

X-POWER

ULTRA MICRO GRAIN
CARBIDE END MILLS








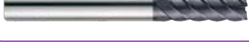
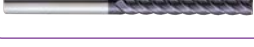

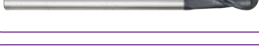
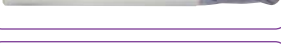









适用于硬模，模具，合金钢，和大部分合金材料的高速干铣，硬度可达到HRc65。





X-POWER CARBIDE END MILLS

SELECTION GUIDE

EM810 EM820		2 FLUTE, SHORT LENGTH 2刃, 短型	E 47
EM810		2 FLUTE, MINIATURE 2刃, 微型	E 48
EM816 EM826		2 FLUTE, LONG LENGTH 2刃, 加长(铣刀)	E 50
EM895 EM896		3 FLUTE, SHORT LENGTH 3刃, 短型	E 52
EM836 EM846		3 FLUTE, MINIATURE 3刃, 微型	E 53
EM811 EM821		4 FLUTE, SHORT LENGTH 4刃, 短型	E 55
EM817 EM827		4 FLUTE, LONG LENGTH 4刃, 加长(铣刀)	E 57
EM812 EM822		6 & 8 FLUTE, 45° HELIX, LONG LENGTH 6&8刃, 45度螺旋角, 加长铣刀	E 59
EM834 EM844		6 FLUTE, 45° HELIX, EXTRA LONG LENGTH 6刃, 45度螺旋角, 超长铣刀	E 61
EM876 EM877		2 FLUTE, BALL NOSE, SHORT LENGTH 2刃, 球头, 短型	E 62
EM813 EM823		2 FLUTE, BALL NOSE, LONG LENGTH 2刃, 球头, 加长(铣刀)	E 63
EM899 EM900		2 FLUTE, MEDIUM, BALL NOSE WITH EXTENDED NECK 2刃, 普长, 球头, 颈部延伸	E 65
EM838 EM848		2 FLUTE, LONG REACH, BALL NOSE 2刃, 加长, 球头	E 67
EM902 EM904		2 FLUTE, BALL NOSE WITH TAPER NECK 2刃, 球头, 颈部锥度	E 69
EM878 EM879		2 FLUTE, STUB CUT LENGTH, BALL NOSE 2刃, 超短, 球头	E 71
G4953 G4954		2 FLUTE, STUB CUT LENGTH, BALL NOSE FOR OVER HRC55 2刃, 超短, 球头, 加工硬度HRC55以上的材料	E 73
EM865		2 FLUTE, MINIATURE BALL NOSE 2刃, 微型, 球头	E 75
EM669		2 FLUTE, BALL NOSE LONG LENGTH-ECONOMY TYPE 2刃, 加长(铣刀), 球头 - MMC	E 77
EM863		2 FLUTE, BALL NOSE LONG LENGTH-SPHERE TYPE 2刃, 加长(铣刀), 球头 - MMC	E 78
EM673		4 FLUTE, BALL NOSE LONG LENGTH-ECONOMY TYPE 4刃, 加长(铣刀), 球头 - MMC	E 80
EM864		4 FLUTE, BALL NOSE LONG LENGTH-SPHERE TYPE 4刃, 加长(铣刀), 球头 - MMC	E 81

X-POWER CARBIDE END MILLS

SELECTION GUIDE

EM815 EM825		4 FLUTE, LONG LENGTH, BALL NOSE 4刃, 加长(铣刀), 球头	E 83
EM832 EM842		MULTI FLUTE, SHORT LENGTH, ROUGHING 多刃, 短型, 螺纹铣刀	E 85
EM814 EM824		MULTI FLUTE, LONG LENGTH, ROUGHING 多刃, 加长, 螺纹铣刀	E 86
EM833 EM843		3 & 4 FLUTE, LONG LENGTH, ROUGHING BALL NOSE 3 & 4刃 加长, 球头, 螺纹铣刀	E 87
EM818 EM828		2 FLUTE, LONG LENGTH, CORNER RADIUS 2刃, 加长, 圆鼻铣刀	E 89
EM819 EM829		4 FLUTE, LONG LENGTH, CORNER RADIUS 4刃, 加长, 圆鼻铣刀	E 90
EM839 EM849		4 FLUTE, STUB CUT LENGTH, CORNER RADIUS 4刃, 超短, 圆鼻铣刀	E 91
EM905		4 FLUTE, 45° HELIX, STUB CUT LENGTH, CORNER RADIUS 4刃, 45度螺旋角, 超短, 圆鼻铣刀	E 93
EM897 EM898		6 FLUTE, 45° HELIX, STUB CUT LENGTH, CORNER RADIUS 6刃, 45度螺旋角, 超短, 圆鼻铣刀	E 95
EM835 EM845		6 FLUTE, 45° HELIX, LONG LENGTH, CORNER RADIUS 6刃, 45度螺旋角, 加长, 圆鼻铣刀	E 96
EM837 EM847		2 FLUTE, TAPER 2刃, 锥度	E 97
EM883		2 FLUTE, END MILLS FOR RIB PROCESSING 2刃, 深腔加工用铣刀	E 98
EM886		2 FLUTE, BALL NOSE FOR RIB PROCESSING 2刃, 球头, 深腔加工用铣刀	E 102
EM889		4 FLUTE, TAPER FOR RIB PROCESSING, 25° HELIX ANGLE 4刃, 锥度, 25度螺旋角, 深腔加工用铣刀	E 106
EM890		4 FLUTE, TAPER BALL NOSE FOR RIB PROCESSING 4刃, 锥度, 球头, 25度螺旋角, 深腔加工用铣刀	E 107

MATERIAL GROUP	WORK MATERIAL	SUITABLE END MILL
A	CAST IRON 铸铁	X-POWER
B	NON-ALLOYED STEELS 非合金钢	X-POWER
C	ALLOY STEELS 合金钢	X-POWER
D	HEAT RESISTANT STEELS 耐热钢	X-POWER
E	STAINLESS STEELS 不锈钢	JET-POWER
F	45 ~ 55 HRc 45 ~ 55 HRc	X-POWER
G	55 ~ 60 HRc 55 ~ 60 HRc	X-POWER
H	TITANIUM ALLOYS 钛合金	JET-POWER
I	INCONEL & NIMONIC 镍铬钛合金和镍铬铁合金	JET-POWER

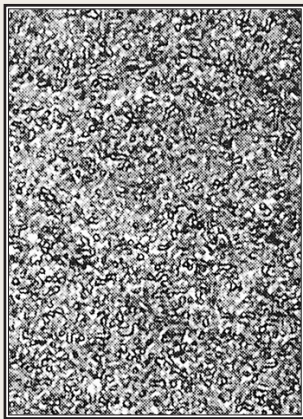
X-POWER CARBIDE END MILLS

END MILL CHECK POINT

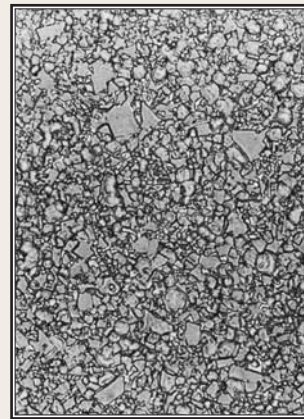
TYPE OF MILLING	WORKPIECE FORM	END MILL TYPE	SUITABLE END MILL	MATERIAL GROUP
SLOTTING		SQUARE	EM810, EM820 EM816, EM826 EM817, EM827 EM836, EM846 EM895, EM896	A, B, C D, F, G
		ROUGHING	EM832, EM842 EM814, EM824	
		CORNER RADIUS	EM818, EM828 EM905 EM819, EM829 EM839, EM849	
		TAPER	EM837, EM847	
SIDE CUTTING		SQUARE	EM810, EM820 EM816, EM826 EM811, EM821 EM817, EM827 EM836, EM846 EM895, EM896	A, B, C D, F, G
			EM812, EM822 EM834, EM844	A, B, C D, F, G
		ROUGHING	EM832, EM842 EM814, EM824	A, B, C D, F, G
		CORNER RADIUS	EM818, EM828 EM905 EM819, EM829 EM839, EM849 EM897, EM898 EM835, EM845 EM897, EM898	
		TAPER	EM837, EM847	
PROFILING		BALL	EM813, EM823 EM899, EM900 EM838, EM848 EM902, EM904 EM815, EM825 EM833, EM843 EM876, EM877 EM878, EM879 EM865, EM669 EM673, EM863 EM864 G4953, G4954	A, B, C D, F G
RIB PROCESSING		SQUARE	EM883	A, B, C D, F, G
		BALL	EM886	
		TAPER SQUARE	EM889	
		TAPER BALL	EM890	

Advantage

YG-1 X-POWER END MILLS are made of carbide which is processed by special expensive furnaces in which put after vacuum sintering Argon gas with 50 bar pressure in the high temperature of the furnace. That gives the possibility to press that carbide in the high temperature so that We have no porosity after cooling down that carbide and have a better toughness.



X-POWER Carbide Grain Structure
Carbide Grain size = $0 < 0.5\mu\text{m}$ Consistent



General Carbide Grain Structure

Where is X-POWER used?

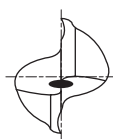
The hard PVD coating X-POWER was developed for carbide cutting tools used for hard machining. High hardness and excellent thermal and chemical stability are the outstanding qualities with which X-POWER protects tools against premature wear.

What advantage does X-POWER offer?

Excellent performance at dry cutting condition. Excellent performance on hardened steel(HRc70).
Apply proper geometry for machining tough materials.
Applicable on a large range of materials.
X-POWER coating protect tools against premature wear, and extend tool life at extreme cutting condition.
Superior workpiece finishes. Fast chip ejection.



2 FLUTE, SHORT LENGTH 2刃, 短型



► Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
为工具钢、合金钢、模具钢高硬材料设计。

► Superior workpiece finishes.
出色的表面光洁度。

► Increased feed rates.
提高进给速度

● PLAIN SHANK

● EM810 Series

● FLAT SHANK

● EM820 Series

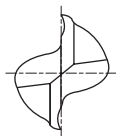
Unit : mm

EDP No.		MILL DIAMETER	SHANK DIAMETER	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EM810901	EM820901	1.0	6	2.5	40
EM810902	EM820902	1.5	6	4	40
EM810020		2.0	4	6	40
EM810903	EM820020	2.0	6	6	40
EM810025		2.5	4	8	40
EM810904	EM820903	2.5	6	8	40
EM810030	EM820030	3.0	6	8	45
EM810035	EM820035	3.5	6	10	45
EM810040	EM820040	4.0	6	11	45
EM810045	EM820045	4.5	6	11	45
EM810050	EM820050	5.0	6	13	50
EM810055	EM820055	5.5	6	13	50
EM810060	EM820060	6.0	6	13	50
EM810065	EM820065	6.5	8	16	60
EM810070	EM820070	7.0	8	16	60
EM810075	EM820075	7.5	8	16	60
EM810080	EM820080	8.0	8	19	60
EM810085	EM820085	8.5	10	19	70
EM810090	EM820090	9.0	10	19	70
EM810095	EM820095	9.5	10	19	70
EM810100	EM820100	10.0	10	22	70
EM810105	EM820105	10.5	12	22	75
EM810110	EM820110	11.0	12	22	75
EM810115	EM820115	11.5	12	22	75
EM810120	EM820120	12.0	12	26	75
EM810906	EM820906	13.0	12	26	85
EM810140	EM820140	14.0	14	26	85
EM810905	EM820905	14.0	16	26	85
EM810908	EM820908	15.0	16	26	90
EM810160	EM820160	16.0	16	32	100
EM810909	EM820909	17.0	16	32	100
EM810180	EM820180	18.0	18	32	100
EM810911	EM820911	19.0	20	32	100
EM810200	EM820200	20.0	20	38	105
EM810220	EM820220	22.0	20	38	105
EM810240	EM820240	24.0	25	45	120
EM810250	EM820250	25.0	25	45	120

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6



2 FLUTE, MINIATURE 2刃, 微型



► High precision milling in medical, optical, electronics and aero space industries.

在医学, 光学, 电子和航空航天工业做高精度铣削

► Excellent performance on high hardened steel.
卓越的高硬度钢切削性能。

● PLAIN SHANK

● EM810 Series

Unit : mm

EDP No. PLAIN	MILL DIAMETER	SHANK DIAMETER	LENGTH OF CUT	OVERALL LENGTH
EM810004	0.4	3	0.8	40
EM810005	0.5	3	1.0	40
EM810006	0.6	3	1.2	40
EM810007	0.7	3	1.4	40
EM810008	0.8	3	1.6	40
EM810009	0.9	3	2.0	40
EM810010	1.0	4	2.5	40
EM810011	1.1	4	2.5	40
EM810012	1.2	4	4.0	40
EM810013	1.3	4	4.0	40
EM810014	1.4	4	4.0	40
EM810015	1.5	4	4.0	40

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.015	h6

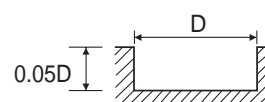
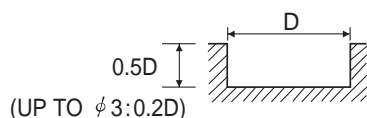


2 FLUTE, SHORT - SLOTTING

2刃, 微型 开槽

● EM810, EM820

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45				HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	9250	190	6050	120	5050	90	4030	35		
3	7150	210	4450	140	3700	120	2690	40	1900	40
4	6050	300	3700	180	3100	150	2350	40	1480	40
5	5050	320	3020	190	2530	160	1860	50	1260	40
6	4450	350	2690	220	2270	180	1600	55	1100	40
8	3360	380	2020	200	1680	180	1350	75	840	40
10	2600	330	1600	160	1350	160	1090	60	680	35
12	2200	280	1350	130	1090	130	930	55	560	35
16	1760	220	1090	110	850	110	720	40	440	20
20	1350	170	850	80	670	80	550	30	320	20
25	1090	130	670	70	550	60	430	20	260	15



RPM=REVOLUTION PER MIN.
FEED=mm/min.

