

S220 鎢鋼平銑刀- 小柄點數型- 2刃

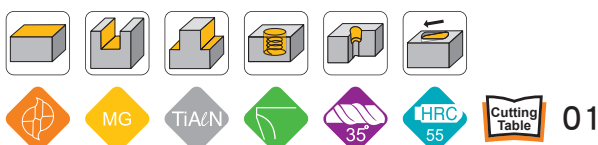
S220 MICRO GRAIN CARBIDE END MILLS- Square Type- Decimal Diameter- 2F

· CESM20000A



刃徑 d	公差 Tolerance
$\phi < 3$	0 ~ -0.02
$3 \leq \phi \leq 10$	-0.01 ~ -0.03
$10 < \phi$	-0.01 ~ -0.03

超精銑 Bright Finishing	—
精銑 Finishing	○
中銑 Semi Finishing	◎
粗銑 Roughing	○



刃徑 d	刃長 L1	全長 L	柄徑 D	刃數 F	白刀訂購編號 Uncoated Order No.	鍍膜訂購編號 Coated Order No.
1.1	3	50	4	2	CESM20110	CESM20110A
1.2	3	50	4	2	CESM20120	CESM20120A
1.3	3	50	4	2	CESM20130	CESM20130A
1.4	3	50	4	2	CESM20140	CESM20140A
1.6	4	50	4	2	CESM20160	CESM20160A
1.7	4	50	4	2	CESM20170	CESM20170A
1.8	4	50	4	2	CESM20180	CESM20180A
1.9	4	50	4	2	CESM20190	CESM20190A
2.1	5	50	4	2	CESM20210	CESM20210A
2.2	5	50	4	2	CESM20220	CESM20220A
2.3	5	50	4	2	CESM20230	CESM20230A
2.4	5	50	4	2	CESM20240	CESM20240A
2.6	6	50	4	2	CESM20260	CESM20260A
2.7	6	50	4	2	CESM20270	CESM20270A
2.8	6	50	4	2	CESM20280	CESM20280A
2.9	6	50	4	2	CESM20290	CESM20290A
3.1	8	50	4	2	CESM20310	CESM20310A
3.2	8	50	4	2	CESM20320	CESM20320A
3.3	8	50	4	2	CESM20330	CESM20330A
3.4	8	50	4	2	CESM20340	CESM20340A
3.6	9	50	4	2	CESM20360	CESM20360A
3.7	9	50	4	2	CESM20370	CESM20370A
3.8	9	50	4	2	CESM20380	CESM20380A
3.9	9	50	4	2	CESM20390	CESM20390A

※ 0.2以上採攻面寬型式。
From 0.2 and larger have flatland type.
※ 尖角型式依需求生產。
Sharp corner type is on request.

→ 切削條件表 P.534
Cutting Condition

→ 技術資料 P.622
Technical Data

S220

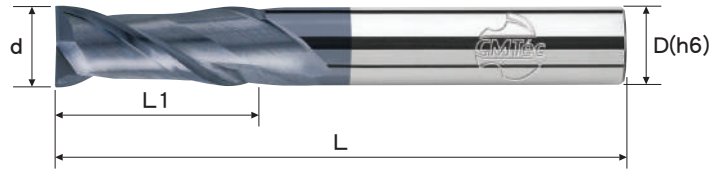
S220 Carbide End Mills

S220 鎢鋼銑刀系列

S220 鎢鋼平銑刀- 點數型- 2刃

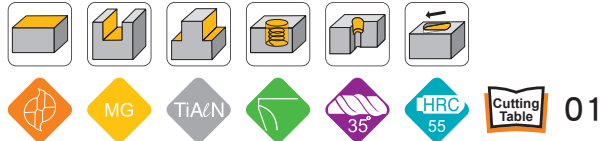
S220 MICRO GRAIN CARBIDE END MILLS- Square Type- Decimal Diameter- 2F

· CES20000A



刃徑 d	公差 Tolerance
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$3 \leq \phi \leq 10$	-0.01 ~ -0.03
$10 < \phi$	-0.01 ~ -0.03

