | - | 14 | 11 | 17,35 | 0185 | ● | ● |
| M 20 x 1,5 | 1,5 | 125 | 17 | - | 16 | 12 | 19,35 | 0205 | ● | ● |

| ISO | Vc (m/min) | |
|---|---|---|
| P | 10-30 | 10-30 |
| M | 10-25 | 10-25 |
| K | - | - |
| N | 20-40 | 20-60 |
| S | - | - |



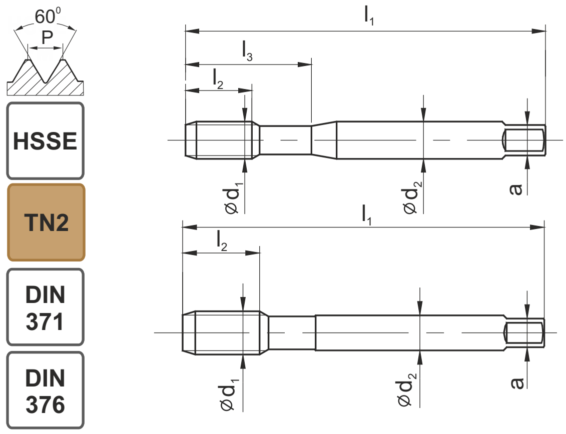
Example of order

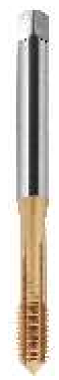
D2-923105-0083
Forming tap WGN M8x1-6HX DIN-374 C HSSE-PM TN2

● Available from stock
○ On request

## American unified coarse thread UNC, ANSI B-1.1

| | WGN |
|---|---|
| | C-SR-TN2 |



| | WGN C-SR-TN2 |
|---|---|
| Material groups | P M K N S H |
| Hole type | < 3d |
| Quality of material | HSSE |
| Coating | TN2 |
| Chamfer | C / 2-3P |

| UNC | Ćd1 | 1"/P | P | l1 | l2 | Ćd2 | a | d | Norm / Tol. / INDEX | DIN-371 (~DIN-2174) / 2BX / C2-923105 |
|---|---|---|---|---|---|---|---|---|---|---|
| No 5-40 | 3,175 | 40 | 0,635 | 56 | 7 | 3,5 | 2,7 | 2,90 | 4105 | ○ |
| No 6-32 | 3,505 | 32 | 0,795 | 56 | 6 | 4,0 | 3,0 | 3,15 | 4106 | ○ |
| No 8-32 | 4,166 | 32 | 0,794 | 63 | 7 | 4,5 | 3,4 | 3,80 | 4108 | ○ |
| No 10-24 | 4,826 | 24 | 1,058 | 70 | 8 | 6,0 | 4,9 | 4,35 | 4110 | ○ |
| No 12-24 | 5,486 | 24 | 1,058 | 80 | 10 | 6,0 | 4,9 | 5,00 | 4112 | ○ |
| 1/4-20 | 6,350 | 20 | 1,270 | 80 | 13 | 7,0 | 5,5 | 5,75 | 4127 | ○ |
| 5/16-18 | 7,938 | 18 | 1,411 | 90 | 13 | 8,0 | 6,2 | 7,30 | 4128 | ○ |
| 3/8-16 | 9,525 | 16 | 1,588 | 100 | 15 | 10 | 8 | 8,80 | 4129 | ○ |

| UNC | Ćd1 | 1"/P | P | l1 | l2 | Ćd2 | a | d | Norm / Tol. / INDEX | DIN-376 (~DIN-2174) / 2BX / D2-923105 |
|---|---|---|---|---|---|---|---|---|---|---|
| 7/16-14 | 11,112 | 14 | 1,814 | 100 | 15 | 8 | 6,2 | 10,25 | 4130 | ○ |
| 1/2-13 | 12,700 | 13 | 1,954 | 110 | 18 | 9 | 7 | 11,80 | 4131 | ○ |
| 5/8-11 | 15,875 | 11 | 2,309 | 110 | 20 | 12 | 9 | 14,80 | 4133 | ○ |

| ISO | Vc (m/min) |
|---|---|
| P | 10-30 |
| M | 10-25 |
| K | - |
| N | 20-40 |
| S | - |

**Example of order**

**C2-923105-4105**
**Forming tap WGN No 5-40 UNC 2BX DIN-371 C HSSE TN2**

● **Available from stock**
○ **On request**

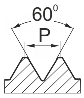
**Forming taps**



## American unified fine thread UNF, ANSI B-1.1

**WGN**

C-SR-TN2

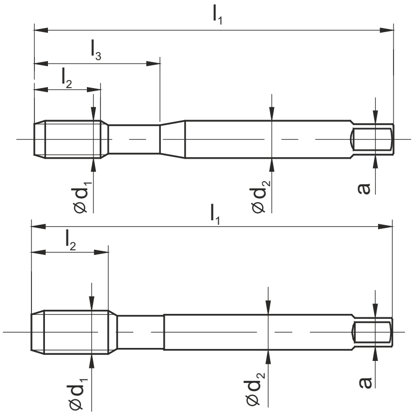


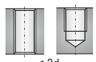

HSSE

TN2

DIN 371

DIN 374




| | C-SR-TN2 |
|---|---|
| Material groups | P M K N S H |
| Hole type |  < 3d |
| Quality of material | HSSE |
| Coating | TN2 |
| Chamfer | C / 2-3P |

| UNF | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | Ć $d_2$ | a | d | Norm | DIN-371 (~DIN-2174) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | 2BX |
| | | | | | | | | | INDEX | C2-923105 |
| No 5-44 | 3,175 | 44 | 0,577 | 56 | 7 | 3,5 | 2,7 | 2,92 | 4205 | ○ |
| No 6-40 | 3,505 | 40 | 0,635 | 56 | 6 | 4 | 3 | 3,22 | 4206 | ○ |
| No 8-36 | 4,166 | 36 | 0,705 | 63 | 7 | 4,5 | 3,4 | 3,85 | 4208 | ○ |
| No 10-32 | 4,826 | 32 | 0,794 | 70 | 8 | 6 | 4,9 | 4,45 | 4210 | ○ |
| No 12-28 | 5,486 | 28 | 0,907 | 80 | 10 | 6 | 4,9 | 5,10 | 4212 | ○ |
| 1/4-28 | 6,350 | 28 | 0,907 | 80 | 10 | 6 | 4,9 | 5,95 | 4227 | ○ |
| 5/16-24 | 7,938 | 24 | 1,058 | 90 | 13 | 8 | 6,2 | 7,45 | 4228 | ○ |
| 3/8-24 | 9,525 | 24 | 1,058 | 100 | 15 | 10 | 8 | 9,05 | 4229 | ○ |

| UNF | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | Ć $d_2$ | a | d | Norm | DIN-374 (~DIN-2174) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Tol. | 2BX |
| | | | | | | | | | INDEX | D2-923105 |
| 7/16-20 | 11,112 | 20 | 1,270 | 100 | 15 | 8 | 6,2 | 10,55 | 4230 | ○ |
| 1/2-20 | 12,700 | 20 | 1,270 | 110 | 15 | 9 | 7 | 12,15 | 4231 | ○ |
| 5/8-18 | 15,875 | 18 | 1,411 | 110 | 15 | 12 | 9 | 15,25 | 4233 | ○ |
| 3/4-16 | 19,050 | 16 | 1,588 | 120 | 17 | 14 | 11 | 18,35 | 4235 | ○ |

| ISO | Vc (m/min) |
|---|---|
| P | 10-30 |
| M | 10-25 |
| K | - |
| N | 20-40 |
| S | - |

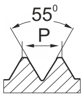
**Example of order**

**C2-923105-4205**
**Forming tap WGN No 5-44 UNF 2BX UNF DIN-371 C HSSE TN2**

● **Available from stock**
○ **On request**

2

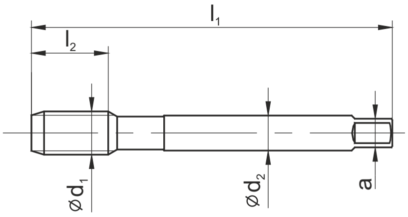
## Whitworth pipe thread G, DIN-ISO 228

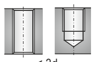


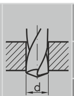

HSSE

TN2

DIN ~5156




| | WGN | | | | | |
|---|---|---|---|---|---|---|
| | C-SR-TN2 | | | | | |
| |  | | | | | |
| Material groups | P M N | | | | | |
| Hole type |  < 3d | | | | | |
| Quality of material | HSSE | | | | | |
| Coating | TN2 | | | | | |
| Chamfer | C / 2-3P | | | | | |

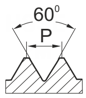
| G | Ć $d_1$ | 1"/P | P | $l_1$ | $l_2$ | Ć $d_2$ | a |  d | Norm / Tol. / INDEX | ~DIN-5156 / D2-923105 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G-1/8" | 9,728 | 28 | 0,907 | 90 | 13 | 7 | 5,5 | 9,25 | 3123 | ● | | | | | |
| G-1/4" | 13,157 | 19 | 1,337 | 100 | 16 | 11 | 9 | 12,55 | 3127 | ● | | | | | |
| G-3/8" | 16,662 | 19 | 1,337 | 100 | 16 | 12 | 9 | 16,05 | 3129 | ● | | | | | |
| G-1/2" | 20,955 | 14 | 1,814 | 125 | 18 | 16 | 12 | 20,10 | 3131 | ● | | | | | |
| G-5/8" | 22,911 | 14 | 1,814 | 125 | 20 | 18 | 14,5 | 22,05 | 3133 | ● | | | | | |
| G-3/4" | 26,441 | 14 | 1,814 | 140 | 22 | 20 | 16 | 25,60 | 3135 | ● | | | | | |

| ISO | Vc (m/min) | | | | | | |
|---|---|---|---|---|---|---|---|
| P | 10-30 | | | | | | |
| M | 10-25 | | | | | | |
| K | - | | | | | | |
| N | 20-40 | | | | | | |
| S | - | | | | | | |

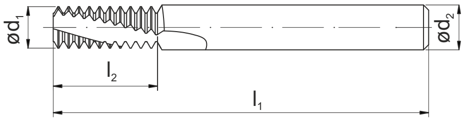
# Solid carbide thread end mills

## Metric coarse thread ISO DIN-13

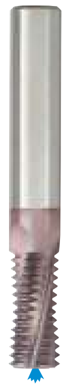
| | CTM | |
|---|---|---|
| | | IK |




VHM




AT



| | CTM | CTM IK |
|---|---|---|
| Material groups | P M K N S H | P M K N S H |
| Quality of material | VHM | VHM |
| Coating | AT | AT |

| P | M | MF | Ć $d_1$ | Ć $d_2$ | $l_1$ | $l_2$ | z | INDEX | | INDEX | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,5 | M3 | ø≥ 4 | 2,2 | 6 | 58,0 | 5,3 | 3,00 | MI-0206053-0050 | ○ | MI-0206053-0050-IK | ○ |
| 0,5 | | ø≥ 5 | 3,8 | 6 | 58,0 | 10,3 | 3,00 | MI-0306103-0050 | ○ | MI-0306103-0050-IK | ○ |
| 0,7 | M4 | ø≥ 5 | 3,1 | 6 | 58,0 | 7,4 | 3,00 | MI-0306073-0070 | ○ | MI-0306073-0070-IK | ○ |
| 0,75 | | ø≥ 6 | 4,5 | 6 | 58,0 | 10,1 | 3,00 | MI-0406103-0075 | ○ | MI-0406103-0075-IK | ○ |
| 0,8 | M5 | ø≥ 6 | 3,6 | 6 | 58,0 | 9,2 | 3,00 | MI-0306093-0080 | ○ | MI-0306093-0080-IK | ○ |
| 1 | M6 | ø≥ 7 | 4,0 | 6 | 58,0 | 10,5 | 3,00 | MI-0406103-0100 | ○ | MI-0406103-0100-IK | ○ |
| 1 | M6 | ø≥ 7 | 4,0 | 6 | 58,0 | 14,5 | 3,00 | MI-0406143-0100 | ○ | MI-0406143-0100-IK | ○ |
| 1 | | ø≥ 9 | 6,0 | 6 | 58,0 | 12,5 | 3,00 | MI-0606123-0100 | ○ | MI-0606123-0100-IK | ○ |
| 1 | | ø≥ 10 | 8,0 | 8 | 64,0 | 16,5 | 4,00 | MI-0808164-0100 | ○ | MI-0808164-0100-IK | ○ |
| 1,25 | M8 | ø≥ 10 | 5,0 | 6 | 58,0 | 14,4 | 3,00 | MI-0506143-0125 | ○ | MI-0506143-0125-IK | ○ |
| 1,25 | M8 | ø≥ 10 | 5,0 | 6 | 58,0 | 19,4 | 3,00 | MI-0506193-0125 | ○ | MI-0506193-0125-IK | ○ |
| 1,5 | M10 | ø≥ 12 | 7,0 | 8 | 64,0 | 17,3 | 3,00 | MI-0708173-0150 | ○ | MI-0708173-0150-IK | ○ |
| 1,5 | M10 | ø≥ 12 | 7,0 | 8 | 76,0 | 24,8 | 3,00 | MI-0708243-0150 | ○ | MI-0708243-0150-IK | ○ |
| 1,5 | | ø≥ 14 | 10,0 | 10 | 73,0 | 21,8 | 4,00 | MI-1010214-0150 | ○ | MI-1010214-0150-IK | ○ |
| 1,5 | | ø≥ 20 | 16,0 | 16 | 105,0 | 33,8 | 6,00 | MI-1616336-0150 | ○ | MI-1616333-0150-IK | ○ |
| 1,75 | M12 | ø≥ 14 | 8,0 | 8 | 64,0 | 20,1 | 3,00 | MI-0808203-0175 | ○ | MI-0808203-0175-IK | ○ |
| 1,75 | M12 | ø≥ 14 | 8,0 | 8 | 76,0 | 28,9 | 3,00 | MI-0808283-0175 | ○ | MI-0808283-0175-IK | ○ |
| 2 | M16 | ø≥ 17 | 10,0 | 10 | 73,0 | 27,0 | 3,00 | MI-1010273-0200 | ○ | MI-1010274-0200-IK | ○ |
| 2 | M16 | ø≥ 17 | 10,0 | 10 | 105,0 | 39,0 | 3,00 | MI-1010393-0200 | ○ | MI-1010393-0200-IK | ○ |
| 2 | | ø≥ 18 | 12,0 | 12 | 84,0 | 27,0 | 4,00 | MI-1212274-0200 | ○ | MI-1212273-0200-IK | ○ |
| 2 | | ø≥ 26 | 20,0 | 20 | 105,0 | 41,0 | 6,00 | MI-2020416-0200 | ○ | MI-2020416-0200-IK | ○ |
| 2,5 | M20 | ø≥ 22 | 14,0 | 14 | 84,0 | 33,8 | 4,00 | MI-1414334-0250 | ○ | MI-1414334-0250-IK | ○ |
| 2,5 | M20 | ø≥ 22 | 14,0 | 14 | 105,0 | 48,8 | 4,00 | MI-1414484-0250 | ○ | MI-1414484-0250-IK | ○ |
| 3 | M24 | ø≥ 25 | 16,0 | 16 | 105,0 | 40,5 | 3,00 | MI-1616403-0300 | ○ | MI-1616403-0300-IK | ○ |
| 3 | M24 | ø≥ 25 | 16,0 | 16 | 120,0 | 58,5 | 3,00 | MI-1616583-0300 | ○ | MI-1616583-0300-IK | ○ |
| 3 | M27 | ø≥ 28 | 20,0 | 20 | 105,0 | 43,5 | 4,00 | MI-2020434-0300 | ○ | MI-2020434-0300-IK | ○ |

| ISO | | | Vc [m/min] | feed [mm/z] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Ć 2 | Ć 3 | Ć 4 | Ć 6 | Ć 8 | Ć 10 | Ć 12 | Ć 14 | Ć 16 | Ć 20 | Ć 25 |
| P | P1-P5 | Constructional and carburizing steel | 100-250 | 0,03 | 0,04 | 0,04 | 0,06 | 0,07 | 0,08 | 0,09 | 0,11 | 0,12 | 0,15 | 0,18 |
| P | P6-P9 | Carbon steel, low-alloy steel, cast steel | 110-180 | 0,02 | 0,03 | 0,03 | 0,05 | 0,06 | 0,07 | 0,08 | 0,09 | 0,10 | 0,12 | 0,15 |
| P | P10-P12 | Alloy steel, Tool steel, Tempered steel up to 38 HRC | 90-160 | 0,02 | 0,02 | 0,03 | 0,03 | 0,04 | 0,05 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 |
| P | P13-P14 | Ferritic steel, martensitic steel | 60-160 | 0,02 | 0,03 | 0,03 | 0,04 | 0,05 | 0,06 | 0,06 | 0,07 | 0,08 | 0,09 | 0,11 |
| M | M1-M3 | Austenitic steel | 60-120 | 0,02 | 0,02 | 0,03 | 0,03 | 0,04 | 0,05 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 |
| K | K1-K6 | Grey cast iron | 70-150 | 0,03 | 0,04 | 0,04 | 0,06 | 0,07 | 0,08 | 0,09 | 0,11 | 0,12 | 0,15 | 0,18 |
| N | N1-N4 N7-N9 | Aluminium alloys 1% < Si < 7%, Pure copper, low-alloyed copper | 150-350 | 0,03 | 0,04 | 0,04 | 0,06 | 0,07 | 0,08 | 0,09 | 0,11 | 0,12 | 0,15 | 0,18 |
| N | N5, N10 | Aluminium alloys Si ≥ 7% | 100-250 | 0,02 | 0,02 | 0,03 | 0,03 | 0,04 | 0,05 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 |
| S | S1-S8 | Pure titanium, Titanium alloys, Pure nickel, Nickel alloys | 20-80 | 0,02 | 0,02 | 0,02 | 0,03 | 0,03 | 0,03 | 0,03 | 0,04 | 0,04 | 0,04 | 0,05 |



**Example of order**

**MI-0206053-0050**
**Solid carbide thread end mills 0,5 M3 VHM AT**

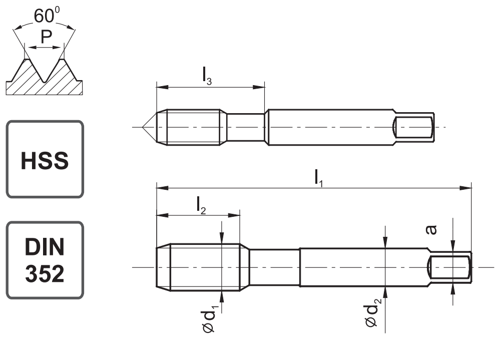
# Hand taps

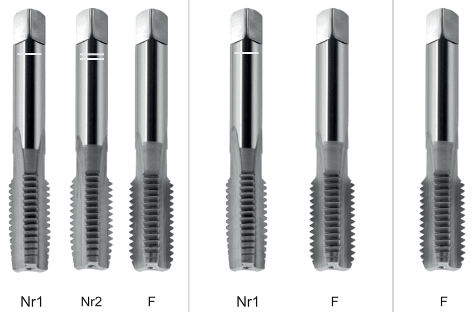
# HAND TAPS



| | | | | |
|---|---|---|---|---|
| M | DIN-352 | Set of hand taps three pieces<br>Set of hand taps two pieces<br>Finish hand taps F | | 95-97 |
| | DIN-352 | Set of hand taps three pieces<br>Finish hand taps F | INOX | 98-99 |
| | ~DIN-352 | Set of hand taps three pieces<br>Finish hand taps F | HRC40 | 100 |
| MF | DIN-2181 | Set of hand taps three pieces<br>Finish hand taps F | | 101-103 |
| | DIN-2181 | Set of hand taps two pieces<br>Finish hand taps F | HRC40 | 104 |
| UNC | DIN-352 | Set of hand taps three pieces<br>Finish hand taps F | | 105 |
| UNF | DIN-2181 | Set of hand taps two pieces<br>Finish hand taps F | | 106 |
| G | DIN-5157 | Set of hand taps two pieces for pipe thread<br>Finish hand taps F | | 107 |
| | DIN-5157 | Set of hand taps two pieces for pipe thread<br>Finish hand taps F | INOX | 108 |
| | DIN-5157 | Set of hand taps two pieces for pipe thread<br>Finish hand taps F | HRC40 | 109 |
| BSW | DIN-352 | Set of hand taps three pieces<br>Finish hand taps F | | 110 |
| BSF | DIN-2181 | Set of hand taps three pieces<br>Finish hand taps F | | 111 |
| PG | NGSy | Hand taps for steel conduit thread<br>Finish hand taps F | | 112 |

## ISO Metric coarse thread DIN-13




| | KPL/3 | KPL/2 | F | |
|---|---|---|---|---|
| Material groups | P M K N S H | P M K N S H | P M K N S H | |
| Hole type | < 2,5d | < 2,5d | < 2,5d | |
| Quality of material | HSS | HSS | HSS | |
| Coating | | | | |
| Chamfer | | | ~2P | |

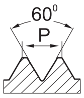
| M Ød1 | P | l1 | l2 | l3 | Ød2 | a | d | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Norm | DIN-352 | | | |
| | | | | | | | | Tol. | ISO1 (4H) | | | |
| | | | | | | | | INDEX | A1-230002 | A1-220002 | A1-233002 | |
| M1 | 0,25 | 32,5 | 6,5 | 10,5 | 2,5 | 2,10 | 0,75 | 0010 | ● | - | ● | |
| M1,1 | 0,25 | 32,5 | 6,5 | 10,5 | 2,5 | 2,10 | 0,85 | 0011 | ● | - | ● | |
| M1,2 | 0,25 | 32,5 | 6,5 | 10,5 | 2,5 | 2,10 | 0,95 | 0012 | ● | - | ● | |
| M1,4 | 0,30 | 32,5 | 8,0 | 10,5 | 2,5 | 2,10 | 1,10 | 0014 | ● | - | ● | |
| | | | | | | | | Tol. | ISO2 (6H) | | | |
| | | | | | | | | INDEX | A1-230001 | A1-220001 | A1-233001 | |
| M1,6 | 0,35 | 41,0 | 9,0 | 10,5 | 2,5 | 2,10 | 1,25 | 0016 | ● | - | ● | |
| M1,7 | 0,35 | 41,0 | 9,0 | 10,5 | 2,5 | 2,10 | 1,35 | 0017 | ● | - | ● | |
| M1,8 | 0,35 | 41,0 | 9,0 | 10,5 | 2,5 | 2,10 | 1,45 | 0018 | ● | - | ● | |
| M2 | 0,40 | 36,0 | 10,0 | 10,0 | 2,8 | 2,10 | 1,60 | 0020 | ● | - | ● | |
| M2,2 | 0,45 | 36,0 | 9,0 | 13,0 | 2,8 | 2,10 | 1,75 | 0022 | ● | - | ● | |
| M2,3 | 0,40 | 36,0 | 9,0 | 13,0 | 2,8 | 2,10 | 1,90 | 0023 | ● | - | ● | |
| M2,5 | 0,45 | 40,0 | 9,0 | 15,0 | 2,8 | 2,10 | 2,05 | 0025 | ● | - | ● | |
| M2,6 | 0,45 | 40,0 | 9,0 | 15,0 | 2,8 | 2,10 | 2,15 | 0026 | ● | - | ● | |
| M3 | 0,50 | 40,0 | 11,0 | 18,0 | 3,5 | 2,70 | 2,50 | 0030 | ● | ● | ● | |
| M3,5 | 0,60 | 45,0 | 13,0 | 21,0 | 4,0 | 3,00 | 2,90 | 0035 | ● | ● | ● | |
| M4 | 0,70 | 45,0 | 13,0 | 21,0 | 4,5 | 3,40 | 3,30 | 0040 | ● | ● | ● | |
| M4,5 | 0,75 | 50,0 | 16,0 | 25,0 | 6,0 | 4,90 | 3,70 | 0045 | ● | ● | ● | |
| M5 | 0,80 | 52,0 | 16,0 | 26,0 | 6,0 | 4,90 | 4,20 | 0050 | ● | ● | ● | |
| M6 | 1,00 | 56,0 | 18,0 | 27,0 | 6,0 | 4,90 | 5,00 | 0060 | ● | ● | ● | |
| M7 | 1,00 | 56,0 | 18,0 | - | 6,0 | 4,90 | 6,00 | 0070 | ● | ● | ● | |
| M8 | 1,25 | 63,0 | 20,0 | - | 6,0 | 4,90 | 6,80 | 0080 | ● | ● | ● | |
| M9 | 1,25 | 63,0 | 20,0 | - | 7,0 | 5,50 | 7,80 | 0090 | ● | ● | ● | |
| M10 | 1,50 | 70,0 | 22,0 | - | 7,0 | 5,50 | 8,50 | 0100 | ● | ● | ● | |
| M11 | 1,50 | 70,0 | 22,0 | - | 8,0 | 6,20 | 9,50 | 0110 | ● | ● | ● | |
| M12 | 1,75 | 80,0 | 24,0 | - | 9,0 | 7,00 | 10,20 | 0120 | ● | ● | ● | |
| M14 | 2,00 | 80,0 | 26,0 | - | 11,0 | 9,00 | 12,00 | 0140 | ● | ● | ● | |
| M16 | 2,00 | 80,0 | 27,0 | - | 12,0 | 9,00 | 14,00 | 0160 | ● | ● | ● | |
| M18 | 2,50 | 95,0 | 30,0 | - | 14,0 | 11,00 | 15,50 | 0180 | ● | ● | ● | |
| M20 | 2,50 | 95,0 | 32,0 | - | 16,0 | 12,00 | 17,50 | 0200 | ● | ● | ● | |
| M22 | 2,50 | 100,0 | 32,0 | - | 18,0 | 14,50 | 19,50 | 0220 | ● | ● | ● | |
| M24 | 3,00 | 110,0 | 34,0 | - | 18,0 | 14,50 | 21,00 | 0240 | ● | ● | ● | |
| M27 | 3,00 | 110,0 | 36,0 | - | 20,0 | 16,00 | 24,00 | 0270 | ● | ● | ● | |

**Example of order**

**A1-230001-0060**
**KPL/3 M6-6H DIN-352 HSS**

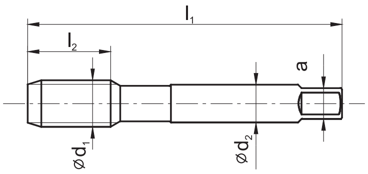
● **Available from stock**
○ **On request**

## ISO Metric coarse thread DIN-13




**HSS**

**DIN 352**




| | KPL/3 | KPL/2 | F |
|---|---|---|---|
| |  Nr1 Nr2 F |  Nr1 F |  F |
| Material groups | P M K N S H | P M K N S H | P M K N S H |
| Hole type | < 2,5d | < 2,5d | < 2,5d |
| Quality of material | HSS | HSS | HSS |
| Coating | | | |
| Chamfer | | | ~2P |

| M $\varnothing d_1$ | P | $l_1$ | $l_2$ | $l_3$ | $\varnothing d_2$ | a | d | Norm | DIN-352 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) | |
| | | | | | | | | INDEX | A1-230001 | A1-220001 | A1-233001 | |
| M30 | 3,5 | 125 | 40 | - | 22 | 18 | 26,5 | 0300 | ● | - | ● | |
| M33 | 3,5 | 125 | 40 | - | 25 | 20 | 29,5 | 0330 | ● | - | ● | |
| M36 | 4,0 | 150 | 50 | - | 28 | 22 | 32,0 | 0360 | ● | - | ● | |
| M39 | 4,0 | 150 | 50 | - | 32 | 24 | 35,0 | 0390 | ● | - | ● | |
| M42 | 4,5 | 150 | 56 | - | 32 | 24 | 37,5 | 0420 | ● | - | ● | |
| M45 | 4,5 | 160 | 58 | - | 36 | 29 | 40,5 | 0450 | ● | - | ● | |
| M48 | 5,0 | 180 | 65 | - | 36 | 29 | 43,0 | 0480 | ● | - | ● | |
| M52 | 5,0 | 180 | 65 | - | 40 | 32 | 47,0 | 0520 | ● | - | ● | |
| M56 | 5,5 | 200 | 75 | - | 45 | 35 | 50,5 | 0560 | ○ | - | ○ | |
| M60 | 5,5 | 200 | 70 | - | 45 | 35 | 54,5 | 0600 | ○ | - | ○ | |
| M64 | 6,0 | 220 | 75 | - | 50 | 39 | 58,0 | 0640 | ○ | - | ○ | |
| M68 | 6,0 | 220 | 75 | - | 50 | 39 | 62,0 | 0680 | ○ | - | ○ | |

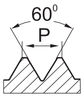


**Example of order**

**A1-230001-0420**
**KPL/3 M42-6H DIN-352 HSS**

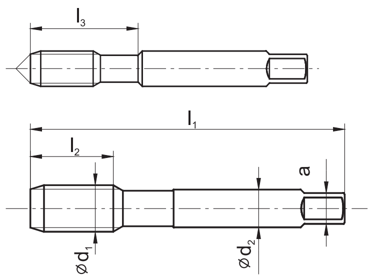
● **Available from stock**
○ **On request**

## ISO Metric coarse thread DIN-13




**HSS**

**DIN 352**




| | KPL/3-LH | KPL/2-LH | F-LH |
|---|---|---|---|
| |  | | |
| | Nr1 Nr2 F | Nr1 F | F |
| | LH | LH | LH |
| Material groups | P M K N S H | P M K N S H | P M K N S H |
| Hole type | < 2,5d | < 2,5d | < 2,5d |
| Quality of material | HSS | HSS | HSS |
| Coating | | | |
| Chamfer | | | ~2P |

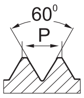
| M Ød1 | P | l1 | l2 | l3 | Ød2 | a | d | Norm | DIN-352 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) |
| | | | | | | | | INDEX | A1-270001 | A1-260001 | A1-273001 |
| M3 | 0,50 | 40 | 11 | 18 | 3,5 | 2,7 | 2,5 | 0030 | ● | ● | ● |
| M3,5 | 0,60 | 45 | 13 | 21 | 4,0 | 3,0 | 2,9 | 0035 | ○ | ○ | ○ |
| M4 | 0,70 | 45 | 13 | 21 | 4,5 | 3,4 | 3,3 | 0040 | ● | ● | ● |
| M4,5 | 0,75 | 50 | 16 | 25 | 6,0 | 4,9 | 3,7 | 0045 | ○ | ○ | ○ |
| M5 | 0,80 | 50 | 16 | 26 | 6,0 | 4,9 | 4,2 | 0050 | ● | ● | ● |
| M6 | 1,00 | 56 | 18 | 27 | 6,0 | 4,9 | 5,0 | 0060 | ● | ● | ● |
| M7 | 1,00 | 56 | 18 | - | 6,0 | 4,9 | 6,0 | 0070 | ○ | ○ | ○ |
| M8 | 1,25 | 63 | 20 | - | 6,0 | 4,9 | 6,8 | 0080 | ● | ● | ● |
| M9 | 1,25 | 63 | 20 | - | 7,0 | 5,5 | 7,8 | 0090 | ○ | ○ | ○ |
| M10 | 1,50 | 70 | 22 | - | 7,0 | 5,5 | 8,5 | 0100 | ● | ● | ● |
| M11 | 1,50 | 70 | 22 | - | 8,0 | 6,2 | 9,5 | 0110 | ○ | ○ | ○ |
| M12 | 1,75 | 80 | 24 | - | 9,0 | 7,0 | 10,2 | 0120 | ● | ● | ● |
| M14 | 2,00 | 80 | 26 | - | 11,0 | 9,0 | 12,0 | 0140 | ○ | ○ | ○ |
| M16 | 2,00 | 80 | 27 | - | 12,0 | 9,0 | 14,0 | 0160 | ● | ● | ● |
| M18 | 2,50 | 95 | 30 | - | 14,0 | 11,0 | 15,5 | 0180 | ○ | ○ | ○ |
| M20 | 2,50 | 95 | 32 | - | 16,0 | 12,0 | 17,5 | 0200 | ● | ● | ● |
| M22 | 2,50 | 100 | 32 | - | 18,0 | 14,5 | 19,5 | 0220 | ○ | ○ | ○ |
| M24 | 3,00 | 110 | 34 | - | 18,0 | 14,5 | 21,0 | 0240 | ○ | ○ | ○ |
| M27 | 3,00 | 110 | 36 | - | 20,0 | 16,0 | 24,0 | 0270 | ○ | ○ | ○ |
| M30 | 3,50 | 125 | 40 | - | 22,0 | 18,0 | 26,5 | 0300 | ○ | ○ | ○ |
| M33 | 3,50 | 125 | 40 | - | 25,0 | 20,0 | 29,5 | 0330 | ○ | ○ | ○ |
| M36 | 4,00 | 150 | 50 | - | 28,0 | 22,0 | 32,0 | 0360 | ○ | ○ | ○ |
| M39 | 4,00 | 150 | 50 | - | 32,0 | 24,0 | 35,0 | 0390 | ○ | ○ | ○ |
| M42 | 4,50 | 150 | 56 | - | 32,0 | 24,0 | 37,5 | 0420 | ○ | ○ | ○ |
| M45 | 4,50 | 160 | 58 | - | 36,0 | 29,0 | 40,5 | 0450 | ○ | ○ | ○ |
| M48 | 5,00 | 180 | 65 | - | 36,0 | 29,0 | 43,0 | 0480 | ○ | ○ | ○ |
| M52 | 5,00 | 180 | 65 | - | 40,0 | 32,0 | 47,0 | 0520 | ○ | ○ | ○ |
| M56 | 5,50 | 200 | 75 | - | 45,0 | 35,0 | 50,5 | 0560 | ○ | ○ | ○ |
| M60 | 5,50 | 200 | 70 | - | 45,0 | 35,0 | 54,5 | 0600 | ○ | ○ | ○ |
| M64 | 6,00 | 220 | 75 | - | 50,0 | 39,0 | 58,0 | 0640 | ○ | ○ | ○ |
| M68 | 6,00 | 220 | 75 | - | 50,0 | 39,0 | 62,0 | 0680 | ○ | ○ | ○ |

**Example of order**

**A1-270001-0270**
**KPL/3 M27-6H-LH DIN-352 HSS**

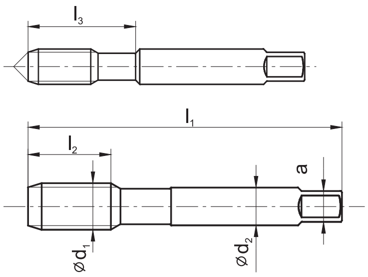
● **Available from stock**
○ **On request**

## ISO Metric coarse thread DIN-13

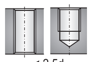
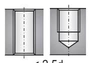



HSSE

DIN 352




**INOX**

| | KPL/3-P | F |
|---|---|---|
| | <br>Nr1-P Nr2 F | F |
| Material groups | P M K / N S H | P M K / N S H |
| Hole type |  < 2,5d |  < 2,5d |
| Quality of material | HSSE | HSSE |
| Coating | | |
| Chamfer | | ~3P |

| M Ød1 | P | l1 | l2 | l3 | Ød2 | a | d | Norm / Tol. / INDEX | DIN-352 6HX A2-235801 | DIN-352 6HX A2-203801 |
|---|---|---|---|---|---|---|---|---|---|---|
| M2 | 0,40 | 36 | 10 | 10 | 2,8 | 2,1 | 1,6 | 0020 | ● | ● |
| M2,5 | 0,45 | 40 | 10 | 10 | 2,8 | 2,1 | 2,05 | 0025 | ● | ● |
| M3 | 0,50 | 40 | 10 | 18 | 3,5 | 2,7 | 2,5 | 0030 | ● | ● |
| M3,5 | 0,60 | 45 | 11 | 20 | 4,0 | 3,0 | 2,9 | 0035 | ○ | ○ |
| M4 | 0,70 | 45 | 12 | 21 | 4,5 | 3,4 | 3,3 | 0040 | ● | ● |
| M4,5 | 0,75 | 50 | 13 | 24 | 6,0 | 4,9 | 3,7 | 0045 | ○ | ○ |
| M5 | 0,80 | 50 | 14 | 25 | 6,0 | 4,9 | 4,2 | 0050 | ● | ● |
| M6 | 1,00 | 56 | 16 | 27 | 6,0 | 4,9 | 5,0 | 0060 | ● | ● |
| M8 | 1,25 | 63 | 22 | | 6,0 | 4,9 | 6,8 | 0080 | ● | ● |
| M10 | 1,50 | 70 | 22 | | 7,0 | 5,5 | 8,5 | 0100 | ● | ● |
| M12 | 1,75 | 75 | 24 | | 9,0 | 7,0 | 10,2 | 0120 | ● | ● |
| M14 | 2,00 | 80 | 32 | | 11,0 | 9,0 | 12,0 | 0140 | ● | ● |
| M16 | 2,00 | 80 | 32 | | 12,0 | 9,0 | 14,0 | 0160 | ● | ● |
| M18 | 2,50 | 95 | 40 | | 14,0 | 11,0 | 15,5 | 0180 | ● | ● |
| M20 | 2,50 | 95 | 40 | | 16,0 | 12,0 | 17,5 | 0200 | ● | ● |
| M22 | 2,50 | 100 | 40 | | 18,0 | 14,5 | 19,5 | 0220 | ● | ● |
| M24 | 3,00 | 110 | 50 | | 18,0 | 14,5 | 21,0 | 0240 | ● | ● |

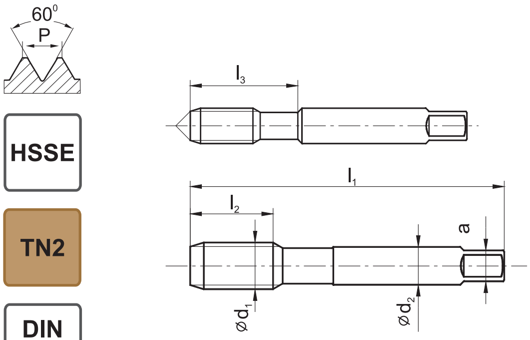
**Example of order**

**A2-235801-0080**
**KPL/3 INOX M8-6HX DIN-352 HSSE**

● **Available from stock**
○ **On request**

## ISO Metric coarse thread DIN-13

***INOX***




HSSE

TN2

DIN 352

| | KPL/3-P | F |
|---|---|---|
| |  | |
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 2,5d | < 2,5d |
| Quality of material | HSSE | HSSE |
| Coating | TN2 | TN2 |
| Chamfer | | ~3P |

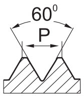
| M Ø$d_1$ | P | $l_1$ | $l_2$ | $l_3$ | Ø$d_2$ | a | d | Norm / Tol. / INDEX | DIN-352 6HX A2-235831 | DIN-352 6HX A2-203831 |
|---|---|---|---|---|---|---|---|---|---|---|
| M2 | 0,40 | 36 | 10 | 10 | 2,8 | 2,1 | 1,6 | 0020 | ● | ● |
| M2,5 | 0,45 | 40 | 10 | 10 | 2,8 | 2,1 | 2,05 | 0025 | ● | ● |
| M3 | 0,50 | 40 | 10 | 18 | 3,5 | 2,7 | 2,5 | 0030 | ● | ● |
| M3,5 | 0,60 | 45 | 11 | 20 | 4,0 | 3,0 | 2,9 | 0035 | ○ | ○ |
| M4 | 0,70 | 45 | 12 | 21 | 4,5 | 3,4 | 3,3 | 0040 | ● | ● |
| M4,5 | 0,75 | 50 | 13 | 24 | 6,0 | 4,9 | 3,7 | 0045 | ○ | ○ |
| M5 | 0,80 | 50 | 14 | 25 | 6,0 | 4,9 | 4,2 | 0050 | ● | ● |
| M6 | 1,00 | 56 | 16 | 27 | 6,0 | 4,9 | 5,0 | 0060 | ● | ● |
| M8 | 1,25 | 63 | 22 | - | 6,0 | 4,9 | 6,8 | 0080 | ● | ● |
| M10 | 1,50 | 70 | 22 | - | 7,0 | 5,5 | 8,5 | 0100 | ● | ● |
| M12 | 1,75 | 75 | 24 | - | 9,0 | 7,0 | 10,2 | 0120 | ● | ● |
| M14 | 2,00 | 80 | 32 | - | 11,0 | 9,0 | 12,0 | 0140 | ● | ● |
| M16 | 2,00 | 80 | 32 | - | 12,0 | 9,0 | 14,0 | 0160 | ● | ● |
| M18 | 2,50 | 95 | 40 | - | 14,0 | 11,0 | 15,5 | 0180 | ● | ● |
| M20 | 2,50 | 95 | 40 | - | 16,0 | 12,0 | 17,5 | 0200 | ● | ● |
| M22 | 2,50 | 100 | 40 | - | 18,0 | 14,5 | 19,5 | 0220 | ● | ● |
| M24 | 3,00 | 110 | 50 | - | 18,0 | 14,5 | 21,0 | 0240 | ● | ● |

**Example of order**

**A2-235831-0080**
**KPL/3 INOX M8-6HX DIN-352 HSSE TN2**

● **Available from stock**
○ **On request**

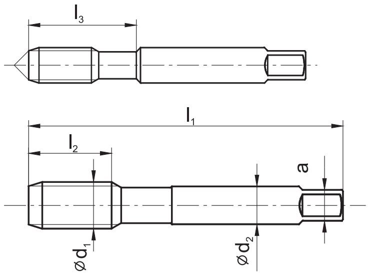
## ISO Metric coarse thread DIN-13




HSSE PM

TC

DIN 352




| | HRC40 | |
|---|---|---|
| | KPL/3-P | F |
| |   | |
| Material groups | P M K N S H | P M K N S H |
| Hole type |  < 1,5d | < 1,5d |
| Quality of material | HSSE-PM | HSSE-PM |
| Coating | TC | TC |
| Chamfer | | ~3P |

| M Ød1 | P | l1 | l2 | l3 | Ød2 | a | d | Norm | ~DIN-352 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | 6HX | 6HX |
| | | | | | | | | INDEX | A4-235D51 | A4-203D51 |
| M3 | 0,50 | 40 | 10 | - | 3,5 | 2,7 | 2,5 | 0030 | ● | ● |
| M4 | 0,70 | 50 | 13 | - | 6,0 | 4,9 | 3,3 | 0040 | ● | ● |
| M5 | 0,80 | 50 | 16 | - | 6,0 | 4,9 | 4,2 | 0050 | ● | ● |
| M6 | 1,00 | 56 | 19 | - | 6,0 | 4,9 | 5,0 | 0060 | ● | ● |
| M8 | 1,25 | 63 | 22 | - | 6,0 | 4,9 | 6,8 | 0080 | ● | ● |
| M10 | 1,50 | 70 | 25 | - | 7,0 | 5,5 | 8,5 | 0100 | ● | ● |
| M12 | 1,75 | 75 | 30 | - | 9,0 | 7,0 | 10,2 | 0120 | ● | ● |
| M16 | 2,00 | 80 | 32 | - | 12,0 | 9,0 | 14,0 | 0160 | ● | ● |
| M20 | 2,50 | 95 | 40 | - | 16,0 | 12,0 | 17,5 | 0200 | ○ | ○ |

*i*

**Taps set HRC40 suitable for hardened steels up to 40HRC**

**Instruction of proper use HRC40 taps:**

1. Maximum threading depth 1,5xD
2. Rigourosly respect sequence of tapping procedure for hand taps sets using tap numbers in corect order
3. Plese use only high qualiy cutting fluids (for example TEREBOR distributed by Fanar)
4. Carefully clear each tap from chips before next usage
5. Do not reverse the tap revolution before reach full depth of cut)

**Taps F suitable for thread shape correction after hardening processor material galvanizing operations**

**Instruction of proper use F taps:**

1. Please clean the  threaded hole from mechanical impurities
2. Moisten bothe the tap and the hole with good quality tapping fluid (for example CIMTAP, TEREBOR or machine oil)
3. Enter tap into a hole by hand and make thread correction
4. Carefully clear each tap from chips before next usage

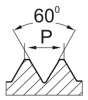


Example of order

A4-203D51-0040
KPL/3-P HRC40 M4-6HX DIN-352 F HSSE-PM TC

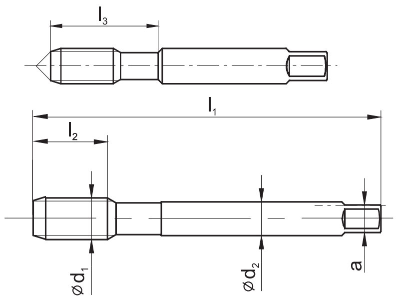
● Available from stock
○ On request

## ISO Metric fine thread DIN-13

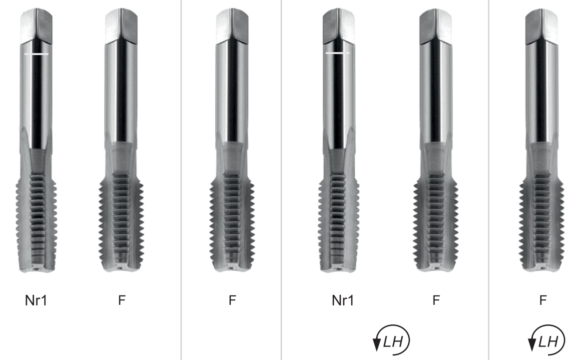



HSS

DIN 2181




| | KPL/2 | F | KPL/2-LH | F-LH |
|---|---|---|---|---|
| | Nr1, F | F | Nr1, F (LH) | F (LH) |
| Material groups | P M K N S H | P M K N S H | P M K N S H | P M K N S H |
| Hole type | < 2,5d | < 2,5d | < 2,5d | < 2,5d |
| Quality of material | HSS | HSS | HSS | HSS |
| Coating | | | | |
| Chamfer | | ~2P | | ~2P |




| MF $\varnothing d_1$ | P | $l_1$ | $l_2$ | $l_3$ | $\varnothing d_2$ | a | d | Norm / Tol. / INDEX | DIN-2181 ISO2 (6H) A1-220001 | DIN-2181 ISO2 (6H) A1-222001 | DIN-2181 ISO2 (6H) A1-260001 | DIN-2181 ISO2 (6H) A1-262001 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M4x0,5 | 0,50 | 45 | 10 | 18,0 | 4,5 | 3,4 | 3,5 | 0041 | ● | ● | ○ | ○ |
| M4,5x0,5 | 0,50 | 50 | 12 | 22,0 | 6,0 | 4,9 | 4,0 | 0046 | ○ | ○ | ○ | ○ |
| M5x0,5 | 0,50 | 52 | 13 | 22,0 | 6,0 | 4,9 | 4,5 | 0051 | ● | ● | ○ | ○ |
| M5,5x0,5 | 0,50 | 56 | 13 | 24,0 | 6,0 | 4,9 | 5,0 | 0056 | ○ | ○ | ○ | ○ |
| M6x0,75 | 0,75 | 56 | 14 | 24,0 | 6,0 | 4,9 | 5,2 | 0062 | ● | ● | ○ | ○ |
| M7x0,75 | 0,75 | 56 | 14 | - | 6,0 | 4,9 | 6,2 | 0072 | ○ | ○ | ○ | ○ |
| M8x0,75 | 0,75 | 63 | 14 | - | 6,0 | 4,9 | 7,2 | 0082 | ● | ● | ○ | ○ |
| M8x1 | 1,00 | 63 | 17 | - | 6,0 | 4,9 | 7,0 | 0083 | ● | ● | ● | ● |
| M9x0,75 | 0,75 | 63 | 14 | - | 7,0 | 5,5 | 8,2 | 0092 | ○ | ○ | ○ | ○ |
| M9x1 | 1,00 | 63 | 17 | - | 7,0 | 5,5 | 8,0 | 0093 | ○ | ○ | ○ | ○ |
| M10x0,75 | 0,75 | 63 | 18 | - | 7,0 | 5,5 | 9,2 | 0102 | ○ | ○ | ○ | ○ |
| M10x1 | 1,00 | 63 | 18 | - | 7,0 | 5,5 | 9,0 | 0103 | ● | ● | ● | ● |
| M10x1,25 | 1,25 | 70 | 22 | - | 7,0 | 5,5 | 8,8 | 0104 | ● | ● | ● | ● |
| M11x0,75 | 0,75 | 63 | 18 | - | 8,0 | 6,2 | 10,2 | 0112 | ○ | ○ | ○ | ○ |
| M11x1 | 1,00 | 63 | 18 | - | 8,0 | 6,2 | 10,0 | 0113 | ○ | ○ | ○ | ○ |
| M12x1 | 1,00 | 70 | 18 | - | 9,0 | 7,0 | 11,0 | 0123 | ● | ● | ● | ● |
| M12x1,25 | 1,25 | 70 | 20 | - | 9,0 | 7,0 | 10,8 | 0124 | ● | ● | ● | ● |
| M12x1,5 | 1,50 | 70 | 20 | - | 9,0 | 7,0 | 10,5 | 0125 | ● | ● | ○ | ○ |
| M14x1 | 1,00 | 70 | 18 | - | 11,0 | 9,0 | 13,0 | 0143 | ● | ● | ○ | ○ |
| M14x1,25 | 1,25 | 70 | 22 | - | 11,0 | 9,0 | 12,8 | 0144 | ● | ● | ○ | ○ |
| M14x1,5 | 1,50 | 70 | 22 | - | 11,0 | 9,0 | 12,5 | 0145 | ● | ● | ● | ● |
| M15x1 | 1,00 | 70 | 18 | - | 12,0 | 9,0 | 14,0 | 0153 | ○ | ○ | ○ | ○ |
| M15x1,5 | 1,50 | 70 | 22 | - | 12,0 | 9,0 | 13,5 | 0155 | ○ | ○ | ○ | ○ |
| M16x1 | 1,00 | 80 | 18 | - | 12,0 | 9,0 | 15,0 | 0163 | ● | ● | ● | ● |
| M16x1,25 | 1,25 | 80 | 18 | - | 12,0 | 9,0 | 14,8 | 0164 | ○ | ○ | ○ | ○ |
| M16x1,5 | 1,50 | 80 | 22 | - | 12,0 | 9,0 | 14,5 | 0165 | ● | ● | ○ | ○ |
| M17x1 | 1,00 | 80 | 18 | - | 12,0 | 9,0 | 16,0 | 0173 | ○ | ○ | ○ | ○ |
| M17x1,5 | 1,50 | 80 | 22 | - | 12,0 | 9,0 | 15,5 | 0175 | ○ | ○ | ○ | ○ |
| M18x1 | 1,00 | 80 | 18 | - | 14,0 | 11,0 | 17,0 | 0183 | ● | ● | ○ | ○ |
| M18x1,5 | 1,50 | 80 | 22 | - | 14,0 | 11,0 | 16,5 | 0185 | ● | ● | ● | ● |
| M18x2 | 2,00 | 80 | 22 | - | 14,0 | 11,0 | 16,0 | 0186 | ● | ● | ○ | ○ |
| M20x1 | 1,00 | 80 | 18 | - | 16,0 | 12,0 | 19,0 | 0203 | ● | ● | ○ | ○ |
| M20x1,5 | 1,50 | 80 | 22 | - | 16,0 | 12,0 | 18,5 | 0205 | ● | ● | ● | ● |
| M20x2 | 2,00 | 80 | 22 | - | 16,0 | 12,0 | 18,0 | 0206 | ● | ● | ○ | ○ |
| M22x1 | 1,00 | 80 | 18 | - | 18,0 | 14,5 | 21,0 | 0223 | ● | ● | ○ | ○ |

**Example of order**

**A1-222001-0083**
**KPL/2 M8x1-6H DIN-2181 HSS**

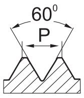
● **Available from stock**
○ **On request**

4

FANAR®

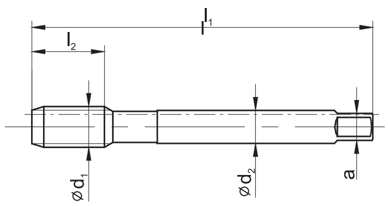


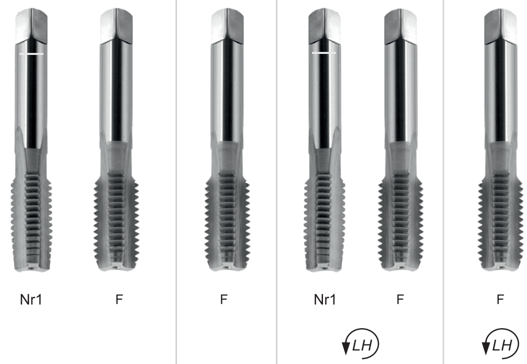
## ISO Metric fine thread DIN-13




**HSS**

**DIN 2181**






| | KPL/2 | F | KPL/2-LH | F-LH |
|---|---|---|---|---|
| Material groups | P M K N S H | P M K N S H | P M K N S H | P M K N S H |
| Hole type | < 2,5d | < 2,5d | < 2,5d | < 2,5d |
| Quality of material | HSS | HSS | HSS | HSS |
| Coating | | | | |
| Chamfer | | ~2P | | ~2P |

| MF Ød1 | P | l1 | l2 | l3 | Ød2 | a | d | Norm / Tol. / INDEX | DIN-2181 ISO2 (6H) A1-220001 | DIN-2181 ISO2 (6H) A1-222001 | DIN-2181 ISO2 (6H) A1-260001 | DIN-2181 ISO2 (6H) A1-262001 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M22x1,5 | 1,5 | 80 | 22 | - | 18 | 14,5 | 20,5 | 0225 | ● | ● | ● | ● |
| M22x2 | 2,0 | 80 | 22 | - | 18 | 14,5 | 20,0 | 0226 | ● | ● | ○ | ○ |
| M24x1 | 1,0 | 90 | 18 | - | 18 | 14,5 | 23,0 | 0243 | ● | ● | ● | ● |
| M24x1,5 | 1,5 | 90 | 22 | - | 18 | 14,5 | 22,5 | 0245 | ● | ● | ○ | ○ |
| M24x2 | 2,0 | 90 | 22 | - | 18 | 14,5 | 22,0 | 0246 | ● | ● | ○ | ○ |
| M25x1 | 1,0 | 90 | 18 | - | 18 | 14,5 | 24,0 | 0253 | ○ | ○ | ○ | ○ |
| M25x1,5 | 1,5 | 90 | 22 | - | 18 | 14,5 | 23,5 | 0255 | ○ | ○ | ○ | ○ |
| M25x2 | 2,0 | 90 | 22 | - | 18 | 14,5 | 23,0 | 0256 | ○ | ○ | ○ | ○ |
| M26x1,5 | 1,5 | 90 | 22 | - | 18 | 14,5 | 24,5 | 0265 | ○ | ○ | ○ | ○ |
| M27x1 | 1,0 | 90 | 22 | - | 20 | 16,0 | 26,0 | 0273 | ○ | ○ | ○ | ○ |
| M27x1,5 | 1,5 | 90 | 22 | - | 20 | 16,0 | 25,5 | 0275 | ● | ● | ○ | ○ |
| M27x2 | 2,0 | 90 | 22 | - | 20 | 16,0 | 25,0 | 0276 | ● | ● | ○ | ○ |
| M28x1 | 1,0 | 90 | 20 | - | 20 | 16,0 | 27,0 | 0283 | ○ | ○ | ○ | ○ |
| M28x1,5 | 1,5 | 90 | 22 | - | 20 | 16,0 | 26,5 | 0285 | ● | ● | ○ | ○ |
| M28x2 | 2,0 | 90 | 22 | - | 20 | 16,0 | 26,0 | 0286 | ○ | ○ | ○ | ○ |
| M30x1 | 1,0 | 90 | 18 | - | 22 | 18,0 | 29,0 | 0303 | ○ | ○ | ○ | ○ |
| M30x1,5 | 1,5 | 90 | 22 | - | 22 | 18,0 | 28,5 | 0305 | ● | ● | ○ | ○ |
| M30x2 | 2,0 | 90 | 22 | - | 22 | 18,0 | 28,0 | 0306 | ● | ● | ○ | ○ |
| M30x3 | 3,0 | 125 | 36 | - | 22 | 18,0 | 27,0 | 0307 | ● | ○ | ○ | ○ |
| M32x1,5 | 1,5 | 90 | 22 | - | 22 | 18,0 | 30,5 | 0325 | ○ | ○ | ○ | ○ |
| M32x2 | 2,0 | 90 | 22 | - | 22 | 18,0 | 30,0 | 0326 | ○ | ○ | ○ | ○ |
| M33x1,5 | 1,5 | 100 | 25 | - | 25 | 20,0 | 31,5 | 0335 | ● | ● | ○ | ○ |
| M33x2 | 2,0 | 100 | 25 | - | 25 | 20,0 | 31,0 | 0336 | ● | ● | ○ | ○ |
| M33x3 | 3,0 | 125 | 36 | - | 25 | 20,0 | 30,0 | 0337 | ● | ● | ○ | ○ |
| M35x1,5 | 1,5 | 100 | 25 | - | 28 | 22,0 | 33,5 | 0355 | ○ | ○ | ○ | ○ |
| M36x1,5 | 1,5 | 100 | 25 | - | 28 | 22,0 | 34,5 | 0365 | ○ | ○ | ○ | ○ |
| M36x2 | 2,0 | 125 | 30 | - | 28 | 22,0 | 34,0 | 0366 | ○ | ○ | ○ | ○ |
| M36x3 | 3,0 | 125 | 36 | - | 28 | 22,0 | 33,0 | 0367 | ○ | ○ | ○ | ○ |
| M38x1,5 | 1,5 | 100 | 25 | - | 28 | 22,0 | 36,5 | 0385 | ○ | ○ | ○ | ○ |
| M39x1,5 | 1,5 | 110 | 25 | - | 32 | 24,0 | 37,5 | 0395 | ○ | ○ | ○ | ○ |
| M39x2 | 2,0 | 125 | 30 | - | 32 | 24,0 | 37,0 | 0396 | ○ | ○ | ○ | ○ |
| M39x3 | 3,0 | 125 | 36 | - | 32 | 24,0 | 36,0 | 0397 | ○ | ○ | ○ | ○ |
| M40x1,5 | 1,5 | 110 | 25 | - | 32 | 24,0 | 38,5 | 0405 | ○ | ○ | ○ | ○ |
| M40x2 | 2,0 | 125 | 30 | - | 32 | 24,0 | 38,0 | 0406 | ● | ● | ○ | ○ |
| M40x3 | 3,0 | 125 | 36 | - | 32 | 24,0 | 37,0 | 0407 | ○ | ○ | ○ | ○ |

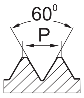


**Example of order**

**A1-220001-0225**
**KPL/2 M22x1,5-6H DIN-2181 HSS**

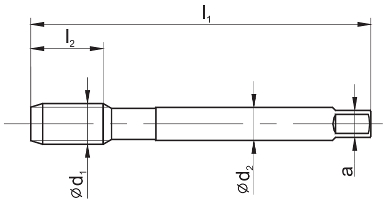
● **Available from stock**
○ **On request**

## ISO Metric fine thread DIN-13

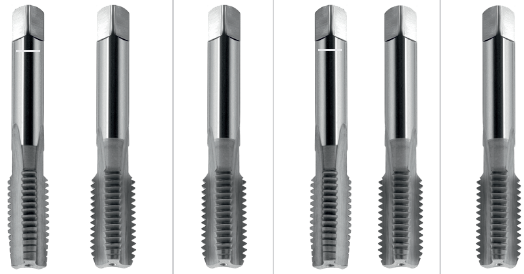



HSS

DIN 2181

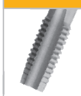



| | KPL/2 | F | KPL/2-LH | F-LH |
|---|---|---|---|---|
| | Nr1, F | F | Nr1, F (LH) | F (LH) |
| Material groups | P M K / N S H | P M K / N S H | P M K / N S H | P M K / N S H |
| Hole type | < 2,5d | < 2,5d | < 2,5d | < 2,5d |
| Quality of material | HSS | HSS | HSS | HSS |
| Coating | | | | |
| Chamfer | | ~2P | | ~2P |




| MF Ød1 | P | l1 | l2 | l3 | Ød2 | a | | Norm | DIN-2181 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) | ISO2 (6H) |
| | | | | | | | | INDEX | A1-220001 | A1-222001 | A1-260001 | A1-262001 |
| M42x1,5 | 1,5 | 110 | 25 | - | 32 | 24 | 40,5 | 0425 | ● | ● | ○ | ○ |
| M42x2 | 2,0 | 125 | 30 | - | 32 | 24 | 40,0 | 0426 | ○ | ○ | ○ | ○ |
| M42x3 | 3,0 | 125 | 36 | - | 32 | 24 | 39,0 | 0427 | ● | ● | ○ | ○ |
| M42x4 | 4,0 | 150 | 50 | - | 32 | 24 | 38,0 | 0428 | ○ | ○ | ○ | ○ |
| M45x1,5 | 1,5 | 110 | 25 | - | 36 | 29 | 43,5 | 0455 | ● | ● | ○ | ○ |
| M45x2 | 2,0 | 125 | 30 | - | 36 | 29 | 43,0 | 0456 | ○ | ○ | ○ | ○ |
| M45x3 | 3,0 | 125 | 36 | - | 36 | 29 | 42,0 | 0457 | ● | ● | ○ | ○ |
| M45x4 | 4,0 | 160 | 50 | - | 36 | 29 | 41,0 | 0458 | ○ | ○ | ○ | ○ |
| M48x1,5 | 1,5 | 140 | 25 | - | 36 | 29 | 46,5 | 0485 | ○ | ○ | ○ | ○ |
| M48x2 | 2,0 | 140 | 36 | - | 36 | 29 | 46,0 | 0486 | ○ | ○ | ○ | ○ |
| M48x3 | 3,0 | 140 | 36 | - | 36 | 29 | 45,0 | 0487 | ○ | ○ | ○ | ○ |
| M48x4 | 4,0 | 180 | 55 | - | 36 | 29 | 44,0 | 0488 | ○ | ○ | ○ | ○ |
| M50x1,5 | 1,5 | 140 | 25 | - | 36 | 29 | 48,5 | 0505 | ● | ● | ○ | ○ |
| M50x2 | 2,0 | 140 | 36 | - | 36 | 29 | 48,0 | 0506 | ○ | ○ | ○ | ○ |
| M50x3 | 3,0 | 140 | 36 | - | 36 | 29 | 47,0 | 0507 | ● | ● | ○ | ○ |
| M52x1,5 | 1,5 | 140 | 25 | - | 40 | 32 | 50,5 | 0525 | ● | ● | ○ | ○ |
| M52x2 | 2,0 | 140 | 36 | - | 40 | 32,0 | 50,00 | 0526 | ○ | ○ | ○ | ○ |
| M52x3 | 3,0 | 140 | 36 | - | 40 | 32,0 | 49,00 | 0527 | ● | ● | ○ | ○ |
| M52x4 | 4,0 | 180 | 55 | - | 40 | 32,0 | 48,00 | 0528 | ○ | ○ | ○ | ○ |



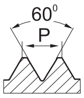


**Example of order**

**A1-220001-0425**
**KPL/2 M42x1,5-6H DIN-2181 HSS**

● **Available from stock**
○ **On request**

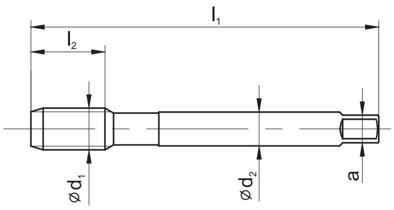
## ISO Metric fine thread DIN-13




HSSE PM

TC

DIN 2181




| | HRC40 | |
|---|---|---|
| | KPL/2 | F |
| |  |  |
| | Nr1-P F | F |
| Material groups | P H | P H |
| Hole type | < 1,5d | < 1,5d |
| Quality of material | HSSE-PM | HSSE-PM |
| Coating | TC | TC |
| Chamfer | | ~3P |

| M Ød1 | P | l1 | l2 | l3 | Ød2 | a | d | Norm | DIN-2181 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Tol. | 6HX | |
| | | | | | | | | INDEX | A4-225D51 | A4-202D51 |
| M8x1 | 1,0 | 63 | 18 | - | 6 | 4,9 | 7,0 | 0083 | ● | ○ |
| M10x1 | 1,0 | 63 | 18 | - | 7 | 5,5 | 9,0 | 0103 | ● | ● |
| M12x1,5 | 1,5 | 70 | 20 | - | 9 | 7,0 | 10,5 | 0125 | ● | ● |
| M16x1,5 | 1,5 | 70 | 22 | - | 12 | 9,0 | 14,5 | 0165 | ● | ● |

i

**Taps set HRC40 suitable for hardened steels up to 40HRC**

**Instruction of proper use HRC40 taps:**

1. Maximum threading depth 1,5xD
2. Rigourosly respect sequence of tapping procedure for hand taps sets using tap numbers in corect order
3. Plese use only high qualiy cutting fluids (for example TEREBOR distributed by Fanar)
4. Carefully clear each tap from chips before next usage
5. Do not reverse the tap revolution before reach full depth of cut)

**Taps F suitable for thread shape correction after hardening processor material galvanizing operations**

**Instruction of proper use F taps:**

1. Please clean the threaded hole from mechanical impurities
2. Moisten bothe the tap and the hole with good quality tapping fluid (for example CIMTAP, TEREBOR or machine oil)
3. Enter tap into a hole by hand and make thread correction
4. Carefully clear each tap from chips before next usage



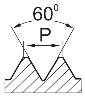
4

Example of order

A4-225D51-0083
KPL/2 HRC40 M10x1-6HX DIN-2181 HSSE-PM TC

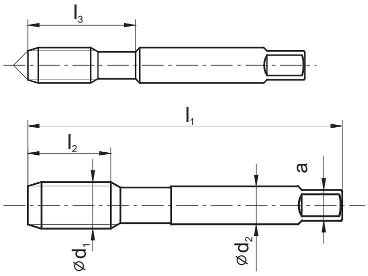
● Available from stock
○ On request

## American unified coarse thread
## UNC, ANSI B-1.1




HSS

DIN 352




| | KPL/3 | F |
|---|---|---|
| |  Nr1 Nr2 F |  F |
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 2,5d | < 2,5d |
| Quality of material | HSS | HSS |
| Coating | | |
| Chamfer | | ~2P |

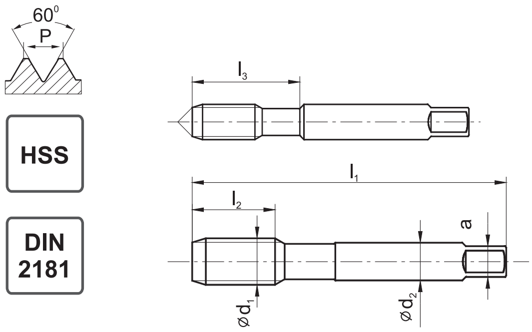
| UNC | Ød1 | 1"/P | P | l1 | l2 | l3 | Ød2 | a | d | Norm / Tol. / INDEX | DIN-352 2B A1-230001 | DIN-352 2B A1-233001 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No2-56 | 2,184 | 56 | 0,454 | 36 | 10 | 10 | 2,8 | 2,1 | 1,85 | 4102 | ○ | ○ |
| No4-40 | 2,844 | 40 | 0,635 | 40 | 10 | 18 | 3,5 | 2,7 | 2,35 | 4104 | ● | ● |
| No5-40 | 3,175 | 40 | 0,640 | 42 | 10 | 18 | 3,5 | 2,7 | 2,65 | 4105 | ● | ● |
| No6-32 | 3,505 | 32 | 0,794 | 45 | 11 | 18 | 4,0 | 3,0 | 2,85 | 4106 | ● | ● |
| No8-32 | 4,166 | 32 | 0,794 | 48 | 12 | 23 | 4,5 | 3,4 | 3,50 | 4108 | ● | ● |
| No10-24 | 4,826 | 24 | 1,058 | 52 | 14 | 26 | 6,0 | 4,9 | 3,90 | 4110 | ● | ● |
| No12-24 | 5,486 | 24 | 1,058 | 56 | 16 | 27 | 6,0 | 4,9 | 4,50 | 4112 | ○ | ○ |
| 1/4-20 | 6,350 | 20 | 1,270 | 56 | 16 | 27 | 6,0 | 4,9 | 5,10 | 4127 | ● | ● |
| 5/16-18 | 7,938 | 18 | 1,411 | 63 | 20 | - | 6,0 | 4,9 | 6,60 | 4128 | ● | ● |
| 3/8-16 | 9,525 | 16 | 1,588 | 70 | 22 | - | 7,0 | 5,5 | 8,00 | 4129 | ● | ● |
| 7/16-14 | 11,112 | 14 | 1,814 | 70 | 22 | - | 8,0 | 6,2 | 9,40 | 4130 | ● | ● |
| 1/2-13 | 12,700 | 13 | 1,954 | 80 | 25 | - | 9,0 | 7,0 | 10,80 | 4131 | ● | ● |
| 9/16-12 | 14,288 | 12 | 2,117 | 80 | 26 | - | 11,0 | 9,0 | 12,20 | 4132 | ○ | ○ |
| 5/8-11 | 15,875 | 11 | 2,309 | 80 | 27 | - | 12,0 | 9,0 | 13,50 | 4133 | ● | ● |
| 3/4-10 | 19,050 | 10 | 2,504 | 95 | 30 | - | 14,0 | 11,0 | 16,50 | 4135 | ● | ● |
| 7/8-9 | 22,225 | 9 | 2,822 | 100 | 32 | - | 18,0 | 14,5 | 19,50 | 4137 | ● | ● |
| 1-8 | 25,400 | 8 | 3,175 | 110 | 36 | - | 18,0 | 14,5 | 22,25 | 4139 | ● | ● |
| 1.1/8-7 | 28,575 | 7 | 3,629 | 125 | 40 | - | 22,0 | 18,0 | 25,00 | 4141 | ○ | ○ |
| 1.1/4-7 | 31,750 | 7 | 3,629 | 125 | 40 | - | 22,0 | 18,0 | 28,00 | 4143 | ○ | ○ |
| 1.3/8-6 | 34,925 | 6 | 4,233 | 150 | 50 | - | 28,0 | 22,0 | 30,75 | 4145 | ○ | ○ |
| 1.1/2-6 | 38,100 | 6 | 4,233 | 150 | 50 | - | 28,0 | 22,0 | 34,00 | 4147 | ○ | ○ |
| 1.3/4-5 | 44,450 | 5 | 5,080 | 160 | 58 | - | 36,0 | 29,0 | 39,50 | 4151 | ○ | ○ |
| 2-4.1/2 | 50,800 | 4 1/2 | 5,645 | 180 | 70 | - | 40,0 | 32,0 | 45,00 | 4155 | ○ | ○ |

**Example of order**

**A1-230001-4104**
**KPL/3 No 4-40 UNC 2B DIN-352 HSS**

● **Available from stock**
○ **On request**

## American unified fine thread UNF, ANSI B-1.1




**HSS**

**DIN 2181**


| | KPL/2 | F | | | | |
|---|---|---|---|---|---|---|
| Material groups | P | P | | | | |
| Hole type | < 2,5d | < 2,5d | | | | |
| Quality of material | HSS | HSS | | | | |
| Coating | | | | | | |
| Chamfer | | ~2P | | | | |

| UNF | Ød1 | 1"/P | P | l1 | l2 | l3 | Ød2 | a | d | Norm / Tol. / INDEX | DIN-2181 2B A1-220001 | DIN-2181 2B A1-222001 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No 5-44 | 3,175 | 44 | 0,577 | 42 | 10 | 18 | 3,5 | 2,7 | 2,70 | 4205 | ○ | ○ | | | | |
| No 6-40 | 3,505 | 40 | 0,635 | 45 | 11 | 18 | 4,0 | 3,0 | 2,95 | 4206 | ○ | ○ | | | | |
| No 8-36 | 4,166 | 36 | 0,705 | 48 | 12 | 23 | 4,5 | 3,4 | 3,50 | 4208 | ○ | ○ | | | | |
| No 10-32 | 4,826 | 32 | 0,794 | 52 | 14 | 22 | 6,0 | 4,9 | 4,10 | 4210 | ● | ● | | | | |
| No 12-28 | 5,486 | 28 | 0,907 | 56 | 16 | 24 | 6,0 | 4,9 | 4,60 | 4212 | ○ | ○ | | | | |
| 1/4-28 | 6,350 | 28 | 0,907 | 56 | 16 | 24 | 6,0 | 4,9 | 5,50 | 4227 | ● | ● | | | | |
| 5/16-24 | 7,938 | 24 | 1,058 | 63 | 17 | - | 6,0 | 4,9 | 6,90 | 4228 | ○ | ○ | | | | |
| 3/8-24 | 9,525 | 24 | 1,058 | 63 | 18 | - | 7,0 | 5,5 | 8,50 | 4229 | ● | ● | | | | |
| 7/16-20 | 11,112 | 20 | 1,270 | 70 | 22 | - | 8,0 | 6,2 | 9,90 | 4230 | ● | ● | | | | |
| 1/2-20 | 12,700 | 20 | 1,270 | 70 | 20 | - | 9,0 | 7,0 | 11,50 | 4231 | ● | ● | | | | |
| 9/16-18 | 14,288 | 18 | 1,411 | 80 | 20 | - | 12,0 | 9,0 | 12,90 | 4232 | ● | ○ | | | | |
| 5/8-18 | 15,875 | 18 | 1,411 | 80 | 22 | - | 12,0 | 9,0 | 14,50 | 4233 | ○ | ○ | | | | |
| 3/4-16 | 16,050 | 16 | 1,588 | 80 | 22 | - | 14,0 | 11,0 | 17,50 | 4235 | ● | ● | | | | |
| 7/8-14 | 22,225 | 14 | 1,814 | 80 | 22 | - | 18,0 | 14,5 | 20,40 | 4237 | ○ | ○ | | | | |
| 1-12 | 25,400 | 12 | 2,117 | 90 | 22 | - | 18,0 | 14,5 | 23,25 | 4239 | ● | ● | | | | |
| 1.1/8-12 | 28,575 | 12 | 2,117 | 90 | 22 | - | 22,0 | 18,0 | 26,50 | 4241 | ○ | ○ | | | | |
| 1.1/4-12 | 31,750 | 12 | 2,117 | 90 | 22 | - | 22,0 | 18,0 | 29,50 | 4243 | ○ | ○ | | | | |
| 1.3/8-12 | 34,925 | 12 | 2,117 | 125 | 36 | - | 28,0 | 22,0 | 32,75 | 4245 | ○ | ○ | | | | |
| 1.1/2-12 | 38,100 | 12 | 2,117 | 125 | 36 | - | 28,0 | 22,0 | 36,00 | 4247 | ○ | ○ | | | | |

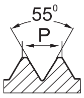


**Example of order**

**A1-220001-4210**
**KPL/2 No 10-32 UNF 2B DIN-2128 HSS**

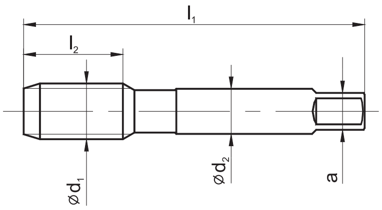
● **Available from stock**
○ **On request**

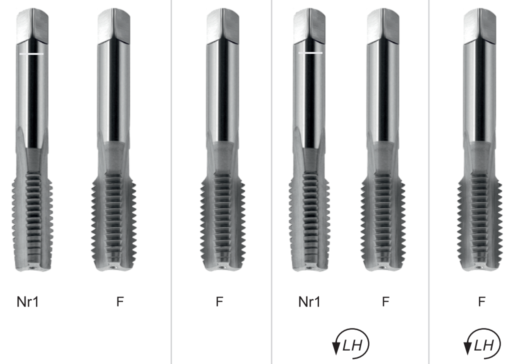
## Whitworth pipe thread G, DIN-ISO 228




**HSS**

**DIN 5157**




| | KPL/2 | F | KPL/2-LH | F-LH |
|---|---|---|---|---|
| Material groups | P M K N S H | P M K N S H | P M K N S H | P M K N S H |
| Hole type | < 2,5d | < 2,5d | < 2,5d | < 2,5d |
| Quality of material | HSS | HSS | HSS | HSS |
| Coating | | | | |
| Chamfer | | ~2P | | ~2P |

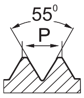
| G | Ød1 | 1"/P | P | l1 | l2 | l3 | Ød2 | a | d | Norm | DIN-5157 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Tol. | | | | |
| | | | | | | | | | | INDEX | A1-220001 | A1-222001 | A1-260001 | A1-262001 |
| G1/16 | 7,723 | 28 | 0,907 | 56 | 22 | 26 | 6 | 4,9 | 6,80 | 3121 | ○ | ○ | ○ | ○ |
| G1/8 | 9,728 | 28 | 0,907 | 63 | 20 | 27 | 7 | 5,5 | 8,80 | 3123 | ● | ● | ○ | ○ |
| G1/4 | 13,157 | 19 | 1,337 | 70 | 22 | 32 | 11 | 9,0 | 11,80 | 3127 | ● | ● | ○ | ○ |
| G3/8 | 16,662 | 19 | 1,337 | 70 | 22 | 32 | 12 | 9,0 | 15,25 | 3129 | ● | ● | ● | ● |
| G1/2 | 20,955 | 14 | 1,814 | 80 | 22 | 35 | 16 | 12,0 | 19,00 | 3131 | ● | ● | ● | ● |
| G5/8 | 22,911 | 14 | 1,814 | 80 | 22 | - | 18 | 14,5 | 21,00 | 3133 | ● | ● | ○ | ○ |
| G3/4 | 26,441 | 14 | 1,814 | 90 | 22 | - | 20 | 16,0 | 24,50 | 3135 | ● | ● | ● | ● |
| G7/8 | 30,201 | 14 | 1,814 | 90 | 22 | - | 22 | 18,0 | 28,25 | 3137 | ● | ● | ○ | ○ |
| G1 | 33,249 | 11 | 2,309 | 100 | 25 | - | 25 | 20,0 | 30,75 | 3139 | ● | ● | ● | ● |
| G1.1/8 | 37,897 | 11 | 2,309 | 125 | 36 | - | 28 | 22,0 | 35,50 | 3141 | ○ | ○ | ○ | ○ |
| G1.1/4 | 41,910 | 11 | 2,309 | 125 | 36 | - | 32 | 24,0 | 39,50 | 3143 | ● | ● | ○ | ○ |
| G1.3/8 | 44,323 | 11 | 2,309 | 125 | 36 | - | 36 | 29,0 | 41,75 | 3145 | ○ | ○ | ○ | ○ |
| G1.1/2 | 47,803 | 11 | 2,309 | 140 | 40 | - | 36 | 29,0 | 45,25 | 3147 | ● | ● | ○ | ○ |
| G1.3/4 | 53,769 | 11 | 2,309 | 140 | 40 | - | 40 | 32,0 | 51,00 | 3151 | ○ | ○ | ○ | ○ |
| G2 | 59,614 | 11 | 2,309 | 160 | 40 | - | 45 | 35,0 | 57,00 | 3155 | ○ | ○ | ○ | ○ |

