

銑刀、鑽頭專用材質表 Special Grades for END Mills and Drills

產品規格	晶粒度	鈷含量	硬 度		抗折力	密 度	ISO 範圍	建議應用
Grade	WC grain size	Cobalt content	Hardness		TRS	Density	ISO-Range	Applications
	[μm]		[wt %]	HV 30 [N/mm ²]	HRC			
AF K10UF	0.6	6	1900	93.8	>3500	14.8	K10	Grey cast iron, Unalloyed steels, Plastics
AF K20 CF	0.7	8	1710	92.5	>3200	14.6	K10 - K20	Grey cast iron, Unalloyed steels
AF K34 EF	<0.5	9	1930	94.0	>3900	14.3	K20 - K30	Grey cast iron, Unalloyed steels, Aluminium alloys, Plastics, Fibre reinforced materials
AF K40 UF	0.6	10	1610	91.9	>3600	14.5	K30 - K40	Corrosion and heat resistant steels, Stainless steels, Non ferrous metals, Plastics
AF K44 EF	0.5	12	1680	92.3	>3800	14.1	K40 - K50	Corrosion and heat resistant steels, Stainless steels, Titanium alloys, Non ferrous metals
AF K45 EF	<0.5	13	1700	92.4	>3900	13.9	K40 - K50	Corrosion and heat resistant steels, Stainless steels, Titanium alloys, Non ferrous metals

銑刀、鑽頭專用材質表

Special Grades for END Mills and Drills

AF K10 UF

ISO-Range	K10
Chemical Data	
Co (%)	6
WC incl. Doping(%)	94

Physical Data

Density (g/cm ³)	14.8
Hardness	
HV 30 (N/mm ²)	1900
HRC	93.8
Transverse Rupture Strength (N/mm ²)	>3500

Metallographic Data

Porosity	
≤10 μm A	≤02
10-25 μm B	00
C	00

Microstructure

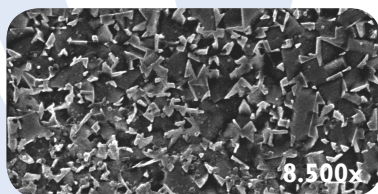
Tungsten Carbide α	ø0.6μm
Binding Phase β	unif. distr.
Mixed Carbide γ	—
Eta Phase η	—

Areas of Application

Grey Cast iron 灰鑄鐵
 Unalloyed steels 非合金金屬
 Plastics 塑膠

Microstructure

Murakami-Etching



AF K20 CF

ISO-Range	K10 - K20
Chemical Data	
Co (%)	8
WC incl. Doping(%)	92

Physical Data

Density (g/cm ³)	14.6
Hardness	
HV 30 (N/mm ²)	1710
HRC	92.5
Transverse Rupture Strength (N/mm ²)	>3200

Metallographic Data

Porosity	
<10 μm A	≤02
>10 μm B	00
C	00

Microstructure

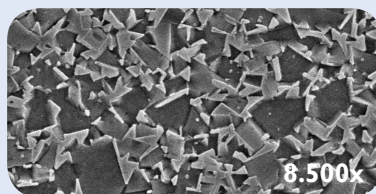
Tungsten Carbide α	ø0.7μm
Binding Phase β	unif. distr.
Mixed Carbide γ	—
Eta Phase η	—

Areas of Application

Grey Cast iron 灰鑄鐵
 Unalloyed steels 非合金金屬

Microstructure

Murakami-Etching



AF K34 EF

ISO-Range	K20 - K30
Chemical Data	
Co (%)	9
WC incl. Doping(%)	91

Physical Data

Density (g/cm ³)	14.3
Hardness	
HV 30 (N/mm ²)	1930
HRC	94.0
Transverse Rupture Strength (N/mm ²)	>3900

Metallographic Data

Porosity	
<10 μm A	≤02
>10 μm B	00
C	00

Microstructure

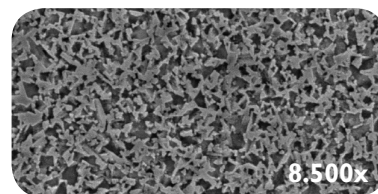
Tungsten Carbide α	ø<0.5μm
Binding Phase β	unif. distr.
Mixed Carbide γ	—
Eta Phase η	—

Areas of Application

Grey Cast iron 灰鑄鐵
 Unalloyed steels 非合金金屬
 Aluminium alloys 鋁合金
 Plastics 塑膠
 Fibre reinforced materials 纖維強化材料

Microstructure

Murakami-Etching



AF K40 UF

ISO-Range	K30 - K40
Chemical Data	
Co (%)	10
WC incl. Doping(%)	90

Physical Data

Density (g/cm ³)	14.5
Hardness	
HV 30 (N/mm ²)	1610
HRC	91.9
Transverse Rupture Strength (N/mm ²)	>3600

Metallographic Data

Porosity		
<10 μm A	≤02	
>10 μm B	00	
C	00	

Microstructure

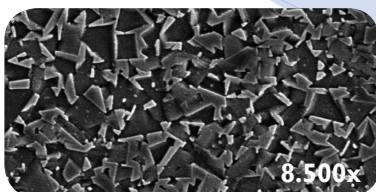
Tungsten Carbide α	∅0.6μm
Binding Phase β	unif. distr.
Mixed Carbide γ	—
Eta Phase η	—

Areas of Application

Corrosion and heat resistant steels
抗腐蝕物耐熱金屬
Stainless steels 不銹鋼
Non ferrous metals 非鐵金屬
Plastics 塑膠

Microstructure

Murakami-Etching



AF K44 EF

ISO-Range	K40 - K50
Chemical Data	
Co (%)	12
WC incl. Doping(%)	88

Physical Data

Density (g/cm ³)	14.1
Hardness	
HV 30 (N/mm ²)	1680
HRC	92.3
Transverse Rupture Strength (N/mm ²)	>3800

Metallographic Data

Porosity		
<10 μm A	≤02	
>10 μm B	00	
C	00	

Microstructure

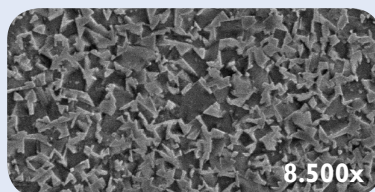
Tungsten Carbide α	∅0.5μm
Binding Phase β	unif. distr.
Mixed Carbide γ	—
Eta Phase η	—

Areas of Application

Corrosion and heat resistant steels
抗腐蝕物耐熱金屬
Stainless steels 不銹鋼
Titanium alloys 鈦合金
Non ferrous metals 非鐵金屬