X-POWER



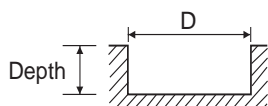
2 FLUTE, MINIATURE - SLOTTING

2刃, 微型 开槽

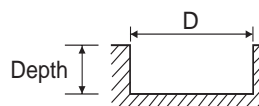
● EM810

MATERIAL	ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	HRc30 ~ HRc45		HRc45 ~ HRc55	
STRENGTH	1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED
0.4	30000	90	23000	50
0.8	24000	150	18000	65
1	20000	160	15000	75
1.2	16000	160	12000	75
1.5	12000	150	9000	70

$D < 1$
Depth = $0.15 \times D$
 $D \geq 1$
Depth = $0.25 \times D$



$D < 1$
Depth = $0.02 \times D$
 $D \geq 1$
Depth = $0.05 \times D$



RPM=REVOLUTION PER MIN.
FEED=mm/min.

X-POWER

2 FLUTE, LONG LENGTH 2刃, 加长(铣刀)



► Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.

为工具钢、合金钢、模具钢高硬材料设计。

► Superior workpiece finishes.

出色的表面光洁度。

► Increased feed rates.

提高进给速度

● **PLAIN SHANK**

● **EM816 Series**

● **FLAT SHANK**

● **EM826 Series**

Unit : mm

EDP No.		MILL DIAMETER	SHANK DIAMETER	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EM816020		2.0	4	8	40
EM816030	EM826030	3.0	6	12	50
EM816040	EM826040	4.0	6	15	50
EM816050	EM826050	5.0	6	20	60
EM816060	EM826060	6.0	6	20	60
EM816080	EM826080	8.0	8	25	70
EM816100	EM826100	10.0	10	30	90
EM816120	EM826120	12.0	12	30	90
EM816140	EM826140	14.0	16	40	110
EM816160	EM826160	16.0	16	50	110
EM816180	EM826180	18.0	20	50	110
EM816200	EM826200	20.0	20	55	110
EM816250	EM826250	25.0	25	75	140

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0,03	h6

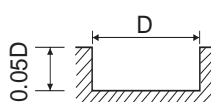
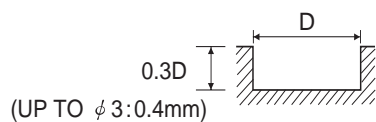




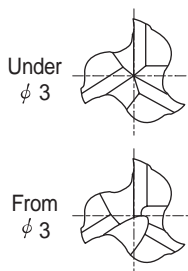
2 FLUTE, LONG - SLOTTING 2刃, 加长(铣刀) 开槽

● EM816, EM826

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45		HRC45 ~ HRC55	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
2	7560	70	6050	60	3780	30
3	5290	85	4280	70	2640	35
4	4280	100	3410	85	2150	40
5	3660	125	2900	100	1900	45
6	3160	150	2520	125	1640	60
8	2400	160	1900	125	1260	60
10	2020	160	1640	125	1010	60
12	1640	125	1390	115	840	45
16	1390	115	1070	90	670	40
20	1010	85	820	60	500	30



RPM=REVOLUTION PER MIN.
FEED=mm/min.



p.E54

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
为工具钢、合金钢、模具钢高硬材料设计。
- Possesses the advantage of 2 flute and 4 flute end mill.
拥有2、4刃铣刀的优点 (3 刃)
- Superior workpiece finishes.
出色的表面光洁度。

● PLAIN SHANK

● EM895 Series

● FLAT SHANK

● EM896 Series

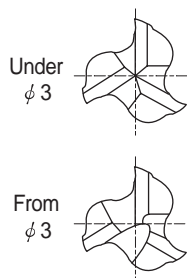
Unit : mm

EDP No.		MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EM895010		1.0	3	2.5	38
EM895015		1.5	4	5	50
EM895025		2.5	3	7	38
EM895030		3.0	3	10	38
EM895901	EM896901	3.0	6	10	50
EM895035		3.5	4	12	50
EM895902	EM896902	3.5	6	12	50
EM895040		4.0	4	12	50
EM895903	EM896040	4.0	6	12	50
EM895045	EM896045	4.5	6	14	57
EM895050		5.0	5	14	50
EM895904	EM896903	5.0	6	14	57
EM895060	EM896060	6.0	6	16	57
EM895080	EM896080	8.0	8	20	63
EM895100	EM896100	10.0	10	22	72
EM895120	EM896120	12.0	12	25	73
EM895140	EM896140	14.0	14	25	75
EM895160	EM896160	16.0	16	32	82
EM895180	EM896180	18.0	18	32	92
EM895200	EM896200	20.0	20	38	92

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6



3 FLUTE, MINIATURE 3刃, 微型



► The MINIATURE END MILL developed by Y.G-1 is universally adopted as the most cost effective system for small milling cutters and has the advantage of 2 flute and 4 flute end mill.

YG-1开发的微型铣刀普遍用于象许多费用显著的系统, 对于小的铣刀具有2刃和4刃铣刀的优点。

● PLAIN SHANK

● EM836 Series

● FLAT SHANK

● EM846 Series

Unit : mm

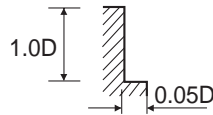
EDP No.		MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EM836010		1.0	4	2	35
EM836020		2.0	4	4	35
EM836030	EM846030	3.0	6	5	36
EM836040	EM846040	4.0	6	7	38
EM836050	EM846050	5.0	6	8	39
EM836060	EM846060	6.0	6	8	39
EM836080	EM846080	8.0	8	11	43
EM836100	EM846100	10.0	10	13	50
EM836120	EM846120	12.0	12	15	55
EM836140	EM846140	14.0	14	15	58
EM836160	EM846160	16.0	16	18	62
EM836180	EM846180	18.0	18	20	70
EM836200	EM846200	20.0	20	22	75

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6

3 FLUTE, SHORT - SIDE CUTTING 3刃, 短型 侧铣

●EM895, EM896, EM836, EM846

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45				HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	11560	210	7560	140	6300	115	5040	30		
3	8920	240	5560	150	4620	125	3360	40	1900	45
4	7560	430	4620	260	3880	210	2940	45	1480	45
5	6300	450	3780	270	3160	230	2320	55	1260	45
6	5560	500	3360	310	2840	250	2000	60	1100	45
8	4200	530	2520	290	2100	265	1680	80	840	45
10	3260	460	2000	230	1680	230	1360	70	680	35
12	2740	390	1680	190	1360	180	1160	60	560	35
16	2200	310	1360	150	1060	150	900	45	440	20
18	1940	280	1210	135	950	130	790	35	380	20
20	1680	240	1060	120	840	115	680	30	320	20

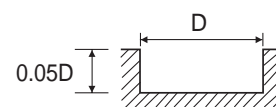
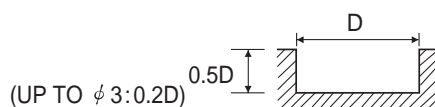


RPM=REVOLUTION PER MIN.
FEED=mm/min.

3 FLUTE, FINISH - SLOTting 3刃, 短型 开槽

●EM895, EM896, EM836, EM846

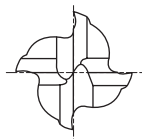
MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc45				HRc45 ~ HRc55		HRc55 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	11560	170	7560	110	6300	80	5040	30		
3	8920	190	5560	130	4620	110	3360	35	1900	40
4	7560	270	4620	160	3880	130	2940	35	1480	35
5	6300	280	3780	170	3160	140	2320	45	1260	35
6	5560	310	3360	200	2840	160	2000	50	1100	35
8	4200	340	2520	180	2100	160	1680	65	840	35
10	3260	300	2000	140	1680	145	1360	55	680	30
12	2740	250	1680	120	1360	120	1160	50	560	30
16	2200	200	1360	100	1060	100	900	35	440	20
18	1940	175	1210	85	950	85	790	30	380	20
20	1680	150	1060	70	840	70	680	25	320	20



RPM=REVOLUTION PER MIN.
FEED=mm/min.



4 FLUTE, SHORT LENGTH 4刃, 短型



► Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.

为工具钢、合金钢、模具钢高硬材料设计。

► 4 flute allows for better workpiece finishes.

4 刃可获得较高表面粗糙度。(4 刃)

► Increased production.

提高生产效率

● PLAIN SHANK

● EM811 Series

● FLAT SHANK

● EM821 Series

Unit : mm

EDP No.		MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EM811020		2.0	4	6	40
EM811901	EM821901	2.0	6	6	40
EM811025		2.5	4	8	40
EM811902	EM821902	2.5	6	8	40
EM811030	EM821030	3.0	6	8	45
EM811035	EM821035	3.5	6	10	45
EM811040	EM821040	4.0	6	11	45
EM811045	EM821045	4.5	6	11	45
EM811050	EM821050	5.0	6	13	50
EM811055	EM821055	5.5	6	13	50
EM811060	EM821060	6.0	6	13	50
EM811065	EM821065	6.5	8	16	60
EM811070	EM821070	7.0	8	16	60
EM811075	EM821075	7.5	8	16	60
EM811080	EM821080	8.0	8	19	60
EM811085	EM821085	8.5	10	19	70
EM811090	EM821090	9.0	10	19	70
EM811095	EM821095	9.5	10	19	70
EM811100	EM821100	10.0	10	22	70
EM811105	EM821105	10.5	12	22	75
EM811110	EM821110	11.0	12	22	75
EM811115	EM821115	11.5	12	22	75
EM811120	EM821120	12.0	12	26	75
EM811904	EM821904	13.0	12	26	85
EM811140	EM821140	14.0	14	26	85
EM811905	EM821905	14.0	12	26	85
EM811903	EM821903	14.0	16	26	85
EM811906	EM821906	15.0	16	26	90
EM811160	EM821160	16.0	16	32	100
EM811907	EM821907	17.0	16	32	100
EM811180	EM821180	18.0	18	32	100
EM811908	EM821908	18.0	16	32	100
EM811909	EM821909	19.0	20	32	100
EM811200	EM821200	20.0	20	38	105
EM811220	EM821220	22.0	20	38	105
EM811240	EM821240	24.0	25	45	120
EM811250	EM821250	25.0	25	45	120

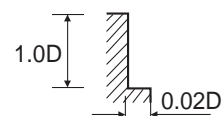
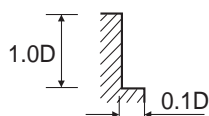
MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6



4 FLUTE, SHORT LENGTH 4刃, 短型 侧铣

●EM811, EM821

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45				HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	11560	280	7560	170	6300	140	5040	50		
3	8920	320	5560	200	4620	170	3360	60	1900	50
4	7560	570	4620	350	3880	280	2940	60	1480	50
5	6300	600	3780	360	3160	300	2320	70	1260	50
6	5560	660	3360	410	2840	330	2000	80	1100	50
8	4200	710	2520	380	2100	350	1680	110	840	50
10	3260	610	2000	300	1680	300	1360	90	680	40
12	2740	520	1680	250	1360	240	1160	80	560	40
16	2200	410	1360	200	1100	200	900	60	440	25
20	1680	320	1060	160	840	150	680	40	320	25
25	1360	250	840	130	680	120	540	30	260	20



RPM=REVOLUTION PER MIN.
FEED=mm/min.

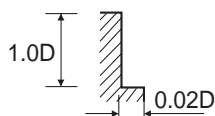


4 FLUTE, SHORT - SIDE CUTTING 4刃, 短型 侧铣

●EM811, EM821

(HIGH SPEED CUTTING)

MATERIAL	ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC45		HRC45 ~ HRC55(65)	
STRENGTH	~ 1500N/mm ²		1500 ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED
2	22300	450	12000	240
3	16000	640	8500	340
4	12500	750	6750	405
5	11000	880	5750	460
6	9550	955	5050	505
8	7150	945	3800	500
10	5750	965	3000	505
12	4750	950	2500	500
16	3600	880	1900	465
20	2850	810	1500	425
25	2300	655	1200	340



RPM=REVOLUTION PER MIN.
FEED=mm/min.



4 FLUTE, LONG LENGTH 4刃, 加长(铣刀)



► Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.

为工具钢、合金钢、模具钢高硬材料设计。

► 4 flute allows for better workpiece finishes.

4 刃可获得较高表面粗糙度。(4 刃)

► Increased production.