**Example of order**

**A1-220001-3123**
**KPL/2 G-1/8" DIN-5157 HSS**

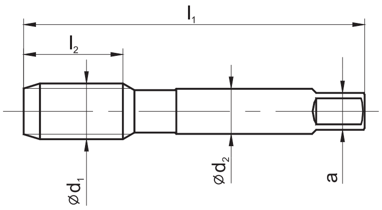
● **Available from stock**
○ **On request**

## Whitworth pipe thread G, DIN-ISO 228




HSSE PM

DIN 5157





| | INOX | | | |
|---|---|---|---|---|
| | | F | KPL/2 | |
| Material groups | P M K N S H | P M K N S H | P M K N S H | |
| Hole type | | < 1,5d | < 1,5d | |
| Quality of material | HSSE-PM | HSSE-PM | HSSE-PM | |
| Coating | | | | |
| Chamfer | 4P | 3P | | |

| G | $\varnothing d_1$ | 1"/P | P | $l_1$ | $l_2$ | $\varnothing d_2$ | a | d | Norm / Tol. / INDEX | DIN-5157 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | INDEX | A2-205801 | A2-202801 | A2-225801 | |
| G-1/8" | 9,728 | 28 | 0,907 | 63 | 18 | 7 | 5,5 | 8,8 | 3123 | ○ | ○ | ○ | |
| G-1/4" | 13,157 | 19 | 1,337 | 70 | 22 | 11 | 9 | 11,8 | 3127 | ○ | ○ | ○ | |
| G-3/8" | 16,662 | 19 | 1,337 | 70 | 22 | 12 | 9 | 15,25 | 3129 | ○ | ○ | ○ | |
| G-1/2" | 20,955 | 14 | 1,814 | 80 | 22 | 16 | 12 | 19,0 | 3131 | ○ | ○ | ○ | |

4

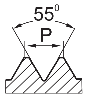
**Example of order**

**A2-225801-3123**
**KPL/2 G-1/8" DIN-5157 HSS**

● **Available from stock**
○ **On request**

## Whitworth pipe thread G, DIN-ISO 228

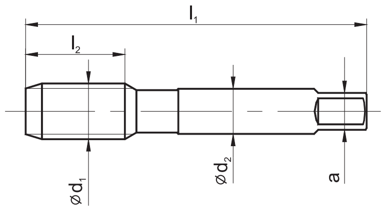
**HRC40**




HSSE PM

TC

DIN 5157





| | KPL/2 | F |
|---|---|---|
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 1,5d | < 1,5d |
| Quality of material | HSSE-PM | HSSE-PM |
| Coating | TC | TC |
| Chamfer | | ~2P |

| G | $\varnothing d_1$ | 1"/P | P | $l_1$ | $l_2$ | $\varnothing d_2$ | a | d | Norm / Tol. / INDEX | DIN-5157 A4-225D51 | A4-202D51 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| G-1/8" | 9,728 | 28 | 0,907 | 63 | 18 | 7,0 | 5,5 | 8,80 | 3123 | ● | ● |
| G-1/4" | 13,157 | 19 | 1,337 | 70 | 22 | 11,0 | 9,0 | 11,80 | 3127 | ● | ● |
| G-3/8" | 16,662 | 19 | 1,337 | 70 | 22 | 12,0 | 9,0 | 15,25 | 3129 | ● | ● |
| G-1/2" | 20,955 | 14 | 1,814 | 80 | 22 | 16,0 | 12,0 | 19,00 | 3131 | ● | ● |

*i*

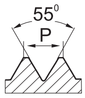
**Taps set HRC40 suitable for hardened steels up to 40HRC**
**Instruction of proper use HRC40 taps:**
1. Maximum threading depth 1,5xD
2. Rigourosly respect sequence of tapping procedure for hand taps sets using tap numbers in corect order
3. Plese use only high qualiy cutting fluids (for example TEREBOR distributed by Fanar)
4. Carefully clear each tap from chips before next usage
5. Do not reverse the tap revolution before reach full depth of cut)

**Taps F suitable for thread shape correction after hardening processor material galvanizing operations**
**Instruction of proper use F taps:**
1. Please clean the threaded hole from mechanical impurities
2. Moisten bothe the tap and the hole with good quality tapping fluid (for example CIMTAP, TEREBOR or machine oil)
3. Enter tap into a hole by hand and make thread correction
4. Carefully clear each tap from chips before next usage

Example of order
A4-225D51-3123
KPL/2 HRC40 G-1/8" DIN-5157 HSSE-PM TC

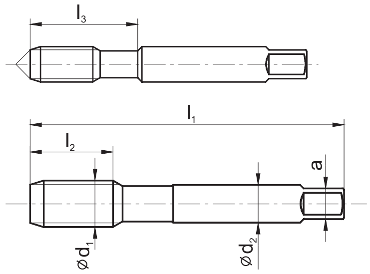
● Available from stock
○ On request

## Whitworth thread BSW, BS-84:1956




HSS

DIN 352




| | KPL/3 | F |
|---|---|---|
| |  | |
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 2,5d | < 2,5d |
| Quality of material | HSS | HSS |
| Coating | | |
| Chamfer | | ~2P |

| BSW | $\varnothing d_1$ | 1"/P | P | $l_1$ | $l_2$ | $l_3$ | $\varnothing d_2$ | a | d | Norm / Tol. / INDEX | DIN-352 normal A1-230001 | DIN-352 normal A1-233001 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/8-40 | 3,180 | 40 | 0,635 | 42 | 10 | 18 | 3,5 | 2,7 | 2,55 | 7123 | ● | ● | | |
| 3/16-24 | 4,760 | 24 | 1,058 | 52 | 14 | 26 | 6 | 4,9 | 3,70 | 7125 | ● | ● | | |
| 1/4-20 | 6,35 | 20 | 1,270 | 56 | 16 | 27 | 6 | 4,9 | 5,10 | 7127 | ● | ● | | |
| 5/16-18 | 7,938 | 18 | 1,411 | 63 | 20 | - | 6 | 4,9 | 6,50 | 7128 | ○ | ○ | | |
| 3/8-16 | 9,525 | 16 | 1,588 | 70 | 22 | - | 7 | 5,5 | 7,90 | 7129 | ● | ● | | |
| 7/16-14 | 11,112 | 14 | 1,814 | 70 | 22 | - | 8 | 6,2 | 9,25 | 7130 | ○ | ○ | | |
| 1/2-12 | 12,7 | 12 | 2,117 | 80 | 25 | - | 9 | 7,0 | 10,50 | 7131 | ● | ● | | |
| 9/16-12 | 14,288 | 12 | 2,117 | 80 | 26 | - | 11 | 9,0 | 12,00 | 7132 | ○ | ○ | | |
| 5/8-11 | 15,875 | 11 | 2,309 | 80 | 27 | - | 12 | 9,0 | 13,50 | 7133 | ○ | ○ | | |
| 3/4-10 | 19,050 | 10 | 2,504 | 95 | 30 | - | 14 | 11,0 | 16,40 | 7135 | ● | ● | | |
| 7/8-9 | 22,225 | 9 | 2,822 | 100 | 32 | - | 18 | 14,5 | 19,25 | 7137 | ○ | ○ | | |
| 1-8 | 25,400 | 8 | 3,175 | 110 | 36 | - | 18 | 14,5 | 22,00 | 7139 | ● | ● | | |
| 1.1/8-7 | 28,575 | 7 | 3,629 | 125 | 40 | - | 22 | 18,0 | 24,75 | 7141 | ○ | ○ | | |
| 1.1/4-7 | 31,750 | 7 | 3,629 | 125 | 40 | - | 22 | 18,0 | 27,75 | 7143 | ○ | ○ | | |
| 1.1/2-6 | 38,100 | 6 | 4,233 | 150 | 50 | - | 28 | 22,0 | 33,50 | 7147 | ○ | ○ | | |
| 1.3/4-5 | 44,450 | 5 | 5,080 | 160 | 58 | - | 36 | 29,0 | 39,00 | 7151 | ○ | ○ | | |
| 2-4.1/2 | 50,800 | 4 1/2 | 5,645 | 180 | 70 | - | 40 | 32,0 | 44,50 | 7155 | ○ | ○ | | |

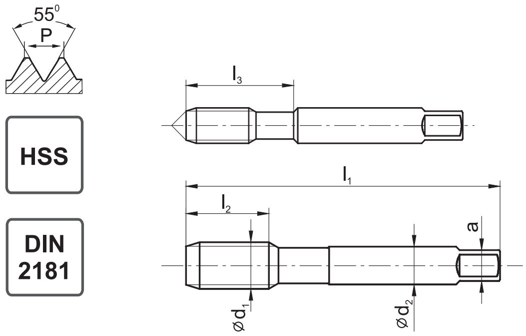
4

**Example of order**

**A1-230001-7123**
**KPL/3 1/8-40 BSW DIN-352 HSS**

● **Available from stock**
○ **On request**

## British Whitworth fine thread BSF, BS-84:1956




HSS

DIN 2181

| | KPL/2 | F |
|---|---|---|
| |  Nr1 F | F |
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 2,5d | < 2,5d |
| Quality of material | HSS | HSS |
| Coating | | |
| Chamfer | | ~2P |

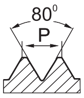
| BSF | $\varnothing d_1$ | 1"/P | P | $l_1$ | $l_2$ | $l_3$ | $\varnothing d_2$ | a | d | Norm / Tol. / INDEX | DIN-2181 normal A1-220001 | DIN-2181 normal A1-222001 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3/16-32 | 4,762 | 32 | 0,794 | 50 | 14 | 25 | 6 | 4,9 | 4,00 | 7225 | ● | ● |
| 1/4-26 | 6,350 | 26 | 0,977 | 56 | 14 | 21 | 6 | 4,9 | 5,30 | 7227 | ● | ● |
| 5/16-22 | 7,937 | 22 | 1,155 | 63 | 19 | - | 6 | 4,9 | 6,80 | 7228 | ○ | ○ |
| 3/8-20 | 9,525 | 20 | 1,270 | 70 | 20 | - | 7 | 5,5 | 8,30 | 7229 | ● | ● |
| 7/16-18 | 11,112 | 18 | 1,411 | 70 | 20 | - | 8 | 6,2 | 9,70 | 7230 | ○ | ○ |
| 1/2-16 | 12,700 | 16 | 1,588 | 70 | 20 | - | 9 | 7,0 | 11,10 | 7231 | ● | ● |
| 9/16-16 | 14,288 | 16 | 1,588 | 80 | 20 | - | 12 | 9,0 | 12,70 | 7232 | ○ | ○ |
| 5/8-14 | 15,875 | 14 | 1,814 | 80 | 27 | - | 12 | 9,0 | 14,00 | 7233 | ○ | ○ |
| 3/4-12 | 19,050 | 12 | 2,117 | 80 | 22 | - | 14 | 11,0 | 16,75 | 7235 | ● | ● |
| 7/8-11 | 22,225 | 11 | 2,309 | 80 | 22 | - | 18 | 14,5 | 19,75 | 7237 | ○ | ○ |
| 1-10 | 25,400 | 10 | 2,504 | 110 | 36 | - | 18 | 14,5 | 22,75 | 7239 | ● | ● |

**Example of order**

**A1-220001-7225**
**KPL/2 3/16-32 BSF DIN-2181 HSS**

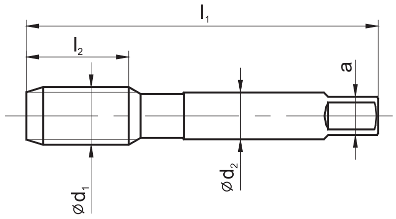
● **Available from stock**
○ **On request**

## Steel conduit thread Pg DIN-40430




HSS

NGSy





| | KPL/2 | F |
|---|---|---|
| Material groups | P M K N S H | P M K N S H |
| Hole type | < 2,5d | < 2,5d |
| Quality of material | HSS | HSS |
| Coating | | |
| Chamfer | | ~2P |

| Pg | Ød1 | 1"/P | P | l1 | l2 | l3 | Ød2 | a | d | Norm / Tol. / INDEX | NGSy A1-320001 | NGSy A1-322001 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pg7 | 12,5 | 20 | 1,270 | 65 | 18 | - | 9,0 | 7,1 | 11,35 | 8807 | ● | ● |
| Pg9 | 15,2 | 18 | 1,411 | 70 | 20 | - | 12,5 | 10,0 | 13,95 | 8809 | ● | ● |
| Pg11 | 18,6 | 18 | 1,411 | 75 | 22 | - | 16,0 | 12,5 | 17,35 | 8811 | ● | ● |
| Pg13,5 | 20,4 | 18 | 1,411 | 80 | 22 | - | 18,0 | 14,0 | 19,15 | 8813 | ● | ● |
| Pg16 | 22,5 | 18 | 1,411 | 85 | 22 | - | 20,0 | 16,0 | 21,25 | 8816 | ● | ● |
| Pg21 | 28,3 | 16 | 1,588 | 95 | 25 | - | 25,0 | 20,0 | 26,95 | 8821 | ● | ● |
| Pg29 | 37,0 | 16 | 1,588 | 105 | 28 | - | 31,5 | 25,0 | 35,60 | 8829 | ● | ● |
| Pg36 | 47,0 | 16 | 1,588 | 120 | 32 | - | 40,0 | 31,5 | 45,60 | 8836 | ○ | ○ |
| Pg42 | 54,0 | 16 | 1,588 | 130 | 36 | - | 40,0 | 31,5 | 52,60 | 8842 | ○ | ○ |

**Pg thread is replaced by metric fine MF according to DIN EN 60423 available on request**



**Example of order**

**A1-320001-8807**
**KPL/2 Pg7 NGSy HSS**

● **Available from stock**
○ **On request**

# Screwing Dies

# SCREWING DIES

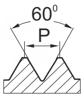
PAGE



| | | | |
|---|---|---|---|
| M | DIN-EN 22568 | 800 800 SPN Ms INOX | 115 |
| MF | DIN-EN 22568 | 800 800 SPN Ms INOX | 116-118 |
| UNC | DIN-EN 22568 | 800 | 119 |
| UNF | DIN-EN 22568 | 800 | 120 |
| G | DIN-EN 24231 | 800 Ms INOX | 121 |
| R | DIN-EN 24230 | 800 | 122 |
| BSW | DIN-EN 22568 | 800 | 123 |
| BSF | DIN-EN 22568 | 800 | 124 |
| NPT | DIN-EN 24230 | 800 | 125 |

## ISO Metric coarse thread DIN-13

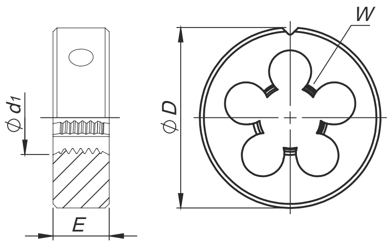
| | 800 | 800 LH | 800 SPN | Ms | INOX |
|---|---|---|---|---|---|




HSS

HSSE

DIN-EN 22 568




LH

*SPN - Spiral point

| | 800 | 800 LH | 800 SPN | Ms | INOX |
|---|---|---|---|---|---|
| Material groups | P N | P N | P N | K N | P M N |
| Execution | | LH | SPN* | | SPN |
| Quality of material | HSS | HSS | HSS | HSS | HSSE |
| Chamfer | 1,75P | 1,75P | 1,75P | 1,25P | 2,25P |

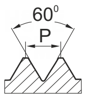
| M Ć $d_1$ | P | Ć DxE | W | $d_2$ | Norm / Tol. / INDEX | DIN-EN 22 568 6g N1-121001 | 6g N1-111001 | 6g N1-141001 | 6g N1-164001 | 6g N2-188001 |
|---|---|---|---|---|---|---|---|---|---|---|
| M 1 | 0,25 | 16 x 5 | 3 | 0,96 | 0010 | ● | - | - | - | - |
| M 1,1 | 0,25 | 16 x 5 | 3 | 1,05 | 0011 | ● | - | - | - | - |
| M 1,2 | 0,25 | 16 x 5 | 3 | 1,15 | 0012 | ● | - | - | - | - |
| M 1,4 | 0,3 | 16 x 5 | 3 | 1,35 | 0014 | ● | - | - | - | - |
| M 1,6 | 0,35 | 16 x 5 | 3 | 1,55 | 0016 | ● | - | - | - | - |
| M 1,8 | 0,35 | 16 x 5 | 3 | 1,75 | 0018 | ● | - | - | - | - |
| M 2 | 0,4 | 16 x 5 | 3 | 1,95 | 0020 | ● | - | - | - | - |
| M 2,2 | 0,45 | 16 x 5 | 3 | 2,15 | 0022 | ● | - | - | - | - |
| M 2,5 | 0,45 | 16 x 5 | 3 | 2,42 | 0025 | ● | - | - | - | - |
| M 3 | 0,5 | 20 x 5 | 3 | 2,92 | 0030 | ● | ● | ● | ● | ● |
| M 3,5 | 0,6 | 20 x 5 | 3 | 3,41 | 0035 | ● | ○ | ● | ○ | ○ |
| M 4 | 0,7 | 20 x 5 | 3 | 3,90 | 0040 | ● | ● | ● | ● | ● |
| M 4,5 | 0,75 | 20 x 7 | 3 | 4,40 | 0045 | ● | ○ | ● | ○ | ○ |
| M 5 | 0,8 | 20 x 7 | 3 | 4,90 | 0050 | ● | ● | ● | ● | ● |
| M 6 | 1 | 20 x 7 | 4 | 5,88 | 0060 | ● | ● | ● | ● | ● |
| M 7 | 1 | 25 x 9 | 4 | 6,88 | 0070 | ● | ○ | ● | ○ | ○ |
| M 8 | 1,25 | 25 x 9 | 4 | 7,86 | 0080 | ● | ● | ● | ● | ● |
| M 9 | 1,25 | 25 x 9 | 4 | 8,86 | 0090 | ● | ○ | ● | ○ | ○ |
| M 10 | 1,5 | 30 x 11 | 4 | 9,85 | 0100 | ● | ● | ● | ● | ● |
| M 11 | 1,5 | 30 x 11 | 4 | 10,85 | 0110 | ● | ○ | ● | ○ | ○ |
| M 12 | 1,75 | 38 x 14 | 4 | 11,83 | 0120 | ● | ● | ● | ○ | ● |
| M 14 | 2 | 38 x 14 | 4 | 13,82 | 0140 | ● | ● | ● | ○ | ● |
| M 16 | 2 | 45 x 18 | 5 | 15,82 | 0160 | ● | ● | ● | ○ | ● |
| M 18 | 2,5 | 45 x 18 | 5 | 17,79 | 0180 | ● | ● | ● | ○ | ● |
| M 20 | 2,5 | 45 x 18 | 5 | 19,79 | 0200 | ● | ● | ● | ○ | ● |
| M 22 | 2,5 | 55 x 22 | 5 | 21,79 | 0220 | ● | ● | ● | ○ | ● |
| M 24 | 3 | 55 x 22 | 5 | 23,76 | 0240 | ● | ● | ● | ○ | ● |
| M 27 | 3 | 65 x 25 | 5 | 26,76 | 0270 | ● | ● | ● | ○ | ● |
| M 30 | 3,5 | 65 x 25 | 6 | 29,73 | 0300 | ● | ● | ● | ○ | ● |
| M 33 | 3,5 | 65 x 25 | 6 | 32,73 | 0330 | ● | ● | ● | ○ | ○ |
| M 36 | 4 | 65 x 25 | 7 | 35,70 | 0360 | ● | ● | ● | ○ | ○ |
| M 39 | 4 | 75 x 30 | 7 | 38,70 | 0390 | ● | ○ | ○ | ○ | ○ |
| M 42 | 4,5 | 75 x 30 | 7 | 41,68 | 0420 | ● | ○ | ○ | ○ | ○ |
| M 45 | 4,5 | 90 x 36 | 7 | 44,68 | 0450 | ● | ○ | ○ | ○ | ○ |
| M 48 | 5 | 90 x 36 | 7 | 47,66 | 0480 | ● | ○ | ○ | ○ | ○ |
| M 52 | 5 | 90 x 36 | 8 | 51,66 | 0520 | ● | ○ | ○ | ○ | ○ |
| M 56 | 5,5 | 105 x 36 | 7 | 55,65 | 0560 | ○ | ○ | ○ | ○ | ○ |
| M 60 | 5,5 | 105 x 36 | 8 | 59,65 | 0600 | ○ | ○ | ○ | ○ | ○ |
| M 64 | 6 | 120 x 36 | 7 | 63,62 | 0640 | ○ | ○ | ○ | ○ | ○ |
| M 68 | 6 | 120 x 36 | 8 | 67,62 | 0680 | ○ | ○ | ○ | ○ | ○ |

**Example of order**

**N1-121001-0030**
**DIN-EN 22 568 M3-6g HSS 800**

● **Available from stock**
○ **On request**

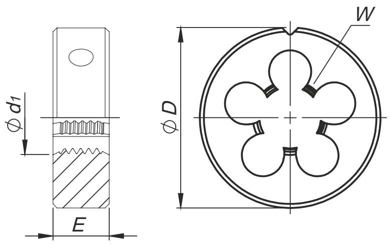
## ISO Metric fine thread DIN-13




HSS

HSSE

DIN-EN 22 568




LH

*SPN - Spiral point

| ISO Metric fine thread DIN-13 | 800 | 800 | 800 SPN | Ms | INOX |
|---|---|---|---|---|---|
| Material groups | P N | P N | P N | K N | P M N |
| Execution | | LH | SPN | | SPN |
| Quality of material | HSS | HSS | HSS | HSS | HSSE |
| Chamfer | 1,75P | 1,75P | 1,75P | 1,25P | 2,25P |

| M Ćd1 | P | ĆDxE | W | ød | Norm | DIN-EN 22 568 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Tol. | 6g | 6g | 6g | 6g | 6g |
| | | | | | INDEX | N1-121001 | N1-111001 | N1-141001 | N1-164001 | N2-188001 |
| M 3,5 x 0,5 | 0,5 | 20 x 5 | 3 | 3,43 | 0037 | ○ | ○ | ○ | ○ | ○ |
| M 4 x 0,5 | 0,5 | 20 x 5 | 4 | 3,92 | 0041 | ● | ○ | ● | ● | ● |
| M 4,5 x 0,5 | 0,5 | 20 x 5 | 4 | 4,43 | 0046 | ○ | ○ | ○ | ○ | ○ |
| M 5 x 0,5 | 0,5 | 20 x 5 | 4 | 4,92 | 0051 | ● | ○ | ● | ● | ● |
| M 5 x 0,75 | 0,75 | 20 x 5 | 4 | 4,91 | 0052 | ○ | ○ | ○ | ○ | ○ |
| M 5,5 x 0,5 | 0,5 | 20 x 5 | 4 | 5,43 | 0056 | ○ | ○ | ○ | ○ | ○ |
| M 5,5 x 0,75 | 0,75 | 20 x 7 | 4 | 5,42 | 0057 | ○ | ○ | ○ | ○ | ○ |
| M 6 x 0,5 | 0,5 | 20 x 5 | 4 | 5,92 | 0061 | ● | ○ | ● | ● | ● |
| M 6 x 0,75 | 0,75 | 20 x 7 | 4 | 5,90 | 0062 | ● | ○ | ● | ● | ● |
| M 7 x 0,75 | 0,75 | 25 x 9 | 4 | 6,90 | 0072 | ● | ○ | ● | ● | ● |
| M 8 x 0,5 | 0,5 | 25 x 9 | 4 | 7,92 | 0081 | ● | ○ | ● | ● | ● |
| M 8 x 0,75 | 0,75 | 25 x 9 | 4 | 7,90 | 0082 | ● | ● | ● | ● | ● |
| M 8 x 1 | 1 | 25 x 9 | 4 | 7,88 | 0083 | ● | ● | ● | ● | ● |
| M 9 x 0,75 | 0,75 | 25 x 9 | 4 | 8,90 | 0092 | ● | ● | ● | ● | ● |
| M 9 x 1 | 1 | 25 x 9 | 4 | 8,88 | 0093 | ● | ● | ● | ● | ● |
| M 10 x 0,75 | 0,75 | 30 x 11 | 4 | 9,90 | 0102 | ● | ● | ● | ● | ● |
| M 10 x 1 | 1 | 30 x 11 | 5 | 9,88 | 0103 | ● | ● | ● | ● | ● |
| M 10 x 1,25 | 1,25 | 30 x 11 | 4 | 9,86 | 0104 | ● | ● | ● | ● | ● |
| M 11 x 0,75 | 0,75 | 30 x 11 | 5 | 10,91 | 0112 | ● | ○ | ● | ● | ● |
| M 11 x 1 | 1 | 30 x 11 | 4 | 10,88 | 0113 | ● | ○ | ● | ● | ● |
| M 12 x 1 | 1 | 38 x 10 | 4 | 11,88 | 0123 | ● | ● | ● | ● | ● |
| M 12 x 1,25 | 1,25 | 38 x 10 | 4 | 11,86 | 0124 | ● | ● | ● | ● | ● |
| M 12 x 1,5 | 1,5 | 38 x 10 | 4 | 11,85 | 0125 | ● | ● | ● | ● | ● |
| M 14 x 1 | 1 | 38 x 10 | 5 | 13,88 | 0143 | ● | ● | ○ | ● | ● |
| M 14 x 1,5 | 1,5 | 38 x 10 | 5 | 13,85 | 0145 | ● | ● | ● | ● | ● |
| M 15 x 1 | 1 | 38 x 10 | 5 | 14,88 | 0153 | ● | ○ | ○ | ● | ● |
| M 15 x 1,5 | 1,5 | 38 x 10 | 5 | 14,85 | 0155 | ● | ○ | ○ | ● | ● |
| M 16 x 1 | 1 | 45 x 14 | 5 | 15,88 | 0163 | ● | ● | ○ | ● | ● |
| M 16 x 1,5 | 1,5 | 45 x 14 | 5 | 15,85 | 0165 | ● | ● | ● | ● | ● |
| M 17 x 1 | 1 | 45 x 14 | 5 | 16,88 | 0173 | ● | ○ | ○ | ● | ● |
| M 17 x 1,5 | 1,5 | 45 x 14 | 5 | 16,85 | 0175 | ● | ○ | ○ | ● | ● |
| M 18 x 1 | 1 | 45 x 14 | 5 | 17,88 | 0183 | ● | ● | ○ | ● | ● |
| M 18 x 1,5 | 1,5 | 45 x 14 | 5 | 17,85 | 0185 | ● | ● | ● | ● | ● |
| M 18 x 2 | 2 | 45 x 14 | 5 | 17,82 | 0186 | ● | ● | ● | ● | ● |
| M 20 x 1 | 1 | 45 x 14 | 6 | 19,80 | 0203 | ● | ● | ● | ● | ● |
| M 20 x 1,5 | 1,5 | 45 x 14 | 6 | 19,85 | 0205 | ● | ● | ● | ● | ● |
| M 20 x 2 | 2 | 45 x 14 | 6 | 19,82 | 0206 | ● | ● | ○ | ● | ● |
| M 22 x 1 | 1 | 55 x 16 | 6 | 21,88 | 0223 | ● | ● | ○ | ● | ● |
| M 22 x 1,5 | 1,5 | 55 x 16 | 6 | 21,85 | 0225 | ● | ● | ● | ● | ● |
| M 22 x 2 | 2 | 55 x 16 | 6 | 21,82 | 0226 | ● | ● | ○ | ● | ● |
| M 24 x 1 | 1 | 55 x 16 | 6 | 23,88 | 0243 | ● | ● | ○ | ● | ● |
| M 24 x 1,5 | 1,5 | 55 x 16 | 6 | 23,85 | 0245 | ● | ● | ● | ● | ● |

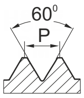
**Example of order**

**N1-121001-0041**
**DIN-EN 22 568 M4x0,5-6g HSS 800**

● **Available from stock**
○ **On request**

## ISO Metric fine thread DIN-13

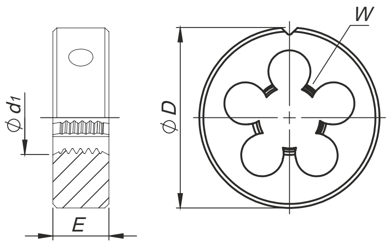
| | 800 | 800 | 800 SPN | Ms | INOX |
|---|---|---|---|---|---|
| Material groups | P N | P N | P N | K N | P M N |
| Execution | | LH | SPN | | SPN |
| Quality of material | HSS | HSS | HSS | HSS | HSSE |
| Chamfer | 1,75P | 1,75P | 1,75P | 1,25P | 2,25P |




HSS

HSSE

DIN-EN 22 568




LH

*SPN - Spiral point

| M Ćd1 | P | ĆDxE | W | d | Norm / Tol. / INDEX | DIN-EN 22 568 6g N1-121001 | 6g N1-111001 | 6g N1-141001 | 6g N1-164001 | 6g N2-188001 |
|---|---|---|---|---|---|---|---|---|---|---|
| M 24 x 2 | 2 | 55 x 16 | 6 | 23,82 | 0246 | ● | ● | ○ | ○ | ○ |
| M 25 x 1 | 1 | 55 x 16 | 6 | 24,88 | 0253 | ● | ○ | ○ | ○ | ○ |
| M 25 x 1,5 | 1,5 | 55 x 16 | 6 | 24,85 | 0255 | ● | ○ | ○ | ○ | ○ |
| M 25 x 2 | 2 | 55 x 16 | 6 | 24,82 | 0256 | ● | ○ | ○ | ○ | ○ |
| M 26 x 1,5 | 1,5 | 55 x 16 | 6 | 25,85 | 0265 | ● | ○ | ○ | ○ | ○ |
| M 27 x 1 | 1 | 65 x 18 | 6 | 26,88 | 0273 | ● | ○ | ○ | ○ | ○ |
| M 27 x 1,5 | 1,5 | 65 x 18 | 6 | 26,85 | 0275 | ● | ○ | ○ | ○ | ○ |
| M 27 x 2 | 2 | 65 x 18 | 6 | 26,82 | 0276 | ● | ○ | ○ | ○ | ○ |
| M 28 x 1 | 1 | 65 x 18 | 6 | 27,88 | 0283 | ● | ○ | ○ | ○ | ○ |
| M 28 x 1,5 | 1,5 | 65 x 18 | 6 | 27,85 | 0285 | ● | ○ | ○ | ○ | ○ |
| M 28 x 2 | 2 | 65 x 18 | 6 | 27,82 | 0286 | ● | ○ | ○ | ○ | ○ |
| M 30 x 1 | 1 | 65 x 18 | 6 | 29,88 | 0303 | ● | ○ | ○ | ○ | ○ |
| M 30 x 1,5 | 1,5 | 65 x 18 | 6 | 29,85 | 0305 | ● | ○ | ○ | ○ | ○ |
| M 30 x 2 | 2 | 65 x 18 | 6 | 29,82 | 0306 | ● | ○ | ○ | ○ | ○ |
| M 30 x 3 | 3 | 65 x 25 | 6 | 29,76 | 0307 | ● | ○ | ○ | ○ | ○ |
| M 32 x 1,5 | 1,5 | 65 x 18 | 7 | 31,85 | 0325 | ● | ○ | ○ | ○ | ○ |
| M 32 x 2 | 2 | 65 x 18 | 7 | 31,82 | 0326 | ● | ○ | ○ | ○ | ○ |
| M 33 x 1,5 | 1,5 | 65 x 18 | 7 | 32,85 | 0335 | ● | ○ | ○ | ○ | ○ |
| M 33 x 2 | 2 | 65 x 18 | 7 | 32,82 | 0336 | ● | ○ | ○ | ○ | ○ |
| M 33 x 3 | 3 | 65 x 25 | 7 | 32,76 | 0337 | ● | ○ | ○ | ○ | ○ |
| M 35 x 1,5 | 1,5 | 65 x 18 | 7 | 34,85 | 0355 | ● | ○ | ○ | ○ | ○ |
| M 36 x 1,5 | 1,5 | 65 x 18 | 7 | 35,85 | 0365 | ● | ○ | ○ | ○ | ○ |
| M 36 x 2 | 2 | 65 x 18 | 7 | 35,82 | 0366 | ● | ○ | ○ | ○ | ○ |
| M 36 x 3 | 3 | 65 x 25 | 7 | 35,76 | 0367 | ● | ○ | ○ | ○ | ○ |
| M 38 x 1,5 | 1,5 | 75 x 20 | 7 | 37,85 | 0385 | ● | ○ | ○ | ○ | ○ |
| M 39 x 1,5 | 1,5 | 75 x 20 | 7 | 38,85 | 0395 | ● | ○ | ○ | ○ | ○ |
| M 39 x 2 | 2 | 75 x 20 | 7 | 38,82 | 0396 | ● | ○ | ○ | ○ | ○ |
| M 39 x 3 | 3 | 75 x 30 | 7 | 38,76 | 0397 | ● | ○ | ○ | ○ | ○ |
| M 40 x 1,5 | 1,5 | 75 x 20 | 7 | 39,85 | 0405 | ● | ○ | ○ | ○ | ○ |
| M 40 x 2 | 2 | 75 x 20 | 7 | 39,82 | 0406 | ● | ○ | ○ | ○ | ○ |
| M 40 x 3 | 3 | 75 x 30 | 7 | 39,76 | 0407 | ● | ○ | ○ | ○ | ○ |
| M 42 x 1,5 | 1,5 | 75 x 20 | 7 | 41,85 | 0425 | ● | ○ | ○ | ○ | ○ |
| M 42 x 2 | 2 | 75 x 20 | 8 | 41,82 | 0426 | ● | ○ | ○ | ○ | ○ |
| M 42 x 3 | 3 | 75 x 30 | 7 | 41,76 | 0427 | ● | ○ | ○ | ○ | ○ |
| M 45 x 1,5 | 1,5 | 90 x 22 | 7 | 44,85 | 0455 | ● | ○ | ○ | ○ | ○ |
| M 45 x 2 | 2 | 90 x 22 | 7 | 44,82 | 0456 | ● | ○ | ○ | ○ | ○ |
| M 45 x 3 | 3 | 90 x 36 | 7 | 44,76 | 0457 | ● | ○ | ○ | ○ | ○ |
| M 48 x 1,5 | 1,5 | 90 x 22 | 7 | 47,85 | 0485 | ● | ○ | ○ | ○ | ○ |
| M 48 x 2 | 2 | 90 x 22 | 7 | 47,82 | 0486 | ● | ○ | ○ | ○ | ○ |
| M 48 x 3 | 3 | 90 x 36 | 7 | 47,76 | 0487 | ● | ○ | ○ | ○ | ○ |
| M 48 x 4 | 4 | 90 x 36 | 7 | 47,73 | 0488 | ● | ○ | ○ | ○ | ○ |
| M 50 x 1,5 | 1,5 | 90 x 22 | 8 | 49,85 | 0505 | ● | ○ | ○ | ○ | ○ |

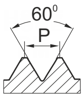
**Example of order**

**N1-121001-0285**
**DIN-EN 22 568 M28x1,5-6g HSS 800**

● **Available from stock**
○ **On request**

## ISO Metric fine thread DIN-13

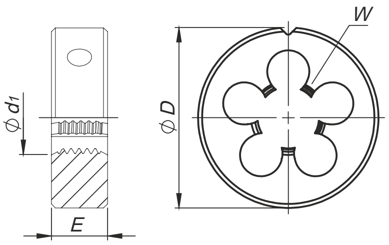
| | 800 | 800 | 800 SPN | Ms | INOX |
|---|---|---|---|---|---|




**HSS**

**HSSE**

**DIN-EN 22 568**




LH

*SPN - Spiral point

| | 800 | 800 | 800 SPN | Ms | INOX |
|---|---|---|---|---|---|
| Material groups | P N | P N | P N | K N | P M N |
| Execution | | LH | SPN | | SPN |
| Quality of material | HSS | HSS | HSS | HSS | HSSE |
| Chamfer | 1,75P | 1,75P | 1,75P | 1,25P | 2,25P |

| M Ćd1 | P | Ć DxE | W | ød | Norm / Tol. / INDEX | DIN-EN 22 568 6g N1-121001 | DIN-EN 22 568 6g N1-111001 | DIN-EN 22 568 6g N1-141001 | DIN-EN 22 568 6g N1-164001 | DIN-EN 22 568 6g N2-188001 |
|---|---|---|---|---|---|---|---|---|---|---|
| M 50 x 2 | 2 | 90 x 22 | 8 | 49,82 | 0506 | ● | ○ | ○ | ○ | ○ |
| M 50 x 3 | 3 | 90 x 36 | 8 | 49,76 | 0507 | ● | ○ | ○ | ○ | ○ |
| M 52 x 1,5 | 1,5 | 90 x 22 | 8 | 51,85 | 0525 | ● | ○ | ○ | ○ | ○ |
| M 52 x 2 | 2 | 90 x 22 | 8 | 51,82 | 0526 | ● | ○ | ○ | ○ | ○ |
| M 52 X 3 | 3 | 90 x 36 | 8 | 51,76 | 0527 | ● | ○ | ○ | ○ | ○ |
| M 52 x 4 | 4 | 90 x 36 | 8 | 51,73 | 0528 | ● | ○ | ○ | ○ | ○ |
| M 55 x 1,5 | 1,5 | 105 x 22 | 8 | 54,85 | 0555 | ○ | ○ | ○ | ○ | ○ |
| M 55 x 2 | 2 | 105 x 22 | 7 | 54,82 | 0556 | ○ | ○ | ○ | ○ | ○ |
| M 55 x 3 | 3 | 105 x 36 | 7 | 54,76 | 0557 | ○ | ○ | ○ | ○ | ○ |
| M 55 x 4 | 4 | 105 x 36 | 7 | 54,73 | 0558 | ○ | ○ | ○ | ○ | ○ |
| M 56 x 1,5 | 2 | 105 x 22 | 8 | 55,85 | 0565 | ○ | ○ | ○ | ○ | ○ |
| M 56 x 2 | 2 | 105 x 22 | 8 | 55,82 | 0566 | ○ | ○ | ○ | ○ | ○ |
| M 56 x 3 | 3 | 105 x 36 | 8 | 55,76 | 0567 | ○ | ○ | ○ | ○ | ○ |
| M 56 x 4 | 4 | 105 x 36 | 7 | 55,73 | 0568 | ○ | ○ | ○ | ○ | ○ |



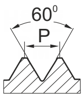


**Example of order**

**N1-121001-0506**
**DIN-EN 22 568 M50x2-6g HSS 800**

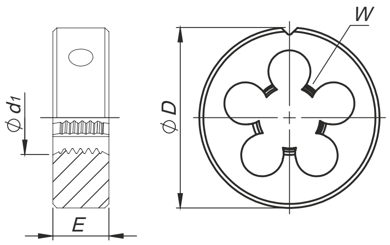
● **Available from stock**
○ **On request**

## American unified coarse thread
## UNC, ANSI B-1.1




**HSS**

**DIN-EN 22 568**




| | 800 |
|---|---|
| Material groups | P N |
| Execution | |
| Quality of material | HSS |
| Chamfer | 1,75P |

| UNC | Ćd1 | 1"/P | P | ĆD x E | W | d | Norm | DIN-EN 22 568 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Tol. | 2A |
| | | | | | | | INDEX | N1-121001 |
| No 5 - 40 | 3,175 | 40 | 0,635 | 20 x 5 | 3 | 3,09 | 4105 | ● |
| No 6 - 32 | 3,505 | 32 | 0,794 | 20 x 5 | 3 | 3,41 | 4106 | ● |
| No 8 - 32 | 4,166 | 32 | 0,794 | 20 x 7 | 3 | 4,07 | 4108 | ● |
| No 10 - 24 | 4,826 | 24 | 1,058 | 20 x 7 | 3 | 4,71 | 4110 | ● |
| No 12 - 24 | 5,486 | 24 | 1,058 | 20 x 7 | 4 | 5,37 | 4112 | ● |
| 1/4 - 20 | 6,35 | 20 | 1,270 | 20 x 7 | 4 | 6,22 | 4127 | ● |
| 5/16 - 18 | 7,938 | 18 | 1,411 | 25 x 9 | 4 | 7,80 | 4128 | ● |
| 3/8 - 16 | 9,525 | 16 | 1,588 | 30 x 11 | 4 | 9,37 | 4129 | ● |
| 7/16 - 14 | 11,112 | 14 | 1,814 | 30 x 11 | 4 | 10,95 | 4130 | ● |
| 1/2 - 13 | 12,7 | 13 | 1,954 | 38 x 14 | 4 | 12,52 | 4131 | ● |
| 9/16 - 12 | 14,288 | 12 | 2,117 | 38 x 14 | 4 | 14,10 | 4132 | ● |
| 5/8 - 11 | 15,875 | 11 | 2,309 | 45 x 18 | 5 | 15,68 | 4133 | ● |
| 3/4 - 10 | 19,05 | 10 | 2,504 | 45 x 18 | 5 | 18,84 | 4135 | ● |
| 7/8 - 9 | 22,225 | 9 | 2,822 | 55 x 22 | 5 | 22,00 | 4137 | ● |
| 1 - 8 | 25,4 | 8 | 3,175 | 55 x 22 | 5 | 25,16 | 4139 | ● |
| 1.1/8 - 7 | 28,575 | 7 | 3,629 | 65 x 25 | 5 | 28,31 | 4141 | ○ |
| 1.1/4 - 7 | 31,75 | 7 | 3,629 | 65 x 25 | 6 | 31,49 | 4143 | ○ |
| 1.3/8 - 6 | 34,925 | 6 | 4,233 | 65 x 25 | 7 | 34,63 | 4145 | ○ |
| 1.1/2 - 6 | 38,1 | 6 | 4,233 | 75 x 30 | 6 | 37,80 | 4147 | ○ |
| 1.3/4 - 5 | 44,45 | 5 | 5,080 | 90 x 36 | 6 | 44,12 | 4151 | ○ |
| 2 - 4.1/2 | 50,8 | 4.1/2 | 5,645 | 90 x 36 | 7 | 50,45 | 4155 | ○ |

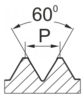
**Example of order**

**N1-121001-4128**
**DIN-EN 22 568 5/16-18 UNC-2A HSS 800**

● **Available from stock**
○ **On request**

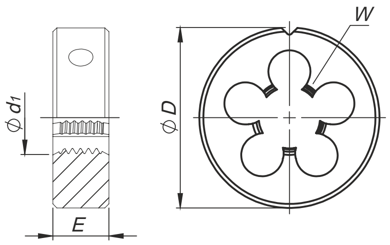
## American unified fine thread UNF, ANSI B-1.1

**800**




HSS

DIN-EN 22 568




| | 800 |
|---|---|
| Material groups | P M K N S H |
| Execution | |
| Quality of material | HSS |
| Chamfer | 1,75P |

| UNF | Ćd$_1$ | 1"/P | P | ĆD x E | W | ød | Norm | DIN-EN 22 568 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Tol. | 2A |
| | | | | | | | INDEX | N1-121001 |
| No 5 - 44 | 3,175 | 44 | 0,577 | 20 x 5 | 3 | 3,10 | 4205 | ● |
| No 6 - 40 | 3,505 | 40 | 0,635 | 20 x 5 | 3 | 3,42 | 4206 | ● |
| No 8 - 36 | 4,166 | 36 | 0,705 | 20 x 7 | 3 | 4,08 | 4208 | ● |
| No 10 - 32 | 4,826 | 32 | 0,794 | 20 x 7 | 3 | 4,73 | 4210 | ● |
| No 12 - 28 | 5,486 | 28 | 0,907 | 20 x 7 | 4 | 5,38 | 4212 | ● |
| 1/4 - 28 | 6,35 | 28 | 0,907 | 20 x 7 | 4 | 6,24 | 4227 | ● |
| 5/16 - 24 | 7,938 | 24 | 1,058 | 25 x 9 | 5 | 7,82 | 4228 | ● |
| 3/8 - 24 | 9,525 | 24 | 1,058 | 30 x 11 | 4 | 9,41 | 4229 | ● |
| 7/16 - 20 | 11,112 | 20 | 1,270 | 30 x 11 | 5 | 10,98 | 4230 | ● |
| 1/2 - 20 | 12,7 | 20 | 1,270 | 38 x 10 | 5 | 12,56 | 4231 | ● |
| 9/16 - 18 | 14,288 | 18 | 1,411 | 38 x 10 | 5 | 14,14 | 4232 | ● |
| 5/8 - 18 | 15,875 | 18 | 1,411 | 45 x 14 | 5 | 15,73 | 4233 | ● |
| 3/4 - 16 | 19,05 | 16 | 1,588 | 45 x 14 | 6 | 18,89 | 4235 | ● |
| 7/8 - 14 | 22,225 | 14 | 1,814 | 55 x 16 | 5 | 22,05 | 4237 | ● |
| 1 - 12 | 25,4 | 12 | 2,117 | 55 x 16 | 6 | 25,21 | 4239 | ● |
| 1.1/8 - 12 | 28,575 | 12 | 2,117 | 65 x 18 | 6 | 28,38 | 4241 | ○ |
| 1.1/4 - 12 | 31,75 | 12 | 2,117 | 65 x 18 | 6 | 31,55 | 4243 | ○ |
| 1.3/8 - 12 | 34,925 | 12 | 2,117 | 65 x 18 | 7 | 34,73 | 4245 | ○ |
| 1.1/2 - 12 | 38,1 | 12 | 2,117 | 75 x 20 | 8 | 37,90 | 4247 | ○ |

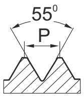


**Example of order**

**N1-121001-4228**
**DIN-EN 22 568 5/16-24 UNF-2A HSS 800**

● **Available from stock**
○ **On request**

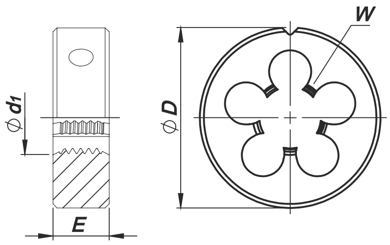
| Whitworth pipe thread G, DIN-ISO 228 | 800 | 800 | Ms | INOX | |
|---|---|---|---|---|---|
| Material groups | P N | P N | K N | P M N | |
| Execution | | LH | | SPN | |
| Quality of material | HSS | HSS | HSS | HSSE | |
| Chamfer | 1,75P | 1,75P | 1,25P | 2,25P | |




HSS

HSSE

DIN-EN 24 231




LH

| G | Ćd1 | 1"/P | P | ĆD x E | W | d | Norm / Tol. / INDEX | DIN-EN 24231 N1-121001 | DIN-EN 24231 N1-111001 | DIN-EN 24231 N1-164001 | DIN-EN 24231 N2-188001 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G1/8 | 9,73 | 28 | 0,907 | 30 x 11 | 4 | 9,62 | 3123 | ● | ○ | ● | ● | | |
| G1/4 | 13,16 | 19 | 1,337 | 38 x 10 | 4 | 13,03 | 3127 | ● | ● | ● | ● | | |
| G3/8 | 16,66 | 19 | 1,337 | 45 x 14 | 5 | 16,54 | 3129 | ● | ● | ● | ● | | |
| G1/2 | 20,96 | 14 | 1,814 | 45 x 14 | 6 | 20,81 | 3131 | ● | ● | ● | ● | | |
| G5/8 | 22,91 | 14 | 1,814 | 55 x 16 | 5 | 22,77 | 3133 | ● | ○ | ○ | ○ | | |
| G3/4 | 26,44 | 14 | 1,814 | 55 x 16 | 6 | 26,30 | 3135 | ● | ● | ● | ● | | |
| G7/8 | 30,20 | 14 | 1,814 | 65 x 18 | 6 | 30,06 | 3137 | ● | ○ | ○ | ○ | | |
| G1 | 33,25 | 11 | 2,309 | 65 x 18 | 7 | 33,07 | 3139 | ● | ● | ● | ● | | |
| G1.1/8 | 37,90 | 11 | 2,309 | 75 x 20 | 7 | 37,72 | 3141 | ○ | ○ | ○ | ○ | | |
| G1.1/4 | 41,91 | 11 | 2,309 | 75 x 20 | 8 | 41,73 | 3143 | ● | ○ | ○ | ○ | | |
| G1.3/8 | 44,32 | 11 | 2,309 | 90 x 22 | 7 | 44,14 | 3145 | ○ | ○ | ○ | ○ | | |
| G1.1/2 | 47,80 | 11 | 2,309 | 90 x 22 | 7 | 47,62 | 3147 | ● | ○ | ○ | ○ | | |
| G1.3/4 | 53,75 | 11 | 2,309 | 105 x 22 | 8 | 53,57 | 3151 | ○ | ○ | ○ | ○ | | |
| G2 | 59,61 | 11 | 2,309 | 105 x 22 | 8 | 59,43 | 3155 | ○ | ○ | ○ | ○ | | |
| G2.1/4 | 65,71 | 11 | 2,309 | 120 x 22 | 8 | 65,49 | 3157 | ○ | ○ | ○ | ○ | | |

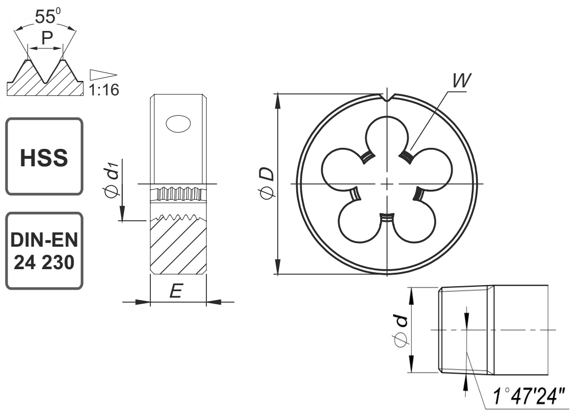
5

**Example of order**

**N1-121001-3143**
**DIN-EN 24 231 G-1.1/4" A HSS 800**

● **Available from stock**
○ **On request**

**Machine screwing dies**

| Whitworth pipe external thread R, ISO-7/1 | 800 | | | |
|---|---|---|---|---|
|  |  | | | |
| Material groups | P N | | | |
| Execution | | | | |
| Quality of material | HSS | | | |
| Chamfer | 2P | | | |



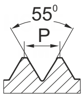
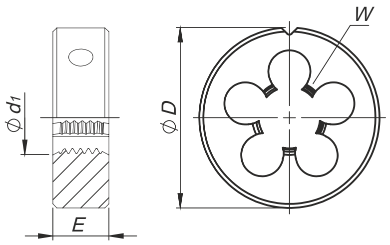
| G | Ćd1 | 1"/P | P | ĆD x E | W | ød | Norm | DIN-EN 24 230 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Tol. | | | | |
| | | | | | | | INDEX | N1-121001 | | | |
| R-1/8” | 9,73 | 28 | 0,907 | 30 x 11 | 5 | 9,48 | 3423 | ● | | | |
| R-1/4” | 13,16 | 19 | 1,337 | 38 x 14 | 5 | 12,78 | 3427 | ● | | | |
| R-3/8” | 16,16 | 19 | 1,337 | 45 x 18 | 5 | 16,26 | 3429 | ● | | | |
| R-1/2” | 20,96 | 14 | 1,814 | 55 x 22 | 5 | 20,44 | 3431 | ● | | | |
| R-3/4” | 26,44 | 14 | 1,814 | 55 x 22 | 6 | 25,85 | 3435 | ● | | | |
| R-1” | 32,25 | 11 | 2,309 | 65 x 25 | 7 | 32,60 | 3439 | ● | | | |

5

**Example of order**

**N1-121001-3427**
**DIN-EN 24 230 R-1/4”- HSS 800**

● **Available from stock**
○ **On request**

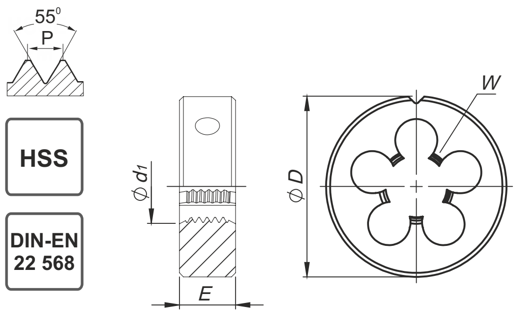
| Whitworth thread BSW BS-84:2007 | 800 | | | |
|---|---|---|---|---|
|  HSS, DIN-EN 22 568  |  | | | |
| Material groups | P M K / N S H | | | |
| Execution | | | | |
| Quality of material | HSS | | | |
| Chamfer | 1,75P | | | |

| BSW | Ćd1 | 1"/P | P | ĆD x E | W | Ćd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Norm | DIN-EN 22 568 | | | |
| | | | | | | | Tol. | medium | | | |
| | | | | | | | INDEX | N1-121001 | | | |
| 1/8 - 40 | 3,18 | 40 | 0,635 | 20 x 5 | 3 | 3,09 | 7123 | ● | | | |
| 3/16 - 24 | 4,76 | 24 | 1,058 | 20 x 7 | 4 | 4,66 | 7125 | ● | | | |
| 1/4 - 20 | 6,35 | 20 | 1,270 | 20 x 7 | 4 | 6,24 | 7127 | ● | | | |
| 5/16 - 18 | 7,94 | 18 | 1,411 | 25 x 9 | 4 | 7,82 | 7128 | ● | | | |
| 3/8 - 16 | 9,53 | 16 | 1,588 | 30 x 11 | 4 | 9,40 | 7129 | ● | | | |
| 7/16 - 14 | 11,11 | 14 | 1,814 | 30 x 11 | 4 | 10,98 | 7130 | ● | | | |
| 1/2 - 12 | 12,7 | 12 | 2,117 | 38 x 14 | 4 | 12,56 | 7131 | ● | | | |
| 9/16 - 12 | 14,29 | 12 | 2,117 | 38 x 14 | 4 | 14,14 | 7132 | ● | | | |
| 5/8 - 11 | 15,88 | 11 | 2,309 | 45 x 18 | 5 | 15,72 | 7133 | ● | | | |
| 3/4 - 10 | 19,05 | 10 | 2,504 | 45 x 18 | 5 | 18,89 | 7135 | ● | | | |
| 7/8 - 9 | 22,23 | 9 | 2,822 | 55 x 22 | 5 | 22,10 | 7137 | ● | | | |
| 1 - 8 | 25,4 | 8 | 3,175 | 55 x 22 | 5 | 25,27 | 7139 | ● | | | |

**Example of order**

**N1-121001-7131**
**DIN-EN 22 568 1/2 - 12 BSW HSS 800**

● **Available from stock**
○ **On request**

| British Whitworth fine thread BSF, BS-84:2007 | 800 | | | |
|---|---|---|---|---|
|  |  | | | |
| Material groups | P N | | | |
| Execution | | | | |
| Quality of material | HSS | | | |
| Chamfer | 1,75P | | | |



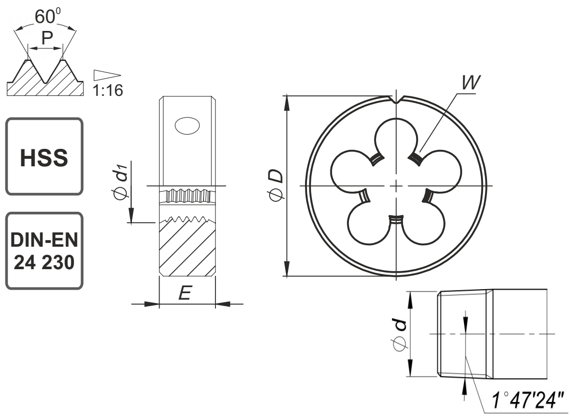
| BSF | Ćd1 | 1"/P | P | ĆD x E | W | ød | Norm / Tol. / INDEX | DIN-EN 22 568 / medium / N1-121001 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3/16 - 32 | 4,76 | 32 | 0,794 | 20 x 7 | 4 | 4,76 | 7225 | ● | | | |
| 1/4 - 26 | 6,35 | 26 | 0,977 | 20 x 7 | 4 | 6,25 | 7227 | ● | | | |
| 5/16 - 22 | 7,94 | 22 | 1,155 | 25 x 9 | 4 | 7,83 | 7228 | ● | | | |
| 3/8 - 20 | 9,53 | 20 | 1,270 | 30 x 11 | 4 | 9,41 | 7229 | ● | | | |
| 7/16 - 18 | 11,11 | 18 | 1,411 | 30 x 11 | 5 | 10,99 | 7230 | ● | | | |
| 1/2 - 16 | 12,70 | 16 | 1,588 | 38 x 10 | 5 | 12,57 | 7231 | ● | | | |
| 9/16 - 16 | 14,29 | 16 | 1,588 | 38 x 10 | 4 | 14,16 | 7232 | ● | | | |
| 5/8 - 14 | 15,88 | 14 | 1,814 | 45 x 14 | 4 | 15,73 | 7233 | ● | | | |
| 3/4 - 12 | 19,05 | 12 | 2,117 | 45 x 14 | 5 | 18,89 | 7235 | ● | | | |
| 7/8 - 11 | 22,23 | 11 | 2,309 | 55 x 22 | 5 | 22,11 | 7237 | ● | | | |
| 1 - 10 | 25,40 | 10 | 2,504 | 55 x 22 | 5 | 25,28 | 7239 | ● | | | |

**Example of order**

**N1-121001-7232**
**DIN-EN 22 568 9/16 - 16 BSF HSS 800**

● **Available from stock**
○ **On request**

| American tapered pipe thread NPT 1:16, ANSI B-1.20.1 | 800 | | | |
|---|---|---|---|---|




| | | | | |
|---|---|---|---|---|
| Material groups | P M K N S H | | | |
| Execution | | | | |
| Quality of material | HSS | | | |
| Chamfer | 2P | | | |

| NPT | Ćd1 | 1"/P | P | ĆD x E | W | ød | Norm | DIN-EN 24 230 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Tol. | | | | |
| | | | | | | | INDEX | N1-121001 | | | |
| 1/8 | 9,728 | 27 | 0,941 | 30 x 11 | 5 | 9,99 | 4623 | ● | | | |
| 1/4 | 13,157 | 18 | 1,411 | 38 x 14 | 5 | 13,26 | 4627 | ● | | | |
| 3/8 | 16,662 | 18 | 1,411 | 45 x 18 | 5 | 16,67 | 4629 | ● | | | |
| 1/2 | 20,955 | 14 | 1,814 | 45 x 18 | 6 | 20,71 | 4631 | ● | | | |
| 3/4 | 26,441 | 14 | 1,814 | 55 x 22 | 6 | 26,03 | 4635 | ● | | | |
| 1 | 33,249 | 11.1/2 | 2,209 | 65 x 25 | 7 | 32,59 | 4639 | ● | | | |

5

**Example of order**

**N1-121001-4627**
**DIN-EN 24 230 1/4" NPT - HSS 800**

● **Available from stock**
○ **On request**

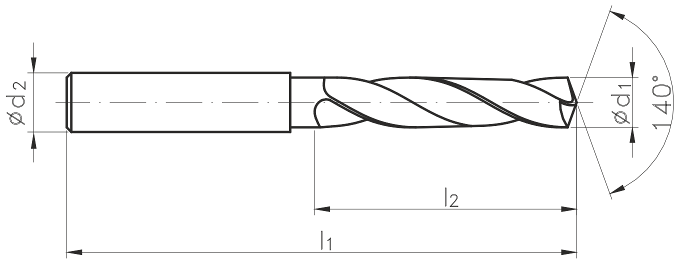
# Drilling tools

# DRILLING TOOLS

# 3xD Maximal hole depth

MASTERDRILL | 1300

VHM
AT
DIN 6537




| | MASTERDRILL | 1300 | |
|---|---|---|---|
| Material groups | P M K N S H | P M K N S H | P M K N S H |
| Internal cooling | IK | - | IK |
| Quality of material | VHM | VHM | VHM |
| Coating | AT | AT | AT |

| Ć d₁ | M MF | M "WGN" | l₁ | l₂ | Ć d₂h6 | Norm | DIN-6537 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Tol. | m7 | m7 | m7 |
| | | | | | | INDEX | W9-604M33 | W9-604013 | W9-604033 |
| 3,00 | | | 62 | 20 | 6,0 | 0300 | ● | ● | ○ |
| 3,10 | | | 62 | 20 | 6,0 | 0310 | ○ | ○ | ○ |
| 3,20 | | | 62 | 20 | 6,0 | 0320 | ● | ● | ○ |
| 3,25 | | M3,5 | 62 | 20 | 6,0 | 0325 | ○ | ○ | ○ |
| 3,30 | M4 | | 62 | 20 | 6,0 | 0330 | ● | ● | ○ |
| 3,40 | | | 62 | 20 | 6,0 | 0340 | ○ | ○ | ○ |
| 3,50 | M4x0,5 | | 62 | 20 | 6,0 | 0350 | ○ | ● | ○ |
| 3,60 | | | 62 | 20 | 6,0 | 0360 | ○ | ○ | ○ |
| 3,70 | M4,5 | M4 | 62 | 20 | 6,0 | 0370 | ● | ● | ○ |
| 3,80 | | | 66 | 24 | 6,0 | 0380 | ● | ● | ○ |
| 3,90 | | | 66 | 24 | 6,0 | 0390 | ○ | ○ | ○ |
| 4,00 | | | 66 | 24 | 6,0 | 0400 | ● | ● | ● |
| 4,10 | | | 66 | 24 | 6,0 | 0410 | ○ | ○ | ○ |
| 4,20 | M5 | M4,5 | 66 | 24 | 6,0 | 0420 | ● | ● | ○ |
| 4,30 | | | 66 | 24 | 6,0 | 0430 | ● | ● | ○ |
| 4,40 | | | 66 | 24 | 6,0 | 0440 | ○ | ● | ○ |
| 4,50 | M5x0,5 | | 66 | 24 | 6,0 | 0450 | ● | ● | ○ |
| 4,60 | M5,5 | | 66 | 24 | 6,0 | 0460 | ○ | ○ | ○ |
| 4,65 | | M5 | 66 | 24 | 6,0 | 0465 | ○ | ○ | ○ |
| 4,70 | | | 66 | 24 | 6,0 | 0470 | ○ | ○ | ○ |
| 4,80 | | | 66 | 28 | 6,0 | 0480 | ○ | ○ | ○ |
| 4,90 | | | 66 | 28 | 6,0 | 0490 | ○ | ○ | ○ |
| 5,00 | M6 | | 66 | 28 | 6,0 | 0500 | ● | ● | ● |
| 5,10 | | M5,5 | 66 | 28 | 6,0 | 0510 | ○ | ● | ○ |
| 5,20 | M6x0,75 | | 66 | 28 | 6,0 | 0520 | ● | ● | ○ |
| 5,30 | | | 66 | 28 | 6,0 | 0530 | ○ | ○ | ○ |
| 5,40 | | | 66 | 28 | 6,0 | 0540 | ○ | ○ | ○ |
| 5,50 | | | 66 | 28 | 6,0 | 0550 | ● | ● | ○ |
| 5,60 | | M6 | 66 | 28 | 6,0 | 0560 | ○ | ○ | ○ |
| 5,70 | | | 66 | 28 | 6,0 | 0570 | ○ | ○ | ○ |
| 5,80 | | | 66 | 28 | 6,0 | 0580 | ○ | ○ | ○ |
| 5,90 | | | 66 | 28 | 6,0 | 0590 | ○ | ○ | ○ |
| 6,00 | M7 | | 66 | 28 | 6,0 | 0600 | ● | ● | ● |
| 6,10 | | | 79 | 34 | 8,0 | 0610 | ○ | ○ | ○ |
| 6,20 | M7x0,75 | | 79 | 34 | 8,0 | 0620 | ○ | ○ | ○ |
| 6,30 | | | 79 | 34 | 8,0 | 0630 | ○ | ○ | ○ |
| 6,40 | | | 79 | 34 | 8,0 | 0640 | ○ | ○ | ○ |
| 6,50 | | | 79 | 34 | 8,0 | 0650 | ● | ● | ○ |
| 6,60 | | M7 | 79 | 34 | 8,0 | 0660 | ○ | ○ | ○ |
| 6,70 | | | 79 | 34 | 8,0 | 0670 | ○ | ○ | ○ |
| 6,80 | M8 | | 79 | 34 | 8,0 | 0680 | ● | ● | ● |
| 6,90 | | | 79 | 34 | 8,0 | 0690 | ○ | ○ | ○ |
| 7,00 | M8x1 | | 79 | 34 | 8,0 | 0700 | ● | ● | ○ |
| 7,10 | | | 79 | 41 | 8,0 | 0710 | ○ | ○ | ○ |
| 7,20 | M8x0,75 | | 79 | 41 | 8,0 | 0720 | ○ | ○ | ○ |
| 7,30 | | | 79 | 41 | 8,0 | 0730 | ○ | ○ | ○ |

**Example of order**

**W9-604M33-0300**
**WK MasterDRILL 3,00 DIN-6537 3xD VHM IK AT**

● **Available from stock**
○ **On request**

Posibility of production drills with shank according to DIN-6535-HB, DIN-6535-HE

6

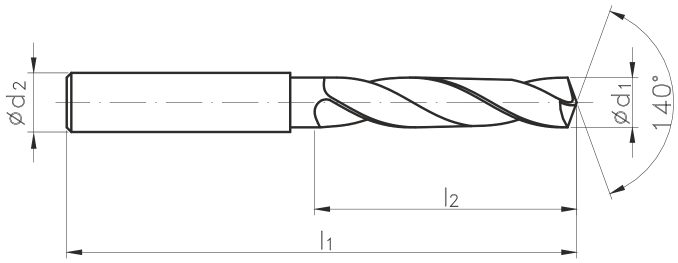
## 3xD Maximal hole depth

MASTERDRILL | 1300

VHM

AT

DIN 6537




| | W9-604M33 | W9-604013 | W9-604033 |
|---|---|---|---|
| Material groups | P M K N S | P M K N S | P M K N S |
| Internal cooling | IK | - | IK |
| Quality of material | VHM | VHM | VHM |
| Coating | AT | AT | AT |

| Ć $d_1$ | M MF | M "WGN" | $l_1$ | $l_2$ | Ć$d_2$h6 | Norm / Tol. / INDEX | DIN-6537 m7 W9-604M33 | DIN-6537 m7 W9-604013 | DIN-6537 m7 W9-604033 |
|---|---|---|---|---|---|---|---|---|---|
| 7,40 | | | 79 | 41 | 8,0 | 0740 | ○ | ○ | ○ |
| 7,45 | | M8 | 79 | 41 | 8,0 | 0745 | ● | ○ | ○ |
| 7,50 | | | 79 | 41 | 8,0 | 0750 | ○ | ● | ● |
| 7,60 | | M8x1 | 79 | 41 | 8,0 | 0760 | ● | ○ | ○ |
| 7,70 | | | 79 | 41 | 8,0 | 0770 | ○ | ○ | ○ |
| 7,80 | M9 | | 79 | 41 | 8,0 | 0780 | ● | ○ | ○ |
| 7,90 | | | 79 | 41 | 8,0 | 0790 | ○ | ○ | ○ |
| 8,00 | M9x1 | | 79 | 41 | 8,0 | 0800 | ● | ● | ● |
| 8,10 | | | 89 | 47 | 10,0 | 0810 | ○ | ○ | ○ |
| 8,20 | M9x0,75 | | 89 | 47 | 10,0 | 0820 | ○ | ○ | ○ |
| 8,30 | | | 89 | 47 | 10,0 | 0830 | ○ | ○ | ○ |
| 8,40 | | | 89 | 47 | 10,0 | 0840 | ○ | ○ | ○ |
| 8,45 | | M9 | 89 | 47 | 10,0 | 0845 | ○ | ○ | ○ |
| 8,50 | M10 | | 89 | 47 | 10,0 | 0850 | ● | ● | ● |
| 8,60 | | M9x1 | 89 | 47 | 10,0 | 0860 | ○ | ○ | ○ |
| 8,70 | | M9x0,75 | 89 | 47 | 10,0 | 0870 | ○ | ○ | ○ |
| 8,80 | M10x1,25 | | 89 | 47 | 10,0 | 0880 | ○ | ○ | ○ |
| 8,90 | | | 89 | 47 | 10,0 | 0890 | ○ | ○ | ○ |
| 9,00 | M10x1 | | 89 | 47 | 10,0 | 0900 | ● | ● | ● |
| 9,10 | | | 89 | 47 | 10,0 | 0910 | ○ | ○ | ○ |
| 9,20 | M10x0,75 | | 89 | 47 | 10,0 | 0920 | ○ | ○ | ○ |
| 9,30 | | | 89 | 47 | 10,0 | 0930 | ○ | ○ | ○ |
| 9,35 | | M10 | 89 | 47 | 10,0 | 0935 | ● | ● | ○ |
| 9,40 | | | 89 | 47 | 10,0 | 0940 | ○ | ○ | ○ |
| 9,45 | | M10x1,25 | 89 | 47 | 10,0 | 0945 | ○ | ○ | ○ |
| 9,50 | M11 | | 89 | 47 | 10,0 | 0950 | ● | ● | ● |
| 9,60 | | M10x1 | 89 | 47 | 10,0 | 0960 | ○ | ○ | ○ |
| 9,70 | | M10x0,75 | 89 | 47 | 10,0 | 0970 | ○ | ○ | ○ |
| 9,80 | | | 89 | 47 | 10,0 | 0980 | ● | ● | ○ |
| 9,90 | | | 89 | 47 | 10,0 | 0990 | ○ | ○ | ○ |
| 10,00 | M11x1 | | 89 | 47 | 10,0 | 1000 | ● | ● | ● |
| 10,10 | | | 102 | 55 | 12,0 | 1010 | ○ | ○ | ○ |
| 10,20 | M12 | | 102 | 55 | 12,0 | 1020 | ● | ● | ○ |
| 10,30 | | | 102 | 55 | 12,0 | 1030 | ○ | ○ | ○ |
| 10,40 | | | 102 | 55 | 12,0 | 1040 | ○ | ○ | ○ |
| 10,50 | M12x1,5 | | 102 | 55 | 12,0 | 1050 | ● | ● | ○ |
| 10,60 | | M11x1 | 102 | 55 | 12,0 | 1060 | ○ | ○ | ○ |
| 10,70 | | | 102 | 55 | 12,0 | 1070 | ○ | ○ | ○ |
| 10,80 | M12x1,25 | | 102 | 55 | 12,0 | 1080 | ○ | ○ | ○ |
| 10,90 | | | 102 | 55 | 12,0 | 1090 | ○ | ○ | ○ |
| 11,00 | M12x1 | | 102 | 55 | 12,0 | 1100 | ● | ● | ○ |
| 11,10 | | | 102 | 55 | 12,0 | 1110 | ○ | ○ | ○ |
| 11,20 | | | 102 | 55 | 12,0 | 1120 | ○ | ○ | ○ |
| 11,25 | | M12 | 102 | 55 | 12,0 | 1125 | ○ | ○ | ○ |
| 11,30 | | | 102 | 55 | 12,0 | 1130 | ○ | ○ | ○ |
| 11,35 | | M12x1,5 | 102 | 55 | 12,0 | 1135 | ○ | ○ | ○ |



**Example of order**

**W9-604013-0745**
**WK 1300 7,45 DIN-6537 3xD VHM AT**

● **Available from stock**
○ **On request**

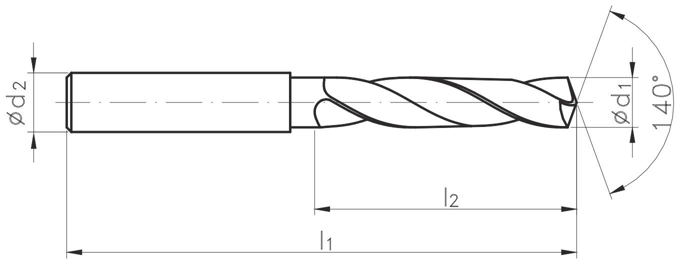
Posibility of production drills with shank according to DIN-6535-HB, DIN-6535-HE

## 3xD Maximal hole depth

VHM

AT

DIN 6537




| | MASTERDRILL | 1300 | |
|---|---|---|---|
| Material groups | P M K N S H | P M K N S H | P M K N S H |
| Internal cooling | IK | - | IK |
| Quality of material | VHM | VHM | VHM |
| Coating | AT | AT | AT |

| Ć d1 | M MF | M "WGN" | l1 | l2 | Ćd2h6 | Norm | DIN-6537 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Tol. | m7 | m7 | m7 |
| | | | | | | INDEX | W9-604M33 | W9-604013 | W9-604033 |
| 11,40 | | | 102 | 55 | 12,0 | 1140 | ○ | ○ | ○ |
| 11,45 | | M12x1,25 | 102 | 55 | 12,0 | 1145 | ○ | ○ | ○ |
| 11,50 | | | 102 | 55 | 12,0 | 1150 | ● | ● | ○ |
| 11,60 | | M12x1 | 102 | 55 | 12,0 | 1160 | ○ | ○ | ○ |
| 11,70 | | | 102 | 55 | 12,0 | 1170 | ○ | ○ | ○ |
| 11,80 | | | 102 | 55 | 12,0 | 1180 | ● | ● | ○ |
| 11,90 | | | 102 | 55 | 12,0 | 1190 | ○ | ○ | ○ |
| 12,00 | M14 | | 102 | 55 | 12,0 | 1200 | ● | ● | ○ |
| 12,30 | | | 107 | 60 | 14,0 | 1230 | ○ | ○ | ○ |
| 12,50 | M14x1,5 | | 107 | 60 | 14,0 | 1250 | ● | ● | ○ |
| 12,80 | M14x1,25 | | 107 | 60 | 14,0 | 1280 | ○ | ○ | ○ |
| 13,00 | M14x1 | M14 | 107 | 60 | 14,0 | 1300 | ● | ● | ○ |
| 13,50 | | | 107 | 60 | 14,0 | 1350 | ● | ● | ○ |
| 13,80 | | | 107 | 60 | 14,0 | 1380 | ○ | ○ | ○ |
| 14,00 | M16; M15x1 | | 107 | 60 | 14,0 | 1400 | ● | ● | ○ |
| 14,50 | M16x1,5 | | 115 | 65 | 16,0 | 1450 | ● | ● | ○ |
| 14,80 | | | 115 | 65 | 16,0 | 1480 | ○ | ○ | ○ |
| 15,00 | M16x1 | M16 | 115 | 65 | 16,0 | 1500 | ● | ● | ○ |
| 15,35 | | M16x1,5 | 115 | 65 | 16,0 | 1535 | ○ | ○ | ○ |
| 15,50 | M18 | | 115 | 65 | 16,0 | 1550 | ○ | ○ | ○ |
| 15,80 | | | 115 | 65 | 16,0 | 1580 | ● | ● | ○ |
| 16,00 | M18x2 | | 115 | 65 | 16,0 | 1600 | ● | ● | ○ |
| 16,50 | M18x1,5 | | 123 | 73 | 18,0 | 1650 | ○ | ○ | ○ |
| 16,80 | | M18 | 123 | 73 | 18,0 | 1680 | ○ | ○ | ○ |
| 17,00 | M18x1 | | 123 | 73 | 18,0 | 1700 | ● | ● | ○ |
| 17,35 | | M18x1,5 | 123 | 73 | 18,0 | 1735 | ○ | ○ | ○ |
| 17,50 | M20 | | 123 | 73 | 18,0 | 1750 | ○ | ○ | ○ |
| 17,80 | | | 123 | 73 | 18,0 | 1780 | ○ | ○ | ○ |
| 18,00 | M20x2 | | 123 | 73 | 18,0 | 1800 | ● | ● | ○ |
| 18,50 | M20x1,5 | | 131 | 79 | 20,0 | 1850 | ○ | ○ | ○ |
| 18,80 | | M20 | 131 | 79 | 20,0 | 1880 | ○ | ○ | ○ |
| 19,00 | M20x1 | | 131 | 79 | 20,0 | 1900 | ○ | ○ | ○ |
| 19,35 | | M20x1,5 | 131 | 79 | 20,0 | 1935 | ○ | ○ | ○ |
| 19,50 | M22 | | 131 | 79 | 20,0 | 1950 | ○ | ○ | ○ |
| 19,80 | | | 131 | 79 | 20,0 | 1980 | ○ | ○ | ○ |
| 20,00 | M22x2 | | 131 | 79 | 20,0 | 2000 | ○ | ○ | ○ |