Microstructure

Murakami-Etching



AF K45 EF

ISO-Range	K40 - K50
Chemical Data	
Co (%)	13
WC incl. Doping(%)	87

Physical Data

Density (g/cm ³)	13.9
Hardness	
HV 30 (N/mm ²)	1700
HRC	92.4
Transverse Rupture Strength (N/mm ²)	>3900

Metallographic Data

Porosity		
<10 μm A	≤02	
>10 μm B	00	
C	00	

Microstructure

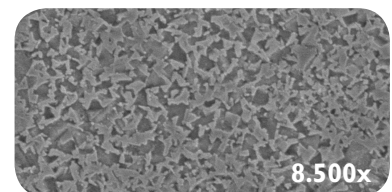
Tungsten Carbide α	∅<0.5μm
Binding Phase β	unif. distr.
Mixed Carbide γ	—
Eta Phase η	—

Areas of Application

Corrosion and heat resistant steels
抗腐蝕物耐熱金屬
Stainless steels 不銹鋼
Titanium alloys 鈦合金
Non ferrous metals 非鐵金屬

Microstructure

Murakami-Etching





產品編號使用說明

Description for Article-No.

例: 40 度三螺旋孔圓棒 3 Holes 40° Helix

40度三螺旋孔圓棒 3 Holes 40° Helix					Grade			
					AF K20 CF	xxx.78.xxx	AF K34 EF	xxx.49.xxx
					AF K40 UF	xxx.70.xxx	AF K44 EF	xxx.62.xxx
產品編號	Article-No.				341.xx.xxx/343.xx.xxx			
直徑	公差	孔距	公差	孔徑	公差	間隔	長度	產品編號
D (mm)	Tol	BC	Tol	Hole Ø	Tol	Pitch±0.5°	L +10(mm)	Article
6.3	+0.30	2.05	±0.15	0.50	±0.15	22.46	310/330	xxx.xx.063
6.8	+0.30	2.15	±0.15	0.50	±0.15	24.34	310/330	xxx.xx.068
7.3	+0.30	2.25	±0.15	0.65	±0.15	26.21	310/330	xxx.xx.073
7.8	+0.30	2.35	±0.15	0.65	±0.15	28.08	310/330	xxx.xx.078
8.3	+0.30	2.45	±0.15	0.65	±0.15	29.95	310/330	xxx.xx.083

產品編號

Article-No. **341.70.063**

直徑值 (Φmmx10)
Diameter

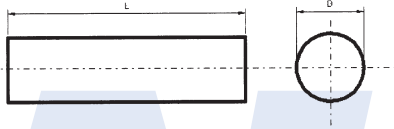
材料規格 Carbide Grade
(e.g. AF K40 UF=70 or AF K44 EF=62)

長度 (1=310mm, 3=330mm, 4=415mm)
Length

螺旋角度 (3=30° 4=40°)
Pitch

水孔數 (0, 1, 2, 3)
Number of cooling channels

實心圓棒 Solid Rods



產品編號 Article-No.

直徑 D(mm)	公差 Tol	長度 L +10 (mm)	產品編號 Article
1.2	+0.2	310/330	xxx.xx.012
1.7	+0.2	310/330	xxx.xx.017
2.2	+0.2	310/330	xxx.xx.022
2.7	+0.2	310/330	xxx.xx.027
3.2	+0.2	310/330	xxx.xx.032
3.7	+0.2	310/330	xxx.xx.037
4.2	+0.2	310/330	xxx.xx.042
4.7	+0.2	310/330	xxx.xx.047
5.2	+0.2	310/330	xxx.xx.052
5.7	+0.2	310/330	xxx.xx.057
6.2	+0.2	310/330/415	xxx.xx.062
6.7	+0.2	310/330/415	xxx.xx.067
7.2	+0.2	310/330/415	xxx.xx.072
7.7	+0.2	310/330/415	xxx.xx.077
8.2	+0.3	310/330/415	xxx.xx.082
8.7	+0.3	310/330/415	xxx.xx.087
9.2	+0.3	310/330/415	xxx.xx.092
9.7	+0.3	310/330/415	xxx.xx.097
10.2	+0.3	310/330/415	xxx.xx.102
10.7	+0.3	310/330/415	xxx.xx.107
11.2	+0.3	310/330/415	xxx.xx.112
11.7	+0.3	310/330/415	xxx.xx.117
12.2	+0.3	310/330/415	xxx.xx.122
12.7	+0.3	310/330/415	xxx.xx.127
13.2	+0.3	310/330/415	xxx.xx.132
13.7	+0.3	310/330/415	xxx.xx.137
14.2	+0.3	310/330/415	xxx.xx.142
14.7	+0.3	310/330/415	xxx.xx.147
15.2	+0.3	310/330/415	xxx.xx.152
15.7	+0.3	310/330/415	xxx.xx.157

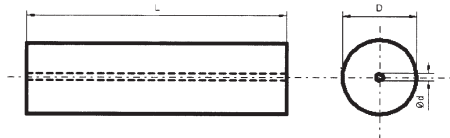
Grade

AF K10 UF	xxx.66.xxx	AF K40 UF	xxx.70.xxx
AF K20 CF	xxx.78.xxx	AF K44 EF	xxx.62.xxx
AF K34 EF	xxx.49.xxx	AF K45 EF	xxx.53.xxx

001.xx.xxx/003.xx.xxx/004.xx.xxx

直徑 D(mm)	公差 Tol	長度 L +10 (mm)	產品編號 Article
16.2	+0.4	310/330/415	xxx.xx.162
16.7	+0.4	310/330/415	xxx.xx.167
17.2	+0.4	310/330/415	xxx.xx.172
17.7	+0.4	310/330/415	xxx.xx.177
18.2	+0.4	310/330/415	xxx.xx.182
18.7	+0.4	310/330/415	xxx.xx.187
19.2	+0.4	310/330/415	xxx.xx.192
19.7	+0.4	310/330/415	xxx.xx.197
20.2	+0.5	310/330/415	xxx.xx.202
20.7	+0.5	310/330/415	xxx.xx.207
21.2	+0.5	310/330/415	xxx.xx.212
21.7	+0.5	310/330/415	xxx.xx.217
22.2	+0.5	310/330/415	xxx.xx.222
22.7	+0.5	310/330/415	xxx.xx.227
23.2	+0.5	310/330/415	xxx.xx.232
23.7	+0.5	310/330/415	xxx.xx.237
24.2	+0.5	310/330/415	xxx.xx.242
25.2	+0.5	310/330/415	xxx.xx.252
26.2	+0.5	310/330	xxx.xx.262
27.2	+0.5	310/330	xxx.xx.272
28.2	+0.5	310/330	xxx.xx.282
29.2	+0.5	310/330	xxx.xx.292
30.2	+0.5	310/330	xxx.xx.302
31.2	+0.5	310/330	xxx.xx.312
32.2	+0.5	310/330	xxx.xx.322
33.2	+0.5	310/330	xxx.xx.332
34.2	+0.5	310/330	xxx.xx.342
35.2	+0.5	310/330	xxx.xx.352