提高生产效率

● PLAIN SHANK

● EM817 Series

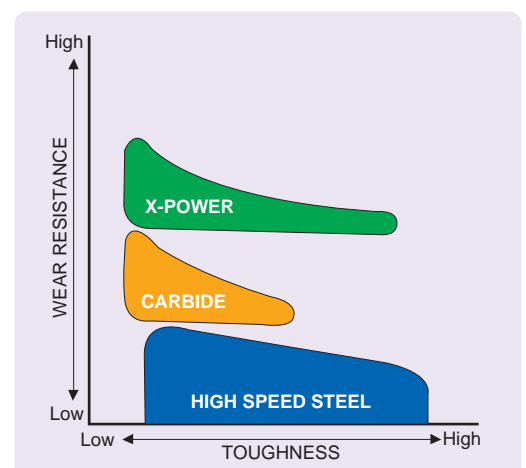
● FLAT SHANK

● EM827 Series

Unit : mm

EDP No.		MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EM817020		2.0	4	8	40
EM817030	EM827030	3.0	6	12	50
EM817040	EM827040	4.0	6	15	50
EM817050	EM827050	5.0	6	20	60
EM817060	EM827060	6.0	6	20	60
EM817080	EM827080	8.0	8	25	70
EM817100	EM827100	10.0	10	30	90
EM817120	EM827120	12.0	12	30	90
EM817140	EM827140	14.0	16	40	110
EM817160	EM827160	16.0	16	50	110
EM817180	EM827180	18.0	20	50	110
EM817200	EM827200	20.0	20	55	110
EM817250	EM827250	25.0	25	75	140

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0,03	h6

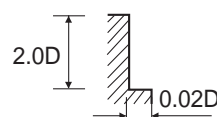
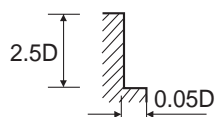




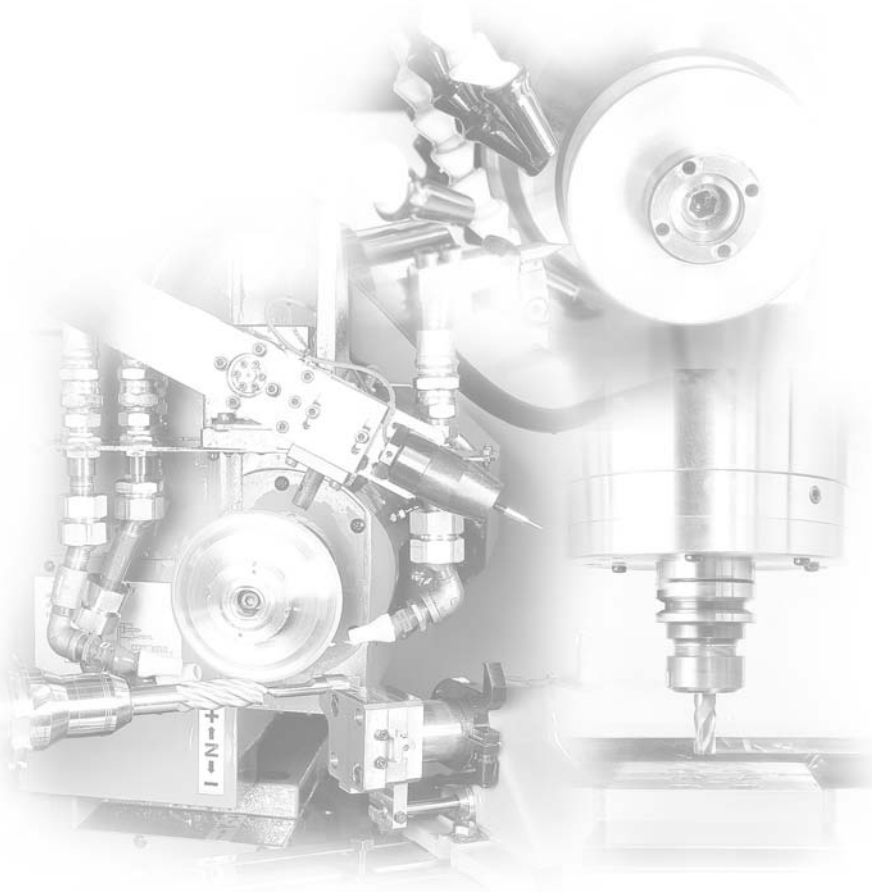
4 FLUTE, LONG - SIDE CUTTING 4刃, 加长(铣刀) 侧铣

● EM817, EM827

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45		HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	8820	200	5040	80	3150	45		
3	6170	230	3570	100	2200	55	1890	30
4	5000	280	2840	115	1790	60	1470	35
5	4270	360	2420	140	1580	70	1260	40
6	3680	430	2100	180	1370	90	1160	50
8	2800	460	1580	180	1050	90	840	50
10	2350	460	1370	180	840	90	670	50
12	1920	360	1160	160	700	70	560	40
16	1620	320	890	125	560	60	440	35
20	1180	230	680	90	420	45	340	25



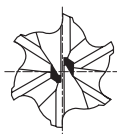
RPM=REVOLUTION PER MIN.
FEED=mm/min.





6 & 8 FLUTE, 45° HELIX, LONG LENGTH

6&8刃, 45度螺旋角, 加长铣刀



► Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.

为工具钢、合金钢、模具钢高硬材料设计。

► 4 flute allows for better workpiece finishes.

4 刃可获得较高表面粗糙度。(4 刃)

► Increased production.

提高生产效率

● PLAIN SHANK

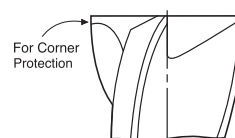
● EM812 Series

● FLAT SHANK

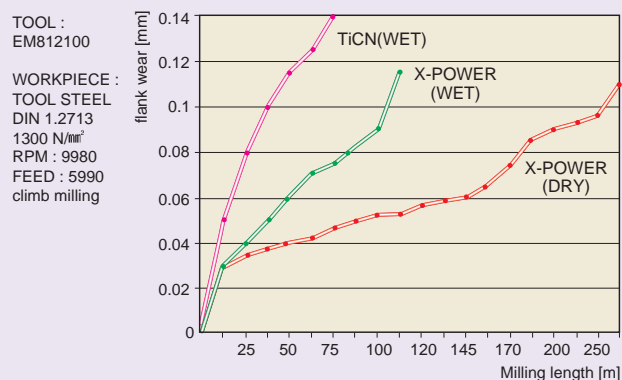
● EM822 Series

Unit : mm

EDP No.		MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No. OF FLUTE
PLAIN	FLAT					
EM812060	EM822060	6.0	6	13	57	6
EM812070	EM822070	7.0	8	16	63	6
EM812080	EM822080	8.0	8	19	63	6
EM812090	EM822090	9.0	10	19	72	6
EM812100	EM822100	10.0	10	22	72	6
EM812120	EM822120	12.0	12	26	83	6
EM812140	EM822140	14.0	14	26	83	6
EM812901	EM822901	14.0	16	26	83	6
EM812160	EM822160	16.0	16	32	92	6
EM812180	EM822180	18.0	18	32	92	8
EM812200	EM822200	20.0	20	38	104	8
EM812250	EM822250	25.0	25	44	104	8

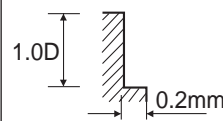
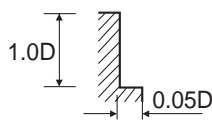
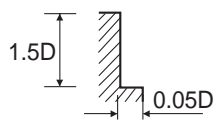
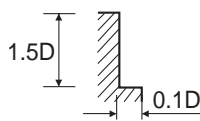


MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0,03	h6



●EM812, EM822

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC50		HRC50 ~ HRC60		HRC60 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1750N/mm ²		1750 ~ 2080N/mm ²		2080N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	5560	2000	3880	1370	1580	210	1100	130
8	4200	2000	2940	1370	1160	210	840	130
10	3360	2000	2320	1370	1000	210	680	130
12	2840	1680	2000	1160	840	180	560	110
16	2100	1260	1480	880	640	130	420	70
20	1680	1010	1160	690	500	110	320	60
25	1500	900	1100	600	430	90	260	50

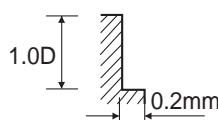
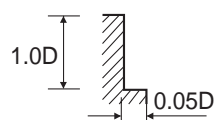
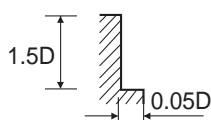


RPM=REVOLUTION PER MIN.
FEED=mm/min.

●EM812, EM822

(HIGH SPEED CUTTING)

MATERIAL	HEAT RESISTANT STEELS HARDENED STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC50		HRC50 ~ HRC60		HRC60 ~ HRC65	
STRENGTH	~ 1750N/mm ²		1750 ~ 2080N/mm ²		2080N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
6	16800	6090	8400	3050	4200	1470
8	12600	6090	6300	3050	3160	1470
10	9980	5990	5040	3050	2520	1470
12	8400	5040	4200	2520	2100	1260
16	6300	3780	3160	1890	1580	950
20	5040	3050	2520	1470	1260	760
25	4500	2700	2200	1300	1120	670

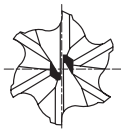


RPM=REVOLUTION PER MIN.
FEED=mm/min.



6 FLUTE, 45° HELIX, EXTRA LONG LENGTH

6刃, 45度螺旋角, 超长铣刀



► Designed to machine high hardened materials.
设计用于加工高硬度材料。

► High speed cutting and finish milling with high feed rates.
高速切削且能以高进给率精铣。(6和8 刃)

► Superior workpiece finishes.
出色的表面光洁度。

► Superior wear resistant.
高耐磨性 (6和8 刃)

► Suitable for dry milling.
适于干式铣削 (6和8刃)

● PLAIN SHANK

● EM834 Series

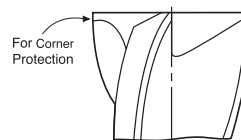
● FLAT SHANK

● EM844 Series

Unit : mm

EDP No.		MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
EM834060	EM844060	6.0	6	26	70
EM834080	EM844080	8.0	8	36	90
EM834100	EM844100	10.0	10	46	100
EM834120	EM844120	12.0	12	56	110
EM834160	EM844160	16.0	16	66	130
EM834200	EM844200	20.0	20	76	140
EM834250	EM844250	25.0	25	92	180

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6

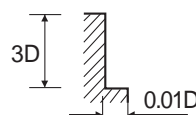
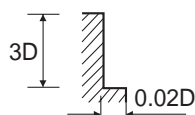


6 FLUTE, 45° HELIX, EXTRA LONG - SIDE CUTTING

6刃, 45度螺旋角, 超长铣刀 侧铣

● EM834, EM844

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRc40		HRc40 ~ HRc50		HRc50 ~ HRc60		HRc60 ~ HRc65	
STRENGTH	~ 1250N/mm ²		1250 ~ 1750N/mm ²		1750 ~ 2080N/mm ²		2080N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	2230	470	1670	350	1390	250	1110	200
8	1670	450	1250	330	1050	240	840	180
10	1330	440	1000	300	840	230	680	160
12	1110	400	840	270	690	210	560	150
16	840	330	630	230	530	170	420	130
20	670	280	500	200	420	150	320	120
25	540	240	400	170	340	130	270	95



RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE, BALL NOSE, SHORT LENGTH 2刃, 球头, 短型



p.E64

► Economic type with short overall length.
总长短的经济型。(短的球头)

● **PLAIN SHANK**

● **EM876 Series**

● **FLAT SHANK**

● **EM877 Series**

Unit : mm

EDP No.		R ±0.01	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
EM876010		R0.5	1.0	3	3	38
EM876012		R0.6	1.2	3	3	38
EM876015		R0.75	1.5	3	3	38
EM876020	EM877020	R1.0	2.0	6	3	50
EM876025	EM877025	R1.25	2.5	6	4	50
EM876030	EM877030	R1.5	3.0	6	4	50
EM876040	EM877040	R2.0	4.0	6	5	54
EM876050	EM877050	R2.5	5.0	6	6	54
EM876060	EM877060	R3.0	6.0	6	7	54
EM876070	EM877070	R3.5	7.0	8	8	58
EM876080	EM877080	R4.0	8.0	8	9	58
EM876090	EM877090	R4.5	9.0	10	10	66
EM876100	EM877100	R5.0	10.0	10	11	66
EM876120	EM877120	R6.0	12.0	12	12	73
EM876140	EM877140	R7.0	14.0	14	14	75
EM876160	EM877160	R8.0	16.0	16	16	82
EM876180	EM877180	R9.0	18.0	18	18	84
EM876200	EM877200	R10.0	20.0	20	20	92
EM876250	EM877250	R12.5	25.0	25	25	104

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6



2 FLUTE, BALL NOSE, LONG LENGTH 2刃, 球头, 加长(铣刀)



► Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.

为工具钢、合金钢、模具钢高硬材料设计。

► For copy - milling machines.