6

**Example of order**

**W9-604013-1200**
**WK 1300 12,00 DIN-6537 3xD VHM AT**

● **Available from stock**
○ **On request**

Posibility of production drills with shank according to DIN-6535-HB, DIN-6535-HE

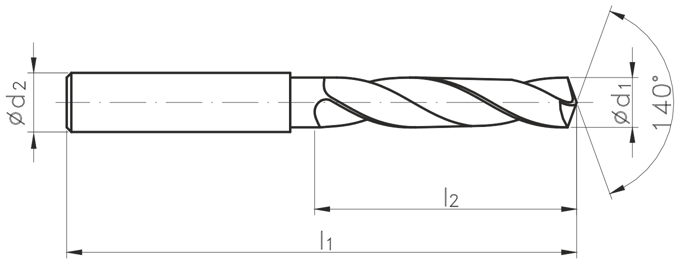
## 5xD Maximal hole depth

MASTERDRILL 1300

VHM

AT

DIN 6537




| | | | |
|---|---|---|---|
| Material groups | P M K N S H | P M K N S H | P M K N S H |
| Internal cooling | IK | - | IK |
| Quality of material | VHM | VHM | VHM |
| Coating | AT | AT | AT |

| Ć d1 | M MF | M "WGN" | $l_1$ | $l_2$ | Ćd2h6 | Norm | DIN-6537 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Tol. | m7 | m7 | m7 |
| | | | | | | INDEX | W9-614M33 | W9-614013 | W9-614033 |
| 3,00 | | | 66 | 28 | 6,0 | 0300 | ● | ● | ○ |
| 3,10 | | | 66 | 28 | 6,0 | 0310 | ○ | ● | ○ |
| 3,20 | | | 66 | 28 | 6,0 | 0320 | ● | ● | ○ |
| 3,25 | | M3,5 | 66 | 28 | 6,0 | 0325 | ○ | ● | ○ |
| 3,30 | M4 | | 66 | 28 | 6,0 | 0330 | ● | ● | ○ |
| 3,40 | | | 66 | 28 | 6,0 | 0340 | ○ | ○ | ○ |
| 3,50 | M4x0,5 | | 66 | 28 | 6,0 | 0350 | ○ | ● | ○ |
| 3,60 | | | 66 | 28 | 6,0 | 0360 | ○ | ● | ○ |
| 3,70 | M4,5 | M4 | 66 | 28 | 6,0 | 0370 | ● | ● | ○ |
| 3,80 | | | 74 | 36 | 6,0 | 0380 | ● | ● | ○ |
| 3,90 | | | 74 | 36 | 6,0 | 0390 | ○ | ○ | ○ |
| 4,00 | | | 74 | 36 | 6,0 | 0400 | ● | ● | ● |
| 4,10 | | | 74 | 36 | 6,0 | 0410 | ○ | ○ | ○ |
| 4,20 | M5 | M4,5 | 74 | 36 | 6,0 | 0420 | ● | ● | ● |
| 4,30 | | | 74 | 36 | 6,0 | 0430 | ● | ● | ○ |
| 4,40 | | | 74 | 36 | 6,0 | 0440 | ○ | ○ | ○ |
| 4,50 | M5x0,5 | | 74 | 36 | 6,0 | 0450 | ● | ● | ○ |
| 4,60 | M5,5 | | 74 | 36 | 6,0 | 0460 | ○ | ○ | ○ |
| 4,65 | | M5 | 74 | 36 | 6,0 | 0465 | ○ | ○ | ○ |
| 4,70 | | | 74 | 36 | 6,0 | 0470 | ○ | ○ | ○ |
| 4,80 | | | 82 | 44 | 6,0 | 0480 | ○ | ○ | ○ |
| 4,90 | | | 82 | 44 | 6,0 | 0490 | ○ | ○ | ○ |
| 5,00 | M6 | | 82 | 44 | 6,0 | 0500 | ● | ● | ● |
| 5,10 | | M5,5 | 82 | 44 | 6,0 | 0510 | ○ | ○ | ○ |
| 5,20 | M6x0,75 | | 82 | 44 | 6,0 | 0520 | ● | ● | ○ |
| 5,30 | | | 82 | 44 | 6,0 | 0530 | ○ | ○ | ○ |
| 5,40 | | | 82 | 44 | 6,0 | 0540 | ○ | ○ | ○ |
| 5,50 | | | 82 | 44 | 6,0 | 0550 | ● | ● | ● |
| 5,60 | | M6 | 82 | 44 | 6,0 | 0560 | ● | ● | ○ |
| 5,70 | | | 82 | 44 | 6,0 | 0570 | ○ | ○ | ○ |
| 5,80 | | | 82 | 44 | 6,0 | 0580 | ○ | ○ | ○ |
| 5,90 | | | 82 | 44 | 6,0 | 0590 | ○ | ○ | ○ |
| 6,00 | M7 | | 82 | 44 | 6,0 | 0600 | ● | ● | ● |
| 6,10 | | | 91 | 53 | 8,0 | 0610 | ○ | ○ | ○ |
| 6,20 | M7x0,75 | | 91 | 53 | 8,0 | 0620 | ○ | ○ | ○ |
| 6,30 | | | 91 | 53 | 8,0 | 0630 | ○ | ○ | ○ |
| 6,40 | | | 91 | 53 | 8,0 | 0640 | ○ | ○ | ○ |
| 6,50 | | | 91 | 53 | 8,0 | 0650 | ● | ● | ● |
| 6,60 | | M7 | 91 | 53 | 8,0 | 0660 | ○ | ○ | ○ |
| 6,70 | | | 91 | 53 | 8,0 | 0670 | ○ | ○ | ○ |
| 6,80 | M8 | | 91 | 53 | 8,0 | 0680 | ● | ● | ● |
| 6,90 | | | 91 | 53 | 8,0 | 0690 | ○ | ○ | ○ |
| 7,00 | M8x1 | | 91 | 53 | 8,0 | 0700 | ● | ● | ● |
| 7,10 | | | 91 | 53 | 8,0 | 0710 | ○ | ○ | ○ |
| 7,20 | M8x0,75 | | 91 | 53 | 8,0 | 0720 | ○ | ○ | ○ |
| 7,30 | | | 91 | 53 | 8,0 | 0730 | ○ | ○ | ○ |

6

**Example of order**

**W9-614013-0300**
**WK 1300 3,00 DIN-6537 5xD VHM AT**

● **Available from stock**
○ **On request**

Posibility of production drills with shank according to DIN-6535-HB, DIN-6535-HE

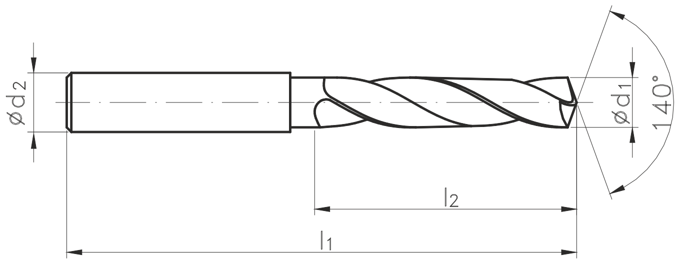
# 5xD Maximal hole depth

MASTERDRILL | 1300

VHM

AT

DIN 6537




| | MASTERDRILL | 1300 | |
|---|---|---|---|
| Material groups | P M K N S H | P M K N S H | P M K N S H |
| Internal cooling | IK | - | IK |
| Quality of material | VHM | VHM | VHM |
| Coating | AT | AT | AT |

| Ć $d_1$ | M MF | M "WGN" | $l_1$ | $l_2$ | Ć$d_2$h6 | Norm | DIN-6537 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Tol. | m7 | m7 | m7 |
| | | | | | | INDEX | W9-614M33 | W9-614013 | W9-614033 |
| 7,40 | | | 91 | 53 | 8,0 | 0740 | ○ | ○ | ○ |
| 7,45 | | M8 | 91 | 53 | 8,0 | 0745 | ● | ● | ○ |
| 7,50 | | | 91 | 53 | 8,0 | 0750 | ○ | ● | ● |
| 7,60 | | M8x1 | 91 | 53 | 8,0 | 0760 | ● | ● | ○ |
| 7,70 | | | 91 | 53 | 8,0 | 0770 | ○ | ○ | ○ |
| 7,80 | M9 | | 91 | 53 | 8,0 | 0780 | ● | ● | ○ |
| 7,90 | | | 91 | 53 | 8,0 | 0790 | ○ | ○ | ○ |
| 8,00 | M9x1 | | 91 | 53 | 8,0 | 0800 | ● | ● | ● |
| 8,10 | | | 103 | 61 | 10,0 | 0810 | ○ | ○ | ○ |
| 8,20 | M9x0,75 | | 103 | 61 | 10,0 | 0820 | ○ | ○ | ○ |
| 8,30 | | | 103 | 61 | 10,0 | 0830 | ○ | ○ | ○ |
| 8,40 | | | 103 | 61 | 10,0 | 0840 | ○ | ○ | ○ |
| 8,45 | | M9 | 103 | 61 | 10,0 | 0845 | ○ | ○ | ○ |
| 8,50 | M10 | | 103 | 61 | 10,0 | 0850 | ● | ● | ● |
| 8,60 | | M9x1 | 103 | 61 | 10,0 | 0860 | ○ | ○ | ○ |
| 8,70 | | M9x0,75 | 103 | 61 | 10,0 | 0870 | ○ | ○ | ○ |
| 8,80 | M10x1,25 | | 103 | 61 | 10,0 | 0880 | ○ | ○ | ○ |
| 8,90 | | | 103 | 61 | 10,0 | 0890 | ○ | ○ | ○ |
| 9,00 | M10x1 | | 103 | 61 | 10,0 | 0900 | ● | ● | ● |
| 9,10 | | | 103 | 61 | 10,0 | 0910 | ○ | ○ | ○ |
| 9,20 | M10x0,75 | | 103 | 61 | 10,0 | 0920 | ○ | ○ | ○ |
| 9,30 | | | 103 | 61 | 10,0 | 0930 | ○ | ○ | ○ |
| 9,35 | | M10 | 103 | 61 | 10,0 | 0935 | ● | ● | ○ |
| 9,40 | | | 103 | 61 | 10,0 | 0940 | ○ | ○ | ○ |
| 9,45 | | M10x1,25 | 103 | 61 | 10,0 | 0945 | ○ | ○ | ○ |
| 9,50 | M11 | | 103 | 61 | 10,0 | 0950 | ● | ● | ○ |
| 9,60 | | M10x1 | 103 | 61 | 10,0 | 0960 | ○ | ○ | ○ |
| 9,70 | | M10x0,75 | 103 | 61 | 10,0 | 0970 | ○ | ○ | ○ |
| 9,80 | | | 103 | 61 | 10,0 | 0980 | ● | ● | ○ |
| 9,90 | | | 103 | 61 | 10,0 | 0990 | ○ | ○ | ○ |
| 10,00 | M11x1 | | 103 | 61 | 10,0 | 1000 | ● | ● | ● |
| 10,10 | | | 118 | 71 | 12,0 | 1010 | ○ | ○ | ○ |
| 10,20 | M12 | | 118 | 71 | 12,0 | 1020 | ● | ● | ○ |
| 10,30 | | | 118 | 71 | 12,0 | 1030 | ○ | ○ | ○ |
| 10,40 | | | 118 | 71 | 12,0 | 1040 | ○ | ○ | ○ |
| 10,50 | M12x1,5 | | 118 | 71 | 12,0 | 1050 | ● | ● | ○ |
| 10,60 | | M11x1 | 118 | 71 | 12,0 | 1060 | ○ | ○ | ○ |
| 10,70 | | | 118 | 71 | 12,0 | 1070 | ○ | ○ | ○ |
| 10,80 | M12x1,25 | | 118 | 71 | 12,0 | 1080 | ○ | ○ | ○ |
| 10,90 | | | 118 | 71 | 12,0 | 1090 | ○ | ○ | ○ |
| 11,00 | M12x1 | | 118 | 71 | 12,0 | 1100 | ● | ● | ● |
| 11,10 | | | 118 | 71 | 12,0 | 1110 | ○ | ○ | ○ |
| 11,20 | | | 118 | 71 | 12,0 | 1120 | ○ | ○ | ○ |
| 11,25 | | M12 | 118 | 71 | 12,0 | 1125 | ○ | ○ | ○ |
| 11,30 | | | 118 | 71 | 12,0 | 1130 | ○ | ○ | ○ |
| 11,35 | | M12,1,5 | 118 | 71 | 12,0 | 1135 | ○ | ○ | ○ |

6

**Example of order**

**W9-614013-0750**
**WK 1300 7,50 DIN-6537 5xD VHM AT**

● **Available from stock**
○ **On request**

Posibility of production drills with shank according to DIN-6535-HB, DIN-6535-HE

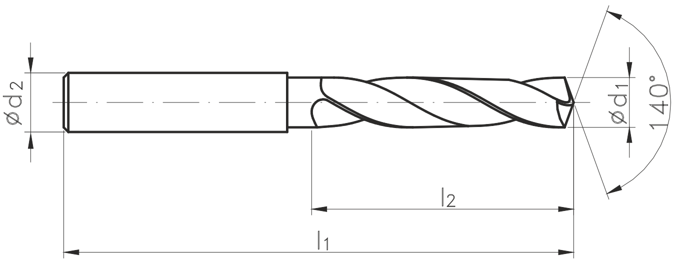
# 5xD Maximal hole depth

MASTERDRILL | 1300

VHM

AT

DIN 6537




| | W9-614M33 | W9-614013 | W9-614033 |
|---|---|---|---|
| Material groups | P M K N S H | P M K N S H | P M K N S H |
| Internal cooling | IK | - | IK |
| Quality of material | VHM | VHM | VHM |
| Coating | AT | AT | AT |

| Ć d1 | M MF | M "WGN" | l1 | l2 | Ćd2h6 | Norm | DIN-6537 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Tol. | m7 | m7 | m7 |
| | | | | | | INDEX | W9-614M33 | W9-614013 | W9-614033 |
| 11,40 | | | 118 | 71 | 12,0 | 1140 | ○ | ○ | ○ |
| 11,45 | | M12x1,25 | 118 | 71 | 12,0 | 1145 | ○ | ○ | ○ |
| 11,50 | | | 118 | 71 | 12,0 | 1150 | ● | ● | ○ |
| 11,60 | | M12x1 | 118 | 71 | 12,0 | 1160 | ○ | ○ | ○ |
| 11,70 | | | 118 | 71 | 12,0 | 1170 | ○ | ○ | ○ |
| 11,80 | | | 118 | 71 | 12,0 | 1180 | ● | ● | ○ |
| 11,90 | | | 118 | 71 | 12,0 | 1190 | ○ | ○ | ○ |
| 12,00 | M14 | | 118 | 71 | 12,0 | 1200 | ● | ● | ● |
| 12,30 | | | 124 | 77 | 14,0 | 1230 | ○ | ○ | ○ |
| 12,50 | M14x1,5 | | 124 | 77 | 14,0 | 1250 | ● | ● | ○ |
| 12,80 | M14x1,25 | | 124 | 77 | 14,0 | 1280 | ○ | ○ | ○ |
| 13,00 | M14x1 | M14 | 124 | 77 | 14,0 | 1300 | ● | ● | ● |
| 13,50 | | | 124 | 77 | 14,0 | 1350 | ● | ● | ○ |
| 13,80 | | | 124 | 77 | 14,0 | 1380 | ○ | ○ | ○ |
| 14,00 | M16; M15x1 | | 124 | 77 | 14,0 | 1400 | ● | ● | ● |
| 14,50 | M16x1,5 | | 133 | 83 | 16,0 | 1450 | ● | ● | ○ |
| 14,80 | | | 133 | 83 | 16,0 | 1480 | ○ | ○ | ○ |
| 15,00 | M16x1 | M16 | 133 | 83 | 16,0 | 1500 | ● | ● | ○ |
| 15,35 | | M16x1,5 | 133 | 83 | 16,0 | 1535 | ○ | ○ | ○ |
| 15,50 | M18 | | 133 | 83 | 16,0 | 1550 | ○ | ○ | ○ |
| 15,80 | | | 133 | 83 | 16,0 | 1580 | ● | ● | ○ |
| 16,00 | M18x2 | | 133 | 83 | 16,0 | 1600 | ● | ● | ○ |
| 16,50 | M18x1,5 | | 143 | 93 | 18,0 | 1650 | ○ | ○ | ○ |
| 16,80 | | M18 | 143 | 93 | 18,0 | 1680 | ○ | ○ | ○ |
| 17,00 | M18x1 | | 143 | 93 | 18,0 | 1700 | ● | ● | ○ |
| 17,35 | | M18x1,5 | 143 | 93 | 18,0 | 1735 | ○ | ○ | ○ |
| 17,50 | M20 | | 143 | 93 | 18,0 | 1750 | ○ | ○ | ○ |
| 17,80 | | | 143 | 93 | 18,0 | 1780 | ○ | ○ | ○ |
| 18,00 | M20x2 | | 143 | 93 | 18,0 | 1800 | ● | ● | ○ |
| 18,50 | M20x1,5 | | 153 | 101 | 20,0 | 1850 | ○ | ○ | ○ |
| 18,80 | | M20 | 153 | 101 | 20,0 | 1880 | ○ | ○ | ○ |
| 19,00 | M20x1 | | 153 | 101 | 20,0 | 1900 | ○ | ○ | ○ |
| 19,35 | | M20x1,5 | 153 | 101 | 20,0 | 1935 | ○ | ○ | ○ |
| 19,50 | M22 | | 153 | 101 | 20,0 | 1950 | ○ | ○ | ○ |
| 19,80 | | | 153 | 101 | 20,0 | 1980 | ○ | ○ | ○ |
| 20,00 | M22x2 | | 153 | 101 | 20,0 | 2000 | ○ | ○ | ○ |

6

**Example of order**

**W9-614013-1200**
**WK 1300 12,00 DIN-6537 5xD VHM AT**

● **Available from stock**
○ **On request**

Posibility of production drills with shank according to DIN-6535-HB, DIN-6535-HE

# 8xD Maximal hole depth

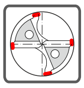
4 Guide margins

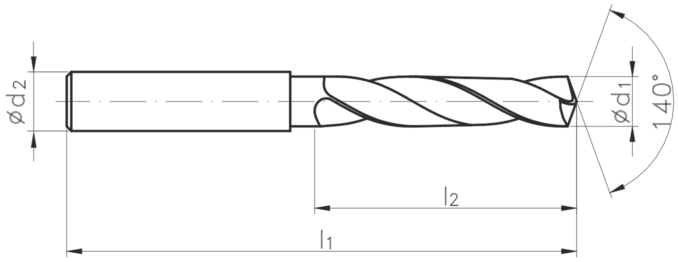
1300

VHM

AT

DIN 6537






| | |
|---|---|
| Material groups | P M K N S H |
| Internal cooling | IK |
| Quality of material | VHM |
| Coating | AT |

| Ć d1 | M MF | M "WGN" | $l_1$ | $l_2$ | Ć$d_2$h6 | Norm / Tol. / INDEX | DIN-6537 / m7 / W9-624063 |
|---|---|---|---|---|---|---|---|
| 3,00 | | | 72 | 34 | 6,0 | 0300 | o |
| 3,10 | | | 72 | 34 | 6,0 | 0310 | o |
| 3,20 | | | 72 | 34 | 6,0 | 0320 | o |
| 3,30 | M4 | | 72 | 34 | 6,0 | 0330 | o |
| 3,40 | | | 72 | 34 | 6,0 | 0340 | o |
| 3,50 | M4x0,5 | | 72 | 34 | 6,0 | 0350 | o |
| 3,60 | | | 72 | 34 | 6,0 | 0360 | o |
| 3,70 | M4,5 | M4 | 72 | 34 | 6,0 | 0370 | o |
| 3,80 | M4x0,5 | | 81 | 43 | 6,0 | 0380 | o |
| 3,90 | | | 81 | 43 | 6,0 | 0390 | o |
| 4,00 | | | 81 | 43 | 6,0 | 0400 | o |
| 4,10 | | | 81 | 43 | 6,0 | 0410 | o |
| 4,20 | M5 | M4,5 | 81 | 43 | 6,0 | 0420 | o |
| 4,30 | | | 81 | 43 | 6,0 | 0430 | o |
| 4,40 | | | 81 | 43 | 6,0 | 0440 | o |
| 4,50 | M5x0,5 | | 81 | 43 | 6,0 | 0450 | o |
| 4,60 | M5,5 | | 81 | 43 | 6,0 | 0460 | o |
| 4,70 | | | 81 | 43 | 6,0 | 0470 | o |
| 4,80 | M5x0,5 | | 95 | 57 | 6,0 | 0480 | o |
| 4,90 | | | 95 | 57 | 6,0 | 0490 | o |
| 5,00 | M6 | | 95 | 57 | 6,0 | 0500 | o |
| 5,10 | | M5,5 | 95 | 57 | 6,0 | 0510 | o |
| 5,20 | M6x0,75 | | 95 | 57 | 6,0 | 0520 | o |
| 5,30 | | | 95 | 57 | 6,0 | 0530 | o |
| 5,40 | | | 95 | 57 | 6,0 | 0540 | o |
| 5,50 | | | 95 | 57 | 6,0 | 0550 | o |
| 5,60 | | M6 | 95 | 57 | 6,0 | 0560 | o |
| 5,70 | M6x0,75 | | 95 | 57 | 6,0 | 0570 | o |
| 5,80 | M6x0,5 | | 95 | 57 | 6,0 | 0580 | o |
| 5,90 | | | 95 | 57 | 6,0 | 0590 | o |
| 6,00 | M7 | | 95 | 57 | 6,0 | 0600 | o |
| 6,10 | | | 114 | 76 | 8,0 | 0610 | o |
| 6,20 | M7x0,75 | | 114 | 76 | 8,0 | 0620 | o |
| 6,30 | | | 114 | 76 | 8,0 | 0630 | o |
| 6,40 | | | 114 | 76 | 8,0 | 0640 | o |
| 6,50 | | | 114 | 76 | 8,0 | 0650 | o |
| 6,60 | | M7 | 114 | 76 | 8,0 | 0660 | o |
| 6,70 | M7x0,75 | | 114 | 76 | 8,0 | 0670 | o |
| 6,80 | M8 | | 114 | 76 | 8,0 | 0680 | o |
| 6,90 | | | 114 | 76 | 8,0 | 0690 | o |
| 7,00 | M8x1 | | 114 | 76 | 8,0 | 0700 | o |
| 7,10 | | | 114 | 76 | 8,0 | 0710 | o |
| 7,20 | M8x0,75 | | 114 | 76 | 8,0 | 0720 | o |
| 7,30 | | | 114 | 76 | 8,0 | 0730 | o |
| 7,40 | | | 114 | 76 | 8,0 | 0740 | o |
| 7,50 | | | 114 | 76 | 8,0 | 0750 | o |

**Example of order**

**W9-624063-0300**
**WK 1300 3,00 DIN-6537 8xD VHM IK AT**

● **Available from stock**
○ **On request**

Posibility of production drills with shank according to DIN-6535-HB, DIN-6535-HE

FANAR®

# Solid carbide twist drills

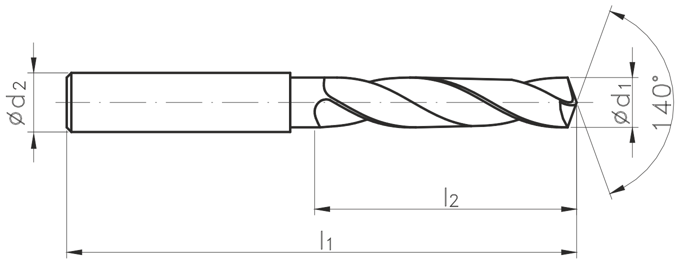
8xD **Maximal hole depth** 4 Guide margins

1300

VHM

AT

DIN 6537




| | |
|---|---|
| Material groups | |
| Internal cooling | |
| Quality of material | VHM |
| Coating | AT |

| Ć d1 | M MF | M "WGN" | l1 | l2 | Ćd2h6 | Norm / Tol. / INDEX | DIN-6537 / m7 / W9-624063 |
|---|---|---|---|---|---|---|---|
| 7,60 | M8x1 | | 114 | 76 | 8,0 | 0760 | ○ |
| 7,70 | M8x0,75 | | 114 | 76 | 8,0 | 0770 | ○ |
| 7,80 | M9 | | 114 | 76 | 8,0 | 0780 | ○ |
| 7,90 | | | 114 | 76 | 8,0 | 0790 | ○ |
| 8,00 | M9x1 | | 114 | 76 | 8,0 | 0800 | ○ |
| 8,10 | | | 142 | 95 | 10,0 | 0810 | ○ |
| 8,20 | M9x0,75 | | 142 | 95 | 10,0 | 0820 | ○ |
| 8,30 | | | 142 | 95 | 10,0 | 0830 | ○ |
| 8,40 | | | 142 | 95 | 10,0 | 0840 | ○ |
| 8,50 | M10 | | 142 | 95 | 10,0 | 0850 | ○ |
| 8,60 | | M9x1 | 142 | 95 | 10,0 | 0860 | ○ |
| 8,70 | | M9x0,75 | 142 | 95 | 10,0 | 0870 | ○ |
| 8,80 | M10x1,25 | | 142 | 95 | 10,0 | 0880 | ○ |
| 8,90 | | | 142 | 95 | 10,0 | 0890 | ○ |
| 9,00 | M10x1 | | 142 | 95 | 10,0 | 0900 | ○ |
| 9,10 | | | 142 | 95 | 10,0 | 0910 | ○ |
| 9,20 | M10x0,75 | | 142 | 95 | 10,0 | 0920 | ○ |
| 9,30 | | | 142 | 95 | 10,0 | 0930 | ○ |
| 9,40 | | | 142 | 95 | 10,0 | 0940 | ○ |
| 9,50 | M11 | | 142 | 95 | 10,0 | 0950 | ○ |
| 9,60 | | M10x1 | 142 | 95 | 10,0 | 0960 | ○ |
| 9,70 | | M10x0,75 | 142 | 95 | 10,0 | 0970 | ○ |
| 9,80 | | | 142 | 95 | 10,0 | 0980 | ○ |
| 9,90 | | | 142 | 95 | 10,0 | 0990 | ○ |
| 10,00 | M11x1 | | 142 | 95 | 10,0 | 1000 | ○ |
| 10,10 | | | 162 | 114 | 12,0 | 1010 | ○ |
| 10,20 | M12 | | 162 | 114 | 12,0 | 1020 | ○ |
| 10,30 | | | 162 | 114 | 12,0 | 1030 | ○ |
| 10,40 | | | 162 | 114 | 12,0 | 1040 | ○ |
| 10,50 | M12x1,5 | | 162 | 114 | 12,0 | 1050 | ○ |
| 10,60 | | M11x1 | 162 | 114 | 12,0 | 1060 | ○ |
| 10,70 | | | 162 | 114 | 12,0 | 1070 | ○ |
| 10,80 | M12x1,25 | | 162 | 114 | 12,0 | 1080 | ○ |
| 10,90 | | | 162 | 114 | 12,0 | 1090 | ○ |
| 11,00 | M12x1 | | 162 | 114 | 12,0 | 1100 | ○ |
| 11,10 | | | 162 | 114 | 12,0 | 1110 | ○ |
| 11,20 | | | 162 | 114 | 12,0 | 1120 | ○ |
| 11,30 | | | 162 | 114 | 12,0 | 1130 | ○ |
| 11,40 | | | 162 | 114 | 12,0 | 1140 | ○ |
| 11,50 | | | 162 | 114 | 12,0 | 1150 | ○ |
| 11,60 | | M12x1 | 162 | 114 | 12,0 | 1160 | ○ |
| 11,70 | | | 162 | 114 | 12,0 | 1170 | ○ |
| 11,80 | | | 162 | 114 | 12,0 | 1180 | ○ |
| 11,90 | | | 162 | 114 | 12,0 | 1190 | ○ |
| 12,00 | M14 | | 162 | 114 | 12,0 | 1200 | ○ |
| 12,30 | | | 178 | 133 | 14,0 | 1230 | ○ |





**Example of order**

**W9-624063-0760**
**WK 1300 7,60 DIN-6537 8xD VHM IK AT**

● **Available from stock**
○ **On request**

Posibility of production drills with shank according to DIN-6535-HB, DIN-6535-HE

# 8xD Maximal hole depth

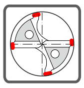
4 Guide margins

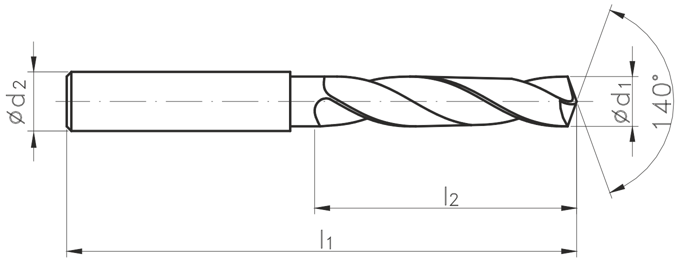
1300

VHM

AT

DIN 6537

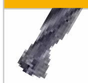





| | 1300 |
|---|---|
| Material groups | P M K N S H |
| Internal cooling | IK |
| Quality of material | VHM |
| Coating | AT |

| Ć d1 | M MF | M "WGN" | l1 | l2 | Ćd2h6 | Norm | DIN-6537 |
|---|---|---|---|---|---|---|---|
| | | | | | | Tol. | m7 |
| | | | | | | INDEX | W9-624063 |
| 12,50 | M14x1,5 | | 178 | 133 | 14,0 | 1250 | ○ |
| 12,80 | | | 178 | 133 | 14,0 | 1280 | ○ |
| 13,00 | M14x1 | | 178 | 133 | 14,0 | 1300 | ○ |
| 13,50 | | | 178 | 133 | 14,0 | 1350 | ○ |
| 13,80 | | | 178 | 133 | 14,0 | 1380 | ○ |
| 14,00 | M16, M15x1 | | 178 | 133 | 14,0 | 1400 | ○ |
| 14,50 | M16x1,5 | | 203 | 152 | 16,0 | 1450 | ○ |
| 14,80 | | | 203 | 152 | 16,0 | 1480 | ○ |
| 15,00 | M16x1 | | 203 | 152 | 16,0 | 1500 | ○ |
| 15,50 | M18 | | 203 | 152 | 16,0 | 1550 | ○ |
| 15,80 | | | 203 | 152 | 16,0 | 1580 | ○ |
| 16,00 | M18x2 | | 203 | 152 | 16,0 | 1600 | ○ |
| 16,50 | M18x1,5 | | 222 | 171 | 18,0 | 1650 | ○ |
| 16,80 | | | 222 | 171 | 18,0 | 1680 | ○ |
| 17,00 | M18x1 | | 222 | 171 | 18,0 | 1700 | ○ |
| 17,50 | M20 | | 222 | 171 | 18,0 | 1750 | ○ |
| 17,80 | | | 222 | 171 | 18,0 | 1780 | ○ |
| 18,00 | M20x2 | | 222 | 171 | 18,0 | 1800 | ○ |
| 18,50 | M20x1,5 | | 243 | 190 | 20,0 | 1850 | ○ |
| 19,00 | M20x1 | | 243 | 190 | 20,0 | 1900 | ○ |
| 19,50 | M22 | | 243 | 190 | 20,0 | 1950 | ○ |
| 19,80 | | | 243 | 190 | 20,0 | 1980 | ○ |
| 20,00 | M22x2 | | 243 | 190 | 20,0 | 2000 | ○ |

6



**Example of order**

**W9-624063-1250**
**WK 1300 12,50 DIN-6537 8xD VHM IK AT**

● **Available from stock**
○ **On request**

Posibility of production drills with shank according to DIN-6535-HB, DIN-6535-HE

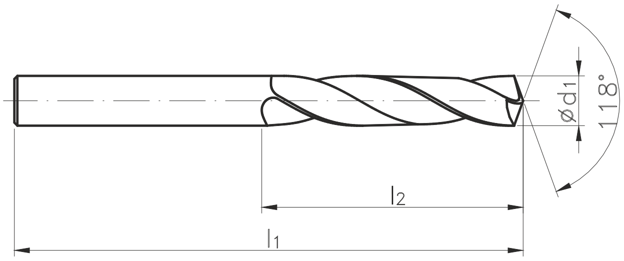
FANAR®

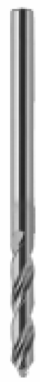
# Solid carbide micro twist drills

1300micro

VHM

DIN 6539



| | 1300micro |
|---|---|
| Material groups | |
| Internal cooling | - |
| Quality of material | VHM |
| Coating | - |

| Ć $d_1$ | M MF | M "WGN" | $l_1$ | $l_2$ | Norm / Tol. / INDEX | DIN-6539 / h7 / W9-801014 |
|---|---|---|---|---|---|---|
| 0,75 | M1 | | 22 | 6 | 0075 | ● |
| 0,85 | M1,1 | | 24 | 6 | 0085 | ● |
| 0,90 | | M1 | 24 | 7 | 0090 | ● |
| 0,95 | M1,2 | | 24 | 7 | 0095 | ● |
| 1,00 | | M1,1 | 26 | 7 | 0100 | ● |
| 1,10 | M1,4 | | 28 | 8 | 0110 | ● |
| 1,25 | M1,6 | | 30 | 9 | 0125 | ● |
| 1,28 | | M1,4 | 30 | 9 | 0128 | ● |
| 1,35 | M1,7 | | 30 | 9 | 0135 | ● |
| 1,45 | M1,8 | | 32 | 10 | 0145 | ● |
| 1,47 | | M1,6 | 32 | 10 | 0147 | ● |
| 1,57 | | M1,7 | 32 | 10 | 0157 | ● |
| 1,60 | M2 | | 34 | 11 | 0160 | ● |
| 1,67 | | M1,8 | 34 | 11 | 0167 | ● |
| 1,75 | M2,2 | | 34 | 11 | 0175 | ● |
| 1,85 | | M2 | 36 | 12 | 0185 | ● |
| 1,90 | M2,3 | | 36 | 12 | 0190 | ● |
| 2,00 | | | 38 | 12 | 0200 | ● |
| 2,03 | | M2,2 | 38 | 12 | 0203 | ● |
| 2,05 | M2,5 | | 38 | 12 | 0205 | ● |
| 2,10 | | | 38 | 12 | 0210 | ● |
| 2,15 | M2,6 | M2,3 | 38 | 12 | 0215 | ● |
| 2,20 | | | 40 | 13 | 0220 | ● |
| 2,30 | | | 40 | 13 | 0230 | ● |
| 2,33 | | M2,5 | 40 | 13 | 0233 | ● |
| 2,40 | | | 43 | 14 | 0240 | ● |
| 2,43 | | M2,6 | 43 | 14 | 0243 | ● |
| 2,50 | M3 | | 43 | 14 | 0250 | ● |
| 2,60 | | | 43 | 14 | 0260 | ● |
| 2,70 | | | 46 | 16 | 0270 | ● |
| 2,80 | | M3 | 46 | 16 | 0280 | ● |
| 2,90 | M3,5 | | 46 | 16 | 0290 | ● |

6



**Example of order**

**W9-801014-0075**
**WK 1300micro 0,75 DIN-6539 VHM**

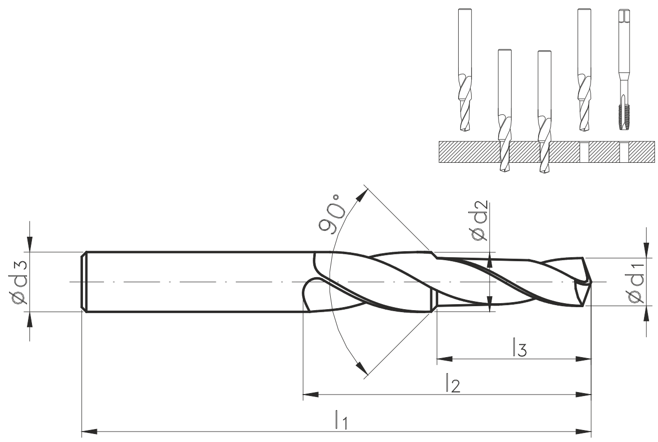
● **Available from stock**
○ **On request**

| | 1300 |
|---|---|

VHM

AT

DIN 6537




| | 1300 |
|---|---|
| Material groups | P M K N S H |
| Execution | 90° |
| Quality of material | VHM |
| Coating | AT |

| Ć d1 | M | l1 | l2 | l3 | Ć d2 | Ćd2h6 | Norm / Tol. / INDEX | ~DIN-6537 / m7 / W9-704010 |
|---|---|---|---|---|---|---|---|---|
| 2,50 | M3 | 62 | 20 | 8,8 | 6 | 6 | 0250 | ● |
| 3,30 | M4 | 62 | 24 | 11,4 | 6 | 6 | 0330 | ● |
| 4,20 | M5 | 66 | 28 | 13,6 | 6 | 6 | 0420 | ● |
| 5,00 | M6 | 79 | 34 | 16,5 | 8 | 8 | 0500 | ● |
| 6,80 | M8 | 89 | 47 | 21,0 | 10 | 10 | 0680 | ● |
| 8,50 | M10 | 102 | 55 | 25,5 | 12 | 12 | 0850 | ● |
| 10,20 | M12 | 107 | 60 | 30,0 | 14 | 14 | 1020 | ● |
| 12,00 | M14 | 115 | 65 | 34,5 | 16 | 16 | 1200 | ● |
| 14,00 | M16 | 123 | 73 | 38,5 | 18 | 18 | 1400 | ● |

6

**Example of order**

W9-704010-0330
WT 1300 3,30 DIN-6537 VHM AT

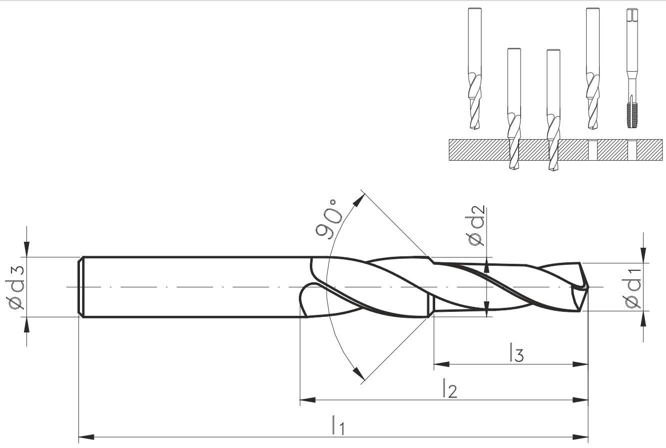
● Available from stock
○ On request

# Solid carbide step drills for forming taps

VHM

AT

DIN ~6537




| | 1300 |
|---|---|
| |  |
| Material groups | |
| Execution | 90° |
| Quality of material | VHM |
| Coating | AT |

| Ć d1 | M MF | l1 | l3 | Ć d2 | Ćd2h6 | Norm | ~DIN-6537 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Tol. | m7 | | | | |
| | | | | | | INDEX | W9-704010 | | | | |
| 2,35 | M2,5 | 60 | 10 | 4 | 4 | 0235 | ● | | | | |
| 2,80 | M3 | 62 | 12 | 4 | 4 | 0280 | ● | | | | |
| 3,70 | M4 | 64 | 14 | 6 | 6 | 0370 | ● | | | | |
| 4,65 | M5 | 80 | 20 | 6 | 6 | 0465 | ● | | | | |
| 5,55 | M6 | 80 | 24 | 8 | 8 | 0555 | ● | | | | |
| 7,45 | M8 | 80 | 30 | 10 | 10 | 0745 | ● | | | | |
| 9,30 | M10 | 90 | 40 | 12 | 12 | 0930 | ● | | | | |
| 11,20 | M12 | 100 | 45 | 14 | 14 | 1120 | ○ | | | | |

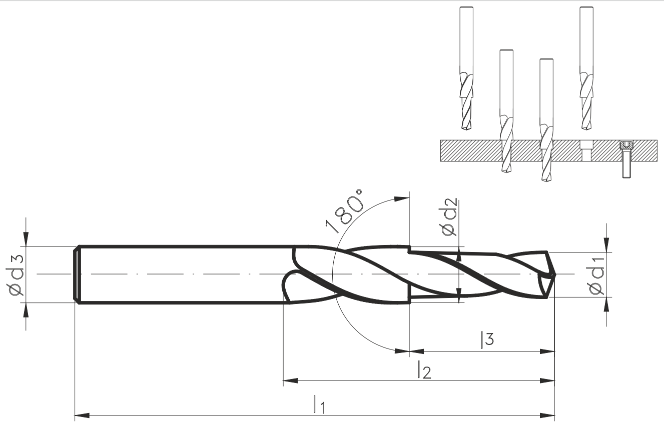




**Example of order**

**W9-704010-0235**
**WT 1300 2,35 DIN-6537 VHM**

● **Available from stock**
○ **On request**

| | 1300 | | | | |
|---|---|---|---|---|---|
| VHM<br>AT<br>DIN ~6537<br> |  | | | | |
| Material groups | P M K N S H | | | | |
| Execution | 180° | | | | |
| Quality of material | VHM | | | | |
| Coating | AT | | | | |



| Ć $d_1$ | M | $l_1$ | $l_2$ | $l_3$ | Ć $d_2$ | Ć$d_2$h6 | Norm | ~DIN-6537 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Tol. | m7 | | | |
| | | | | | | | INDEX | W9-714010 | | | |
| 3,40 | M3 | 66 | 28 | 9 | 6 | 6 | 0340 | ● | | | |
| 4,50 | M4 | 80 | 37 | 11 | 8 | 8 | 0450 | ● | | | |
| 5,50 | M5 | 89 | 43 | 13 | 10 | 10 | 0550 | ● | | | |
| 6,60 | M6 | 95 | 47 | 15 | 11 | 12 | 0660 | ● | | | |
| 9,00 | M8 | 110 | 56 | 19 | 15 | 16 | 0900 | ● | | | |
| 11,00 | M10 | 123 | 62 | 23 | 18 | 18 | 1100 | ● | | | |



**Example of order**

**W9-714010-0340**
**WT 1300 3,40 ~DIN-6537 VHM AT**

● **Available from stock**
○ **On request**

# Solid carbide twist drills for aluminum

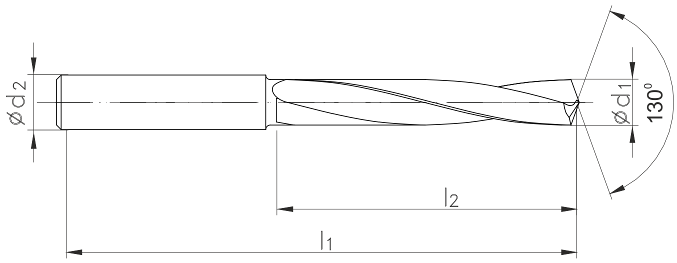
## 5xD Maximal hole depth

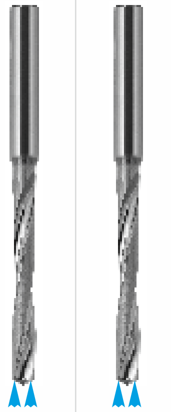
AL

VHM

TB

DIN 6537



| | | |
|---|---|---|
| Material groups | N | N |
| Internal cooling | IK | IK |
| Quality of material | VHM | VHM |
| Coating | - | TB |

| Ć $d_1$ | M MF | M MF "WGN" | $l_1$ | $l_2$ | Ć $d_2$h6 | Norm / Tol. / INDEX | DIN-6537 m7 W9-611733 | DIN-6537 m7 W9-61B733 |
|---|---|---|---|---|---|---|---|---|
| 3,00 | | | 66 | 28 | 6,0 | 0300 | ○ | ○ |
| 3,10 | | | 66 | 28 | 6,0 | 0310 | ○ | ○ |
| 3,20 | | | 66 | 28 | 6,0 | 0320 | ○ | ○ |
| 3,25 | | M3,5 | 66 | 28 | 6,0 | 0325 | ○ | ○ |
| 3,30 | M4 | | 66 | 28 | 6,0 | 0330 | ○ | ○ |
| 3,40 | | | 66 | 28 | 6,0 | 0340 | ○ | ○ |
| 3,50 | M4x0,5 | | 66 | 28 | 6,0 | 0350 | ○ | ○ |
| 3,60 | | | 66 | 28 | 6,0 | 0360 | ○ | ○ |
| 3,70 | M4,5 | M4 | 66 | 28 | 6,0 | 0370 | ○ | ○ |
| 3,80 | | | 74 | 36 | 6,0 | 0380 | ○ | ○ |
| 3,90 | | | 74 | 36 | 6,0 | 0390 | ○ | ○ |
| 4,00 | | | 74 | 36 | 6,0 | 0400 | ○ | ○ |
| 4,10 | | | 74 | 36 | 6,0 | 0410 | ○ | ○ |
| 4,20 | M5 | M4,5 | 74 | 36 | 6,0 | 0420 | ○ | ○ |
| 4,30 | | | 74 | 36 | 6,0 | 0430 | ○ | ○ |
| 4,40 | | | 74 | 36 | 6,0 | 0440 | ○ | ○ |
| 4,50 | M5x0,5 | | 74 | 36 | 6,0 | 0450 | ○ | ○ |
| 4,60 | M5,5 | | 74 | 36 | 6,0 | 0460 | ○ | ○ |
| 4,65 | | M5 | 74 | 36 | 6,0 | 0465 | ○ | ○ |
| 4,70 | | | 74 | 36 | 6,0 | 0470 | ○ | ○ |
| 4,80 | | | 82 | 44 | 6,0 | 0480 | ○ | ○ |
| 4,90 | | | 82 | 44 | 6,0 | 0490 | ○ | ○ |
| 5,00 | M6 | | 82 | 44 | 6,0 | 0500 | ○ | ○ |
| 5,10 | | M5,5 | 82 | 44 | 6,0 | 0510 | ○ | ○ |
| 5,20 | M6x0,75 | | 82 | 44 | 6,0 | 0520 | ○ | ○ |
| 5,30 | | | 82 | 44 | 6,0 | 0530 | ○ | ○ |
| 5,40 | | | 82 | 44 | 6,0 | 0540 | ○ | ○ |
| 5,50 | | | 82 | 44 | 6,0 | 0550 | ○ | ○ |
| 5,60 | | M6 | 82 | 44 | 6,0 | 0560 | ○ | ○ |
| 5,70 | | | 82 | 44 | 6,0 | 0570 | ○ | ○ |
| 5,80 | | | 82 | 44 | 6,0 | 0580 | ○ | ○ |
| 5,90 | | | 82 | 44 | 6,0 | 0590 | ○ | ○ |
| 6,00 | M7 | | 82 | 44 | 6,0 | 0600 | ○ | ○ |
| 6,10 | | | 91 | 53 | 8,0 | 0610 | ○ | ○ |
| 6,20 | M7x0,75 | | 91 | 53 | 8,0 | 0620 | ○ | ○ |
| 6,30 | | | 91 | 53 | 8,0 | 0630 | ○ | ○ |
| 6,40 | | | 91 | 53 | 8,0 | 0640 | ○ | ○ |
| 6,50 | | | 91 | 53 | 8,0 | 0650 | ○ | ○ |
| 6,60 | | M7 | 91 | 53 | 8,0 | 0660 | ○ | ○ |
| 6,70 | | | 91 | 53 | 8,0 | 0670 | ○ | ○ |
| 6,80 | M8 | | 91 | 53 | 8,0 | 0680 | ○ | ○ |
| 6,90 | | | 91 | 53 | 8,0 | 0690 | ○ | ○ |
| 7,00 | M8x1 | | 91 | 53 | 8,0 | 0700 | ○ | ○ |
| 7,10 | | | 91 | 53 | 8,0 | 0710 | ○ | ○ |
| 7,20 | M8x0,75 | | 91 | 53 | 8,0 | 0720 | ○ | ○ |
| 7,30 | | | 91 | 53 | 8,0 | 0730 | ○ | ○ |

6

**Example of order**

**W9-611733-0300**
**WK AL 3,00 DIN-6537 5xD VHM IK**

● Available from stock
○ On request

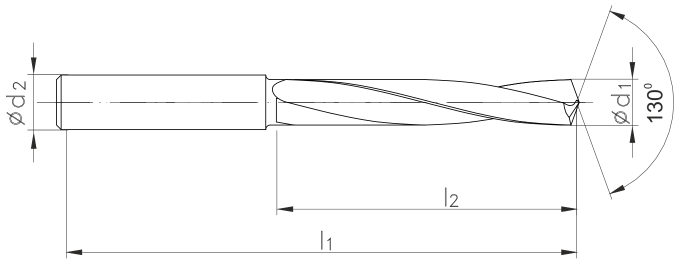
## 5xD Maximal hole depth

AL

VHM

TB

DIN 6537




| | | |
|---|---|---|
| Material groups | N | N |
| Internal cooling | IK | IK |
| Quality of material | VHM | VHM |
| Coating | - | TB |

| Ćd1 | M MF | M MF "WGN" | $l_1$ | $l_2$ | Ć$d_2$h6 | Norm | DIN-6537 | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Tol. | m7 | m7 |
| | | | | | | INDEX | W9-611733 | W9-61B733 |
| 7,40 | | | 91 | 53 | 8,0 | 0740 | o | o |
| 7,45 | | M8 | 91 | 53 | 8,0 | 0745 | o | o |
| 7,50 | | | 91 | 53 | 8,0 | 0750 | o | o |
| 7,60 | | M8x1 | 91 | 53 | 8,0 | 0760 | o | o |
| 7,70 | | | 91 | 53 | 8,0 | 0770 | o | o |
| 7,80 | M9 | | 91 | 53 | 8,0 | 0780 | o | o |
| 7,90 | | | 91 | 53 | 8,0 | 0790 | o | o |
| 8,00 | M9x1 | | 91 | 53 | 8,0 | 0800 | o | o |
| 8,10 | | | 103 | 61 | 10,0 | 0810 | o | o |
| 8,20 | M9x0,75 | | 103 | 61 | 10,0 | 0820 | o | o |
| 8,30 | | | 103 | 61 | 10,0 | 0830 | o | o |
| 8,40 | | | 103 | 61 | 10,0 | 0840 | o | o |
| 8,45 | | M9 | 103 | 61 | 10,0 | 0845 | o | o |
| 8,50 | M10 | | 103 | 61 | 10,0 | 0850 | o | o |
| 8,60 | | M9x1 | 103 | 61 | 10,0 | 0860 | o | o |
| 8,70 | | M9x0,75 | 103 | 61 | 10,0 | 0870 | o | o |
| 8,80 | M10x1,25 | | 103 | 61 | 10,0 | 0880 | o | o |
| 8,90 | | | 103 | 61 | 10,0 | 0890 | o | o |
| 9,00 | M10x1 | | 103 | 61 | 10,0 | 0900 | o | o |
| 9,10 | | | 103 | 61 | 10,0 | 0910 | o | o |
| 9,20 | M10x0,75 | | 103 | 61 | 10,0 | 0920 | o | o |
| 9,30 | | | 103 | 61 | 10,0 | 0930 | o | o |
| 9,35 | | M10 | 103 | 61 | 10,0 | 0935 | o | o |
| 9,40 | | | 103 | 61 | 10,0 | 0940 | o | o |
| 9,45 | | M10x1,25 | 103 | 61 | 10,0 | 0945 | o | o |
| 9,50 | M11 | | 103 | 61 | 10,0 | 0950 | o | o |
| 9,60 | | M10x1 | 103 | 61 | 10,0 | 0960 | o | o |
| 9,70 | | M10x0,75 | 103 | 61 | 10,0 | 0970 | o | o |
| 9,80 | | | 103 | 61 | 10,0 | 0980 | o | o |
| 9,90 | | | 103 | 61 | 10,0 | 0990 | o | o |
| 10,00 | M11x1 | | 103 | 61 | 10,0 | 1000 | o | o |
| 10,10 | | | 118 | 71 | 12,0 | 1010 | o | o |
| 10,20 | M12 | | 118 | 71 | 12,0 | 1020 | o | o |
| 10,30 | | | 118 | 71 | 12,0 | 1030 | o | o |
| 10,40 | | | 118 | 71 | 12,0 | 1040 | o | o |
| 10,50 | M12x1,5 | | 118 | 71 | 12,0 | 1050 | o | o |
| 10,60 | | M11x1 | 118 | 71 | 12,0 | 1060 | o | o |
| 10,70 | | | 118 | 71 | 12,0 | 1070 | o | o |
| 10,80 | M12x1,25 | | 118 | 71 | 12,0 | 1080 | o | o |
| 10,90 | | | 118 | 71 | 12,0 | 1090 | o | o |
| 11,00 | M12x1 | | 118 | 71 | 12,0 | 1100 | o | o |
| 11,10 | | | 118 | 71 | 12,0 | 1110 | o | o |
| 11,20 | | | 118 | 71 | 12,0 | 1120 | o | o |
| 11,25 | | M12 | 118 | 71 | 12,0 | 1125 | o | o |
| 11,30 | | | 118 | 71 | 12,0 | 1130 | o | o |
| 11,35 | | M12x1,5 | 118 | 71 | 12,0 | 1135 | o | o |

6

**Example of order**

**W9-611733-0740**
**WK AL 7,40 DIN-6537 5xD VHM IK**

● **Available from stock**
○ **On request**

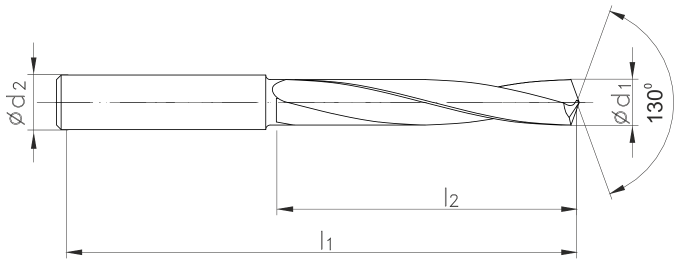
# 5xD Maximal hole depth

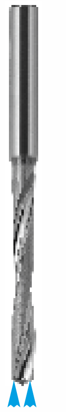
AL

VHM

TB

DIN 6537



| | | | |
|---|---|---|---|
| Material groups | | N | N |
| Internal cooling | | IK | IK |
| Quality of material | | VHM | VHM |
| Coating | | - | TB |

| Ć d1 | M MF | M MF "WGN" | $l_1$ | $l_2$ | Ć $d_2$h6 | Norm / Tol. / INDEX | DIN-6537 m7 W9-611733 | DIN-6537 m7 W9-61B733 |
|---|---|---|---|---|---|---|---|---|
| 11,40 | | | 118 | 71 | 12,0 | 1140 | ○ | ○ |
| 11,45 | | M12x1,25 | 118 | 71 | 12,0 | 1145 | ○ | ○ |
| 11,50 | | | 118 | 71 | 12,0 | 1150 | ○ | ○ |
| 11,60 | | M12x1 | 118 | 71 | 12,0 | 1160 | ○ | ○ |
| 11,70 | | | 118 | 71 | 12,0 | 1170 | ○ | ○ |
| 11,80 | | | 118 | 71 | 12,0 | 1180 | ○ | ○ |
| 11,90 | | | 118 | 71 | 12,0 | 1190 | ○ | ○ |
| 12,00 | M14 | | 118 | 71 | 12,0 | 1200 | ○ | ○ |
| 12,30 | | | 124 | 77 | 14,0 | 1230 | ○ | ○ |
| 12,50 | M14x1,5 | | 124 | 77 | 14,0 | 1250 | ○ | ○ |
| 12,80 | M14x1,25 | | 124 | 77 | 14,0 | 1280 | ○ | ○ |
| 13,00 | M14x1 | M14 | 124 | 77 | 14,0 | 1300 | ○ | ○ |
| 13,50 | | | 124 | 77 | 14,0 | 1350 | ○ | ○ |
| 13,80 | | | 124 | 77 | 14,0 | 1380 | ○ | ○ |
| 14,00 | M16; M15x1 | | 124 | 77 | 14,0 | 1400 | ○ | ○ |
| 14,50 | M16x1,5 | | 133 | 83 | 16,0 | 1450 | ○ | ○ |
| 14,80 | | | 133 | 83 | 16,0 | 1480 | ○ | ○ |
| 15,00 | M16x1 | M16 | 133 | 83 | 16,0 | 1500 | ○ | ○ |
| 15,35 | | M16x1,5 | 133 | 83 | 16,0 | 1535 | ○ | ○ |
| 15,50 | M18 | | 133 | 83 | 16,0 | 1550 | ○ | ○ |
| 15,80 | | | 133 | 83 | 16,0 | 1580 | ○ | ○ |
| 16,00 | M18x2 | | 133 | 83 | 16,0 | 1600 | ○ | ○ |
| 16,50 | M18x1,5 | | 143 | 93 | 18,0 | 1650 | ○ | ○ |
| 16,80 | | M18 | 143 | 93 | 18,0 | 1680 | ○ | ○ |
| 17,00 | M18x1 | | 143 | 93 | 18,0 | 1700 | ○ | ○ |
| 17,35 | | M18x1,5 | 143 | 93 | 18,0 | 1735 | ○ | ○ |
| 17,50 | M20 | | 143 | 93 | 18,0 | 1750 | ○ | ○ |
| 17,80 | | | 143 | 93 | 18,0 | 1780 | ○ | ○ |
| 18,00 | M20x2 | | 143 | 93 | 18,0 | 1800 | ○ | ○ |
| 18,50 | M20x1,5 | | 153 | 101 | 20,0 | 1850 | ○ | ○ |
| 18,80 | | M20 | 153 | 101 | 20,0 | 1880 | ○ | ○ |
| 19,00 | M20x1 | | 153 | 101 | 20,0 | 1900 | ○ | ○ |
| 19,35 | | M20x1,5 | 153 | 101 | 20,0 | 1935 | ○ | ○ |
| 19,50 | M22 | | 153 | 101 | 20,0 | 1950 | ○ | ○ |
| 19,80 | | | 153 | 101 | 20,0 | 1980 | ○ | ○ |
| 20,00 | M22x2 | | 153 | 101 | 20,0 | 2000 | ○ | ○ |

6

**Example of order**

**W9-611733-1140**
**WK AL 11,40 DIN-6537 VHM IK**

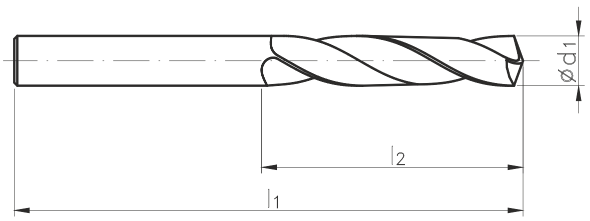
● **Available from stock**
○ **On request**

## INOX

HSSE

TN2

DIN 338




| | W2-101811 | W2-103811 |
|---|---|---|
| Material groups | P M K N S H | P M K N S H |
| Internal cooling | - | - |
| Quality of material | HSSE | HSSE |
| Coating | - | TN2 |

| Ć $d_1$ | M MF | M MF "WGN" | $l_1$ | $l_2$ | Norm | DIN-338 | |
|---|---|---|---|---|---|---|---|
| | | | | | Tol. | h8 | h8 |
| | | | | | INDEX | W2-101811 | W2-103811 |
| 1,00 | | M1,1 | 34 | 12 | 0100 | ● | ○ |
| 1,10 | M1,4 | M1,2 | 36 | 14 | 0110 | ● | ○ |
| 1,20 | | | 38 | 16 | 0120 | ● | ○ |
| 1,30 | | | 38 | 16 | 0130 | ● | ○ |
| 1,40 | | | 40 | 18 | 0140 | ● | ○ |
| 1,50 | | | 40 | 18 | 0150 | ● | ○ |
| 1,60 | M2 | | 43 | 20 | 0160 | ● | ○ |
| 1,70 | | | 43 | 20 | 0170 | ● | ○ |
| 1,80 | | | 46 | 22 | 0180 | ● | ○ |
| 1,83 | | M2 | 46 | 22 | 0183 | ○ | ○ |
| 1,90 | M2,3 | | 46 | 22 | 0190 | ● | ○ |
| 2,00 | | M2,2 | 49 | 24 | 0200 | ● | ● |
| 2,05 | M2,5 | | 49 | 24 | 0205 | ○ | ○ |
| 2,10 | | | 49 | 24 | 0210 | ● | ○ |
| 2,20 | | | 53 | 27 | 0220 | ● | ○ |
| 2,30 | | M2,5 | 53 | 27 | 0230 | ● | ○ |
| 2,40 | | | 57 | 30 | 0240 | ● | ○ |
| 2,50 | M3 | | 57 | 30 | 0250 | ● | ● |
| 2,60 | | | 57 | 30 | 0260 | ● | ○ |
| 2,70 | | | 61 | 33 | 0270 | ● | ○ |
| 2,80 | | M3 | 61 | 33 | 0280 | ● | ○ |
| 2,90 | M3,5 | | 61 | 33 | 0290 | ● | ○ |
| 3,00 | | | 61 | 33 | 0300 | ● | ● |
| 3,10 | | | 65 | 36 | 0310 | ● | ○ |
| 3,20 | | | 65 | 36 | 0320 | ● | ● |
| 3,25 | | M3,5 | 65 | 36 | 0325 | ○ | ○ |
| 3,30 | M4 | | 65 | 36 | 0330 | ● | ● |
| 3,40 | | | 70 | 39 | 0340 | ● | ○ |
| 3,50 | M4x0,5 | | 70 | 39 | 0350 | ● | ● |
| 3,60 | | | 70 | 39 | 0360 | ● | ○ |
| 3,70 | M4,5 | M4 | 70 | 39 | 0370 | ● | ○ |
| 3,80 | | | 75 | 43 | 0380 | ● | ○ |
| 3,90 | | | 75 | 43 | 0390 | ● | ○ |
| 4,00 | | | 75 | 43 | 0400 | ● | ● |
| 4,10 | | | 75 | 43 | 0410 | ● | ○ |
| 4,20 | M5 | | 75 | 43 | 0420 | ● | ● |
| 4,30 | | | 80 | 47 | 0430 | ● | ○ |
| 4,40 | | | 80 | 47 | 0440 | ● | ○ |
| 4,50 | M5x0,5 | | 80 | 47 | 0450 | ● | ● |
| 4,60 | M5,5 | | 80 | 47 | 0460 | ● | ○ |
| 4,65 | | M5 | 80 | 47 | 0465 | ○ | ○ |
| 4,70 | | | 80 | 47 | 0470 | ● | ○ |
| 4,80 | | | 86 | 52 | 0480 | ● | ○ |
| 4,90 | | | 86 | 52 | 0490 | ● | ○ |
| 5,00 | M6 | | 86 | 52 | 0500 | ● | ● |
| 5,10 | | | 86 | 52 | 0510 | ● | ● |



**Example of order**

**W2-101811-0100**
**WK INOX 1,00 DIN-338 HSSE**

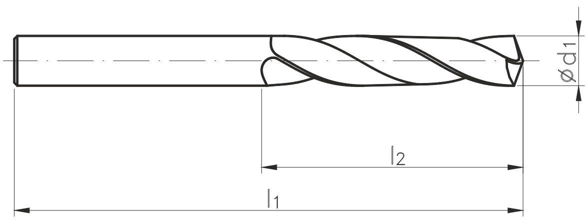
● **Available from stock**
○ **On request**

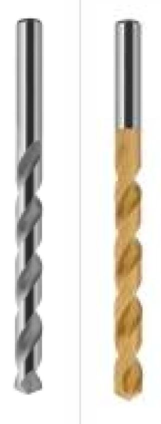
*INOX*

HSSE

TN2

DIN 338



| | W2-101811 | W2-103811 |
|---|---|---|
| Material groups | | P M K N S |
| Internal cooling | - | - |
| Quality of material | HSSE | HSSE |
| Coating | - | TN2 |

| Ć $d_1$ | M MF | M MF "WGN" | $l_1$ | $l_2$ | Norm | DIN-338 | |
|---|---|---|---|---|---|---|---|
| | | | | | Tol. | h8 | h8 |
| | | | | | INDEX | W2-101811 | W2-103811 |
| 5,20 | M6x0,75 | | 86 | 52 | 0520 | ● | ○ |
| 5,30 | | | 86 | 52 | 0530 | ● | ○ |
| 5,40 | | | 93 | 57 | 0540 | ● | ○ |
| 5,50 | | | 93 | 57 | 0550 | ● | ● |
| 5,55 | | | 93 | 57 | 0555 | ○ | ○ |
| 5,60 | | M6 | 93 | 57 | 0560 | ● | ○ |
| 5,70 | | | 93 | 57 | 0570 | ● | ○ |
| 5,80 | | | 93 | 57 | 0580 | ● | ○ |
| 5,90 | | | 93 | 57 | 0590 | ● | ○ |
| 6,00 | M7 | | 93 | 57 | 0600 | ● | ● |
| 6,10 | | | 101 | 63 | 0610 | ● | ○ |
| 6,20 | M7x0,75 | | 101 | 63 | 0620 | ● | ○ |
| 6,30 | | | 101 | 63 | 0630 | ● | ○ |
| 6,40 | | | 101 | 63 | 0640 | ● | ○ |
| 6,50 | | | 101 | 63 | 0650 | ● | ● |
| 6,60 | | M7 | 101 | 63 | 0660 | ● | ○ |
| 6,70 | | | 101 | 63 | 0670 | ● | ○ |
| 6,80 | M8 | | 109 | 69 | 0680 | ● | ● |
| 6,90 | | | 109 | 69 | 0690 | ● | ● |
| 7,00 | M8x1 | | 109 | 69 | 0700 | ● | ● |
| 7,10 | | | 109 | 69 | 0710 | ● | ○ |
| 7,20 | M8x0,75 | | 109 | 69 | 0720 | ● | ○ |
| 7,30 | | | 109 | 69 | 0730 | ● | ○ |
| 7,40 | | M8 | 109 | 69 | 0740 | ● | ○ |
| 7,50 | | | 109 | 69 | 0750 | ● | ● |
| 7,60 | | | 117 | 75 | 0760 | ● | ○ |
| 7,70 | | | 117 | 75 | 0770 | ● | ○ |
| 7,80 | M9 | | 117 | 75 | 0780 | ● | ○ |
| 7,90 | | | 117 | 75 | 0790 | ● | ○ |
| 8,00 | M9x1 | | 117 | 75 | 0800 | ● | ● |
| 8,10 | | | 117 | 75 | 0810 | ● | ○ |
| 8,20 | M9x0,75 | | 117 | 75 | 0820 | ● | ● |
| 8,30 | | | 117 | 75 | 0830 | ● | ○ |
| 8,40 | | | 117 | 75 | 0840 | ● | ○ |
| 8,50 | M10 | | 117 | 75 | 0850 | ● | ● |
| 8,60 | | | 125 | 81 | 0860 | ● | ○ |
| 8,70 | | | 125 | 81 | 0870 | ● | ○ |
| 8,80 | M10x1,25 | | 125 | 81 | 0880 | ● | ○ |
| 8,90 | | | 125 | 81 | 0890 | ● | ○ |
| 9,00 | M10x1 | | 125 | 81 | 0900 | ● | ● |
| 9,10 | | | 125 | 81 | 0910 | ● | ○ |
| 9,20 | M10x0,75 | | 125 | 81 | 0920 | ● | ○ |
| 9,30 | | M10 | 125 | 81 | 0930 | ● | ○ |
| 9,40 | | | 125 | 81 | 0940 | ○ | ○ |
| 9,50 | M11 | | 125 | 81 | 0950 | ● | ● |
| 9,60 | | | 133 | 87 | 0960 | ○ | ○ |



**Example of order**

**W2-101811-0520**
**WK INOX 5,20 DIN-338 HSSE**

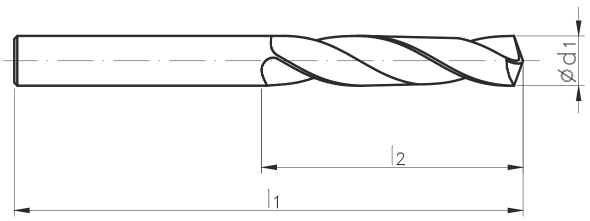
● **Available from stock**
○ **On request**

| | INOX | |
|---|---|---|

HSSE

TN2

DIN 338




| | | |
|---|---|---|
| Material groups | P M K N S H | P M K N S H |
| Internal cooling | - | - |
| Quality of material | HSSE | HSSE |
| Coating | - | TN2 |

| Ć d1 | M MF | M MF "WGN" | $l_1$ | $l_2$ | Norm | DIN-338 | |
|---|---|---|---|---|---|---|---|
| | | | | | Tol. | h8 | h8 |
| | | | | | INDEX | W2-101811 | W2-103811 |
| 9,70 | | | 133 | 87 | 0970 | ● | ○ |
| 9,80 | | | 133 | 87 | 0980 | ● | ○ |
| 9,90 | | | 133 | 87 | 0990 | ○ | ○ |
| 10,00 | M11x1 | | 133 | 87 | 1000 | ● | ● |
| 10,10 | | | 133 | 87 | 1010 | ● | ○ |
| 10,20 | M12 | | 133 | 87 | 1020 | ● | ● |
| 10,30 | | | 133 | 87 | 1030 | ● | ○ |
| 10,40 | | | 133 | 87 | 1040 | ○ | ○ |
| 10,50 | M12x1,5 | | 133 | 87 | 1050 | ● | ● |
| 10,60 | | | 133 | 87 | 1060 | ● | ○ |
| 10,70 | | | 142 | 94 | 1070 | ○ | ○ |
| 10,80 | M12x1,25 | | 142 | 94 | 1080 | ● | ○ |
| 10,90 | | | 142 | 94 | 1090 | ○ | ○ |
| 11,00 | M12x1 | | 142 | 94 | 1100 | ● | ● |
| 11,10 | | | 142 | 94 | 1110 | ○ | ○ |
| 11,20 | | M12 | 142 | 94 | 1120 | ● | ○ |
| 11,30 | | | 142 | 94 | 1130 | ○ | ○ |
| 11,40 | | | 142 | 94 | 1140 | ○ | ○ |
| 11,50 | | | 142 | 94 | 1150 | ● | ○ |
| 11,60 | | | 142 | 94 | 1160 | ○ | ○ |
| 11,70 | | | 142 | 94 | 1170 | ○ | ○ |
| 11,80 | | | 142 | 94 | 1180 | ● | ○ |
| 11,90 | | | 151 | 101 | 1190 | ○ | ○ |
| 12,00 | M14 | | 151 | 101 | 1200 | ● | ● |
| 12,10 | | | 151 | 101 | 1210 | ● | ○ |
| 12,20 | | | 151 | 101 | 1220 | ● | ○ |
| 12,30 | | | 151 | 101 | 1230 | ● | ○ |
| 12,50 | M14x1,5 | | 151 | 101 | 1250 | ● | ● |
| 12,60 | | | 151 | 101 | 1260 | ○ | ○ |
| 12,70 | | | 151 | 101 | 1270 | ● | ○ |
| 12,80 | M14x1,25 | | 151 | 101 | 1280 | ● | ○ |
| 12,90 | | | 151 | 101 | 1290 | ○ | ○ |
| 13,00 | M14x1 | M14 | 151 | 101 | 1300 | ● | ● |
| 13,20 | | | 151 | 101 | 1320 | ● | ○ |
| 13,50 | | | 160 | 108 | 1350 | ● | ○ |
| 13,80 | | | 160 | 108 | 1380 | ○ | ○ |
| 14,00 | M16;M15x1 | | 160 | 108 | 1400 | ● | ● |
| 14,50 | M16x1,5 | | 169 | 114 | 1450 | ● | ○ |
| 15,00 | M16x1 | M16 | 169 | 114 | 1500 | ● | ● |
| 15,50 | M18 | | 178 | 120 | 1550 | ○ | ○ |
| 16,00 | M18x2 | | 178 | 120 | 1600 | ● | ● |

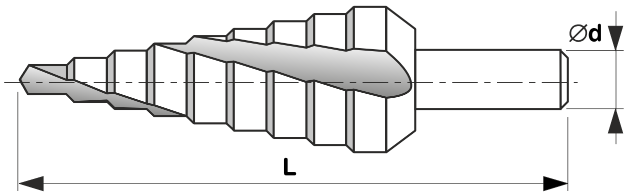
6

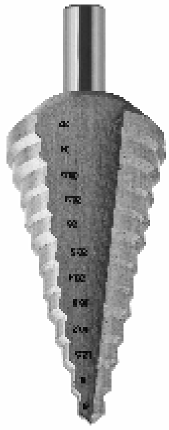
**Example of order**

**W2-101811-0970**
**WK INOX 9,70 DIN-338 HSSE**

● **Available from stock**
○ **On request**

**HSS**



| | |
|---|---|
| Material groups | - |
| Internal cooling | - |
| Quality of material | HSS |
| Coating | - |

| Ć d | L | Ć D | INDEX | | Name |
|---|---|---|---|---|---|
| 8 | 75 | 4/6/8/10/12/14/16/18/20 | W1-641010-0420 | ● | Nr 1 HSS 4-20mm |
| 10 | 100 | 6/8/10/12/14/16/18/20/22/24/26/28/30 | W1-641020-0630 | ● | Nr 2 HSS 6-30mm |
| 10 | 100 | 6/9/13/16/19/21/23/26/29/32/35/38 | W1-641030-0638 | ● | Nr 3 HSS 6-38mm |
| 10 | 100 | 6/9/11,4/14/17,25/19/21,25/24/26,75/30/33/35,7 | W1-642030-0636 | ● | PG 3 HSS 6-36mm |
| 10 | 100 | 6/9/12,5/15,2/18,6/20,4/22,5/26/28,3/30,5/34/37 | W1-642040-0637 | ● | PG 4 HSS 6-37mm |
| 8 | 75 | 4/6/8/10/12/14/16/18/20 | W1-648010-0420 | ● | Nr 1 HSS 4-20mm |
| 10 | 100 | 6/8/10/12/14/16/18/20/22/24/26/28//30 | W1-648020-0630 | ● | Nr 2 HSS 6-30mm |
| 10 | 100 | 6/9/13/16/19/21/23/26/29/32/35/38 | W1-648030-0638 | ○ | Nr 3 HSS 6-38mm |
| 10 | 100 | 6/9/11,4/14/17,25/19/21,25/24/26,75/30/33/35,7 | W1-645030-0636 | ● | PG 3 HSS 6-36mm |
| 10 | 100 | 6/9/12,5/15,2/18,6/20,4/22,5/26/28,3/30,5/34/37 | W1-645040-0637 | ● | PG 4 HSS 6-37mm |

6



**Example of order**

**WST W1-641010-0420**

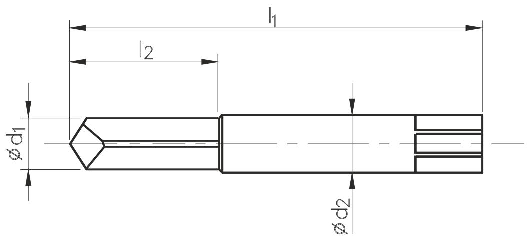
● **Available from stock**

○ **On request**

| | WDG |
|---|---|

VHM

AT




| | |
|---|---|
| Material groups | P M K N S H |
| Internal cooling | - |
| Quality of material | VHM |
| Coating | AT |

| Ć $d_1$ | M | $l_1$±2 | $l_2$±2 | Ć $d_2$ | Norm | |
|---|---|---|---|---|---|---|
| | | | | | Tol. | |
| | | | | | INDEX | W9-900002 |
| 2,5 | M3 | 38 | 10 | 3 | 0250 | ● |
| 3,3 | M4 | 46 | 14 | 4 | 0330 | ● |
| 4,2 | M5 | 50 | 19 | 5 | 0420 | ● |
| 5,0 | M6 | 50 | 23 | 6 | 0500 | ● |
| 6,8 | M8 | 60 | 23 | 8 | 0680 | ● |
| 8,5 | M10 | 80 | 25 | 10 | 0850 | ● |
| 10,2 | M12 | 80 | 35 | 12 | 1020 | ● |

| feed | | fz | | fz | | fz | | fz | | fz | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vc m/min | | ϕ3,3-6,8 | | ϕ6,8-10,2 | | ϕ10,2-14,0 | | ϕ14,0-15,5 | | ϕ15,5-17,5 | |
| from | to | from | to | from | to | from | to | from | to | from | to |
| 10 | 12 | 0,040 | 0,08 | 0,08 | 0,110 | 0,110 | 0,140 | 0,140 | 0,150 | 0,150 | 0,170 |

**Operation instruction:**
**1.** The workpiece has to be clamped very stable and safe.
**2.** The overlapping part of the tap has to be made plane with the workpiece.
**3.** Centering of the drill by multiple tip-centering. In case of tip-centering with an NC machine please choose a lower cutting feed.
**4.** The remove of a tap can be made with an NC machine with lubrication (Attention: risk of bonding) also by hand with a bench drilling or column driling machine. Multiple chipping removal is absolutely necessary.
**5.** Remove of remaining chippings with compressed air or with a scriber.
**6.** New thrad cutting with a new tap
**7.** After finishing the new thread please test the size accuracy.
1-5 taps can be remove with one drill to remove jammed taps.
Regrinding of drills to remove jammed taps is not economical.
Due to the hexagon this drill can also be clamped in normal three- or four-jaw chucks.
In case of correct use the core hole will not be damaged in all materials, also in Cu or Al and hardened materials

**Drill set to remove broken taps on page 208**

6

**Example of order**

**W9-900002-0250**
**WDG 2,5 VHM AT**

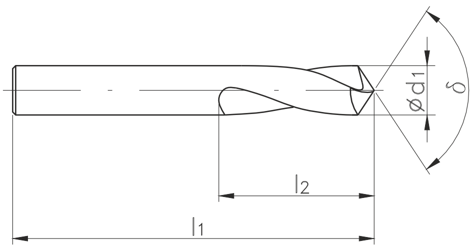
● **Available from stock**
○ **On request**

## For spot and chamfering thread holes in one operation

VHM

TN2

HSSE




| | | | |
|---|---|---|---|
| Material groups | M K S H | P M K N S H | P M K N S H |
| Internal cooling | - | - | - |
| Quality of material | HSSE | HSSE | VHM |
| Coating | TN2 | TN2 | - |
| Point angle | 90° | 120° | 142° |

| Ć d1 | δ90 / δ120° | | δ142° | | Norm | | | |
|---|---|---|---|---|---|---|---|---|
| | $l_1$ | $l_2$ | $l_1$ | $l_2$ | Tol. | | | |
| | | | | | INDEX | W2-003012 | W2-003013 | W9-001014 |
| 3,0 | 46 | 12 | 45 | 12,0 | 0300 | ● | ○ | ○ |
| 4,0 | 55 | 12 | 50 | 15,0 | 0400 | ● | ● | ● |
| 5,0 | 62 | 15 | 50 | 18,0 | 0500 | ● | ● | ● |
| 6,0 | 66 | 20 | 50 | 21,0 | 0600 | ● | ○ | ○ |
| 8,0 | 79 | 25 | 60 | 25,0 | 0800 | ○ | ○ | ○ |
| 10,0 | 89 | 25 | 70 | 27,0 | 1000 | ○ | ○ | ○ |
| 12,0 | 102 | 30 | 70 | 27,0 | 1200 | ● | ● | ● |
| 14,0 | 107 | 34 | 75 | 30,0 | 1400 | ○ | ○ | ○ |
| 16,0 | 115 | 35 | 75 | 30,0 | 1600 | ○ | ○ | ○ |





**Example of order**

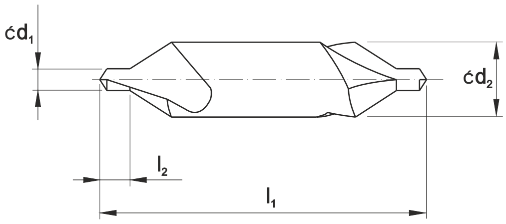
**W2-001012-0300**
**Center drills NC 3,00 HSSE**