單直孔圓棒 Rods with Central Hole



Grade

AF K10 UF	xxx.66.xxx	AF K40 UF	xxx.70.xxx
AF K20 CF	xxx.78.xxx	AF K44 EF	xxx.62.xxx
AF K34 EF	xxx.49.xxx	AF K45 EF	xxx.53.xxx

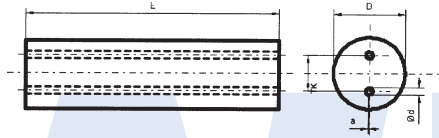
產品編號 Article-No.

101.xx.xxx/103.xx.xxx

直徑 D(mm)	公差 Tol	孔徑 Hole Ø	公差 Tol	長度 L +10 (mm)	產品編號 Article
4.3	+0.3	0.6	±0.10	310/330	xxx.xx.043
6.3	+0.3	1.0	±0.15	310/330	xxx.xx.063
8.3	+0.3	1.3	±0.15	310/330	xxx.xx.083
10.3	+0.4	2.0	±0.20	310/330	xxx.xx.103
12.3	+0.4	2.0	±0.20	310/330	xxx.xx.123
14.3	+0.4	2.0	±0.20	310/330	xxx.xx.143
16.3	+0.5	2.0	±0.20	310/330	xxx.xx.163
18.3	+0.5	3.0	±0.25	310/330	xxx.xx.183
20.3	+0.5	3.0	±0.25	310/330	xxx.xx.203
22.3	+0.5	3.0	±0.25	310/330	xxx.xx.223
24.3	+0.5	4.0	±0.30	310/330	xxx.xx.243
26.3	+0.5	4.0	±0.30	310/330	xxx.xx.263
28.3	+0.5	4.0	±0.30	310/330	xxx.xx.283
30.3	+0.5	5.0	±0.35	310/330	xxx.xx.303
32.3	+0.5	5.0	±0.35	310/330	xxx.xx.323



雙直孔圓棒 Parallel Holes with Standard Bolt Circle **Grade**



AF K10 UF	xxx.66.xxx	AF K40 UF	xxx.70.xxx
AF K20 CF	xxx.78.xxx	AF K44 EF	xxx.62.xxx
AF K34 EF	xxx.49.xxx	AF K45 EF	xxx.53.xxx

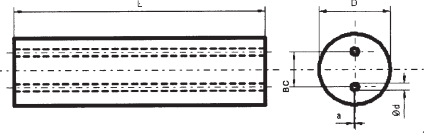
產品編號 Article-No.

201.xx.xxx/203.xx.xxx

直徑 D (mm)	公差 Tol	孔距 BC	公差 Tol	孔徑 Hole Ø	公差 Tol	長度 L +10 (mm)	產品編號 Article
4.2	+0.3	1.72	±0.08	0.80	±0.10	310/330	xxx.xx.042
5.2	+0.3	1.92	±0.08	0.80	±0.10	310/330	xxx.xx.052
6.3	+0.3	2.90	±0.10	1.00	±0.15	310/330	xxx.xx.063
7.3	+0.3	3.40	±0.10	1.00	±0.15	310/330	xxx.xx.073
8.3	+0.3	3.85	±0.15	1.00	±0.15	310/330	xxx.xx.083
9.3	+0.3	3.85	±0.15	1.40	±0.15	310/330	xxx.xx.093
10.3	+0.3	4.85	±0.15	1.40	±0.15	310/330	xxx.xx.103
11.3	+0.4	4.85	±0.15	1.40	±0.15	310/330	xxx.xx.113
12.3	+0.4	5.85	±0.15	1.75	±0.15	310/330	xxx.xx.123
13.3	+0.4	5.85	±0.15	1.75	±0.15	310/330	xxx.xx.133
14.3	+0.4	6.85	±0.15	1.75	±0.15	310/330	xxx.xx.143
15.3	+0.4	6.85	±0.15	2.00	±0.20	310/330	xxx.xx.153
16.3	+0.4	7.85	±0.15	2.00	±0.20	310/330	xxx.xx.163
17.3	+0.5	7.85	±0.15	2.00	±0.20	310/330	xxx.xx.173
18.3	+0.5	8.85	±0.15	2.00	±0.20	310/330	xxx.xx.183
19.3	+0.5	8.85	±0.15	2.00	±0.20	310/330	xxx.xx.193
20.4	+0.5	9.80	±0.20	2.50	±0.25	310/330	xxx.xx.204
21.4	+0.5	9.80	±0.20	2.50	±0.25	310/330	xxx.xx.214
22.4	+0.5	10.80	±0.20	2.50	±0.25	310/330	xxx.xx.224
23.4	+0.5	10.80	±0.20	2.50	±0.25	310/330	xxx.xx.234
24.4	+0.5	11.75	±0.25	3.00	±0.25	310/330	xxx.xx.244
25.4	+0.5	11.75	±0.25	3.00	±0.25	310/330	xxx.xx.254
26.4	+0.5	12.75	±0.25	3.00	±0.25	310/330	xxx.xx.264
28.4	+0.5	13.75	±0.25	3.00	±0.25	310/330	xxx.xx.284
30.4	+0.5	13.75	±0.25	3.00	±0.25	310/330	xxx.xx.304
32.4	+0.5	13.75	±0.25	3.00	±0.25	310/330	xxx.xx.324
34.4	+0.5	13.75	±0.25	3.00	±0.25	310/330	xxx.xx.344