用于仿形铣设备

● PLAIN SHANK

● EM813 Series

● FLAT SHANK

● EM823 Series

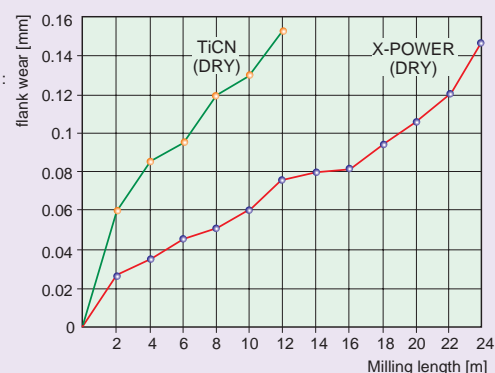
Unit : mm

EDP No.		R ±0.01	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
EM813010		R0.5	1.0	4	2.5	50
EM813901	EM823901	R0.5	1.0	6	2.5	50
EM813012		R0.6	1.2	4	3	50
EM813015		R0.75	1.5	4	4	50
EM813902	EM823902	R0.75	1.5	6	4	50
EM813020	EM823020	R1.0	2.0	6	5	50
EM813025	EM823025	R1.25	2.5	6	6	60
EM813030	EM823030	R1.5	3.0	6	8	60
EM813035	EM823035	R1.75	3.5	6	8	70
EM813040	EM823040	R2.0	4.0	6	8	70
EM813050	EM823050	R2.5	5.0	6	10	80
EM813060	EM823060	R3.0	6.0	6	12	90
EM813070	EM823070	R3.5	7.0	8	14	90
EM813080	EM823080	R4.0	8.0	8	14	100
EM813090	EM823090	R4.5	9.0	10	18	100
EM813100	EM823100	R5.0	10.0	10	18	100
EM813120	EM823120	R6.0	12.0	12	22	110
EM813140	EM823140	R7.0	14.0	14	26	110
EM813903	EM823903	R7.0	14.0	16	26	110
EM813160	EM823160	R8.0	16.0	16	30	140
EM813180	EM823180	R9.0	18.0	18	34	140
EM813200	EM823200	R10.0	20.0	20	38	160
EM813250	EM823250	R12.5	25.0	25	50	180

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6

TOOL :
EM813200

WORKPIECE :
STEEL
DIN 1.2436
60 HRC
RPM : 5260
FEED : 840
climb milling

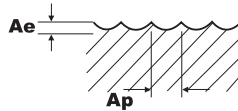


2 FLUTE, BALL NOSE 2刃, 球头, 加长(铣刀)

●EM876, EM877, EM813, EM823

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC40		HRC45 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
1	15760	250	12720	200	5800	90
1.5	15760	350	12140	270	5320	120
2	14400	750	10700	490	4680	150
2.5	14400	750	10700	490	4680	150
3	13100	680	10000	460	4520	150
4	10500	740	8400	530	4200	180
5	9140	820	7300	580	3680	180
6	8490	1020	6900	830	3180	190
8	7160	1290	5770	920	2470	220
10	6370	1530	5090	1020	2040	225
12	5840	1750	4640	1110	1750	245
16	4770	1720	3780	1060	1350	245
20	4140	1660	3260	1040	1110	250

Ae: D1~D6=0.2mm
D8~D20=0.3mm
Ap: 0.2×D



Ae: D1~D6=0.2mm
D8~D20=0.3mm
Ap: 0.1×D

RPM=REVOLUTION PER MIN.
FEED=mm/min.

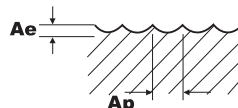
2 FLUTE, BALL NOSE 2刃, 球头, 加长(铣刀)

●EM876, EM877, EM813, EM823

(HIGH SPEED CUTTING)

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		HARDENED STEELS	
HARDNESS	~ HRC45		HRC45 ~ HRC65	
STRENGTH	~ 1500N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED
1	25000	1300	25000	800
1.5	23000	1400	23000	860
2	21000	1480	21000	940
2.5	21000	1760	19000	980
3	21000	2000	17000	1040
4	21000	2940	13660	1160
5	21000	3600	12000	1200
6	21000	4000	10500	1250
8	16700	4000	8360	1250
10	14000	3900	7000	1200
12	12200	3900	6100	1160
16	9550	3450	4770	1000
20	7960	3180	3980	920

Ae: D1~D6=0.2mm
D8~D20=0.3mm
Ap: 0.05×D



RPM=REVOLUTION PER MIN.
FEED=mm/min.



2 FLUTE, MEDIUM, BALL NOSE WITH EXTENDED NECK 2刃，普长，球头，颈部延伸



► Deep slotting milling is possible by reduced neck.

通过减小颈部尺寸可用于深槽加工（带颈部的球头）

► High efficiency milling is possible in deep slotting with projection of the end mill being long.

带凸出的长铣刀可做深槽高效切削。

● PLAIN SHANK

● EM899 Series

● FLAT SHANK

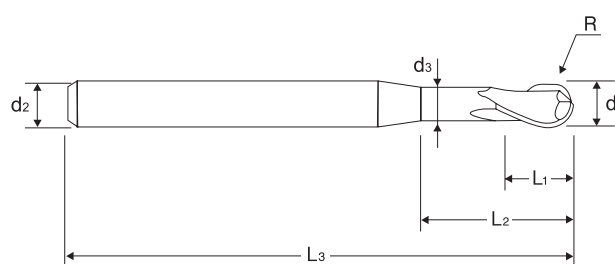
● EM900 Series

Unit : mm

EDP No.		R ±0.01	MILL DIAMETER d ₁	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT L ₁	LENGTH BELOW SHANK L ₂	OVERALL LENGTH L ₃	NECK DIAMETER d ₃
PLAIN	FLAT							
EM899030	EM900030	R1.5	3.0	6	8		70	
EM899040	EM900040	R2.0	4.0	6	8		70	
EM899050	EM900050	R2.5	5.0	6	12		80	
EM899060	EM900060	R3.0	6.0	6	12	22	80	5.8
EM899070	EM900070	R3.5	7.0	8	14		90	
EM899080	EM900080	R4.0	8.0	8	14	27	90	7.8
EM899100	EM900100	R5.0	10.0	10	18	31	100	9.8
EM899120	EM900120	R6.0	12.0	12	22	35	110	11.8
EM899140	EM900140	R7.0	14.0	12	26		120	
EM899160	EM900160	R8.0	16.0	16	30	50	140	15.8
EM899180	EM900180	R9.0	18.0	16	34		140	
EM899200	EM900200	R10.0	20.0	20	38	58	160	19.8
EM899250	EM900250	R12.5	25.0	25	55	75	180	24.8

Unit : mm

MILL DIA. TOLERANCE	RADIUS TOLERANCE
0 - 0.03	± 0.01

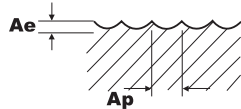


2 FLUTE, MEDIUM, BALL NOSE WITH EXTENDED NECK 2刃, 普长, 球头, 颈部延伸

●EM899, EM900

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC40		HRC45 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
1	15760	250	12720	200	5800	90
1.5	15760	350	12140	270	5320	120
2	14400	750	10700	490	4680	150
2.5	14400	750	10700	490	4680	150
3	13100	680	10000	460	4520	150
4	10500	740	8400	530	4200	180
5	9140	820	7300	580	3680	180
6	8490	1020	6900	830	3180	190
8	7160	1290	5770	920	2470	220
10	6370	1530	5090	1020	2040	225
12	5840	1750	4640	1110	1750	245
16	4770	1720	3780	1060	1350	245
20	4140	1660	3260	1040	1110	250

Ae: D1~D6=0.2mm
D8~D20=0.3mm
Ap: 0.2×D



Ae: D1~D6=0.2mm
D8~D20=0.3mm
Ap: 0.1×D

RPM=REVOLUTION PER MIN.
FEED=mm/min.

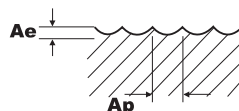
2 FLUTE, MEDIUM, BALL NOSE WITH EXTENDED NECK 2刃, 普长, 球头, 颈部延伸

●EM899, EM900

(HIGH SPEED CUTTING)

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		HARDENED STEELS	
HARDNESS	~ HRC45		HRC45 ~ HRC65	
STRENGTH	~ 1500N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED
1	25000	1300	25000	800
1.5	23000	1400	23000	860
2	21000	1480	21000	940
2.5	21000	1760	19000	980
3	21000	2000	17000	1040
4	21000	2940	13660	1160
5	21000	3600	12000	1200
6	21000	4000	10500	1250
8	16700	4000	8360	1250
10	14000	3900	7000	1200
12	12200	3900	6100	1160
16	9550	3450	4770	1000
20	7960	3180	3980	920

Ae: D1~D6=0.2mm
D8~D20=0.3mm
Ap: 0.05×D



RPM=REVOLUTION PER MIN.
FEED=mm/min.



2 FLUTE, BALL NOSE, LONG REACH 2刃, 球头, 加长



► Longer overall length than EM813, EM823 type and suitable for machining deeply located area.

总长比EM813, EM823 长, 适于加工深处区域。

● PLAIN SHANK

● EM838 Series

● FLAT SHANK

● EM848 Series

Unit : mm

EDP No.		R ±0.01	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
EM838020		R1.0	2.0	3	6	80
EM838030		R1.5	3.0	3	8	100
EM838040		R2.0	4.0	4	8	100
EM838050	EM848050	R2.5	5.0	6	10	120
EM838060	EM848060	R3.0	6.0	6	10	120
EM838080	EM848080	R4.0	8.0	8	14	140
EM838100	EM848100	R5.0	10.0	10	18	180
EM838120	EM848120	R6.0	12.0	12	22	200
EM838160	EM848160	R8.0	16.0	16	30	250
EM838200	EM848200	R10.0	20.0	20	38	250

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6

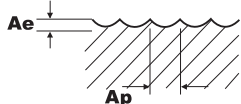


2 FLUTE, BALL NOSE, LONG REACH 2刃, 球头, 加长

●EM838, EM848

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC40		HRC45 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
1	12600	200	10180	160	4640	70
1.5	12600	280	9710	220	4250	95
2	12600	420	9250	260	3870	90
2.5	11520	600	8560	390	3740	120
3	10500	540	8000	370	3620	120
4	8400	590	6720	420	3360	140
5	7310	660	5840	460	2940	140
6	6800	820	5500	600	2550	150
8	5700	1030	4600	740	2000	175
10	5100	1220	4070	820	1650	180
12	4700	1400	3700	890	1400	195
16	3800	1380	3000	850	1100	195
20	3300	1330	2600	830	890	200

Ae: D1~D6=0.2mm
D8~D20=0.3mm
Ap: 0.2 × D



Ae: D1~D6=0.2mm
D8~D20=0.3mm
Ap: 0.1 × D

RPM=REVOLUTION PER MIN.
FEED=mm/min.



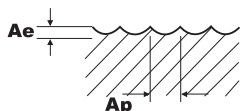
2 FLUTE, BALL NOSE, LONG REACH 2刃, 球头, 加长

●EM838, EM848

(HIGH SPEED CUTTING)

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		HARDENED STEELS	
HARDNESS	~ HRC45		HRC45 ~ HRC65	
STRENGTH	~ 1500N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED
1	20000	1040	20000	640
1.5	18400	1100	18400	690
2	16800	1200	16800	750
2.5	16800	1400	15200	780
3	16800	1600	13600	830
4	16800	2350	10930	930
5	16800	2880	9600	960
6	16800	3200	8400	1000
8	13400	3200	6700	1000
10	11200	3100	5600	960
12	9800	3100	4900	930
16	7600	2750	3800	800
20	6400	2550	3200	740

Ae: D1~D6 =0.2mm
D8~D20=0.3mm
Ap: 0.05 × D



RPM=REVOLUTION PER MIN.
FEED=mm/min.



2 FLUTE, BALL NOSE WITH TAPER NECK 2刃, 球头, 颈部锥度



► High efficiency milling is possible in deep slotting with projection of the end mill being long.