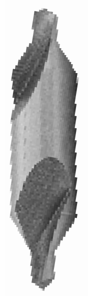
● **Available from stock**
○ **On request**

## For spot drilling

**HSS**

**DIN 333 A**



| | |
|---|---|
| Material groups | P M K N S H |
| Internal cooling | - |
| Quality of material | HSS |
| Coating | - |
| Point angle | 60° |

| $d_1$ | $d_2$ | $l_1$ | $l_2$ min~max | Norm | DIN-333 A |
|---|---|---|---|---|---|
| | | | | Tol. | |
| | | | | INDEX | W1-011021 |
| 0,8 | 3,15 | 25 | 1,0~1,3 | 0080 | ● |
| 1,0 | 3,15 | 31 | 1,3~1,7 | 0100 | ● |
| 1,25 | 3,15 | 31 | 1,6~2,0 | 0125 | ● |
| 1,6 | 4,0 | 35 | 2,0~2,6 | 0160 | ● |
| 2,0 | 5,0 | 40 | 2,5~3,1 | 0200 | ● |
| 2,5 | 6,3 | 45 | 3,1~3,8 | 0250 | ● |
| 3,15 | 8,0 | 50 | 3,9~4,6 | 0315 | ● |
| 4,0 | 10,0 | 55 | 5,0~5,9 | 0400 | ○ |
| 5,0 | 12,5 | 63 | 6,3~7,2 | 0500 | ● |
| 6,3 | 16,0 | 71 | 8,0~8,9 | 0630 | ● |
| 8,0 | 20,0 | 80 | 10,1~11,1 | 0800 | ● |
| 10,0 | 25,0 | 100 | 12,8~13,8 | 1000 | ● |



**Example of order**

**W1-011021-0100**
**Center drills 1,00 DIN-333 A HSS**

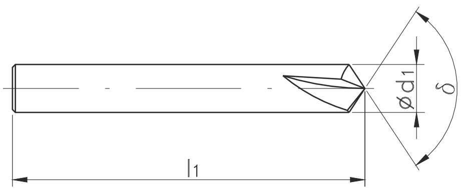
● **Available from stock**
○ **On request**

## For chamfering thread holes

VHM

AT

DIN 6537L




| | | |
|---|---|---|
| Material groups | S | P M K N S H |
| Internal cooling | - | - |
| Quality of material | VHM | VHM |
| Coating | AT | AT |
| Point angle | 60° | 90° |

| Ć $d_1$ | $l_1$ | z | Norm | DIN-6537L | |
|---|---|---|---|---|---|
| | | | Tol. | | |
| | | | INDEX | W9-054011 | W9-054012 |
| 4 | 54 | 4 | 0400 | ● | ● |
| 6 | 57 | 4 | 0600 | ● | ● |
| 8 | 63 | 5 | 0800 | ● | ● |
| 10 | 72 | 6 | 1000 | ● | ● |
| 12 | 83 | 6 | 1200 | ● | ● |
| 16 | 92 | 6 | 1600 | ● | ● |
| 20 | 104 | 6 | 2000 | ○ | ○ |

6



**Example of order**

**W9-054011-0400**
**Deburring tools 4,00 DIN-6537L VHM AT**

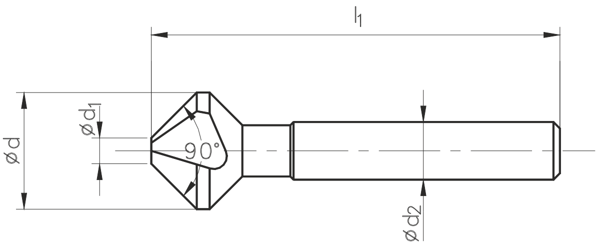
● **Available from stock**
○ **On request**

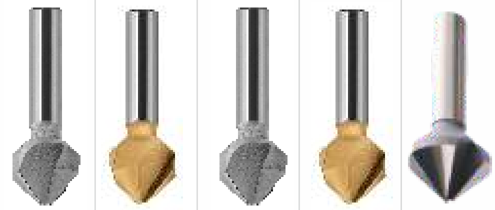
**HSS**

**TN2**

**TC**

**DIN 335**



| | T1-040010 | T1-043010 | T2-040010 | T2-043010 | T2-045110 |
|---|---|---|---|---|---|
| Material groups | P M K N S H | P M K N S H | P M K N S H | P M K N S H | P M K N S H |
| Internal cooling | - | - | - | - | |
| Quality of material | HSS | HSS | HSSE | HSSE | HSSE (8%Co) |
| Coating | - | TN2 | - | TN2 | TC |

| ød | ød1 | ød2 | l1 | Norm / Tol. / INDEX | T1-040010 | T1-043010 | T2-040010 | T2-043010 | T2-045110 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Norm | DIN-335 | | | | |
| 6,3 | 1,5 | 5 | 45 | 0063 | ○ | ○ | ● | ● | ● |
| 8,3 | 2,0 | 6 | 50 | 0083 | ○ | ○ | ● | ● | ● |
| 10,4 | 2,5 | 6 | 50 | 0104 | ○ | ○ | ● | ● | ● |
| 12,4 | 2,8 | 8 | 56 | 0124 | ○ | ○ | ● | ● | ● |
| 16,5 | 3,2 | 10 | 60 | 0165 | ○ | ○ | ● | ● | ● |
| 20,5 | 3,5 | 10 | 63 | 0205 | ○ | ○ | ● | ● | ● |
| 25,0 | 3,8 | 10 | 67 | 0250 | ○ | ○ | ● | ● | ● |
| 30,0 | 4,2 | 12 | 71 | 0300 | ○ | ○ | ● | ● | ● |
| 37,0 | 5,0 | 16 | 80 | 0370 | ○ | ○ | | | |
| 40,0 | 10,0 | 16 | 80 | 0400 | ○ | ○ | | | |
| 45,0 | 12,0 | 20 | 95 | 0450 | ○ | ○ | | | |
| 50,0 | 14,0 | 20 | 95 | 0500 | ○ | ○ | | | |

**Countersinks set on page: 208**

6

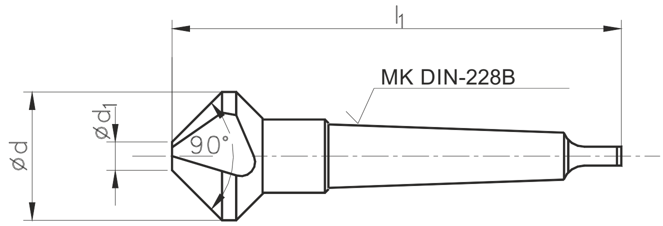
**Example of order**

**T1-043010-0630**
**Countersinks 6,30 DIN-335 HSS TN2**

● **Available from stock**
○ **On request**

HSS

DIN 335




| | | | | | |
|---|---|---|---|---|---|
| Material groups | | | | | |
| Internal cooling | - | | | | |
| Quality of material | HSS | | | | |
| Coating | - | | | | |

| Ć d | Ć $d_1$ | $l_1$ | MK DIN-228B | INDEX | T1-040210 | | |
|---|---|---|---|---|---|---|---|
| 37 | 4,8 | 118 | 2 | 0037 | ● | | |

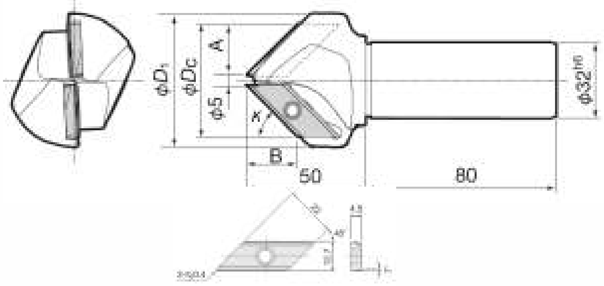
| Ć d | Ć $d_1$ | $l_1$ | MK DIN-228B | INDEX | T1-040410 | | |
|---|---|---|---|---|---|---|---|
| 50 | 14 | 150 | 3 | 0050 | ● | | |
| 63 | 16,0 | 180 | 4 | 0063 | ● | | |
| 80 | 20,0 | 180 | 4 | 0080 | ● | | |

6

**Example of order**

**W1-040210-0037**
**Countersinks 37 DIN-228B HSS**

● **Available from stock**
○ **On request**

| | PF |
|---|---|
|  |  |



| ∅D1 | ∅Dc | κ | A | B | Z | INDEX | |
|---|---|---|---|---|---|---|---|
| 40 | 34 | 30° | 14,5 | 25,5 | 1 | T9-100013-0400 | ● |
| 56 | 46 | 45° | 20,5 | 20,5 | 2 | T9-100012-0560 | ● |
| 72 | 55 | 60° | 14,5 | 14,5 | 2 | T9-100011-0720 | ● |

## Accessories

| Designation | INDEX |
|---|---|
| Insert AH 330 | T9-104000-0127 |
| Clamping screw | T9-100001-0000 |
| Key | T9-100002-0000 |

## Processing parameters

| Material | feed $f_z$ (mm/tooth) |
|---|---|
| Carbon steel | 0,1~0,25 |
| Superalloys | 0,1~0,2 |
| Tool steel | 0,1~0,2 |
| Stainless | 0,1~0,25 |
| Cast iron | 0,1~0,25 |

## Z-axis plunging depth Z (mm)

- For the phase 30°

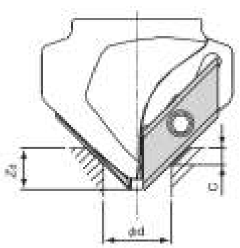
| hole dia. Ćd (mm) | Size of chamfering C (mm) | | | | | |
|---|---|---|---|---|---|---|
| | 0,5 | 1 | 1,5 | 2 | 2,5 | 3 | 3,5 |
| 5 | 0,6 | 1,1 | 1,6 | 2,1 | | | |
| 6 | 0,9 | 1,4 | 1,9 | 2,4 | | | |
| 6,8 | 1,1 | 1,6 | 2,1 | 2,6 | | | |
| 8 | 1,4 | 1,9 | 2,4 | 2,9 | | | |
| 8,5 | 1,6 | 2,1 | 2,6 | 3,1 | | | |
| 10 | 2,0 | 2,5 | 3,0 | 3,5 | 4,0 | 4,5 | 5,0 |
| 10,2 | 2,1 | 2,6 | 3,1 | 3,6 | 4,1 | 4,6 | 5,1 |
| 12 | 2,6 | 3,1 | 3,6 | 4,1 | 4,6 | 5,1 | 5,6 |
| 16 | 3,7 | 4,2 | 4,7 | 5,2 | 5,7 | 6,2 | 6,7 |
| 17,5 | 4,2 | 4,7 | 5,2 | 5,7 | 6,2 | 6,7 | 7,2 |
| 20 | 4,9 | 5,4 | 5,9 | 6,4 | 6,9 | 7,4 | 7,9 |
| 21 | 5,2 | 5,7 | 6,2 | 6,7 | 7,2 | 7,7 | 8,2 |
| 24 | 6,1 | 6,6 | 7,1 | 7,6 | 8,1 | 8,6 | 9,1 |
| 30 | 7,8 | 8,3 | 8,8 | 9,3 | 9,8 | 10,3 | 10,8 |
| 33 | 8,7 | 9,2 | 9,7 | 10,2 | 10,7 | 11,2 | 11,7 |
| 36 | 9,5 | 10,0 | 10,5 | 11,0 | 11,5 | 12,0 | 12,5 |
| 38 | 10,1 | 10,6 | 11,1 | 11,6 | 12,1 | 12,6 | 13,1 |
| 42 | 11,2 | 11,7 | 12,2 | 12,7 | 13,2 | 13,7 | 14,2 |
| 46 | 12,4 | 12,9 | 13,4 | 13,9 | 14,4 | | |
| 48 | 13,0 | 13,5 | 14 | 14,5 | | | |
| 52 | 14,1 | | | | | | |

- For the phase 45°

| hole dia. Ćd (mm) | Size of chamfering C (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0,5 | 1 | 1,5 | 2 | 2,5 | 3 | 3,5 | 4 |
| 5 | 0,8 | 1,3 | 1,8 | 2,3 | 2,8 | | | |
| 6 | 1,7 | 2,2 | 2,7 | 3,2 | 3,7 | | | |
| 6,8 | 2,4 | 2,9 | 3,4 | 3,9 | 4,4 | | | |
| 8 | 3,4 | 3,9 | 4,4 | 4,9 | 5,4 | | | |
| 8,5 | 3,8 | 4,3 | 4,8 | 5,3 | 5,8 | | | |
| 10 | 5,1 | 5,6 | 6,1 | 6,6 | 7,1 | 7,6 | 8,1 | 8,6 |
| 10,2 | 5,3 | 5,8 | 6,3 | 6,8 | 7,3 | 7,8 | 8,3 | 8,8 |
| 12 | 6,9 | 7,4 | 7,9 | 8,4 | 8,9 | 9,4 | 9,9 | 10,4 |
| 16 | 10,3 | 10,8 | 11,3 | 11,8 | 12,3 | 12,8 | 13,3 | 13,8 |
| 17,5 | 11,6 | 12,1 | 12,6 | 13,1 | 13,6 | 14,1 | 14,6 | 15,1 |
| 20 | 13,7 | 14,2 | 14,7 | 15,2 | 15,7 | 16,2 | 16,7 | 17,2 |
| 21 | 14,6 | 15,1 | 15,6 | 16,1 | 16,6 | 17,1 | 17,6 | 18,1 |
| 24 | 17,2 | 17,7 | 18,2 | 18,7 | 19,2 | 19,7 | 20,2 | 20,7 |
| 30 | 22,4 | 22,9 | 23,4 | 23,9 | 24,4 | 24,9 | 25,4 | |
| 33 | 24,9 | 25,4 | | | | | | |

- For the phase 60°

| hole dia. Ćd (mm) | Size of chamfering C (mm) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 0,5 | 1 | 1,5 | 2 | 3 | 4 | 5 |
| 5 | 0,7 | 1,2 | 1,7 | 2,2 | 3,2 | | |
| 6 | 1,2 | 1,7 | 2,2 | 2,7 | 3,7 | | |
| 6,8 | 1,6 | 2,1 | 2,6 | 3,1 | 4,1 | | |
| 8 | 2,2 | 2,7 | 3,2 | 3,7 | 4,7 | | |
| 8,5 | 2,4 | 2,9 | 3,4 | 3,9 | 4,9 | | |
| 10 | 3,2 | 3,7 | 4,2 | 4,7 | 5,7 | 6,7 | 7,7 |
| 10,2 | 3,3 | 3,8 | 4,3 | 4,8 | 5,8 | 6,8 | 7,8 |
| 12 | 4,2 | 4,7 | 5,2 | 5,7 | 6,7 | 7,7 | 8,7 |
| 14 | 5,2 | 5,7 | 6,2 | 6,7 | 7,7 | 8,7 | 9,7 |
| 16 | 6,2 | 6,7 | 7,2 | 7,7 | 8,7 | 9,7 | 10,7 |
| 17,5 | 6,9 | 7,4 | 7,9 | 8,4 | 9,4 | 10,4 | 11,4 |
| 20 | 8,2 | 8,7 | 9,2 | 9,7 | 10,7 | 11,7 | 12,7 |
| 21 | 8,7 | 9,2 | 9,7 | 10,2 | 11,2 | 12,2 | 13,2 |
| 24 | 10,2 | 10,7 | 11,2 | 11,7 | 12,7 | 13,7 | 14,7 |
| 30 | 13,2 | 13,7 | 14,2 | 14,7 | 15,7 | 16,7 | 17,7 |
| 33 | 14,7 | 15,2 | 15,7 | 16,2 | 17,2 | 18,2 | 19,2 |
| 36 | 16,2 | 16,7 | 17,2 | 17,7 | 18,7 | 19,7 | |
| 42 | 19,2 | 19,7 | 20,2 | | | | |





**Note:**
When the hole depth is smaller than the Z-axis plunging depth (Zd), special care should be taken to avoid an interference between the tool's front end and the bottom of the hole.

6

## Technical informations

- When the hole diameter to be chamfered is small or the cutting edges near the front end of tool are used, use at higher side of the revolution range shown in the Table. In contrast, when the hole diameter to be chamfered is large or the cutting edges far from the tool's front end are used, use the lower side of the revolution range shown in the Table.
- When chamfering a small diameter hole (smaller than ø10 mm) in a plungemilling mode, peck-feeding should not be used.
- When the hole diameter to be chamfered is smaller than ø10 mm or the cutting edges near the tool's front end are used, the feed should be set within 0.15 mm/t.

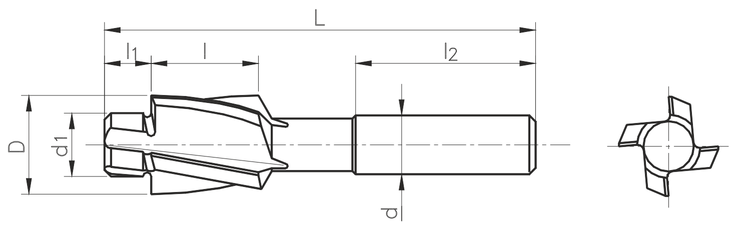
**Example of order**

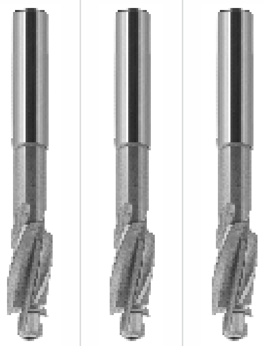
**T9-100013-0400**
**Countersinks 40**

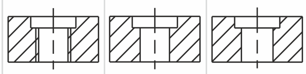
● **Available from stock**
○ **On request**

## DIN-373

**HSS**



| | N | F | M |
|---|---|---|---|
| Execution | N | F | M |
| Lead | in tapping holes | in exact clearance hole | in medium clearance hole |
| Hole type |  | | |
| Quality of material | HSS | HSS | HSS |

| D z9 | d1 e8 | d h9 | l | l1 | l2 | L | M | Norm / Tol. / INDEX | DIN-373 T1-044010 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6,0 | 2,5 | 5,0 | 14 | 3,0 | 31,5 | 71 | M3 | 6025 | ● | | |
| 6,5 | 2,9 | 5,0 | 14 | 3,5 | 31,5 | 71 | M3,5 | 6529 | ● | | |
| 8,0 | 3,3 | 5,0 | 14 | 4,0 | 31,5 | 71 | M4 | 8033 | ● | | |
| 10,0 | 4,2 | 8,0 | 18 | 5,0 | 35,5 | 80 | M5 | 1042 | ● | | |
| 11,0 | 5,0 | 8,0 | 18 | 6,0 | 35,5 | 80 | M6 | 1150 | ● | | |
| 15,0 | 6,8 | 12,5 | 22 | 8,0 | 40,0 | 100 | M8 | 1568 | ● | | |
| 18,0 | 8,5 | 12,5 | 22 | 10,0 | 40,0 | 100 | M10 | 1885 | ● | | |
| 20,0 | 10,2 | 12,5 | 22 | 12,0 | 40,0 | 100 | M12 | 2010 | ● | | |

| D z9 | d1 e8 | d h9 | l | l1 | l2 | L | M | Norm / Tol. / INDEX | | DIN-373 T1-045010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6,0 | 3,2 | 5,0 | 14 | 3,0 | 31,5 | 71 | M3 | 6032 | | ● | |
| 6,5 | 3,7 | 5,0 | 14 | 3,5 | 31,5 | 71 | M3,5 | 6537 | | ● | |
| 8,0 | 4,3 | 5,0 | 14 | 4,0 | 31,5 | 71 | M4 | 8043 | | ● | |
| 10,0 | 5,3 | 8,0 | 18 | 5,0 | 35,5 | 80 | M5 | 1053 | | ● | |
| 11,0 | 6,4 | 8,0 | 18 | 6,0 | 35,5 | 80 | M6 | 1164 | | ● | |
| 15,0 | 8,4 | 12,5 | 22 | 8,0 | 40,0 | 100 | M8 | 1584 | | ● | |
| 18,0 | 10,5 | 12,5 | 22 | 10,0 | 40,0 | 100 | M10 | 1810 | | ● | |
| 20,0 | 13,0 | 12,5 | 22 | 12,0 | 40,0 | 100 | M12 | 2013 | | ● | |

| D z9 | d1 e8 | d h9 | l | l1 | l2 | L | M | Norm / Tol. / INDEX | | | DIN-373 T1-046010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6,0 | 3,4 | 5,0 | 14 | 3,0 | 31,5 | 71 | M3 | 6034 | | | ● |
| 6,5 | 3,9 | 5,0 | 14 | 3,5 | 31,5 | 71 | M3,5 | 6539 | | | ● |
| 8,0 | 4,5 | 5,0 | 14 | 4,0 | 31,5 | 71 | M4 | 8045 | | | ● |
| 10,0 | 5,5 | 8,0 | 18 | 5,0 | 35,5 | 80 | M5 | 1055 | | | ● |
| 11,0 | 6,6 | 8,0 | 18 | 6,0 | 35,5 | 80 | M6 | 1166 | | | ● |
| 15,0 | 9,0 | 12,5 | 22 | 8,0 | 40,0 | 100 | M8 | 1590 | | | ● |
| 18,0 | 11,0 | 12,5 | 22 | 10,0 | 40,0 | 100 | M10 | 1811 | | | ● |
| 20,0 | 14,0 | 12,5 | 22 | 12,0 | 40,0 | 100 | M12 | 2014 | | | ● |



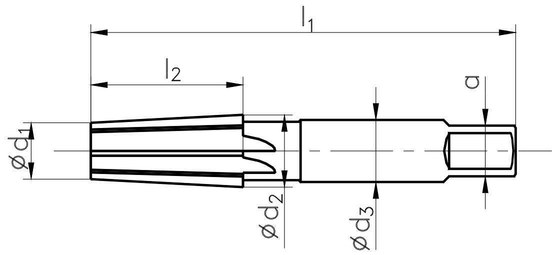
**Example of order**

**T1-045010-0600**
**Counterbores 6,0 DIN-373 HSS**

● **Available from stock**
○ **On request**

## ASME B94,2-1995

HSS




| Quality of material | HSS |
|---|---|
| Execution | C |

| Ć nom | Ć $d_1$ | Ć $d_2$ | Ć $d_3$ | $l_1$ | $l_2$ | a | Norm | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Tol. | |
| | | | | | | | INDEX | T1-030010 |
| 1/4 | 10,30 | 12,00 | 14,3 | 62 | 27 | 10,7 | 0027 | ● |
| 3/8 | 13,70 | 15,40 | 17,5 | 65 | 27 | 13,5 | 0029 | ● |
| 1/2 | 16,90 | 19,10 | 17,5 | 79 | 35 | 13,0 | 0031 | ● |
| 3/4 | 22,25 | 24,40 | 23,0 | 82 | 35 | 17,5 | 0035 | ● |

6

*i*

**Information concerning dimensions of the holes for tapere threas in the technical part of the catalogue on page 267**

**Example of order**

**T1-030010-0027**
**Conical reamer 1:16 1/4  HSS**

● **Available from stock**
○ **On request**

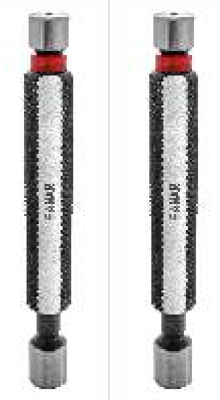
# Gauges

# GAUGES

PAGE

## CATALOGUE PAGES 161-173

## Gauge dimensions
## PN-EN ISO 1938-1:2016-03



| | | MSBa | MSBa |
|---|---|---|---|
| Symbol | | MSBa | MSBa |
| Type | | GO / NOGO | GO / NOGO |
| Ć nom. | Tol | H7 | H8 |
| | INDEX | S3-100111 | S3-100112 |
| 1 | 0010 | ● | ○ |
| 1,2 | 0012 | ● | ○ |
| 1,5 | 0015 | ● | ○ |
| 1,8 | 0018 | ● | ○ |
| 2 | 0020 | ● | ○ |
| 2,2 | 0022 | ● | ○ |
| 2,5 | 0025 | ● | ○ |
| 2,8 | 0028 | ● | ○ |
| 3 | 0030 | ● | ○ |
| 3,5 | 0035 | ○ | ○ |
| 4 | 0040 | ● | ○ |
| 4,5 | 0045 | ○ | ○ |
| 5 | 0050 | ● | ○ |
| 6 | 0060 | ● | ○ |
| 7 | 0070 | ○ | ○ |
| 8 | 0080 | ● | ○ |
| 9 | 0090 | ○ | ○ |
| 10 | 0100 | ● | ○ |
| 12 | 0120 | ● | ○ |
| 14 | 0140 | ● | ○ |
| 16 | 0160 | ● | ○ |
| 18 | 0180 | ● | ○ |
| 20 | 0200 | ● | ○ |
| 22 | 0220 | ● | ○ |
| 24 | 0240 | ● | ○ |
| 25 | 0250 | ● | ○ |
| 26 | 0260 | ● | ○ |
| 27 | 0270 | ○ | ○ |
| 28 | 0280 | ● | ○ |
| 30 | 0300 | ● | ○ |
| 32 | 0320 | ● | ○ |
| 33 | 0330 | ● | ○ |
| 34 | 0340 | ● | ○ |
| 35 | 0350 | ● | ○ |
| 36 | 0360 | ● | ○ |
| 37 | 0370 | ● | ○ |
| 38 | 0380 | ● | ○ |
| 40 | 0400 | ● | ○ |
| 42 | 0420 | ● | ○ |
| 44 | 0440 | ○ | ○ |
| 45 | 0450 | ● | ○ |
| 46 | 0460 | ○ | ○ |
| 47 | 0470 | ● | ○ |
| 48 | 0480 | ○ | ○ |
| 50 | 0500 | ● | ○ |
| 52 | 0520 | ○ | ○ |

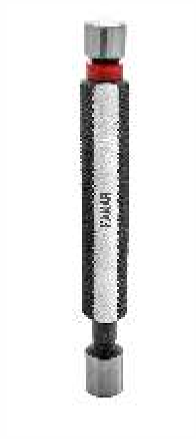
**Go gauges above M52 are called MSCb and no go MSCc and they are produced with separate handdle.**

**Example of order**

**S3-100111-0100**
**MSBa 10-H7**

● **Available from stock**
○ **On request**

## Gauge dimensions ISO 1502


| | | |
|---|---|---|
| Symbol | MSBa in thread | MSBa in thread |
| Type | GO / NOGO | GO / NOGO |
| Tolerance | 6H | 6G |

| M | P | Minor diameter of thread (6H) | | INDEX | S3-100161 | Minor diameter of thread (6G) | | INDEX | S3-100162 |
|---|---|---|---|---|---|---|---|---|---|
| | | min | max | | | min | max | | |
| M 3 | 0,5 | 2,459 | 2,599 | 0030 | ● | 2,479 | 2,619 | 0030 | ○ |
| M 3,5 | 0,6 | 2,850 | 3,010 | 0035 | ○ | 2,871 | 3,031 | 0035 | ○ |
| M 4 | 0,7 | 3,242 | 3,422 | 0040 | ● | 3,264 | 3,444 | 0040 | ○ |
| M 4,5 | 0,75 | 3,688 | 3,878 | 0045 | ○ | 3,710 | 3,900 | 0045 | ○ |
| M 5 | 0,8 | 4,134 | 4,334 | 0050 | ● | 4,158 | 4,358 | 0050 | ○ |
| M 6 | 1 | 4,917 | 5,153 | 0060 | ● | 4,943 | 5,179 | 0060 | ○ |
| M 7 | 1 | 5,917 | 6,153 | 0070 | ○ | 5,943 | 6,179 | 0070 | ○ |
| M 8 | 1,25 | 6,647 | 6,912 | 0080 | ● | 6,675 | 6,940 | 0080 | ○ |
| M 9 | 1,25 | 7,647 | 7,912 | 0090 | ○ | 7,675 | 7,940 | 0090 | ○ |
| M 10 | 1,5 | 8,376 | 8,676 | 0100 | ● | 8,408 | 8,708 | 0100 | ○ |
| M 12 | 1,75 | 10,106 | 10,441 | 0120 | ● | 10,140 | 10,475 | 0120 | ○ |
| M 14 | 2 | 11,835 | 12,210 | 0140 | ○ | 11,873 | 12,248 | 0140 | ○ |
| M 16 | 2 | 13,835 | 14,210 | 0160 | ● | 13,873 | 14,248 | 0160 | ○ |
| M 18 | 2,5 | 15,294 | 15,744 | 0180 | ● | 15,336 | 15,786 | 0180 | ○ |
| M 20 | 2,5 | 17,294 | 17,744 | 0200 | ○ | 17,336 | 17,786 | 0200 | ○ |
| M 22 | 2,5 | 19,294 | 19,744 | 0220 | ○ | 19,336 | 19,786 | 0220 | ○ |

| MF | P | Minor diameter of thread (6H) | | INDEX | S3-100161 | Minor diameter of thread (6G) | | INDEX | S3-100162 |
|---|---|---|---|---|---|---|---|---|---|
| | | min | max | | | min | max | | |
| M 8 x 0,5 | 0,5 | 7,459 | 7,599 | 0081 | ○ | 7,479 | 7,619 | 0081 | ○ |
| M 8 x 0,75 | 0,75 | 7,188 | 7,378 | 0082 | ○ | 7,210 | 7,400 | 0082 | ○ |
| M 8 x 1 | 1 | 6,917 | 7,153 | 0083 | ● | 6,943 | 7,179 | 0083 | ○ |
| M 9 x 1 | 1 | 7,917 | 8,153 | 0093 | ○ | 7,943 | 8,179 | 0093 | ○ |
| M 10 x 0,75 | 0,75 | 9,188 | 9,378 | 0102 | ○ | 9,210 | 9,400 | 0102 | ○ |
| M 10 x 1 | 1 | 8,917 | 9,153 | 0103 | ● | 8,943 | 9,179 | 0103 | ○ |
| M 10 x 1,25 | 1,25 | 8,647 | 8,912 | 0104 | ○ | 8,675 | 8,940 | 0104 | ○ |
| M 11 x 1 | 1 | 9,917 | 10,153 | 0113 | ○ | 9,943 | 10,179 | 0113 | ○ |
| M 12 x 1 | 1 | 10,917 | 11,153 | 0123 | ○ | 10,943 | 11,179 | 0123 | ○ |
| M 12 x 1,25 | 1,25 | 10,647 | 10,912 | 0124 | ○ | 10,675 | 10,940 | 0124 | ○ |
| M 12 x 1,5 | 1,5 | 10,376 | 10,676 | 0125 | ● | 10,408 | 10,708 | 0125 | ○ |
| M 13 x 1 | 1 | 11,917 | 12,153 | 0133 | ○ | 11,943 | 12,179 | 0133 | ○ |
| M 14 x 1 | 1 | 12,917 | 13,153 | 0143 | ○ | 12,943 | 13,179 | 0143 | ○ |
| M 14 x 1,25 | 1,25 | 12,647 | 12,912 | 0144 | ○ | 12,675 | 12,940 | 0144 | ○ |
| M 14 x 1,5 | 1,5 | 12,376 | 12,676 | 0145 | ● | 12,408 | 12,708 | 0145 | ○ |
| M 15 x 1 | 1 | 13,917 | 14,153 | 0153 | ○ | 13,943 | 14,179 | 0153 | ○ |
| M 15 x 1,5 | 1,5 | 13,376 | 13,676 | 0155 | ○ | 13,408 | 13,708 | 0155 | ○ |
| M 16 x 1 | 1 | 14,917 | 15,153 | 0163 | ○ | 14,943 | 15,179 | 0163 | ○ |
| M 16 x 1,5 | 1,5 | 14,376 | 14,676 | 0165 | ● | 14,408 | 14,708 | 0165 | ○ |
| M 18 x 1 | 1 | 16,917 | 17,153 | 0183 | ○ | 16,943 | 17,179 | 0183 | ○ |
| M 18 x 1,5 | 1,5 | 16,376 | 16,676 | 0185 | ○ | 16,408 | 16,708 | 0185 | ○ |
| M 18 x 2 | 2 | 15,835 | 16,210 | 0186 | ○ | 15,873 | 16,248 | 0186 | ○ |
| M 20 x 1 | 1 | 18,917 | 19,153 | 0203 | ○ | 18,943 | 19,179 | 0203 | ○ |
| M 20 x 1,5 | 1,5 | 18,376 | 18,676 | 0205 | ● | 18,408 | 18,708 | 0205 | ○ |
| M 20 x 2 | 2 | 17,835 | 18,210 | 0206 | ○ | 17,873 | 18,248 | 0206 | ○ |
| M 22 x 1 | 1 | 20,917 | 21,153 | 0223 | ○ | 20,943 | 21,179 | 0223 | ○ |
| M 22 x 1,5 | 1,5 | 20,376 | 20,676 | 0225 | ○ | 20,408 | 20,708 | 0225 | ○ |
| M 22 x 2 | 2 | 19,835 | 20,210 | 0226 | ○ | 19,873 | 20,248 | 0226 | ○ |

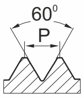
**Go gauges above M52 are called MSCb and no go MSCc andd they are produced with separate handdle.**

**Example of order**

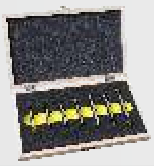
**S1-100161-0100**
**MSBa 10-H7**

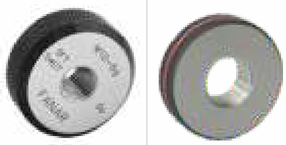
● **Available from stock**
○ **On request**

## ISO Metric coarse thread DIN-13




Set of gauges on page 210



| | | | | LH | 6G | | |
|---|---|---|---|---|---|---|---|
| Symbol | | | MSBg | MSBg LH | MSBg | MSRh | MSRk |
| Type | | | GO / NOGO | GO / NOGO | GO / NOGO | GO | NOGO |
| M | P | Tol | 6H | 6H | 6G | 6g | 6g |
| | | INDEX | S3-302161 | S3-301161 | S3-302162 | Y3-412162 | Y3-422162 |
| M 1 | 0,25 | 0010 | ● | ○ | ○ | ● | ● |
| M 1,2 | 0,25 | 0012 | ● | ○ | ○ | ● | ● |
| M 1,4 | 0,3 | 0014 | ● | ○ | ○ | ● | ● |
| M 1,6 | 0,35 | 0016 | ● | ○ | ○ | ● | ● |
| M 1,7 | 0,35 | 0017 | ● | ○ | ○ | ● | ● |
| M 1,8 | 0,35 | 0018 | ● | ○ | ○ | ● | ● |
| M 2 | 0,4 | 0020 | ● | ○ | ○ | ● | ● |
| M 2,2 | 0,45 | 0022 | ● | ○ | ○ | ● | ● |
| M 2,5 | 0,45 | 0025 | ● | ○ | ○ | ● | ● |
| M 2,6 | 0,45 | 0026 | ● | ○ | ○ | ● | ● |
| M 3 | 0,5 | 0030 | ● | ● | ○ | ● | ● |
| M 3,5 | 0,6 | 0035 | ● | ○ | ○ | ● | ● |
| M 4 | 0,7 | 0040 | ● | ● | ○ | ● | ● |
| M 4,5 | 0,75 | 0045 | ● | ○ | ○ | ● | ● |
| M 5 | 0,8 | 0050 | ● | ● | ○ | ● | ● |
| M 6 | 1 | 0060 | ● | ● | ○ | ● | ● |
| M 7 | 1 | 0070 | ● | ○ | ○ | ● | ● |
| M 8 | 1,25 | 0080 | ● | ● | ○ | ● | ● |
| M 9 | 1,25 | 0090 | ● | ○ | ○ | ● | ● |
| M 10 | 1,5 | 0100 | ● | ● | ○ | ● | ● |
| M 12 | 1,75 | 0120 | ● | ● | ○ | ● | ● |
| M 14 | 2 | 0140 | ● | ● | ○ | ● | ● |
| M 16 | 2 | 0160 | ● | ● | ○ | ● | ● |
| M 18 | 2,5 | 0180 | ● | ● | ○ | ● | ● |
| M 20 | 2,5 | 0200 | ● | ● | ○ | ● | ● |
| M 22 | 2,5 | 0220 | ● | ● | ○ | ● | ● |
| M 24 | 3 | 0240 | ● | ● | ○ | ● | ● |
| M 27 | 3 | 0270 | ● | ● | ○ | ● | ● |
| M 30 | 3,5 | 0300 | ● | ● | ○ | ● | ● |
| M 33 | 3,5 | 0330 | ● | ● | ○ | ● | ● |
| M 36 | 4 | 0360 | ● | ● | ○ | ● | ● |
| M 39 | 4 | 0390 | ● | ○ | ○ | ● | ● |
| M 42 | 4,5 | 0420 | ● | ○ | ○ | ● | ● |
| M 45 | 4,5 | 0450 | ● | ○ | ○ | ● | ● |
| M 48 | 5 | 0480 | ● | ○ | ○ | ● | ● |
| M 52 | 5 | 0520 | ● | ○ | ○ | ● | ● |

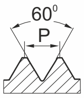
Go gauges above M52 are called MSCh and no go MSCk andd they are produced with separate handdle.

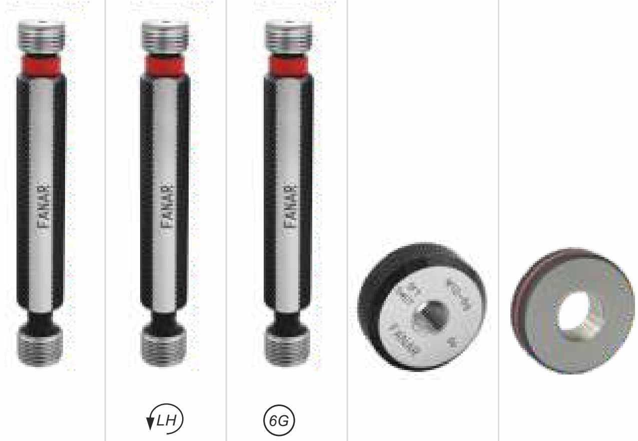
**Example of order**

**S3-302161-0030**
**MSBg M3-6H**

● Available from stock
○ On request

## ISO Metric fine thread DIN-13



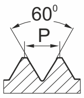

| Symbol | | | MSBg | MSBg LH | MSBg | MSRh | MSRk |
|---|---|---|---|---|---|---|---|
| Type | | | GO / NOGO | GO / NOGO | GO / NOGO | GO | NOGO |
| MF | P | Tol | 6H | 6H | 6G | 6g | 6g |
| | | INDEX | S3-302161 | S3-301161 | S3-302162 | Y3-412162 | Y3-422162 |
| M 3 x 0,35 | 0,35 | 0031 | ○ | ○ | ○ | ○ | ○ |
| M 3,5 x 0,35 | 0,35 | 0036 | ○ | ○ | ○ | ○ | ○ |
| M 4 x 0,35 | 0,35 | 0043 | ○ | ○ | ○ | ○ | ○ |
| M 4x0,5 | 0,5 | 0041 | ○ | ○ | ○ | ○ | ○ |
| M 4,5 x 0,5 | 0,5 | 0046 | ○ | ○ | ○ | ○ | ○ |
| M 5 x 0,5 | 0,5 | 0051 | ○ | ○ | ○ | ○ | ○ |
| M 6 x 0,5 | 0,5 | 0061 | ○ | ○ | ○ | ○ | ○ |
| M 6 x 0,75 | 0,75 | 0062 | ○ | ○ | ○ | ○ | ○ |
| M 8 x 0,5 | 0,5 | 0081 | ○ | ○ | ○ | ○ | ○ |
| M 8 x 0,75 | 0,75 | 0082 | ○ | ○ | ○ | ○ | ○ |
| M 8 x 1 | 1 | 0083 | ● | ● | ○ | ● | ● |
| M 9 x 1 | 1 | 0093 | ○ | ○ | ○ | ○ | ○ |
| M 10 x 0,75 | 0,75 | 0102 | ○ | ○ | ○ | ○ | ○ |
| M 10 x 1 | 1 | 0103 | ● | ● | ○ | ● | ● |
| M 10 x 1,25 | 1,25 | 0104 | ● | ● | ○ | ● | ● |
| M 11 x 1 | 1 | 0113 | ○ | ○ | ○ | ○ | ○ |
| M 12 x 1 | 1 | 0123 | ● | ● | ○ | ● | ● |
| M 12 x 1,25 | 1,25 | 0124 | ● | ● | ○ | ● | ● |
| M 12 x 1,5 | 1,5 | 0125 | ● | ● | ○ | ● | ● |
| M 13 x 1 | 1 | 0133 | ○ | ○ | ○ | ○ | ○ |
| M 14 x 1 | 1 | 0143 | ○ | ○ | ○ | ○ | ○ |
| M 14 x 1,25 | 1,25 | 0144 | ○ | ○ | ○ | ○ | ○ |
| M 14 x 1,5 | 1,5 | 0145 | ● | ● | ○ | ● | ● |
| M 15 x 1 | 1 | 0153 | ○ | ○ | ○ | ○ | ○ |
| M 15 x 1,5 | 1,5 | 0155 | ○ | ○ | ○ | ○ | ○ |
| M 16 x 1 | 1 | 0163 | ● | ● | ○ | ● | ● |
| M 16 x 1,5 | 1,5 | 0165 | ● | ● | ○ | ● | ● |
| M 18 x 1 | 1 | 0183 | ○ | ○ | ○ | ○ | ○ |
| M 18 x 1,5 | 1,5 | 0185 | ● | ● | ○ | ● | ● |
| M 18 x 2 | 2 | 0186 | ○ | ○ | ○ | ○ | ○ |
| M 20 x 1 | 1 | 0203 | ● | ● | ○ | ● | ● |
| M 20 x 1,5 | 1,5 | 0205 | ● | ● | ○ | ● | ● |
| M 20 x 2 | 2 | 0206 | ○ | ○ | ○ | ○ | ○ |
| M 22 x 1 | 1 | 0223 | ○ | ○ | ○ | ○ | ○ |
| M 22 x 1,5 | 1,5 | 0225 | ● | ● | ○ | ● | ● |
| M 22 x 2 | 2 | 0226 | ● | ● | ○ | ● | ● |
| M 24 x 1 | 1 | 0243 | ○ | ○ | ○ | ○ | ○ |
| M 24 x 1,5 | 1,5 | 0245 | ● | ● | ○ | ● | ● |
| M 24 x 2 | 2 | 0246 | ● | ○ | ○ | ○ | ○ |
| M 25 x 1,5 | 1,5 | 0255 | ● | ○ | ○ | ○ | ○ |
| M 26 x1,5 | 1,5 | 0265 | ● | ○ | ○ | ○ | ○ |
| M 27 x 1,5 | 1,5 | 0275 | ● | ○ | ○ | ○ | ○ |

**Example of order**

**S3-302162-0083**
**MSBg M8x1-6G**

● **Available from stock**
○ **On request**

## ISO Metric fine thread DIN-13




Gauge dimensions ISO 1502

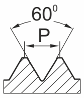

| Symbol | | | MSBg | MSBg LH | MSBg | MSRh | MSRk |
|---|---|---|---|---|---|---|---|
| Type | | | GO / NOGO | GO / NOGO | GO / NOGO | GO | NOGO |
| MF | P | Tol | 6H | 6H | 6G | 6g | 6g |
| | | INDEX | S3-302161 | S3-301161 | S3-302162 | Y3-412162 | Y3-422162 |
| M 27 x 2 | 2 | 0276 | ● | ○ | ○ | ○ | ○ |
| M 28 x 1,5 | 1,5 | 0285 | ● | ○ | ○ | ○ | ○ |
| M 28 x 2 | 2 | 0286 | ○ | ○ | ○ | ○ | ○ |
| M 30 x 1 | 1 | 0303 | ○ | ○ | ○ | ○ | ○ |
| M 30 x 1,5 | 1,5 | 0305 | ● | ○ | ○ | ○ | ○ |
| M 30 x 2 | 2 | 0306 | ● | ○ | ○ | ○ | ○ |
| M 32 x 1,5 | 1,5 | 0325 | ● | ○ | ○ | ○ | ○ |
| M 33 x 1,5 | 1,5 | 0335 | ● | ○ | ○ | ○ | ○ |
| M 33 x 2 | 2 | 0336 | ● | ○ | ○ | ○ | ○ |
| M 33 x 3 | 3 | 0337 | ○ | ○ | ○ | ○ | ○ |
| M 34 x 1,5 | 1,5 | 0345 | ○ | ○ | ○ | ○ | ○ |
| M 35 x 1,5 | 1,5 | 0355 | ● | ○ | ○ | ○ | ○ |
| M 36 x 1,5 | 1,5 | 0365 | ● | ○ | ○ | ○ | ○ |
| M 36 x 2 | 2 | 0366 | ● | ○ | ○ | ○ | ○ |
| M 36 x 3 | 3 | 0367 | ○ | ○ | ○ | ○ | ○ |
| M 38 x 1,5 | 1,5 | 0385 | ● | ○ | ○ | ○ | ○ |
| M 39 x 2 | 2 | 0396 | ● | ○ | ○ | ○ | ○ |
| M 39 x 3 | 3 | 0397 | ○ | ○ | ○ | ○ | ○ |
| M 40 x 1,5 | 1,5 | 0405 | ● | ○ | ○ | ○ | ○ |
| M 40 x 2 | 2 | 0406 | ○ | ○ | ○ | ○ | ○ |
| M 40 x 3 | 3 | 0407 | ○ | ○ | ○ | ○ | ○ |
| M 42 x 1,5 | 1,5 | 0425 | ● | ○ | ○ | ○ | ○ |
| M 42 x 2 | 2 | 0426 | ● | ○ | ○ | ○ | ○ |
| M 42 x 3 | 3 | 0427 | ● | ○ | ○ | ○ | ○ |
| M 45 x 1,5 | 1,5 | 0455 | ● | ○ | ○ | ○ | ○ |
| M 45 x 2 | 2 | 0456 | ● | ○ | ○ | ○ | ○ |
| M 45 x 3 | 3 | 0457 | ○ | ○ | ○ | ○ | ○ |
| M 48 x 1,5 | 1,5 | 0485 | ● | ○ | ○ | ○ | ○ |
| M 48 x 2 | 2 | 0486 | ● | ○ | ○ | ○ | ○ |
| M 48 x 3 | 3 | 0487 | ● | ○ | ○ | ○ | ○ |
| M 50 x 1,5 | 1,5 | 0505 | ○ | ○ | ○ | ○ | ○ |
| M 50 x 2 | 2 | 0506 | ○ | ○ | ○ | ○ | ○ |
| M 50 x 3 | 3 | 0507 | ○ | ○ | ○ | ○ | ○ |
| M 52 x 1,5 | 1,5 | 0525 | ● | ○ | ○ | ○ | ○ |
| M 52 x 2 | 2 | 0526 | ● | ○ | ○ | ○ | ○ |
| M 52 x 3 | 3 | 0527 | ● | ○ | ○ | ○ | ○ |

Go gauges above M52 are called MSCh and no go MSCk andd they are produced with separate handdle.

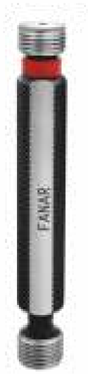
**Example of order**
**Y3-412162-0276**
**MSRh M27x2-6g**

● Available from stock
○ On request

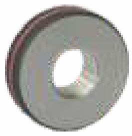
## American unified coarse thread UNC, ANSI B-1.1











**Gauge dimensions ANSI/ASME B1.2**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Symbol | | | | MSBg | MSBg | MSRh | MSRk |
| Type | | | | GO / NOGO | GO / NOGO | GO | NOGO |
| UNC | Ć $d_1$ | 1"/P | Tol | 2B | 3B | 2A | 2A |
| | | | INDEX | S3-302186 | S3-302187 | Y3-412182 | Y3-422182 |
| No 5 - 40 | 3,175 | 40 | 4105 | ● | ○ | ○ | ○ |
| No 6 - 32 | 3,505 | 32 | 4106 | ● | ○ | ○ | ○ |
| No 8 - 32 | 4,166 | 32 | 4108 | ● | ○ | ○ | ○ |
| No 10 - 24 | 4,826 | 24 | 4110 | ● | ○ | ○ | ○ |
| No 12 - 24 | 5,486 | 24 | 4112 | ● | ○ | ○ | ○ |
| 1/4 - 20 | 6,350 | 20 | 4127 | ● | ○ | ○ | ○ |
| 5/16 - 18 | 7,938 | 18 | 4128 | ● | ○ | ○ | ○ |
| 3/8 - 16 | 9,525 | 16 | 4129 | ● | ○ | ○ | ○ |
| 7/16 - 14 | 11,112 | 14 | 4130 | ● | ○ | ○ | ○ |
| 1/2 - 13 | 12,700 | 13 | 4131 | ● | ○ | ○ | ○ |
| 9/16 - 12 | 14,288 | 12 | 4132 | ● | ○ | ○ | ○ |
| 5/8 - 11 | 15,875 | 11 | 4133 | ● | ○ | ○ | ○ |
| 3/4 - 10 | 19,050 | 10 | 4135 | ● | ○ | ○ | ○ |
| 7/8 - 9 | 22,225 | 9 | 4137 | ● | ○ | ○ | ○ |
| 1 - 8 | 25,400 | 8 | 4139 | ● | ○ | ○ | ○ |
| 1.1/8 - 7 | 28,575 | 7 | 4141 | ○ | ○ | ○ | ○ |
| 1.1/4 - 7 | 31,750 | 7 | 4143 | ○ | ○ | ○ | ○ |
| 1.3/8 - 6 | 34,925 | 6 | 4145 | ○ | ○ | ○ | ○ |
| 1.1/2 - 6 | 38,100 | 6 | 4147 | ○ | ○ | ○ | ○ |
| 1.3/4 - 5 | 44,450 | 5 | 4151 | ○ | ○ | ○ | ○ |
| 2 - 4.1/2 | 50,800 | 4.1/2 | 4155 | ○ | ○ | ○ | ○ |

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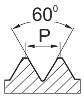
**Example of order**

**S3-302187-4127**
**MSBg 1/4-20 UNC-3B**

● **Available from stock**
○ **On request**

## American unified fine thread UNF, ANSI B-1.1




**Gauge dimensions ANSI/ASME B1.2**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Symbol | | | | MSBg | MSBg | MSRh | MSRk |
| Type | | | | GO / NOGO | GO / NOGO | GO | NOGO |
| UNF | Ć $d_1$ | 1"/P | Tol | 2B | 3B | 2A | 2A |
| | | | INDEX | S3-302186 | S3-302187 | Y3-412182 | Y3-422182 |
| No 5 - 44 | 3,175 | 44 | 4205 | ○ | ○ | ○ | ○ |
| No 6 - 40 | 3,505 | 40 | 4206 | ○ | ○ | ○ | ○ |
| No 8 - 36 | 4,166 | 36 | 4208 | ○ | ○ | ○ | ○ |
| No 10 - 32 | 4,826 | 32 | 4210 | ○ | ○ | ○ | ○ |
| No 12 - 28 | 5,486 | 28 | 4212 | ○ | ○ | ○ | ○ |
| 1/4 - 28 | 6,350 | 28 | 4227 | ● | ○ | ○ | ○ |
| 5/16 - 24 | 7,938 | 24 | 4228 | ● | ○ | ○ | ○ |
| 3/8 - 24 | 9,525 | 24 | 4229 | ● | ○ | ○ | ○ |
| 7/16 - 20 | 11,112 | 20 | 4230 | ● | ○ | ○ | ○ |
| 1/2 - 20 | 12,700 | 20 | 4231 | ● | ○ | ○ | ○ |
| 9/16 - 18 | 14,288 | 18 | 4232 | ● | ○ | ○ | ○ |
| 5/8 - 18 | 15,875 | 18 | 4233 | ● | ○ | ○ | ○ |
| 3/4 - 16 | 19,050 | 16 | 4235 | ● | ○ | ○ | ○ |
| 7/8 - 14 | 22,225 | 14 | 4237 | ● | ○ | ○ | ○ |
| 1 - 12 | 25,400 | 12 | 4239 | ● | ○ | ○ | ○ |
| 1.1/8 - 12 | 28,575 | 12 | 4241 | ○ | ○ | ○ | ○ |
| 1.1/4 - 12 | 31,750 | 12 | 4243 | ○ | ○ | ○ | ○ |
| 1.3/8 - 12 | 34,925 | 12 | 4245 | ○ | ○ | ○ | ○ |
| 1.1/2 - 12 | 38,100 | 12 | 4247 | ○ | ○ | ○ | ○ |

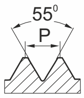


**Example of order**

**Y3-422182-4235**
**MSRk 3/4-16 UNF-2A**

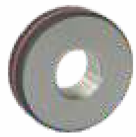
● **Available from stock**
○ **On request**

## Whitworth pipe thread G, DIN-ISO 228




**Gauge dimensions ISO 228-2**





| Symbol | | | | MSBg | MSRh | MSRk |
|---|---|---|---|---|---|---|
| Type | | | | GO / NOGO | GO | NOGO |
| G | Ć $d_1$ | 1”/P | Tol | | A | A |
| | | | INDEX | S3-302180 | Y3-412180 | Y3-422180 |
| G-1/8” | 9,73 | 28 | 3123 | ● | ○ | ○ |
| G-1/4” | 13,16 | 19 | 3127 | ● | ○ | ○ |
| G-3/8” | 16,66 | 19 | 3129 | ● | ● | ● |
| G-1/2” | 20,96 | 14 | 3131 | ● | ● | ● |
| G-5/8” | 22,91 | 14 | 3133 | ○ | ○ | ○ |
| G-3/4” | 26,44 | 14 | 3135 | ● | ● | ● |
| G-7/8” | 30,20 | 14 | 3137 | ○ | ○ | ○ |
| G-1” | 33,25 | 11 | 3139 | ● | ● | ● |
| G-1.1/8” | 37,90 | 11 | 3141 | ● | ○ | ○ |
| G-1.1/4” | 41,91 | 11 | 3143 | ● | ○ | ○ |





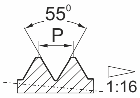
**Example of order**

**S3-302180-3127**
**MSBg G-1/4”**

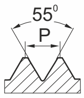
● **Available from stock**
○ **On request**

## Pipe thread without dry seal material

## PN-EN 10226-3 (ISO7-2:2000)




R, Rc

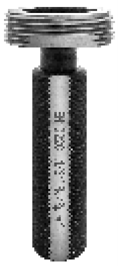


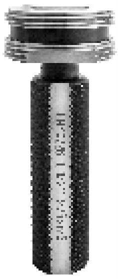

Rp

**PN-EN 10226-1,**
**PN-EN 10226-2 (ISO7-1:2000)**

**Gauge system acc. PN-EN 10226-3**

**Gauge dimensions PN-EN 10226-3**

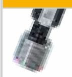




| Symbol | | | | MSXa | MSXa | MSXc | MSXc | MSXa |
|---|---|---|---|---|---|---|---|---|
| Type | | | | Nr 1 | Nr 2 | Nr 3 | Nr 4 | Nr 5 |
| Rc/Rp | Ć $d_1$ | 1”/P | Tol | Rc/Rp | Rc/Rp | R | R | R |
| | | | INDEX | S3-332101 | S3-332102 | - | - | S3-332105 |
| 1/16” | 7,72 | 28 | 3321 | ○ | ○ | | | ○ |
| 1/8” | 9,73 | 28 | 3323 | ○ | ○ | | | ○ |
| 1/4” | 13,16 | 19 | 3327 | ○ | ○ | | | ○ |
| 3/8” | 16,66 | 19 | 3329 | ○ | ○ | | | ○ |
| 1/2” | 20,96 | 14 | 3331 | ○ | ○ | | | ○ |
| 3/4” | 26,44 | 14 | 3335 | ○ | ○ | | | ○ |
| 1” | 32,25 | 11 | 3339 | ○ | ○ | | | ○ |
| 1.1/4” | 41,91 | 11 | 3343 | ○ | ○ | | | ○ |
| 1.1/2” | 47,80 | 11 | 3347 | ○ | ○ | | | ○ |
| 2” | 59,61 | 11 | 3355 | ○ | ○ | | | ○ |
| 2.1/2" | 75,18 | 11 | 3359 | ○ | ○ | | | ○ |
| 3" | 87,88 | 11 | 3363 | ○ | ○ | | | ○ |
| 4" | 113,03 | 11 | 3371 | ○ | ○ | | | ○ |
| R | Ć $d_1$ | 1”/P | INDEX | - | - | Y3-432103 | Y3-432104 | - |
| 1/16” | 7,72 | 28 | 3421 | | | ○ | ○ | |
| 1/8” | 9,73 | 28 | 3423 | | | ○ | ○ | |
| 1/4” | 13,16 | 19 | 3427 | | | ○ | ○ | |
| 3/8” | 16,66 | 19 | 3429 | | | ○ | ○ | |
| 1/2” | 20,96 | 14 | 3431 | | | ○ | ○ | |
| 3/4” | 26,44 | 14 | 3435 | | | ○ | ○ | |
| 1” | 32,25 | 11 | 3439 | | | ○ | ○ | |
| 1.1/4” | 41,91 | 11 | 3443 | | | ○ | ○ | |
| 1.1/2” | 47,80 | 11 | 3447 | | | ○ | ○ | |
| 2” | 59,61 | 11 | 3455 | | | ○ | ○ | |
| 2.1/2" | 75,18 | 11 | 3459 | | | ○ | ○ | |
| 3" | 87,88 | 11 | 3463 | | | ○ | ○ | |
| 4" | 113,03 | 11 | 3471 | | | ○ | ○ | |

Technical information concerning construction and use of gauges R an RC/RP in the technical part of the catalouge on page 248-251



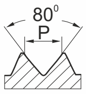


**Example of order**

**S3-332101-3327**
**MSXa EN 10226 1/4”-Rc/Rp Nr1**

● Available from stock
○ On request

## Steel conduit thread Pg, DIN-40430




**Gauge dimensions DIN 40431**


| Symbol | | | | MSBg | MSRh | MSRc |
|---|---|---|---|---|---|---|
| Type | | | | GO / NOGO | GO | NOGO |
| Pg | Ć $d_1$ | 1"/P | Tol | | | |
| | | | INDEX | S3-832100 | Y3-412100 | Y3-450100 |
| Pg 7 | 12,5 | 20 | 8807 | ○ | ○ | ○ |
| Pg 9 | 15,2 | 18 | 8809 | ○ | ○ | ○ |
| Pg 11 | 18,6 | 18 | 8811 | ○ | ○ | ○ |
| Pg 13,5 | 20,4 | 18 | 8813 | ○ | ○ | ○ |
| Pg 16 | 22,5 | 18 | 8816 | ○ | ○ | ○ |
| Pg 21 | 28,3 | 16 | 8821 | ○ | ○ | ○ |
| Pg 29 | 37 | 16 | 8829 | ○ | ○ | ○ |
| Pg 36 | 47 | 16 | 8836 | ○ | ○ | ○ |

**Pg thread is replaced by metric fine MF according to DIN 60423 available on request**

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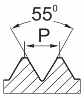
**Example of order**

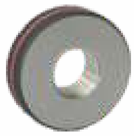
**S3-832100-8807**
**MSBg Pg7**

● **Available from stock**
○ **On request**

## Whitworth thread BSW, BS-84:1956




**Gauge dimensions BS 919-2**



| Symbol | | | | MSBg | MSRh | MSRk |
|---|---|---|---|---|---|---|
| Type | | | | GO / NOGO | GO | NOGO |
| BSW | Ć $d_1$ | 1"/P | Tol | medium | medium | medium |
| | | | INDEX | S3-302100 | Y3-412100 | Y3-422100 |
| 1/8 - 40 | 3,175 | 40 | 7123 | o | o | o |
| 3/16 - 24 | 4,762 | 24 | 7125 | o | o | o |
| 1/4 - 20 | 6,350 | 20 | 7127 | o | o | o |
| 5/16 - 18 | 7,938 | 18 | 7128 | o | o | o |
| 3/8 - 16 | 9,525 | 16 | 7129 | o | o | o |
| 7/16 - 14 | 11,112 | 14 | 7130 | o | o | o |
| 1/2 - 12 | 12,700 | 12 | 7131 | o | o | o |
| 9/16 - 12 | 14,288 | 12 | 7132 | o | o | o |
| 5/8 - 11 | 15,875 | 11 | 7133 | o | o | o |
| 3/4 - 10 | 19,050 | 10 | 7135 | o | o | o |
| 7/8 - 9 | 22,225 | 9 | 7137 | o | o | o |
| 1 - 8 | 25,400 | 8 | 7139 | o | o | o |
| 1.1/8 - 7 | 28,575 | 7 | 7141 | o | o | o |
| 1.1/4 - 7 | 31,750 | 7 | 7143 | o | o | o |
| 1.3/8 - 6 | 34,925 | 6 | 7145 | o | o | o |
| 1.1/2 - 6 | 38,100 | 6 | 7147 | o | o | o |
| 1.3/4 - 5 | 44,450 | 5 | 7151 | o | o | o |
| 2 - 4.1/2 | 50,800 | 4.1/2 | 7155 | o | o | o |

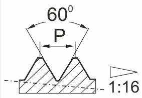
7

**Example of order**

**Y3-412100-7131**
**MSRh 1/2-12 BSW**

● **Available from stock**
○ **On request**

## American tapered pipe thread
## NPT 1:16, ANSI B-1.20.1




**Gauge dimensions ANSI/ASME B1.20.1**

| | | | | | |
|---|---|---|---|---|---|
| Symbol | | | MSXa | MSXc | |
| Type | | | | | |
| NPT Ć $d_1$ | 1"/P | Tol | | | |
| | | INDEX | S3-332100 | Y3-432100 | |
| 1/16" | 27 | 4621 | ○ | ○ | |
| 1/8" | 27 | 4623 | ○ | ○ | |
| 1/4" | 18 | 4627 | ○ | ○ | |
| 3/8" | 18 | 4629 | ● | ○ | |
| 1/2" | 14 | 4631 | ● | ○ | |
| 3/4" | 14 | 4635 | ● | ○ | |
| 1" | 11.1/2 | 4639 | ● | ○ | |
| 1.1/4" | 11.1/2 | 4643 | ○ | ○ | |
| 1.1/2" | 11.1/2 | 4647 | ○ | ○ | |
| 2" | 11.1/2 | 4655 | ○ | ○ | |

Technical information concerning use of gauges NPT in the technical part of the catalogue on page 248



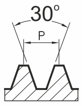


**Example of order**

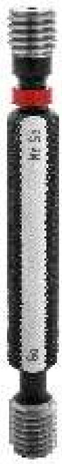
**S3-332100-4627**
**MSXa 1/4" NPT**

● **Available from stock**
○ **On request**

## Trapezoidal thread Tr, DIN-103




**Gauge dimensions DIN 103-9**



| | | | | | |
|---|---|---|---|---|---|
| Symbol | | | MSBg | MSRh | MSRk |
| Type | | | GO / NOGO | GO | NOGO |
| Tr<br>Ć $d_1$ [mm] | P<br>[mm] | Tol | 7H | 7e | 7e |
| | | INDEX | S3-302171 | Y3-412174 | Y3-422174 |
| Tr 10 x 2 | 2 | 8009 | o | o | o |
| Tr 12 x 3 | 3 | 8015 | o | o | o |
| Tr 14 x 3 | 3 | 8019 | o | o | o |
| Tr 16 x 4 | 4 | 8024 | o | o | o |
| Tr 18 x 4 | 4 | 8032 | o | o | o |
| Tr 20 x 4 | 4 | 8034 | o | o | o |
| Tr 22 x 5 | 5 | 8037 | o | o | o |
| Tr 24 x 5 | 5 | 8042 | o | o | o |
| Tr 26 x 5 | 5 | 8047 | o | o | o |
| Tr 28 x 5 | 5 | 8052 | o | o | o |
| Tr 30 x 6 | 6 | 8057 | o | o | o |
| Tr 32 x 6 | 6 | 8062 | o | o | o |
| Tr 36 x 6 | 6 | 8072 | o | o | o |

7

**Example of order**

**S3-302171-8009**
**MSBg Tr 10x2-7H**

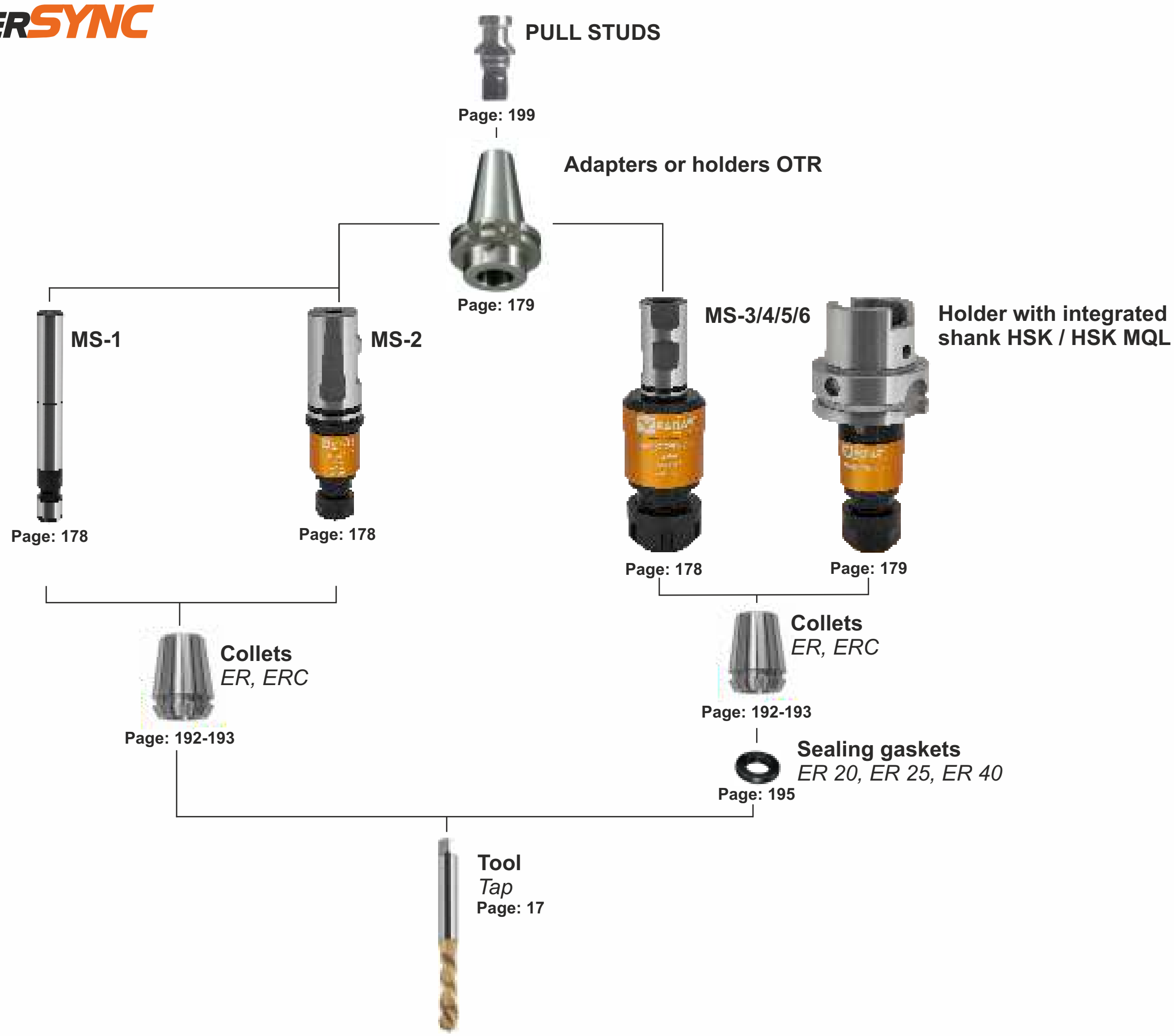
● **Available from stock**
○ **On request**

# Toolholders

PAGE

## CONTENTS

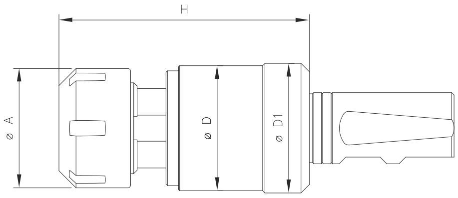
## MASTERSYNC





| | | | | | |
|---|---|---|---|---|---|
| | | Page | 180-182 | 183-186 | 187 |
| | | Description | For „Soft Synchro" tapping with small axis compensation 0,2 mm compression and 1 mm extension with internal cooling | For tapping with axial compression and extension compensation | For tapping wit axial compression and extension compesation and reversing motion intended for machines withe the right spindle rotation |
| **Shank** | **Norm** | **Symbol** | **OGSS** | **OGK** | **OGN** |
| **MORSE'A** | DIN-228 A/B | **MK** | | MK2, MK3, MK4, MK5 | MK1, MK2, MK3, MK4 (JT6, M20) |
| **DIN** | DIN-2080 | **DIN** | | DIN30, DIN40, DIN50 | |
| **TR** | DIN-6327 | **TR** | | TR20, TR28, TR36, TR48 | |
| **ISO** | DIN 69871 A | **ISO** | ISO40, ISO50 | ISO30, ISO40, ISO50 | |
| **MAS-BT** | JIS B 6339 | **BT** | BT40, BT50 | BT30, BT40, BT50 | |
| **HSK** | DIN 69893 A | **HSK** | HSK40, HSK50, HSK63, HSK100 | HSK50, HSK63, HSK80, HSK100 | |
| **VDI** | DIN 69880 | **VDI** | VDI30, VDI40 | VDI20, VDI25, VDI30, VDI40, VDI50 | |
| **WELDON** | DIN 1835 B | **W** | W25, W40 | W20, W25, W32, W40 | |
| **POLYGONAL** | ISO 26623-1 | **C** | C40, C50, C63, C80 | C40, C50, C63, C80 | |

· Axial compensation: +/- 0,5




MASTERSYNC

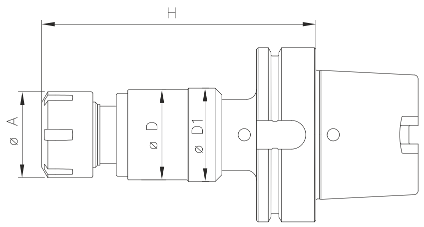
Accesories

Sealing Gaskets 195

| | MS-1 | MS-2 | MS-3 | MS-4 | MS-5 | MS-6 |
|---|---|---|---|---|---|---|
| Capacity | M1÷M3 | M2÷M5 | M4,5÷M12 | M8÷M20 | M16÷M30 | M22÷M48 |
| Internal cooling | - | - | IK | IK | IK | IK |

| Model | Shank | Collet | M | D | $D_1$ | A | H | Sealing Gaskets | INDEX | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MS-1-D12 | 12 | ER8 | M1÷M3 | 12 | 12 | 12 | 28 | - | R-MS-1-D12 | | | | | |
| MS-2-W25 | 25 | ER11 | M2÷M5 | 23,5 | 23,5 | 19 | 52 | - | | R-MS-2-W25 | | | | |
| MS-3-W25 | 25 | ER20 | M4,5÷M12 | 34,6 | 36,3 | 34 | 69 | + | | | R-MS-3-W25 | | | |
| MS-4-W25 | 25 | ER25 | M8÷M20 | 44 | 45,6 | 42 | 88 | + | | | | R-MS-4-W25 | | |
| MS-5-W25 | 25 | ER40 | M16÷M30 | 62 | 63,6 | 63 | 117 | + | | | | | R-MS-5-W25 | |
| MS-6-W40 | 40 | ER50 | M22÷M48 | 80 | 87 | 78 | 166 | + | | | | | | R-MS-6-W40 |

· Axial compensation: +/- 0,5




MASTERSYNC

**Accesories**

Sealing Gaskets 195

| | MS-3 | MS-4 | MS-5 |
|---|---|---|---|
| **Capacity** | M4÷M12 | M8÷M20 | M16÷M30 |
| **Internal cooling** | IK | IK | IK |

| Model | Shank | Collet | M | D | $D_1$ | A | H | Sealing Gaskets | INDEX | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MS-3-HSK63A | HSK63A | ER20 | M4÷M12 | 34,6 | 36,3 | 34 | 108 | + | R-MS-3-HSK63A | | |
| MS-3-HSK80A | HSK80A | ER20 | M4÷M12 | 34,6 | 36,3 | 34 | 113 | + | R-MS-3-HSK80A | | |
| MS-3-HSK100A | HSK100A | ER20 | M4÷M12 | 34,6 | 36,3 | 34 | 115 | + | R-MS-3-HSK100A | | |
| MS-4-HSK63A | HSK63A | ER25 | M8÷M20 | 44 | 45,6 | 42 | 128 | + | | R-MS-4-HSK63A | |
| MS-4-HSK80A | HSK80A | ER25 | M8÷M20 | 44 | 45,6 | 42 | 115 | + | | R-MS-4-HSK80A | |
| MS-4-HSK100A | HSK100A | ER25 | M8÷M20 | 44 | 45,6 | 42 | 131 | + | | R-MS-4-HSK100A | |
| MS-5-HSK63A | HSK63A | ER40 | M16÷M30 | 62 | 63,6 | 63 | 160 | + | | | R-MS-5-HSK63A |
| MS-5-HSK80A | HSK80A | ER40 | M16÷M30 | 62 | 63,6 | 63 | 161 | + | | | R-MS-5-HSK80A |
| MS-5-HSK100A | HSK100A | ER40 | M16÷M30 | 62 | 63,6 | 63 | 163 | + | | | R-MS-5-HSK100A |

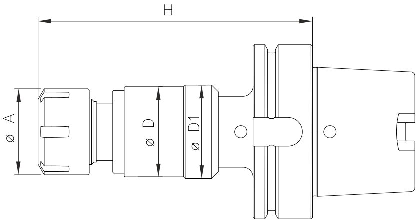




**Example of order**
**R-MS-4-HSK63A**

● **Available from stock**
○ **On request**

**Features and Advantages**
- increase tap life by 100% or more
- improves thread quality
- precise lubrication delivery for improved tool life
- reduce coolant and maintenance costs
- environmentally friendddly alternative to recirculating coolant
- standardd for one channel system, but multi-channel also available
- axial compensation: +/- 0,5




MASTERSYNC

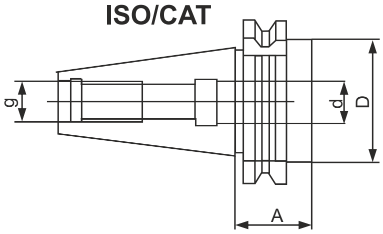
| | MS-3 | MS-4 |
|---|---|---|
| |  |  |
| Capacity | M4÷M12 | M8÷M20 |
| Internal cooling | MQL | MQL |

| Model | Shank | Collet | M | D | $D_1$ | A | H | Sealing Gaskets | INDEX | |
|---|---|---|---|---|---|---|---|---|---|---|
| MS-3-HSK63A-MQL | HSK63A | ER20 | M4÷M12 | 34,6 | 36,6 | 34 | 108 | + | R-MS-3-HSK63A-MQL | |
| MS-3-HSK80A-MQL | HSK80A | ER20 | M4÷M12 | 34,6 | 36,6 | 34 | 113 | + | R-MS-3-HSK80A-MQL | |
| MS-3-HSK100A-MQL | HSK100A | ER20 | M4÷M12 | 34,6 | 36,6 | 34 | 115 | + | R-MS-3-HSK100A-MQL | |
| MS-4-HSK63A-MQL | HSK63A | ER25 | M8÷M20 | 44 | 44 | 42 | 128 | + | | R-MS-4-HSK63A-MQL |
| MS-4-HSK80A-MQL | HSK80A | ER25 | M8÷M20 | 44 | 44 | 42 | 131 | + | | R-MS-4-HSK80A-MQL |
| MS-4-HSK100A-MQL | HSK100A | ER25 | M8÷M20 | 44 | 44 | 42 | 133 | + | | R-MS-4-HSK100A-MQL |

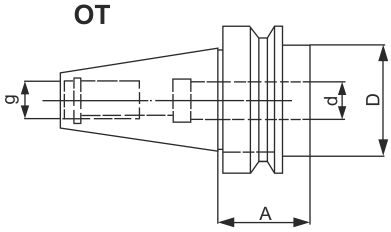
## Adaptors

OTR

ISO/CAT




OT




**Capacity**

**Internal cooling**

| Model | Shank | D | d | A | g | Norm | INDEX |
|---|---|---|---|---|---|---|---|
| ISO40 | ISO40 | 45 | 25 | 35 | M16 | DIN-69871 | R-OTR-ISO40/D25 |
| ISO40 | ISO40 | 90 | 40 | 120 | M16 | DIN-69871 | R-OTR-ISO40/D40 |
| ISO50 | ISO50 | 72 | 25 | 35 | M24 | DIN-69871 | R-OTR-ISO50/D25 |
| ISO50 | ISO50 | 90 | 40 | 100 | M24 | DIN-69871 | R-OTR-ISO50/D40 |
| CAT40 | CAT40 | 45 | 25 | 35 | 5/8"-11 | CAT | R-OTR-CAT40/D25 |
| CAT50 | CAT50 | 70 | 25 | 35 | 1"-8 | CAT | R-OTR-CAT50/D25 |
| CAT50 | CAT50 | 70 | 40 | 75 | 1"-8 | CAT | R-OTR-CAT50/D40 |
| BT40 | BT40 | 45 | 25 | 35 | M16 | DIN-B6339 | R-OTR-BT40/D25 |
| BT50 | BT50 | 70 | 25 | 48 | M24 | DIN-B6339 | R-OTR-BT50/D25 |
| BT50 | BT50 | 90 | 40 | 110 | M24 | DIN-B6339 | R-OTR-BT50/D40 |

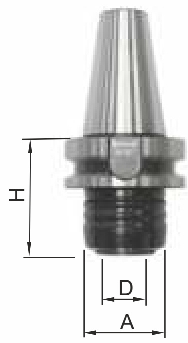


**Example of order**
**R-OTR-ISO40/D25**

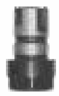
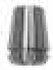
● **Available from stock**
○ **On request**