雙直縮孔圓棒

Parallel Holes with Reduced Bolt Circle



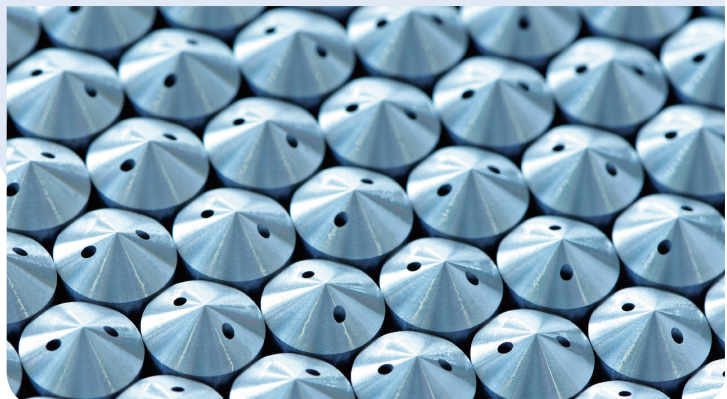
Grade

AF K10 UF	xxx.66.xxx	AF K40 UF	xxx.70.xxx
AF K20 CF	xxx.78.xxx	AF K44 EF	xxx.62.xxx
AF K34 EF	xxx.49.xxx		

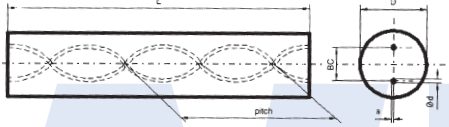
產品編號 Article-No.

211.xx.xxx/213.xx.xxx

直徑 D (mm)	公差 Tol	孔距 BC	公差 Tol	孔徑 Hole Ø	公差 Tol	長度 L +10(mm)	產品編號 Article
6.3	+0.30	1.40	±0.10	0.80	±0.10	310/330	xxx.xx.063
7.3	+0.30	1.40	±0.10	0.80	±0.10	310/330	xxx.xx.073
8.3	+0.30	1.40	±0.10	0.80	±0.10	310/330	xxx.xx.081
8.3	+0.30	1.85	±0.15	0.80	±0.10	310/330	xxx.xx.082
8.3	+0.30	2.45	±0.15	1.00	±0.10	310/330	xxx.xx.083
9.3	+0.30	2.45	±0.15	1.00	±0.10	310/330	xxx.xx.093
10.3	+0.30	2.45	±0.15	1.00	±0.10	310/330	xxx.xx.103
11.3	+0.40	3.35	±0.15	1.20	±0.15	310/330	xxx.xx.113
12.3	+0.40	3.35	±0.15	1.20	±0.15	310/330	xxx.xx.123
13.3	+0.40	3.35	±0.15	1.20	±0.15	310/330	xxx.xx.133
14.3	+0.40	4.85	±0.15	1.50	±0.15	310/330	xxx.xx.143
15.3	+0.40	4.85	±0.15	1.50	±0.15	310/330	xxx.xx.153
16.3	+0.40	4.85	±0.15	1.50	±0.15	310/330	xxx.xx.163
17.3	+0.50	6.00	±0.15	2.00	±0.20	310/330	xxx.xx.173
18.3	+0.50	6.00	±0.20	2.00	±0.20	310/330	xxx.xx.183
19.3	+0.50	6.00	±0.20	2.00	±0.20	310/330	xxx.xx.193
20.4	+0.50	6.00	±0.20	2.00	±0.20	310/330	xxx.xx.204
21.4	+0.50	6.00	±0.20	2.00	±0.20	310/330	xxx.xx.214
22.4	+0.50	6.00	±0.20	2.00	±0.20	310/330	xxx.xx.224
23.4	+0.50	7.30	±0.20	2.00	±0.20	310/330	xxx.xx.234
24.4	+0.50	7.30	±0.20	2.00	±0.20	310/330	xxx.xx.244
25.4	+0.50	7.30	±0.20	2.00	±0.20	310/330	xxx.xx.254



30度雙螺旋孔圓棒 2 Holes 30° Helix



Grade

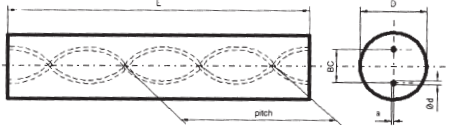
AF K10 UF	xxx.66.xxx	AF K40 UF	xxx.70.xxx
AF K20 CF	xxx.78.xxx	AF K44 EF	xxx.62.xxx
AF K34 EF	xxx.49.xxx	AF K45 EF	xxx.53.xxx

產品編號 Article-No.

231.xx.xxx/233.xx.xxx/234.xx.xxx

直徑 D (mm)	公差 Tol	孔距 BC	公差 Tol	孔徑 Hole Ø	公差 Tol	間隔 Pitch±0.5°	長度 L +10(mm)	產品編號 Article
3.3	+0.30	1.60	±0.10	0.40	±0.10	16.32	310/330	xxx.xx.033
3.8	+0.30	1.80	±0.10	0.50	±0.10	19.04	310/330	xxx.xx.038
4.3	+0.30	2.10	±0.10	0.60	±0.10	21.77	310/330	xxx.xx.043
4.8	+0.30	2.25	±0.15	0.70	±0.10	24.49	310/330	xxx.xx.048
5.3	+0.30	2.40	±0.20	0.70	±0.10	27.21	310/330	xxx.xx.053
5.8	+0.30	2.40	±0.20	0.70	±0.10	29.93	310/330	xxx.xx.058
6.3	+0.30	2.40	±0.20	0.70	±0.10	32.65	310/330/415	xxx.xx.063
6.8	+0.30	3.30	±0.20	1.00	±0.15	35.37	310/330/415	xxx.xx.068
7.3	+0.30	3.50	±0.20	1.00	±0.15	38.09	310/330/415	xxx.xx.073
7.8	+0.30	3.80	±0.20	1.00	±0.15	40.81	310/330/415	xxx.xx.078
8.3	+0.30	3.80	±0.20	1.00	±0.15	43.53	310/330/415	xxx.xx.083
8.8	+0.30	4.20	±0.30	1.00	±0.15	46.25	310/330/415	xxx.xx.088
9.3	+0.30	4.50	±0.30	1.40	±0.15	48.97	310/330/415	xxx.xx.093
9.8	+0.30	4.50	±0.30	1.40	±0.15	51.69	310/330/415	xxx.xx.098
10.3	+0.30	4.50	±0.30	1.40	±0.15	54.41	310/330/415	xxx.xx.103
10.8	+0.40	4.50	±0.30	1.40	±0.15	57.13	310/330/415	xxx.xx.108
11.3	+0.40	4.90	±0.40	1.40	±0.15	59.86	310/330/415	xxx.xx.113
11.8	+0.40	5.40	±0.40	1.40	±0.15	62.58	310/330/415	xxx.xx.118
12.3	+0.40	5.85	±0.40	1.40	±0.15	65.30	310/330/415	xxx.xx.123
12.8	+0.40	5.85	±0.40	1.75	±0.20	68.02	310/330/415	xxx.xx.128
13.3	+0.40	6.10	±0.40	1.75	±0.20	70.74	310/330/415	xxx.xx.133
13.8	+0.40	6.40	±0.40	1.75	±0.20	73.46	310/330/415	xxx.xx.138
14.3	+0.40	6.70	±0.40	1.75	±0.20	76.18	310/330/415	xxx.xx.143
14.8	+0.40	7.00	±0.40	1.75	±0.20	78.90	310/330/415	xxx.xx.148
15.3	+0.40	7.30	±0.40	1.75	±0.20	81.62	310/330/415	xxx.xx.153
15.8	+0.40	7.60	±0.40	1.75	±0.20	84.34	310/330/415	xxx.xx.158
16.3	+0.40	7.90	±0.40	1.75	±0.20	87.06	310/330/415	xxx.xx.163
16.8	+0.50	8.20	±0.40	1.75	±0.20	89.78	310/330/415	xxx.xx.168
17.3	+0.50	8.50	±0.40	1.75	±0.20	92.50	310/330/415	xxx.xx.173