带凸出的长铣刀可做深槽高效切削。

X-POWER

● PLAIN SHANK

● EM902 Series

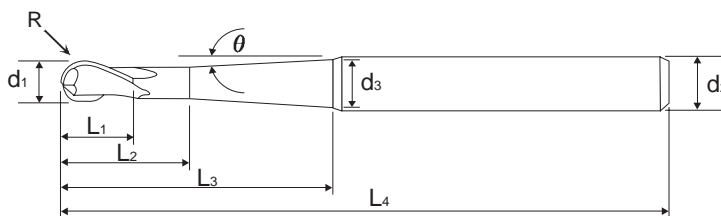
● FLAT SHANK

● EM904 Series

Unit : mm

EDP No.		R ± 0.01	MILL DIAMETER d_1	SHANK DIAMETER $d_2(h6)$	NECK DIAMETER d_3	LENGTH OF CUT L_1	L_2	LENGTH BELOW SHANK L_3	OVERALL LENGTH L_4	NECK TAPER ANGLE θ
PLAIN	FLAT									
EM902010	EM904010	R0.5	1.0	6	2.0	2	4	23	60	1°30'
EM902901	EM904901	R0.5	1.0	6	4.3	2	4	23	60	5°
EM902902	EM904902	R0.5	1.0	6	5.0	2	4	42	80	3°
EM902020	EM904020	R1.0	2.0	6	2.9	4	6	23	60	1°30'
EM902903	EM904903	R1.0	2.0	6	5.0	4	6	23	60	5°
EM902904	EM904904	R1.0	2.0	6	5.7	4	6	41	80	3°
EM902030	EM904030	R1.5	3.0	6	5.6	6	8	32	70	3°
EM902905	EM904905	R1.5	3.0	6	5.3	6	8	52	90	1°30'
EM902040	EM904040	R2.0	4.0	6	6.0	8	10	28	70	3°
EM902906	EM904906	R2.0	4.0	6	6.0	8	10	49	90	1°30'
EM902050	EM904050	R2.5	5.0	8	8.0	10	12	41	90	3°
EM902907	EM904907	R2.5	5.0	8	7.6	10	12	61	110	1°30'
EM902060	EM904060	R3.0	6.0	8	8.0	12	15	34	90	3°
EM902908	EM904908	R3.0	6.0	8	8.0	12	15	53	110	1°30'
EM902080	EM904080	R4.0	8.0	10	10.0	14	17	36	100	3°
EM902909	EM904909	R4.0	8.0	10	10.0	14	17	55	120	1°30'
EM902100	EM904100	R5.0	10.0	12	12.0	18	21	40	110	3°
EM902910	EM904910	R5.0	10.0	12	12.0	18	21	59	130	1°30'
EM902120	EM904120	R6.0	12.0	16	16.0	22	25	63	140	3°
EM902911	EM904911	R6.0	12.0	16	15.0	22	25	83	160	1°30'

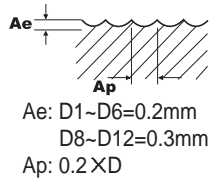
MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6



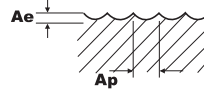
2 FLUTE, BALL NOSE WITH TAPER NECK 2刃, 球头, 颈部锥度

●EM902, EM904

MATERIAL	ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	HRC30 ~ HRC40		HRC40 ~ HRC50		HRC50 ~ HRC55	
STRENGTH	1000 ~ 1250N/mm ²		1250 ~ 1750N/mm ²		1750 ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
1	10180	160	16000	370	16000	320
2	9250	260	11500	640	11300	590
3	8000	370	10200	880	9800	850
4	6720	420	8500	880	8200	850
5	5840	460	7500	880	7200	850
6	5500	660	6900	920	6500	880
8	4600	740	5600	840	5300	800
10	4070	820	4850	800	4650	770
12	3700	890	4350	800	4150	770



Ae: D1~D4=0.05xD
D5~D8=0.25mm
D10~D12=0.30mm
Ap: 0.1xD



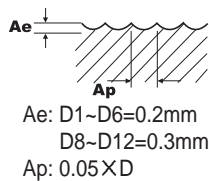
RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE, BALL NOSE WITH TAPER NECK 2刃, 球头, 颈部锥度

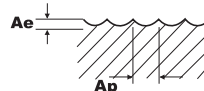
●EM902, EM904

(HIGH SPEED CUTTING)

MATERIAL	NON ALLOY STEELS ALLOY STEELS CAST IRON		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC45		HRC45 ~ HRC50		HRC50 ~ HRC55	
STRENGTH	~ 1500N/mm ²		1250N/mm ² ~ 1750N/mm ²		1750N/mm ² ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
1	20000	1040	16000	620	16000	550
2	16800	1200	11500	850	11400	980
3	16800	1600	10200	1400	9800	1300
4	16800	2350	8500	1350	8200	1300
5	16800	2880	7500	1320	7200	1250
6	16800	3200	6900	1400	6600	1350
8	13400	3200	5600	1250	5300	1150
10	11200	3100	4800	1150	4600	1100
12	9800	3100	4350	1130	4150	1050



Ae: D1~D4=0.05xD
D5~D8=0.25mm
D10~D20=0.30mm
Ap: 0.05xD



RPM=REVOLUTION PER MIN.
FEED=mm/min.



2 FLUTE, STUB CUT LENGTH, BALL NOSE 2刃, 超短, 球头



► Designed for high precision milling operation.
为高精度铣削设计 (球头)

X-POWER

● PLAIN SHANK

● EM878 Series

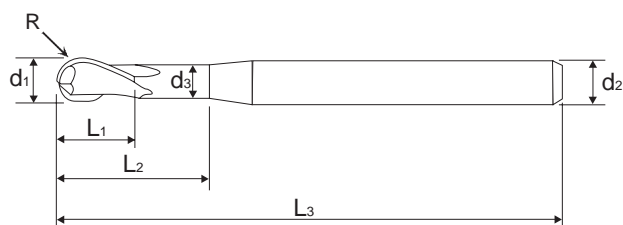
● FLAT SHANK

● EM879 Series

Unit : mm

EDP No.		R ±0.01	MILL DIAMETER d ₁	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT L ₁	LENGTH BELOW SHANK L ₂	OVERALL LENGTH L ₃	NECK DIAMETER d ₃
PLAIN	FLAT							
EM878010		R0.5	1.0	4	1	2.2	50	0.95
EM878901		R0.5	1.0	6	1	2.2	50	0.95
EM878012		R0.6	1.2	4	1.2	2.6	50	1.1
EM878015		R0.75	1.5	4	1.5	3	50	1.4
EM878020	EM879020	R1.0	2.0	6	2	4	50	1.9
EM878025	EM879025	R1.25	2.5	6	2.5	5	60	2.4
EM878030	EM879030	R1.5	3.0	6	3	6	60	2.9
EM878040	EM879040	R2.0	4.0	6	4	8	70	3.9
EM878050	EM879050	R2.5	5.0	6	5	10	80	4.9
EM878060	EM879060	R3.0	6.0	6	6	12	90	5.9
EM878070	EM879070	R3.5	7.0	8	7	14	90	6.9
EM878080	EM879080	R4.0	8.0	8	8	16	100	7.9
EM878090	EM879090	R4.5	9.0	10	9	18	100	8.9
EM878100	EM879100	R5.0	10.0	10	10	20	100	9.9
EM878120	EM879120	R6.0	12.0	12	12	24	110	11.9
EM878140	EM879140	R7.0	14.0	14	14	28	110	13.8
EM878160	EM879160	R8.0	16.0	16	16	32	140	15.8
EM878180	EM879180	R9.0	18.0	18	18	36	140	17.8
EM878200	EM879200	R10.0	20.0	20	20	40	160	19.8
EM878250	EM879250	R12.5	25.0	25	25	50	180	24.8

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6

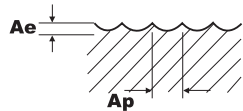


2 FLUTE, STUB CUT LENGTH, BALL NOSE 2刃, 超短, 球头

●EM878, EM879

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRc30		HRc30 ~ HRc40		HRc45 ~ HRc65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
1	15760	250	12720	200	5800	90
1.5	15760	350	12140	270	5320	120
2	14400	750	10700	490	4680	150
2.5	14400	750	10700	490	4680	150
3	13100	680	10000	460	4520	150
4	10500	740	8400	530	4200	180
5	9140	820	7300	580	3680	180
6	8490	1020	6900	830	3180	190
8	7160	1290	5770	920	2470	220
10	6370	1530	5090	1020	2040	225
12	5840	1750	4640	1110	1750	245
16	4770	1720	3780	1060	1350	245
20	4140	1660	3260	1040	1110	250

Ae: D1~D6=0.2mm
D8~D20=0.3mm
Ap: 0.2×D



Ae: D1~D6=0.2mm
D8~D20=0.3mm
Ap: 0.1×D

RPM=REVOLUTION PER MIN.
FEED=mm/min.

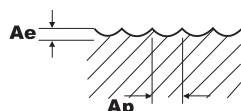
2 FLUTE, STUB CUT LENGTH, BALL NOSE 2刃, 超短, 球头

●EM878, EM879

(HIGH SPEED CUTTING)

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		HARDENED STEELS	
HARDNESS	~ HRc45		HRc45 ~ HRc65	
STRENGTH	~ 1500N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED
1	25000	1300	25000	800
1.5	23000	1400	23000	860
2	21000	1480	21000	940
2.5	21000	1760	19000	980
3	21000	2000	17000	1040
4	21000	2940	13660	1160
5	21000	3600	12000	1200
6	21000	4000	10500	1250
8	16700	4000	8360	1250
10	14000	3900	7000	1200
12	12200	3900	6100	1160
16	9550	3450	4770	1000
20	7960	3180	3980	920

Ae: D1~D6=0.2mm
D8~D20=0.3mm
Ap: 0.05×D



RPM=REVOLUTION PER MIN.
FEED=mm/min.



2 FLUTE, STUB CUT LENGTH, BALL NOSE FOR OVER HRC55 2刃, 超短, 球头, 加工硬度HRC55以上的材料



● PLAIN SHANK

● G4953 Series

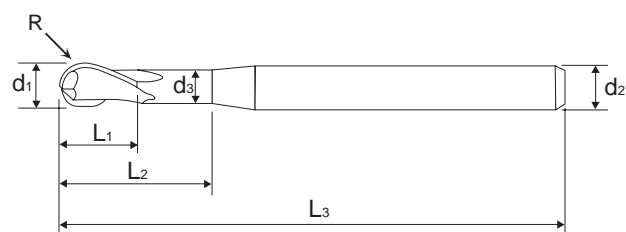
● FLAT SHANK

● G4954 Series

Unit : mm

EDP No.		R ±0.01	MILL DIAMETER d ₁	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT L ₁	LENGTH BELOW SHANK L ₂	OVERALL LENGTH L ₃	NECK DIAMETER d ₃
PLAIN	FLAT							
G4953010		R0.5	1.0	4	1	2.2	50	0.95
G4953012		R0.6	1.2	4	1.2	2.6	50	1.1
G4953015		R0.75	1.5	4	1.5	3	50	1.4
G4953020	G4954020	R1.0	2.0	6	2	4	50	1.9
G4953030	G4954030	R1.5	3.0	6	3	6	60	2.9
G4953040	G4954040	R2.0	4.0	6	4	8	70	3.9
G4953050	G4954050	R2.5	5.0	6	5	10	80	4.9
G4953060	G4954060	R3.0	6.0	6	6	12	90	5.9
G4953070	G4954070	R3.5	7.0	8	7	14	90	6.9
G4953080	G4954080	R4.0	8.0	8	8	16	100	7.9
G4953090	G4954090	R4.5	9.0	10	9	18	100	8.9
G49530100	G4954100	R5.0	10.0	10	10	20	100	9.9
G49530120	G4954120	R6.0	12.0	12	12	24	110	11.9
G49530140	G4954140	R7.0	14.0	14	14	28	110	13.8
G49530160	G4954160	R8.0	16.0	16	16	32	140	15.8
G49530180	G4954180	R9.0	18.0	18	18	36	140	17.8
G49530200	G4954200	R10.0	20.0	20	20	40	160	19.8
G49530250	G4954250	R12.5	25.0	25	25	50	180	24.8

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6



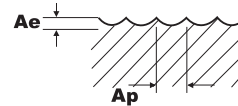
2 FLUTE, BALL NOSE FOR OVER HRC55 2刃, 超短, 球头, 加工硬度HRC55以上的材料

●G4953, G4954

MATERIAL	HARDENED STEELS		HARDENED STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	HRC45 ~ HRC50		HRC50 ~ HRC55		HRC55 ~ HRC60		HRC60 ~ HRC70	
STRENGTH	1500 ~ 1750N/mm ²		1750 ~ 2000N/mm ²		2000 ~ 2080N/mm ²		2080N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1	20000	460	20000	400	20000	350	20000	240
1.5	16300	640	16100	580	16000	570	14200	360
2	14500	800	14200	740	13850	760	11300	465
2.5	13400	950	13000	890	12600	920	9600	560
3	12700	1100	12300	1050	11800	1000	8400	660
4	10600	1100	10300	1050	9800	1000	6650	650
5	9400	1100	9050	1050	8600	950	5600	680
6	8600	1150	8250	1100	7850	950	4850	700
8	7000	1050	6700	1000	6350	950	3800	650
10	6050	1000	5800	960	5450	900	3200	620
12	5450	1000	5200	960	4900	900	2750	610
16	4350	870	4150	830	3900	820	2150	265
20	3500	690	3300	650	3150	630	1700	220

Ae: D1~D4 = 0.05×D
D5~D8 = 0.25mm
D8~D20 = 0.30mm

Ap: D1~D20 = 0.1×D



RPM=REVOLUTION PER MIN.
FEED=mm/min.

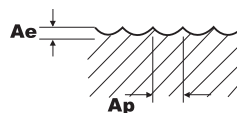
2 FLUTE, BALL NOSE FOR OVER HRC55 2刃, 超短, 球头, 加工硬度HRC55以上的材料

●G4953, G4954

(HIGH SPEED CUTTING)

MATERIAL	HARDENED STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	HRC45 ~ HRC50		HRC50 ~ HRC55		HRC55 ~ HRC70	
STRENGTH	1500 ~ 1750N/mm ²		1750 ~ 2000N/mm ²		2000 ~ 2080N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
1	20000	770	20000	700	20000	410
1.5	16300	1050	16100	980	16000	580
2	14500	1300	14200	1230	13850	700
2.5	13400	1500	13000	1430	12600	780
3	12700	1750	12300	1670	11800	860
4	10600	1700	10300	1620	9800	780
5	9400	1650	9050	1570	8600	750
6	8600	1750	8250	1670	7850	700
8	7000	1550	6700	1460	6350	650
10	6050	1450	5800	1360	5450	620
12	5450	1420	5200	1330	4900	610
16	4350	1230	4150	1130	3900	265
20	3500	1000	3300	900	3150	220

Ae: D1~D4 = 0.05×D
D5~D8 = 0.25mm
D8~D20 = 0.30mm
Ap: D1~D20 = 0.05×D



RPM=REVOLUTION PER MIN.
FEED=mm/min.



