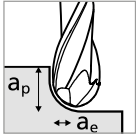

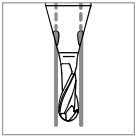


**NEW**

# Type B - Semi-finishing

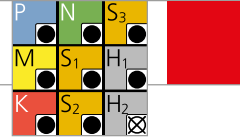
## MILLING WITH INTEGRATED COOLING | CUTTING DATA OVERVIEW

|   | Materials group      | Material                                   | Mat. no.   | DIN                | AISI/ASTM/UNS           | 1.0 mm |       | 1.2 mm |       |
|---|----------------------|--|------------|--------------------|-------------------------|--------|-------|--------|-------|
|   |                      |  |            |                    |                         | $v_c$  | $f_z$ | $v_c$  | $f_z$ |
| <p><b>Possibility 1</b></p> <p>Inclination 0°</p>  <p>■ <math>a_p = 1 \times d_1</math><br/>■ <math>a_e = 0.2 \times d_1</math></p>      | <b>P</b>             | Unalloyed carbon steel<br>Rm < 800 N/mm²   | 1.0301     | C10                | AISI 1010               | 140    | 0.013 | 140    | 0.014 |
|   |                      |  | 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   | 140    | 0.012 | 140    | 0.014 |
|   |                      |  | 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                 | 140    | 0.009 | 140    | 0.011 |
|   |                      |  | 1.2436     | X210CrW12          | AISI D4/D6              |        |       |        |       |
|   |                      |  | 1.3343     | H56-5-2C           | AISI M2 / UNS T11302    |        |       |        |       |
|   |                      |  | 1.3355     | H518-0-1           | AISI T1 / UNS T12001    |        |       |        |       |
|   |                      |  |            |                    |                         |        |       |        |       |
| <p><b>Possibility 2</b></p> <p>Inclination 15°</p>  <p>■ <math>a_p = 0.5 \times d_1</math><br/>■ <math>a_e = 0.2 \times d_1</math></p> | <b>M</b>             | Stainless steel ferritic                   | 1.4016     | X6Cr17             | AISI 430 / UNS S43000   | 140    | 0.014 | 140    | 0.015 |
|   |                      |  | 1.4105     | X6CrMoS17          | AISI 430F               |        |       |        |       |
|   |                      |  | 1.4034     | X46Cr13            | AISI 420C               |        |       |        |       |
|   |                      | Stainless steel martensitic                | 1.4112     | X90CrMoV18         | AISI 440B               | 140    | 0.013 | 140    | 0.014 |
|   |                      |  | 1.4542     | X5CrNiCuNb16-4     | AISI 630 / ASTM 17-4 PH |        |       |        |       |
|   |                      | Stainless steel martensitic – PH           | 1.4545     | X5CrNiCuNb15-5     | ASTM 15-5 PH            | 140    | 0.013 | 140    | 0.014 |
|   |                      |  | 1.4301     | X5CrNi18-10        | AISI 304                |        |       |        |       |
|   |                      | Stainless steel austenitic                 | 1.4435     | X2CrNiMo18-14-3    | AISI 316L               | 140    | 0.010 | 140    | 0.012 |
|   |                      |  | 1.4441     | X2CrNiMo18-15-3    | AISI 316LM              |        |       |        |       |
|   |                      |  | 1.4539     | X1NiCrMoCu25-20-5  | AISI 904L               |        |       |        |       |
|   | <b>K</b>             | Cast iron                                  | 0.6020     | GG20               | ASTM 30                 | 120    | 0.009 | 120    | 0.019 |
|   |                      |  | 0.6030     | GG30               | ASTM 40B                |        |       |        |       |
|   |                      |  | 0.7040     | GGG40              | ASTM 60-40-18           |        |       |        |       |