30度雙螺旋孔圓棒 2 Holes 30° Helix



Grade

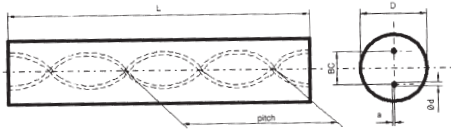
AF K10 UF	xxx.66.xxx	AF K40 UF	xxx.70.xxx
AF K20 CF	xxx.78.xxx	AF K44 EF	xxx.62.xxx
AF K34 EF	xxx.49.xxx	AF K45 EF	xxx.53.xxx

產品編號 Article-No.

231.xx.xxx/233.xx.xxx/234.xx.xxx

直徑 D (mm)	公差 Tol	孔距 BC	公差 Tol	孔徑 Hole Ø	公差 Tol	間隔 Pitch±0.5°	長度 L +10(mm)	產品編號 Article
17.8	+0.50	8.80	±0.40	1.75	±0.20	95.22	310/330/415	xxx.xx.178
18.3	+0.50	9.15	±0.40	2.00	±0.25	97.95	310/330/415	xxx.xx.183
18.8	+0.50	9.35	±0.40	2.00	±0.25	100.67	310/330/415	xxx.xx.188
19.3	+0.50	9.70	±0.40	2.00	±0.25	103.39	310/330/415	xxx.xx.193
19.8	+0.50	9.75	±0.50	2.00	±0.25	106.11	310/330/415	xxx.xx.198
20.3	+0.50	9.90	±0.50	2.00	±0.25	108.83	310/330/415	xxx.xx.203
21.3	+0.50	10.65	±0.50	2.00	±0.25	114.27	310/330/415	xxx.xx.213
22.3	+0.50	11.10	±0.50	2.00	±0.25	119.71	310/330/415	xxx.xx.223
23.3	+0.50	11.70	±0.50	2.00	±0.25	125.15	310/330/415	xxx.xx.233
24.3	+0.50	12.30	±0.50	2.00	±0.25	130.59	310/330/415	xxx.xx.243
25.3	+0.50	12.80	±0.50	2.00	±0.25	136.03	310/330/415	xxx.xx.253
26.3	+0.50	13.30	±0.50	2.00	±0.25	141.48	310/330	xxx.xx.263
27.3	+0.50	13.70	±0.60	2.50	±0.30	146.92	310/330	xxx.xx.273
28.3	+0.50	14.20	±0.60	2.50	±0.30	152.36	310/330	xxx.xx.283
29.3	+0.50	14.80	±0.60	2.50	±0.30	157.80	310/330	xxx.xx.293
30.3	+0.50	15.40	±0.60	2.50	±0.30	163.24	310/330	xxx.xx.303
31.3	+0.50	16.00	±0.60	2.50	±0.30	168.68	310/330	xxx.xx.313
32.3	+0.50	16.60	±0.60	3.00	±0.30	174.12	310/330	xxx.xx.323
33.3	+0.50	17.20	±0.60	3.00	±0.30	179.57	310/330	xxx.xx.333
34.3	+0.50	17.40	±0.60	3.00	±0.30	185.01	310/330	xxx.xx.343
35.3	+0.50	17.40	±0.60	3.00	±0.30	190.45	310/330	xxx.xx.353

40度雙螺旋孔圓棒 2 Holes 40° Helix



Grade

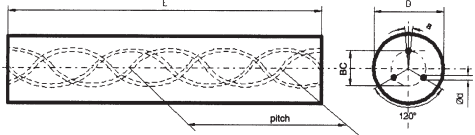
AF K10 UF	xxx.66.xxx	AF K40 UF	xxx.70.xxx
AF K20 CF	xxx.78.xxx	AF K44 EF	xxx.62.xxx
AF K34 EF	xxx.49.xxx	AF K45 EF	xxx.53.xxx

產品編號 Article-No.