2 FLUTE, MINIATURE BALL NOSE

2刃, 微型, 球头



► High precision milling in medical, optical, electronics and aerospace industrials.

在医学, 光学, 电子和航空航天工业做高精度铣削

► Excellent performance at dry cutting condition.
干切削时性能优越.

► Excellent performance on high hardened steel.
卓越的高硬度钢切削性能.

● PLAIN SHANK

● EM865 Series

Unit : mm

EDP No. PLAIN	R ±0.01	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
EM865006	R0.30	0.6	3	1.1	40
EM865007	R0.35	0.7	3	1.5	40
EM865008	R0.40	0.8	3	2.0	40
EM865009	R0.45	0.9	3	2.2	40
EM865010	R0.50	1.0	3	2.5	40
EM865011	R0.55	1.1	3	3.0	40
EM865012	R0.60	1.2	3	3.0	40
EM865013	R0.65	1.3	3	3.5	40
EM865014	R0.70	1.4	3	3.5	40
EM865015	R0.75	1.5	3	4.0	40
EM865020	R1.00	2.0	3	5.0	40
EM865030	R1.50	3.0	3	8.0	40

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.02	h6



2 FLUTE, MINIATURE BALL NOSE

2刃, 微型, 球头

● EM865

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		HARDENED STEELS	
HARDNESS	HRc30 ~ HRc45		HRc45 ~ HRc55	
STRENGTH	1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED
0.6	30000	510	30000	360
0.8	27000	560	27000	330
1	25000	560	25000	340
1.2	24000	570	24000	350
1.5	23000	600	23000	370
2.0	19000	570	19000	320
3.0	14000	480	14000	280

D < 1

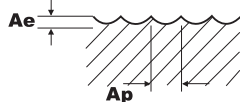
Ae = 0.05 × D

Ap = 0.15 × D

D ≥ 1

Ae = 0.075 × D

Ap = 0.15 × D



D < 1

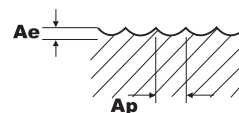
Ae = 0.05 × D

Ap = 0.1 × D

D ≥ 1

Ae = 0.05 × D

Ap = 0.15 × D



RPM=REVOLUTION PER MIN.
FEED=mm/min.

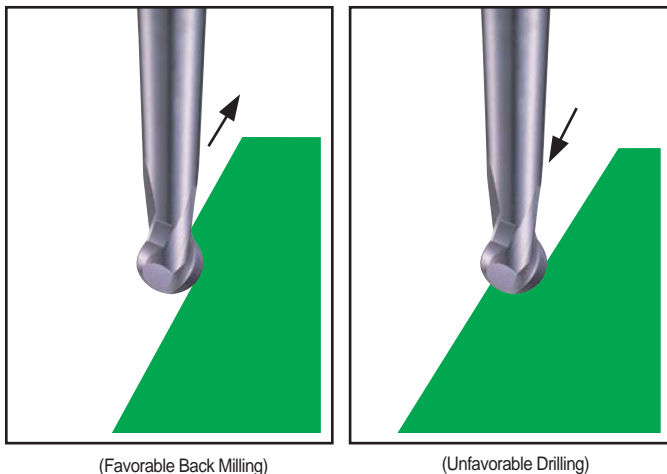
Useful Field Area

- Die & Mold making, Turbine manufacturing and Aircraft Industry, etc.
模具制造, 涡轮制造和航空工业等.
- Complicated 3-D Forms.
复杂的 3-D形状.
- Profiling of up to HRc 65 high hardened steel and Alloy steel, Nickelbase alloy, Titanium alloy.
用于HRc 70高硬度钢和合金钢, 镍基合金, 钛合金轮廓加工.

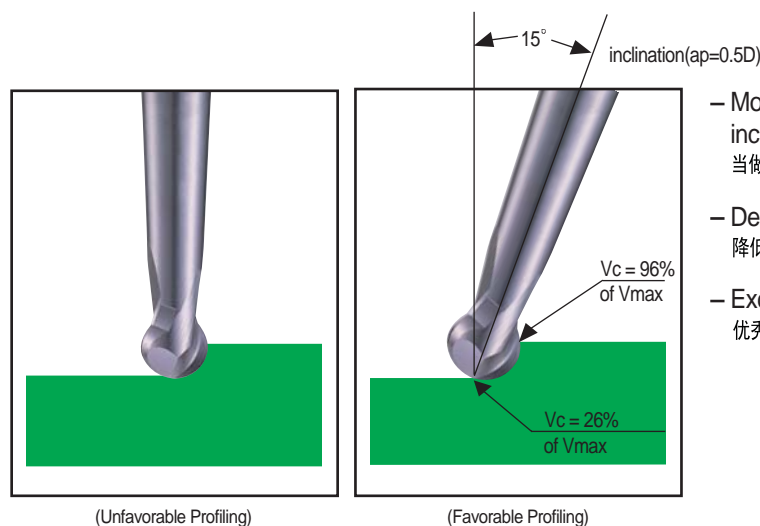
Characteristic

- Ultra micro grain carbide for strong toughness and hardness.
超微颗粒硬质合金提高了韧性和硬度.
- YG-1 s unique X-POWER coating for dry cutting and high speed cutting.
YG-1唯一的 X-POWER涂层 适于高速干切削.
- Outstanding tool geometry and sphere shape ball for long tool life and higher speed and feed operation.
优秀的几何尺寸和半球型球头形状, 可提高工具寿命.

Surpassing Milling Operation



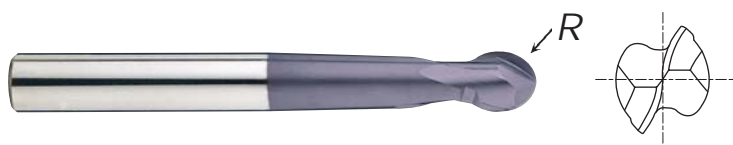
- Operating angle $14^{\circ} \sim 16^{\circ}$, high speed and feed are possible by decreased cutting resistance at the cutting edges.
作业角度 $14 \sim 16$, 较高的速度和进给能作到减少切削刃
- Excellent surface roughness and fast milling process.
YG-1唯一的 X-POWER涂层 适于高速干切削.
- Higher speed and feed in Back Milling.
优秀的几何尺寸和半球型球头形状, 可提高工具寿命.



- More productivity, higher speed and feed in 15° inclination milling operation.
当做 15° 倾斜切削时, 能以较高的速度和进给达到较高生产率.
- Decreased cutting force.
降低切削力.
- Excellent surface roughness and brightness.
优秀的表面粗糙度、光洁度.



2 FLUTE, LONG LENGTH, BALL NOSE-MMC 2刃, 加长, 球头 - MMC



p.E79

- Designed for copy milling.
用于仿形铣设备
- Increased feed rates.
提高进给速度
- 15° inclination.
15° 倾斜度
- Easy to regrind.
易于再研磨

● PLAIN SHANK

● EM669 Series

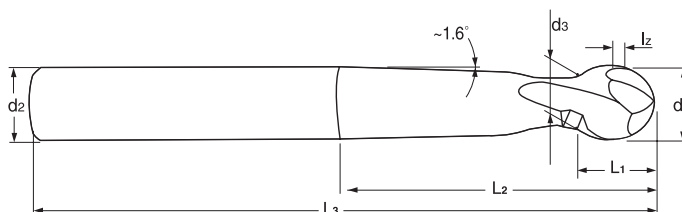
● 2 FLUTE LONG LENGTH - ECONOMY TYPE

Unit : mm

EDP No. PLAIN	R ± 0.01	MILL DIAMETER d ₁	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT L ₁	LENGTH BELOW SHANK L ₂	OVERALL LENGTH L ₃	NECK DIAMETER d ₃	lz
EM669030	R1.5	3.0	6	4	30	80	2.5	1.5
EM669040	R2.0	4.0	6	5	30	80	3.3	1.5
EM669050	R2.5	5.0	6	6	43	80	4.1	2.0
EM669060	R3.0	6.0	6	7	30	100	4.7	2.0
EM669080	R4.0	8.0	8	9	36	100	6.5	3.0
EM669100	R5.0	10.0	10	11	43	100	8.2	3.0
EM669120	R6.0	12.0	12	13	52	100	9.8	3.0
EM669160	R8.0	16.0	16	15	61	150	13.4	3.0

► ECONOMIC TYPE HAS MORE ADVANTAGE IN RESHARPENING THAN SPHERE TYPE.

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6



2 FLUTE, LONG LENGTH, BALL NOSE-MMC

2刃, 加长(铣刀), 球头 - MMC



- Designed for copy milling.
用于仿形铣设备
- Increased feed rates.
提高进给速度
- 15° inclination.
15° 倾斜度
- Easy to regrind.
易于再研磨

● PLAIN SHANK

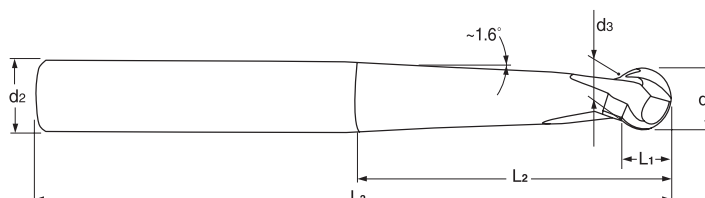
● EM863 Series

● 2 FLUTE LONG LENGTH - SPHERE TYPE

Unit : mm

EDP No. PLAIN	R ± 0.01	MILL DIAMETER d ₁	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT L ₁	LENGTH BELOW SHANK L ₂	OVERALL LENGTH L ₃	NECK DIAMETER d ₃
EM863030	R1.5	3	6	2.3	30	80	2.5
EM863040	R2.0	4	6	3.1	30	80	3.3
EM863050	R2.5	5	6	3.9	38	80	4.1
EM863060	R3.0	6	6	4.9	28	100	4.7
EM863080	R4.0	8	8	6.3	33	100	6.5
EM863100	R5.0	10	10	7.9	40	100	8.2
EM863120	R6.0	12	12	9.5	49	100	9.8
EM863160	R8.0	16	16	12.4	59	150	13.4

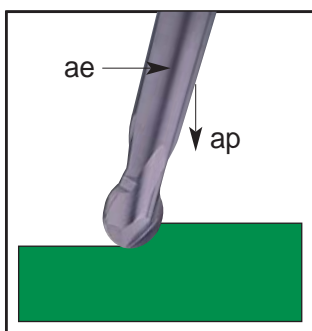
MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6





X-POWER BALL NOSE END MILLS-MMC

2刃, 加长, 球头 - MMC



RECOMMENDED CUTTING CONDITIONS

- ▶ $ae = 0.05 \times d1$
- ▶ $ap = 0.02 \times d1$

● EM669, EM863

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC40		HRC45 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
3	35000	2800	33000	2600	12000	900
4	26000	2300	25000	2200	9000	800
5	21000	2100	20000	2000	7000	700
6	17000	1900	16000	1800	6000	650
8	13000	1700	12000	1600	4500	550
10	10500	1450	10000	1400	3500	500
12	9000	1400	8000	1300	3000	450
16	6000	1200	5500	1100	2000	400

RPM=REVOLUTION PER MIN.
FEED=mm/min.



X-POWER BALL NOSE END MILLS-MMC

2刃, 加长, 球头 - MMC

● EM669, EM863

(HIGH SPEED CUTTING)

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC40		HRC45 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
3	47000	3700	44000	3500	17000	1400
4	35000	3200	33000	3000	13000	1200
5	28000	2800	27000	2600	10000	1100
6	23000	2600	22000	2400	8000	950
8	18000	2300	17000	2100	6000	850
10	14000	2000	13000	1900	5000	750
12	12000	1800	11000	1800	4000	700
16	9000	1600	8000	1500	3300	600

RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 FLUTE, LONG LENGTH, BALL NOSE - MMC

4刃, 加长(铣刀), 球头 - MMC



p.E82

- Designed for copy milling.
用于仿形铣设备
- Increased feed rates.
提高进给速度
- 15° inclination.
15° 倾斜度
- Easy to regrind.
易于再研磨

● PLAIN SHANK

● EM673 Series

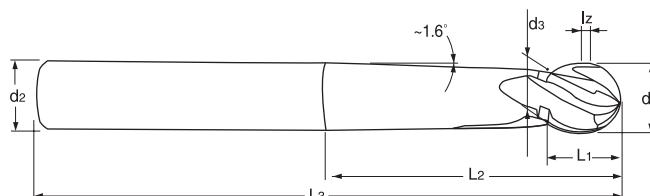
● 4 FLUTE LONG LENGTH - ECONOMY TYPE

Unit : mm

EDP No. PLAIN	R ± 0.01	MILL DIAMETER d ₁	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT L ₁	LENGTH BELOW SHANK L ₂	OVERALL LENGTH L ₃	NECK DIAMETER d ₃	l _z
EM673050	R2.5	5.0	6	6	43	80	4.1	2.0
EM673060	R3.0	6.0	6	7	30	100	4.7	2.0
EM673080	R4.0	8.0	8	9	36	100	6.5	3.0
EM673100	R5.0	10.0	10	11	43	100	8.2	3.0
EM673120	R6.0	12.0	12	13	52	100	9.8	3.0
EM673160	R8.0	16.0	16	15	61	150	13.4	3.0

► ECONOMIC TYPE HAS MORE ADVANTAGE IN RESHARPENING THAN SPHERE TYPE.