超精銑 Bright Finishing	—
精銑 Finishing	○
中銑 Semi Finishing	◎
粗銑 Roughing	○



刃徑 d	刃長 L1	全長 L	柄徑 D	刃數 F	白刀訂購編號 Uncoated Order No.	鍍膜訂購編號 Coated Order No.
1.1	3	50	6	2	CES20110	CES20110A
1.2	3	50	6	2	CES20120	CES20120A
1.3	3	50	6	2	CES20130	CES20130A
1.4	3	50	6	2	CES20140	CES20140A
1.6	4	50	6	2	CES20160	CES20160A
1.7	4	50	6	2	CES20170	CES20170A
1.8	4	50	6	2	CES20180	CES20180A
1.9	4	50	6	2	CES20190	CES20190A
2.1	5	50	6	2	CES20210	CES20210A
2.2	5	50	6	2	CES20220	CES20220A
2.3	5	50	6	2	CES20230	CES20230A
2.4	5	50	6	2	CES20240	CES20240A
2.6	6	50	6	2	CES20260	CES20260A
2.7	6	50	6	2	CES20270	CES20270A
2.8	6	50	6	2	CES20280	CES20280A
2.9	6	50	6	2	CES20290	CES20290A
3.1	8	50	6	2	CES20310	CES20310A
3.2	8	50	6	2	CES20320	CES20320A
3.3	8	50	6	2	CES20330	CES20330A
3.4	8	50	6	2	CES20340	CES20340A
3.6	9	50	6	2	CES20360	CES20360A
3.7	9	50	6	2	CES20370	CES20370A
3.8	9	50	6	2	CES20380	CES20380A
3.9	9	50	6	2	CES20390	CES20390A

※ 0.2以上採攻面寬型式。
From 0.2 and larger have flatland type.
※ 尖角型式依需求生產。
Sharp corner type is on request.

→ 切削條件表 P.534 → 技術資料 P.622
Cutting Condition Technical Data

S220

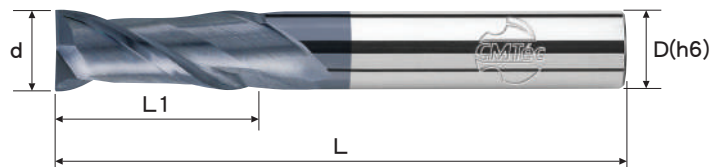
S220 Carbide End Mills

S220 鎢鋼銑刀系列

S220 鎢鋼平銑刀- 點數型- 2刃

S220 MICRO GRAIN CARBIDE END MILLS- Square Type- Decimal Diameter- 2F

· CES20000A



刃徑 d	公差 Tolerance
$\phi < 3$	0 ~ -0.02
$3 \leq \phi \leq 10$	-0.01 ~ -0.03
$10 < \phi$	-0.01 ~ -0.03

超精銑 Bright Finishing	—
精銑 Finishing	○
中銑 Semi Finishing	◎
粗銑 Roughing	○



刃徑 d	刃長 L1	全長 L	柄徑 D	刃數 F	白刀訂購編號 Uncoated Order No.	鍍膜訂購編號 Coated Order No.
4.1	10	50	6	2	CES20410	CES20410A
4.2	10	50	6	2	CES20420	CES20420A
4.3	10	50	6	2	CES20430	CES20430A
4.4	11	50	6	2	CES20440	CES20440A
4.6	11	50	6	2	CES20460	CES20460A
4.7	11	50	6	2	CES20470	CES20470A
4.8	11	50	6	2	CES20480	CES20480A
4.9	11	50	6	2	CES20490	CES20490A
5.1	13	50	6	2	CES20510	CES20510A
5.2	13	50	6	2	CES20520	CES20520A
5.3	13	50	6	2	CES20530	CES20530A
5.4	13	50	6	2	CES20540	CES20540A
5.6	14	50	6	2	CES20560	CES20560A
5.7	14	50	6	2	CES20570	CES20570A
5.8	14	50	6	2	CES20580	CES20580A
5.9	14	50	6	2	CES20590	CES20590A
6.1	15	60	8	2	CES20610	CES20610A
6.2	15	60	8	2	CES20620	CES20620A
6.3	15	60	8	2	CES20630	CES20630A
6.4	15	60	8	2	CES20640	CES20640A
6.6	16	60	8	2	CES20660	CES20660A
6.7	16	60	8	2	CES20670	CES20670A
6.8	16	60	8	2	CES20680	CES20680A
6.9	16	60	8	2	CES20690	CES20690A
7.1	18	60	8	2	CES20710	CES20710A
7.2	18	60	8	2	CES20720	CES20720A
7.3	18	60	8	2	CES20730	CES20730A
7.4	18	60	8	2	CES20740	CES20740A



※ 0.2以上採攻面寬型式。
From 0.2 and larger have flatland type.
※ 尖角型式依需求生產。
Sharp corner type is on request.

