

**NEW**

# Type B - Semi-finishing

$v_c$  [m/min]  
 $f_z$  [mm]

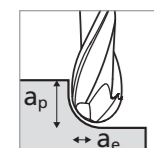
RECOMMENDATION FOR USE  
● Excellent | ● Good | ○ Acceptable | ⊗ Not recommended



## MILLING WITH INTEGRATED COOLING | CUTTING DATA OVERVIEW

**Possibility 1**

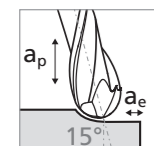
Inclination 0°



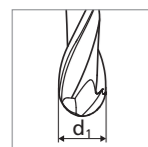
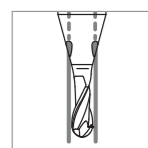
■  $a_p = 1 \times d_1$   
■  $a_e = 0.2 \times d_1$

**Possibility 2**

Inclination 15°



■  $a_p = 0.5 \times d_1$   
■  $a_e = 0.2 \times d_1$



| Materials group                            | Material                                 | Mat. no.          | DIN                  | AISI/ASTM/UNS           | 1.0 mm |       | 1.2 mm |       | 1.5 mm 1/16" |       | 1.8 mm |       | Ød1 2.0 mm |       | 2.5 mm 3/32" |       | 3.0 mm 1/8" |       | 4.0 mm 5/32" |       | 5.0 mm 3/16" |       | 6.0 mm-8.0 mm 7/32-1/4" |       |       |       |
|--|--|-------------------|----------------------|-------------------------|--------|-------|--------|-------|--------------|-------|--------|-------|------------|-------|--------------|-------|-------------|-------|--------------|-------|--------------|-------|-------------------------|-------|-------|-------|
|  |  |                   |                      |                         | $v_c$  | $f_z$ | $v_c$  | $f_z$ | $v_c$        | $f_z$ | $v_c$  | $f_z$ | $v_c$      | $f_z$ | $v_c$        | $f_z$ | $v_c$       | $f_z$ | $v_c$        | $f_z$ | $v_c$        | $f_z$ | $v_c$                   | $f_z$ | $v_c$ | $f_z$ |
| P  | Unalloyed carbon steel<br>Rm < 800 N/mm² | 1.0301            | C10                  | AISI 1010               |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 1.0401            | C15                  | AISI 1015               |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 1.1191            | C45E/CK45            | AISI 1045               |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 1.0044            | S275JR               | AISI 1020               |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 1.0715            | 11SMn30              | AISI 1215               |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  | Low alloyed steel<br>Rm > 900 N/mm²      | 1.5752            | 15NiCr13             | ASTM 3415 / AISI 3310   |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 1.7131            | 16MnCr5              | AISI 5115               |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 1.3505            | 100Cr6               | AISI 52100              |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 1.7225            | 42CrMo4              | AISI 4140               |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 1.2842            | 90MnCrV8             | AISI O2                 |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
| High alloyed tool steel<br>Rm < 1200 N/mm² | 1.2379                                   | X153CrMoV12       | AISI D2              |                         |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  | 1.2436                                   | X210CrW12         | AISI D4/D6           |                         |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  | 1.3343                                   | HS6-5-2C          | AISI M2 / UNS T11302 |                         |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  | 1.3355                                   | HS18-0-1          | AISI T1 / UNS T12001 |                         |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
| M  | Stainless steel ferritic                 | 1.4016            | X6Cr17               | AISI 430 / UNS S43000   |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 1.4105            | X6CrMoS17            | AISI 430F               |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 1.4034            | X46Cr13              | AISI 420C               |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  | Stainless steel martensitic              | 1.4112            | X90CrMoV18           | AISI 440B               |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 1.4542            | X5CrNiCuNb16-4       | AISI 630 / ASTM 17-4 PH |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  | Stainless steel martensitic - PH         | 1.4545            | X5CrNiCuNb15-5       | ASTM 15-5 PH            |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 1.4301            | X5CrNi18-10          | AISI 304                |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
| Stainless steel austenitic                 | 1.4435                                   | X2CrNiMo18-14-3   | AISI 316L            |                         |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  | 1.4441                                   | X2CrNiMo18-15-3   | AISI 316LM           |                         |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  | 1.4539                                   | X1NiCrMoCu25-20-5 | AISI 904L            |                         |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
| K  | Cast iron                                | 0.6020            | GG20                 | ASTM 30                 |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 0.6030            | GG30                 | ASTM 40B                |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 0.7040            | GGG40                | ASTM 60-40-18           |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 0.7060            | GGG60                | ASTM 80-60-03           |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
| N  | Aluminium alloy wrought                  | 3.2315            | AlMgSi1              | ASTM 6351               |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 3.4365            | AlZnMgCu1.5          | ASTM 7075               |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  | Aluminium alloy cast                     | 3.2163            | GD-AlSi9Cu3          | ASTM A380               |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 3.2381            | GD-AlSi10Mg          | UNS A03590              |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  | Copper                                   | 2.0040            | Cu-OF / CW008A       | UNS C10100              |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 2.0065            | Cu-ETP / CW004A      | UNS C11000              |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  | Brass lead free                          | 2.0321            | CuZn37 CW508L        | UNS C27400              |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 2.0360            | CuZn40 CW509L        | UNS C28000              |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  | Brass, Bronze<br>Rm < 400 N/mm²          | 2.0401            | CuZn39Pb3 / CW614N   | UNS C38500              |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 2.1020            | CuSn6                | UNS C51900              |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
| Bronze<br>Rm < 600 N/mm²                   | 2.0966                                   | CuAl10Ni5Fe4      | UNS C63000           |                         |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  | 2.0960                                   | CuAl9Mn2          | UNS C63200           |                         |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
| S1   | Super alloys                             | 2.4856            |                      | Inconel 625             |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 2.4668            |                      | Inconel 718             |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 2.4617            | NiMo28               | Hastelloy B-2           |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 2.4665            | NiCr22Fe18Mo         | Hastelloy X             |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
| S2   | Titanium pure                            | 3.7035            | Gr.2                 | ASTM B348 / F67         |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 3.7065            | Gr.4                 | ASTM B348 / F68         |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
| S3   | Titanium alloys                          | 3.7165            | TiAl6V4              | ASTM B348 / F136        |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 9.9367            | TiAl6Nb7             | ASTM F1295              |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
| H1   | Hardened steel<br>< 55 HRC               | 2.4964            | CoCr20W15Ni          | Haynes 25               |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  |                   | CrCoMo28             | ASTM F1537              |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
| H2   | Hardened steel<br>≥ 55 HRC               | 1.2510            | 100MnCrMoW4          | AISI O1                 |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |
|  |  | 1.2379            | X153CrMoV12          | AISI D2                 |        |       |        |       |              |       |        |       |            |       |              |       |             |       |              |       |              |       |                         |       |       |       |