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6





4 FLUTE, LONG LENGTH, BALL NOSE - MMC 4刃, 加长(铣刀), 球头 - MMC



- Designed for copy milling.
用于仿形铣设备
- Increased feed rates.
提高进给速度
- 15° inclination.
15° 倾斜度
- Easy to regrind.
易于再研磨

● PLAIN SHANK

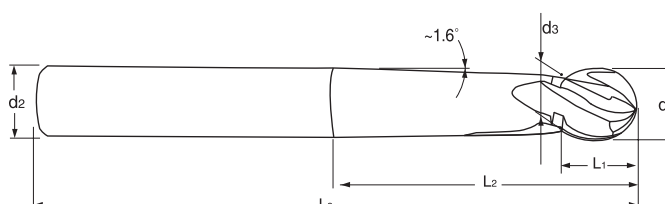
● EM864 Series

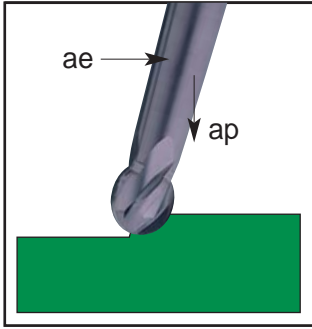
● 4 FLUTE LONG LENGTH - SPHERE TYPE

Unit : mm

EDP No. PLAIN	R ± 0.01	MILL DIAMETER d ₁	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT L ₁	LENGTH BELOW SHANK L ₂	OVERALL LENGTH L ₃	NECK DIAMETER d ₃
EM864050	R2.5	5.0	6	3.9	38	80	4.1
EM864060	R3.0	6.0	6	4.9	28	100	4.7
EM864080	R4.0	8.0	8	6.3	33	100	6.5
EM864100	R5.0	10.0	10	7.9	40	100	8.2
EM864120	R6.0	12.0	12	9.5	49	100	9.8
EM864160	R8.0	16.0	16	12.4	59	150	13.4

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6





RECOMMENDED CUTTING CONDITIONS

- ▶ $ae = 0.05 \times d1$
- ▶ $ap = 0.02 \times d1$

● EM673, EM864

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC40		HRC45 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
5	21000	4000	20000	4000	7000	1400
6	17000	4000	16000	3500	6000	1300
8	13000	3500	12000	3000	4500	1100
10	10500	3000	10000	2500	3500	1000
12	9000	2800	8000	2500	3000	950
16	6000	2800	5500	2200	2000	800

RPM=REVOLUTION PER MIN.
FEED=mm/min.

● EM673, EM864

(HIGH SPEED CUTTING)

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC40		HRC45 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
5	28000	5600	27000	5300	11000	2100
6	23000	5100	22000	4900	9000	1900
8	18000	4600	17000	4300	7000	1700
10	14000	3900	13000	3700	5000	1400
12	12000	3700	11000	3500	4500	1300
16	9000	3100	8000	3000	3300	1100

RPM=REVOLUTION PER MIN.
FEED=mm/min.



4 FLUTE, LONG LENGTH, BALL NOSE 4刃, 加长(铣刀), 球头



- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
为工具钢、合金钢、模具钢高硬材料设计。
- For copy - milling machines.
用于仿形铣设备
- 4 Flute design - higher feed than EM813, EM823 series.
EM823系列高

● PLAIN SHANK

● EM815 Series

● FLAT SHANK

● EM825 Series

Unit : mm

EDP No.		R ±0.01	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
EM815010		R0.5	1.0	4	2.5	50
EM815901	EM825901	R0.5	1.0	6	2.5	50
EM815015		R0.75	1.5	4	4	50
EM815902	EM825902	R0.75	1.5	6	4	50
EM815020	EM825020	R1.0	2.0	6	5	50
EM815030	EM825030	R1.5	3.0	6	8	60
EM815040	EM825040	R2.0	4.0	6	8	70
EM815050	EM825050	R2.5	5.0	6	10	80
EM815060	EM825060	R3.0	6.0	6	12	90
EM815070	EM825070	R3.5	7.0	8	14	90
EM815080	EM825080	R4.0	8.0	8	14	100
EM815090	EM825090	R4.5	9.0	10	18	100
EM815100	EM825100	R5.0	10.0	10	18	100
EM815120	EM825120	R6.0	12.0	12	22	110
EM815140	EM825140	R7.0	14.0	14	26	110
EM815903	EM825903	R7.0	14.0	16	26	110
EM815160	EM825160	R8.0	16.0	16	30	140
EM815180	EM825180	R9.0	18.0	18	34	140
EM815200	EM825200	R10.0	20.0	20	38	160
EM815250	EM825250	R12.5	25.0	25	50	180

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6

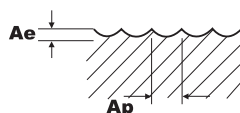


4 FLUTE, LONG LENGTH, BALL NOSE 4刃, 加长(铣刀), 球头

●EM815, EM825

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC40		HRC45 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
1	15760	380	12720	300	5800	130
1.5	15760	530	12140	410	5320	180
2	15760	800	11560	480	4840	160
3	13100	1020	10000	690	4520	220
4	10500	1110	8400	800	4200	270
5	9140	1230	7300	870	3680	270
6	8490	1530	6900	1250	3180	280
8	7160	1950	5770	1380	2470	330
10	6370	2300	5090	1530	2040	340
12	5840	2600	4640	1650	1750	370
16	4770	2600	3780	1600	1350	370
20	4140	2500	3260	1560	1110	375

Ae: D1~D6=0.2mm
D8~D20=0.3mm
Ap: 0.2 XD



Ae: D1~D6=0.2mm
D8~D20=0.3mm
Ap: 0.1 XD

RPM=REVOLUTION PER MIN.
FEED=mm/min.



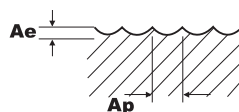
4 FLUTE, LONG LENGTH, BALL NOSE 4刃, 加长(铣刀), 球头

●EM815, EM825

(HIGH SPEED CUTTING)

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		HARDENED STEELS	
HARDNESS	~ HRC45		HRC45 ~ HRC65	
STRENGTH	~ 1500N/mm ²		1500N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED
1	25000	1950	25000	1200
1.5	23000	2100	23000	1290
2	21000	2200	21000	1400
3	21000	3000	17000	1560
4	21000	4400	13660	1740
5	21000	5400	12000	1800
6	21000	6000	10500	1880
8	16700	6000	8360	1880
10	14000	5850	7000	1800
12	12200	5850	6100	1740
16	9550	5180	4770	1500
20	7960	4770	3980	1380

Ae: D1~D6=0.2mm
D8~D20=0.3mm
Ap: 0.05 XD



RPM=REVOLUTION PER MIN.
FEED=mm/min.



MULTI FLUTE, SHORT LENGTH, ROUGHING

多刃, 短型, 螺纹铣刀



- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
为工具钢、合金钢、模具钢高硬材料设计。
- High velocity milling of hardened steels.
硬钢的高速切削。(螺纹)
- For dry and wet milling.
适于干和湿的铣削(螺纹)
- Fast chip ejection.
排屑快(螺纹)

● PLAIN SHANK

● EM832 Series

● FLAT SHANK

● EM842 Series

Unit : mm

EDP No.		MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No. OF FLUTE
PLAIN	FLAT					
EM832060	EM842060	6.0	6	7	54	3
EM832070	EM842070	7.0	8	8	58	3
EM832080	EM842080	8.0	8	9	58	3
EM832090	EM842090	9.0	10	13	66	4
EM832100	EM842100	10.0	10	14	66	4
EM832120	EM842120	12.0	12	16	73	4
EM832140	EM842140	14.0	14	18	75	4
EM832160	EM842160	16.0	16	22	82	4
EM832180	EM842180	18.0	18	24	84	4
EM832200	EM842200	20.0	20	26	92	4
EM832250	EM842250	25.0	25	25	110	5

Tolerances according to DIN 7160 & 7161

Tolerance range in μm					
Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	$\begin{smallmatrix} 0 \\ -40 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -48 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -58 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -70 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -84 \end{smallmatrix}$
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$

$\mu\text{m}=1/1000\text{mm}$



- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
为工具钢、合金钢、模具钢高硬材料设计。
- High velocity milling of hardened steels.
硬钢的高速切削。(螺纹)
- For dry and wet milling.
适于干和湿的铣削(螺纹)
- Longer flute length than EM832, EM842 series.
槽长比 EM832, EM842 系列长(螺纹 EM814, EM824)

● PLAIN SHANK

● EM814 Series

● FLAT SHANK

● EM824 Series

Unit : mm

EDP No.		MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No. OF FLUTE
PLAIN	FLAT					
EM814060	EM824060	6.0	6	16	57	3
EM814070	EM824070	7.0	8	16	63	3
EM814080	EM824080	8.0	8	16	63	3
EM814090	EM824090	9.0	10	19	72	4
EM814100	EM824100	10.0	10	22	72	4
EM814120	EM824120	12.0	12	26	83	4
EM814140	EM824140	14.0	14	26	83	4
EM814901	EM824901	14.0	16	26	83	4
EM814160	EM824160	16.0	16	32	92	4
EM814180	EM824180	18.0	18	32	92	4
EM814200	EM824200	20.0	20	38	104	4
EM814250	EM824250	25.0	25	45	121	5

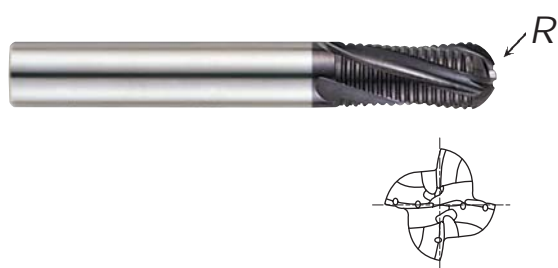
Tolerances according to DIN 7160 & 7161

Tolerance range in μm					
Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

$\mu\text{m} = 1/1000\text{mm}$



3 & 4 FLUTE, LONG LENGTH, ROUGHING BALL NOSE 3 & 4刃, 加长, 球头, 螺纹铣刀



- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
为工具钢、合金钢、模具钢高硬材料设计。
- High velocity milling of hardened steels.
硬钢的高速切削。(螺纹)
- For dry and wet milling.
适于干和湿的铣削(螺纹)
- Fast chip ejection.
排屑快(螺纹)

● PLAIN SHANK

● EM833 Series

● FLAT SHANK

● EM843 Series

Unit : mm

EDP No.		R ±0.02	MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	No. OF FLUTE
PLAIN	FLAT						
EM833060	EM843060	R3.0	6.0	6	16	57	3
EM833080	EM843080	R4.0	8.0	8	16	63	3
EM833100	EM843100	R5.0	10.0	10	22	72	4
EM833120	EM843120	R6.0	12.0	12	26	83	4
EM833140	EM843140	R7.0	14.0	14	26	83	4
EM833160	EM843160	R8.0	16.0	16	32	92	4
EM833180	EM843180	R9.0	18.0	18	32	92	4
EM833200	EM843200	R10.0	20.0	20	38	104	4

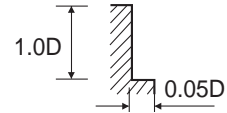
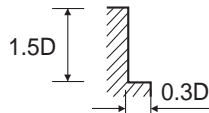
Tolerances according to DIN 7160 & 7161

Tolerance range in μm					
Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	$\begin{smallmatrix} 0 \\ -40 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -48 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -58 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -70 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -84 \end{smallmatrix}$
h6	$\begin{smallmatrix} 0 \\ -6 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -8 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -9 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -11 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -13 \end{smallmatrix}$

$\mu\text{m}=1/1000\text{mm}$

●EM832, EM842, EM814, EM824

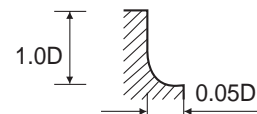
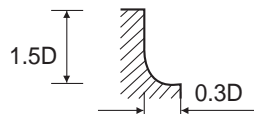
MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC38		HRC38 ~ HRC45		HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1200N/mm ²		1200 ~ 1400N/mm ²		1400 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	15600	2320	12400	840	8400	570	3400	260	2400	190
8	11600	2320	9200	840	6300	570	2400	240	1800	180
10	9200	2320	7600	840	5100	570	2000	290	1300	190
12	8000	2400	6000	800	4200	570	1680	260	1200	190
14	6800	2400	5200	840	3600	570	1400	200	900	130
16	6000	2400	4800	760	3300	510	1200	160	800	110
18	5200	2320	4400	720	2700	420	1100	150	700	100
20	4800	2160	3600	560	2400	360	1000	150	660	100
25	4300	2150	3200	620	2160	410	900	160	600	100



RPM=REVOLUTION PER MIN.
FEED=mm/min.

●EM833, EM843

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC38		HRC38 ~ HRC45		HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1200N/mm ²		1200 ~ 1400N/mm ²		1400 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	15600	2320	12400	840	8400	570	3400	260	2400	190
8	11600	2320	9200	840	6300	570	2400	240	1800	180
10	9200	2320	7600	840	5100	570	2000	290	1300	190
12	8000	2400	6000	800	4200	570	1680	260	1200	190
14	6800	2400	5200	840	3600	570	1400	200	900	130
16	6000	2400	4800	760	3300	510	1200	160	800	110
18	5200	2320	4400	720	2700	420	1100	150	700	100
20	4800	2160	3600	560	2400	360	1000	150	660	100



RPM=REVOLUTION PER MIN.
FEED=mm/min.