|   |                      |  | 0.7060     | GGG60              | ASTM 80-60-03           |        |       |        |       |
|    | <b>N</b>             | Aluminium alloy wrought                    | 3.2315     | AlMgSi1            | ASTM 6351               | 140    | 0.015 | 140    | 0.017 |
|   |                      |  | 3.4365     | AlZnMgCu1.5        | ASTM 7075               |        |       |        |       |
|   |                      | Aluminium alloy cast                       | 3.2163     | GD-AlSi9Cu3        | ASTM A380               | 140    | 0.015 | 140    | 0.017 |
|   |                      |  | 3.2381     | GD-AlSi10Mg        | UNS A03590              |        |       |        |       |
|   |                      | Copper                                     | 2.0040     | Cu-OF / CW008A     | UNS C10100              | 140    | 0.017 | 140    | 0.019 |
|   |                      |  | 2.0065     | Cu-ETP / CW004A    | UNS C11000              |        |       |        |       |
|   |                      | Brass lead free                            | 2.0321     | CuZn37 CW508L      | UNS C27400              | 140    | 0.017 | 140    | 0.019 |
|   |                      |  | 2.0360     | CuZn40 CW509L      | UNS C28000              |        |       |        |       |
|   |                      | Brass, Bronze<br>Rm < 400 N/mm²            | 2.0401     | CuZn39Pb3 / CW614N | UNS C38500              | 140    | 0.017 | 140    | 0.019 |
|   |                      |  | 2.1020     | CuSn6              | UNS C51900              |        |       |        |       |
| Bronze<br>Rm < 600 N/mm²  | 2.0966               | CuAl10Ni5Fe4                               | UNS C63000 | 140                | 0.015                   | 140    | 0.017 |        |       |
|   | 2.0960               | CuAl9Mn2                                   | UNS C63200 |                    |                         |        |       |        |       |
|   | <b>S<sub>1</sub></b> | Super alloys                               | 2.4856     |                    | Inconel 625             | 120    | 0.006 | 120    | 0.007 |
|   |                      |  | 2.4668     |                    | Inconel 718             |        |       |        |       |
|   |                      |  | 2.4617     | NiMo28             | Hastelloy B-2           |        |       |        |       |
|   |                      |  | 2.4665     | NiCr22Fe18Mo       | Hastelloy X             |        |       |        |       |
|   | <b>S<sub>2</sub></b> | Titanium pure                              | 3.7035     | Gr.2               | ASTM B348 / F67         | 120    | 0.014 | 120    | 0.015 |
|   |                      |  | 3.7065     | Gr.4               | ASTM B348 / F68         |        |       |        |       |
|   | <b>S<sub>2</sub></b> | Titanium alloys                            | 3.7165     | TiAl6V4            | ASTM B348 / F136        | 120    | 0.014 | 120    | 0.015 |
|   |                      |  | 9.9367     | TiAl6Nb7           | ASTM F1295              |        |       |        |       |
|   | <b>S<sub>3</sub></b> | CrCo alloys                                | 2.4964     | CoCr20W15Ni        | Haynes 25               | 140    | 0.006 | 140    | 0.007 |
|   |                      |  |            | CrCoMo28           | ASTM F1537              |        |       |        |       |
| <b>H<sub>1</sub></b>  |                      | Hardened steel < 55 HRC                    | 1.2510     | 100MnCrMoW4        | AISI O1                 | 100    | 0.009 | 100    | 0.010 |
| <b>H<sub>2</sub></b>  |                      | Hardened steel ≥ 55 HRC                    | 1.2379     | X153CrMoV12        | AISI D2                 |        |       |        |       |