# Tap holders „SOFT SYNCHRO”

**Information:**
- For machines with synchronous tapping function "rigid tapping”
- A small axis compensation: 0,2 mm compression, 1 mm extension
- Acceptable maximum coolant pressure 50bar
- For toolholders with internal cooling pull studs should be used with a central hole IK

| | ISO | MAS BT |
|---|---|---|
| |  |  |

Accesories

| Adaptors 191 | Collet 192 | Pull studs 199 - 200 |
|---|---|---|
|  A |  ER |  C |

| | ISO | MAS BT |
|---|---|---|
| Norm | DIN-69871 | JIS B6339 |
| Internal cooling | <A50 AD / A50 AD+B | <A50 AD / A50 AD+B |

| Shank | Adapter | D | A | H | M | INDEX | | INDEX | |
|---|---|---|---|---|---|---|---|---|---|
| ISO40 | A20 | 20 | 43 | 53 | M3-M12 | R-OGSS-ISO40/A20 | ● | | |
| ISO40 | A32 | 32 | 60 | 90 | M6-M20 | R-OGSS-ISO40/A32 | ● | | |
| ISO50 | A20 | 20 | 43 | 53 | M3-M12 | R-OGSS-ISO50/A20 | ○ | | |
| ISO50 | A32 | 32 | 60 | 74 | M6-M20 | R-OGSS-ISO50/A32 | ○ | | |
| ISO50 | A50 | 50 | 87 | 115 | M14-M33 | R-OGSS-ISO50/A50 | ○ | | |
| BT40 | A20 | 20 | 43 | 61 | M3-M12 | | | R-OGSS-BT40/A20 | ○ |
| BT40 | A32 | 32 | 60 | 80 | M6-M20 | | | R-OGSS-BT40/A32 | ○ |
| BT50 | A20 | 20 | 43 | 72 | M3-M12 | | | R-OGSS-BT50/A20 | ○ |
| BT50 | A32 | 32 | 60 | 93 | M6-M20 | | | R-OGSS-BT50/A32 | ○ |
| BT50 | A50 | 50 | 87 | 124 | M14-M33 | | | R-OGSS-BT50/A50 | ○ |

**Tool holders with cooling through the flange AD+B and with the ISO 45, DIN 40, DIN 50 shanks available on request**

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**Example of order**
**R-OGSS-BT40/A20**

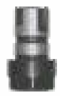
● **Available from stock**
○ **On request**

| **Information:**<br>· For machines with synchronous tapping function "rigid tapping”<br>· A small axis compensation: 0,2 mm compression, 1 mm extension<br>· Acceptable maximum coolant pressure 50bar | **HSK** | **VDI** |
|---|---|---|



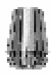
Accesories

Adaptors 191



A

Collets 192



ER

| | HSK | VDI |
|---|---|---|
| Norm | DIN-69893 A | DIN-69880 |
| Internal cooling | | |

| Shank | Adapter | D | A | H | M | INDEX | | INDEX | |
|---|---|---|---|---|---|---|---|---|---|
| HSK40 | A20 | 20 | 43 | 68 | M3-M12 | R-OGSS-HSK40/A20 | ○ | | |
| HSK40 | A32 | 32 | 59 | 89 | M6-M20 | R-OGSS-HSK40/A32 | ○ | | |
| HSK50 | A20 | 20 | 43 | 70 | M3-M12 | R-OGSS-HSK50/A20 | ○ | | |
| HSK50 | A32 | 32 | 59 | 76 | M6-M20 | R-OGSS-HSK50/A32 | ○ | | |
| HSK63 | A20 | 20 | 43 | 63 | M3-M12 | R-OGSS-HSK63/A20 | ○ | | |
| HSK63 | A32 | 32 | 59 | 59 | M6-M20 | R-OGSS-HSK63/A32 | ○ | | |
| HSK63 | A50 | 50 | 87 | 122 | M3-M12 | R-0GSS-HSK-63/A50 | ○ | | |
| HSK100 | A20 | 20 | 43 | 70 | M14-M33 | R-OGSS-HSK100/A20 | ○ | | |
| HSK100 | A32 | 32 | 59 | 91 | M6-M20 | R-OGSS-HSK100/A32 | ○ | | |
| HSK100 | A50 | 50 | 87 | 115 | M14-M33 | R-OGSS-HSK100/A50 | ○ | | |
| VDI30 | A20 | 20 | 43 | 45 | M3-M12 | | | R-OGSS-VDI30/A20 | ○ |
| VDI30 | A32 | 32 | 59 | 70 | M6-M20 | | | R-OGSS-VDI30/A32 | ○ |
| VDI40 | A20 | 20 | 43 | 45 | M3-M12 | | | R-OGSS-VDI40/A20 | ○ |
| VDI40 | A32 | 32 | 59 | 70 | M6-M20 | | | R-OGSS-VDI40/A32 | ○ |

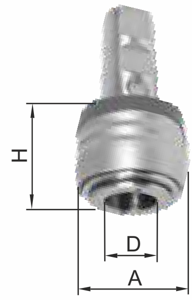
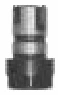
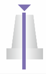


**Example of order**
**R-OGSS-HSK63/A20**

● **Available from stock**
○ **On request**

# Tap holders „SOFT SYNCHRO”

**Information:**
- For machines with synchronous tapping function "rigid tapping”
- A small axis compensation: 0,2 mm compression, 1 mm extension
- Acceptable maximum coolant pressure 50bar

| | POLYGONAL | WELDON |
|---|---|---|
| |  |  |
| Accesories — Adaptors 191  A; Collets 192  ER | | |
| Norm | ISO 26623-1 | DIN 1835 B+E |
| Internal cooling |  | |

| Shank | Adapter | D | A | H | M | INDEX | | INDEX | |
|---|---|---|---|---|---|---|---|---|---|
| C40 | A20 | 20 | 43 | 55 | M3-M12 | R-OGSS-C40/A20 | o | | |
| C40 | A32 | 32 | 60 | 75 | M6-M20 | R-OGSS-C40/A32 | o | | |
| C50 | A20 | 20 | 43 | 55 | M3-M12 | R-OGSS-C50/A20 | o | | |
| C50 | A32 | 32 | 60 | 75 | M6-M20 | R-OGSS-C50/A32 | o | | |
| C63 | A20 | 20 | 43 | 58 | M3-M12 | R-OGSS-C63/A20 | o | | |
| C63 | A32 | 32 | 60 | 78 | M6-M20 | R-OGSS-C63/A32 | o | | |
| C63 | A50 | 50 | 87 | 102 | M14-M33 | R-OGSS-C63/A50 | o | | |
| C80 | A20 | 20 | 43 | 66 | M3-M12 | R-OGSS-C80/A20 | o | | |
| C80 | A32 | 32 | 60 | 86 | M6-M20 | R-OGSS-C80/A32 | o | | |
| C80 | A50 | 50 | 87 | 116 | M14-M33 | R-OGSS-C80/A50 | o | | |
| W25 | A20 | 20 | 43 | 34 | M3-M12 | | | R-OGSS-W25/A20 | o |
| W25 | A32 | 32 | 60 | 56 | M6-M20 | | | R-OGSS-W25/A32 | o |
| W40 | A50 | 50 | 87 | 87 | M14-M33 | | | R-OGSS-W40/A50 | o |





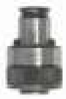
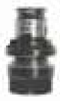
**Example of order**
**R-OGSS-C63/A20**

● **Available from stock**
○ **On request**

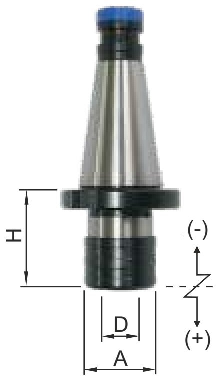
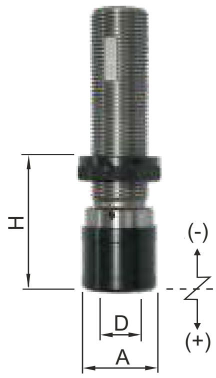
| | MK | MK-A |
|---|---|---|
| |  |  |
| Norm | MORSE DIN-228 B | MORSE DIN-228 A |
| Internal cooling | | |



Accesories

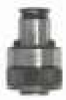
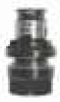
| Adaptors 188 | Adaptors 191 | Collets 192 |
|---|---|---|
|  FZS |  FZA |  ER |

| Shank | Adapter | D | A | H | M | (-) | (+) | INDEX MK | | INDEX MK-A | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MK2 | FZ19 | 19 | 38 | 46 | M2-M12 | 9 | 9 | R-OGK-MK2/FZ19 | ● | | |
| MK3 | FZ19 | 19 | 38 | 46 | M2-M12 | 9 | 9 | R-OGK-MK3/FZ19 | ● | | |
| MK3 | FZ31 | 31 | 55 | 69 | M6-M20 | 15 | 15 | R-OGK-MK3/FZ31 | ● | | |
| MK4 | FZ48 | 48 | 79 | 108 | M14-M33 | 24 | 24 | R-OGK-MK4/FZ48 | ● | | |
| MK5 | FZ60 | 60 | 98 | 116 | M22-M48 | 26 | 26 | R-OGK-MK5/FZ60 | ● | | |
| MK2 | FZ19 | 19 | 38 | 46 | M2-M12 | 9 | 9 | | | R-OGK-MK2/FZ19-A | ○ |
| MK3 | FZ19 | 19 | 38 | 46 | M2-M12 | 9 | 9 | | | R-OGK-MK3/FZ19-A | ○ |
| MK3 | FZ31 | 31 | 55 | 69 | M6-M20 | 15 | 15 | | | R-OGK-MK3/FZ31-A | ○ |
| MK4 | FZ48 | 48 | 79 | 108 | M14-M33 | 24 | 24 | | | R-OGK-MK4/FZ48-A | ○ |
| MK5 | FZ60 | 60 | 98 | 116 | M22-M48 | 26 | 26 | | | R-OGK-MK5/FZ60-A | ○ |

| | DIN | TR |
|---|---|---|
| |  |  |
| **Norm** | DIN-2080 | DIN-6327 |
| **Internal cooling** | | |



**Accesories**

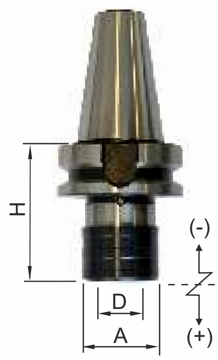
| Adaptors 188 | Adaptors 191 | Collets 192 |
|---|---|---|
|  FZS |  FZA |  ER |

| Shank | Adapter | D | A | H | M | (-) | (+) | INDEX DIN | | INDEX TR | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DIN30 | FZ19 | 19 | 38 | 51 | M2-M12 | 9 | 9 | R-OGK-DIN30/FZ19 | ○ | | |
| DIN30 | FZ31 | 31 | 55 | 86 | M6-M20 | 15 | 15 | R-OGK-DIN30/FZ31 | ○ | | |
| DIN40 | FZ19 | 19 | 38 | 53 | M2-M12 | 9 | 9 | R-OGK-DIN40/FZ19 | ○ | | |
| DIN40 | FZ31 | 31 | 55 | 77 | M6-M20 | 15 | 15 | R-OGK-DIN40/FZ31 | ○ | | |
| DIN40 | FZ48 | 48 | 79 | 118 | M14-M33 | 24 | 24 | R-OGK-DIN40/FZ48 | ○ | | |
| DIN50 | FZ19 | 19 | 38 | 57 | M2-M12 | 9 | 9 | R-OGK-DIN50/FZ19 | ○ | | |
| DIN50 | FZ31 | 31 | 55 | 79 | M6-M20 | 15 | 15 | R-OGK-DIN50/FZ31 | ○ | | |
| DIN50 | FZ48 | 48 | 79 | 125 | M14-M33 | 24 | 24 | R-OGK-DIN50/FZ48 | ○ | | |
| DIN50 | FZ60 | 60 | 98 | 143 | M22-M48 | 26 | 26 | R-OGK-DIN50/FZ60 | ○ | | |
| TR20 | FZ19 | 19 | 38 | 53 | M2-M12 | 9 | 9 | | | R-OGK-TR20/FZ19 | ○ |
| TR28 | FZ19 | 19 | 38 | 53 | M2-M12 | 9 | 9 | | | R-OGK-TR28/FZ19 | ○ |
| TR28 | FZ31 | 31 | 55 | 76 | M6-M20 | 15 | 15 | | | R-OGK-TR28/FZ31 | ○ |
| TR36 | FZ19 | 19 | 38 | 55 | M2-M12 | 9 | 9 | | | R-OGK-TR36/FZ19 | ○ |
| TR36 | FZ31 | 31 | 55 | 78 | M6-M20 | 15 | 15 | | | R-OGK-TR36/FZ31 | ○ |
| TR36 | FZ48 | 48 | 79 | 111 | M14-M33 | 24 | 24 | | | R-OGK-TR36/FZ48 | ○ |
| TR36 | FZ60 | 60 | 98 | 123 | M22-M48 | 26 | 26 | | | R-OGK-TR36/FZ60 | ○ |
| TR48 | FZ48 | 48 | 79 | 115 | M14-M33 | 24 | 24 | | | R-OGK-TR48/FZ48 | ○ |
| TR48 | FZ60 | 60 | 98 | 127 | M22-M48 | 26 | 26 | | | R-OGK-TR48/FZ60 | ○ |

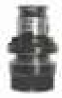
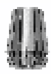
**Example of order**
**R-OGK-DIN50/FZ60**

● **Available from stock**
○ **On request**

# Quick change tap holders with axial compensation

| | ISO | MAS BT |
|---|---|---|
| |  |  |
| Norm | DIN-69871 A | JIS B6339 |
| Internal cooling | | |

Accesories

| Adaptors 188 | Adaptors 190 | Collets 192 | Pull studs 199 - 200 |
|---|---|---|---|
|  FZS |  FZA |  ER |  C |

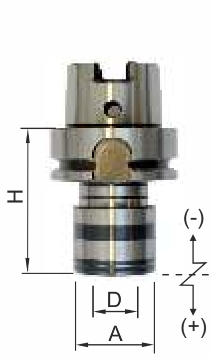
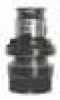
| Shank | Adapter | D | A | H | M | (-) | (+) | INDEX (ISO) | | INDEX (MAS BT) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ISO30 | FZ19 | 19 | 38 | 60 | M2-M12 | 9 | 9 | R-OGK-ISO30/FZ19 | ○ | | |
| ISO30 | FZ31 | 31 | 55 | 101 | M6-M20 | 15 | 15 | R-OGK-ISO30/FZ31 | ○ | | |
| ISO40 | FZ19 | 19 | 38 | 60 | M2-M12 | 9 | 9 | R-OGK-ISO40/FZ19 | ● | | |
| ISO40 | FZ31 | 31 | 55 | 100 | M6-M20 | 15 | 15 | R-OGK-ISO40/FZ31 | ● | | |
| ISO40 | FZ48 | 48 | 79 | 138 | M14-M33 | 24 | 24 | R-OGK-ISO40/FZ48 | ○ | | |
| ISO40 | FZ60 | 60 | 98 | 154 | M22-M48 | 26 | 26 | R-OGK-ISO40/FZ60 | ○ | | |
| ISO50 | FZ19 | 19 | 38 | 62 | M2-M12 | 9 | 9 | R-OGK-ISO50/FZ19 | ○ | | |
| ISO50 | FZ31 | 31 | 55 | 83 | M6-M20 | 15 | 15 | R-OGK-ISO50/FZ31 | ● | | |
| ISO50 | FZ48 | 48 | 79 | 133 | M14-M33 | 24 | 24 | R-OGK-ISO50/FZ48 | ● | | |
| ISO50 | FZ60 | 60 | 98 | 147 | M22-M48 | 26 | 26 | R-OGK-ISO50/FZ60 | ● | | |
| BT30 | FZ19 | 19 | 38 | 63 | M2-M12 | 9 | 9 | | | R-OGK-BT30/FZ19 | ○ |
| BT30 | FZ31 | 31 | 55 | 96 | M6-M20 | 15 | 15 | | | R-OGK-BT30/FZ31 | ○ |
| BT40 | FZ19 | 19 | 38 | 68 | M2-M12 | 9 | 9 | | | R-OGK-BT40/FZ19 | ● |
| BT40 | FZ31 | 31 | 55 | 93 | M6-M20 | 15 | 15 | | | R-OGK-BT40/FZ31 | ● |
| BT40 | FZ48 | 48 | 79 | 138 | M14-M33 | 24 | 24 | | | R-OGK-BT40/FZ48 | ○ |
| BT40 | FZ60 | 60 | 98 | 157 | M22-M48 | 26 | 26 | | | R-OGK-BT40/FZ60 | ○ |
| BT50 | FZ19 | 19 | 38 | 80 | M2-M12 | 9 | 9 | | | R-OGK-BT50/FZ19 | ○ |
| BT50 | FZ31 | 31 | 55 | 102 | M6-M20 | 15 | 15 | | | R-OGK-BT50/FZ31 | ● |
| BT50 | FZ48 | 48 | 79 | 133 | M14-M33 | 24 | 24 | | | R-OGK-BT50/FZ48 | ○ |
| BT50 | FZ60 | 60 | 98 | 147 | M22-M48 | 26 | 26 | | | R-OGK-BT50/FZ60 | ○ |

**OGKC version with internal cooling on request**



**Example of order**
**R-OGK-ISO40/FZ31**

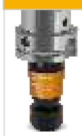
● **Available from stock**
○ **On request**

| | HSK | VDI |
|---|---|---|
| |  |  |
| Accesories: Adaptors 188  FZS; Adaptors 191  FZA; Collets 192  ER | | |
| Norm | DIN-69893 A | DIN-69880 |
| Internal cooling | | |

| Shank | Adapter | D | A | H | M | (-) | (+) | INDEX (HSK) | | INDEX (VDI) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HSK50 | FZ19 | 19 | 41 | 72 | M2-M12 | 7,5 | 7,5 | R-OGK-HSK50/FZ19 | ○ | | |
| HSK50 | FZ31 | 31 | 60 | 110 | M6-M20 | 10 | 10 | R-OGK-HSK50/FZ31 | ○ | | |
| HSK63 | FZ19 | 19 | 41 | 72 | M2-M12 | 7,5 | 7,5 | R-OGK-HSK63/FZ19 | ● | | |
| HSK63 | FZ31 | 31 | 60 | 110 | M6-M20 | 10 | 10 | R-OGK-HSK63/FZ31 | ● | | |
| HSK63 | FZ48 | 48 | 86 | 141 | M14-M33 | 17,5 | 17,5 | R-OGK-HSK63/FZ48 | ○ | | |
| HSK80 | FZ19 | 19 | 41 | 75 | M2-M12 | 7,5 | 7,5 | R-OGK-HSK80/FZ19 | ○ | | |
| HSK80 | FZ31 | 31 | 60 | 95 | M6-M20 | 10 | 10 | R-OGK-HSK80/FZ31 | ○ | | |
| HSK80 | FZ48 | 48 | 86 | 141 | M14-M33 | 17,5 | 17,5 | R-OGK-HSK80/FZ48 | ○ | | |
| HSK100 | FZ19 | 19 | 41 | 80 | M2-M12 | 7,5 | 7,5 | R-OGK-HSK100/FZ19 | ○ | | |
| HSK100 | FZ31 | 31 | 60 | 100 | M6-M20 | 10 | 10 | R-OGK-HSK100/FZ31 | ○ | | |
| HSK100 | FZ48 | 48 | 86 | 141 | M14-M33 | 17,5 | 17,5 | R-OGK-HSK100/FZ48 | ○ | | |
| VDI20 | FZ19 | 19 | 38 | 55 | M2-M12 | 9 | 9 | | | R-OGK-VDI20/FZ19 | ○ |
| VDI20 | FZ31 | 31 | 55 | 77 | M6-M20 | 15 | 15 | | | R-OGK-VDI20/FZ31 | ○ |
| VDI25 | FZ19 | 19 | 38 | 55 | M2-M12 | 9 | 9 | | | R-OGK-VDI25/FZ19 | ● |
| VDI25 | FZ31 | 31 | 55 | 77 | M6-M20 | 15 | 15 | | | R-OGK-VDI25/FZ31 | ● |
| VDI30 | FZ19 | 19 | 38 | 55 | M2-M12 | 9 | 9 | | | R-OGK-VDI30/FZ19 | ● |
| VDI30 | FZ31 | 31 | 55 | 77 | M6-M20 | 15 | 15 | | | R-OGK-VDI30/FZ31 | ● |
| VDI40 | FZ19 | 19 | 38 | 55 | M2-M12 | 9 | 9 | | | R-OGK-VDI40/FZ19 | ○ |
| VDI40 | FZ31 | 31 | 55 | 77 | M6-M20 | 15 | 15 | | | R-OGK-VDI40/FZ31 | ● |
| VDI40 | FZ48 | 48 | 79 | 110 | M14-M33 | 24 | 24 | | | R-OGK-VDI40/FZ48 | ○ |
| VDI50 | FZ48 | 48 | 79 | 110 | M14-M33 | 24 | 24 | | | R-OGK-VDI50/FZ48 | ○ |

**OGKC version with internal cooling on request**

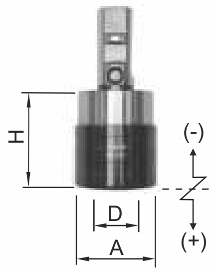
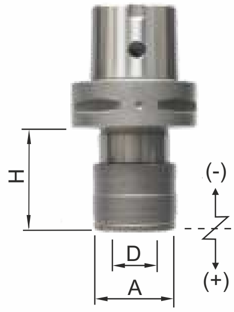
8



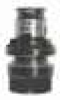
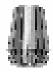
**Example of order**
**R-OGK-VDI50/FZ48**

● **Available from stock**
○ **On request**

# Quick change tap holders with axial compensation

| | WELDON | POLYGONAL |
|---|---|---|
| |  |  |
| Norm | DIN-1835 B+E | ISO 26623-1 |
| Internal cooling | | |

Accesories

| Adaptors 188 | Adaptors 190 | Collets 192 |
|---|---|---|
|  FZS |  FZA |  ER |

| Shank | Adapter | D | A | H | M | (-) | (+) | INDEX (WELDON) | | INDEX (POLYGONAL) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W20 | FZ19 | 19 | 38 | 41 | M2-M12 | 9 | 9 | R-OGK-W20/FZ19 | ○ | | |
| W20 | FZ31 | 31 | 55 | 63 | M6-M20 | 15 | 15 | R-OGK-W20/FZ31 | ○ | | |
| W25 | FZ19 | 19 | 38 | 41 | M2-M12 | 9 | 9 | R-OGK-W25/FZ19 | ● | | |
| W25 | FZ31 | 31 | 55 | 63 | M6-M20 | 15 | 15 | R-OGK-W25/FZ31 | ● | | |
| W32 | FZ19 | 19 | 38 | 41 | M2-M12 | 9 | 9 | R-OGK-W32/FZ19 | ○ | | |
| W32 | FZ31 | 31 | 55 | 63 | M6-M20 | 15 | 15 | R-OGK-W32/FZ31 | ● | | |
| W32 | FZ48 | 48 | 79 | 109 | M14-M33 | 24 | 24 | R-OGK-W32/FZ48 | ○ | | |
| W40 | FZ19 | 19 | 38 | 41 | M2-M12 | 9 | 9 | R-OGK-W40/FZ19 | ○ | | |
| W40 | FZ31 | 31 | 55 | 63 | M6-M20 | 15 | 15 | R-OGK-W40/FZ31 | ○ | | |
| W40 | FZ48 | 48 | 79 | 98 | M14-M33 | 24 | 24 | R-OGK-W40/FZ48 | ○ | | |
| C40 | FZ19 | 19 | 41 | 48 | M2-M12 | 7,5 | 7,5 | | | R-OGK-C40/FZ19 | ○ |
| C40 | FZ31 | 31 | 60 | 71 | M6-M20 | 10 | 10 | | | R-OGK-C40/FZ31 | ○ |
| C50 | FZ19 | 19 | 41 | 48 | M2-M12 | 7,5 | 7,5 | | | R-OGK-C50/FZ19 | ○ |
| C50 | FZ31 | 31 | 60 | 71 | M6-M20 | 10 | 10 | | | R-OGK-C50/FZ31 | ○ |
| C63 | FZ19 | 19 | 41 | 73 | M2-M12 | 7,5 | 7,5 | | | R-OGK-C63/FZ19 | ○ |
| C63 | FZ31 | 31 | 60 | 97 | M6-M20 | 10 | 10 | | | R-OGK-C63/FZ31 | ○ |
| C63 | FZ48 | 48 | 86 | 124 | M12-M33 | 17,5 | 17,5 | | | R-OGK-C63/FZ48 | ○ |
| C80 | FZ19 | 19 | 41 | 45 | M2-M12 | 7,5 | 7,5 | | | R-OGK-C80/FZ19 | ○ |
| C80 | FZ31 | 31 | 60 | 60 | M6-M20 | 10 | 10 | | | R-OGK-C80/FZ31 | ○ |
| C80 | FZ48 | 48 | 86 | 107 | M12-M33 | 17,5 | 17,5 | | | R-OGK-C80/FZ48 | ○ |

**OGKC version with internal cooling on request**





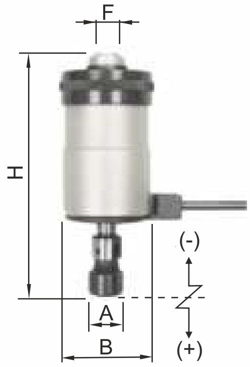
**Example of order**
**R-OGK-W40/FZ48**

● **Available from stock**
○ **On request**

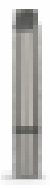
**Information:**

- For machines with the right spindle rotation
- Toolholder has axial compensation for compression, extension and safety clutch

$I = U / U_n$
U - tapping speed
$U_n$ - reversing speed




Accesories

| Shanks | Collets 198 |
|---|---|
|  R-TM-MK2/JT6 |  RF |

Norm: JT6 / M20 (+ MK DIN-228 B)

| F | Collet | H | B | A | $U_{max}$ [1/min] | I | M | In box | | INDEX | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | RF | TM | | |
| JT6 | RF15 | 134 | 55 | 23 | 1500 | 1,6 | M2-M7 | J116, J117 | MK1, MK3 | R-OGN-JT6/RF15-Z | ● |
| JT6 | RF23 | 158 | 75 | 28 | 1000 | 1,75 | M5-M12 | J421, J422 | MK3, MK4 | R-OGN-JT6/RF23-Z | ● |
| M20 | RF32 | 205 | 91 | 40 | 600 | 1,7 | M5-M18 | J441, J445 | MK3, MK4 | R-OGN-M20/RF32-Z | ● |

**Toolholder is sold in a set with accesories - details aboce in the table**



**Example of order**
**R-OGN-JT6/RF15-Z**

● **Available from stock**
○ **On request**

**Quick-change adapters with safety clutch for taps**

**Information:**

- Adapters with safety clutch are intended for OGK holders with axial compensation
- Safety clutch can prevent the tool from damage in case of a large increase of cutting forces


| Size | | | | | FZS13 | FZS19 | FZS31 | FZS48 | FZS60 |
|---|---|---|---|---|---|---|---|---|---|
| d / A / H / h | | | | | 13 / 23 / 21 / 6 | 19 / 32 / 25 / 8 | 31 / 50 / 34 / 4 | 48 / 72 / 45 / 1 | 60 / 95 / 68 / 3 |
| M | DIN | D | ⌀ | INDEX | R-FZS13 | R-FZS19 | R-FZS31 | R-FZS48 | R-FZS60 |
| M 2 | 371 | 2,8 | 2,1 | M2 D2,8 DIN | ○ | ● | | | |
| M 3 | 371 | 3,5 | 2,7 | M3 D3,5 DIN | ○ | ● | | | |
| M 4 | 371 | 4,5 | 3,4 | M4 D4,5 DIN | ○ | ● | | | |
| M 5 | 371 | 6 | 4,9 | M5 D6 DIN | ○ | ● | | | |
| M 6 | 371 | 6 | 4,9 | M6 D6 DIN | ○ | ● | ● | | |
| M 8 | 371 | 8 | 6,2 | M8 D8 DIN | | ● | ● | | |
| M 8 | 376 | 6 | 4,9 | M8 D6 DIN | | ○ | ○ | | |
| M 10 | 371 | 10 | 8 | M10 D10 DIN | | ● | ● | ○ | |
| M 10 | 376 | 7 | 5,5 | M10 D7 DIN | | ○ | ○ | | |
| M 12 | 376 | 9 | 7 | M12 D9 DIN | | ● | ● | ○ | |
| M 14 | 376 | 11 | 9 | M14 D11 DIN | | ○ | ● | ● | |
| M 16 | 376 | 12 | 9 | M16 D12 DIN | | | ● | ○ | |
| M 18 | 376 | 14 | 11 | M18 D14 DIN | | | ● | ● | |
| M 20 | 376 | 16 | 12 | M20 D16 DIN | | | ● | ○ | ○ |
| M 22 | 376 | 18 | 14,5 | M22 D18 DIN | | | ● | ● | ○ |
| M 24 | 376 | 18 | 14,5 | M24 D18 DIN | | | ○ | ● | ○ |
| M 27 | 376 | 20 | 16 | M27 D20 DIN | | | ○ | ● | ○ |
| M 30 | 376 | 22 | 18 | M30 D22 DIN | | | | ○ | ○ |
| M 33 | 376 | 25 | 20 | M33 D25 DIN | | | | ○ | ○ |
| M 36 | 376 | 28 | 22 | M36 D28 DIN | | | | | ● |
| M 39 | 376 | 32 | 24 | M39 D32 DIN | | | | | ○ |
| M 42 | 376 | 32 | 24 | M42 D32 DIN | | | | | ● |
| M 45 | 376 | 36 | 29 | M45 D36 DIN | | | | | ○ |
| M 48 | 376 | 36 | 29 | M48 D36 DIN | | | | | ○ |

**Extended version FZSL of quick-change adapters and FL extensions on request**

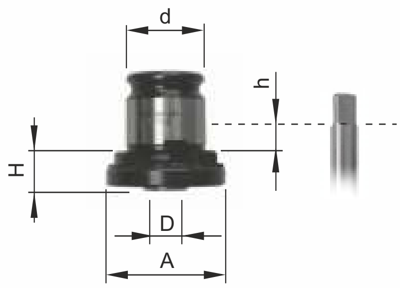




**Example of order**
**R-FZS31/M12 D9 DIN**

● **Available from stock**
○ **On request**

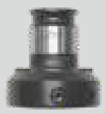
**Information:**
· Adapters are intended for OGK and OG holders




| Size | | | | | FZ13 | FZ19 | FZ31 | FZ48 | FZ60 |
|---|---|---|---|---|---|---|---|---|---|
| d / A / H / h | | | | | 13 / 22 / 7 / 8 | 19 / 30 / 7 / 10 | 31 / 46 / 11 / 19 | 48 / 68 / 14 / 25 | 60 / 83 / 42 / 29 |
| M | DIN | D | ⌀ | INDEX | R-FZ13 | R-FZ19 | R-FZ31 | R-FZ48 | R-FZ60 |
| M 2 | 371 | 2,8 | 2,1 | M2 D2,8 DIN | ○ | ○ | | | |
| M 3 | 371 | 3,5 | 2,7 | M3 D3,5 DIN | ○ | ● | | | |
| M 4 | 371 | 4,5 | 3,4 | M4 D4,5 DIN | ○ | ● | | | |
| M 5, M6 | 371 | 6 | 4,9 | M5, M6 D6 DIN | ○ | ● | ● | | |
| M 8 | 371 | 8 | 6,2 | M8 D8 DIN | | ● | ● | | |
| M 10 | 371 | 10 | 8 | M10 D10 DIN | | ● | ● | | |
| M 12 | 376 | 9 | 7 | M12 D9 DIN | | ● | ● | | |
| M 14 | 376 | 11 | 9 | M14 D11 DIN | | ○ | ○ | ○ | |
| M 16 | 376 | 12 | 9 | M16 D12 DIN | | | ● | ○ | |
| M 18 | 376 | 14 | 11 | M18 D14 DIN | | | ○ | ○ | |
| M 20 | 376 | 16 | 12 | M20 D16 DIN | | | ● | ○ | |
| M 22, M24 | 376 | 18 | 14,5 | M24 D18 DIN | | | ○ | ○ | ○ |
| M 27 | 376 | 20 | 16 | M27 D20 DIN | | | | ○ | ○ |
| M 30 | 376 | 22 | 18 | M30 D22 DIN | | | | ○ | ○ |
| M 33 | 376 | 25 | 20 | M33 D25 DIN | | | | ○ | ○ |
| M 36 | 376 | 28 | 22 | M36 D28 DIN | | | | | ○ |
| M 39, M42 | 376 | 32 | 24 | M42 D32 DIN | | | | | ○ |
| M 45, M48 | 376 | 36 | 29 | M48 D36 DIN | | | | | ○ |

**Extended version FZSL of quick-change adapters and FL extensions on request**

**Quick-change adapters FZN for dies on request**



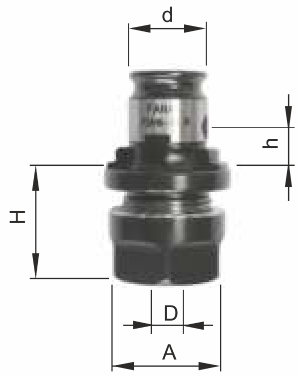
**Example of order**
**R-FZ31/M16 D12 DIN**

● **Available from stock**
○ **On request**

# Adaptors for ER collets clamping

**Information:**
- Adaptors are intended for OGK and OG holders
- In ER standard tap clamping - **adaptor has fastening screws**

**After each change of the tap, it is necessary to tighten the adaptors.*




Accesories

Collets 192

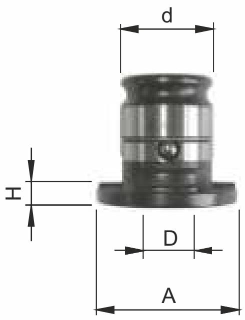
ER

| Size | Collets | H | h | A | d | D | M | INDEX | |
|---|---|---|---|---|---|---|---|---|---|
| FZA19 | ER16 | 29,5 | 8,5 | 28 | 19 | 2-10 | M3-M12 | R-FZA19/ER16 | ● |
| FZA31 | ER25 | 38,5 | 15 | 42 | 31 | 2-16 | M6-M20 | R-FZA31/ER25 | ● |

FR

# Quick-change adapters reduction

**Information:**
- Reductions are intended for OGK and OG holders to connect FZS, FZ quick-change adapters and FZA adaptors




| Reduction | H | A | d | D | INDEX | |
|---|---|---|---|---|---|---|
| 19/13 | 6 | 30 | 19 | 13 | R-FR19/13 | ○ |
| 31/19 | 8,5 | 46 | 31 | 19 | R-FR31/19 | ● |
| 48/31 | 7 | 68 | 48 | 31 | R-FR48/31 | ● |
| 60/48 | 13 | 92 | 60 | 48 | R-FR60/48 | ○ |



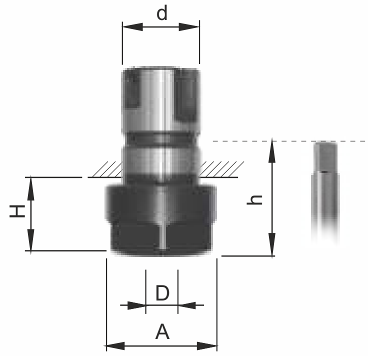


**Example of order**
**R-FR19/13**

● **Available from stock**
○ **On request**

**Information:**
- Adaptors are intended for OGSS holders
- In ER standard tap clamping - **adaptor has fastening screws**

**After each change of the tap, it is necessary to tighten the adaptors.*



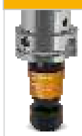

**Accesories**

Collets 192

ER

| Size | Collets | H | h | A | d | D | M | INDEX | |
|---|---|---|---|---|---|---|---|---|---|
| A20 | ER16 | 24 | 42 | 28 | 20 | 2-10 | M3-M12 | R-A20/ER16 | ● |
| A32 | ER25 | 28 | 59 | 42 | 32 | 2-16 | M6-M20 | R-A32/ER25 | ● |
| A50 | ER40 | 32 | 75 | 63 | 50 | 6-26 | M14-M33 | R-A50/ER40 | ● |

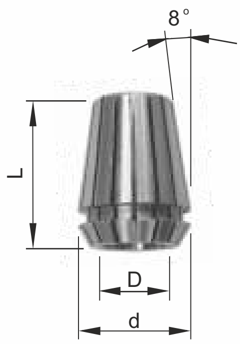




**Example of order**
**R-A20/ER16**

● **Available from stock**
○ **On request**

## DIN-6499




| Size | | | | ER16 | ER20 | ER25 | ER32 | ER40 | ER50 |
|---|---|---|---|---|---|---|---|---|---|
| d / L | | | | 17 / 27,5 | 21 / 31,5 | 26 / 34 | 33 / 40 | 41 / 46 | 52 / 60 |
| D | M | | INDEX | R-ER16 | R-ER20 | R-ER25 | R-ER32 | R-ER40 | R-ER50 |
| | DIN 371 | DIN 376 | | | | | | | |
| 2 | | | D2 | ● | ● | ● | ● | | |
| 3 | M2-M2,5 | M3,5-M4 | D3 | ● | ● | ● | ● | ○ | |
| 4 | M3-M3,5 | M5 | D4 | ● | ● | ● | ● | ○ | |
| 5 | M4 | M6 | D5 | ● | ● | ● | ● | ○ | |
| 6 | M4,5-M5-M6 | M8 | D6 | ● | ● | ● | ● | ● | ○ |
| 7 | M7 | M9-M10 | D7 | ● | ● | ● | ● | ○ | ○ |
| 8 | M8 | M11 | D8 | ● | ● | ● | ● | ● | ○ |
| 9 | M9 | M12 | D9 | ● | ● | ● | ● | ● | ○ |
| 10 | M10 | | D10 | ● | ● | ● | ● | ● | ○ |
| 11 | | M14 | D11 | | ○ | ● | ● | ● | ○ |
| 12 | | M16 | D12 | | ● | ● | ● | ● | ○ |
| 13 | | M16 | D13 | | ○ | ● | ● | ○ | ○ |
| 14 | | M18 | D14 | | | ● | ● | ● | ○ |
| 15 | | M18 | D15 | | | ● | ● | ○ | ○ |
| 16 | | M20 | D16 | | | ● | ● | ● | ○ |
| 18 | | M22-M24 | D18 | | | | ● | ● | ○ |
| 20 | | M27 | D20 | | | | ● | ● | ○ |
| 22 | | M30 | D22 | | | | | ● | ○ |
| 25 | | M33 | D25 | | | | | ● | ○ |
| 28 | | M36 | D28 | | | | | ● | ○ |
| 32 | | M39-42 | D32 | | | | | | ○ |

Collets set on page 209

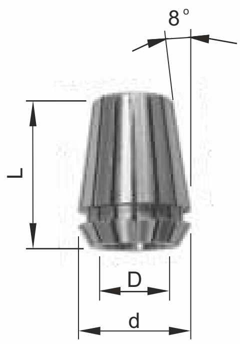
8



Example of order
R-ER25/D3

● Available from stock
○ On request

## DIN-6499



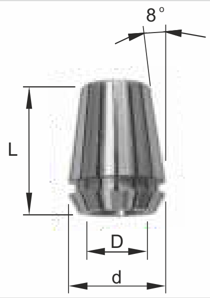

| Size | | | | | ERC16 | ERC20 | ERC25 | ERC32 | ERC40 | ERC50 |
|---|---|---|---|---|---|---|---|---|---|---|
| d / L | | | | | 17 / 27,5 | 21 / 31,5 | 26 / 34 | 33 / 40 | 41 / 46 | 52 / 60 |
| D | ⌀ | M | | INDEX | R-ERC16 | R-ERC20 | R-ERC25 | R-ERC32 | R-ERC40 | R-ERC50 |
| | | DIN 371 | DIN 376 | | | | | | | |
| 3,5 | 2,7 | M3 | M4-M4,5 | D3,5 | ○ | ○ | ● | ○ | | |
| 4,0 | 3,0 | M3,5 | | D4 | ○ | ○ | ○ | ○ | | |
| 4,5 | 3,4 | M4 | M6 | D4,5 | ○ | ○ | ● | ○ | | |
| 5,0 | 4,0 | | | D5 | ○ | ○ | ○ | ○ | | |
| 5,5 | 4,3 | | M7 | D5,5 | ○ | ○ | ○ | ○ | | |
| 6,0 | 4,9 | M4,5-M5-M6 | M8 | D6 | ● | ● | ● | ● | ○ | |
| 7,0 | 5,5 | M7 | M9-M10 | D7 | ○ | ○ | ● | ● | ○ | |
| 8,0 | 6,2 | M8 | M11 | D8 | ● | ● | ● | ● | ○ | ○ |
| 9,0 | 7,0 | M9 | M12 | D9 | | ○ | ● | ● | ○ | ○ |
| 10,0 | 8,0 | M10 | | D10 | | ● | ● | ● | ○ | ○ |
| 11,0 | 9,0 | | M14 | D11 | | | ○ | ● | ○ | ○ |
| 12,0 | 9,0 | | M16 | D12 | | | ● | ● | ● | ○ |
| 14,0 | 11,0 | | M18 | D14 | | | | ● | ○ | ○ |
| 16,0 | 12,0 | | M20 | D16 | | | | ● | ● | ○ |
| 18,0 | 14,5 | | M22-M24 | D18 | | | | | ○ | ○ |
| 20,0 | 16,0 | | M27 | D20 | | | | | ○ | ○ |
| 22,0 | 18,0 | | M30 | D22 | | | | | | ○ |
| 25,0 | 20,0 | | M33 | D25 | | | | | | ○ |
| 28,0 | 22,0 | | M36 | D28 | | | | | | ○ |
| 32,0 | 24,0 | | M39-42 | D32 | | | | | | ○ |



**Example of order**
**R-ERC16/D3,5**

● **Available from stock**
○ **On request**

## DIN-6499

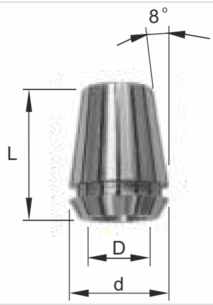



| Size | | | | ERG16 | ERG20 | ERG25 | ERG32 | ERG40 |
|---|---|---|---|---|---|---|---|---|
| d / L | | | | 17 / 27,5 | 21 / 31,5 | 26 / 34 | 33 / 40 | 41 / 46 |
| D | M | | INDEX | R-ERG16 | R-ERG20 | R-ERG25 | R-ERG32 | R-ERG40 |
| | DIN 371 | DIN 376 | | | | | | |
| 3 | M2-M2,5 | M3,5-M4 | D3 | ○ | ○ | ○ | ○ | |
| 4 | M3-M3,5 | M5 | D4 | ○ | ○ | ○ | ○ | ○ |
| 5 | M4 | M6 | D5 | ○ | ○ | ○ | ○ | ○ |
| 6 | M4,5-M5-M6 | M8 | D6 | ○ | ○ | ● | ● | ○ |
| 7 | M7 | M9-M10 | D7 | ○ | ○ | ○ | ○ | ○ |
| 8 | M8 | M11 | D8 | ○ | ○ | ● | ● | ○ |
| 9 | M9 | M12 | D9 | ○ | ○ | ○ | ○ | ○ |
| 10 | M10 | | D10 | ○ | ○ | ● | ● | ○ |
| 11 | | M14 | D11 | | ○ | ○ | ○ | ○ |
| 12 | | M16 | D12 | | ○ | ● | ● | ○ |
| 13 | | M16 | D13 | | ○ | ○ | ○ | ○ |
| 14 | | M18 | D14 | | | ● | ● | ○ |
| 15 | | M18 | D15 | | | ○ | ○ | ○ |
| 16 | | M20 | D16 | | | ● | ● | ○ |
| 18 | | M22-M24 | D18 | | | | ○ | ○ |
| 20 | | M27 | D20 | | | | ● | ○ |
| 22 | | M30 | D22 | | | | | ○ |
| 25 | | M33 | D25 | | | | | ○ |

## ERCG

## Rubber sealed collets with square drive for taps

## DIN-6499




| Size | | | | | ERCG16 | ERCG20 | ERCG25 | ERCG32 | ERCG40 | |
|---|---|---|---|---|---|---|---|---|---|---|
| d / L | | | | | 17 / 27,5 | 21 / 31,5 | 26 / 34 | 33 / 40 | 41 / 46 | |
| D | ⌀ | M | | INDEX | R-ERCG16 | R-ERCG20 | R-ERCG25 | R-ERCG32 | R-ERCG40 | |
| | | DIN 371 | DIN 376 | | | | | | | |
| 4 | 3,0 | M3,5 | | D4 | ○ | ○ | ● | ○ | | |
| 4,5 | 3,4 | M4 | M6 | D4,5 | ○ | ○ | ○ | ○ | | |
| 5 | 4 | | | D5 | ○ | ○ | ● | ○ | | |
| 5,5 | 4,3 | | M7 | D5,5 | ○ | ○ | ○ | ○ | | |
| 6 | 4,9 | M4,5-M5-M6 | M8 | D6 | ○ | ○ | ○ | ○ | | |
| 7 | 5,5 | M7 | M9-M10 | D7 | ● | ● | ● | ● | ○ | |
| 8 | 6,2 | M8 | M11 | D8 | ○ | ○ | ● | ● | ○ | |
| 9 | 7 | M9 | M12 | D9 | ● | ● | ● | ● | ○ | |
| 10 | 8 | M10 | | D10 | | ○ | ● | ● | ○ | |
| 11 | 9 | | M14 | D11 | | ● | ● | ● | ○ | |
| 12 | 9 | | M16 | D12 | | | ○ | ● | ○ | |
| 14 | 11 | | M18 | D14 | | | ● | ● | ● | |
| 16 | 12 | | M20 | D16 | | | | ● | ○ | |
| 18 | 14,5 | | M22-M24 | D18 | | | | ● | ● | |
| 20 | 16 | | | D20 | | | | | ○ | |

8

Example of order
R-ERCG32/D8

● Available from stock
○ On request

## Sealing Gaskets

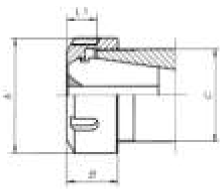
Seals ER40 and ER50 also available on request

| Sealing Gaskets to ER20 | INDEX |
|---|---|
| 3-3.5mm | R-U20/D3 |
| 3.5-4mm | R-U20/D3,5 |
| 4-4.5mm | R-U20/D4 |
| 4.5-5mm | R-U20/D4,5 |
| 5-5.5mm | R-U20/D5 |
| 5.5-6mm | R-U20/D5,5 |
| 6-6.5mm | R-U20/D6 |
| 6.5-7mm | R-U20/D6,5 |
| 7-7.5mm | R-U20/D7 |
| 7.5-8mm | R-U20/D7,5 |
| 8-8.5mm | R-U20/D8 |
| 8.5-9mm | R-U20/D8,5 |
| 9-9.5mm | R-U20/D9 |
| 9.5-10mm | R-U20/D9,5 |
| 10-10.5mm | R-U20/D10 |
| 10.5-11mm | R-U20/D10,5 |
| 11-11.5mm | R-U20/D11 |
| 11.5-12mm | R-U20/D11,5 |
| 12-12.5mm | R-U20/D12 |

| Sealing Gaskets to ER25 | INDEX |
|---|---|
| 3-3.5mm | R-U25/D3 |
| 3.5-4mm | R-U25/D3,5 |
| 4-4.5mm | R-U25/D4 |
| 4.5-5mm | R-U25/D4,5 |
| 5-5.5mm | R-U25/D5 |
| 5.5-6mm | R-U25/D5,5 |
| 6-6.5mm | R-U25/D6 |
| 6.5-7mm | R-U25/D6,5 |
| 7-7.5mm | R-U25/D7 |
| 7.5-8mm | R-U25/D7,5 |
| 8-8.5mm | R-U25/D8 |
| 8.5-9mm | R-U25/D8,5 |
| 9-9.5mm | R-U25/D9 |
| 9.5-10mm | R-U25/D9,5 |
| 10-10.5mm | R-U25/D10 |
| 10.5-11mm | R-U25/D10,5 |
| 11-11.5mm | R-U25/D11 |
| 11.5-12mm | R-U25/D11,5 |
| 12-12.5mm | R-U25/D12 |
| 12.5-13mm | R-U25/D12,5 |
| 13-13.5mm | R-U25/D13 |
| 13.5-14mm | R-U25/D13,5 |
| 14-14.5mm | R-U25/D14 |
| 14.5-15mm | R-U25/D14,5 |
| 15-15.5mm | R-U25/D15 |
| 15.5-16mm | R-U25/D15,5 |
| 16-16.5mm | R-U25/D16 |

**Clamping nuts acc. to DIN 6499 standard without internal coolant sealing**

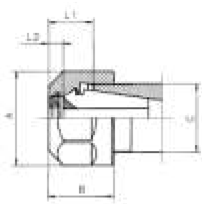
**Note:** Max. Nm shows the maximum allowed tightening torque for each respective nut size.



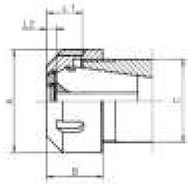
| Type | A mm | B mm | max. Nm | INDEX |
|---|---|---|---|---|
| ER11 | 19 | 11,3 | 30 | R-NT11-SE |
| ER16 | 28 | 17,5 | 70 | R-NT16-SE |
| ER20 | 34 | 19 | 100 | R-NT20-SE |

| Type | A mm | B mm | max. Nm | INDEX |
|---|---|---|---|---|
| ER25 | 42 | 20 | 130 | R-NT25-S |
| ER40 | 63 | 25,5 | 220 | R-NT40-S |
| ER50 | 78 | 35,3 | 300 | R-NT50-S |

**Clamping nuts to DIN 6499 for internal coolant system, for use with sealing disks**



**Note:** Max. Nm shows the maximum allowedd tightening torque for each respective nut size.



| Type | A mm | B mm | max. Nm | INDEX |
|---|---|---|---|---|
| ER16 | 28 | 22,5 | 70 | R-NTU16-SE |
| ER20 | 34 | 24,5 | 100 | R-NTU20-SE |

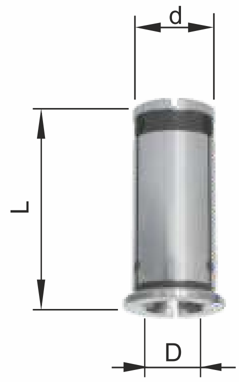
| Type | A mm | B mm | max. Nm | INDEX |
|---|---|---|---|---|
| ER25 | 42 | 25 | 130 | R-NTU25-S |
| ER40 | 63 | 30,5 | 220 | R-NTU40-S |
| ER50 | 78 | 42,5 | 300 | R-NTU50-S |

**Example of order**
**R-NTU16-SE**

● **Available from stock**
○ **On request**

# Reduction collets for ogs holders

**Information:**
· Use of reduction collets causes necessity to reduce maximum speed to 50%



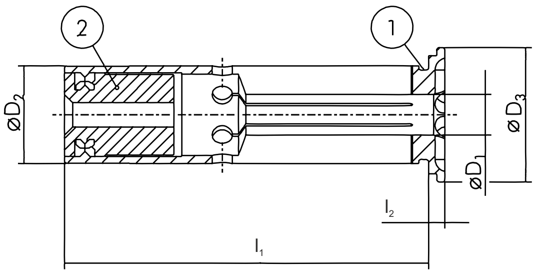

| **Size** | | TR20 | TR32 |
|---|---|---|---|
| d / L | | 20 / 54 | 32 / 64 |
| D | INDEX | R-TR20 | R-TR32 |
| 3 | D3 | ○ | ○ |
| 4 | D4 | ○ | ○ |
| 5 | D5 | ○ | ○ |
| 6 | D6 | ○ | ○ |
| 7 | D7 | ○ | ○ |
| 8 | D8 | ○ | ○ |
| 9 | D9 | ○ | ○ |
| 10 | D10 | ○ | ○ |
| 11 | D11 | ○ | ○ |
| 12 | D12 | ○ | ○ |
| 13 | D13 | ○ | ○ |
| 14 | D14 | ○ | ○ |
| 15 | D15 | ○ | ○ |
| 16 | D16 | ○ | ○ |
| 17 | D17 | ○ | ○ |
| 18 | D18 | ○ | ○ |
| 19 | D19 | | ○ |
| 20 | D20 | | ○ |
| 21 | D21 | | ○ |
| 22 | D22 | | ○ |
| 23 | D23 | | ○ |
| 24 | D24 | | ○ |
| 25 | D25 | | ○ |
| 26 | D26 | | ○ |
| 27 | D27 | | ○ |
| 28 | D28 | | ○ |





**Example of order**
**R-TR20/D10**

● **Available from stock**
○ **On request**

| Basic accessories | TRH20 | TRH20-EK |
|---|---|---|
| ① O-ring sealing<br>② Adjustable back stop for lenght adjustment<br> |  |  |
| Cooling | - | EK with curtain cooling |



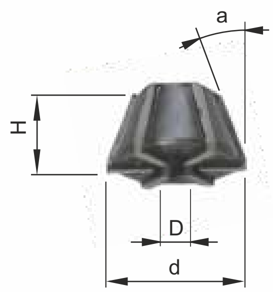
| $D_1$ | $D_2$ | $D_3$ | $l_1$ | $l_2$ | m | INDEX | R-TRH20 | R-TRH20-EK |
|---|---|---|---|---|---|---|---|---|
| 3,0 | 20 | 24 | 50,5 | 2,0 | 0,1 | D3 | ○ | ○ |
| 4,0 | 20 | 24 | 50,5 | 2,0 | 0,1 | D4 | ○ | ○ |
| 5,0 | 20 | 24 | 50,5 | 2,0 | 0,1 | D5 | ○ | ○ |
| 6,0 | 20 | 24 | 50,5 | 2,0 | 0,1 | D6 | ○ | ○ |
| 7,0 | 20 | 24 | 50,5 | 2,0 | 0,1 | D7 | ○ | ○ |
| 8,0 | 20 | 24 | 50,5 | 2,0 | 0,1 | D8 | ○ | ○ |
| 9,0 | 20 | 24 | 50,5 | 2,0 | 0,1 | D9 | ○ | ○ |
| 10,0 | 20 | 24 | 50,5 | 2,0 | 0,1 | D10 | ○ | ○ |
| 11,0 | 20 | 24 | 50,5 | 2,0 | 0,1 | D11 | ○ | ○ |
| 12,0 | 20 | 24 | 50,5 | 2,0 | 0,1 | D12 | ○ | ○ |
| 13,0 | 20 | 24 | 50,5 | 2,0 | 0,1 | D13 | ○ | ○ |
| 14,0 | 20 | 24 | 50,5 | 2,0 | 0,1 | D14 | ○ | ○ |
| 15,0 | 20 | 24 | 50,5 | 2,0 | 0,1 | D15 | ○ | ○ |
| 16,0 | 20 | 24 | 50,5 | 2,0 | 0,1 | D16 | ○ | ○ |



**Example of order**
**R-TRH20/D16**

● **Available from stock**
○ **On request**

# Rubber flex collets for OGN holders




| Size | d | H | a | D | M | INDEX | |
|---|---|---|---|---|---|---|---|
| RF15 | 15 | 12 | 13 | 2,5-4,5 | M2-M4 | R-RF15/J116 | ● |
| RF15 | 15 | 12 | 13 | 4,5-6,5 | M4-M7 | R-RF15/J117 | ● |
| RF23 | 23 | 13 | 20 | 3,5-6,5 | M5-M6 | R-RF23/J421 | ● |
| RF23 | 23 | 13 | 20 | 6,5-10,0 | M6-M12 | R-RF23/J422 | ● |
| RF32 | 32,5 | 16 | 22,5 | 4,5-10,0 | M8-M12 | R-RF32/J441 | ● |
| RF32 | 32,5 | 16 | 22,5 | 10,0-15,0 | M10-M18 | R-RF32/J445 | ● |

8



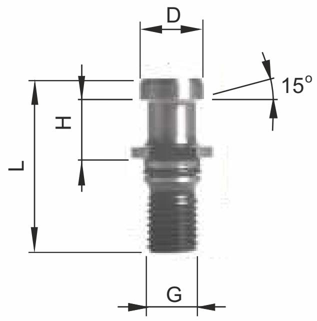
**Example of order**
**R-RF32/J445**

● **Available from stock**
○ **On request**

**Information:**

- Application: for toolholders with ISO shank according to DIN-69871
- IK- with central cooling

## C ISO A



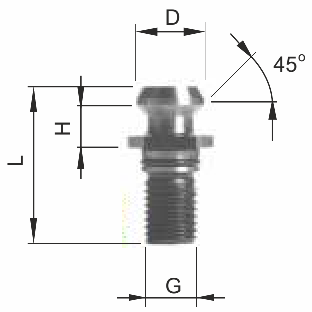

**Norm** ISO-7388/2A

| Size ISO | IK | O-RING | L | H | D | G | INDEX | |
|---|---|---|---|---|---|---|---|---|
| 30 | | | 44 | 19 | 12 | M12 | R-C-ISO-A-30 | ○ |
| 30 | ● | | 44 | 19 | 12 | M12 | R-C-ISO-A-30-IK | ○ |
| 40 | | ● | 54 | 20 | 19 | M16 | R-C-ISO-A-40 | ○ |
| 40 | ● | ● | 54 | 20 | 19 | M16 | R-C-ISO-A-40-IK | ○ |
| 50 | | ● | 74 | 25 | 28 | M24 | R-C-ISO-A-50 | ○ |
| 50 | ● | ● | 74 | 25 | 28 | M24 | R-C-ISO-A-50-IK | ○ |

**Information:**

- Application: for toolholders with ISO shank according to DIN-69871
- IK - with central cooling

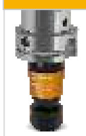
## C ISO B




**Norm** ISO-7388/2B

| Size ISO | IK | O-RING | L | H | D | G | INDEX | |
|---|---|---|---|---|---|---|---|---|
| 30 | | | 34,0 | 8,15 | 13,35 | M12 | R-C-ISO-B-30 | ○ |
| 30 | ● | | 34,0 | 8,15 | 13,35 | M12 | R-C-ISO-B-30-IK | ○ |
| 40 | | ● | 44,5 | 11,15 | 18,95 | M16 | R-C-ISO-B-40 | ● |
| 40 | ● | ● | 44,5 | 11,15 | 18,95 | M16 | R-C-ISO-B-40-IK | ● |
| 50 | | ● | 65,5 | 17,95 | 29,10 | M24 | R-C-ISO-B-50 | ○ |
| 50 | ● | ● | 65,5 | 17,95 | 29,10 | M24 | R-C-ISO-B-50-IK | ○ |





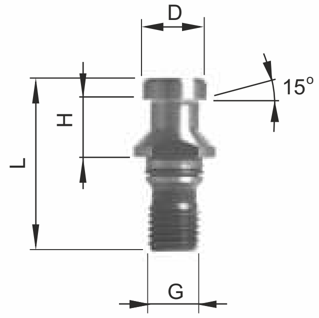
**Example of order**
**R-C-ISO-B-30**

● **Available from stock**
○ **On request**

## C DIN

**Information:**

- Application: for toolholders with ISO shank according to DIN-69871
- IK- with central cooling



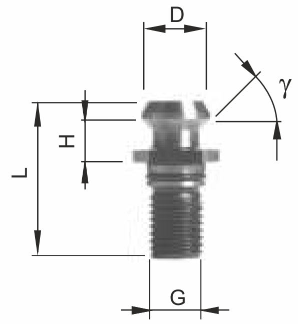

Norm: DIN-69872

| Size ISO | IK | O-RING | L | H | D | G | INDEX | |
|---|---|---|---|---|---|---|---|---|
| 30 | | | 44 | 19 | 13 | M12 | R-C-DIN-30 | ○ |
| 30 | ● | | 44 | 19 | 13 | M12 | R-C-DIN-30-IK | ○ |
| 40 | | ● | 54 | 20 | 19 | M16 | R-C-DIN-40 | ● |
| 40 | ● | ● | 54 | 20 | 19 | M16 | R-C-DIN-40-IK | ● |
| 50 | | ● | 74 | 25 | 28 | M24 | R-C-DIN-50 | ○ |
| 50 | ● | ● | 74 | 25 | 28 | M24 | R-C-DIN-50-IK | ○ |

## C BT

**Information:**

- Application: for toolholders with ISO sank according to MAS-BT
- IK- with central cooling




| Size MAS-BT | IK | O-RING | L | H | D | G | g | INDEX | |
|---|---|---|---|---|---|---|---|---|---|
| 30 | | | 43 | 18 | 11 | M12 | 45 | R-C-BT-30/45 | ○ |
| 30 | ● | | 43 | 18 | 11 | M12 | 45 | R-C-BT-30/45-IK | ○ |
| 30 | | | 43 | 18 | 11 | M12 | 60 | R-C-BT-30/60 | ○ |
| 30 | ● | | 43 | 18 | 11 | M12 | 60 | R-C-BT-30/60-IK | ○ |
| 40 | | ● | 60 | 28 | 15 | M16 | 45 | R-C-BT-40/45 | ● |
| 40 | ● | ● | 60 | 28 | 15 | M16 | 45 | R-C-BT-40/45-IK | ● |
| 40 | | ● | 60 | 28 | 15 | M16 | 60 | R-C-BT-40/60 | ○ |
| 40 | ● | ● | 60 | 28 | 15 | M16 | 60 | R-C-BT-40/60-IK | ○ |
| 40 | | ● | 60 | 28 | 15 | M16 | 90 | R-C-BT-40/90 | ○ |
| 40 | ● | ● | 60 | 28 | 15 | M16 | 90 | R-C-BT-40/90-IK | ○ |
| 50 | | ● | 85 | 35 | 23 | M24 | 45 | R-C-BT-50/45 | ○ |
| 50 | ● | ● | 85 | 35 | 23 | M24 | 45 | R-C-BT-50/45-IK | ○ |
| 50 | | ● | 85 | 35 | 23 | M24 | 60 | R-C-BT-50/60 | ○ |
| 50 | ● | ● | 85 | 35 | 23 | M24 | 60 | R-C-BT-50/60-IK | ○ |
| 50 | | ● | 85 | 35 | 23 | M24 | 90 | R-C-BT-50/90 | ○ |
| 50 | ● | ● | 85 | 35 | 23 | M24 | 90 | R-C-BT-50/90-IK | ○ |



**Example of order**
**R-C-BT-40/90-IK**

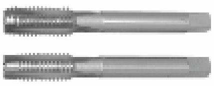
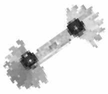
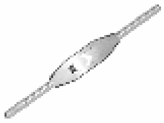
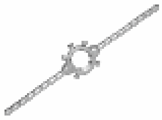
● **Available from stock**
○ **On request**

# Tool kits

## CONTENTS 202-210

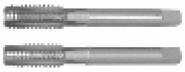
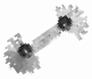
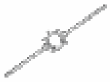
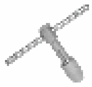
## CZD-40 HSS M3÷M20

**INDEX Z1-040011-0000**

| | Taps | Screwing dies | Screw pitch gauge | Taps wrench | Die stock | Screwdriver |
|---|---|---|---|---|---|---|
| CONTENTS | DIN-352 HSS dla M3÷M12<br>DIN-352/2 HSS dla M14÷M20 | DIN-EN 22 568 HSS 800 | MWGa | PBPc | PBGa | RWWe |
| |  |  |  |  |  |  |
| | M3 \| M4 \| M5 \| M6 \| M7, M8, M10 \| M12 \| M14 \| M16 \| M20 | Ć25 x 9: M3 \| M4 \| M5 \| M6 \| M7 \| M8 \| M10<br>Ć38 x 14: M12 \| M14 \| M16 \| M20 | 0,4 ÷ 6 mm | Nr 2 zm.: 2,5 ÷ 9 mm<br>Nr 3: 4,9 ÷ 14 mm | Ć 25 x 9 mm<br>Ć 38 x 14 mm | 4 x 90 mm |
| DIMENSIONS | 475 x 255 x 40 mm | | | | | |
| WEIGHT | 3,40 kg | | | | | |

## CZD-85 HSS M3÷M24

**INDEX Z1-085011-0000**

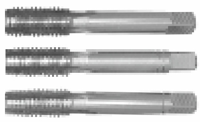
| | Taps | Screwing dies | Screw pitch gauge | Taps wrenches | Die stocks | „T" type wrench | Screwdriver | Distance ring |
|---|---|---|---|---|---|---|---|---|
| CONTENTS | DIN-352 HSS - M3÷M12<br>DIN-352/2 HSS - M14÷M24<br>DIN-2181/2 HSS - MFł 14x1,25 | DIN-EN 22 568 HSS 800 | MWGa | PBPc | PBGa | | RWWe | |
| |  |  |  |  |  |  |  |  |
| | M3, M4, M5, M6, M8, M10, M12, M14, M16, M18, M20, M22, M24, M8x1, M10x1, M12x1,25, M12x1,5, M14x1,25, M14x1,5, M16x1,5,M18x1,5, M20x1,5, M22x1,5, M24x1,5 | M3 \| M4 \| M5 \| M6 \| M8 \| M10<br>M12 \| M14 \| M16 \| M18<br>M20 \| M22 \| M24<br>M8x1 \| M10x1 \| M12x1,25<br>M12x1,5 \| M14x1,25 \| M14x1,5<br>M16x1,5 \| M18x1,5 \| M20x1,5<br>M22x1,5 \| M24x1,5 | 0,4 ÷ 6 mm | Nr 2 zm.: 2,5 ÷ 9 mm<br>Nr 3: 4,9 ÷ 14 mm | Ć25 x 9 mm<br>Ć38 x 14 mm<br>Ć45 x 18 mm<br>Ć55 x 22 mm | Nr 1 (M2 ÷ M5) | 4 x 90 mm | 38 x 2<br>45 x 2<br>55 x 3 |
| DIMENSIONS | 550 x 380 x 70 mm | | | | | | | |
| WEIGHT | 12 kg | | | | | | | |



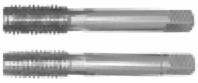
Example of order

**Z1-040011-0000**
**CZD-40 HSS**

## CZB-29 HSS M3÷M12 — INDEX Z1-029012-0000

| | Taps | Screwing dies |
|---|---|---|
| CONTENTS | DIN-352/3 HSS | DIN-EN 22 568 HSS 800 |
| |  |  |
| | M3 \| M4 \| M5 \| M6 \| M8 \| M10\| M12 | Ć 25 x 9: M3 \| M4 \| M5 \| M6 \| M8 \| M10 \| M12 |
| DIMENSIONS | 270 x 230 x 30 mm | |
| WEIGHT | 0,85 kg | |

## CZB-29W HSS M3÷M12 — INDEX Z1-029112-0000

| | Taps | Screwing dies | Drills |
|---|---|---|---|
| CONTENTS | DIN-352/2 HSS | DIN-EN 22 568 HSS 800 | DIN-338 N HSS |
| |  |  |  |
| | M3, M4, M5, M6, M8, M10, M12 | Ć 25 x 9: M3, M4, M5, M6, M8, M10, M12 | Ć2,5;Ć3,3;Ć4,2; Ć5,0;Ć6,8;Ć8,5;Ć10,2 |
| DIMENSIONS | 340 x 290 x 40 mm | | |
| WEIGHT | 1,20 kg | | |

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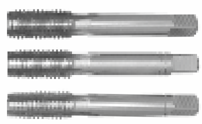
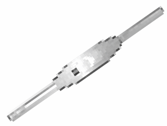
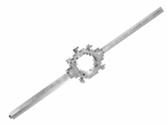
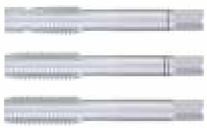
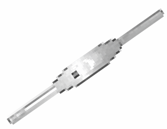
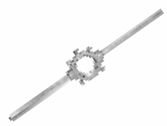
Example of order

Z1-029112-0000
CZB-29W HSS

## CZB-31 HSS M3÷M12 — INDEX Z1-031012-0000

| | Taps | Screwing dies | Tap wrenches | Die stocks | Screwdriver |
|---|---|---|---|---|---|
| CONTENTS | DIN-352/3 HSS | DIN-EN 22 568 HSS 800 | PBPc | PBGa | RWWe |
| |  |  |  |  |  |
| | M3 \| M4 \| M5 \| M6 \| M8 \| M10 \| M12 | Ć25 x 9: M3 \| M4 \| M5 \| M6 \| M8 \| M10 \| M12 | Nr 1,5: 2,5 ÷ 8 mm | Ć25 x 9 mm | 4 x 90 mm |
| DIMENSIONS | 340 x 290 x 40 mm | | | | |
| WEIGHT | 1,52 kg | | | | |

## CZB-31 INOX M3÷M12 — INDEX Z2-031012-0000

| | Taps | Screwing dies | Tap wrenches | Die stocks | Screwdriver |
|---|---|---|---|---|---|
| CONTENTS | DIN-352/3 HSSE INOX | DIN-EN 22 568 HSSE INOX | PBPc | PBGa | RWWe |
| |  |  |  |  |  |
| | M3 \| M4 \| M5 \| M6 \| M8 \| M10 \| M12 | Ć25 x 9: M3 \| M4 \| M5 \| M6 \| M8 \| M10 \| M12 | Nr 1,5: 2,5 ÷ 8 mm | Ć25 x 9 mm | 4 x 90 mm |
| DIMENSIONS | 340 x 290 x 40 mm | | | | |
| WEIGHT | 1,52 kg | | | | |

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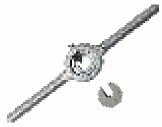
Example of order

Z1-031012-0000
CZB-31 HSS

## CZP-31 HSS mini M1÷M2,5 — INDEX Z1-031115-0000

| | Taps | Screwing dies | Tap and die wrench |
|---|---|---|---|
| CONTENTS | DIN-352/2 HSS | DIN-EN 22 568 HSS | |
| |  |  |  |
| | M1 \| M1,1 \| M1,2 \| M1,4 \| M1,6 \| M1,8 \| M2 \| M2,2 \| M2,5 | Ć12 x 3: M1 \| M1,1 \| M1,2 \| M1,4 \| M1,6 \| M1,8 \| M2, Ć16 x 3: M2,2 \| M2,5 | |
| DIMENSIONS | 155 x 85 x 12 mm | | |
| WEIGHT | 0,17 kg | | |

## CZP-7 BIT HSS M3÷M10 — Z1-007020-0310

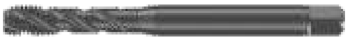
| Designation | M Ć $d_1$ | ⬡ | INDEX | Z1-007020 |
|---|---|---|---|---|
| CZP-7 BIT HSS | M 3 ÷ M 10 | 1/4” | 0310 | ● |





**Example of order**

**Z1-007020-0310**
**CZP-7 BIT HSS**

| CZP-8 B HSSE OPTI OX | CZP-8 R40 HSSE OPTI OX | CZB-8 C HSSE OPTI OX |
|---|---|---|
| **INDEX Z2-081015-0000** | **INDEX Z2-085015-0000** | **INDEX Z2-082015-0000** |
|  |  |  |
| **CONTENTS** | | |
| **Taps** | | |
| **DIN-371 B** ISO2 (6H) HSSE OPTI OX | **DIN-371 C** ISO2 (6H) R40 HSSE OPTI OX | **DIN-371 C** ISO2 (6H) C HSSE OPTI OX |
|  |  |  |
| M3 \| M4 \| M5 \| M6 \| M8 \| M10 | M3 \| M4 \| M5 \| M6 \| M8 \| M10 | M3 \| M4 \| M5 \| M6 \| M8 \| M10 |
| **DIN-376 B** ISO2 (6H) HSSE OPTI OX | **DIN-376 C** ISO2 (6H) R40 HSSE OPTI OX | **DIN-376 C** ISO2 (6H) C HSSE OPTI OX |
|  |  |  |
| M12 | M12 | M12 |
| **Dimensions** | | **Weight** |
| 145 x 90 x 37 mm | | 0,23 kg |

| CZW-19 HSSE INOX TiN Ø1,0 ÷ Ø10 | CZW-24 HSSE INOX TiN Ø1,0 ÷ Ø10,5 | CZW-25 HSSE INOX TiN Ø1,0 ÷ Ø13 |
|---|---|---|
| **INDEX Z2-019315-0000** | **INDEX Z2-024315-0000** | **INDEX Z2-025315-0000** |
|  |  |  |
| **CONTENTS** | | |
| 1 \| 1,5 \| 2 \| 2,5 \| 3 \| 3,5 \| 4 \| 4,5 \| 5 \| 5,5 \| 6 6,5 \| 7 \|7,5 \| 8 \| 8,5 \| 9 \| 9,5 \| 10 | 1 \| 1,5 \| 2 \| 2,5 \| 3 \| 3,54 \| 4,5 \| 5 \| 5,5 \| 6 6,5 \| 7 \|7,5 \| 8 \| 8,5 \| 9 \| 9,5 \| 10 **+** **the dimensions of the thread** 3,3 \| 4,2 \| 6,8 \| 10,2 \|10,5 | 1 \| 1,5 \| 2 \| 2,5 \| 3 \| 3,5 \| 4 \| 4,5 \| 5 \| 5,5 \| 6 6,5 \| 7 \|7,5 \| 8 \| 8,5 \| 9 \| 9,5 \| 10 \| 10,5 \| 11 11,5 \| 12 \| 12,5 \| 13 |



**Example of order**

**Z2-019315-0000**
**CZW-19 HSSE INOX TiN Ø1÷Ø10**

## CZP-6 DIN-335-C Ø6,3 ÷ Ø25 — INDEX Z2-065015-0000

| | |
|---|---|
| CONTENTS | **Countersinks set** |
| | DIN-335-C HSSE Co8 TiCN |
| |  |
| | 6,3 \| 10,4 \| 16,5 \| 20,5 \| 25 |
| DIMENSIONS | 125 x 75 mm |
| WEIGHT | 0,20 kg |

## WDG M3÷M12 — INDEX W9-900002-0000

| | |
|---|---|
| CONTENTS | **Drills set to remove broken taps** |
| | WDG |
| |  |
| | M3 \| M4 \| M5 \| M6 \| M8 \| M10 \| M12 |
| DIMENSIONS | 290 x 340 x 40 mm |
| WEIGHT | 1,225 kg |



Example of order
Z1-031012-0000

| R-ER11 | R-ER16 | R-ER20 |
|---|---|---|
| INDEX: R-ER11-13BOX | INDEX: R-ER16-10BOX | INDEX: R-ER20-12BOX |
| Plastic Box<br>D.1÷7 x 0,5 mm | Plastic Box<br>D.1÷10 x 1 mm | Plastic Box<br>D.2÷13 x 1 mm |

| R-ER25 | R-ER32 | R-ER40 |
|---|---|---|
| INDEX: R-ER25-15BOX | INDEX: R-ER32-18BOX | INDEX: R-ER40-23BOX |
| Aluminium Box<br>D.2÷16 x 1 mm | Aluminium Box<br>D.3÷20 x 1 mm | Aluminium Box<br>D.4÷26 x 1 mm |

Example of order

R-ER32-18BOX
ZESTAW TULEJEK R-ER32

## CZD-8 MSRh M3÷M12

**Index: Z3-200120-0312**

**Gouge dimensions ISO 1502**

| | |
|---|---|
| CONTENTS | **Set of gauges** |
| | MSRh 6g |
| |  |
| | M3 \| M4 \| M5 \| M6 \| M8 \| M10 \| M12 |
| DIMENSIONS | 145 x 145 x 35 mm |
| WEIGHT | 0,542 kg |

## CZD-8 MSBg M3÷M12

**Index: Z3-302161-0312**

**Gouge dimensions ISO 1502**

| | |
|---|---|
| CONTENTS | **Set of gauges** |
| | MSBg 6H |
| |  |
| | M3 \| M4 \| M5 \| M6 \| M8 \| M10 \| M12 |
| DIMENSIONS | 290 x 175 x 35 mm |
| WEIGHT | 0,600 kg |





Example of order

Z3-302161-0312
CZD-8 MSBg M3÷12

# Accessories

# ACCESSORIES

PAGE

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## TEREBOR

### Speciment for threading


**Application:** for threading hard working steels especially:
- stainless steels,
- acidproff steels,
- hardening andd tempered steels

| CAPACITY | INDEX |
|---|---|
| 250 ml | T0-100110-0250 |
| 500 ml | T0-100110-0500 |
| 5 l | T0-100110-5000 |

## VARIOCUT B 40

### Oil for machining

**Application:** for threading tool steels an soft constructional steels

| CAPACITY | INDEX |
|---|---|
| 250 ml | T0-100310-0250 |
| 500 ml | T0-100310-0500 |
| 5 l | T0-100310-5000 |
| 200 l* | On request |

*For use in lathes

## CIMTAP

### Paste for threading


**Application:** for hand andd machine threadding of iron and non-iron metals

| CAPACITY | INDEX |
|---|---|
| 1 l | T0-100410-1000 |

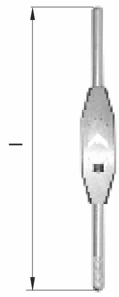


**Example of order**

**T0-100110-0250**
**TEREBOR 250ml**

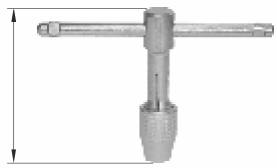
## Tap wrenches

| Sign | □ | l | M | | INDEX |
|---|---|---|---|---|---|
| | | | ISO-529 | DIN-352 | |
| PBPc/m - 0 | 2 ÷ 4,5 | 125 | M1 ÷ M5 | M1 ÷ M4 | V0-303000-0204 |
| PBPc/m - 1 | 3,15 ÷ 6,3 | 205 | M4 ÷ M8 | M3 ÷ M11 | V0-303010-0306 |
| PBPc/m - 1,5 | 2,5 ÷ 7,1 | 205 | M3 ÷ M9 | M3 ÷ M12 | V0-303015-0207 |
| PBPc/m - 2 | 3,55 ÷ 9 | 305 | M4,5 ÷ M14 | M4,5 ÷ M16 | V0-303020-0309 |
| PBPc/m - 4 | 5,6 ÷ 16 | 395 | M7 ÷ M30 | M11 ÷ M27 | V0-303040-0516 |