→ 切削條件表
Cutting Condition P.534

→ 技術資料
Technical Data P.622

S220

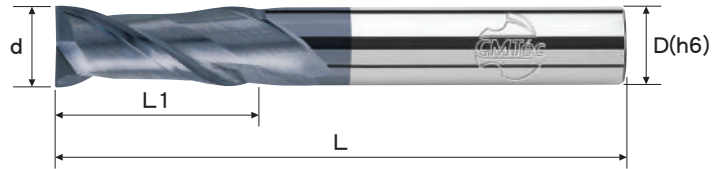
S220 Carbide End Mills

S220 鎢鋼銑刀系列

S220 鎢鋼平銑刀- 點數型- 2刃

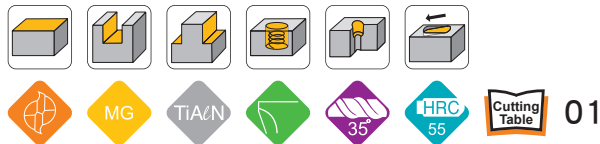
S220 MICRO GRAIN CARBIDE END MILLS- Square Type- Decimal Diameter- 2F

· CES20000A



刃徑 d	公差 Tolerance
$\phi < 3$	0 ~ -0.02
$3 \leq \phi \leq 10$	-0.01 ~ -0.03
$10 < \phi$	-0.01 ~ -0.03

超精銑 Bright Finishing	—
精銑 Finishing	○
中銑 Semi Finishing	◎
粗銑 Roughing	○



刃徑 d	刃長 L1	全長 L	柄徑 D	刃數 F	白刀訂購編號 Uncoated Order No.	鍍膜訂購編號 Coated Order No.
7.6	18	60	8	2	CES20760	CES20760A
7.7	18	60	8	2	CES20770	CES20770A
7.8	18	60	8	2	CES20780	CES20780A
7.9	18	60	8	2	CES20790	CES20790A
8.1	20	75	10	2	CES20810	CES20810A
8.2	20	75	10	2	CES20820	CES20820A
8.3	20	75	10	2	CES20830	CES20830A
8.4	20	75	10	2	CES20840	CES20840A
8.6	20	75	10	2	CES20860	CES20860A
8.7	20	75	10	2	CES20870	CES20870A
8.8	20	75	10	2	CES20880	CES20880A
8.9	20	75	10	2	CES20890	CES20890A
9.1	22	75	10	2	CES20910	CES20910A
9.2	22	75	10	2	CES20920	CES20920A
9.3	22	75	10	2	CES20930	CES20930A
9.4	22	75	10	2	CES20940	CES20940A
9.6	22	75	10	2	CES20960	CES20960A
9.7	22	75	10	2	CES20970	CES20970A
9.8	22	75	10	2	CES20980	CES20980A
9.9	22	75	10	2	CES20990	CES20990A
10.1	25	75	12	2	CES21010	CES21010A
10.2	25	75	12	2	CES21020	CES21020A
10.3	25	75	12	2	CES21030	CES21030A
10.4	25	75	12	2	CES21040	CES21040A
10.6	25	75	12	2	CES21060	CES21060A
10.7	25	75	12	2	CES21070	CES21070A
10.8	25	75	12	2	CES21080	CES21080A
10.9	25	75	12	2	CES21090	CES21090A