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

RECOMMENDATION FOR USE

● Excellent | ● Good | ○ Acceptable | ⊗ Not recommended

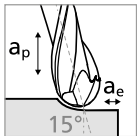
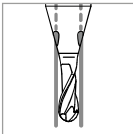
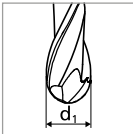


|  | 1.5 mm<br>1/16" |       | 1.8 mm |       | 2.0 mm |       | 2.5 mm<br>3/32" |       | 3.0 mm<br>1/8" |       | 4.0 mm<br>5/32" |       | 5.0 mm<br>3/16" - 7/32" |       | 6.0 mm-8.0 mm<br>1/4" |       |
|--|-----------------|-------|--------|-------|--------|-------|-----------------|-------|----------------|-------|-----------------|-------|-------------------------|-------|-----------------------|-------|
|  | $v_c$           | $f_z$ | $v_c$  | $f_z$ | $v_c$  | $f_z$ | $v_c$           | $f_z$ | $v_c$          | $f_z$ | $v_c$           | $f_z$ | $v_c$                   | $f_z$ | $v_c$                 | $f_z$ |
|  | 200             | 0.020 | 200    | 0.022 | 220    | 0.029 | 220             | 0.031 | 240            | 0.037 | 260             | 0.040 | 260                     | 0.040 | 260                   | 0.043 |
|  | 200             | 0.019 | 200    | 0.020 | 220    | 0.027 | 220             | 0.029 | 240            | 0.035 | 260             | 0.038 | 260                     | 0.038 | 260                   | 0.041 |
|  | 200             | 0.017 | 200    | 0.019 | 220    | 0.026 | 220             | 0.027 | 240            | 0.032 | 260             | 0.034 | 260                     | 0.034 | 260                   | 0.036 |
|  | 200             | 0.020 | 200    | 0.022 | 220    | 0.029 | 220             | 0.031 | 240            | 0.035 | 260             | 0.038 | 260                     | 0.038 | 260                   | 0.041 |
|  | 200             | 0.019 | 200    | 0.020 | 220    | 0.027 | 220             | 0.029 | 240            | 0.035 | 260             | 0.037 | 260                     | 0.037 | 260                   | 0.039 |
|  | 200             | 0.019 | 200    | 0.020 | 220    | 0.027 | 220             | 0.029 | 240            | 0.035 | 260             | 0.037 | 260                     | 0.037 | 260                   | 0.039 |
|  | 200             | 0.014 | 200    | 0.015 | 220    | 0.026 | 220             | 0.027 | 240            | 0.032 | 260             | 0.035 | 260                     | 0.035 | 260                   | 0.037 |
|  | 140             | 0.020 | 140    | 0.022 | 160    | 0.024 | 160             | 0.031 | 180            | 0.034 | 200             | 0.040 | 200                     | 0.042 | 200                   | 0.044 |
|  | 200             | 0.022 | 200    | 0.024 | 220    | 0.031 | 220             | 0.034 | 240            | 0.046 | 260             | 0.048 | 260                     | 0.048 | 260                   | 0.051 |
|  | 200             | 0.022 | 200    | 0.024 | 220    | 0.031 | 220             | 0.034 | 240            | 0.046 | 260             | 0.048 | 260                     | 0.048 | 260                   | 0.051 |
|  | 200             | 0.022 | 200    | 0.024 | 220    | 0.031 | 220             | 0.034 | 240            | 0.046 | 260             | 0.048 | 260                     | 0.048 | 260                   | 0.051 |
|  | 200             | 0.022 | 200    | 0.024 | 220    | 0.031 | 220             | 0.034 | 240            | 0.046 | 260             | 0.048 | 260                     | 0.048 | 260                   | 0.051 |
|  | 200             | 0.022 | 200    | 0.024 | 220    | 0.031 | 220             | 0.034 | 240            | 0.046 | 260             | 0.048 | 260                     | 0.048 | 260                   | 0.051 |
|  | 200             | 0.022 | 200    | 0.024 | 220    | 0.031 | 220             | 0.034 | 240            | 0.046 | 260             | 0.048 | 260                     | 0.048 | 260                   | 0.051 |
|  | 130             | 0.008 | 130    | 0.009 | 140    | 0.009 | 140             | 0.010 | 150            | 0.012 | 170             | 0.016 | 170                     | 0.016 | 170                   | 0.017 |
|  | 130             | 0.017 | 130    | 0.019 | 140    | 0.024 | 140             | 0.026 | 150            | 0.032 | 170             | 0.035 | 170                     | 0.035 | 170                   | 0.037 |
|  | 130             | 0.017 | 130    | 0.019 | 140    | 0.024 | 140             | 0.026 | 150            | 0.032 | 170             | 0.035 | 170                     | 0.035 | 170                   | 0.037 |
|  | 180             | 0.008 | 180    | 0.009 | 200    | 0.009 | 200             | 0.010 | 220            | 0.012 | 240             | 0.016 | 240                     | 0.016 | 240                   | 0.017 |
|  | 140             | 0.012 | 140    | 0.015 | 180    | 0.017 | 180             | 0.022 | 200            | 0.026 | 240             | 0.032 | 240                     | 0.032 | 240                   | 0.034 |