## Tap wrenches typ „T”

| Sign | □ | l | M | | INDEX |
|---|---|---|---|---|---|
| | | | ISO-529 | DIN-352 | |
| PT Nr 1 | 2,0 ÷ 4,0 | 55 | M1 ÷ M5 | M1 ÷ M4 | V0-310000-0205 |
| PT Nr 1D | 2,0 ÷ 4,0 | 200 | M1 ÷ M5 | M1 ÷ M4 | V0-311000-0205 |
| PT Nr 2 | 4,0 ÷ 7,1 | 90 | M6 ÷ M12 | M5 ÷ M12 | V0-320000-0612 |
| PT Nr 2D | 4,0 ÷ 7,1 | 250 | M6 ÷ M12 | M5 ÷ M12 | V0-321000-0612 |
| PT Nr 3 | 9,0 ÷ 11,2 | 110 | M14 ÷ M20 | M14 ÷ M18 | V0-330000-1420 |

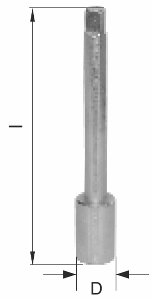


## Tap wrenches with ratchet system

| Sign | l | M DIN-352 | INDEX |
|---|---|---|---|
| PG Nr 1 | 85 | M3 ÷ M6 | V0-310500-0306 |
| PG Nr 1 D | 250 | M3 ÷ M6 | V0-311500-0306 |
| PG Nr 2 | 110 | M6 ÷ M12 | V0-320500-0612 |
| PG Nr 2 D | 300 | M6 ÷ M12 | V0-321500-0612 |

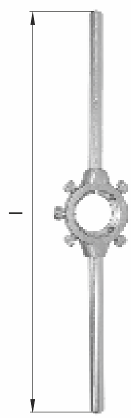
## Extension sleeves for taps

| Sign | □ | l | D | M | | INDEX |
|---|---|---|---|---|---|---|
| | | | | ISO-529 | DIN-352 | |
| PBNa - 5 | 5,0 | 110 | 11 | M6 | | V0-200000-0050 |
| PBNa - 6,3 | 6,3 | 120 | 14 | M8, M11 | | V0-200000-0063 |
| PBNa - 7,1 | 7,1 | 125 | 15 | M9, M12 | | V0-200000-0071 |
| PBNa - 8 | 8,0 | 130 | 17 | M10 | | V0-200000-0080 |
| PBNa - 9 | 9,0 | 130 | 19 | M14 | M14, M16 | V0-200000-0090 |
| PBNa - 10 | 10,0 | 140 | 21 | M16 | | V0-200000-0100 |




## Die stocks

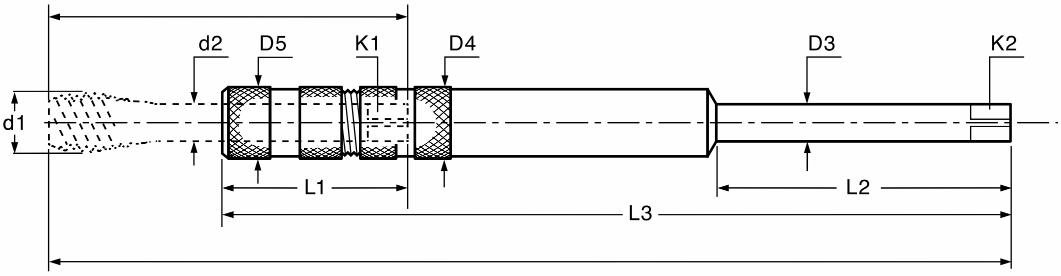
| Sign | l | M | INDEX |
|---|---|---|---|
| PBGa/m - 16x5 | 160 | M1 ÷ M2,5 | V0-103000-1605 |
| PBGa/m - 20x5 | 185 | M3 ÷ M6 | V0-103000-2005 |
| PBGa/m - 25x9 | 220 | M7 ÷ M9 | V0-103000-2509 |
| PBGa/m - 30x11 | 260 | M10 ÷ M11 | V0-103000-3011 |
| PBGa/m - 38x14 | 310 | M12 ÷ M14 | V0-103000-3814 |
| PBGa/m - 45x18 | 400 | M16 ÷ M20 | V0-103000-4518 |
| PBGa/m - 55x22 | 500 | M22 ÷ M24 | V0-103000-5522 |
| PBGa/m - 65x25 | 560 | M27 ÷ M36 | V0-103000-6525 |

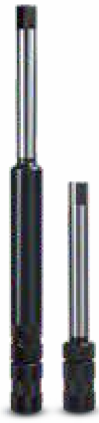




**Example of order**

**V0-103000-1605**
**PBGa/m-16x5**



## Short

| Sign | D1 DIN-371 | D1 DIN-376 | $D_2$ | $D_3$ | $D_4=D_5$ | $L_1$ | $L_2$ | $a_1$ | $a_2$ | INDEX |
|---|---|---|---|---|---|---|---|---|---|---|
| PBNm 2,8/2,1-6/4,9-130 | M2 - M2,6 | M4 | 2,8 | 6 | 6,1 | 22 | 130 | 2,1 | 4,9 | V0-211130-0206 |
| PBNm 3,5/2,7-6/4,9-130 | M3 | M4,5 - M5 | 3,5 | 6 | 7,5 | 23 | 130 | 2,7 | 4,9 | V0-211130-0306 |
| PBNm 4,5/3,4-6/4,9-130 | M4 | M6 | 4,5 | 6 | 8,4 | 23 | 130 | 3,4 | 4,9 | V0-211130-0406 |
| PBNm 6/4,9-7/5,5-130 | M4,5 - M6 | M8 | 6 | 7 | 12,1 | 26 | 130 | 4,9 | 5,5 | V0-211130-0607 |
| PBNm 7/5,5-7/5,5-130 | M7 | M9 - M10 | 7 | 7 | 12,1 | 26 | 130 | 5,5 | 5,5 | V0-211130-0707 |
| PBNm 8/6,2-8/6,2-130 | M8 | M11 | 8 | 8 | 13 | 30 | 130 | 6,2 | 6,2 | V0-211130-0808 |
| PBNm 9/7-9/7-130 | M9 | M12 | 9 | 9 | 15 | 31 | 130 | 7 | 7 | V0-211130-0909 |
| PBNm 10/8-10/8-130 | M10 | - | 10 | 10 | 15 | 33 | 130 | 8 | 8 | V0-211130-1010 |
| PBNm 11/9-11/9-130 | | M14 | 11 | 11 | 18 | 36 | 130 | 9 | 9 | V0-211130-1111 |
| PBNm 12/9-12/9-130 | | M16 | 12 | 12 | 18 | 36 | 130 | 9 | 9 | V0-211130-1212 |
| PBNm 14/11-14/11-200 | | M18 | 14 | 14 | 22 | 42 | 200 | 11 | 11 | V0-211200-1414 |
| PBNm 16/12-16/12-200 | | M20 | 16 | 16 | 22 | 42 | 200 | 12 | 12 | V0-211200-1616 |
| PBNm 18/14,5-18/14,5-200 | | M22/M24 | 18 | 18 | 26 | 43 | 200 | 14,5 | 14,5 | V0-211200-1818 |
| PBNm 20/16-20/16-200 | | M27 | 20 | 20 | 28 | 48 | 200 | 16 | 16 | V0-211200-2020 |

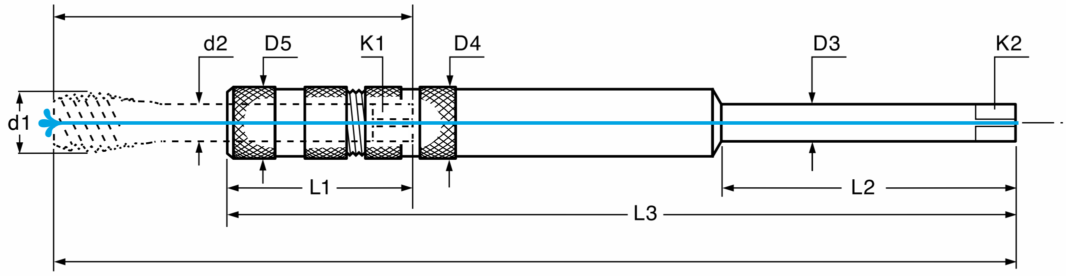
## Long

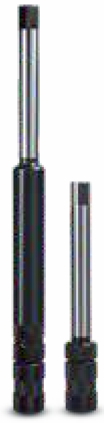
| Sign | D1 DIN-371 | D1 DIN-376 | $D_2$ | $D_3$ | $D_4=D_5$ | $L_1$ | $L_2$ | $a_1$ | $a_2$ | INDEX |
|---|---|---|---|---|---|---|---|---|---|---|
| PBNm 2,8/2,1-6/4,9-230 | M2-M2,6 | M4 | 2,8 | 6 | 6,1 | 22 | 230 | 2,1 | 4,9 | V0-211230-0206 |
| PBNm 3,5/2,7-6/4,9-230 | M3 | M4,5-M5 | 3,5 | 6 | 7,5 | 23 | 230 | 2,7 | 4,9 | V0-211230-0306 |
| PBNm 4,5/3,4-6/4,9-230 | M4 | M6 | 4,5 | 6 | 8,4 | 23 | 230 | 3,4 | 4,9 | V0-211230-0406 |
| PBNm 6/4,9-7/5,5-230 | M4,5 - M6 | M8 | 6 | 7 | 12,1 | 26 | 230 | 4,9 | 5,5 | V0-211230-0607 |
| PBNm 7/5,5-7/5,5-230 | M7 | M9 - M10 | 7 | 7 | 12,1 | 26 | 230 | 5,5 | 5,5 | V0-211230-0707 |
| PBNm 8/6,2-8/6,2-230 | M8 | M11 | 8 | 8 | 13 | 30 | 230 | 6,2 | 6,2 | V0-211230-0808 |
| PBNm 9/7-9/7-230 | M9 | M12 | 9 | 9 | 15 | 31 | 230 | 7 | 7 | V0-211230-0909 |
| PBNm 10/8-10/8-230 | M10 | - | 10 | 10 | 15 | 33 | 230 | 8 | 8 | V0-211230-1010 |
| PBNm 11/9-11/9-230 | | M14 | 11 | 11 | 18 | 36 | 230 | 9 | 9 | V0-211230-1111 |
| PBNm 12/9-12/9-230 | | M16 | 12 | 12 | 18 | 36 | 230 | 9 | 9 | V0-211230-1212 |
| PBNm 14/11-14/11-330 | | M18 | 14 | 14 | 22 | 42 | 330 | 11 | 11 | V0-211330-1414 |
| PBNm 16/12-16/12-330 | | M20 | 16 | 16 | 22 | 42 | 330 | 12 | 12 | V0-211330-1616 |
| PBNm 18/14,5-18/14,5-330 | | M22/M24 | 18 | 18 | 26 | 43 | 330 | 14,5 | 14,5 | V0-211330-1818 |
| PBNm 20/16-20/16-330 | | M27 | 20 | 20 | 28 | 48 | 330 | 16 | 16 | V0-211330-2020 |

**Example of order**

**V0-211230-1212**
**PBNm 12/9-12/9-230**

# IK



## Short

| Sign | D₁ DIN-371 | D₁ DIN-376 | $D_2$ | $D_3$ | $D_4$=$D_5$ | $L_1$ | $L_2$ | $a_1$ | $a_2$ | INDEX |
|---|---|---|---|---|---|---|---|---|---|---|
| PBNm 2,8/2,1-6/4,9-130 | M2 - M2,6 | M4 | 2,8 | 6 | 6,1 | 22 | 130 | 2,1 | 4,9 | V0-211135-0206 |
| PBNm 3,5/2,7-6/4,9-130 | M3 | M4,5 - M5 | 3,5 | 6 | 7,5 | 23 | 130 | 2,7 | 4,9 | V0-211135-0306 |
| PBNm 4,5/3,4-6/4,9-130 | M4 | M6 | 4,5 | 6 | 8,4 | 23 | 130 | 3,4 | 4,9 | V0-211135-0406 |
| PBNm 6/4,9-7/5,5-130 | M4,5 - M6 | M8 | 6 | 7 | 12,1 | 26 | 130 | 4,9 | 5,5 | V0-211135-0607 |
| PBNm 7/5,5-7/5,5-130 | M7 | M9 - M10 | 7 | 7 | 12,1 | 26 | 130 | 5,5 | 5,5 | V0-211135-0707 |
| PBNm 8/6,2-8/6,2-130 | M8 | M11 | 8 | 8 | 13 | 30 | 130 | 6,2 | 6,2 | V0-211135-0808 |
| PBNm 9/7-9/7-130 | M9 | M12 | 9 | 9 | 15 | 31 | 130 | 7 | 7 | V0-211135-0909 |
| PBNm 10/8-10/8-130 | M10 | - | 10 | 10 | 15 | 33 | 130 | 8 | 8 | V0-211135-1010 |
| PBNm 11/9-11/9-130 | | M14 | 11 | 11 | 18 | 36 | 130 | 9 | 9 | V0-211135-1111 |
| PBNm 12/9-12/9-200 | | M16 | 12 | 12 | 18 | 36 | 130 | 9 | 9 | V0-211135-1212 |
| PBNm 14/11-14/11-200 | | M18 | 14 | 14 | 22 | 42 | 200 | 11 | 11 | V0-211205-1414 |
| PBNm 16/12-16/12-200 | | M20 | 16 | 16 | 22 | 42 | 200 | 12 | 12 | V0-211205-1616 |
| PBNm 18/14,5-18/14,5-200 | | M22/M24 | 18 | 18 | 26 | 43 | 200 | 14,5 | 14,5 | V0-211205-1818 |
| PBNm 20/16-20/16-200 | | M27 | 20 | 20 | 28 | 48 | 200 | 16 | 16 | V0-211205-2020 |

## Long

| Sign | D₁ DIN-371 | D₁ DIN-376 | $D_2$ | $D_3$ | $D_4$=$D_5$ | $L_1$ | $L_2$ | $a_1$ | $a_2$ | INDEX |
|---|---|---|---|---|---|---|---|---|---|---|
| PBNm 2,8/2,1-6/4,9-230 | M2-M2,6 | M4 | 2,8 | 6 | 6,1 | 22 | 130 | 2,1 | 4,9 | V0-211235-0206 |
| PBNm 3,5/2,7-6/4,9-230 | M3 | M4,5-M5 | 3,5 | 6 | 7,5 | 23 | 130 | 2,7 | 4,9 | V0-211235-0306 |
| PBNm 4,5/3,4-6/4,9-230 | M4 | M6 | 4,5 | 6 | 8,4 | 23 | 130 | 3,4 | 4,9 | V0-211235-0406 |
| PBNm 6/4,9-7/5,5-230 | M4,5 - M6 | M8 | 6 | 7 | 12,1 | 26 | 230 | 4,9 | 5,5 | V0-211235-0607 |
| PBNm 7/5,5-7/5,5-230 | M7 | M9 - M10 | 7 | 7 | 12,1 | 26 | 230 | 5,5 | 5,5 | V0-211235-0707 |
| PBNm 8/6,2-8/6,2-230 | M8 | M11 | 8 | 8 | 13 | 30 | 230 | 6,2 | 6,2 | V0-211235-0808 |
| PBNm 9/7-9/7-230 | M9 | M12 | 9 | 9 | 15 | 31 | 230 | 7 | 7 | V0-211235-0909 |
| PBNm 10/8-10/8-230 | M10 | - | 10 | 10 | 15 | 33 | 230 | 8 | 8 | V0-211235-1010 |
| PBNm 11/9-11/9-230 | | M14 | 11 | 11 | 18 | 36 | 230 | 9 | 9 | V0-211235-1111 |
| PBNm 12/9-12/9-230 | | M16 | 12 | 12 | 18 | 36 | 230 | 9 | 9 | V0-211235-1212 |
| PBNm 14/11-14/11-330 | | M18 | 14 | 14 | 22 | 42 | 330 | 11 | 11 | V0-211335-1414 |
| PBNm 16/12-16/12-330 | | M20 | 16 | 16 | 22 | 42 | 330 | 12 | 12 | V0-211335-1616 |
| PBNm 18/14,5-18/14,5-330 | | M22/M24 | 18 | 18 | 26 | 43 | 330 | 14,5 | 14,5 | V0-211335-1818 |
| PBNm 20/16-20/16-330 | | M27 | 20 | 20 | 28 | 48 | 330 | 16 | 16 | V0-211335-2020 |

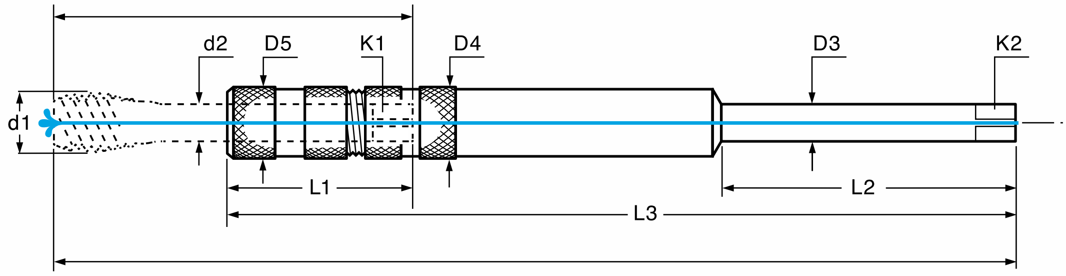




**Example of order**

**V0-211230-1212**
**PBNm 12/9-12/9-230**

## IK-H6




### Short

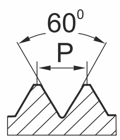
| Sign | D1 | | D2 | D3 | D4=D5 | L1 | L2 | a1 | a2 | INDEX |
|---|---|---|---|---|---|---|---|---|---|---|
| | DIN-371 | DIN-376 | | | | | | | | |
| PBNm 2,8/2,1-6/4,9-130 | M2 - M2,6 | M4 | 2,8 | 6 | 6,1 | 22 | 130 | 2,1 | 4,9 | V0-211136-0206 |
| PBNm 3,5/2,7-6/4,9-130 | M3 | M4,5 - M5 | 3,5 | 6 | 7,5 | 23 | 130 | 2,7 | 4,9 | V0-211136-0306 |
| PBNm 4,5/3,4-6/4,9-130 | M4 | M6 | 4,5 | 6 | 8,4 | 23 | 130 | 3,4 | 4,9 | V0-211136-0406 |
| PBNm 6/4,9-7/5,5-130 | M4,5 - M6 | M8 | 6 | 8 | 12,1 | 26 | 130 | 4,9 | 6,2 | V0-211136-0607 |
| PBNm 7/5,5-7/5,5-130 | M7 | M9 - M10 | 7 | 8 | 12,1 | 26 | 130 | 5,5 | 6,2 | V0-211136-0707 |
| PBNm 8/6,2-8/6,2-130 | M8 | M11 | 8 | 8 | 13 | 30 | 130 | 6,2 | 6,2 | V0-211136-0808 |
| PBNm 9/7-9/7-130 | M9 | M12 | 9 | 9 | 15 | 31 | 130 | 7 | 8 | V0-211136-0909 |
| PBNm 10/8-10/8-130 | M10 | - | 10 | 10 | 15 | 33 | 130 | 8 | 8 | V0-211136-1010 |
| PBNm 11/9-11/9-130 | | M14 | 11 | 12 | 18 | 36 | 130 | 9 | 9 | V0-211136-1111 |
| PBNm 12/9-12/9-200 | | M16 | 12 | 12 | 18 | 36 | 130 | 9 | 9 | V0-211136-1212 |
| PBNm 14/11-14/11-200 | | M18 | 14 | 14 | 22 | 42 | 200 | 11 | 11 | V0-211206-1414 |
| PBNm 16/12-16/12-200 | | M20 | 16 | 16 | 22 | 42 | 200 | 12 | 12 | V0-211206-1616 |
| PBNm 18/14,5-18/14,5-200 | | M22M24 | 18 | 18 | 26 | 43 | 200 | 14,5 | 14,5 | V0-211206-1818 |
| PBNm 20/16-20/16-200 | | M27 | 20 | 20 | 28 | 48 | 200 | 16 | 16 | V0-211206-2020 |

### Long

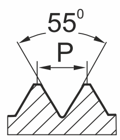
| Sign | D1 | | D2 | D3 | D4=D5 | L1 | L2 | a1 | a2 | INDEX |
|---|---|---|---|---|---|---|---|---|---|---|
| | DIN-371 | DIN-376 | | | | | | | | |
| PBNm 6/4,9-7/5,5-230 | M4,5 - M6 | M8 | 6 | 8 | 12,1 | 26 | 230 | 4,9 | 6,2 | V0-211236-0607 |
| PBNm 7/5,5-7/5,5-230 | M7 | M9 - M10 | 7 | 8 | 12,1 | 26 | 230 | 5,5 | 6,2 | V0-211236-0707 |
| PBNm 8/6,2-8/6,2-230 | M8 | M11 | 8 | 8 | 13 | 30 | 230 | 6,2 | 6,2 | V0-211236-0808 |
| PBNm 9/7-9/7-230 | M9 | M12 | 9 | 10 | 15 | 31 | 230 | 7 | 8 | V0-211236-0909 |
| PBNm 10/8-10/8-230 | M10 | - | 10 | 10 | 15 | 33 | 230 | 8 | 8 | V0-211236-1010 |
| PBNm 11/9-11/9-230 | | M14 | 11 | 12 | 18 | 36 | 230 | 9 | 9 | V0-211236-1111 |
| PBNm 12/9-12/9-230 | | M16 | 12 | 12 | 18 | 36 | 230 | 9 | 9 | V0-211236-1212 |
| PBNm 14/11-14/11-330 | | M18 | 14 | 14 | 22 | 42 | 330 | 11 | 11 | V0-211336-1414 |
| PBNm 16/12-16/12-330 | | M20 | 16 | 16 | 22 | 42 | 330 | 12 | 12 | V0-211336-1616 |
| PBNm 18/14,5-18/14,5-330 | | M22/M24 | 18 | 18 | 26 | 43 | 330 | 14,5 | 14,5 | V0-211336-1818 |
| PBNm 20/16-20/16-330 | | M27 | 20 | 20 | 28 | 48 | 330 | 16 | 16 | V0-211336-2020 |

## Screw pitch gauge

**ISO Metric thread DIN-13**




**Whitworth thread BS-84:1956**




| Sign | Pitch range | Amount of blades | INDEX |
|---|---|---|---|
| 60° | 0,4 ÷ 7 mm | 20 | V0-600000-000 |
| 55° | 62 ÷ 4 1"/P (TPI) | 28 | V0-550000-000 |
| 55°/60° | 62 ÷ 4 1"/P (TPI)<br>0,25 ÷ 7 mm | 58 | V0-556000-000 |

**Example of order**

**V0-211230-1212**
**PBNm 12/9-12/9-230**

| MODEL | MPD-08/II | MPD-12/II | MPD-16/II | MPD-22/II | MPD-27/II |
|---|---|---|---|---|---|
| INDEX | P0-130000-10208 | P0-130000-10312 | P0-130000-10316 | P0-130000-10322 | P0-130000-10327 |
| Tapping range | M2-M8 | M3-M12 | M3-M16 | M3-M22 | M3-M27 |
| n [1/min] | 700 | 400 | 300 | 120/300 | 70/220 |
| Working area | Rmax=1900mm Rmin=200mm | | | | |
| Weight [kg] | 23 | 23 | 27 | 39 | 39 |
| Max. Torque [Nm] | 12 | 32 | 52 | 100 | 160 |
| Air flow rate [l/min] | 840 | 840 | 840 | 935 | 935 |
| Aapters in the delivery | FZS19/... M2,3,4,5,6,8 | FZS19/... M4,5,6,8,10,12 | FZS31/... M6,8,10,12,14,16 | FZS31/... M6,8,10,12,16,20 | FZS31/... M8,10,12,16,20,24 |
| *Adapters in option* | - | FZS19/M3 | FZS19/...M3,4,5 +FR31/19 | FZS19/...M3,4,5 +FR-31/19; FZS31/...M14,18,22 | FZS19/...M3,4,5 +FR-31/19; FZS31/...M6,14,18,22,27 |

Standard accessories

- spindle with pneumatic drive
- dual rigid arm
- monting column
- air preparation system
- radial arm
- six adapters for taps

**Full range of FZS adapters and FR reductions at the page 188, 190**



**Example of order**

**P0-130000-10208**
**MPD-08/II**

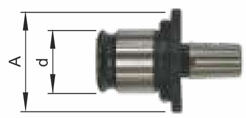
## Tilting head for spinddle mounting with ajustable angle in range 0-90°

| MODEL | Weight | INDEX |
|---|---|---|
| MGO-08-90° | 1,1 kg | P0-133000-00890 |
| MGO-12-90° | 1,1 kg | P0-133000-01290 |
| MGO-16-90° | 1,5 kg | P0-133000-01690 |
| MGO-22-90° | 1,5 kg | P0-133000-02290 |
| MGO-27-90° | 1,5 kg | P0-133000-02790 |

## Magnetic base for machines

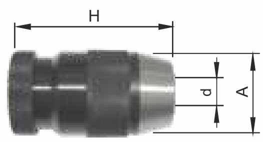
| MODEL | Clamping force | Dimensions | For machine | Weight | INDEX |
|---|---|---|---|---|---|
| MMP-300 | 300 kg | 150x90x93 | MPD-08,12,16 | 8,6 kg | P0-133000-00300 |
| MMP-600 | 600 kg | 224x115x120 | MPD-22,27 | 21 kg | P0-133000-00600 |

## Drill chuck adaptors




| MODEL | d | Taper | A | INDEX |
|---|---|---|---|---|
| FZA19/JT2 | 19 | JT2 | 30 | R-FZA19/JT2 |
| FZA19/JT6 | 19 | JT6 | 30 | R-FZA19/JT6 |
| FZA31/JT6 | 31 | JT6 | 48 | R-FZA31/JT6 |

## Drill chucks




| MODEL | Taper | A | H | d | INDEX |
|---|---|---|---|---|---|
| OW-JT2/D8 | JT2 | 38 | 68 | 0-8 | R-OW-JT2/D8 |
| OW-JT6/D13 | JT6 | 48 | 90 | 0-13 | R-OW-JT6/D13 |

## Pneumatic hand tapping machines

**MPP-12-1**

**with flexible head**

**MPP-12-3**

**with holder for FZS adapters**

| MODEL | M | n [1/min] | Taper | Air flow rate | Diameter of the pipe | Weight | Equipment | INDEX |
|---|---|---|---|---|---|---|---|---|
| MPP-12-1 | M2-M12 | 250 | B12 | 400 l/min | 9,5 mm | 2 kg | Handle | P0-136000-00121 |
| MPP-12-3 | M2-M12 | 250 | B12 | 400 l/min | 9,5 mm | 1,5 kg | Handle + FZS19/...M3,4,5,6,8,10 | P0-136000-00123 |

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**Example of order**

**P0-136000-00121**
**MPP-12-1**

## PMW-1300 Ć2mm¸ Ć13mm — INDEX PMW-1300

**Dimensions**: 305x172x180 (mm)


**Drill diameter:** Ć2¸ Ć13
**Point angle:** 85°-140°
**Power:** 220¸ 230 V 50Hz
**Motor:** 90 W
**Revolutions per minute:** 6000 rpm/min
**Weight:** 10 kg
**Diamond wheel:** B200
**Collets:** ER-20

**Set accessories:**
Collets ER20 Ć2,5¸ Ć13 - 12 pcs., Diamond wheel B200 - 1 pcs ., Allen key - 4mm i 6mm after 1 pcs.

## PMW-2000 Ć3mm¸ Ć20mm — INDEX PMW-2000

**Dimensions**: 480x260x240 (mm)


**Drill diameter:** Ć3¸ Ć20
**Point angle:** 85°-140°
**Power:** 220¸ 230 V 50Hz
**Motor:** 450 W
**Revolutions per minute:** 4300 rpm/min
**Weight:** 21 kg
**Diamond wheel:** CBN200
**Collets:** ER-25

**Set accessories:**
Collets ER25 Ć3¸ Ć20 - 18 pcs., Diamond wheel CBN200 - 1 pcs., Allen key - 4mm i 6mm after 1 pcs.

## PMW-3000 Ć12mm¸ Ć26mm — INDEX PMW-3000

**Dimensions**: 470x260x235 (mm)


**Drill diameter:** Ć12¸ Ć26, optional Ć8¸ Ć30
**Point angle:** 85°-140°
**Power:** 220¸ 230 V 50Hz
**Motor:** 450 W
**Revolutions per minute:** 4300 rpm/min
**Weight:** 25 kg
**Diamond wheel:** B150
**Collets:** ER-40

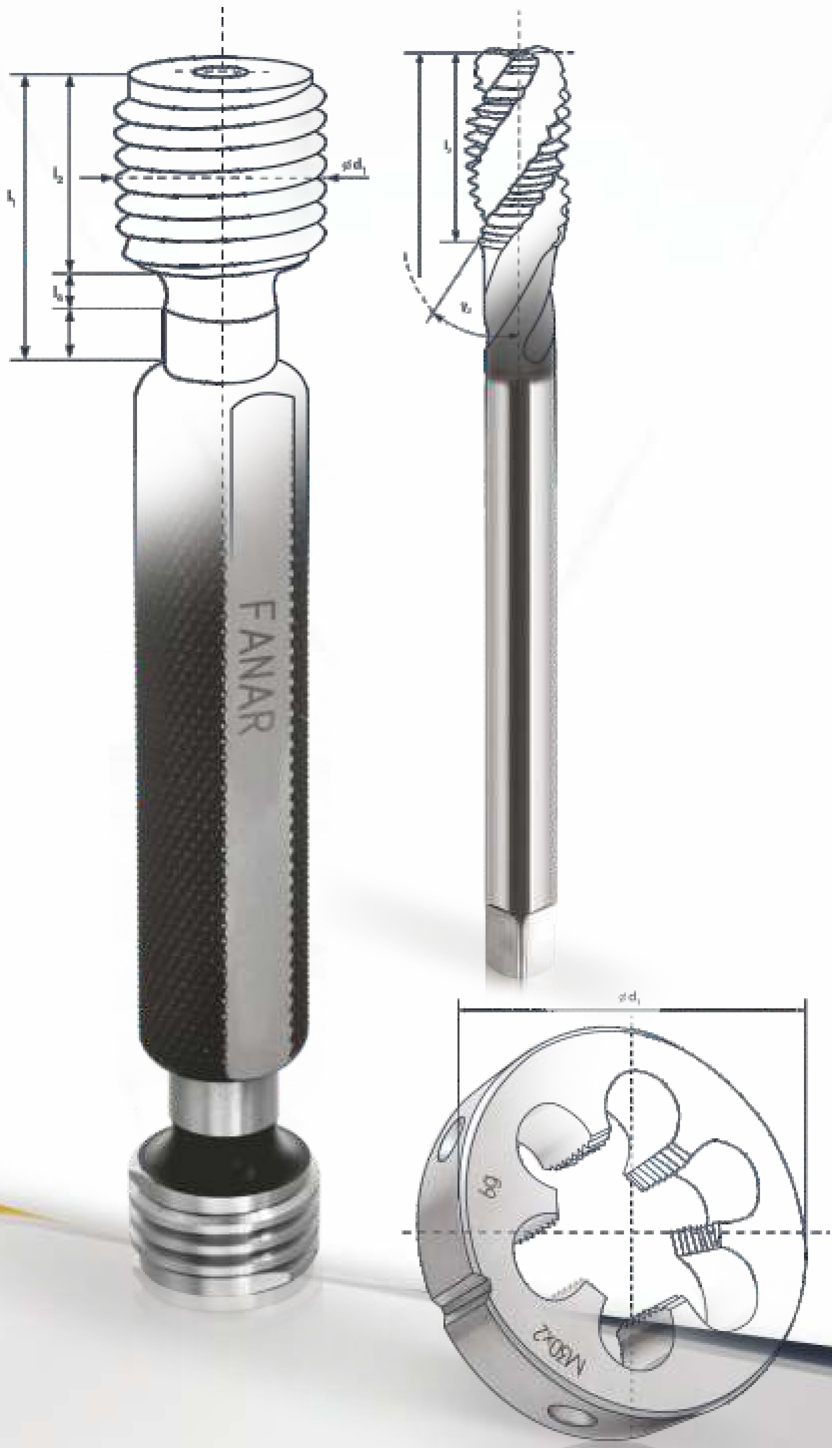
**Set accessories:**
Collets ER40 Ć12¸ Ć26 - 15 pcs., Diamond wheel B150 - 1 pcs., Allen key - 4mm i 6mm after 1 pcs.



**Example of order**

**PMW-1300**
**Fast drill re-sharpening machine PMW-1300**

# Technical Information

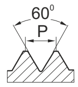
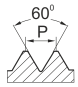
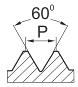
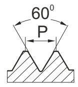
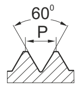
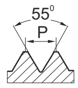
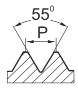
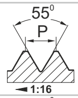
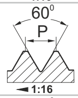
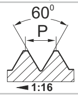
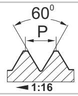
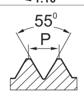
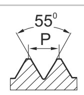
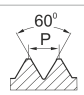
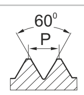
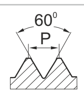
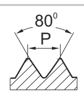
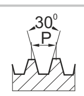
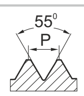
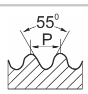


# TECHNICAL INFORMATION

PAGE

## CATALOGUE PAGES 223-277

# 1. THREAD TYPE

| | | |
|---|---|---|
| **M** |   | Metric thread ISO DIN-13 |
| **MF** |   | Metric fine thread ISO DIN-13<br>(symbol used only in catalogues for distinguish from metric coarse thread) |
| **UNC** |   | American unified coarse thread ANSI B-1.1 |
| **UNF** |   | American unified fine thread ANSI B-1.1 |
| **UNEF** |   | American unified extra fine thread ANSI B-1.1 |
| **G** |   | Whitworth pipe thread DIN-ISO 228<br>(identical with BSP) |
| **Rp** |   | Whitworth internal cylindrical pipe thread<br>PN-ISO 7/1 and DIN EN 10226-1 (identical with BSPP) |
| **Rc** |   | Whitworth internal tapered pipe thread<br>PN-ISO 7/1, DIN EN 10226-2 (identical with BSPT) |
| **NPT** |   | American tapered pipe thread with dryseal material ANSI B-1.20.1 |
| **NPTF** |   | American tapered pipe thread without dryseal material<br>ANSI B 1.20.4 |
| **NPSF** |   | American tapered pipe thread without dryseal material<br>ANSI B 1.20.3 |
| **BSW** |   | Whitworth thread BS-84:1956<br>(in the past - W) |
| **BSF** |   | Whitworth fine thread BS-84:2007 |
| **EG M** |   | Metric thread for thread inserts V-Coil |
| **EG UNC** |   | Metric thread for thread inserts V-Coil |
| **EG UNF** |   | Metric thread for thread inserts V-Coil |
| **Pg** |   | Steel conduit thread DIN-40430<br>(P) |
| **Tr** |   | Trapezoidal symetric thread DIN-103 |
| **R** |   | Whiworth external tapered pipe thread ISO-7/1 (identical with BSPT) |
| **Rd** |   | Cylindrical round thread<br>PN-84/M-02035 and DIN 405 |

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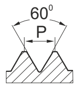
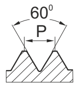
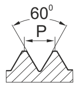
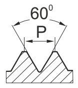
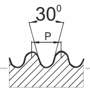
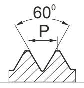
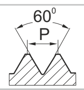
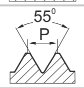
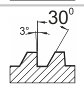
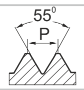
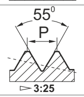
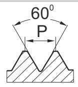
| | | |
|---|---|---|
| FG |  | Bicycle thread<br>DIN 79012 |
| BSC |  | Bicycle thread<br>BS 811 |
| Ven |  | Valve thread PN-ISO 4570 |
| Vg |  | Valve thread DIN 7756 |
| E |  | Edison electrical thread IEC 60061 |
| UN |  | American unified thread ANSI B-1.1<br>(with preferential piches: 4, 6, 8, 12, 16, 20, 28, 32 of threads per inch) |
| UNS |  | American unified special thread<br>ANSI B-1.1 |
| Whit. S |  | Special Whitworth thread<br>BS 84 |
| S |  | Trapezoidal non-symetric thread |
| Wzyl |  | Cylindrical Whitworth thread for gas cylinder valves DIN 477 |
| Wkeg |  | Tapered Whitworth thread for gas cylinder valves<br>PN-82/M-69223 and DIN 477 |
| NPSM (NPS) |  | American cylindrical pipe thread<br>ANSI B 1.20.1 |

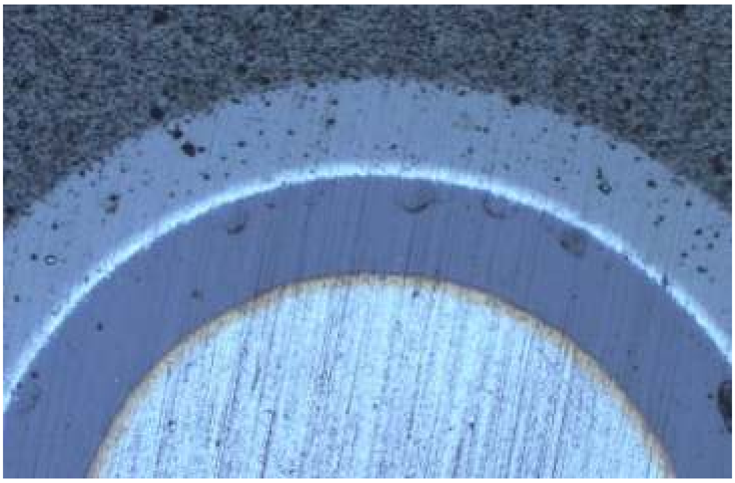
## 2. MATERIALS USED FOR PRODUCTION OF TOOLS

| Symbol | Name | Description |
|---|---|---|
| HSS | High-speed steel | Standard material for general purpose cutting tools |
| HSSE (HSCo5) | High-speed steel | Material with high heat resistance, cobalt content allows to increase the hardening temperature and improves the stability of cutting edges. |
| HSSE-PM | High-speed powder steel | This homogeneously structured material for tools, obtained with the use of powder metallurgy, has the high-hardness and high-temperature resistance properties, which ensure that the tools made with it are characterized by high stability of cutting edges. |
| VHM | Micrograin cemented carbide | The homogeneously structured material for tools, obtained with the use of powder metallurgy from the tungsten carbide, features high abrasion resistance and hardness. In comparison with the high-speed steel it is more brittle and usually used with the PVD coatings |

## 3. PVD COATINGS USED FOR TOOLS

### HL COATING

| | |
|---|---|
| Coating | TiAIN + WC/C |
| Structure | Multilayer nanocomposite |
| Hardness | 3000 $HV_{0,05}$ |
| Max. working temp. | 800°C |
| Coefficient of friction | 0,15 |
| Color of coating | Dark Grey  |



High performance properties of the HL coating have been achieved by application of the advanced nanocomposite structure. TiAIN layer, with its high hardness and temperature resistance, provides a stable, resistant to abrasion base of the coating. The top WC/C layer consists of tungsten carbide nanocrystallites surrounded by a carbon ply features excellent tribological properties. Hard WC separations provide abrasion resistance, while maintaining excellent the sliding properties of carbon. By combining advantages of two layers, the HL coating is ideal for processing of a wide variety of materials, it improves chips evacuation, reduces cutting forces and protects cutting edges from the impact of high temperatures. The HL-coated tools can work with the minimum quantity of lubrication (MQL). The coating is designed for processing materials from the Groups P, M, K, N, S.

# PVD COATINGS USED FOR TOOLS

## TN2 COATING

| | |
|---|---|
| Coating | TiAIN + TiN |
| Structure | Double-layer nanostructure |
| Hardness | 3500 $HV_{0,05}$ |
| Max. working temp | 800°C |
| Coefficient of friction | 0,3 |
| Color of coating | Gold  |

The double-layer coating TN2, manufactured with a dropless method and treated with the surface fine finish processes, features very good resistance to abrasion, high thermal resistance and low coefficient of friction. Due to reduction of friction, the tool’s life is considerably longer, and the quality of the surface processed by the tool is improved. By combining the extremely hard TiAIN layer with the malleable TiN layer, we have obtained a smart, self-adjusting structure of the tool's surface, which accommodates itself to the processing related stresses, thus improving the tool's resistance to breaks. Tn2 is intended, in particular, for the tools for processing of the Group P materials (for Rm < 1000 MPa), and the materials from Groups M, K, N.

## TC COATING

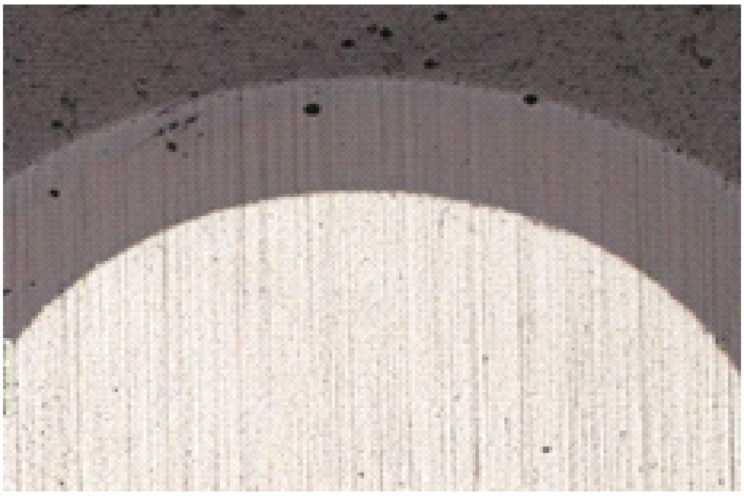
| | |
|---|---|
| Coating | TiN + TiCN |
| Structure | Multilayer |
| Hardness | 3700 $HV_{0,05}$ |
| Max. working temp | 400°C |
| Coefficient of friction | 0,2 |
| Color of coating | Anthracite  |

TC is a multilayer, general purpose coating. It features a very high hardness, good durability and low coefficient of friction. The basic TiN layer provides high adhesion to a tool and considerable resistance to dynamic loads. The top TiCN/TiC layer, with its high hardness and low coefficient of friction, ensures a very good resistance to abrasion. Combination of the above properties allows for protection of the edges from the processed material buildup, and from chipping. Due to the relatively low temperature resistance, proper cooling of the tool should be applied. The coating is intended mainly for the tools for processing of materials from the Groups P (in particular of high strength Rm > 1000 MPa) K, N, H.

# PVD COATINGS USED FOR TOOLS

## AT COATING

| | |
|---|---|
| Coating | AlTiN |
| Structure | Gradient |
| Hardness | 3700 $HV_{0,05}$ |
| Max. working temp. | 900°C |
| Coefficient of friction | 0,3 |
| Color of coating | Purplish-Grey  |



The AT Coating, with the increased Aluminum (Al) content, features high hardness and temperature resistance. The released from the coating, during processing, aluminum oxides serve as additional lubrication of a tool, and at the same they create a thermal barrier, preventing the coating from being worn out, even in the most extreme conditions. Chemical composition and the nanogradient structure ensure high hardness of the coating. As a result, the high resistance to abrasion is achieved, which directly translates into the tool's longer life. The coating may be used for tools exposed to high temperatures, and is suitable for work both, with coolant and without it. The coating is designed for processing materials from the Groups P, M, K, N, S.

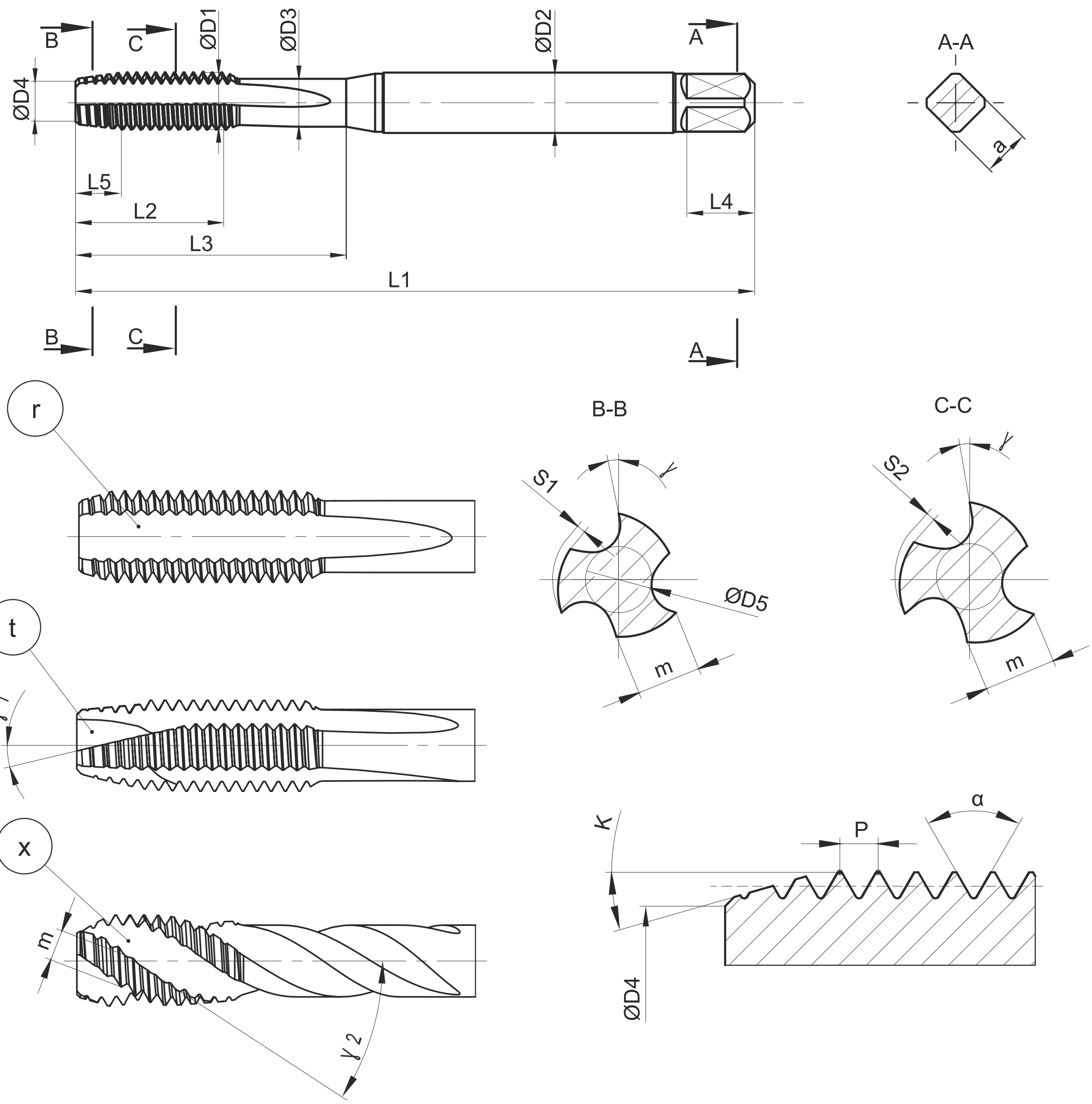
## $TIB_2$ COATING

| | |
|---|---|
| Coating | $TiB_2$ |
| Structure | Monolayer |
| Hardness | 4000 $HV_{0,05}$ |
| Max. working temp. | 900°C |
| Color of coating | Silver  |

The material of coating, the TB (titanium diboride), is a ceramic material with outstanding properties with regard to its hardness and resistance to abrasion. With its carefully prepared composition (no affinity with aluminum), the material provides high chemical stability and prevents the processed material buildup on cutting edges. The dropless method of manufacturing the coating allows to obtain a very smooth finish, which in turn translates into a very good quality the workpieces' surfaces. The coating is designed for processing materials form the Group N, mainly aluminum alloys (Si<12%) and unalloyed titanium.

# 4. TAPS

## 4.1. Tap construction elements (on example of DIN-371)




| | |
|---|---|
| L1 - total length | S1 - relief of chamfer |
| L2 - thread length | S2 - relief of thread |
| L3 - useful length | P - pitch of thread |
| L4 - length of driving square | α - angle of thread |
| L5 - chamfer length | γ - rake angle |
| a - size of square | γ1 - spiral point angle |
| ⌀D1 - thread diameter | γ2 - angle of spiral flutes |
| ⌀D2 - shank diameter | κ - chamfer angle |
| ⌀D3 - neck diameter | r - straight flute |
| ⌀D4 - (chamfer) point diameter | x - spiral flute |
| ⌀D5 - web (core) diameter | t - spiral point |
| m - width of land | z - number of lands |

## 4.2. Dimension standards

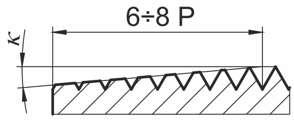
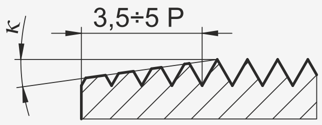
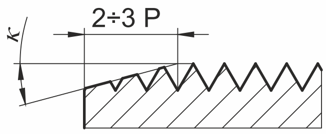
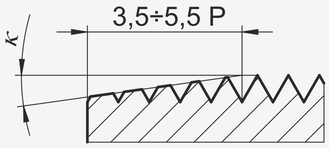
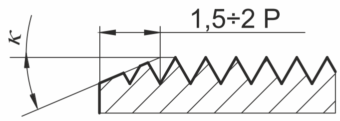
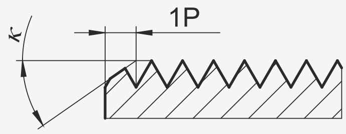
Dimension standards assign proper taps outer dimensions (total length, thread length, shank diameter and size of square) of nominal threads dimensions.

| Symbols | Description |
|---|---|
| DIN-371 | Machine taps with reinforced shank for metric coarse and fine threads M3 ÷ M10 and for the threads UNC, UNF, BSW, BSF within the range of nominal diameters 1/8” ÷ 3/8” |
| DIN-376 | Machine taps with reduced shank diameter for metric coarse threads and for the threads UNC and BSW |
| DIN-374 | Machine taps with reduced shank diameter for metric fine threads and for the threads UNF i BSF |
| DIN-5156 | Machine taps with reduced shank diameter for the threads G, Rp and Rc |
| DIN-352 | Short hand taps for metric coarse threads Norm is also suitable for UNC and BSW threads |
| DIN-2181 | Short hand taps for metric fine threads Norm is also suitable for UNF and BSF threads |
| DIN-5157 | Short hand taps and machine taps for pipe threads G, Rp |

## 4.2. Groups of Tools by Applications

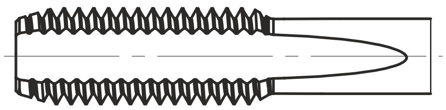
| | |
|---|---|
| MASTERTAP<br>P M K N S | Group of machine taps intended for high performance thread cutting in a wide range of materials, such as **steel, stainless steel, cast iron, non-ferrous metals and heat-resistant alloys, and titanium alloys.**<br><br>The thread cutting may be carried out in modern, highly efficient machining centers with high cutting speeds, on the older types of CNC machines, and on the conventional machines with slightly lower processing parameters. |
| 800X<br>P M K N | Innovative variety of machine tap 800, designed also for **processing of stainless steel**. The innovative manufacturing technologies may even double durability and processing performance we had so far.<br><br>All these features make the 800X tap the best choice for small and medium size production series, while still offering favorable price to quality ratio. |
| 800<br>P K N | For structural, free machining and low alloy steels with the tensile strength of 600 MPa ≤ Rm ≤ 800 Mpa |
| FAN-1200<br>P | For tool and difficult to process steels with the tensile strength of 800 MPa ≤ Rm ≤ 1200 MPa, and for heat treated steels up to 38 HRC |
| 1400<br>P | For difficult to process and heat resistant steels with the tensile strength of 1200 MPa ≤ Rm ≤ 1400 MPa, and for heat treated steels up to 44 HRC |
| INOX<br>P M | For high alloy steel, stainless and acid resistant steels with a tensile strength of Rm ≤ 1000 MPa |
| GG<br>K | For processing of grey and nodular cast iron |
| GAL<br>N | For cast aluminum alloys with the Si content of max. 10% |
| HRC<br>H | For materials, which have been hardened. The number next to the symbol indicates the maximum hardness of the material to be processed, in the HRC scale |
| S-NC<br>P M K N S | For synchronized tapping on CNC machines with the "rigid tapping" function for a wide range of materials with the high cutting speeds |
| Ms<br>N | For brass and short chip bronze |

## 4.3. Types of machine tap chamfers

| Symbol | Sketch | Chamfer length presented in the quantity of the thread coils | Angle |
|---|---|---|---|
| **A** |   | 6 ÷ 8 P | 5° |
| **B** |   | 3,5 ÷ 5,5 P | 8° |
| **C** |   | 2 ÷ 3 P | 17° |
| **D** |   | 3,5 ÷ 5 P | 8° |
| **E** |   | 1,5 ÷ 2 P | 23° |
| **F** |   | 1 P | 35° |

## 4.4. Types of Machine Tap Chip Flutes

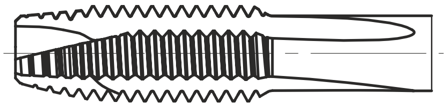
### Straight Flutes



In combination with the chamfer A or D applied for the through holes and with the chamfer E or F for the blind holes. Tap with the chamfer C can be used for both types of holes.

It is recommended for materials giving a short chip. The grooves evacuate only some of the chips, which slowly move along the axis. The tap should not be used for deep blind holes or materials giving a long chip. The length of threads, which can be made - up to ca 1.5xD

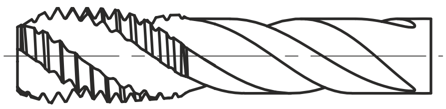
## Straight Flutes with Spiral Point



Designed for through holes, with thread along the full length of the hole.

Used together with the chamfer B, it is recommended for materials giving a long chip. The spiral point moves tightly squashed chips in the direction of feed, and prevents the grooves from clogging. Coolant reaches the working zone freely. The length of threads, which can be made - up to ca 2xD.

## Spiral flutes

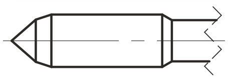
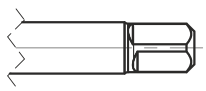
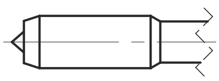
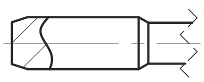
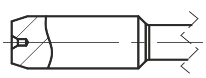
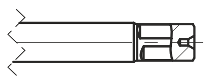


Together with the chamfer C and E used for the blind holes.

It is recommended for materials giving a long chip. Spiral flutes provide good chip evacuation in the direction from the hole toward the shank. Depending on the hole diameter, it is possible to make threads of up to 3xD.

Machine tap with spiral flutes should not be used for the through holes.

### 4.6. Types of the high performance machine tap center holes, depending on the diameter of the thread, chamfer and the applied standards

| Working Part | | | Shank | |
|---|---|---|---|---|
| Solid cone | 1 |  |  | 5 Phase |
| Stepped cone | 2 |  | | |
| Chamfer E (without center hole) | 3 |  | | |
| Internal center hole | 4 |  |  | 6 Internal center hole |

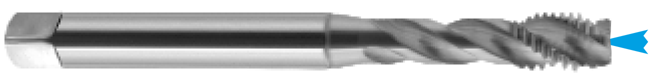
| | External thread diameter (mm) | Type of center hole on cutting segment side | | | Type of center hole on shank side |
|---|---|---|---|---|---|
| | | Chamfers A, C, D, | Chamfer B | Chamfer E | |
| DIN-371 | ≤7,2 | 1 | 1 | 3 | 5 |
| | 7,2≤8,2 | 2 | 1 | 3 | 5 |
| | 8,2<10,2 | 2 | 2 | 3 | 5 |
| DIN-374 DIN-376 DIN-5156 | ≤7,2 | 1 | 1 | 3 | 5 |
| | >7,2 | 4 | 4 | 3 | 6 |

**Length of full solid cones for selected types of thread (Length of stepped cone Lnak=1.8 mm)**

| M | | MF | |
|---|---|---|---|
| M1 | 0,6 | M2,5 x 0,35 | 1,9 |
| M1,2 | 0,8 | M2,6 x 0,35 | 1,9 |
| M1,4 | 1,0 | M3 x 0,35 | 1,3 |
| M1,6 | 1,1 | M 3,5 x 0,35 | 1,6 |
| M1,7 | 1,1 | M4 x 0,5 | 1,8 |
| M1,8 | 1,3 | M5 x 0,5 | 2,3 |
| M2 | 1,4 | M6 x 0,75 | 2,6 |
| M2,5 | 1,8 | M7 x ,75 | 3,1 |
| M2,6 | 1,8 | | |
| M3 | 1,3 | | |
| M3,5 | 1,5 | | |
| M4 | 1,7 | | |
| M4,5 | 1,9 | | |
| M5 | 2,1 | | |
| M6 | 2,5 | | |
| M7 | 3,0 | | |
| **UNC** | | **UNF** | |
| No 4-40 | 2,0 | No 4-48 | 2,1 |
| No 5-40 | 1,3 | No 5-44 | 1,4 |
| No 6-32 | 1,4 | No 6-40 | 1,5 |
| No 8-32 | 1,8 | No 8-36 | 1,8 |
| No 10-24 | 2,0 | No 10-32 | 2,1 |
| No 12-24 | 2,3 | No 12-28 | 2,3 |
| 1/4-20 | 2,6 | 1/4 - 28 | 2,8 |
| 5/16-18 | 3,3 | 5/16 - 24 | 3,5 |
| **BSW** | | **BSF** | |
| 1/8 - 40 | 1,25 | 1/4 - 26 | 2,65 |
| 3/16 - 24 | 1,8 | 5/16 - 22 | 3,4 |
| 1/4 - 20 | 2,55 | | |
| 5/16 - 18 | 3,25 | | |

## 4.7. Application of Tools with Internal Channels for Supplying a Coolant IK/IKR

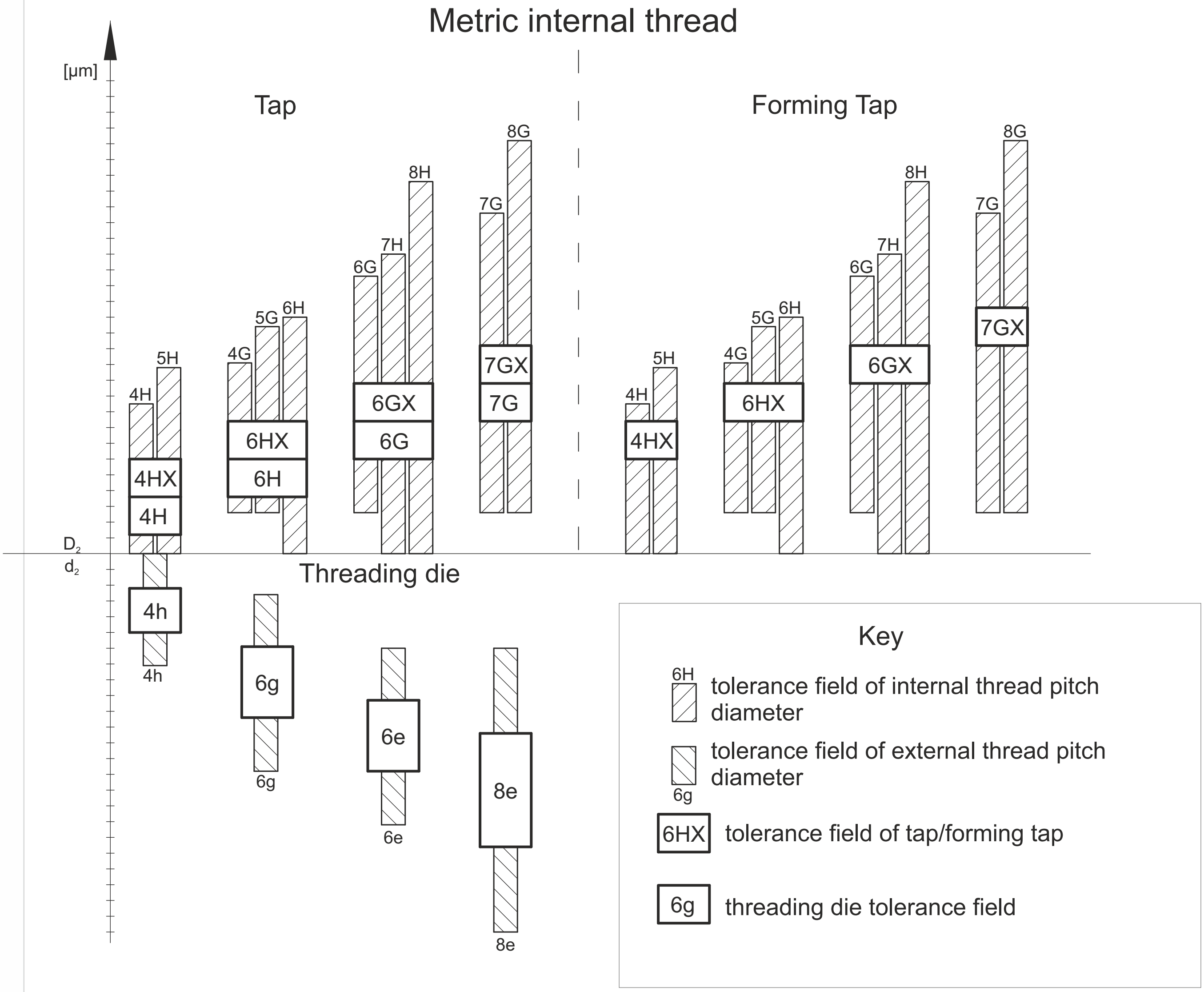
**IK** - Central cooling channel is recommended for the blind holes, facilitates chip evacuation of chips toward the shank, improves lubrication and cooling conditions, extends tool life



**IKR** - Central cooling channel divided into several radial channels, which supply coolant into each of the chip flutes separately. The solution is recommended for tapping of the through holes, facilitates evacuation of chips in the direction of feed, improve lubrication and cooling conditions, extends tool life.

## 4.8. Classes of Machine Taps

The machine taps presented in our catalog are made in the basic class, intended for the most commonly used internal thread tolerances, appropriate for the particular thread types: for metric thread 6H, for unified thread UNC, UNF - 2B, for Whitworth thread BSW, BSF - "normal." Per individual request we can manufacture the taps in other classes. Tap classes (ie. the tolerance field of a working segment) for metric threads are unified by international and national standards. A particular class of the tap threads allow for two or three fields of tolerance (see drawing and table below.)




| According to DIN 802 | Tolerance field of internal thread | | | | |
|---|---|---|---|---|---|
| 4H | 4H | 5H | - | - | - |
| **6H** | 4G | 5G | 6H | - | - |
| 6G | - | - | 6G | 7H | 8H |
| 7G* | - | - | - | 7G | 8G |

*DIN 802 provides the possibility of correction the tap tolerance comparing to the standard demands in case when it is required by the particular machining conditions, e.g. the sort of machining material. In such situation the symbol of the tap's class with the sign "X", e.g. 6HX, 6GX is obligatory.

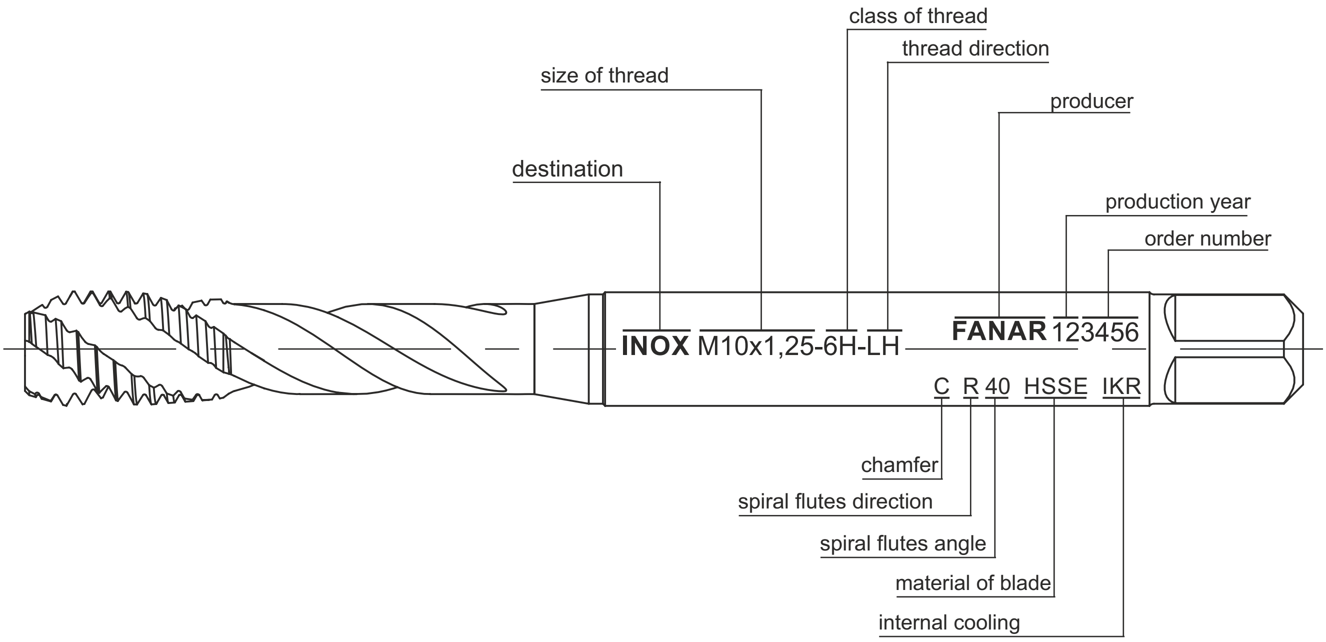
## 4.9. Marking and stamping of high performance machine taps

### Marking

INOX M10x1,25 -LH -6HX DIN-371 C R40 HSSE IKR HL

- INOX – destination
- M10x1,25 – size of thread
- -LH – thread direction
- -6HX – class of thread
- DIN-371 – standard symbol
- C – chamfer
- R40 – spiral flutes symbol
- HSSE – material of blade
- IKR – internal cooling
- HL – coating symbol

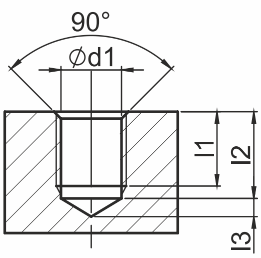
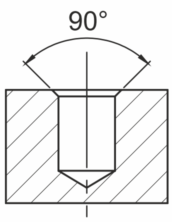
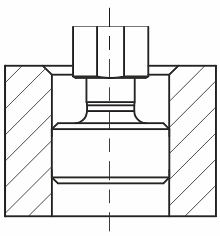
### Stamping

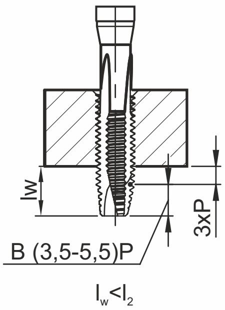
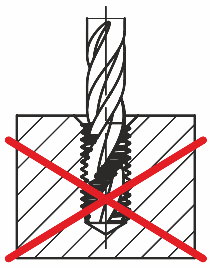
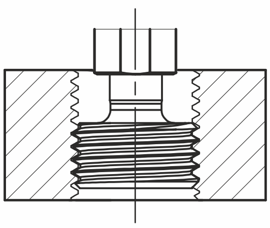


## 4.10. Recommendations for Processing with Machine Taps

Tapping is usually one of the last operations in the process of machining a workpiece. An error occurring in the process of tapping may result in additional costs associated not only with the damaged tap, but often with the workpiece material, as well as with the machining processes preceding the tapping. In order to avoid such problems, we encourage you to read and apply the below recommendations regarding the tapping process.

## 4.11. Threading process

| Operation | Recommendations |
|---|---|
| **10** **Drilling**<br><br>⌀d1 - recommended diameter for tapping<br>l1 - depth of thread<br>l2 - depth of tapping hole<br>l3 - length of point | - The diameter of the drill (see chapter 6, page 141) should be consistent with the recommended value, presented on the catalog page of a tool being used.<br>- In the case of materials with Rm > 1200 MPa, the hole diameter should be possibly close to the upper limit of its tolerance.<br>- In the case of a blind hole, to achieve the required usable length of a thread ,the depth of the drilled hole should take into account the length of the point of the drill, length of the tap's cone (Table on page 231) and the chamfer. |
| **20** **Chamfering of the Hole's Edge**<br> | - In order to facilitate insertion of the tap into the hole and to reduce resistance in the beginning of its work, the edges of the drilled hole should be chamfered with a deburring tool with the tip angle of 90º (Section 6, page 152) |
| **30** **Validation of the tapping hole**<br> | - When notching thread with a tap, the minor diameter depends on the diameter of the drilled hole. Correctness of the drilled holes should be checked with a smooth gauge for tapping holes (Section 7, page 162), according to the recommendations included in the technical section referring to gauges |

| | Operation | Recommendations |
|---|---|---|
| **40** | **Tapping**<br> | - When tapping the through holes using a tap with the spiral point, special attention must be paid when removing the tap from the hole. For the proper thread cut and the chip evacuation, the removal of the tap from the tap hole should include the entire length of the spiral point + ca 3 thread pitches |
| |  | - When tapping blind holes, there should be no collision between the tap face and the bottom of the hole<br><br>- In the case of the numerically controlled machines with synchronous tapping cycle, it is recommended to use the tap grip with the minimal axial compensation (Section 8, page 179)<br><br>- Applied machining speeds should take into account how the workpiece and the tap have been fixed, type of the processed material, type and condition of the machine, and conditions of the tap lubrication |
| **50** | **Validation of the Thread**<br> | - Upon completion of tapping, it should be checked with a tapping gauge (Section 7, page 164), in accordance with the recommendations included in the technical section referring to gauges. |

## 4.11. Troubleshooting guide for tapping

| Problem: Tapping oversized threads (no-go gauge is too loose) | |
|---|---|
| You used improper tap for material and thread application. | You should use a suitable tap hole type and material being cutted according to the table in catalogue. |
| Cuutting speed was too high. | You should reduce cutting speed.<br>You should use more coolant/lubrication. |
| There was cold welding on the flanks of the tap. | You should change your tool for new one.<br>You should use coated tap.<br>You should use more coolant/lubrication.<br>You should remove damagedd teeth. |
| Chip packing in flutes occured. | You should use tap with another flute geometry.<br>There couldd be necessity of using set of taps. |
| Grinding burr occured. | Remove it with fiber brush. |
| Incorect fixturing or positioning of part<br>. | You should use tap holders with axial and parallel compensation.<br>Try presicely fix cutted element. |
| Inconsistent feed of tap. | You should control the feedd while tapping.<br>You should check parameters of CNC machine (program)<br>Check lead screw for backlash.<br>You should use holdder with compensation. |
| **Problem: Tapping oversized threads (nogo gauge is loose)** | |
| The tolerance of used tap was too high comparing with required class of the thread. | You should check marking on the tap and revise if it is suitable for making required class of thread.<br>If you have any problems contact our Technical Representative. |
| Inapropriate reconditioning of a tap.. | While reconditioning it is required that all ground surfaces maintain the original geometry put on by the manufacturer.<br>For instructive information please contact our Representative. |
| **Problem: Tapping undersized threads (go gauge doesn’t enter part way into hole).** | |
| The chosen tap has not suitable geometry for multiple regrinds. | You should limit the number of tap regrinds.<br>Try to use another tap. |
| A part of tap surface wasn’t renewed while resharpening. | Try to grind the tap again.<br>You should use a new tap. |
| You used inapropriate tap for the tread being made and material being cutted. | You should use tap suitable for the hole type and material being cutted according to the table from catalogue. |
| The used tap has too small nominal size (tolerance). | You should check marking on the tap and revise if it is suitable for making required class of thread.<br>If you have any problems contact our Technical Representative. |
| **Problem: Tapping bellmouthed hole (first few threads are oversized)** | |
| The tolerance of used tap was too high comparing with required class of the thread. | You should check marking on the tap and revise if it is suitable for making required class of thread.<br>If you have any problems contact our Technical Representative. |
| Inapropriate reconditioning of a tap. | While reconditioning it is required that all ground surfaces maintain the original geometry put on by the manufacturer.<br>For instructive information please contact our Representative. |
| **Problem: Too low tap life** | |
| All reasons stated in next table “torn and rough threads”. | Please read the table  “torn and rough threads” |
| The tap lost its hardness by excess hear during regrinding. | You should change the specification of the grinding wheel.<br>You should use coolant while grinding. |
| The loss of surface treatment occured after regrinding. | Retreat surface of tap.<br>You should check suitability of surface treatment for material being tapped. |
| Work hardened drill hole and hole chamfer. | You sholud frequently change or regrind tap drill.<br>You should check proper drilling speed and feed.<br>Please anneal part before tapping. |

| Problem: Damage of cutting part | |
|---|---|
| You used improper tap for material and thread application. | You should use tap suitable for the hole type and material being cutted according to the table from catalogue. |
| Tap drill was too small. | You should use correct size of drill.<br>Please check recommended size drill in catalogue<br>(note that there are different sizes for taps and for forming taps).<br>If you have any problems contact our Technical Representative. |
| The tap hole wasn't deep enough. | You should check the actual drill depth (the drill could have slipped back into holder). |
| Tap drill hole was missing. | Please make sure that the tap drill hole is present (that's common problem in multiple spindle applications on transfer lines). |
| Chips packing in flutes occured. | Try to use tap with different flute geometry (angle).<br>There could be necessity of using set of taps. |
| Cold welding on the flanks of the tap (loading). | You should use a new tap.<br>You should use coated tap.<br>You should use more coolant/lubrication.<br>You should remove damaged teeth. |
| Overload of the chamfer teeth occured. | Use tap with longer chamfer.<br>You should use tap with increased number of flutes to provide more chamfered teeth. |
| Inorrect fixturing or positiong of part. | You should use tap holders with axial and parallel compensation.<br>Try presicely fix cutted element. |
| The tap was hitting the bottom of the hole. | You should use tap holders with length compensation and with torque overload system. |
| Tapping hard or high tensile materials. | You should check if yor tap is properly selected.<br>High performance taps HSSE-PM and VHM may be more suitable than HSSE taps. |

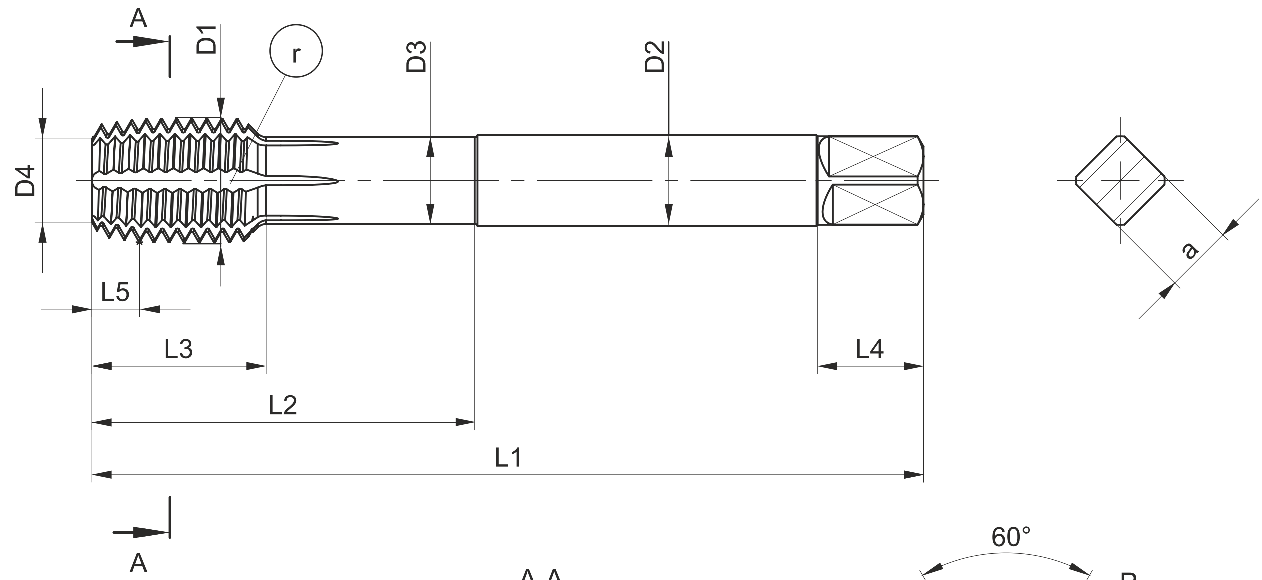
| Problem: Torn and rough threads | |
|---|---|
| You used improper tap for material and thread application. | You should use tap suitable for the hole type and material being cutted according to the table from catalogue. |
| Cutting speed was too fast or too slow. | Please select proper cutting speed.<br>Improve coolant selection to assist the effects of tap speed. |
| There was cold welding on the flanks of the tap. | You should use a new tap.<br>You should use coated tap.<br>You should use more coolant/lubrication.<br>You should remove damaged teeth. |
| Chip packing in flutes occured. | Try to use tap with different flute geometry (angle).<br>There could be necessity of using set of taps. |
| Grinding burr occured. | Remove it with fiber brush. |
| Tap drill was too small. | You should use correct size of drill.<br>Please check recommended size drill in catalogue<br>(note that there are different sizes for taps and for forming taps).<br>If you have any problems contact our Technical Representative. |
| There wasn't proper cooling or lubrication while tapping. | Select properly lubricant according to the notes from the catalogue.<br>Use adequate amounts of coolant/lubrication. |
| Tool overloading occured due to coarse pitch, hard materials or short chamfers. | There could be necessity of using set of taps. |

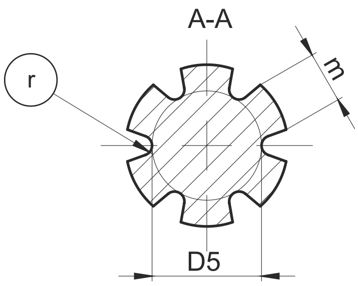
## 4.12. Regeneration - rake angle information

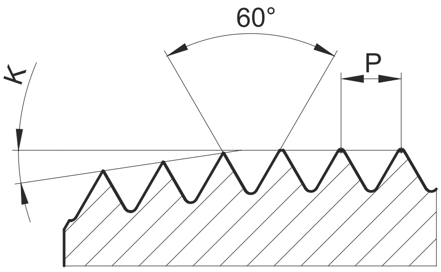
| Material group | Material | Designation | $\gamma_p$ [°] |
|---|---|---|---|
| P | Steel | 800 | 10 – 13 |
| | | FAN-1200 | 7 – 10 |
| | | 1400 | 5 – 7 |
| M | Stainless steel | INOX | 10 – 13 |
| K | Cast iron | GG | 4 – 6 |
| N | Non-ferrous materials | GAL | 7 – 9 |
| | | | 10 – 13 |
| | | | 4 – 6 |
| S | heat-resistant alloys, titanium alloys | 1400 | 5 – 7 |
| H | Hard materials | HRC50 | -5 – -4 |

# 5. FORMING TAPS

## 5.1. Forming tap construction elements



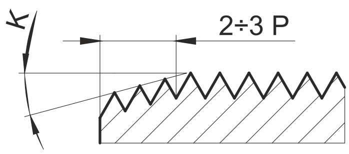
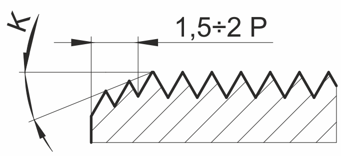




L1- total length
L2 - thread length
L3 - useful length
L4 - length of driving square
L5 - chamfer length
∅D1 - thread diameter
∅D2 - shank diameter
∅D3 - neck diameter
∅D4 - (chamfer) point diameter
∅D5 - web (core) diameter

r - straight flute
κ - chamfer angle
α - angle of thread
P - pitch of thread
m - width of land
a - size of square

## 5.2. Types of forming tap chamfers

| Symbol | Sketch | Chamfer length presented in the quantity of the thread coils | Angle |
|---|---|---|---|
| C |  | 2 ÷ 3 P | 8,5° |
| E |  | 1,5 ÷ 2 P | 11,5° |

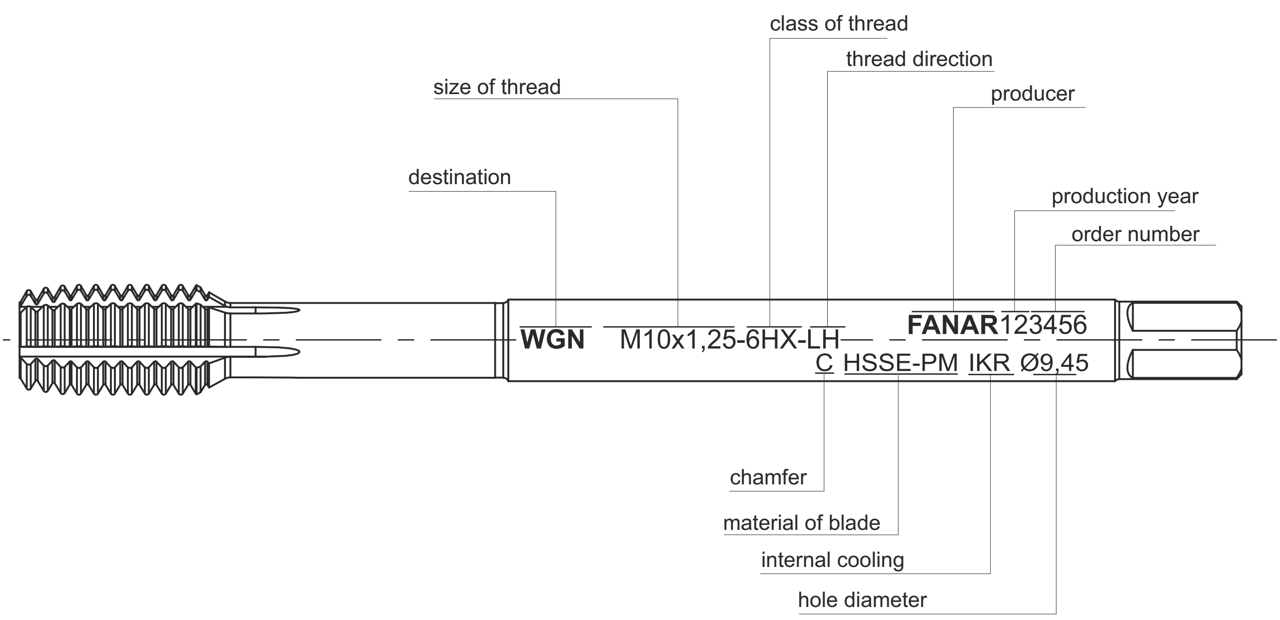
## 5.3. Marking and stamping of forming taps

### Marking

WGN M10x1,25 -LH -6HX DIN-371 E SR HSSE-PM IK TiCN

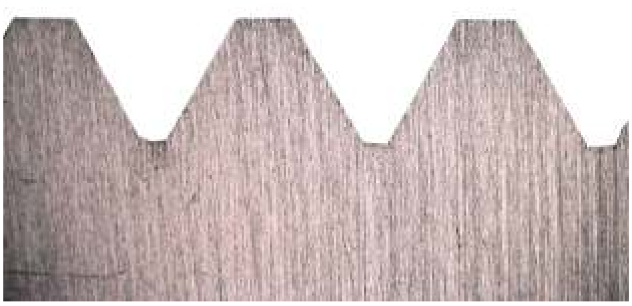
destination
size of thread
thread direction
class of thread
standard symbol
chamfer
oil grooves
material of blade
internal cooling
coating symbol

### Stamping

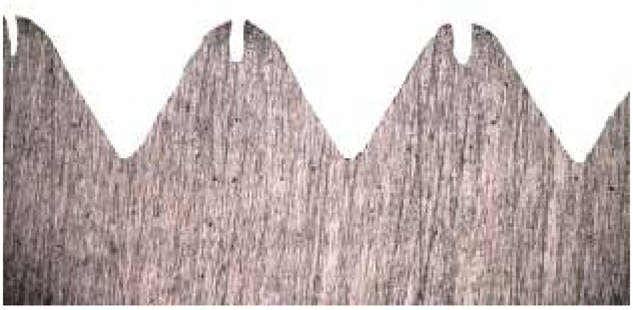


## 5.4. Difference Between Cut and Formed Thread

Cold forming is a chip free method of processing, where the workpiece material is being imprinted, the thread is being formed by plastic deformation, without the need for the material evacuation. The material formed is cold, and its fibers are not being broken.