241.xx.xxx/243.xx.xxx

直徑 D (mm)	公差 Tol	孔距 BC	公差 Tol	孔徑 Hole Ø	公差 Tol	間隔 Pitch±0.5°	長度 L +10(mm)	產品編號 Article
6.3	+0.30	2.00	±0.20	0.50	±0.15	22.46	310/330	xxx.xx.063
6.8	+0.30	2.10	±0.20	0.50	±0.15	24.34	310/330	xxx.xx.068
7.3	+0.30	2.20	±0.20	0.65	±0.15	26.21	310/330	xxx.xx.073
7.8	+0.30	2.30	±0.20	0.65	±0.15	28.08	310/330	xxx.xx.078
8.3	+0.30	2.40	±0.30	0.65	±0.15	29.95	310/330	xxx.xx.083
8.8	+0.30	2.60	±0.30	0.65	±0.15	31.82	310/330	xxx.xx.088
9.3	+0.30	2.90	±0.30	0.75	±0.15	33.70	310/330	xxx.xx.093
9.8	+0.30	3.20	±0.30	0.75	±0.15	35.57	310/330	xxx.xx.098
10.3	+0.40	3.20	±0.30	0.80	±0.15	37.44	310/330	xxx.xx.103
10.8	+0.40	3.20	±0.30	0.80	±0.15	39.31	310/330	xxx.xx.108
11.3	+0.40	3.30	±0.40	0.80	±0.15	41.18	310/330	xxx.xx.113
11.8	+0.40	3.60	±0.40	0.80	±0.15	43.06	310/330	xxx.xx.118
12.3	+0.40	3.80	±0.40	0.90	±0.20	44.93	310/330	xxx.xx.123
12.8	+0.40	3.95	±0.40	0.90	±0.20	46.80	310/330	xxx.xx.128
13.3	+0.40	4.00	±0.40	0.90	±0.20	48.67	310/330	xxx.xx.133
13.8	+0.40	4.10	±0.40	1.00	±0.20	50.54	310/330	xxx.xx.138
14.3	+0.40	4.30	±0.40	1.00	±0.20	52.42	310/330	xxx.xx.143
14.8	+0.40	4.50	±0.40	1.10	±0.20	54.29	310/330	xxx.xx.148
15.3	+0.50	4.70	±0.40	1.10	±0.20	56.16	310/330	xxx.xx.153
15.8	+0.50	4.90	±0.40	1.10	±0.20	58.03	310/330	xxx.xx.158
16.3	+0.50	5.10	±0.40	1.20	±0.20	59.90	310/330	xxx.xx.163
16.8	+0.50	5.35	±0.40	1.20	±0.25	61.78	310/330	xxx.xx.168
17.3	+0.50	5.50	±0.40	1.20	±0.25	63.65	310/330	xxx.xx.173
17.8	+0.50	5.70	±0.40	1.30	±0.25	65.52	310/330	xxx.xx.178
18.3	+0.50	5.90	±0.40	1.40	±0.25	67.39	310/330	xxx.xx.183
18.8	+0.50	6.10	±0.40	1.40	±0.25	69.26	310/330	xxx.xx.188
19.3	+0.50	6.40	±0.50	1.40	±0.25	71.14	310/330	xxx.xx.193
20.3	+0.50	6.60	±0.50	1.50	±0.25	74.88	310/330	xxx.xx.203
21.3	+0.50	6.90	±0.50	1.50	±0.25	78.62	310/330	xxx.xx.213
22.3	+0.50	7.20	±0.50	1.70	±0.25	82.37	310/330	xxx.xx.223
24.3	+0.50	7.50	±0.50	1.75	±0.25	89.86	310/330	xxx.xx.243
25.3	+0.50	7.60	±0.50	1.75	±0.25	93.60	310/330	xxx.xx.253
26.3	+0.50	7.70	±0.50	1.75	±0.25	97.34	310/330	xxx.xx.263
28.3	+0.50	8.40	±0.60	2.00	±0.30	104.83	310/330	xxx.xx.283
30.3	+0.50	9.40	±0.60	2.00	±0.30	112.32	310/330	xxx.xx.303
32.3	+0.50	10.40	±0.60	2.00	±0.30	119.81	310/330	xxx.xx.323

30度三螺旋孔圓棒 3 Holes 30° Helix



Grade

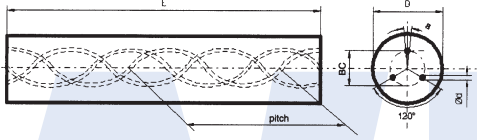
AF K20 CF	xxx.78.xxx	AF K34 EF	xxx.49.xxx
AF K40 UF	xxx.70.xxx	AF K44 EF	xxx.62.xxx

產品編號 Article-No.

331.xx.xxx/333.xx.xxx

直徑 D (mm)	公差 Tol	孔距 BC	公差 Tol	孔徑 Hole Ø	公差 Tol	間隔 Pitch±0.5°	長度 L +10(mm)	產品編號 Article
4.8	+0.30	2.20	±0.10	0.40	±0.10	24.49	310/330	xxx.xx.048
5.3	+0.30	2.45	±0.15	0.40	±0.10	27.21	310/330	xxx.xx.053
5.8	+0.30	2.75	±0.15	0.50	±0.10	29.93	310/330	xxx.xx.058
6.3	+0.30	2.75	±0.15	0.50	±0.10	32.65	310/330	xxx.xx.063
6.8	+0.30	2.75	±0.15	0.50	±0.10	35.37	310/330	xxx.xx.068
7.3	+0.30	3.85	±0.15	0.65	±0.10	38.09	310/330	xxx.xx.073
7.8	+0.30	3.85	±0.15	0.70	±0.10	40.81	310/330	xxx.xx.078
8.3	+0.30	3.85	±0.15	0.70	±0.10	43.53	310/330	xxx.xx.083
8.8	+0.30	3.85	±0.15	0.70	±0.10	46.25	310/330	xxx.xx.088
9.3	+0.30	4.95	±0.15	0.85	±0.15	48.97	310/330	xxx.xx.093
9.8	+0.30	4.95	±0.15	0.85	±0.15	51.69	310/330	xxx.xx.098
10.3	+0.30	4.95	±0.15	0.85	±0.15	54.41	310/330	xxx.xx.103
10.8	+0.40	4.95	±0.15	0.85	±0.15	57.13	310/330	xxx.xx.108
11.3	+0.40	5.45	±0.25	1.10	±0.15	59.86	310/330	xxx.xx.113
11.8	+0.40	5.85	±0.25	1.10	±0.15	62.58	310/330	xxx.xx.118
12.3	+0.40	6.05	±0.25	1.10	±0.15	65.30	310/330	xxx.xx.123
12.8	+0.40	6.05	±0.25	1.10	±0.15	68.02	310/330	xxx.xx.128
13.3	+0.40	6.55	±0.25	1.20	±0.15	70.74	310/330	xxx.xx.133
13.8	+0.40	6.75	±0.25	1.20	±0.15	73.46	310/330	xxx.xx.138
14.3	+0.40	7.05	±0.25	1.40	±0.15	76.18	310/330	xxx.xx.143
14.8	+0.40	7.35	±0.25	1.40	±0.15	78.90	310/330	xxx.xx.148
15.3	+0.40	7.55	±0.25	1.40	±0.15	81.62	310/330	xxx.xx.153
16.3	+0.40	8.05	±0.25	1.60	±0.20	87.06	310/330	xxx.xx.163
17.3	+0.50	8.35	±0.25	1.60	±0.20	92.50	310/330	xxx.xx.173
18.3	+0.50	9.25	±0.25	1.70	±0.20	97.95	310/330	xxx.xx.183
19.3	+0.50	9.95	±0.25	1.70	±0.20	103.39	310/330	xxx.xx.193
20.3	+0.50	9.95	±0.25	1.90	±0.25	108.83	310/330	xxx.xx.203
22.3	+0.50	11.15	±0.35	2.00	±0.25	119.71	310/330	xxx.xx.223
23.3	+0.50	11.45	±0.35	2.00	±0.25	125.15	310/330	xxx.xx.233

30度三螺旋孔圓棒 3 Holes 30° Helix



產品編號 Article-No.