**NEW**

## Type B - Finishing

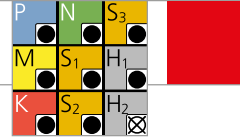
### MILLING WITH INTEGRATED COOLING | CUTTING DATA OVERVIEW

|   | Materials group                             | Material   | Mat. no.           | DIN                      | AISI/ASTM/UNS         | 1.0 mm |       | 1.2 mm |       |
|---|---|--|--------------------|--------------------------|-----------------------|--------|-------|--------|-------|
|   |   |  |                    |                          |                       | $v_c$  | $f_z$ | $v_c$  | $f_z$ |
| <p><b>Inclination 15°</b></p>  <p>■ <math>a_p = 0.1 \times d</math>,<br/>■ <math>a_e = 0.05 - 0.1 \times d</math>,<br/><math>n_{max} = 60'000 \text{ rpm}</math></p>   | <b>P</b>                                    | Unalloyed carbon steel<br>$R_m < 800 \text{ N/mm}^2$   | 1.0301             | C10                      | AISI 1010             | 140    | 0.015 | 140    | 0.017 |
|   |   |  | 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>$R_m > 900 \text{ N/mm}^2$        | 1.5752             | 15NiCr13                 | ASTM 3415 / AISI 3310 | 140    | 0.014 | 140    | 0.016 |
|   |   |  | 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>$R_m < 1200 \text{ N/mm}^2$ | 1.2379             | X153CrMoV12              | AISI D2               | 140    | 0.011 | 140    | 0.013 |
|   |   |  | 1.2436             | X210CrW12                | AISI D4/D6            |        |       |        |       |
|   |   |  | 1.3343             | H56-5-2C                 | AISI M2 / UNS T11302  |        |       |        |       |
|   |   |  | 1.3355             | H518-0-1                 | AISI T1 / UNS T12001  |        |       |        |       |
|   |   |  | <b>M</b>           | Stainless steel ferritic | 1.4016                |        |       |        |       |
| 1.4105  | X6CrMoS17                                   | AISI 430F  |                    |                          |                       |        |       |        |       |
| Stainless steel martensitic   | 1.4034                                      | X46Cr13  |                    | AISI 420C                | 140                   | 0.015  | 140   | 0.017  |       |
|   | 1.4112                                      | X90CrMoV18   |                    | AISI 440B                |                       |        |       |        |       |
| Stainless steel martensitic – PH  | 1.4542                                      | X5CrNiCuNb16-4   |                    | AISI 630 / ASTM 17-4 PH  | 140                   | 0.015  | 140   | 0.017  |       |
|   | 1.4545                                      | X5CrNiCuNb15-5   |                    | ASTM 15-5 PH             |                       |        |       |        |       |
| Stainless steel austenitic  | 1.4301                                      | X5CrNi18-10  |                    | AISI 304                 | 140                   | 0.012  | 140   | 0.014  |       |
|   | 1.4435                                      | X2CrNiMo18-14-3  |                    | AISI 316L                |                       |        |       |        |       |
|   | 1.4441                                      | X2CrNiMo18-15-3  | AISI 316LM         |                          |                       |        |       |        |       |
| <b>K</b>  | Cast iron                                   | 0.6020   | GG20               | ASTM 30                  | 120                   | 0.011  | 120   | 0.022  |       |
|   |   | 0.6030   | GG30               | ASTM 40B                 |                       |        |       |        |       |
|   |   | 0.7040   | GGG40              | ASTM 60-40-18            |                       |        |       |        |       |
|   |   | 0.7060   | GGG60              | ASTM 80-60-03            |                       |        |       |        |       |