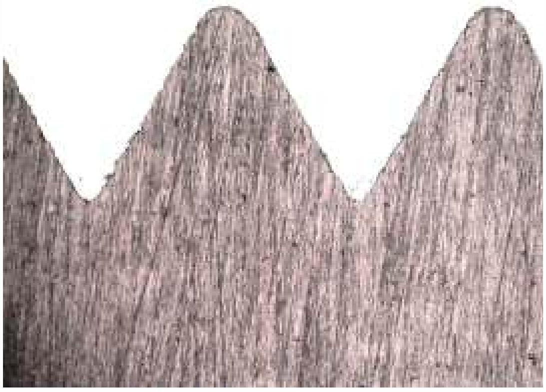
*Cut Thread*



*Cold formed Thread*

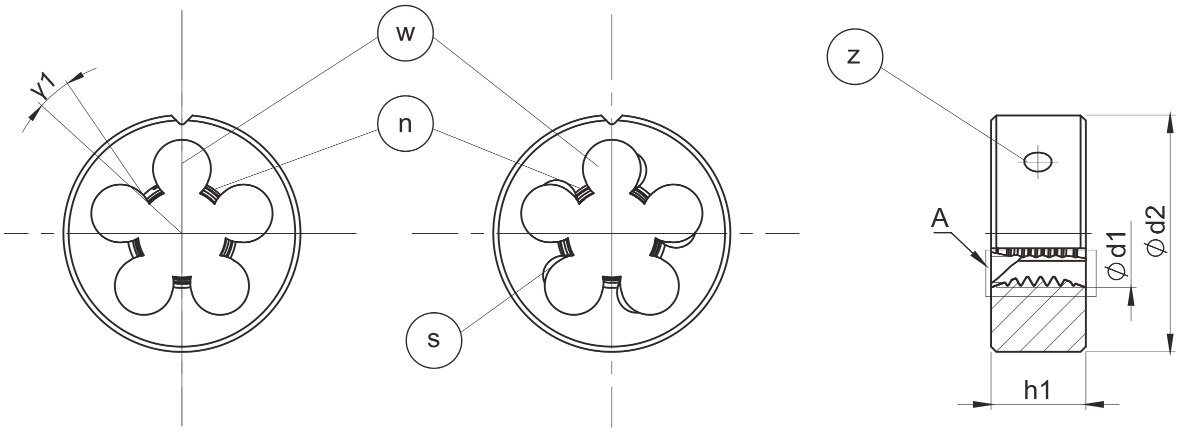
| Advantages of Forming threads | Disadvantages of Forming threads |
|---|---|
| → chip free processing<br>→ one tool for both, through and blind holes<br>→ possibility to tap deep holes 4xD<br>→ high durability of thread, especially on side surfaces of a thread pitch<br>→ smoother thread surface<br>→ no errors in pitch or form of thread<br>→ the ability to tap with significantly higher processing parameters, because the processing performance of most materials increases with speed, it has no negative impact on the tool life<br>→ high rigidity of the tool reduces risk of its damage | → much greater forming torques in comparison to cutting<br>→ incomplete formation of a thread top<br>→ thread load carrying capacity amounts to about 80% of the load carrying capacity of the cut thread, but its strength is much greater<br>→ application range limited to plastic materials<br>→ greater tolerance in the process of threading<br>→ method not recommended for food and pharmaceutical industry |

## 5.5. Thread forming Troubleshooting

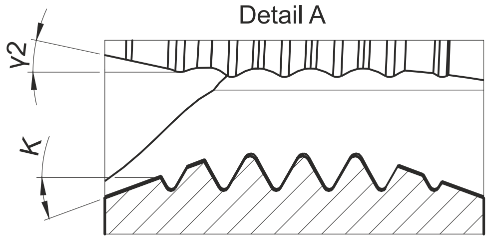
| Problem | Solution |
|---|---|
| **Incomplete form of thread** | |
|  | Reduce the drill diameter for tapping hole or apply the drill diameter according to the selection Table for forming taps page 270. |
| **Overdone form of thread, too small minor diameter** | |
|  | Increase the drill diameter for tapping hole or apply the drill diameter according to the selection Table for forming taps page 270. |
| **Poor quality of thread surface, yanked off material from surface of thread** | |
| | - Improve lubrication: Use forming taps with oil grooves<br>- Increase amount of coolant/lubricant<br>- Use oil for lubricant<br>- Use coated forming tap |
| **Tool breaks** | |
|  | - Increase tapping hole diameter<br>- Increased amount of coolant/lubricant<br>-Apply cover coating preventing sticking of material being processed<br>- Check compliance of workpiece with recommendations regarding its plasticity and hardness |

# 6. DIES

## 6.1. Die construction elements




⌀d1 - nominal thread diameter
⌀d2 - outside diameter
h1 - die thickness
κ - chamfer angle
γ1- rake angle
γ2 - spiral face inclination
w - chip hole
n - chamfer
s - spiral face
z - hole for fixing screw




## 6.2. Dimension standards

Dimension standards assign proper series of dies outer dimensions (diameters, thickness) to nominal standards as well as determine the dimensions connected with dies fixing in the holder (position, size of holes for fixing screws and V-grooves).

| Symbol | Standards | Destination |
|---|---|---|
| DIN | EN 22 568<br>(in the past DIN 223)<br>PN-92/M-58070<br>ISO 2568 | Round dies for metric coarse M and MF fine threads, UNC, UNF, BSW, BSF as well as other threads, excluding the pipe threads G and R |
| DIN | EN 24 231<br>(in the past DIN 5158)<br>PN-92/M-58161<br>ISO 4231 | Round dies for pipe threads G |
| DIN | EN 24 230<br>(in the past DIN 5159)<br>PN-92/M-58160<br>ISO 4230 | Round dies for tapered pipe threads R |

## 6.3. Marking and stamping of dies

### Marking

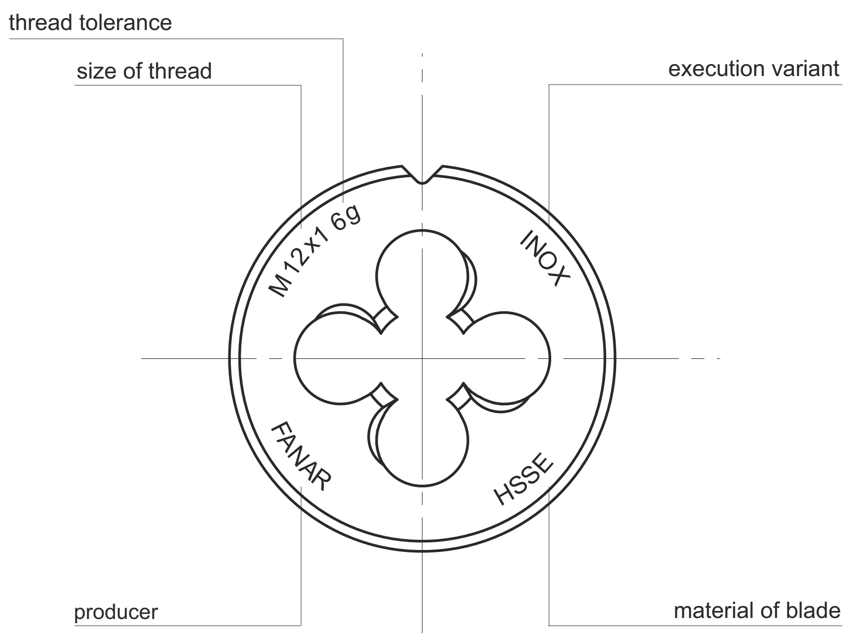
**Example:** high performance machine die acc. to DIN-EN 22 568 for the thread M12, thread tolerance 6g, for stainless steel

Marking: given in orders, invoices, specifikations, on the packages

DIN-EN 22 568 M12 6g HSSE INOX

- standard symbol: DIN-EN 22 568
- size of thread: M12
- thread tolerance: 6g
- material of blade: HSSE
- execution variant: INOX

### Stamping



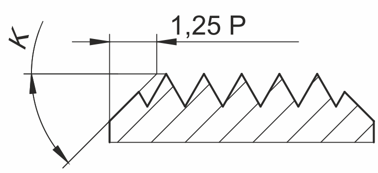
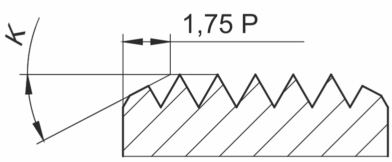
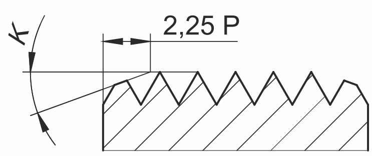
## 6.4. Cut Thread Tolerances

The threading dies presented in our catalog are designed for cutting the most common and basic for a given type of thread tolerances: for metric thread 6g, for threads UNC, UNF, etc., 2A. On individual request we can manufacture threading dies for other, than the above mentioned, fields of tolerance, e.g. for the metric threads: 4h for tight threads, 6e for threads to be covered with thin galvanized coating.

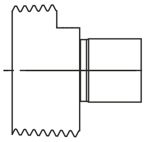
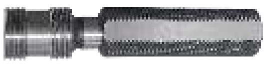
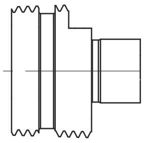
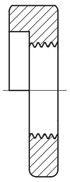
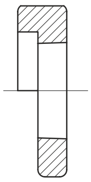
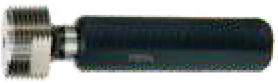
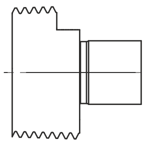
## 6.5. Groups of Tools by Applications

| | |
|---|---|
| 800<br>P N | For processing of structural steel and cast steel with Rm≤800MPa |
| 800<br>SPN<br>P N | For processing of structural steel and cast steel with Rm≤800MPa. Better cut thread quality can be achieved, for use on automatic lathes. |
| Ms<br>N | For processing of brass and short chip bronze. |
| INOX<br>P M K N | For processing of stainless steel, cast aluminum and nodular cast iron. |

## 6.6. Chamfer

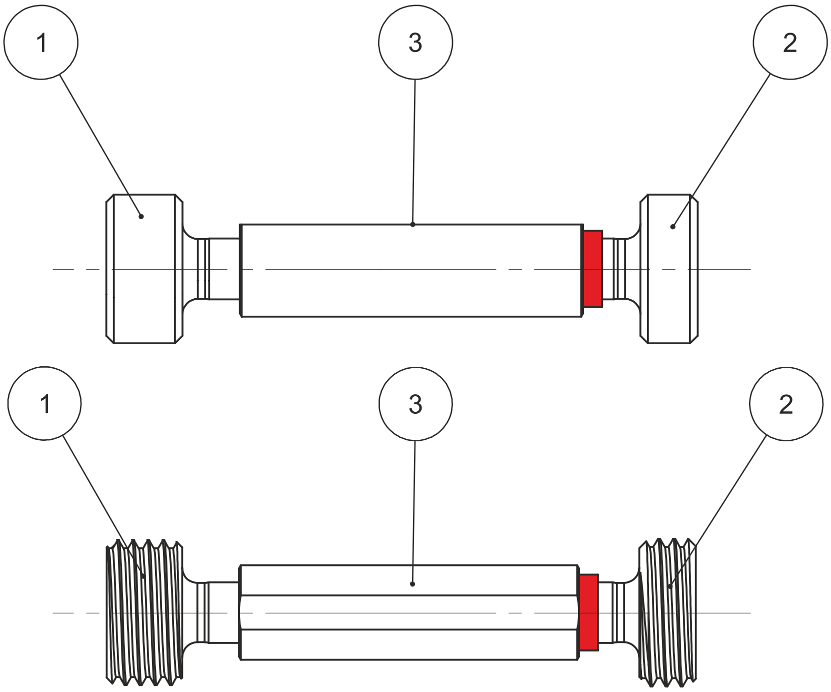
| Length | Application | Sketch | Angle |
|---|---|---|---|
| 1,25 P | Ms |  | 45° |
| 1,75 P | 800 |  | 27,5° |
| 2,25 P | INOX |  | 20° |

### 7.2.2 Gauges R, Rc/Rp

| | |
|---|---|
| **Gauge No. 1**   | **Taper full form threaded plug gauge.**<br>This gauge is a 1:16 taper full form threaded plug gauge and is suitable for checking the major diameter (D) and pitch diameter (D2) at the gauge plane of internal parallel (Rp) threads and internal taper (Rc) threads. |
| **Gauge No. 2**   | **Taper full form threaded plug gauge with relief.**<br>This gauge is a 1:16 taper full form threaded plug gauge with relief of threads and is suitable for checking the major diameter (D) and pitch diameter (D2) at the gauge plane, and the accomodation [1]lenght of inernal parallel (Rp) threads and internal taper (Rc) threads.<br><br>*[1]Accomodation lenght: distance from the face of an internally threaded workpiece to the first obstruction which the externally threaded workpiece will encounter on assembly.* |
| **Gauge No. 3**   | **Parallel full form threaded ring gauge.**<br>This gauge is parallel full form threaded ring gauge and is suitable for checking the minor diameter (d1) and pitch diameter (d2) at the gauge plane of taper external (R) threads. |
| **Gauge No. 4**   | **Taper plane ring gauge.**<br>This gauge is a 1:16 taper plain ring gauge and is suitable for checking the major diameter (d) and the related useful thread lenght on taper external (R) threads. |
| **Gauge No. 5**   | **Taper modified thread form check plug gauge**<br>This check plug gauge is used to check the dimensions of the parallel threaded ring gauge (gauge No. 3) when manufacturing the ring gauge and for checking the ring gauge for wear. |

# 7. GAUGES

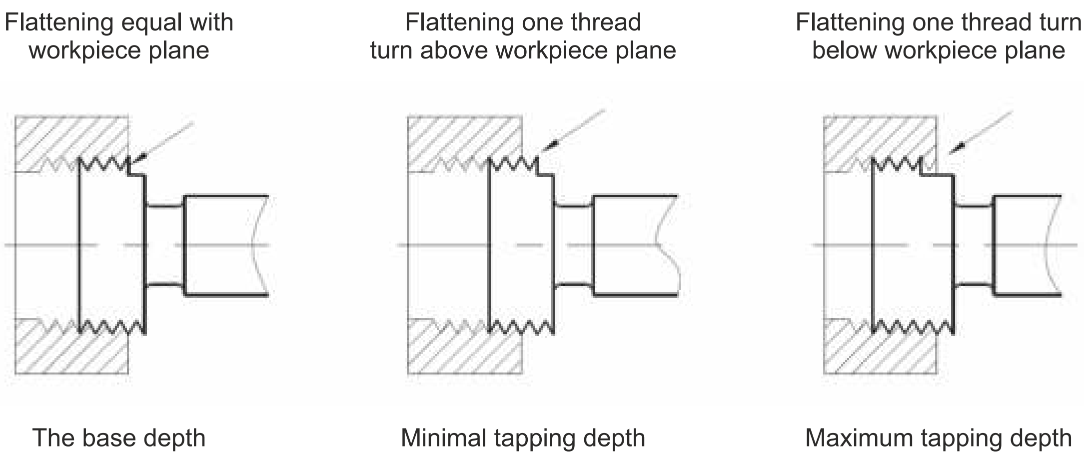
## 7.1. Gauges construction elements




1 - go plug gauge
2 - no go plug gauge
3 - handle

## 7.2. Types of gauges

### 7.2.1 Gauges NPT

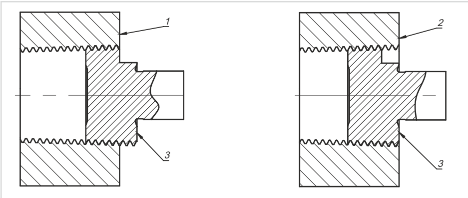



Pipe threads where pressure tight joint are made on the threads according to PN-EN 10226-1, PN-EN 10226-2 (ISO7-1:2000).
Verification by means of limit gauges according to PN-EN 10226-3 (ISO-7-2:2000)

## 7.4. Use of gauges and checking of threads

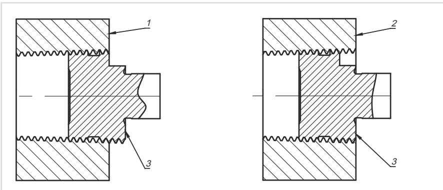
### Checking of internal taper (Rc) and internal parallel (Rp) threads

**Stage 1:** The taper threaded plug gauge (gauge No. 1) is screwed hand tight into the internal thread. The internal thread is within the permissible tolerance if the end face of the threaded workpiece lies between the step faces, or flush with one of the step faces on the gauge.




Key:
1 - end face of work piece flush with tolerance step on gauge,
2 - end face of work piece flush with face of gauge
3 - gauge No. 1

**Stage 2:** The taper threaded plug gauge with relief (gauge No 2) is screwed hand tight into the internal thread. The internal thread is within the permissible tolerances if the end face of the threaded workpiece lies between the step faces, or flush with one of the step faces on the gauge.




Key:
1 - end face of work piece flush with tolerance step on gauge,
2 - end face of work piece flush with face of gauge
3 - gauge No. 2

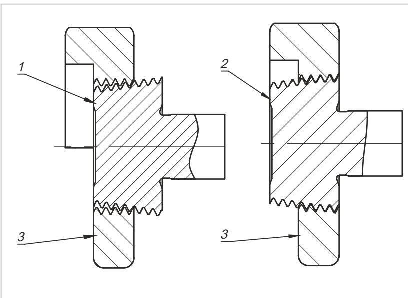
**Note 1 :** If a workpiece is rejected by gauge No. 2 but accepted by gauge No. 1, then this may indicate a lack of accomodation lenght.

**Note 2 :** A variation in the relative position of the gauge steps of gauge Nos. 1 and 2 in excess of 0,5P but not greater than 1P is permissible when the manufacturer and purchaser agree that the use of a thread sealant sealant during assembly of the workpiece will compensate for the increased differnce in the gaugin results.

**Note 3 :** In the case of Rp threads, if the depth of chamfer at the pitch diameter of the threads is more or less than 0,5P, then the gauging result will be slightly affected.

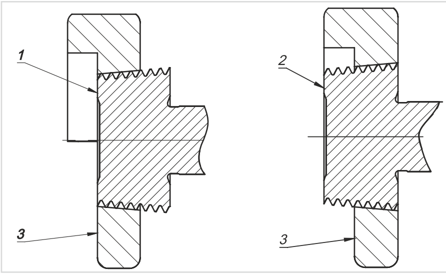
### Checking of external taper (R) threads

**Stage 1:** The threaded ring gauge (gauge No. 3) is screwed hand-tight onto the external thread. The external thread is within the permissible tolerance if the end face of the workpiece lies between the step faces, or flush with one of the step faces on the gauge.




Key:
1 - end face of work piece flush with tolerance step on gauge,
2 - end face of work piece flush with face of gauge
3 - gauge No. 3

**Stage 2:** The taper plain ring gauge (gauge No. 4) is positioned hand tight over the external thread. The external thread is within the permissible tolerances if the end face of the threaded workpiece lies betwee the step faces, or flush with one of the step faces of the gauge and the roots of all threads within the area covered by the gauge are fully formed.

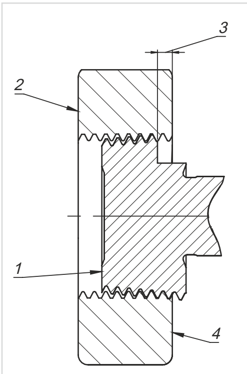



Key:
1 - end face of work piece flush with tolerance step on gauge,
2 - end face of work piece flush with face of gauge
3 - gauge No. 4

**Note:** A variation in the relative positions of the gauge steps of gauge Nos. 3 and 4 in excess of 0,5P but no greater than 1P is permissible when the manufacturer and purchaser agree that the use of a thread sealant during the assembly of the workpiece will compensate for the increased differnce in the gauging results.

### Checking of taper plug gauges wear (gauge Nos. 1 and 2)

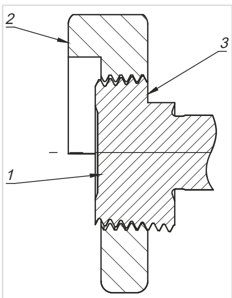
The pitch diameter of taper threaded plug gauges may be checked with the parallel modified thread form check ring gauge (gauge No. 6). The major diameter of taper threaded plug gauges shall be checked by direct measurment.




Key:
1 - gauges No 1 and 2,
2 - gauges No 6,
3 - distance from face of step on plug gauge to face of ring gauge shall be $l_{13}$
(see PN-EN 10226-3:2005 table 16)
4 - this face marked to indicate position of gauge plane

### Checking of parallel ring gauges wear (gauge No 3)

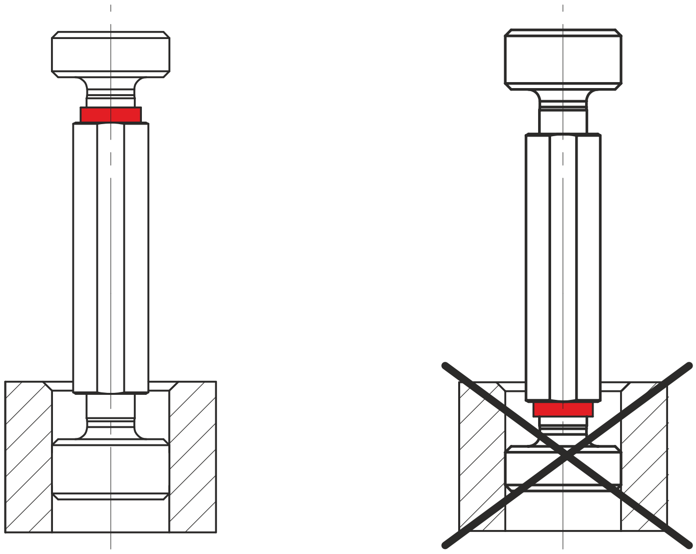
Parallel full form threaded ring gauges shall be checked by using the taper modified thread form check plug gauges at the pitch diameter. The minor diameter shall be checked by direct measurment.



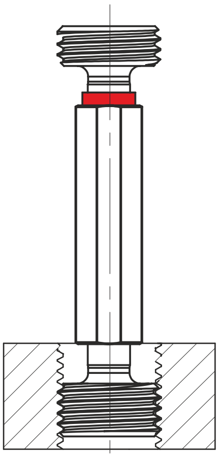

Key:
1 - gauges No 5
2 - gauges No 3
3 - distance from face of step on plug gauge to face of ring gauge shall be $l_{14}$
(see PN-EN 10226-3:2005 table 16)
4 - this face marked to indicate position of gauge plane

## 7.3. Validation of Holes

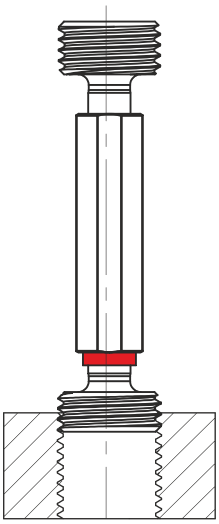
For checking of the through holes and blind holes, there are used go/no go plug gauges. The go gauge should be inserted into a hole with its own weight or with just a little push. The gauge must not be pushed with excessive force, as it could be jammed. The no go gauge should not let itself to be inserted into a hole.



## Checking Internal Cylindrical Threads



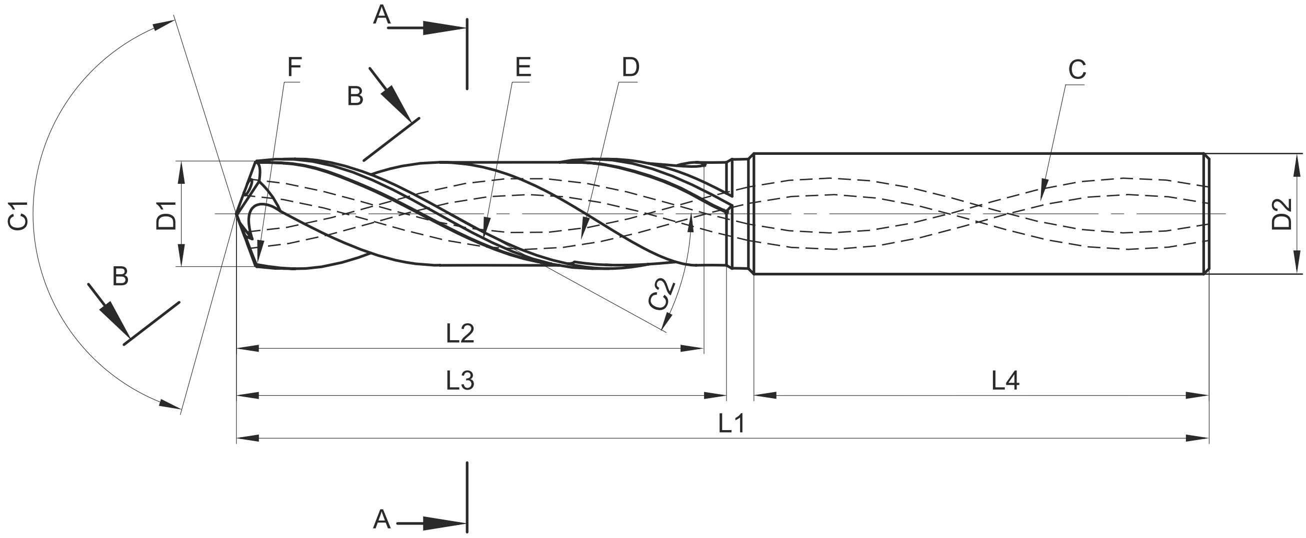
For checking of the internal threads, there are used go and no go thread gauges. **With the go thread gauge** you check the virtual internal thread dimension by checking the bottom dimension of pitch diameter. The go gauge, when manually screwed in, should with no special effort let itself to be screwed in for the whole length of the thread. The thread does not meet requirements, when it proves impossible to screw the gauge in.



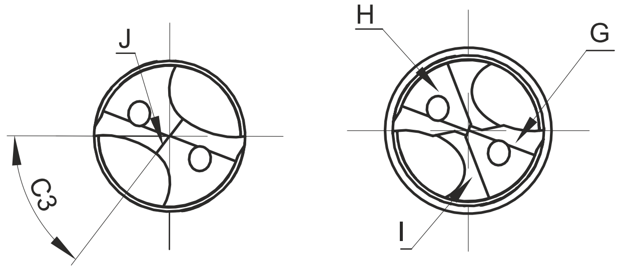
**With the no go thread gauge** you check whether the pitch diameter exceeds the upper limit dimension. The no go gauge, when manually screwed in, should with no special effort go in **no further than two thread pitches**. If the gauge can be screwed in further than the two pitches, it means the thread does not meet requirements.

# 8. TWIST DRILLS

## 8.1. Nomenclature of Twist Drills

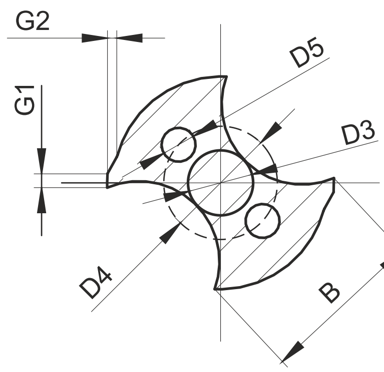



C - channel supplying coolant
D - chip flute
E - margin
F - rake face
G - primary clearance surface
H - secondary clearance surface
I - chamfer
J - chamfer edge



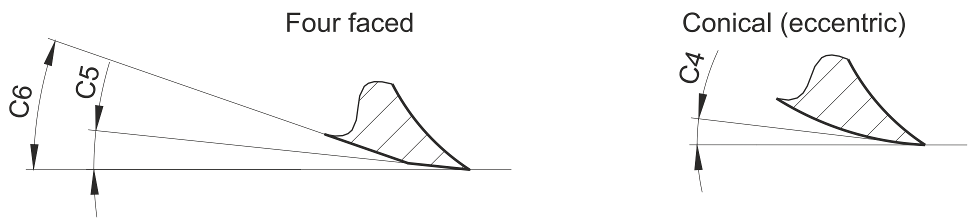

L1 - total length
L2 - chip flutes length
L3 - margin length
L4 - shank length
D1 - working part diameter
D2 - shank diameter
D3 - core diameter
D4 - spacing of cooling channels
D5 - diameter of cooling channels
C1 - point angle
C2 - Helix angle
C3 - chisel angle
C4 - clearance angle
C5 - angle of primary clearance surface
C6 - angle of secondary clearance
G1 - margin width
G2 - lowering of margin
B - blade width

A-A




B-B

Types of Drill Clearance Surfaces



## 8.2. Cooling and Lubrication Conditions

**Application of Coolant:**

- It is recommended when the drilling depth is at least twice greater than the diameter
- It is a must with depths five times greater than the drill diameter
- With application of external cooling, the coolant should be fed not only with the appropriate pressure, but also in the proper manner.

**Methods of Coolant Supply:**

**Internal:**

- Should be applied always, when the depth of the hole is at least three times greater than the diameter.
- Internal cooling is always recommended to avoid blocking of chips.

**External:**

- To improve chip evacuation, at least one coolant nozzle (two, if the drill bit is fixed) should be directed close to the axis of the tool.
- External cooling helps to avoid the formation of buildup on the edges, due to lowering the edges' temperature.
- External cooling is allowed for materials, which give short chips.

## 8.3. Problems and Troubleshooting

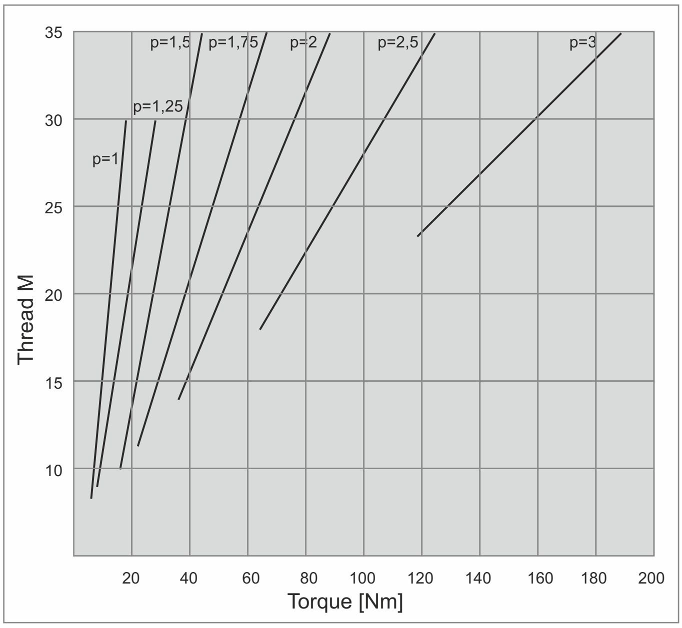
| | |
|---|---|
| **Problem: Buildup on edges** | |
| Too low cutting speed | Increase cutting speed |
| Too high temperature of tool's edges | Apply cooling |
| Too great negative rake angle | Sharpen the cutting edge |
| Wear of coating | Coating on the edge |
| Too little oil in coolant | Increase amount of oil in coolant |
| **Problem: Chipping off corners** | |
| Excessive runout. | Use grip with better mounting precision |
| Excessive feed. | Decrease feed. |
| Insufficient amount of coolant (thermal cracking) | Check coolant pressure |
| Low rigidity of tool holding system | Check rigidity of tool's mount in the grip |
| **Problem: Chipping off corners** | |
| Excessive runout. | Use grip with better mounting precision |
| Excessive feed. | Decrease feed. |
| Discontinuous cutting process | Check coolant pressure |
| Low rigidity of tool holding system | Check rigidity of tool's mount in the grip |

| | |
|---|---|
| **Problem: Excessive wear of the cutting edge** | |
| Excessive runout | Use grip with better mounting precision |
| Excessive feed | Decrease feed. |
| Discontinuous cutting process | Check coolant pressure |
| Low rigidity of tool holding system | Check rigidity of tool's mount in the grip |
| **Problem: Chipping on cutting edge** | |
| Excessive runout | Use grip with better mounting precision |
| Unstable cutting conditions | Check cutting parameters |
| Critical tool wear | Change tool more often |
| Too hard material | Select tool suitable for workpiece material |
| **Problem: Wear on the lands** | |
| Excessive runout | Use grip with better mounting precision |
| Low coolant pressure | Use pure oil or emulsion with more oil content |
| Too high cutting speed | Decrease cutting speed |
| Buildup formed by workpiece material | Select tool suitable for workpiece material |
| **Problem: Wear of the chisel edge** | |
| Too low cutting speed | Increase cutting speed |
| Excessive feed | Decrease feed |
| Too small chisel | Check dimensions |
| **Problem: Plastic deformation** | |
| Too high cutting speed | Decrease cutting speed |
| Excessive feed | Decrease feed |
| Poor coolant supply | Check coolant pressure and setting of nozzles |
| Too low rigidity of tool holding system | Use VHM drill bit |
| **Problem: Abrasion of coating from the edge** | |
| Too much friction | Apply coolant with greater content of oil or additives |
| Remove at an angle | Decrease feeding speed at removal |
| Buildup formed by workpiece material | Reduce number of tool's regenerations |
| **Problem: Chip block** | |
| Too low cutting speed | Increase cutting speed |
| Excessive feed | Decrease feed |
| Too small chip flutes | Select tool with proper geometry |
| Poor rinsing off chips | Apply internal cooling |

## 9.2. Quick-change adapters with safety clutch for taps

**RECOMMENDED TORQUE VALUES
FOR TAPPED MATERIALS WITH RM=1000 MPA**

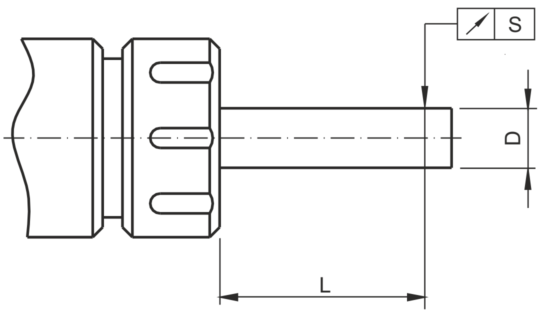
| Thread M | Torque [Nm] |
|---|---|
| 3 | 0,5 |
| 4 | 1,2 |
| 5 | 2 |
| 6 | 4 |
| 8 | 8 |
| 10 | 16 |
| 12 | 22 |
| 14 | 36 |
| 16 | 40 |
| 18 | 63 |
| 20 | 70 |
| 22 | 80 |
| 24 | 125 |
| 27 | 140 |
| 30 | 220 |
| 33 | 240 |




The values given are approximate and may be different depending on specific operating conditions

## 9.3. ER collets mounting

**SHANK RUNOUT MOUNTED
IN THE ER COLLET**




| D | L | S |
|---|---|---|
| 1-1,6 | 6 | 0,015 |
| 1,6-3 | 10 | 0,015 |
| 3-6 | 16 | 0,015 |
| 6-10 | 25 | 0,015 |
| 10-18 | 40 | 0,020 |
| 18-26 | 50 | 0,020 |
| 26-40 | 60 | 0,020 |

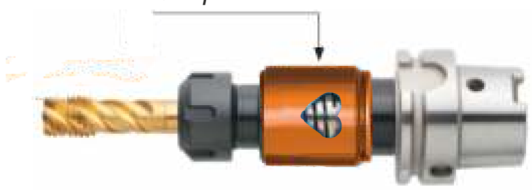
# 9. TAP HOLDERS

## 9.1. Tap holders „SOFT SYNCHRO”

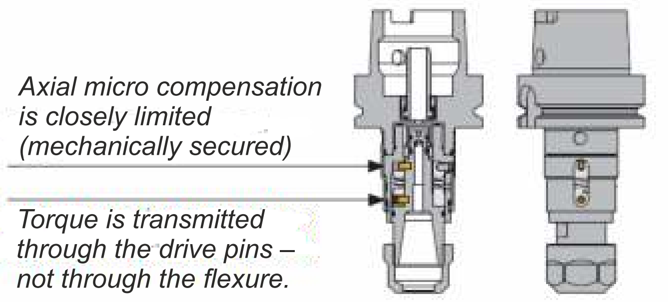
MASTERSYNC

### Rule of action

At the heart of MasterSYNC is a precisely machined flexure which provides axial and radial compensation for the unavoidable discrepancy between the machine feed advance and the actual tap pitch. By compensating for this error, the thrust forces acting on the tap are dramatically reduced. The result is the longest possible tap life, 100 % improvement or more, and much better quality threads.



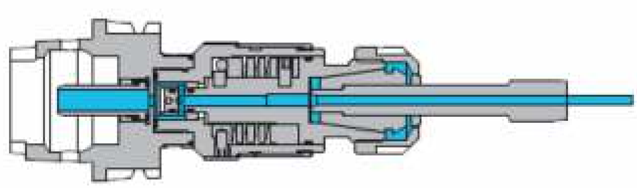

By limiting the axial compensation travel, and torsional forces acting on the flexure, millions of holes can be tapped without causing the MasterSYNC holder to fatigue, take a set, or wear out.




### High Pressure Internal Coolant and MQL (Minimum Quantity Lubrication )

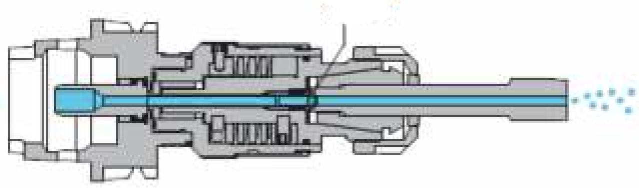
High pressure internal coolant system may be used at pressures up to 80 bar without affecting the axial compensation. Fanar can provide tools ready for Minimum Quantity Lubrication through the spindle. Our system provides direct flow of air and lubricant to the back of the tap.

IK



*High Pressure Internal Coolant with increased flow rates*

MQL




*Minimum Quantity Lubrication Available for 1 channel or Multi channel systems*

## 9.4. Toolholders balance

### Definition of unbalance

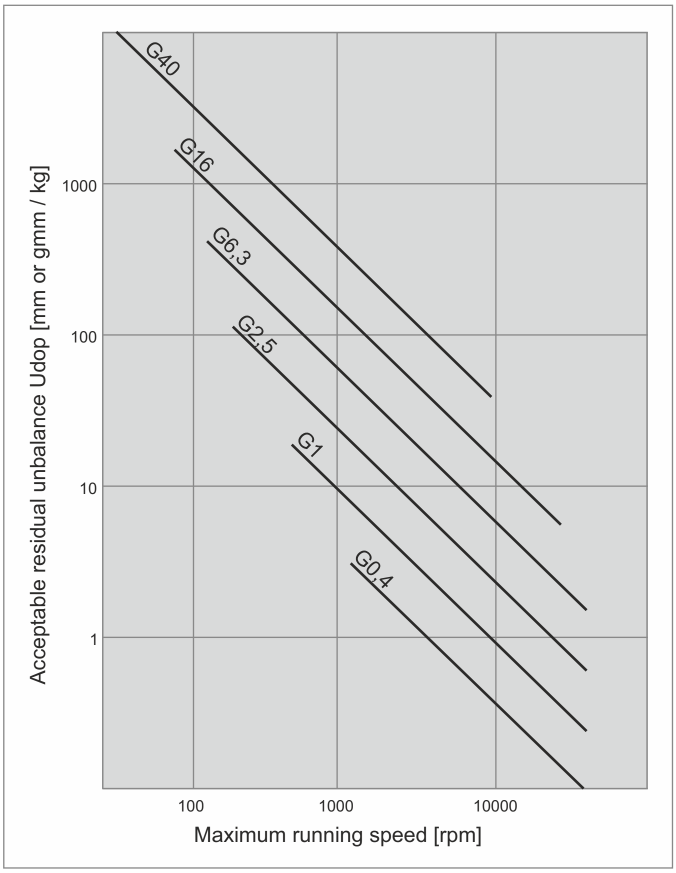
Unbalance is a displacement of the center of gravity of the rotating mass from the axis of rotation. The rotating mass includes: machine spindle, toolholder, intermediate components (collets), other additional elements of toolholders (nuts) and tool The reason of unbalance is geometric asymmetry, tolerance of, mounting errors, etc. Unbalance causes vibration of the setup, which reduce tool life and decrease quality of machining.To limit to an acceptable level of unbalance minimize clearances on the spindle and set suitable tools and toolholders. For most demanding applications it may be necessary not only balancing the toolholders, but also the tools.

### Balancing

Balancing is to reduce the unbalance by moving the center of rotating mass in the direction of the axis. This is done by ensuring the proper geometry and adding additional weight or removing. This target can only be achieved to some degree, as will always be residual unbalance.

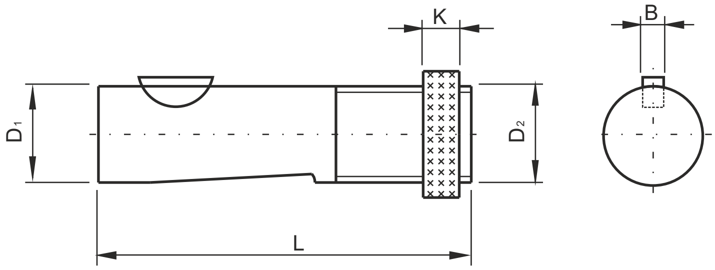
### Balance accuracy classes

From an economic perspective it is not profitable too much tightening of requirements for rotating mass balance. In order to achieve a compromise between the technical and economic aspects, norm ISO 1940 introduced balance accuracy classes. It identifies the types of applications for each class, and so:
- G6,3 class is designed for machine parts and general use machines
- G2,5 class is designed for high speed machine parts.



## 9.5. Toolholders shanks

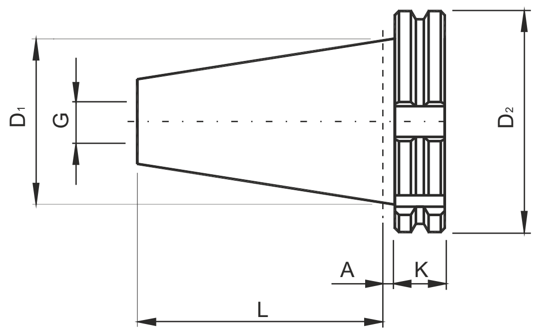
### *TR wg DIN-6327*




| Shank | $D_1$ | $D_2$ | L | B | K |
|---|---|---|---|---|---|
| TR20 | 20 | TR20x1,5 | 88 | 5 | 12 |
| TR28 | 28 | TR28x2 | 95 | 6 | 12 |
| TR36 | 36 | TR36x2 | 118 | 8 | 14 |
| TR48 | 48 | TR48x2 | 144 | 10 | 18 |

**Features:**
- Toolholders made of nickel-chromium-molybdenum steel, carburized and hardened to 58HRC.
- Precision grinded shank in g5 tolerance.

### *ISO wg DIN-69871 A*

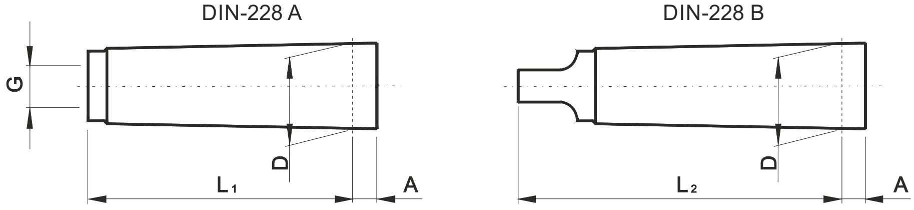



| Tapper | $D_1$ | $D_2$ | L | A | K | G |
|---|---|---|---|---|---|---|
| ISO30 | 31,75 | 50,00 | 47,80 | 3,2 | 15,9 | M12 |
| ISO40 | 44,45 | 63,55 | 68,40 | 3,2 | 15,9 | M16 |
| ISO50 | 69,85 | 97,50 | 101,75 | 3,2 | 15,9 | M24 |

**Versions:**
- DIN-69871 A - shank without internal cooling
- DIN-69871 AD - with a central hole
- DIN-69871 AD+B - with a central hole and the holes in the flange

**Features:**
- Toolholders for machines with automatic tool changing
- For toolholder mounting in the machine are used pull studs
- Toolholders made of nickel-chromium-molybdenum steel, carburized and hardened to 58HRC.
- Surface of taper precision grinded in AT3 class.
- Tool sockets made of 0,007 mm maximum runouts.
- Body balanced in G6,3/8000rpm class in standard version

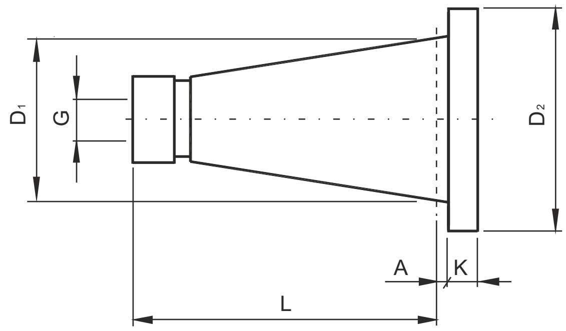
## MORSE'A wg DIN-228




| Taper | D | A | $L_1$ | $L_2$ | G |
|---|---|---|---|---|---|
| MK1 | 12,065 | 3,5 | 53,5 | 62,0 | M6 |
| MK2 | 17,780 | 5,0 | 64,0 | 75,0 | M10 |
| MK3 | 23,825 | 5,0 | 81,0 | 94,0 | M12 |
| MK4 | 31,267 | 6,5 | 102,5 | 117,5 | M16 |
| MK5 | 44,399 | 6,5 | 129,5 | 149,5 | M20 |

**Features:**
- Toolholders made of nickel-chromium-molybdenum steel, carburized and hardened to 58HRC.
- Connecting surfaces precision grinded in AT3 class.

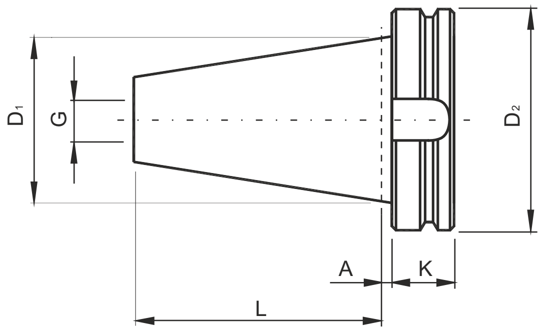
## DIN wg DIN-2080




| Taper | $D_1$ | $D_2$ | L | A | K | G |
|---|---|---|---|---|---|---|
| DIN30 | 31,75 | 50,0 | 68,4 | 1,6 | 8 | M12 |
| DIN40 | 44,45 | 63,0 | 93,4 | 1,6 | 10 | M16 |
| DIN50 | 69,85 | 97,5 | 126,8 | 3,2 | 12 | M24 |

**Features:**
- Toolholders made of nickel-chromium-molybdenum steel, carburized and hardened to 58HRC.
- Surface of taper precision grinded in AT3 class.
- Tool sockets made of 0,007 mm maximum runouts.

## MAS BT wg JIS B6339

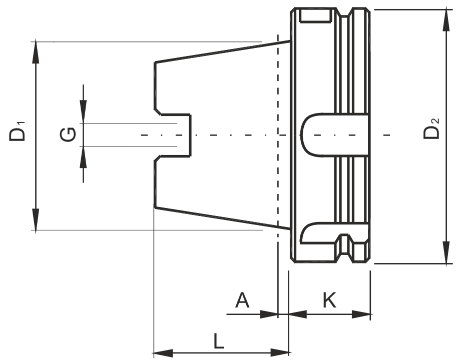



| Taper | $D_1$ | $D_2$ | L | A | K | G |
|---|---|---|---|---|---|---|
| BT30 | 31,75 | 46 | 48,4 | 2 | 22 | M12 |
| BT40 | 44,45 | 63 | 65,4 | 2 | 27 | M16 |
| BT50 | 69,85 | 100 | 101,8 | 3 | 38 | M24 |

**Versions:**
- shank without internal cooling
- with a central hole
- with a central hole and the holes in the flange

**Features:**
- Toolholders for machines with automatic tool changing
- For toolholder mounting in the machine are used pull studs
- Toolholders made of nickel-chromium-molybdenum steel, carburized and hardened to 58HRC.
- Surface of taper precision grinded in AT3 class.
- Tool sockets made of 0,007 mm maximum runouts.
- Maximum running speed 10 000 rpm in standard version

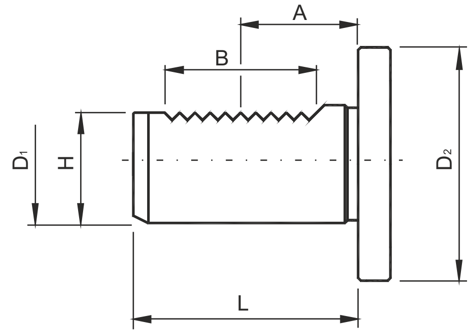
## HSK wg DIN-69893 A




| Taper | $D_1$ | $D_2$ | L | A | K | G |
|---|---|---|---|---|---|---|
| HSK40 | 30 | 40 | 20 | 4,0 | 20 | M12x1 |
| HSK50 | 38 | 50 | 25 | 5,0 | 26 | M16x1 |
| HSK63 | 48 | 63 | 32 | 6,3 | 26 | M18x1 |
| HSK80 | 60 | 80 | 40 | 8,0 | 26 | M20x1,5 |
| HSK100 | 75 | 100 | 50 | 10,0 | 29 | M24x1,5 |

**Features:**
- Toolholders for machines with automatic tool changing
- Toolholders made of nickel-chromium-molybdenum steel, carburized and hardened to 58HRC.
- Surface of taper precision grinded in AT3 class.
- Tool sockets made of 0,007 mm maximum runouts.
- Body balanced in G6,3/8000rpm class in standard version
- Shank design provides axial positioning accuracy, high rigidity, high torque transfer at high speeds

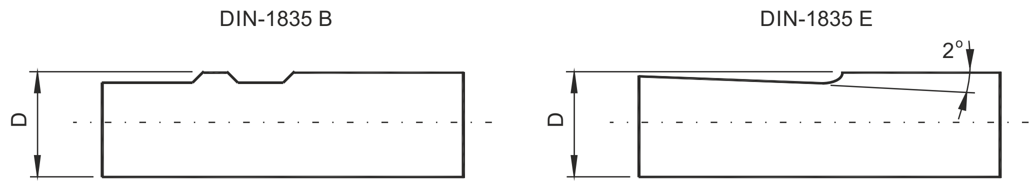
## VDI wg DIN-69880




| Shank | $D_1$ | $D_2$ | H | L | A | B |
|---|---|---|---|---|---|---|
| VDI20 | 20 | 50 | 18 | 40 | 21,7 | 24 |
| VDI25 | 25 | 58 | 23,5 | 48 | 21,7 | 24 |
| VDI30 | 30 | 68 | 27 | 55 | 29,7 | 40 |
| VDI40 | 40 | 83 | 36 | 63 | 29,7 | 40 |
| VDI50 | 50 | 98 | 45 | 78 | 35,7 | 48 |

**Features:**
- Toolholders are made of chrome-manganese steel, carburized and hardened to 58HRC
- Cylindrical surface of shank is grinded in h6 tolerance

## CYLINDRICAL wg DIN-1835




| Weldon Shank | D |
|---|---|
| W20 | 20 |
| W25 | 25 |
| W32 | 32 |
| W40 | 40 |
| W50 | 50 |

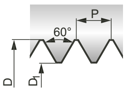
**Versions:**
- DIN-1835 A - straight cylindrical shank
- DIN-1835 B - WELDON: cylindrical shank with flats parallel to the axis of the cylinder
- DIN-1835 E - WHISTLE-NOTCH: cylindrical shank with 2  degrees of flattening

**Features:**
- Toolholders made of nickel-chromium-molybdenum steel, carburized and hardened to 58HRC.
- Cylindrical surface of shank is grinded in h6 tolerance

# 10. INFORMATION TABLE

## 10.1. Recommended Hole Diameters for Taps

### ISO Metric Threads




### M ISO Metric coarse thread DIN 13

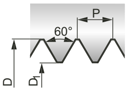
| Nom. size D mm | Nom. size P mm | $D_1$ (6H) min. mm | $D_1$ (6H) max. mm | mm |
|---|---|---|---|---|
| M 1 | 0,25 | 0,729 | 0,785 | 0,75 |
| 1,1 | 0,25 | 0,829 | 0,885 | 0,85 |
| 1,2 | 0,25 | 0,929 | 0,985 | 0,95 |
| 1,4 | 0,3 | 1,075 | 1,142 | 1,1 |
| 1,6 | 0,35 | 1,221 | 1,321 | 1,25 |
| 1,7 | 0,35 | 1,321 | 1,421 | 1,35 |
| 1,8 | 0,35 | 1,421 | 1,521 | 1,45 |
| 2 | 0,4 | 1,567 | 1,679 | 1,6 |
| 2,2 | 0,45 | 1,713 | 1,838 | 1,75 |
| 2,3 | 0,4 | 1,867 | 1,979 | 1,9 |
| 2,5 | 0,45 | 2,013 | 2,138 | 2,05 |
| 2,6 | 0,45 | 2,113 | 2,238 | 2,15 |
| 3 | 0,5 | 2,459 | 2,599 | 2,5 |
| 3,5 | 0,6 | 2,850 | 3,010 | 2,9 |
| 4 | 0,7 | 3,242 | 3,422 | 3,3 |
| 4,5 | 0,75 | 3,688 | 3,878 | 3,7 |
| 5 | 0,8 | 4,134 | 4,334 | 4,2 |
| 5,5 | 0,9 | 4,526 | 4,750 | 4,6 |
| 6 | 1 | 4,917 | 5,153 | 5 |
| 7 | 1 | 5,917 | 6,153 | 6 |
| 8 | 1,25 | 6,647 | 6,912 | 6,8 |
| 9 | 1,25 | 7,647 | 7,912 | 7,8 |
| 10 | 1,5 | 8,376 | 8,676 | 8,5 |
| 11 | 1,5 | 9,376 | 9,676 | 9,5 |
| 12 | 1,75 | 10,106 | 10,441 | 10,2 |
| 14 | 2 | 11,835 | 12,210 | 12 |
| 16 | 2 | 13,835 | 14,210 | 14 |
| 18 | 2,5 | 15,294 | 15,744 | 15,5 |
| 20 | 2,5 | 17,294 | 17,744 | 17,5 |
| 22 | 2,5 | 19,294 | 19,744 | 19,5 |
| 24 | 3 | 20,752 | 21,252 | 21 |
| 27 | 3 | 23,752 | 24,252 | 24 |
| 30 | 3,5 | 26,211 | 26,771 | 26,5 |
| 33 | 3,5 | 29,211 | 29,771 | 29,5 |
| 36 | 4 | 31,670 | 32,270 | 32 |
| 39 | 4 | 34,670 | 35,270 | 35 |
| 42 | 4,5 | 37,129 | 37,799 | 37,5 |
| 45 | 4,5 | 40,129 | 40,799 | 40,5 |
| 48 | 5 | 42,587 | 43,297 | 43 |
| 52 | 5 | 46,587 | 47,297 | 47 |
| 56 | 5,5 | 50,046 | 50,796 | 50,5 |
| 60 | 5,5 | 54,046 | 54,796 | 54,5 |
| 64 | 6 | 57,505 | 58,305 | 58 |
| 68 | 6 | 61,505 | 62,305 | 62 |

### MF ISO Metric fine thread DIN 13

| Nom. size D x P mm | $D_1$ (6H) min. mm | $D_1$ (6H) max. mm | mm | Nom. size D x P mm | $D_1$ (6H) min. mm | $D_1$ (6H) max. mm | mm |
|---|---|---|---|---|---|---|---|
| M 2,5 x 0,35 | 2,121 | 2,221 | 2,15 | M 35 x 1,5 | 33,376 | 33,676 | 33,5 |
| 2,6 x 0,35 | 2,221 | 2,321 | 2,25 | 36 x 1,5 | 34,376 | 34,676 | 34,5 |
| 3 x 0,35 | 2,621 | 2,721 | 2,65 | 36 x 2 | 33,835 | 34,210 | 34 |
| 3,5 x 0,35 | 3,121 | 3,221 | 3,15 | 36 x 3 | 32,752 | 33,252 | 33 |
| 4 x 0,35 | 3,621 | 3,721 | 3,65 | 38 x 1,5 | 36,376 | 36,676 | 36,5 |
| 4 x 0,5 | 3,459 | 3,599 | 3,5 | 39 x 1,5 | 37,376 | 37,676 | 37,5 |
| 5 x 0,5 | 4,459 | 4,599 | 4,5 | 39 x 2 | 36,835 | 37,210 | 37 |
| 6 x 0,5 | 5,459 | 5,599 | 5,5 | 39 x 3 | 35,752 | 36,252 | 36 |
| 6 x 0,75 | 5,188 | 5,378 | 5,2 | 40 x 1,5 | 38,376 | 38,676 | 38,5 |
| 7 x 0,75 | 6,188 | 6,378 | 6,2 | 40 x 2 | 37,835 | 38,210 | 38 |
| 8 x 0,75 | 7,188 | 7,378 | 7,2 | 42 x 1,5 | 40,376 | 40,676 | 40,5 |
| 8 x 1 | 6,917 | 7,153 | 7 | 42 x 2 | 39,835 | 40,210 | 40 |
| 9 x 0,75 | 8,188 | 8,378 | 8,2 | 42 x 3 | 38,752 | 39,252 | 39 |
| 9 x 1 | 7,917 | 8,153 | 8 | 45 x 1,5 | 43,376 | 43,676 | 43,5 |
| 10 x 0,75 | 9,188 | 9,378 | 9,2 | 45 x 2 | 42,835 | 43,210 | 43 |
| 10 x 1 | 8,917 | 9,153 | 9 | 45 x 3 | 41,752 | 42,252 | 42 |
| 10 x 1,25 | 8,647 | 8,912 | 8,8 | 48 x 1,5 | 46,376 | 46,676 | 46,5 |
| 11 x 1 | 9,917 | 10,153 | 10 | 48 x 2 | 45,835 | 46,210 | 46 |
| 12 x 1 | 10,917 | 11,153 | 11 | 48 x 3 | 44,752 | 45,252 | 45 |
| 12 x 1,25 | 10,647 | 10,912 | 10,8 | 50 x 1,5 | 48,376 | 48,676 | 48,5 |
| 12 x 1,5 | 10,376 | 10,676 | 10,5 | 50 x 2 | 47,835 | 48,210 | 48 |
| 14 x 1 | 12,917 | 13,153 | 13 | 52 x 1,5 | 50,376 | 50,676 | 50,5 |
| 14 x 1,25 | 12,647 | 12,912 | 12,8 | 52 x 2 | 49,835 | 50,210 | 50 |
| 14 x 1,5 | 12,376 | 12,676 | 12,5 | 52 x 3 | 48,752 | 49,252 | 49 |
| 15 x 1 | 13,917 | 14,153 | 14 | 56 x 3 | 52,752 | 53,252 | 53 |
| 16 x 1 | 14,917 | 15,153 | 15 | 56 x 4 | 51,670 | 52,270 | 52 |
| 16 x 1,5 | 14,376 | 14,676 | 14,5 | 60 x 4 | 55,670 | 56,270 | 56 |
| 18 x 1 | 16,917 | 17,153 | 17 | 64 x 3 | 60,752 | 61,252 | 61 |
| 18 x 1,5 | 16,376 | 16,676 | 16,5 | 64 x 4 | 59,670 | 60,270 | 60 |
| 18 x 2 | 15,835 | 16,210 | 16 | 68 x 4 | 63,670 | 64,270 | 64 |
| 20 x 1 | 18,917 | 19,153 | 19 | 70 x 3 | 66,752 | 67,252 | 67 |
| 20 x 1,5 | 18,376 | 18,676 | 18,5 | 70 x 4 | 65,670 | 66,270 | 66 |
| 20 x 2 | 17,835 | 18,210 | 18 | 72 x 3 | 68,752 | 69,252 | 69 |
| 22 x 1 | 20,917 | 21,153 | 21 | 72 x 4 | 67,670 | 68,270 | 68 |
| 22 x 1,5 | 20,376 | 20,676 | 20,5 | 72 x 6 | 65,505 | 66,305 | 66 |
| 22 x 2 | 19,835 | 20,210 | 20 | 76 x 3 | 72,752 | 73,252 | 73 |
| 24 x 1 | 22,917 | 23,153 | 23 | 76 x 4 | 71,670 | 72,270 | 72 |
| 24 x 1,5 | 22,376 | 22,676 | 22,5 | 76 x 6 | 69,505 | 70,305 | 70 |
| 24 x 2 | 21,835 | 22,210 | 22 | 80 x 4 | 75,670 | 76,270 | 76 |
| 25 x 1,5 | 23,376 | 23,676 | 23,5 | 80 x 6 | 73,505 | 74,305 | 74 |
| 26 x 1,5 | 24,376 | 24,676 | 24,5 | 85 x 3 | 81,752 | 82,252 | 82 |
| 27 x 1,5 | 25,376 | 25,676 | 25,5 | 85 x 4 | 80,670 | 81,270 | 81 |
| 27 x 2 | 24,835 | 25,210 | 25 | 90 x 3 | 86,752 | 87,252 | 87 |
| 28 x 1,5 | 26,376 | 26,676 | 26,5 | 90 x 4 | 85,670 | 86,270 | 86 |
| 28 x 2 | 25,835 | 26,210 | 26 | 90 x 6 | 83,505 | 84,305 | 84 |
| 30 x 1,5 | 28,376 | 28,676 | 28,5 | 95 x 6 | 88,505 | 89,305 | 89 |
| 30 x 2 | 27,835 | 28,210 | 28 | 100 x 4 | 95,670 | 96,270 | 96 |
| 32 x 1,5 | 30,376 | 30,676 | 30,5 | 100 x 6 | 93,505 | 94,305 | 94 |
| 32 x 2 | 29,835 | 30,210 | 30 | 110 x 6 | 103,505 | 104,305 | 104 |
| 33 x 1,5 | 31,376 | 31,676 | 31,5 | 115 x 3 | 111,752 | 112,252 | 112 |
| 33 x 2 | 30,835 | 31,210 | 31 | 120 x 4 | 115,670 | 116,270 | 116 |
| 34 x 1,5 | 32,376 | 32,676 | 32,5 | 120 x 6 | 113,505 | 114,305 | 114 |

## 10.1. Thread Hole Preparatory Diameters

### Unified Threads




### UNC Unified coarse thread ANSI/ASME B1.1

| Nom. size | | | $D_1$ (2B) | | |
|---|---|---|---|---|---|
| D inch | - | Gg/1" (tpi) | min. mm | max. mm | mm |
| Nr. 1 | - | 64 | 1,425 | 1,582 | 1,55 |
| Nr. 2 | - | 56 | 1,694 | 1,872 | 1,85 |
| Nr. 3 | - | 48 | 1,941 | 2,146 | 2,1 |
| Nr. 4 | - | 40 | 2,156 | 2,385 | 2,35 |
| Nr. 5 | - | 40 | 2,487 | 2,697 | 2,65 |
| Nr. 6 | - | 32 | 2,647 | 2,896 | 2,85 |
| Nr. 8 | - | 32 | 3,307 | 3,528 | 3,5 |
| Nr. 10 | - | 24 | 3,680 | 3,949 | 3,9 |
| Nr. 12 | - | 24 | 4,341 | 4,590 | 4,5 |
| 1/4 | - | 20 | 4,976 | 5,268 | 5,1 |
| 5/16 | - | 18 | 6,411 | 6,734 | 6,6 |
| 3/8 | - | 16 | 7,805 | 8,164 | 8 |
| 7/16 | - | 14 | 9,149 | 9,550 | 9,4 |
| 1/2 | - | 13 | 10,584 | 11,016 | 10,8 |
| 9/16 | - | 12 | 11,996 | 12,456 | 12,2 |
| 5/8 | - | 11 | 13,376 | 13,868 | 13,5 |
| 3/4 | - | 10 | 16,299 | 16,833 | 16,5 |
| 7/8 | - | 9 | 19,169 | 19,748 | 19,5 |
| 1" | - | 8 | 21,963 | 22,598 | 22,25 |
| 1 1/8 | - | 7 | 24,648 | 25,349 | 25 |
| 1 1/4 | - | 7 | 27,823 | 28,524 | 28 |
| 1 3/8 | - | 6 | 30,343 | 31,120 | 30,75 |
| 1 1/2 | - | 6 | 33,518 | 34,295 | 34 |
| 1 3/4 | - | 5 | 38,951 | 39,814 | 39,5 |
| 2" | - | 4 1/2 | 44,689 | 45,598 | 45 |

### UNF Unified coarse thread ANSI/ASME B1.1

| Nom. size | | | $D_1$ (2B) | | |
|---|---|---|---|---|---|
| D inch | - | Gg/1" (tpi) | min. mm | max. mm | mm |
| Nr. 2 | - | 64 | 1,755 | 1,913 | 1,85 |
| Nr. 3 | - | 56 | 2,024 | 2,197 | 2,15 |
| Nr. 4 | - | 48 | 2,271 | 2,459 | 2,4 |
| Nr. 5 | - | 44 | 2,550 | 2,741 | 2,7 |
| Nr. 6 | - | 40 | 2,817 | 3,012 | 2,95 |
| Nr. 8 | - | 36 | 3,401 | 3,597 | 3,5 |
| Nr. 10 | - | 32 | 3,967 | 4,168 | 4,1 |
| Nr. 12 | - | 28 | 4,503 | 4,716 | 4,6 |
| 1/4 | - | 28 | 5,367 | 5,580 | 5,5 |
| 5/16 | - | 24 | 6,792 | 7,038 | 6,9 |
| 3/8 | - | 24 | 8,379 | 8,626 | 8,5 |
| 7/16 | - | 20 | 9,738 | 10,030 | 9,9 |
| 1/2 | - | 20 | 11,326 | 11,618 | 11,5 |
| 9/16 | - | 18 | 12,761 | 13,084 | 12,9 |
| 5/8 | - | 18 | 14,348 | 14,671 | 14,5 |
| 3/4 | - | 16 | 17,330 | 17,689 | 17,5 |
| 7/8 | - | 14 | 20,262 | 20,663 | 20,4 |
| 1" | - | 12 | 23,109 | 23,569 | 23,25 |
| 1 1/8 | - | 12 | 26,284 | 26,744 | 26,5 |
| 1 1/4 | - | 12 | 29,459 | 29,919 | 29,5 |
| 1 3/8 | - | 12 | 32,634 | 33,094 | 32,75 |
| 1 1/2 | - | 12 | 35,809 | 36,269 | 36 |

### UN-8

| Nom. size | | | $D_1$ (2B) | | |
|---|---|---|---|---|---|
| D inch | - | Gg/1" (tpi) | min. mm | max. mm | mm |
| 1 1/8 | - | 8 | 25,138 | 25,773 | 25,4 |
| 1 1/4 | - | 8 | 28,313 | 28,948 | 28,6 |
| 1 1/2 | - | 8 | 34,663 | 35,298 | 35 |
| 1 3/4 | - | 8 | 41,013 | 41,648 | 41,3 |
| 2" | - | 8 | 47,363 | 47,998 | 47,7 |

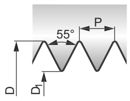
### UNEF

| Nom. size | | | $D_1$ (2B) | | |
|---|---|---|---|---|---|
| D inch | - | Gg/1" (tpi) | min. mm | max. mm | mm |
| 1/4 | - | 32 | 5,491 | 5,679 | 5,55 |
| 5/16 | - | 32 | 7,079 | 7,267 | 7,15 |
| 3/8 | - | 32 | 8,666 | 8,854 | 8,7 |
| 7/16 | - | 28 | 10,130 | 10,343 | 10,2 |
| 1/2 | - | 28 | 11,717 | 11,930 | 11,8 |
| 9/16 | - | 24 | 13,142 | 13,388 | 13,2 |
| 5/8 | - | 24 | 14,729 | 14,975 | 14,8 |
| 3/4 | - | 20 | 17,676 | 17,968 | 17,8 |
| 7/8 | - | 20 | 20,851 | 21,143 | 20,95 |
| 1" | - | 20 | 24,026 | 24,318 | 24,15 |

# Cylindrical PipeThreads

## G

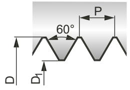
Whitworth pipe thread DIN EN ISO 228




| Nom. size D | - P/1" (tpi) | D1 min. mm | D1 max. mm | mm |
|---|---|---|---|---|
| G 1/16 | - 28 | 6,561 | 6,843 | 6,8 |
| 1/8 | - 28 | 8,566 | 8,848 | 8,8 |
| 1/4 | - 19 | 11,445 | 11,890 | 11,8 |
| 3/8 | - 19 | 14,950 | 15,395 | 15,25 |
| 1/2 | - 14 | 18,631 | 19,172 | 19 |
| 5/8 | - 14 | 20,587 | 21,128 | 21 |
| 3/4 | - 14 | 24,117 | 24,658 | 24,5 |
| 7/8 | - 14 | 27,877 | 28,418 | 28,25 |
| 1" | - 11 | 30,291 | 30,931 | 30,75 |
| 1 1/8 | - 11 | 34,939 | 35,579 | 35,5 |
| 1 1/4 | - 11 | 38,952 | 39,592 | 39,5 |
| 1 3/8 | - 11 | 41,365 | 42,005 | 41,75 |
| 1 1/2 | - 11 | 44,845 | 45,485 | 45,25 |
| 1 5/8 | - 11 | 49,030 | 49,670 | 49,5 |
| 1 3/4 | - 11 | 50,788 | 51,428 | 51 |
| 2" | - 11 | 56,656 | 57,296 | 57 |
| 2 1/4 | - 11 | 62,752 | 63,392 | 63,3 |
| 2 1/2 | - 11 | 72,226 | 72,866 | 72,8 |
| 2 3/4 | - 11 | 78,576 | 79,216 | 79,1 |
| 3" | - 11 | 84,926 | 85,566 | 85,5 |

## NPSM

American Standard straight pipe thread
ANSI/ASME B1.20.1
for mechanical joints (previously NPS)




| Nom. size D inch | - P/1" (tpi) | D1 min. mm | D1 max. mm | mm |
|---|---|---|---|---|
| 1/8 | - 27 | 9,093 | 9,246 | 9,1 |
| 1/4 | - 18 | 11,887 | 12,217 | 12 |
| 3/8 | - 18 | 15,316 | 15,545 | 15,5 |
| 1/2 | - 14 | 18,974 | 19,279 | 19 |
| 3/4 | - 14 | 24,333 | 24,638 | 24,5 |
| 1" | - 11 1/2 | 30,505 | 30,759 | 30,5 |

## NPSF

American Standard straight pipe thread
ANSI B1.20.3
dryseal internal straight pipe thread for fuel,
combined with external tapered pipe thread NPTF
or PTF-SAE-SHORT; Gauge with tapered gauges

| Nom. size D inch | - P/1" (tpi) | D1 min. mm | D1 max. mm | mm |
|---|---|---|---|---|
| 1/16 | - 27 | 6,304 | 6,393 | 6,35 |
| 1/8 | - 27 | 8,651 | 8,740 | 8,7 |
| 1/4 | - 18 | 11,232 | 11,364 | 11,3 |
| 3/8 | - 18 | 14,671 | 14,803 | 14,75 |
| 1/2 | - 14 | 18,118 | 18,288 | 18,2 |
| 3/4 | - 14 | 23,465 | 23,635 | 23,5 |
| 1" | - 11 1/2 | 29,464 | 29,670 | 29,5 |

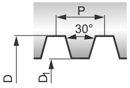
## Rp (BSPP)

Cylindrical Whitworth pipe thread DIN EN 10226-1 and ISO 7-1
where pressure-tight joints are made on the threads

| Nom. size D | - P/1" (tpi) | D1 min. mm | D1 max. mm | mm |
|---|---|---|---|---|
| Rp1/16 | - 28 | 6,490 | 6,632 | 6,55 |
| 1/8 | - 28 | 8,495 | 8,637 | 8,6 |
| 1/4 | - 19 | 11,341 | 11,549 | 11,5 |
| 3/8 | - 19 | 14,846 | 15,054 | 15 |
| 1/2 | - 14 | 18,489 | 18,773 | 18,5 |
| 3/4 | - 14 | 23,975 | 24,259 | 24 |
| 1" | - 11 | 30,111 | 30,471 | 30,25 |