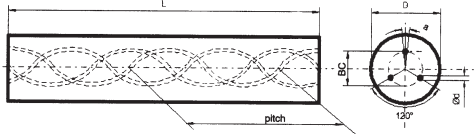
直徑 D (mm)	公差 Tol	孔距 BC	公差 Tol	孔徑 Hole Ø	公差 Tol	間隔 Pitch±0.5°	長度 L +10(mm)	產品編號 Article
24.3	+0.50	11.75	±0.35	2.00	±0.25	130.59	310/330	xxx.xx.243
25.3	+0.50	12.15	±0.35	2.00	±0.25	136.03	310/330	xxx.xx.253
26.3	+0.50	12.75	±0.35	2.00	±0.25	141.48	310/330	xxx.xx.263
27.3	+0.50	13.15	±0.45	2.50	±0.30	146.92	310/330	xxx.xx.273
28.3	+0.50	13.65	±0.45	2.50	±0.30	152.36	310/330	xxx.xx.283
29.3	+0.50	14.15	±0.45	2.50	±0.30	157.80	310/330	xxx.xx.293
30.3	+0.50	14.50	±0.60	2.50	±0.30	163.24	310/330	xxx.xx.303
31.3	+0.50	15.00	±0.60	3.00	±0.30	168.68	310/330	xxx.xx.313
32.3	+0.50	15.50	±0.60	3.00	±0.30	174.12	310/330	xxx.xx.323
33.3	+0.50	16.00	±0.60	3.00	±0.30	179.57	310/330	xxx.xx.333

Grade

AF K20 CF	xxx.78.xxx	AF K34 EF	xxx.49.xxx
AF K40 UF	xxx.70.xxx	AF K44 EF	xxx.62.xxx

331.xx.xxx/333.xx.xxx

40度三螺旋孔圓棒 3 Holes 40° Helix



Grade

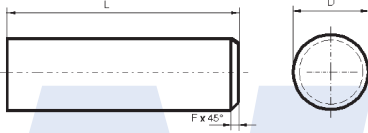
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AF K40 UF	xxx.70.xxx	AF K44 EF	xxx.62.xxx

產品編號 Article-No.

341.xx.xxx/343.xx.xxx

直徑 D (mm)	公差 Tol	孔距 BC	公差 Tol	孔徑 Hole Ø	公差 Tol	間隔 Pitch±0.5°	長度 L +10(mm)	產品編號 Article
6.3	+0.30	2.05	±0.15	0.50	±0.15	22.46	310/330	xxx.xx.063
6.8	+0.30	2.15	±0.15	0.50	±0.15	24.34	310/330	xxx.xx.068
7.3	+0.30	2.25	±0.15	0.65	±0.15	26.21	310/330	xxx.xx.073
7.8	+0.30	2.35	±0.15	0.65	±0.15	28.08	310/330	xxx.xx.078
8.3	+0.30	2.45	±0.15	0.65	±0.15	29.95	310/330	xxx.xx.083
8.8	+0.30	2.75	±0.15	0.65	±0.15	31.82	310/330	xxx.xx.088
9.3	+0.30	3.05	±0.15	0.75	±0.15	33.70	310/330	xxx.xx.093
9.8	+0.30	3.35	±0.15	0.75	±0.15	35.57	310/330	xxx.xx.098
10.3	+0.40	3.35	±0.15	0.80	±0.15	37.44	310/330	xxx.xx.103
10.8	+0.40	3.35	±0.15	0.80	±0.15	39.31	310/330	xxx.xx.108
11.3	+0.40	3.45	±0.25	0.80	±0.15	41.18	310/330	xxx.xx.113
11.8	+0.40	3.75	±0.25	0.85	±0.15	43.06	310/330	xxx.xx.118
12.3	+0.40	3.95	±0.25	0.90	±0.20	44.93	310/330	xxx.xx.123
12.8	+0.40	4.10	±0.25	0.90	±0.20	46.80	310/330	xxx.xx.128
13.3	+0.40	4.15	±0.25	0.90	±0.20	48.67	310/330	xxx.xx.133
13.8	+0.40	4.25	±0.25	1.00	±0.20	50.54	310/330	xxx.xx.138
14.3	+0.40	4.45	±0.25	1.00	±0.20	52.42	310/330	xxx.xx.143
14.8	+0.40	4.65	±0.25	1.10	±0.20	54.29	310/330	xxx.xx.148
15.3	+0.50	4.85	±0.25	1.10	±0.20	56.16	310/330	xxx.xx.153
16.3	+0.50	5.25	±0.25	1.20	±0.20	59.90	310/330	xxx.xx.163
17.3	+0.50	5.65	±0.25	1.20	±0.20	63.65	310/330	xxx.xx.173
18.3	+0.50	6.05	±0.25	1.40	±0.25	67.39	310/330	xxx.xx.183
19.3	+0.50	6.35	±0.35	1.40	±0.25	71.14	310/330	xxx.xx.193
20.3	+0.50	6.75	±0.35	1.50	±0.25	74.88	310/330	xxx.xx.203
21.3	+0.50	7.05	±0.35	1.50	±0.25	78.62	310/330	xxx.xx.213
22.3	+0.50	7.35	±0.35	1.70	±0.25	82.37	310/330	xxx.xx.223
24.3	+0.50	7.55	±0.45	1.75	±0.25	89.86	310/330	xxx.xx.243
25.3	+0.50	7.65	±0.45	1.75	±0.25	93.60	310/330	xxx.xx.253
26.3	+0.50	7.75	±0.45	1.75	±0.25	97.34	310/330	xxx.xx.263
28.3	+0.50	8.55	±0.45	2.00	±0.30	104.83	310/330	xxx.xx.283
30.3	+0.50	9.45	±0.55	2.00	±0.30	112.32	310/330	xxx.xx.303
32.3	+0.50	10.45	±0.55	2.00	±0.30	119.81	310/330	xxx.xx.323

定寸銑刀圓棒 Milling Cutter Blanks



產品編號 Article-No.