| <b>N</b>  | Aluminium alloy wrought                     | 3.2315   | AlMgSi1            | ASTM 6351                | 140                   | 0.018  | 140   | 0.020  |       |
|   |   | 3.4365   | AlZnMgCu1.5        | ASTM 7075                |                       |        |       |        |       |
|   | Aluminium alloy cast                        | 3.2163   | GD-ALSi9Cu3        | ASTM A380                | 140                   | 0.018  | 140   | 0.020  |       |
|   |   | 3.2381   | GD-ALSi10Mg        | UNS A03590               |                       |        |       |        |       |
|   | Copper                                      | 2.0040   | Cu-OF / CW008A     | UNS C10100               | 140                   | 0.020  | 140   | 0.022  |       |
|   |   | 2.0065   | Cu-ETP / CW004A    | UNS C11000               |                       |        |       |        |       |
|   | Brass lead free                             | 2.0321   | CuZn37 CW508L      | UNS C27400               | 140                   | 0.020  | 140   | 0.022  |       |
|   |   | 2.0360   | CuZn40 CW509L      | UNS C28000               |                       |        |       |        |       |
|   | Brass, Bronze<br>$R_m < 400 \text{ N/mm}^2$ | 2.0401   | CuZn39Pb3 / CW614N | UNS C38500               | 140                   | 0.020  | 140   | 0.022  |       |
|   |   | 2.1020   | CuSn6              | UNS C51900               |                       |        |       |        |       |
| Bronze<br>$R_m < 600 \text{ N/mm}^2$  | 2.0966                                      | CuAl10Ni5Fe4   | UNS C63000         | 140                      | 0.018                 | 140    | 0.020 |        |       |
|   | 2.0960                                      | CuAl9Mn2   | UNS C63200         |                          |                       |        |       |        |       |
| <b>S<sub>1</sub></b>  | Super alloys                                | 2.4856   |                    | Inconel 625              | 120                   | 0.007  | 120   | 0.008  |       |
|   |   | 2.4668   |                    | Inconel 718              |                       |        |       |        |       |
|   |   | 2.4617   | NiMo28             | Hastelloy B-2            |                       |        |       |        |       |
|   |   | 2.4665   | NiCr22Fe18Mo       | Hastelloy X              |                       |        |       |        |       |
| <b>S<sub>2</sub></b>  | Titanium pure                               | 3.7035   | Gr.2               | ASTM B348 / F67          | 120                   | 0.016  | 120   | 0.018  |       |
|   |   | 3.7065   | Gr.4               | ASTM B348 / F68          |                       |        |       |        |       |
| <b>S<sub>3</sub></b>  | Titanium alloys                             | 3.7165   | TiAl6V4            | ASTM B348 / F136         | 120                   | 0.016  | 120   | 0.018  |       |
|   |   | 9.9367   | TiAl6Nb7           | ASTM F1295               |                       |        |       |        |       |
| <b>S<sub>3</sub></b>  | CrCo alloys                                 | 2.4964   | CoCr20W15Ni        | Haynes 25                | 140                   | 0.007  | 140   | 0.008  |       |
|   |   |  | CrCoMo28           | ASTM F1537               |                       |        |       |        |       |
| <b>H<sub>1</sub></b>  | Hardened steel<br>< 55 HRC                  | 1.2510   | 100MnCrMoW4        | AISI O1                  | 100                   | 0.010  | 100   | 0.012  |       |
| <b>H<sub>2</sub></b>  | Hardened steel<br>≥ 55 HRC                  | 1.2379   | X153CrMoV12        | AISI D2                  |                       |        |       |        |       |