Table 01

S220 鎢鋼銑刀- 2 / 3刃(鍍膜) 切削條件表

SOLID CARBIDE END MILLS- CUTTING CONDITION TABLE

加工材質 Material	碳素鋼 Carbon Steels		合金鋼 Alloy Steels		合金鋼 Alloy Steels		調質鋼 Hardened Steels		調質鋼 Hardened Steels		不銹鋼 Stainless Steels		鑄鐵 Cast Iron	
工件料號 Material Code	S35C,S45C,S50C		SCM,SKT,SKD		SCM,SKT,SKD		SKT,SKD		SKT,SKD		SUS304		FC,FCD	
硬度 Hardness	HRC<20		HRC20~30		HRC30~45		HRC45~55		HRC55~63		—		HRC<30	
切削速度 Vc	68m/min		54m/min		45m/min		27m/min		20m/min		54m/min		79m/min	
外徑 Diameter	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)
1mm	20,000	120	17,100	100	14,400	65	8,000	50	6,000	35	17,100	100	25,200	270
2mm	10,800	155	8,640	120	7,200	85	4,320	65	3,240	45	8,640	120	12,600	290
3mm	7,560	155	5,760	135	4,680	90	3,000	65	2,230	45	5,760	135	8,640	290
4mm	5,400	165	4,320	135	3,600	100	2,160	65	1,620	50	4,320	135	6,480	290
5mm	4,500	180	3,420	135	2,880	100	1,800	75	1,350	55	3,420	135	5,040	325
6mm	3,600	180	2,880	135	2,340	100	1,440	75	1,080	55	2,880	135	4,320	360
8mm	2,700	180	2,160	155	1,800	110	1,080	75	810	55	2,160	155	3,240	360
10mm	2,160	180	1,710	155	1,440	120	870	75	650	55	1,710	155	2,520	380
12mm	1,800	180	1,440	155	1,200	120	720	75	540	55	1,440	155	2,160	400
14mm	1,800	200	1,360	170	1,140	130	720	80	540	60	1,360	170	2,000	440
16mm	1,560	220	2,100	180	1,000	140	630	90	470	65	2,100	180	1,800	480
18mm	1,560	220	1,060	180	880	140	630	90	470	65	1,060	180	1,600	480
20mm	1,200	220	960	180	800	140	480	90	360	65	960	180	1,400	480
切削量 Cutting Amount (mm)	Ap=0.5D (D<3, Ap≤0.25D)				Ap=0.1D (D<3, Ap≤0.05D)				Ap=0.5D (D<3, Ap≤0.25D)				Ap=0.5D (D<3, Ap≤0.25D)	

Table 02

S220 鎢鋼銑刀- 3 / 4刃(鍍膜) 切削條件表

SOLID CARBIDE END MILLS- CUTTING CONDITION TABLE

加工材質 Material	碳素鋼 Carbon Steels		合金鋼 Alloy Steels		合金鋼 Alloy Steels		調質鋼 Hardened Steels		調質鋼 Hardened Steels		不銹鋼 Stainless Steels		鑄鐵 Cast Iron	
工件料號 Material Code	S35C,S45C,S50C		SCM,SKT,SKD		SCM,SKT,SKD		SKT,SKD		SKT,SKD		SUS304		FC,FCD	
硬度 Hardness	HRC<20		HRC20~30		HRC30~45		HRC45~55		HRC55~63		—		HRC<30	
切削速度 Vc	68m/min		54m/min		45m/min		27m/min		20m/min		54m/min		79m/min	
外徑 Diameter	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)
3mm	7,560	490	5,760	345	4,680	165	3,020	200	2,300	150	5,760	345	8,640	900
4mm	5,400	490	4,320	345	3,600	165	2,160	200	1,620	150	4,320	345	6,480	1,080
5mm	4,500	490	3,420	345	2,880	165	1,800	200	1,350	150	3,420	345	5,040	1,080
6mm	3,600	490	2,880	345	2,340	165	1,440	200	1,080	150	2,880	345	4,320	1,080
8mm	2,700	490	2,160	345	1,800	175	1,080	200	810	150	2,160	345	3,240	1,080
10mm	2,160	505	1,710	360	1,440	175	860	210	650	155	1,710	360	2,520	1,170
12mm	1,800	505	1,440	360	1,200	175	720	210	540	155	1,440	360	2,160	1,260
14mm	1,800	560	1,360	400	1,140	190	720	230	540	170	1,360	400	2,000	1,400
16mm	1,560	600	1,200	420	1,000	200	620	240	470	180	1,200	420	1,800	1,500
18mm	1,400	600	1,060	420	880	200	560	240	420	180	1,060	420	1,600	1,500
20mm	1,200	600	960	420	800	200	480	240	360	180	960	420	1,490	1,400
切削量 Cutting Amount (mm)	Ap=1.5D Ae≤0.1D				Ap=1.5D Ae≤0.05D				Ap=1.5D Ae≤0.1D				Ap=1.5D Ae≤0.1D	

- 當加工聲音尖銳時，請調降主軸轉速(S) (10~40%)。When the sound is piercing, please lower the spindle speed(S) (10~40%).
- 當機台震動太大時，請調降進給速度(F) (10~40%)。When the machine is vibrating, please decrease the feed rate(F) (10~40%).
- 當主軸負載太大時，請調降進給速度(F) (10~40%)。When the spindle load is high, please decrease the feed rate(F) (10~40%).
- 以上數據為建議值，適當的條件仍需視機台狀況，夾治具品質，潤滑冷卻系統...等而改變。

These are recommended values which depend on the condition of the machine, fixture, lubricating & cooling systems... etc. They may have to be adapted.