# Trapezoidal and Round Threads

## Tr ISO Metric trapezoidal coarse thread DIN 103

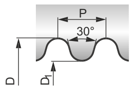



| Nom. size D x P (mm x mm) | $D_1$ (7H) min. mm | $D_1$ (7H) max. mm | mm |
|---|---|---|---|
| Tr 8 x 1,5 | 6,5 | 6,69 | 6,6 |
| 9 x 2 | 7 | 7,236 | 7,2 |
| 10 x 2 | 8 | 8,236 | 8,2 |
| 10 x 3 | 7 | 7,315 | 7,25 |
| 11 x 3 | 8 | 8,315 | 8,25 |
| 12 x 3 | 9 | 9,315 | 9,25 |
| 14 x 3 | 11 | 11,315 | 11,25 |
| 14 x 4 | 10 | 10,375 | 10,25 |
| 16 x 4 | 12 | 12,375 | 12,25 |
| 18 x 4 | 14 | 14,375 | 14,25 |
| 20 x 4 | 16 | 16,375 | 16,25 |
| 22 x 5 | 17 | 17,45 | 17,25 |
| 24 x 5 | 19 | 19,45 | 19,25 |
| 26 x 5 | 21 | 21,45 | 21,25 |
| 28 x 5 | 23 | 23,45 | 23,25 |
| 30 x 6 | 24 | 24,5 | 24,25 |
| 32 x 6 | 26 | 26,5 | 26,25 |
| 34 x 6 | 28 | 28,5 | 28,25 |
| 36 x 6 | 30 | 30,5 | 30,25 |
| 38 x 7 | 31 | 31,56 | 31,5 |
| 40 x 7 | 33 | 33,56 | 33,5 |
| 42 x 7 | 35 | 35,56 | 35,5 |
| 44 x 7 | 37 | 37,56 | 37,5 |
| 46 x 8 | 38 | 38,63 | 38,5 |
| 48 x 8 | 40 | 40,63 | 40,5 |
| 50 x 8 | 42 | 42,63 | 42,5 |
| 52 x 8 | 44 | 44,63 | 44,5 |

## BSF

| Nom. size D - P/1" (tpi) | $D_1$ min. mm | $D_1$ max. mm | mm |
|---|---|---|---|
| BSF 3/16 - 32 | 3,747 | 4,006 | 4 |
| 1/4 - 26 | 5,100 | 5,398 | 5,3 |
| 5/16 - 22 | 6,459 | 6,817 | 6,8 |
| 3/8 - 20 | 7,899 | 8,331 | 8,3 |
| 7/16 - 18 | 9,304 | 9,764 | 9,7 |
| 1/2 - 16 | 10,668 | 11,163 | 11,1 |
| 5/8 - 14 | 13,553 | 14,094 | 14 |
| 3/4 - 12 | 16,337 | 16,939 | 16,75 |
| 7/8 - 11 | 19,268 | 19,909 | 19,75 |
| 1" - 10 | 22,149 | 22,835 | 22,75 |

## Rd Round thread DIN 405




| Nom. size D x P/1" (mm x tpi) | $D_1$ (7H) min. mm | $D_1$ (7H) max. mm | mm |
|---|---|---|---|
| Rd 8 x 10 | 5,714 | 6,164 | 6 |
| 9 x 10 | 6,714 | 7,164 | 7 |
| 10 x 10 | 7,714 | 8,164 | 8 |
| 11 x 10 | 8,714 | 9,164 | 9 |
| 12 x 10 | 9,714 | 10,164 | 10 |
| 14 x 8 | 11,142 | 11,672 | 11,5 |
| 16 x 8 | 13,142 | 13,672 | 13,5 |
| 18 x 8 | 15,142 | 15,672 | 15,5 |
| 20 x 8 | 17,142 | 17,672 | 17,5 |
| 22 x 8 | 19,142 | 19,672 | 19,5 |
| 24 x 8 | 21,142 | 21,672 | 21,5 |
| 26 x 8 | 23,142 | 23,672 | 23,5 |
| 28 x 8 | 25,142 | 25,672 | 25,5 |
| 30 x 8 | 27,142 | 27,672 | 27,5 |

## BSW

| Nom. size D - P/1" (tpi) | $D_1$ min. mm | $D_1$ max. mm | mm |
|---|---|---|---|
| BSW 1/16 - 60 | 1,045 | 1,230 | 1,15 |
| 3/32 - 48 | 1,704 | 1,912 | 1,85 |
| 1/8 - 40 | 2,362 | 2,591 | 2,55 |
| 5/32 - 32 | 2,952 | 3,214 | 3,2 |
| 3/16 - 24 | 3,406 | 3,744 | 3,7 |
| 7/32 - 24 | 4,201 | 4,539 | 4,5 |
| 1/4 - 20 | 4,724 | 5,156 | 5,1 |
| 5/16 - 18 | 6,129 | 6,589 | 6,5 |
| 3/8 - 16 | 7,493 | 7,988 | 7,9 |
| 7/16 - 14 | 8,791 | 9,332 | 9,25 |
| 1/2 - 12 | 9,987 | 10,589 | 10,5 |
| 9/16 - 12 | 11,575 | 12,177 | 12 |
| 5/8 - 11 | 12,918 | 13,559 | 13,5 |
| 3/4 - 10 | 15,799 | 16,485 | 16,4 |
| 7/8 - 9 | 18,613 | 19,355 | 19,25 |
| 1" - 8 | 21,336 | 22,149 | 22 |
| 1 1/8 - 7 | 23,927 | 24,831 | 24,75 |
| 1 1/4 - 7 | 27,102 | 28,006 | 27,75 |
| 1 3/8 - 6 | 29,504 | 30,528 | 30,5 |
| 1 1/2 - 6 | 32,680 | 33,703 | 33,5 |
| 1 5/8 - 5 | 34,769 | 35,963 | 35,5 |
| 1 3/4 - 5 | 37,943 | 39,136 | 39 |
| 1 7/8 - 4 1/ | 40,396 | 41,702 | 41,5 |
| 2" - 4 1/ | 43,571 | 44,877 | 44,5 |

# Tapered Pipe Threads

## Rc (BSPT)

Tapered Whitworth pipe thread DIN EN 10226-2 and ISO 7-1 where pressure-tight joints are made on the threads, taper 1:16

| Nom. size D inch | - | P/1" (tpi) | $D_1$ mm | $t_1$ mm | $t_4$ mm |
|---|---|---|---|---|---|
| Rc1/16 | - | 28 | 6,15 | 11,1 | 9,5 |
| 1/8 | - | 28 | 8,15 | 11,1 | 9,5 |
| 1/4 | - | 19 | 10,85 | 16,3 | 14 |
| 3/8 | - | 19 | 14,3 | 16,7 | 14,4 |
| 1/2 | - | 14 | 17,8 | 22,3 | 19,1 |
| 3/4 | - | 14 | 23,2 | 23,6 | 20,4 |
| 1" | - | 11 | 29,2 | 28,3 | 24,3 |

| Nom. size D inch | - | P/1" (tpi) | $D_2$ mm | $D_3$ (JS11) mm | $t_1$ mm | $t_4$ mm |
|---|---|---|---|---|---|---|
| Rc1/16 | - | 28 | 6,1 | 6,56 | 11,1 | 9,5 |
| 1/8 | - | 28 | 8,1 | 8,57 | 11,1 | 9,5 |
| 1/4 | - | 19 | 10,75 | 11,45 | 16,3 | 14 |
| 3/8 | - | 19 | 14,25 | 14,95 | 16,7 | 14,4 |
| 1/2 | - | 14 | 17,7 | 18,63 | 22,3 | 19,1 |
| 3/4 | - | 14 | 23,1 | 24,12 | 23,6 | 20,4 |
| 1" | - | 11 | 29,1 | 30,29 | 28,3 | 24,3 |

| Nom. size D inch | - | P/1" (tpi) | $D_3$ (JS11) mm | b | t min. mm | $D_4$ min. mm |
|---|---|---|---|---|---|---|
| Rc1/16 | - | 28 | 6,56 | 5,6 | 9,9 | 7,6 +0,3 |
| 1/8 | - | 28 | 8,57 | 5,6 | 9,9 | 9,6 +0,3 |
| 1/4 | - | 19 | 11,45 | 8,4 | 14,6 | 13 +0,5 |
| 3/8 | - | 19 | 14,95 | 8,8 | 15 | 16,5 +0,5 |
| 1/2 | - | 14 | 18,63 | 11,4 | 20 | 20,6 +0,5 |
| 3/4 | - | 14 | 24,12 | 12,7 | 21,3 | 26 +0,5 |
| 1" | - | 11 | 30,29 | 14,5 | 25,4 | 32,8 +0,5 |

## NPT

American tapered pipe thread ANSI/ASME B1.20.1 for threads with dryseal material taper 1:16

| Nom. size D inch | - | P/1" (tpi) | $D_1$ mm | $t_1$ mm | $t_4$ mm |
|---|---|---|---|---|---|
| 1/16 | - | 27 | 6,15 | 11,8 | 9,7 |
| 1/8 | - | 27 | 8,5 | 11,9 | 9,75 |
| 1/4 | - | 18 | 11 | 17,4 | 14,25 |
| 3/8 | - | 18 | 14,4 | 17,7 | 14,55 |
| 1/2 | - | 14 | 17,8 | 23,1 | 19 |
| 3/4 | - | 14 | 23,15 | 23,6 | 19,5 |
| 1" | - | 11 1/2 | 29,05 | 28,4 | 23,4 |
| 1 1/4 | - | 11 1/2 | 37,8 | 28,9 | 23,9 |
| 1 1/2 | - | 11 1/2 | 43,85 | 28,9 | 23,9 |
| 2" | - | 11 1/2 | 55,85 | 29,3 | 24,35 |

| Nom. size D inch | - | P/1" (tpi) | $D_2$ mm | $D_3$ +0,05 mm | $t_1$ mm | $t_4$ mm |
|---|---|---|---|---|---|---|
| 1/16 | - | 27 | 5,95 | 6,39 | 11,8 | 9,7 |
| 1/8 | - | 27 | 8,3 | 8,74 | 11,9 | 9,75 |
| 1/4 | - | 18 | 10,75 | 11,36 | 17,4 | 14,25 |
| 3/8 | - | 18 | 14,15 | 14,8 | 17,7 | 14,55 |
| 1/2 | - | 14 | 17,45 | 18,32 | 23,1 | 19 |
| 3/4 | - | 14 | 22,8 | 23,67 | 23,6 | 19,5 |
| 1" | - | 11 1/2 | 28,65 | 29,69 | 28,4 | 23,4 |
| 1 1/4 | - | 11 1/2 | 37,35 | 38,45 | 28,9 | 23,9 |
| 1 1/2 | - | 11 1/2 | 43,45 | 44,52 | 28,9 | 23,9 |
| 2" | - | 11 1/2 | 55,45 | 56,56 | 29,3 | 24,35 |

| Nom. size D inch | - | P/1" (tpi) | $D_3$ +0,05 mm | b | t min. mm | $D_4$ min. mm |
|---|---|---|---|---|---|---|
| 1/16 | - | 27 | 6,39 | 7 | 10 | 7,6 |
| 1/8 | - | 27 | 8,74 | 7 | 10 | 10 |
| 1/4 | - | 18 | 11,36 | 10,2 | 14,5 | 13,1 |
| 3/8 | - | 18 | 14,8 | 10,6 | 15 | 16,5 |
| 1/2 | - | 14 | 18,32 | 13,8 | 19 | 20,5 |
| 3/4 | - | 14 | 23,67 | 14,2 | 20 | 25,8 |
| 1" | - | 11 1/2 | 29,69 | 17 | 24 | 32,2 |
| 1 1/4 | - | 11 1/2 | 38,45 | 17,5 | 24,5 | 41 |
| 1 1/2 | - | 11 1/2 | 44,52 | 17,5 | 24,5 | 47,2 |
| 2" | - | 11 1/2 | 56,56 | 18 | 25 | 59,2 |

## NPTF

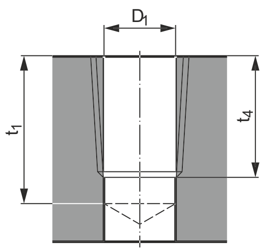
American tapered pipe thread ANSI B1.20.3 for threads without dryseal material taper 1:16

| Nom. size D inch | - | P/1" (tpi) | $D_1$ mm | $t_1$ mm | $t_4$ mm |
|---|---|---|---|---|---|
| 1/16 | - | 27 | 6,1 | 13 | 10,65 |
| 1/8 | - | 27 | 8,45 | 13 | 10,7 |
| 1/4 | - | 18 | 10,9 | 19,2 | 15,65 |
| 3/8 | - | 18 | 14,3 | 19,5 | 16 |
| 1/2 | - | 14 | 17,6 | 25,4 | 20,85 |
| 3/4 | - | 14 | 23 | 25,9 | 21,3 |
| 1" | - | 11 1/2 | 28,75 | 31,1 | 25,6 |
| 1 1/4 | - | 11 1/2 | 37,5 | 31,7 | 26,15 |
| 1 1/2 | - | 11 1/2 | 43,75 | 31,7 | 26,15 |
| 2" | - | 11 1/2 | 55,75 | 32,1 | 26,55 |

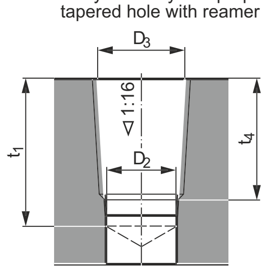
| Nom. size D inch | - | P/1" (tpi) | $D_2$ mm | $D_3$ +0,05 mm | $t_1$ mm | $t_4$ mm |
|---|---|---|---|---|---|---|
| 1/16 | - | 27 | 5,95 | 6,41 | 13 | 10,65 |
| 1/8 | - | 27 | 8,3 | 8,76 | 13 | 10,7 |
| 1/4 | - | 18 | 10,75 | 11,4 | 19,2 | 15,65 |
| 3/8 | - | 18 | 14,15 | 14,84 | 19,5 | 16 |
| 1/2 | - | 14 | 17,45 | 18,33 | 25,4 | 20,85 |
| 3/4 | - | 14 | 22,8 | 23,68 | 25,9 | 21,3 |
| 1" | - | 11 1/2 | 28,65 | 29,72 | 31,1 | 25,6 |
| 1 1/4 | - | 11 1/2 | 37,35 | 38,48 | 31,7 | 26,15 |
| 1 1/2 | - | 11 1/2 | 43,45 | 44,55 | 31,7 | 26,15 |
| 2" | - | 11 1/2 | 55,45 | 56,59 | 32,1 | 26,55 |

| Nom. size D inch | - | P/1" (tpi) | $D_3$ +0,05 mm | b | t min. mm | $D_4$ min. mm |
|---|---|---|---|---|---|---|
| 1/16 | - | 27 | 6,41 | 8 | 11 | 7,4 |
| 1/8 | - | 27 | 8,76 | 8 | 11 | 9,8 |
| 1/4 | - | 18 | 11,4 | 11,6 | 15,5 | 12,9 |
| 3/8 | - | 18 | 14,84 | 12 | 16 | 16,3 |
| 1/2 | - | 14 | 18,33 | 15,6 | 20,5 | 20,3 |
| 3/4 | - | 14 | 23,68 | 16 | 21,5 | 25,6 |
| 1" | - | 11 1/2 | 29,72 | 19,2 | 26 | 32 |
| 1 1/4 | - | 11 1/2 | 38,48 | 19,7 | 26,5 | 40,8 |
| 1 1/2 | - | 11 1/2 | 44,55 | 19,7 | 26,5 | 47 |
| 2" | - | 11 1/2 | 56,59 | 20,2 | 27 | 59 |

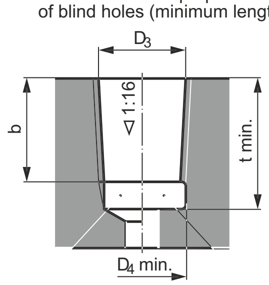
Drill cylindrically without using a reamer



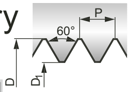

Drill cylindrically and prepare tapered hole with reamer




Recommended preparation of blind holes (minimum length)



## Threads for the Aerospace Industry




### MJ
MJ thread DIN ISO 5855

| Nom. size | | | D1 | | mm |
|---|---|---|---|---|---|
| D mm | x | P mm | min. mm | max. mm | mm |
| MJ 3 | x | 0,5 | 2,513 | 2,653 | 2,6 |
| 4 | x | 0,7 | 3,318 | 3,498 | 3,4 |
| 5 | x | 0,8 | 4,221 | 4,421 | 4,3 |
| 6 | x | 1 | 5,026 | 5,216 | 5,1 |
| 8 | x | 1 | 7,026 | 7,216 | 7,1 |
| 8 | x | 1,25 | 6,782 | 6,994 | 6,9 |
| 10 | x | 1,25 | 8,782 | 8,994 | 8,9 |
| 10 | x | 1,5 | 8,539 | 8,775 | 8,6 |

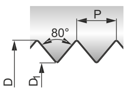
### UNJF
Unified fine thread ASME B1.15

| Nom. size | | D1 | | |
|---|---|---|---|---|
| D inch | - P/1" (tpi) | min. mm | max. mm | mm |
| Nr. 4 | - 48 | 2,329 | 2,466 | 2,4 |
| Nr. 6 | - 40 | 2,888 | 3,053 | 3 |
| Nr. 8 | - 36 | 3,480 | 3,663 | 3,55 |
| Nr. 10 | - 32 | 4,054 | 4,255 | 4,15 |
| 1/4 | - 28 | 5,466 | 5,662 | 5,55 |
| 5/16 | - 24 | 6,906 | 7,109 | 7 |
| 3/8 | - 24 | 8,494 | 8,679 | 8,6 |

### UNJC
Unified coarse thread ASME B1.15

| Nom. size | | D1 | | |
|---|---|---|---|---|
| D inch | - P/1" (tpi) | min. mm | max. mm | mm |
| Nr. 4 | - 40 | 2,228 | 2,393 | 2,3 |
| Nr. 6 | - 32 | 2,733 | 2,939 | 2,85 |
| Nr. 8 | - 32 | 3,393 | 3,599 | 3,5 |
| Nr. 10 | - 24 | 3,795 | 4,064 | 3,9 |
| 1/4 | - 20 | 5,113 | 5,387 | 5,25 |
| 5/16 | - 18 | 6,563 | 6,833 | 6,7 |
| 3/8 | - 16 | 7,978 | 8,255 | 8,1 |

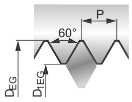
## Steel Conduit Threads




### Pg
Steel conduit thread DIN 40430

| Nom. size | | D1 | | |
|---|---|---|---|---|
| D mm | P/1" (tpi) | min. mm | max. mm | mm |
| Pg 7 | 20 | 11,28 | 11,43 | 11,35 |
| 9 | 18 | 13,86 | 14,01 | 13,95 |
| 11 | 18 | 17,26 | 17,41 | 17,35 |
| 13,5 | 18 | 19,06 | 19,21 | 19,15 |
| 16 | 18 | 21,16 | 21,31 | 21,25 |
| 21 | 16 | 26,78 | 27,03 | 26,95 |
| 29 | 16 | 35,48 | 35,73 | 35,6 |
| 36 | 16 | 45,48 | 45,73 | 45,6 |
| 42 | 16 | 52,48 | 52,73 | 52,6 |
| 48 | 16 | 57,78 | 58,03 | 57,9 |

## Helical Coil Threads for Wire Thread Inserts




### EG M (STI)
ISO Metric coarse thread DIN 8140-2

| Nom. size | | DEG | D1EG | | |
|---|---|---|---|---|---|
| D mm | P mm | min. mm | min. mm | max. mm | mm |
| EG M2,5 | 0,45 | 3,084 | 2,597 | 2,697 | 2,65 |
| 3 | 0,5 | 3,650 | 3,108 | 3,220 | 3,15 |
| 4 | 0,7 | 4,910 | 4,152 | 4,292 | 4,2 |
| 5 | 0,8 | 6,040 | 5,174 | 5,334 | 5,25 |
| 6 | 1 | 7,300 | 6,217 | 6,407 | 6,3 |
| 8 | 1,25 | 9,624 | 8,271 | 8,483 | 8,4 |
| 10 | 1,5 | 11,948 | 10,324 | 10,560 | 10,5 |
| 12 | 1,75 | 14,274 | 12,379 | 12,644 | 12,5 |
| 14 | 2 | 16,598 | 14,433 | 14,733 | 14,5 |
| 16 | 2 | 18,598 | 16,433 | 16,733 | 16,5 |
| 18 | 2,5 | 21,248 | 18,541 | 18,896 | 18,75 |
| 20 | 2,5 | 23,248 | 20,541 | 20,896 | 20,75 |

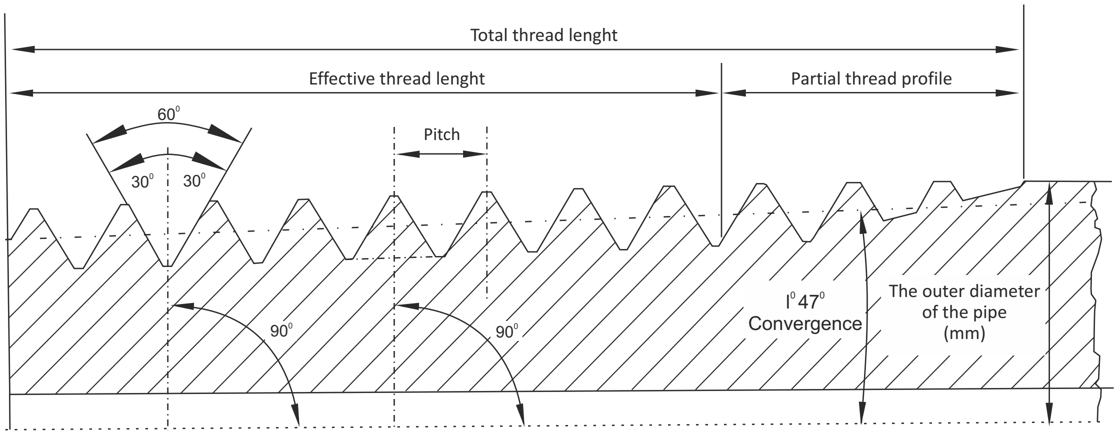
### EG UNC (STI)
Unified coarse thread ASME B18.29.1

| Nom. size | DEG | D1EG | | |
|---|---|---|---|---|
| D mm P/1" (tpi) | min. mm | min. mm | max. mm | mm |
| EGNr. 4- 40 | 3,671 | 2,982 | 3,178 | 3,1 |
| Nr. 6- 32 | 4,536 | 3,678 | 3,879 | 3,8 |
| Nr. 8- 32 | 5,197 | 4,338 | 4,523 | 4,4 |
| Nr. 10- 24 | 6,200 | 5,054 | 5,283 | 5,2 |
| 1/4 - 20 | 8,002 | 6,628 | 6,872 | 6,7 |
| 5/16 - 18 | 9,771 | 8,244 | 8,490 | 8,4 |
| 3/8 - 16 | 11,587 | 9,867 | 10,126 | 10 |
| 7/16 - 14 | 13,469 | 11,506 | 11,783 | 11,6 |
| 1/2 - 13 | 15,237 | 13,121 | 13,393 | 13,3 |
| 9/16 - 12 | 17,039 | 14,747 | 15,031 | 14,9 |
| 5/8 - 11 | 18,875 | 16,376 | 16,673 | 16,5 |
| 3/4 - 10 | 22,349 | 19,598 | 19,908 | 19,75 |

### EG UNF (STI)
Unified coarse thread ASME B18.29.1

| Nom. size | DEG | D1EG | | |
|---|---|---|---|---|
| D mm P/1" (tpi) | min. mm | min. mm | max. mm | mm |
| EGNr. 4 - 48 | 3,533 | 2,959 | 3,119 | 3 |
| Nr. 6 - 40 | 4,330 | 3,642 | 3,815 | 3,7 |
| Nr. 8 - 36 | 5,083 | 4,318 | 4,496 | 4,4 |
| Nr. 10 - 32 | 5,858 | 4,999 | 5,184 | 5,1 |
| 1/4 - 28 | 7,528 | 6,545 | 6,720 | 6,6 |
| 5/16 - 24 | 9,312 | 8,166 | 8,351 | 8,25 |
| 3/8 - 24 | 10,899 | 9,753 | 9,931 | 9,8 |
| 7/16 - 20 | 12,763 | 11,389 | 11,587 | 11,5 |
| 1/2 - 20 | 14,352 | 12,978 | 13,176 | 13,1 |
| 9/16 - 18 | 16,121 | 14,594 | 14,800 | 14,7 |
| 5/8 - 18 | 17,709 | 16,182 | 16,388 | 16,25 |
| 3/4 - 16 | 21,112 | 19,392 | 19,608 | 19,5 |

# TAPERED TREAD PROFILE EXTERNAL NPT




| Thread diameter (inch) | Thread pitch (T.P.I) | Outer diameter of the pipe (mm) | Total thread lenght (mm) |
|---|---|---|---|
| 1/16 | 27 | 7,950 | 9,896 |
| 1/8 | 27 | 10,287 | 9,967 |
| 1/4 | 18 | 13,716 | 15,103 |
| 3/8 | 18 | 17,145 | 15,255 |
| 1/2 | 14 | 21,336 | 19,850 |
| 3/4 | 14 | 26,670 | 20,155 |
| 1 | 11.1/2 | 33,401 | 25,006 |
| 1.1/4 | 11.1/2 | 42,164 | 25,616 |
| 1.1/2 | 11.1/2 | 48,260 | 26,040 |
| 2 | 11.1/2 | 60,325 | 26,878 |
| 2.1/2 | 8 | 73,025 | 39,908 |
| 3 | 8 | 88,900 | 41,496 |
| 3.1/2 | 8 | 101,600 | 42,766 |
| 4 | 8 | 114,300 | 44,036 |

## 10.3. Recommended Hole Diameters for Forming Taps

# M

| Nom. size D mm | Nom. size P mm | mm |
|---|---|---|
| M 1 | 0,25 | 0,9 |
| 1,1 | 0,25 | 1 |
| 1,2 | 0,25 | 1,1 |
| 1,4 | 0,3 | 1,28 |
| 1,6 | 0,35 | 1,47 |
| 1,7 | 0,35 | 1,57 |
| 1,8 | 0,35 | 1,67 |
| 2 | 0,4 | 1,85 |
| 2,2 | 0,45 | 2,03 |
| 2,3 | 0,4 | 2,15 |
| 2,5 | 0,45 | 2,33 |
| 2,6 | 0,45 | 2,43 |
| 3 | 0,5 | 2,8 |
| 3,5 | 0,6 | 3,25 |
| 4 | 0,7 | 3,7 |
| 4,5 | 0,75 | 4,2 |
| 5 | 0,8 | 4,65 |
| 5,5 | 0,9 | 5,1 |
| 6 | 1 | 5,6 |
| 7 | 1 | 6,6 |
| 8 | 1,25 | 7,45 |
| 9 | 1,25 | 8,45 |
| 10 | 1,5 | 9,35 |
| 12 | 1,75 | 11,25 |
| 14 | 2 | 13,1 |
| 16 | 2 | 15,1 |
| 18 | 2,5 | 16,85 |
| 20 | 2,5 | 18,85 |
| 22 | 2,5 | 20,85 |
| 24 | 3 | 22,65 |
| 27 | 3 | 25,65 |
| 30 | 3,5 | 28,4 |
| 33 | 3,5 | 31,4 |
| 36 | 4 | 34,15 |
| 39 | 4 | 37,15 |
| 42 | 4,5 | 39,9 |
| 45 | 4,5 | 42,9 |
| 48 | 5 | 45,65 |

# MF

| Nom. size D x P mm | mm |
|---|---|
| M 2,5 x 0,35 | 2,37 |
| 2,6 x 0,35 | 2,47 |
| 3 x 0,35 | 2,88 |
| 3,5 x 0,35 | 3,38 |
| 4 x 0,5 | 3,8 |
| 5 x 0,5 | 4,8 |
| 6 x 0,5 | 5,8 |
| 6 x 0,75 | 5,7 |
| 7 x 0,75 | 6,7 |
| 8 x 0,75 | 7,7 |
| 8 x 1 | 7,6 |
| 9 x 0,75 | 8,7 |
| 9 x 1 | 8,6 |
| 10 x 0,75 | 9,7 |
| 10 x 1 | 9,6 |
| 10 x 1,25 | 9,45 |
| 11 x 1 | 10,6 |
| 12 x 1 | 11,6 |
| 12 x 1,25 | 11,45 |
| 12 x 1,5 | 11,35 |
| 14 x 1 | 13,6 |
| 14 x 1,25 | 13,45 |
| 14 x 1,5 | 13,35 |
| 15 x 1 | 14,6 |
| 15 x 1,5 | 14,35 |
| 16 x 1 | 15,6 |
| 16 x 1,5 | 15,35 |
| 18 x 1 | 17,6 |
| 18 x 1,5 | 17,35 |
| 18 x 2 | 17,1 |
| 20 x 1 | 19,6 |
| 20 x 1,5 | 19,35 |
| 20 x 2 | 19,1 |
| 24 x 2 | 23,1 |
| 30 x 2 | 29,1 |
| 36 x 3 | 34,65 |
| 42 x 4 | 40,15 |
| 48 x 3 | 46,65 |

# UNC

| Nom. size D - P/1" inch (tpi) | mm |
|---|---|
| Nr. 4 - 40 | 2,55 |
| Nr. 5 - 40 | 2,9 |
| Nr. 6 - 32 | 3,15 |
| Nr. 8 - 32 | 3,8 |
| Nr. 10 - 24 | 4,35 |
| Nr. 12 - 24 | 5 |
| 1/4 - 20 | 5,75 |
| 5/16 - 18 | 7,3 |
| 3/8 - 16 | 8,8 |
| 7/16 - 14 | 10,25 |
| 1/2 - 13 | 11,8 |
| 9/16 - 12 | 13,3 |
| 5/8 - 11 | 14,8 |
| 3/4 - 10 | 17,85 |
| 7/8 - 9 | 20,9 |
| 1" - 8 | 23,9 |

# UNF

| Nom. size D - P/1" inch (tpi) | mm |
|---|---|
| Nr. 2 - 64 | 2,02 |
| Nr. 3 - 56 | 2,32 |
| Nr. 4 - 48 | 2,62 |
| Nr. 5 - 44 | 2,92 |
| Nr. 6 - 40 | 3,22 |
| Nr. 8 - 36 | 3,85 |
| Nr. 10 - 32 | 4,45 |
| Nr. 12 - 28 | 5,1 |
| 1/4 - 28 | 5,95 |
| 5/16 - 24 | 7,45 |
| 3/8 - 24 | 9,05 |
| 7/16 - 20 | 10,55 |
| 1/2 - 20 | 12,15 |
| 9/16 - 18 | 13,65 |
| 5/8 - 18 | 15,25 |
| 3/4 - 16 | 18,35 |
| 7/8 - 14 | 21,4 |
| 1" - 12 | 24,45 |

# G

| Nom. size D - P/1" (tpi) | mm |
|---|---|
| G 1/16 - 28 | 7,25 |
| 1/8 - 28 | 9,25 |
| 1/4 - 19 | 12,55 |
| 3/8 - 19 | 16,05 |
| 1/2 - 14 | 20,1 |
| 5/8 - 14 | 22,05 |
| 3/4 - 14 | 25,6 |
| 7/8 - 14 | 29,35 |
| 1" - 11 | 32,15 |

## 10.4. Formulas to calculate technological parameters for drilling and tapping

**Relationships of peripherial speed andd rotational speed andd tool diameter**

**Cutting speed Vc [m/min]**

$$v_c = \frac{d_1 \times \pi \times n}{1000}$$

**Spindle rotation speed [RPM]**

$$n = \frac{1000 \times v_c}{d_1 \times \pi}$$

**Feeding speed Vf [mm/min]**

- when tapping

$$v_f = p \times n$$

- when drilling

$$v_f = f_o \times n$$

$$f_o = \frac{v_f}{n}$$

**Torque when tapping $M_d$ [Nm]**

$$M_d = \frac{p^2 \times d_1 \times k_c}{8000}$$

**Torque when drilling Mc [Nm]**

$$M_c = \frac{F_c \times z \times d_1}{4000}$$

**Cutting force per one tooth $F_c$ [N]**

$$F_c = \frac{d_1 \times f_o \times k_c}{2}$$

**Power P [kW]**

$$P = \frac{M_{c,d} \times 2 \times \pi \times n}{60000}$$

**Key:**

$d_1$ - nominal diameter of tool [mm]

$v_c$ - cutting speed [m/min]

n - spindle rotation speed [RPM]

p - thread pitch [mm]

P - power [kW]

$v_f$ - feeding speed [m/min]

$f_o$ - feed per revolution [RPM]

$k_c$ - specific resistance of workpiece material [MPa]

$M_d$ - torque when tapping [Nm]

z - cutting edges

## 10.5. Recommended diameter for thread cuting rods

### M

| THREAD | ø d |
|---|---|
| M 1 | 0,96 |
| M 1,1 | 1,05 |
| M 1,2 | 1,15 |
| M 1,4 | 1,35 |
| M 1,6 | 1,55 |
| M 1,8 | 1,75 |
| M 2 | 1,95 |
| M 2,2 | 2,15 |
| M 2,5 | 2,42 |
| M 3 | 2,92 |
| M 3,5 | 3,41 |
| M 4 | 3,90 |
| M 4,5 | 4,40 |
| M 5 | 4,90 |
| M 6 | 5,88 |
| M 7 | 6,88 |
| M 8 | 7,86 |
| M 9 | 8,86 |
| M 10 | 9,85 |
| M 11 | 10,85 |
| M 12 | 11,83 |
| M 14 | 13,82 |
| M 16 | 15,82 |
| M 18 | 17,79 |
| M 20 | 19,79 |
| M 22 | 21,79 |
| M 24 | 23,76 |
| M 27 | 26,76 |
| M 30 | 29,73 |
| M 33 | 32,73 |
| M 36 | 35,70 |
| M 39 | 38,70 |
| M 42 | 41,68 |
| M 45 | 44,68 |
| M 48 | 47,66 |
| M 52 | 51,66 |
| M 56 | 55,65 |
| M 60 | 59,65 |
| M 64 | 63,62 |
| M 68 | 67,62 |

### MF

| THREAD | ø d |
|---|---|
| M3,5x0,5 | 3,43 |
| M4x0,5 | 3,92 |
| M4,5x0,5 | 4,43 |
| M5x0,5 | 4,92 |
| M5x0,75 | 4,91 |
| M5,5x0,5 | 5,43 |
| M5,5x0,75 | 5,42 |
| M6x0,5 | 5,92 |
| M6x0,75 | 5,90 |
| M7x0,75 | 6,90 |
| M8x0,5 | 7,92 |
| M8x0,75 | 7,90 |
| M8x1 | 7,88 |
| M9x0,75 | 8,90 |
| M9x1 | 8,88 |
| M10x0,75 | 9,90 |
| M10x1 | 9,88 |
| M10x1,25 | 9,86 |
| M11x0,75 | 10,91 |
| M11x1 | 10,88 |
| M12x1 | 11,88 |
| M12x1,25 | 11,86 |
| M12x1,5 | 11,85 |
| M14x1 | 13,88 |
| M14x1,5 | 13,85 |

### MF cd.

| THREAD | ø d |
|---|---|
| M15x1 | 14,88 |
| M15x1,5 | 14,85 |
| M16x1 | 15,88 |
| M16x1,5 | 15,85 |
| M17x1 | 16,88 |
| M17x1,5 | 16,85 |
| M18x1 | 17,88 |
| M18 x1,5 | 17,85 |
| M18x2 | 17,82 |
| M20x1 | 19,88 |
| M20x1,5 | 19,85 |
| M20x2 | 19,82 |
| M22x1 | 21,88 |
| M22x1,5 | 21,85 |
| M22x2 | 21,82 |
| M24x1 | 23,88 |
| M24x1,5 | 23,85 |
| M24x2 | 23,82 |
| M25x1 | 24,88 |
| M25x1,5 | 24,85 |
| M25x2 | 24,82 |
| M26x1,5 | 25,85 |
| M27x1 | 26,88 |
| M27x1,5 | 26,85 |
| M27x2 | 26,82 |
| M28x1 | 27,88 |
| M28x1,5 | 27,85 |
| M28x2 | 27,82 |
| M30x1 | 29,88 |
| M30x1,5 | 29,85 |
| M30x2 | 29,82 |
| M30x3 | 29,76 |
| M32x1,5 | 31,85 |
| M32x2 | 31,82 |
| M33x1,5 | 32,85 |
| M33x2 | 32,82 |
| M33x3 | 32,76 |
| M35x1,5 | 34,85 |
| M36x1,5 | 35,85 |
| M36x2 | 35,82 |
| M36x3 | 35,76 |
| M38x1,5 | 37,85 |
| M39x1,5 | 38,85 |
| M39x2 | 38,82 |
| M39x3 | 38,76 |
| M40x1,5 | 39,85 |
| M40x2 | 39,82 |
| M40x3 | 39,76 |
| M42x1,5 | 41,85 |
| M42x2 | 41,82 |
| M42x3 | 41,76 |
| M45x1,5 | 44,85 |
| M45x2 | 44,82 |
| M45x3 | 44,76 |
| M48x1,5 | 47,85 |
| M48x2 | 47,82 |
| M48x3 | 47,76 |
| M48x4 | 47,73 |
| M50x1,5 | 49,85 |
| M50x2 | 49,82 |
| M50x3 | 49,76 |
| M52x1,5 | 51,85 |
| M52x2 | 51,82 |
| M52x3 | 51,76 |
| M52x4 | 51,73 |
| M55x1,5 | 54,85 |
| M55x2 | 54,82 |
| M55x3 | 54,76 |
| M55x4 | 54,73 |
| M56x1,5 | 55,85 |
| M56x2 | 55,82 |
| M56x3 | 55,76 |
| M56x4 | 55,73 |

### G

| THREAD | ø d |
|---|---|
| G - 1/8" | 9,62 |
| G - 1/4" | 13,03 |
| G - 3/8" | 16,54 |
| G - 1/2" | 20,81 |
| G - 5/8" | 22,77 |
| G - 3/4" | 26,30 |
| G - 7/8" | 30,06 |
| G - 1" | 33,07 |
| G - 1.1/8" | 37,72 |
| G - 1.1/4" | 41,73 |
| G - 1.3/8" | 44,14 |
| G - 1.1/2" | 47,62 |
| G - 1.3/4" | 53,57 |
| G - 2" | 59,43 |
| G - 2.1/4" | 65,49 |

### BSW

| THREAD | ø d |
|---|---|
| 1/8 - 40 | 3,09 |
| 3/16 - 24 | 4,66 |
| 1/4 - 20 | 6,24 |
| 5/16 - 18 | 7,82 |
| 3/8 - 16 | 9,40 |
| 7/16 - 14 | 10,98 |
| 1/2 - 12 | 12,56 |
| 9/16 - 12 | 14,14 |
| 5/8 - 11 | 15,72 |
| 3/4 - 10 | 18,89 |
| 7/8 - 9 | 22,10 |
| 1 - 8 | 25,27 |

### NPT

| THREAD | ø d |
|---|---|
| 1/8" | 9,99 |
| 1/4" | 13,26 |
| 3/8" | 16,67 |
| 1/2" | 20,71 |
| 3/4" | 26,03 |
| 1" | 32,59 |

### UNC

| THREAD | ø d |
|---|---|
| No 5 - 40 | 3,09 |
| No 6 - 32 | 3,41 |
| No 8 - 32 | 4,07 |
| No 10 - 24 | 4,71 |
| No 12 - 24 | 5,37 |
| 1/4 - 20 | 6,22 |
| 5/16 - 18 | 7,80 |
| 3/8 - 16 | 9,37 |
| 7/16 - 14 | 10,95 |
| 1/2 - 13 | 12,52 |
| 9/16 - 12 | 14,10 |
| 5/8 - 11 | 15,68 |
| 3/4 - 10 | 18,84 |
| 7/8 - 9 | 22,00 |
| 1 - 8 | 25,16 |
| 1.1/8 - 7 | 28,31 |
| 1.1/4 - 7 | 31,49 |
| 1.3/8 - 6 | 34,63 |
| 1.1/2 - 6 | 37,80 |
| 1.3/4 - 5 | 44,12 |
| 2 - 4.1/2 | 50,45 |

### UNF

| THREAD | ø d |
|---|---|
| No 5 - 44 | 3,10 |
| No 6 - 40 | 3,42 |
| No 8 - 36 | 4,08 |
| No 10 - 32 | 4,73 |
| No 12 - 28 | 5,38 |
| 1/4 - 28 | 6,24 |
| 5/16 - 24 | 7,82 |
| 3/8 - 24 | 9,41 |
| 7/16 - 20 | 10,98 |
| 1/2 - 20 | 12,56 |
| 9/16 - 18 | 14,14 |
| 5/8 - 18 | 15,73 |
| 3/4 - 16 | 18,89 |
| 7/8 - 14 | 22,05 |
| 1 - 12 | 25,21 |
| 1.1/8 - 12 | 28,38 |
| 1.1/4 - 12 | 31,55 |
| 1.3/8 - 12 | 34,73 |
| 1.1/2 - 12 | 37,90 |

### R

| THREAD | ø d |
|---|---|
| R - 1/8" | 9,48 |
| R - 1/4" | 12,78 |
| R - 3/8" | 16,26 |
| R - 1/2" | 20,44 |
| R - 3/4" | 25,85 |
| R - 1" | 32,60 |

### BSF

| THREAD | ø d |
|---|---|
| 3/16 - 32 | 4,76 |
| 1/4 - 26 | 6,25 |
| 5/16 - 22 | 7,83 |
| 3/8 - 20 | 9,41 |
| 7/16 - 18 | 10,99 |
| 1/2 - 16 | 12,57 |
| 9/16 -16 | 14,16 |
| 5/8 - 14 | 15,73 |
| 3/4 - 12 | 18,89 |
| 7/8 - 11 | 22,11 |
| 1 - 10 | 25,28 |

### Pg

| THREAD | ø d |
|---|---|
| Pg 7 | 12,40 |
| Pg 9 | 15,10 |
| Pg 11 | 18,50 |
| Pg 13,5 | 20,30 |
| Pg 16 | 22,40 |
| Pg 21 | 28,15 |
| Pg 29 | 36,85 |
| Pg 36 | 46,85 |
| Pg 42 | 53,85 |
| Pg 48 | 59,15 |

## 10.6. Relationships of peripherial speed andd rotational speed andd tool diameter

| Ćd$_1$ [mm] | $V = p \cdot d_1 n / 1000$ [m/min] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 15 | 18 | 20 | 25 | 30 | 35 | 40 |
| 3 | 212 | 318 | 424 | 531 | 637 | 849 | 1061 | 1273 | 1592 | 1910 | 2122 | 2653 | 3183 | 3714 | 4244 |
| 3,5 | 182 | 273 | 364 | 455 | 546 | 728 | 909 | 1091 | 1364 | 1637 | 1819 | 2274 | 2728 | 3183 | 3638 |
| 4 | 159 | 239 | 318 | 398 | 477 | 637 | 796 | 955 | 1194 | 1432 | 1592 | 1989 | 2387 | 2785 | 3183 |
| 4,5 | 141 | 212 | 283 | 354 | 424 | 566 | 707 | 849 | 1061 | 1273 | 1415 | 1768 | 2122 | 2476 | 2829 |
| 5 | 127 | 191 | 255 | 318 | 382 | 509 | 637 | 764 | 955 | 1146 | 1273 | 1592 | 1910 | 2228 | 2546 |
| 6 | 106 | 159 | 212 | 265 | 318 | 424 | 531 | 637 | 796 | 955 | 1061 | 1326 | 1592 | 1857 | 2122 |
| 7 | 91 | 136 | 182 | 227 | 273 | 364 | 455 | 546 | 682 | 819 | 909 | 1137 | 1364 | 1592 | 1819 |
| 8 | 80 | 119 | 159 | 199 | 239 | 318 | 398 | 477 | 597 | 716 | 796 | 995 | 1194 | 1393 | 1592 |
| 9 | 71 | 106 | 141 | 177 | 212 | 283 | 354 | 424 | 531 | 673 | 707 | 884 | 1061 | 1238 | 1415 |
| 10 | 64 | 95 | 127 | 159 | 191 | 255 | 318 | 382 | 477 | 573 | 637 | 796 | 955 | 1114 | 1273 |
| 11 | 58 | 87 | 116 | 145 | 174 | 231 | 289 | 347 | 434 | 521 | 579 | 723 | 868 | 1013 | 1157 |
| 12 | 53 | 80 | 106 | 133 | 159 | 212 | 265 | 318 | 398 | 477 | 531 | 663 | 796 | 928 | 1061 |
| 14 | 45 | 68 | 91 | 114 | 136 | 182 | 227 | 273 | 341 | 409 | 455 | 568 | 682 | 796 | 909 |
| 16 | 40 | 60 | 80 | 99 | 119 | 159 | 199 | 239 | 298 | 358 | 398 | 497 | 597 | 696 | 796 |
| 18 | 35 | 53 | 71 | 88 | 106 | 141 | 177 | 212 | 265 | 318 | 354 | 442 | 531 | 619 | 707 |
| 20 | 32 | 48 | 94 | 80 | 95 | 127 | 159 | 191 | 239 | 286 | 318 | 398 | 477 | 557 | 637 |
| 22 | 29 | 43 | 58 | 72 | 87 | 116 | 145 | 174 | 217 | 260 | 289 | 362 | 434 | 506 | 579 |
| 24 | 27 | 40 | 53 | 66 | 80 | 106 | 133 | 159 | 199 | 239 | 265 | 332 | 398 | 464 | 531 |
| 27 | 24 | 35 | 47 | 59 | 71 | 94 | 118 | 141 | 177 | 212 | 236 | 295 | 354 | 413 | 472 |
| 30 | 21 | 32 | 42 | 53 | 64 | 85 | 106 | 127 | 159 | 191 | 212 | 265 | 318 | 371 | 424 |
| 33 | 19 | 29 | 39 | 48 | 58 | 77 | 96 | 116 | 145 | 174 | 193 | 241 | 289 | 338 | 386 |
| 36 | 18 | 27 | 35 | 44 | 53 | 71 | 88 | 106 | 133 | 159 | 177 | 221 | 265 | 309 | 354 |
| 39 | 16 | 24 | 33 | 41 | 49 | 65 | 82 | 98 | 122 | 147 | 163 | 204 | 245 | 286 | 326 |
| 42 | 15 | 23 | 30 | 38 | 45 | 61 | 76 | 91 | 114 | 136 | 152 | 189 | 227 | 265 | 303 |
| 45 | 14 | 21 | 28 | 35 | 42 | 57 | 71 | 85 | 106 | 127 | 141 | 177 | 212 | 248 | 283 |
| 48 | 13 | 20 | 27 | 33 | 40 | 53 | 66 | 80 | 99 | 119 | 133 | 166 | 199 | 232 | 265 |
| 52 | 12 | 18 | 24 | 31 | 37 | 49 | 61 | 73 | 92 | 110 | 122 | 153 | 184 | 214 | 245 |

### Relationships of resistances Rm, HRC, HB, HV 10

| Rm [MPa] | HRC | HB | HV 10 | Rm [MPa] | HRC | HB | HV 10 | Rm [MPa] | HRC | HB | HV 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 240 | | 71 | 75 | 690 | | 204 | 215 | 1360 | 43 | 402 | 423 |
| 255 | | 76 | 80 | 705 | | 209 | 220 | 1400 | 44 | 413 | 434 |
| 270 | | 81 | 85 | 720 | | 214 | 225 | 1440 | 45 | 424 | 446 |
| 285 | | 86 | 90 | 740 | | 219 | 230 | 1480 | 46 | 435 | 458 |
| 305 | | 90 | 95 | 755 | | 223 | 235 | 1530 | 47 | 449 | 473 |
| 320 | | 95 | 100 | 770 | | 228 | 240 | 1570 | 48 | 460 | 484 |
| 335 | | 100 | 105 | 785 | | 233 | 245 | 1620 | 49 | 472 | 497 |
| 350 | | 105 | 110 | 800 | 22 | 238 | 250 | 1680 | 50 | 488 | 514 |
| 370 | | 109 | 115 | 820 | 23 | 242 | 255 | 1730 | 51 | 501 | 527 |
| 385 | | 114 | 120 | 835 | 24 | 247 | 260 | 1890 | 52 | 517 | 544 |
| 400 | | 119 | 125 | 860 | 25 | 255 | 268 | 1845 | 53 | 532 | 560 |
| 415 | | 124 | 130 | 870 | 26 | 258 | 272 | 1910 | 54 | 549 | 578 |
| 430 | | 128 | 135 | 900 | 27 | 266 | 280 | 1980 | 55 | 567 | 596 |
| 450 | | 133 | 140 | 920 | 28 | 273 | 287 | 2050 | 56 | 584 | 615 |
| 465 | | 138 | 145 | 940 | 29 | 278 | 293 | 2140 | 57 | 607 | 639 |
| 480 | | 143 | 150 | 970 | 30 | 287 | 302 | | 58 | 622 | 655 |
| 495 | | 147 | 155 | 995 | 31 | 295 | 310 | | 59 | | 675 |
| 510 | | 152 | 160 | 1020 | 32 | 301 | 317 | | 60 | | 698 |
| 530 | | 157 | 165 | 1050 | 33 | 311 | 327 | | 61 | | 720 |
| 545 | | 162 | 170 | 1080 | 34 | 319 | 336 | | 62 | | 745 |
| 560 | | 166 | 175 | 1110 | 35 | 328 | 345 | | 63 | | 773 |
| 575 | | 171 | 180 | 1140 | 36 | 337 | 355 | | 64 | | 800 |
| 595 | | 176 | 185 | 1170 | 37 | 346 | 364 | | 65 | | 829 |
| 610 | | 181 | 190 | 1200 | 38 | 354 | 373 | | 66 | | 864 |
| 625 | | 185 | 195 | 1230 | 39 | 363 | 382 | | 67 | | 900 |
| 640 | | 190 | 200 | 1260 | 40 | 372 | 392 | | 68 | | 940 |
| 660 | | 195 | 205 | 1300 | 41 | 383 | 403 | | | | |
| 675 | | 199 | 210 | 1330 | 42 | 393 | 413 | | | | |

## 10.7. Limit dimensions of pitch diameter - internal thread

### ISO metric thread

| Nominal size | | 6H | | 6G | |
|---|---|---|---|---|---|
| M | MF | min | max | min | max |
| M 2 | | 1,740 | 1,830 | 1,759 | 1,849 |
| M 2,2 | | 1,908 | 2,003 | 1,928 | 2,023 |
| M 2,5 | | 2,208 | 2,303 | 2,228 | 2,323 |
| M 3 | | 2,675 | 2,775 | 2,695 | 2,795 |
| M 3,5 | | 3,110 | 3,222 | 3,131 | 3,243 |
| M 4 | | 3,545 | 3,663 | 3,567 | 3,685 |
| | M 4x0,5 | 3,675 | 3,775 | 3,695 | 3,795 |
| M 4,5 | | 4,013 | 4,131 | 4,035 | 4,153 |
| M 5 | | 4,480 | 4,605 | 4,504 | 4,629 |
| | M 5x0,5 | 4,675 | 4,775 | 4,695 | 4,795 |
| M 6 | | 5,350 | 5,500 | 5,376 | 5,526 |
| | M 6x0,75 | 5,513 | 5,645 | 5,535 | 5,667 |
| M 7 | | 6,350 | 6,500 | 6,376 | 6,526 |
| M 8 | | 7,188 | 7,348 | 7,216 | 7,376 |
| | M 8x0,75 | 7,513 | 7,645 | 7,535 | 7,667 |
| | M 8x1 | 7,350 | 7,500 | 7,376 | 7,526 |
| M 9 | | 8,188 | 8,348 | 8,216 | 8,376 |
| M 10 | | 9,026 | 9,206 | 9,058 | 9,238 |
| | M 10x0,75 | 9,513 | 9,645 | 9,535 | 9,667 |
| | M 10x1 | 9,350 | 9,500 | 9,376 | 9,526 |
| | M 10x1,25 | 9,188 | 9,348 | 9,216 | 9,376 |
| M 12 | | 10,863 | 11,063 | 10,897 | 11,097 |
| | M 12x1 | 11,350 | 11,510 | 11,376 | 11,536 |
| | M 12x1,25 | 11,188 | 11,368 | 11,216 | 11,396 |
| | M 12x1,5 | 11,026 | 11,216 | 11,058 | 11,248 |
| M 14 | | 12,701 | 12,913 | 12,739 | 12,951 |
| | M 14x1,5 | 13,026 | 13,216 | 13,058 | 13,248 |
| M 16 | | 14,701 | 14,913 | 14,739 | 14,951 |
| | M 16x1,5 | 15,026 | 15,216 | 15,058 | 15,248 |
| M 18 | | 16,376 | 16,600 | 16,418 | 16,642 |
| | M 18x1,5 | 17,026 | 17,216 | 17,058 | 17,248 |
| M 20 | | 18,376 | 18,600 | 18,418 | 18,642 |
| | M 20x1,5 | 19,026 | 19,216 | 19,058 | 19,248 |
| | M 20x2 | 18,701 | 18,913 | 18,739 | 18,951 |
| M 22 | | 20,376 | 20,600 | 20,418 | 20,642 |
| | M 22x1,5 | 21,026 | 21,216 | 21,058 | 21,248 |
| M 24 | | 22,051 | 22,316 | 22,099 | 22,364 |
| | M 24x1,5 | 23,026 | 23,226 | 23,058 | 23,258 |
| | M 24x2 | 22,701 | 22,925 | 22,739 | 22,963 |
| | M 26x1,5 | 25,026 | 25,226 | 25,058 | 25,258 |
| M 27 | | 25,051 | 25,316 | 25,099 | 25,364 |
| | M 27x1,5 | 26,026 | 26,226 | 26,058 | 26,258 |
| | M 27x2 | 25,701 | 25,925 | 25,739 | 25,963 |
| | M 28x1,5 | 27,026 | 27,226 | 27,058 | 27,258 |
| M 30 | | 27,727 | 28,007 | 27,780 | 28,060 |
| | M 30x1,5 | 29,026 | 29,226 | 29,058 | 29,258 |
| | M 30x2 | 28,701 | 28,925 | 28,739 | 28,963 |
| | M 32x1,5 | 31,026 | 31,226 | 31,058 | 31,258 |
| | M 32x2 | 30,701 | 30,925 | 30,739 | 30,963 |
| M 33 | | 30,727 | 31,007 | 30,780 | 31,060 |
| | M 33x1,5 | 32,026 | 32,226 | 32,058 | 32,258 |
| | M 33x2 | 31,701 | 31,925 | 31,739 | 31,963 |
| M 36 | | 33,402 | 33,702 | 33,462 | 33,762 |
| | M 36x1,5 | 35,026 | 35,226 | 35,058 | 35,258 |
| | M 36x2 | 34,701 | 34,925 | 34,739 | 34,963 |
| | M 36x3 | 34,051 | 34,316 | 34,099 | 34,364 |
| M 39 | | 36,402 | 36,702 | 36,462 | 36,762 |
| | M 39x1,5 | 38,026 | 38,226 | 38,058 | 38,258 |
| | M 39x2 | 37,701 | 37,925 | 37,739 | 37,963 |
| | M 39x3 | 37,051 | 37,316 | 37,099 | 37,364 |
| | M 40x1,5 | 39,026 | 39,226 | 39,058 | 39,258 |
| M 42 | | 39,077 | 39,392 | 39,140 | 39,455 |
| | M 42x1,5 | 41,026 | 41,226 | 41,058 | 41,258 |
| | M 42x2 | 40,701 | 40,925 | 40,739 | 40,963 |
| | M 42x3 | 40,051 | 40,316 | 40,099 | 40,364 |
| M 45 | | 42,077 | 42,392 | 42,140 | 42,455 |
| | M 45x1,5 | 44,026 | 44,226 | 44,058 | 44,258 |
| | M 45x2 | 43,701 | 43,925 | 43,739 | 43,963 |
| | M 45x3 | 43,051 | 43,316 | 43,099 | 43,364 |
| M 48 | | 44,752 | 45,087 | 44,823 | 45,158 |
| | M 48x1,5 | 47,026 | 47,238 | 47,058 | 47,270 |
| | M 48x2 | 46,701 | 46,937 | 46,739 | 46,975 |
| | M 48x3 | 46,051 | 46,331 | 46,099 | 46,379 |
| M 52 | | 48,752 | 49,087 | 48,823 | 49,158 |
| | M 52x2 | 50,701 | 50,937 | 50,739 | 50,975 |
| | M 52x3 | 50,051 | 50,331 | 50,099 | 50,379 |

### American unified thread UNC and UNF

| Nominal size | | 2B / 3B | 2B | 3B |
|---|---|---|---|---|
| UNC | UNF | min | max | max |
| No 5 - 40 | | 2,764 | 2,847 | 2,827 |
| | No 5 - 44 | 2,799 | 2,880 | 2,860 |
| No 6 - 32 | | 2,990 | 3,084 | 3,058 |
| | No 6 - 40 | 3,094 | 3,180 | 3,157 |
| No 8 - 32 | | 3,650 | 3,746 | 3,721 |
| | No 8 - 36 | 3,708 | 3,800 | 3,777 |
| No 10 - 24 | | 4,138 | 4,247 | 4,219 |
| | No 10 - 32 | 4,310 | 4,409 | 4,384 |
| No 12 - 24 | | 4,798 | 4,910 | 4,882 |
| | No 12 - 28 | 4,897 | 5,004 | 4,976 |
| 1/4 - 20 | | 5,524 | 5,648 | 5,616 |
| | 1/4 - 28 | 5,761 | 5,870 | 5,842 |
| 5/16 - 18 | | 7,021 | 7,155 | 7,120 |
| | 5/16 - 24 | 7,249 | 7,371 | 7,341 |
| 3/8 - 16 | | 8,494 | 8,639 | 8,603 |
| | 3/8 - 24 | 8,837 | 8,961 | 8,931 |
| 7/16 - 14 | | 9,934 | 10,089 | 10,051 |
| | 7/16 - 20 | 10,287 | 10,424 | 10,391 |
| 1/2 - 13 | | 11,430 | 11,595 | 11,552 |
| | 1/2 - 20 | 11,874 | 12,017 | 11,981 |
| 9/16 - 12 | | 12,913 | 13,086 | 13,043 |
| | 9/16 - 18 | 13,371 | 13,520 | 13,482 |
| 5/8 - 11 | | 14,376 | 14,559 | 14,514 |
| | 5/8 - 18 | 14,958 | 15,110 | 15,072 |
| 3/4 - 10 | | 17,399 | 17,595 | 17,544 |
| | 3/4 - 16 | 18,019 | 18,184 | 18,143 |
| 7/8 - 9 | | 20,391 | 20,599 | 20,546 |
| | 7/8 - 14 | 21,026 | 21,224 | 21,181 |
| 1 - 8 | | 23,338 | 23,561 | 23,505 |
| | 1 - 12 | 24,026 | 21,224 | 24,171 |
| 1.1/8 - 7 | | 26,218 | 26,457 | 26,398 |
| | 1.1/8 - 12 | 27,201 | 21,224 | 27,351 |
| 1.1/4 - 7 | | 29,393 | 29,637 | 29,576 |
| | 1.1/4 - 12 | 30,376 | 24,219 | 30,528 |
| 1.3/8 - 6 | | 32,174 | 32,438 | 32,372 |
| | 1.3/8 - 12 | 33,551 | 27,399 | 33,706 |
| 1.1/2 - 6 | | 35,349 | 35,616 | 35,550 |
| | 1.1/2 - 12 | 36,726 | 36,937 | 36,886 |
| 1.3/4 - 5 | | 41,151 | 41,445 | 41,372 |
| 2 - 4.1/2 | | 47,135 | 47,450 | 47,371 |

### Whitworth pipe thread G

| Nominal size | min | max |
|---|---|---|
| G-1/16” | 7,142 | 7,249 |
| G-1/8” | 9,147 | 9,254 |
| G-1/4” | 12,301 | 12,426 |
| G-3/8” | 15,806 | 15,931 |
| G-1/2” | 19,793 | 19,935 |
| G-5/8” | 21,749 | 21,891 |
| G-3/4” | 25,279 | 25,421 |
| G-7/8” | 29,039 | 29,181 |
| G-1” | 31,770 | 31,950 |
| G-1.1/8” | 36,418 | 36,598 |
| G-1.1/4” | 40,431 | 40,611 |
| G-1.3/8” | 42,844 | 43,024 |
| G-1.1/2” | 46,324 | 46,504 |
| G-1.3/4” | 52,267 | 52,447 |
| G-2” | 58,135 | 58,315 |

# FORM OF TOOL SELECTION

FANAR fills
Date:......................... Representative:.................................... Inq. nr .............................

Date: ..........................  TAP ☐  FORMING TAP ☐

## CUSTOMER'S DATA

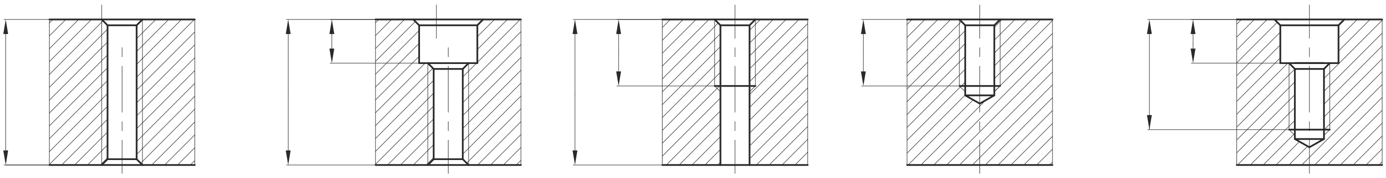
Name and company address: ..........................................................................................................................

Contact person: ...............................................................................................tel.........................................................

## 1. Kind of thread

1.1. Size: ....................................  1.2. Tolerance: ........................

1.3. Character of threaded hole / threaded bar:



☐ ☐ ☐ ☐ ☐

## 2. Machine and character of threading

2.1. Type of machine: ...........................................................................................................................................

2.2. Method of threading: horizontal ☐ vertical ☐  2.3. Forced feed: yes ☐ no ☐

2.4. Type of holder / handle: ..........................................................................................................................

Axial float: yes ☐ no ☐
Radial float: yes ☐ no ☐
Friction clutch: yes ☐ no ☐

2.5. Cutting speed: .....................m/min, .....................V.p.m.

2.6. Lubrification: hand ☐ automat ☐ Lubricant: ..........................................................

## 3. Working material

3.1.Type of element: ......................................................................................................................

3.2. Material (symbol): .............................................................

3.3. Hardness: ...................HB ......................HRC; Extension strength Rm.......................................N/mm$^2$

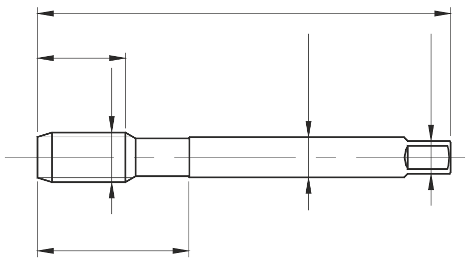
3.4. Type of threaded hole/threaded bar: Drilled ☐ Casted ☐ Reamed ☐ Other: ...........................

## 4. Tool

4.1. Nowadays used tool (type): .........................................................................................................

4.2. Vitality: .................................

4.3. Expected sizes of tool:



## 5. Notes

# FORM OF TOOL SELECTION

FANAR fills
Date:........................ Representative:.................................... Inq. nr .............................

Date: ..........................

## SCREWING DIES

### CUSTOMER'S DATA

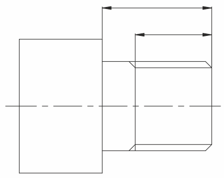
Name and company address: ..........................................................................................................................

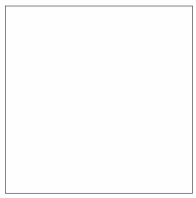
Contact person: .........................................................................................tel................................................

### 1. Kind of thread

1.1. Size: .................................... 1.2. Tolerance: ........................

1.3. Character of threaded hole / threaded bar:





☐ ☐

### 2. Machine and character of threading

2.1. Type of machine: ..............................................................................................................................

2.2. Method of threading: horizontal ☐ vertical ☐ 2.3. Forced feed: yes ☐ no ☐

2.4. Type of holder / handle: ..............................................................................................................................

| | | |
|---|---|---|
| Axial float: | yes ☐ | no ☐ |
| Radial float: | yes ☐ | no ☐ |
| Friction clutch: | yes ☐ | no ☐ |

2.5. Cutting speed: ....................m/min, ....................V.p.m.

2.6. Lubrification: hand ☐ automat ☐ Lubricant: ........................................................

### 3. Working material

3.1.Type of element: ..............................................................................................................

3.2. Material (symbol): ..........................................................................

3.3. Hardness: ...................HB ......................HRC; Extension strength Rm.......................................$N/mm^2$

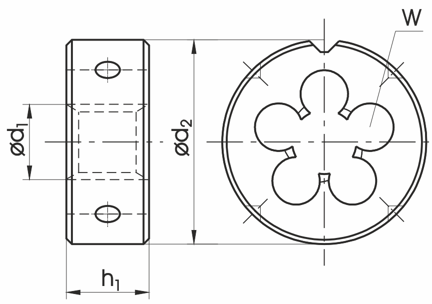
3.4. Type of threaded hole/threaded bar: Drilled☐ Casted☐ Reamed☐ Other: ..........................

### 4. Tool

4.1. Nowadays used tool (type): ..........................................................................................................

4.2. Vitality: ..................................

4.3. Expected sizes of tool:




### 5. Notes

# FORM OF TOOL SELECTION

FANAR fills
Date:......................... Representative:................................... Inq. nr .............................

Date: ..........................

**Special drill**

## CUSTOMER'S DATA

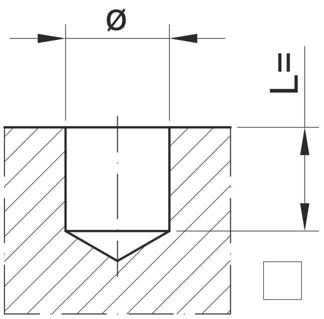
Name and company address: ..........................................................................................................................

Contact person: .....................................................................................................tel.................................................

## 1. Sketch of the machined part:

1.1. Name of detail:................................ 1.2. Workpiece material:..................

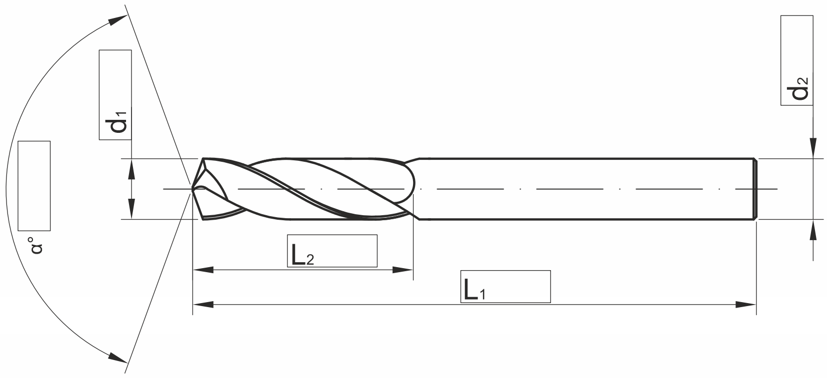
1.3. Hardness:




## 2. Tool:

2.1. Nr. drawing tool:...........................................................................................................................

2.2. Suggest material: 2.3. Suggest material PVD:.................................




## 3. Execution:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3.1. Flutes: | Right spiral | ☐ | Left spiral | ☐ | Straight | ☐ | Spiral angle: ....... |
| 3.2. Rotation direction: | Right hand | ☐ | Left hand | ☐ | | | |
| 3.3. Cooling: | External | ☐ | Internal | ☐ | Non-cooling | ☐ | |
| 3.4. Shank: | DIN-6535-HA | ☐ | DIN-6535-HB | ☐ | DIN-65350HE | ☐ | |

## 4. Machine:

4.1.Type of machine: ............................

4.2. Type of spindle: ................

4.3. Power[kW]: .......................

4.4. Max. rotating speed[RPM]: .......................

## 5. Notes

# FORM OF TOOL SELECTION

FANAR fills
Date:......................... Representative:.................................... Inq. nr .............................

Date: ..........................

## Special drill 1 step

## CUSTOMER'S DATA

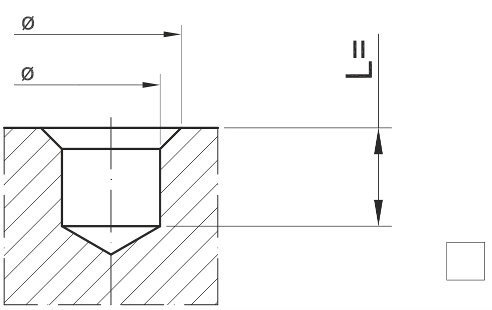
Name and company address: ...........................................................................................................................

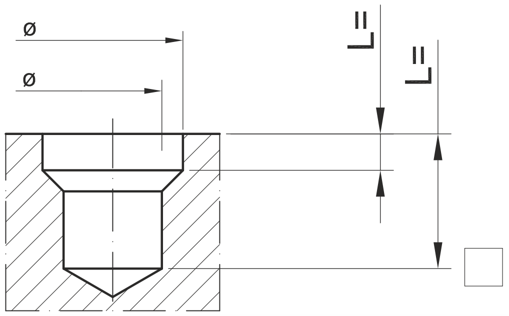
Contact person: ..............................................................................................tel.................................................

### 1. Sketch of the machined part:

1.1. Name of detail:................................ 1.2. Workpiece material:.................

1.3. Hardness:

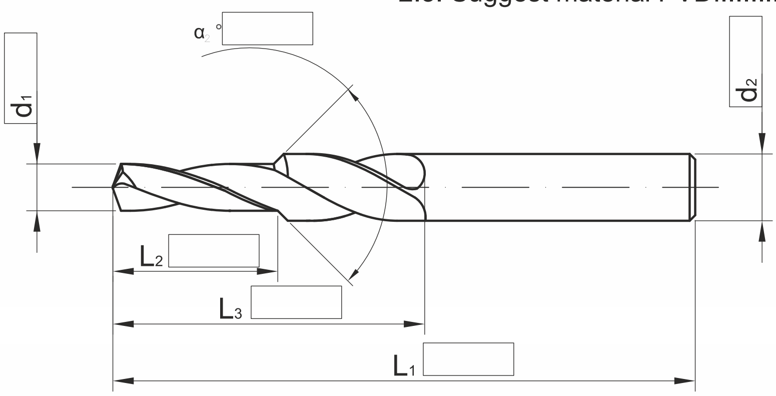



### 2. Tool:

2.1. Nr. drawing tool:.........................................................................................................................................

2.2. Suggest material: 2.3. Suggest material PVD:.................................




### 3. Execution:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3.1. Flutes: | Right spiral | ☐ | Left spiral | ☐ | Straight | ☐ | Spiral angle: ....... | |
| 3.2. Rotation direction: | Right hand | ☐ | Left hand | ☐ | | | | |
| 3.3. Cooling: | External | ☐ | Internal | ☐ | Non-cooling | ☐ | | |
| 3.4. Shank: | DIN-6535-HA | ☐ | DIN-6535-HB | ☐ | DIN-65350HE | ☐ | | |

### 4. Machine:

4.1.Type of machine: .........................

4.2. Type of spindle: ................

4.3. Power[kW]: .......................

4.4. Max. rotating speed[RPM]: ......................

### 5. Notes

# FORM OF TOOL SELECTION

FANAR fills
Date:......................... Representative:.................................... Inq. nr .............................

Date: ..........................

## Special drill 2 steps

### CUSTOMER'S DATA

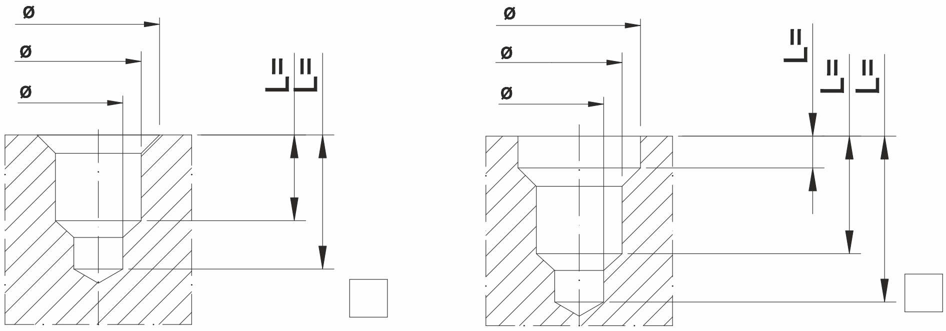
Name and company address: ........................................................................................................................

Contact person: .........................................................................................tel.................................................

### 1. Sketch of the machined part:

1.1. Name of detail:................................ 1.2. Workpiece material:..................

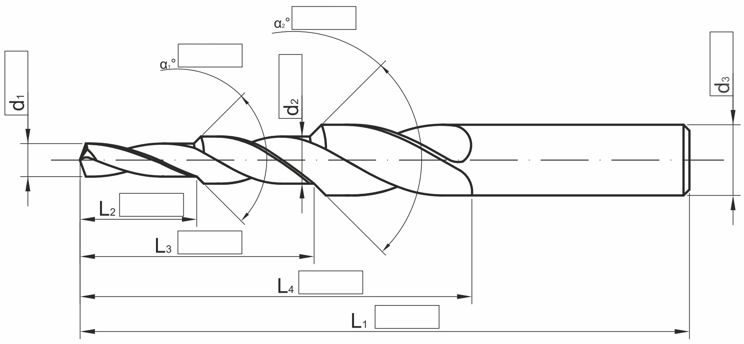
1.3. Hardness:




### 2. Tool:

2.1. Nr. drawing tool:.........................................................................................................................................

2.2. Suggest material: 2.3. Suggest material PVD:.................................




### 3. Execution:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3.1. Flutes: | Right spiral | ☐ | Left spiral | ☐ | Straight | ☐ | Spiral angle: ....... | |
| 3.2. Rotation direction: | Right hand | ☐ | Left hand | ☐ | | | | |
| 3.3. Cooling: | External | ☐ | Internal | ☐ | Non-cooling | ☐ | | |
| 3.4. Shank: | DIN-6535-HA | ☐ | DIN-6535-HB | ☐ | DIN-65350HE | ☐ | | |

### 4. Machine:

4.1.Type of machine: .........................

4.2. Type of spindle: ................

4.3. Power[kW]: .......................

4.4. Max. rotating speed[RPM]: .......................

### 5. Notes

# FORM OF TOOL SELECTION

FANAR®

FANAR fills
Date:......................... Representative:.................................... Inq. nr .............................

Date: ..........................

## Special drill

## CUSTOMER'S DATA

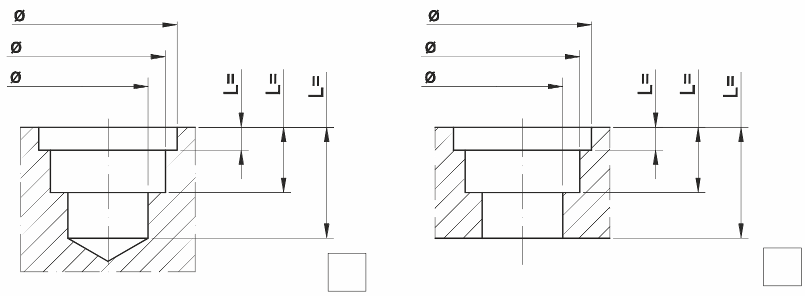
Name and company address: ............................................................................................................................

Contact person: .......................................................................................................tel.................................................

## 1. Sketch of the machined part:

1.1. Name of detail:................................ 1.2. Workpiece material:..................

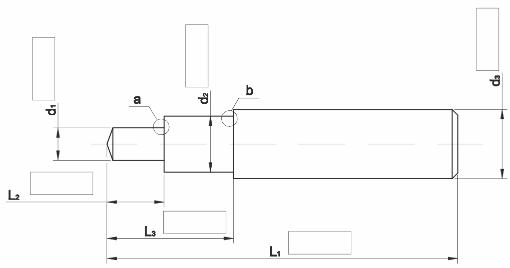
1.3. Hardness:



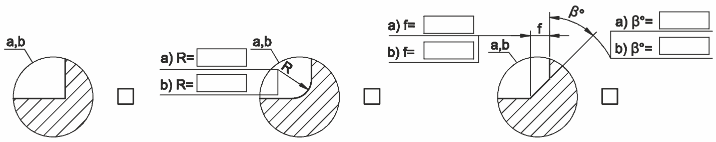

## 2. Tool:

2.1. Nr. drawing tool:..................................................................................................................................

2.2. Suggest material: 2.3. Suggest material PVD:..................................




## 3. Execution:




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3.1. Flutes: | Right spiral | ☐ | Left spiral | ☐ | Straight | ☐ | Spiral angle: ....... |
| 3.2. Rotation direction: | Right hand | ☐ | Left hand | ☐ | | | |
| 3.3. Cooling: | External | ☐ | Internal | ☐ | Non-cooling | ☐ | |
| 3.4. Shank: | DIN-6535-HA | ☐ | DIN-6535-HB | ☐ | DIN-65350HE | ☐ | |

## 4. Machine:

4.1.Type of machine: .........................

4.2. Type of spindle: ................

4.3. Power[kW]: .......................

4.4. Max. rotating speed[RPM]: ......................

## 5. Notes

## 11. Index of tool ident numbers

FANAR®



Catalogue edition 18 - 1000 pcs.

The editorial team:
Dariusz Ptaszkiewicz
Paweł Czaplicki
Radosław Zdanowski
Krzysztof Stanisławczuk
Graphic design:
Krystian Stryjewski
Rafał Pankratjew

Ciechanów, IX 2017 r.

**Tool Factory Fanar Joint Stock Company**
Płocka 11 street, 06-400 Ciechanow POLAND
tel.: (48 23) 672 44 44, fax: (48 23) 672 48 41
email: info@fanar.pl, **www.fanar.eu**

**Export Department**
tel.: (48 23) 674 30 03
(48 23) 674 30 35
(48 23) 672 42 62
email: export@fanar.pl

# Tools for threads

**Catalogue -** edition **18**