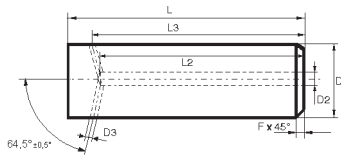
Grade

AF K40 UF xxx.70.xxx AF K44 EF xxx.62.xxx

009.xx.xxx

直徑 D (mm)	公差 Tol	長度 L (mm)	公差 Tol	C x 45°	產品編號 Article
6.2	+0.2	58.0	+0.8	0.5	009.xx.062
6.2	+0.2	76.5	+0.9	0.5	009.xx.064
8.2	+0.3	64.2	+0.8	1.0	009.xx.082
8.2	+0.3	101.2	+1.0	1.0	009.xx.084
10.2	+0.3	67.2	+0.8	1.0	009.xx.102
10.2	+0.3	73.2	+0.9	1.0	009.xx.103
10.2	+0.3	101.2	+1.0	1.0	009.xx.104
12.2	+0.3	74.2	+0.9	1.0	009.xx.122
12.2	+0.3	84.2	+0.9	1.0	009.xx.123
12.2	+0.3	101.1	+1.0	1.0	009.xx.124
14.2	+0.3	84.2	+0.9	1.0	009.xx.142
14.2	+0.3	101.2	+1.0	1.0	009.xx.144
16.2	+0.4	83.2	+0.9	1.5	009.xx.162
16.2	+0.4	93.2	+1.0	1.5	009.xx.163
16.2	+0.4	101.2	+1.0	1.5	009.xx.164
18.2	+0.4	93.0	+1.0	1.5	009.xx.182
18.2	+0.4	102.0	+1.0	1.5	009.xx.183
18.2	+0.4	151.3	+1.6	1.5	009.xx.184
20.2	+0.5	93.2	+1.0	1.5	009.xx.202
20.2	+0.5	105.0	+1.1	1.5	009.xx.203
20.2	+0.5	151.2	+1.6	1.5	009.xx.204
25.2	+0.5	122.0	+1.2	1.5	009.xx.252
25.2	+0.5	152.0	+1.6	1.5	009.xx.254

定寸油孔銑刀圓棒 Milling Cutter Blanks



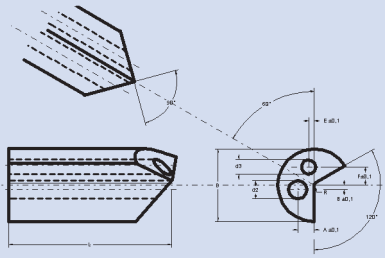
Grade

AF K40 UF xxx.70.xxx **AF K44 EF** xxx.62.xxx

*with center coolant duct
 and 2, 3, 4, 5 lateral exits

產品編號 Article-No.

直徑 D (mm)	公差 Tol	長度 L (mm)	公差 Tol	Ø D2	公差 Tol	長度 L2	Ø D3	公差 Tol	長度 L3	公差 Tol	C x 45°
6.2	+0.2	58.0	+0.8	1.75	±0.25	54.6	1.0	±0.2	55.0	±0.3	0.5
6.2	+0.2	76.5	+0.9	1.75	±0.25	72.6	1.0	±0.2	73.0	±0.3	0.5
8.2	+0.3	64.2	+0.8	1.75	±0.25	59.1	1.2	±0.2	60.0	±0.3	1.0
8.2	+0.3	101.2	+1.0	2.00	±0.25	96.1	1.2	±0.2	97.0	±0.3	1.0
10.2	+0.3	67.2	+0.8	2.00	±0.25	60.6	1.2	±0.2	62.0	±0.3	1.0
10.2	+0.3	73.2	+0.9	2.00	±0.25	66.6	1.2	±0.2	68.0	±0.3	1.0
10.2	+0.3	101.2	+1.0	2.00	±0.25	94.6	1.2	±0.2	96.0	±0.3	1.0
12.2	+0.3	74.2	+0.9	2.00	±0.25	66.1	1.5	±0.2	68.0	±0.3	1.0
12.2	+0.3	84.2	+0.9	2.00	±0.25	76.1	1.5	±0.2	78.0	±0.3	1.0
12.2	+0.3	101.1	+1.0	2.00	±0.25	93.1	1.5	±0.2	95.0	±0.3	1.0
14.2	+0.3	84.2	+0.9	2.00	±0.25	74.7	1.5	±0.2	77.0	±0.3	1.0
14.2	+0.3	101.2	+1.0	2.00	±0.25	91.7	1.5	±0.2	94.0	±0.3	1.0
16.2	+0.4	83.2	+0.9	4.00	±0.25	72.2	1.5	±0.2	75.0	±0.3	1.5
16.2	+0.4	93.2	+1.0	4.00	±0.25	82.2	1.5	±0.2	85.0	±0.3	1.5
16.2	+0.4	101.2	+1.0	4.00	±0.25	90.2	1.5	±0.2	93.0	±0.3	1.5
18.2	+0.4	93.0	+1.0	4.00	±0.25	80.7	2.0	±0.2	84.0	±0.3	1.5
18.2	+0.4	102.0	+1.0	4.00	±0.25	89.7	2.0	±0.2	93.0	±0.3	1.5
18.2	+0.4	151.3	+1.6	4.00	±0.25	138.7	2.0	±0.2	142.0	±.3	1.5
20.2	+0.5	93.2	+1.0	4.00	±0.25	79.2	2.0	±0.2	83.0	±0.3	1.5
20.2	+0.5	105.0	+1.1	4.00	±0.25	91.2	2.0	±0.2	95.0	±0.3	1.5
20.2	+0.5	151.2	+1.6	4.00	±0.25	137.2	2.0	±0.2	141.0	±0.3	1.5
25.2	+0.5	122.0	+1.2	4.00	±0.25	104.5	2.0	±0.2	109.5	±0.3	1.5
25.2	+0.5	152.0	+1.6	4.00	±0.25	134.5	2.0	±0.2	139.5	±0.3	1.5



gun drill heads

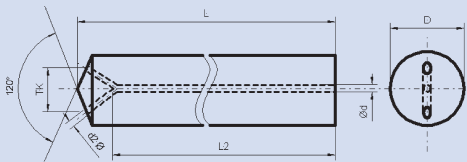
dia. (mm)	+Tol	L (mm)	+Tol	dØ2 (mm)	+Tol	dØ3 (mm)	+Tol
4.3	+0.3	35	+0.4	0.8	±0.2	0.6	±0.2
...
...
33.3	+0.5	65	+1	7.5	±0.4	6.5	±0.4



square rods

B (mm)	+Tol	H (mm)	+Tol	L (mm)	+Tol
4.4	+0.2	4.4	+0.2	330	+10
...
...
20.4	+0.2	20.4	+0.2	330	+10

Y-holes



angle	hole spacing	hole diameter



MEMO

A series of horizontal dashed lines for writing, spanning the width of the page.

WU