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

RECOMMENDATION FOR USE

● Excellent | ● Good | ○ Acceptable | ⊗ Not recommended



|  | 1.5 mm<br>1/16" |       | 1.8 mm |       | 2.0 mm |       | 2.5 mm<br>3/32" |       | 3.0 mm<br>1/8" |       | 4.0 mm<br>5/32" |       | 5.0 mm<br>3/16" - 7/32" |       | 6.0 mm-8.0 mm<br>1/4" |       |
|--|-----------------|-------|--------|-------|--------|-------|-----------------|-------|----------------|-------|-----------------|-------|-------------------------|-------|-----------------------|-------|
|  | $v_c$           | $f_z$ | $v_c$  | $f_z$ | $v_c$  | $f_z$ | $v_c$           | $f_z$ | $v_c$          | $f_z$ | $v_c$           | $f_z$ | $v_c$                   | $f_z$ | $v_c$                 | $f_z$ |
|  | 200             | 0.024 | 200    | 0.026 | 220    | 0.034 | 220             | 0.036 | 240            | 0.040 | 260             | 0.044 | 260                     | 0.044 | 260                   | 0.047 |
|  | 200             | 0.022 | 200    | 0.024 | 220    | 0.032 | 220             | 0.034 | 240            | 0.039 | 260             | 0.042 | 260                     | 0.042 | 260                   | 0.045 |
|  | 200             | 0.020 | 200    | 0.022 | 220    | 0.030 | 220             | 0.032 | 240            | 0.035 | 260             | 0.037 | 260                     | 0.037 | 260                   | 0.039 |
|  | 200             | 0.024 | 200    | 0.026 | 220    | 0.034 | 220             | 0.036 | 240            | 0.039 | 260             | 0.042 | 260                     | 0.042 | 260                   | 0.045 |
|  | 200             | 0.022 | 200    | 0.024 | 220    | 0.032 | 220             | 0.034 | 240            | 0.039 | 260             | 0.040 | 260                     | 0.040 | 260                   | 0.043 |
|  | 200             | 0.022 | 200    | 0.024 | 220    | 0.032 | 220             | 0.034 | 240            | 0.039 | 260             | 0.040 | 260                     | 0.040 | 260                   | 0.043 |
|  | 200             | 0.016 | 200    | 0.018 | 220    | 0.030 | 220             | 0.032 | 240            | 0.035 | 260             | 0.039 | 260                     | 0.039 | 260                   | 0.041 |
|  | 140             | 0.024 | 140    | 0.026 | 160    | 0.028 | 160             | 0.036 | 180            | 0.038 | 200             | 0.044 | 200                     | 0.046 | 200                   | 0.049 |
|  | 200             | 0.026 | 200    | 0.028 | 220    | 0.036 | 220             | 0.040 | 240            | 0.051 | 260             | 0.053 | 260                     | 0.053 | 260                   | 0.056 |
|  | 200             | 0.026 | 200    | 0.028 | 220    | 0.036 | 220             | 0.040 | 240            | 0.051 | 260             | 0.053 | 260                     | 0.053 | 260                   | 0.056 |
|  | 200             | 0.026 | 200    | 0.028 | 220    | 0.036 | 220             | 0.040 | 240            | 0.051 | 260             | 0.053 | 260                     | 0.053 | 260                   | 0.056 |
|  | 200             | 0.026 | 200    | 0.028 | 220    | 0.036 | 220             | 0.040 | 240            | 0.051 | 260             | 0.053 | 260                     | 0.053 | 260                   | 0.056 |
|  | 200             | 0.026 | 200    | 0.028 | 220    | 0.036 | 220             | 0.040 | 240            | 0.051 | 260             | 0.053 | 260                     | 0.053 | 260                   | 0.056 |
|  | 130             | 0.009 | 130    | 0.010 | 140    | 0.010 | 140             | 0.012 | 150            | 0.013 | 170             | 0.018 | 170                     | 0.018 | 170                   | 0.019 |
|  | 130             | 0.020 | 130    | 0.022 | 140    | 0.028 | 140             | 0.030 | 150            | 0.035 | 170             | 0.039 | 170                     | 0.039 | 170                   | 0.041 |
|  | 130             | 0.020 | 130    | 0.022 | 140    | 0.028 | 140             | 0.030 | 150            | 0.035 | 170             | 0.039 | 170                     | 0.039 | 170                   | 0.041 |
|  | 180             | 0.009 | 180    | 0.010 | 200    | 0.010 | 200             | 0.012 | 220            | 0.013 | 240             | 0.018 | 240                     | 0.018 | 240                   | 0.019 |
|  | 140             | 0.014 | 140    | 0.018 | 180    | 0.020 | 180             | 0.026 | 200            | 0.029 | 240             | 0.035 | 240                     | 0.035 | 240                   | 0.037 |