2 FLUTE, LONG LENGTH, CORNER RADIUS 2刃, 加长, 圆鼻铣刀



p.E92

► Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.

为工具钢、合金钢、模具钢高硬材料设计。

► Superior workpiece finishes.

出色的表面光洁度。

► Increased feed rates.

提高进给速度

● PLAIN SHANK

● EM818 Series

● FLAT SHANK

● EM828 Series

Unit : mm

EDP No.		CORNER RADIUS R	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
EM818030	EM828030	R0.3	3.0	6	12	50
EM818040	EM828040	R0.3	4.0	6	15	50
EM818911	EM828911	R0.5	4.0	6	15	50
EM818050	EM828050	R0.3	5.0	6	20	60
EM818912	EM828912	R0.5	5.0	6	20	60
EM818913	EM828913	R0.3	6.0	6	20	60
EM818060	EM828060	R0.5	6.0	6	20	60
EM818901	EM828901	R1.0	6.0	6	20	60
EM818914	EM828914	R0.3	8.0	8	25	70
EM818080	EM828080	R0.5	8.0	8	25	70
EM818902	EM828902	R1.0	8.0	8	25	70
EM818903	EM828903	R1.5	8.0	8	25	70
EM818904	EM828904	R2.0	8.0	8	25	70
EM818915	EM828915	R0.3	10.0	10	30	90
EM818100	EM828100	R0.5	10.0	10	30	90
EM818905	EM828905	R1.0	10.0	10	30	90
EM818906	EM828906	R1.5	10.0	10	30	90
EM818907	EM828907	R2.0	10.0	10	30	90
EM818120	EM828120	R0.5	12.0	12	30	90
EM818908	EM828908	R1.0	12.0	12	30	90
EM818909	EM828909	R1.5	12.0	12	30	90
EM818910	EM828910	R2.0	12.0	12	30	90
EM818160	EM828160	R0.5	16.0	16	50	110
EM818916	EM828916	R1.0	16.0	16	50	110
EM818917	EM828917	R1.5	16.0	16	50	110
EM818918	EM828918	R2.0	16.0	16	50	110
EM818200	EM828200	R0.5	20.0	20	55	110
EM818919	EM828919	R1.0	20.0	20	55	110
EM818920	EM828920	R1.5	20.0	20	55	110
EM818921	EM828921	R2.0	20.0	20	55	110

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6



p.E92

► Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.

为工具钢、合金钢、模具钢高硬材料设计。

► 4 flute allows for better workpiece finishes.

4 刃可获得较高表面粗糙度。(4 刃)

► Increased production.

提高生产效率

● PLAIN SHANK

● EM819 Series

● FLAT SHANK

● EM829 Series

Unit : mm

EDP No.		CORNER RADIUS R	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
EM819030	EM829030	R0.3	3.0	6	12	50
EM819040	EM829040	R0.3	4.0	6	15	50
EM819911	EM829911	R0.5	4.0	6	15	50
EM819050	EM829050	R0.3	5.0	6	20	60
EM819912	EM829912	R0.5	5.0	6	20	60
EM819913	EM829913	R0.3	6.0	6	20	60
EM819060	EM829060	R0.5	6.0	6	20	60
EM819901	EM829901	R1.0	6.0	6	20	60
EM819914	EM829914	R0.3	8.0	8	25	70
EM819080	EM829080	R0.5	8.0	8	25	70
EM819902	EM829902	R1.0	8.0	8	25	70
EM819903	EM829903	R1.5	8.0	8	25	70
EM819904	EM829904	R2.0	8.0	8	25	70
EM819915	EM829915	R0.3	10.0	10	30	90
EM819100	EM829100	R0.5	10.0	10	30	90
EM819905	EM829905	R1.0	10.0	10	30	90
EM819906	EM829906	R1.5	10.0	10	30	90
EM819907	EM829907	R2.0	10.0	10	30	90
EM819120	EM829120	R0.5	12.0	12	30	90
EM819908	EM829908	R1.0	12.0	12	30	90
EM819909	EM829909	R1.5	12.0	12	30	90
EM819910	EM829910	R2.0	12.0	12	30	90
EM819160	EM829160	R0.5	16.0	16	50	110
EM819916	EM829916	R1.0	16.0	16	50	110
EM819917	EM829917	R1.5	16.0	16	50	110
EM819918	EM829918	R2.0	16.0	16	50	110
EM819200	EM829200	R0.5	20.0	20	55	110
EM819919	EM829919	R1.0	20.0	20	55	110
EM819920	EM829920	R1.5	20.0	20	55	110
EM819921	EM829921	R2.0	20.0	20	55	110

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0,03	h6



4 FLUTE, STUB CUT LENGTH, CORNER RADIUS 4刃, 超短, 圆鼻铣刀



► Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.

为工具钢、合金钢、模具钢高硬材料设计。

► Superior workpiece finishes.
出色的表面光洁度。

► Increased feed rates.
提高进给速度

● PLAIN SHANK

● EM839 Series

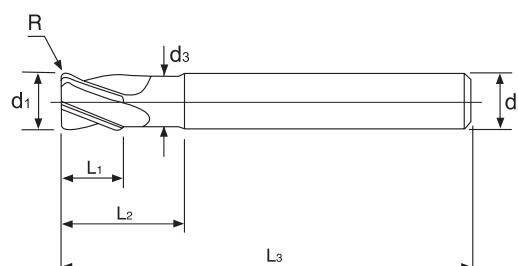
● FLAT SHANK

● EM849 Series

Unit : mm

EDP No.		CORNER RADIUS R	MILL DIAMETER d_1	SHANK DIAMETER $d_2(h6)$	LENGTH OF CUT L_1	LENGTH BELOW SHANK L_2	OVERALL LENGTH L_3	NECK DIAMETER d_3
PLAIN	FLAT							
EM839020	EM849020	R0.2	2.0	6	2.5	5	50	1.9
EM839025	EM849025	R0.25	2.5	6	3	6	50	2.4
EM839030	EM849030	R0.3	3.0	6	4	7	50	2.8
EM839035	EM849035	R0.35	3.5	6	4.5	8	50	3.2
EM839040	EM849040	R0.4	4.0	6	5	9	50	3.7
EM839050	EM849050	R0.5	5.0	6	6	12	50	4.6
EM839060	EM849060	R0.6	6.0	6	7	14	55	5.6
EM839080	EM849080	R0.8	8.0	8	10	18	60	7.4
EM839100	EM849100	R1.0	10.0	10	12	25	70	9.4
EM839120	EM849120	R1.2	12.0	12	15	30	80	11.4
EM839160	EM849160	R1.6	16.0	16	18	35	90	15.4

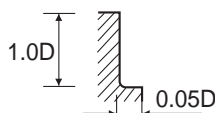
MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6



4 FLUTE, STUB CUT, CORNER RADIUS - SIDE CUTTING 4刃, 超短, 圆鼻铣刀 侧铣

● EM839, EM849

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45		HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2	13870	340	9070	205	6050	60		
2.5	12290	360	7870	220	5040	65		
3	10700	385	6670	240	4030	70	2280	70
3.5	9890	535	6100	330	3780	70	2030	70
4	9070	685	5540	420	3530	70	1780	70
5	7560	720	4540	430	2780	85	1510	70
6	6670	790	4030	490	2400	95	1320	70
8	5040	850	3020	455	2020	130	1010	70
10	3910	730	2400	360	1630	110	820	60
12	3290	625	2020	300	1390	95	670	60
16	2640	490	1630	240	1080	70	530	35



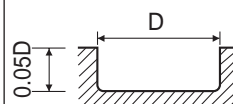
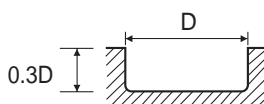
RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE, LONG CORNER RADIUS - SLOTTING

2刃, 加长, 圆鼻铣刀 开槽

● EM818, EM828

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45		HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3	6620	140	4280	70	2640	35	1870	18
4	5360	170	3410	85	2150	40	1470	20
5	4580	210	2900	100	1900	50	1260	25
6	3950	250	2520	125	1640	60	1160	35
8	3000	270	1900	125	1260	60	840	35
10	2520	270	1640	125	1010	60	670	35
12	2060	210	1390	115	840	50	550	25
16	1740	190	1070	90	670	40	440	20
20	1260	140	820	60	500	30	340	15



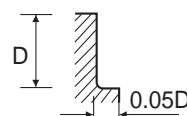
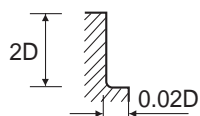
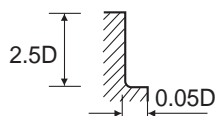
RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 FLUTE, LONG, CORNER RADIUS - SIDE CUTTING

2刃, 加长, 圆鼻铣刀 侧铣

● EM819, EM829

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45		HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3	6620	170	4280	130	2640	65	1870	30
4	5360	210	3410	150	2150	70	1470	35
5	4580	215	2900	180	1900	85	1260	40
6	3950	215	2520	180	1640	85	1160	50
8	3000	230	1900	180	1260	85	840	50
10	2520	230	1640	180	1010	85	670	50
12	2060	180	1390	160	840	70	550	40
16	1740	160	1070	125	670	60	440	35
20	1260	115	820	90	500	45	340	25



RPM=REVOLUTION PER MIN.
FEED=mm/min.



4 FLUTE, 45° HELIX, STUB CUT LENGTH, CORNER RADIUS 4刃, 45度螺旋角, 超短, 圆鼻铣刀



- No line is marked on the boundary section during step milling because this tool has radius on the end faces of the shank.
分步切削时没有分界线, 因为这种工具柄部端面有圆弧。
- High speed cutting in wide deep wall with step milling.
宽深侧面的高速分步切削
- Suitable for deep side milling, Helical Milling, Contour Milling.
仿形铣。

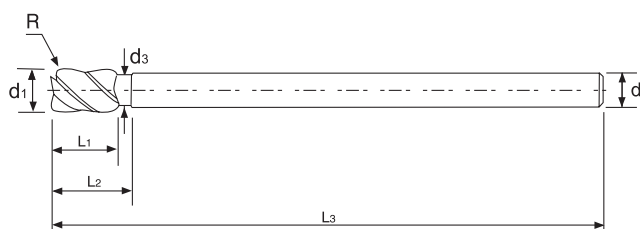
● PLAIN SHANK

● EM905 Series

Unit : mm

EDP No. PLAIN	CORNER RADIUS R	MILL DIAMETER d_1	SHANK DIAMETER $d_2(h6)$	LENGTH OF CUT L_1	LENGTH BELOW SHANK L_2	OVERALL LENGTH L_3	NECK DIAMETER d_3
EM905100	R0.5	10.0	8	15	19.2	130	7.5
EM905901	R1.0	10.0	8	15	19.2	130	7.5
EM905120	R0.5	12.0	10	18	22.2	150	9.5
EM905902	R1.0	12.0	10	18	22.2	150	9.5
EM905140	R0.5	14.0	12	21	25.2	160	11.5
EM905903	R1.0	14.0	12	21	25.2	160	11.5
EM905180	R0.5	18.0	16	27	31.2	180	15.5
EM905904	R1.0	18.0	16	27	31.2	180	15.5
EM905220	R0.5	22.0	20	33	37.2	200	19.5
EM905905	R1.0	22.0	20	33	37.2	200	19.5

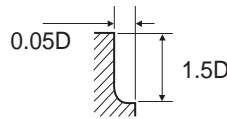
MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.02	h6



4 FLUTE, 45° HELIX, CORNER RADIUS - SIDE CUTTING 4刃, 45度螺旋角, 超短, 圆鼻铣刀 侧铣

●EM905

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45				HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
10	7690	2000	7690	1220	5680	920	5680	740	3840	480
12	5760	2000	5760	1220	4260	920	4260	740	2880	480
14	4600	1800	4600	1220	3410	920	3410	740	2300	480
18	3850	1530	3850	1220	2840	920	2840	740	1920	480
22	3300	1300	3300	1220	2430	920	2430	740	1650	480

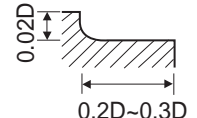
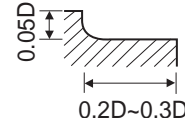
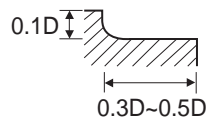


RPM=REVOLUTION PER MIN.
FEED=mm/min.

4 FLUTE, 45° HELIX, CORNER RADIUS - CONTOURING 4刃, 45度螺旋角, 超短, 圆鼻铣刀 侧铣

●EM905

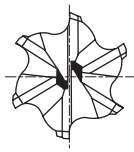
MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45				HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²				1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
10	7690	1150	5680	920	5680	800	5680	460	3840	290
12	5760	1150	4260	920	4260	800	4260	460	2880	290
14	4600	1150	3410	920	3410	800	3410	460	2300	290
18	3850	1150	2840	920	2840	800	2840	460	1920	290
22	3300	1150	2430	920	2430	800	2430	460	1650	290



RPM=REVOLUTION PER MIN.
FEED=mm/min.



6 FLUTE, 45° HELIX, STUB CUT LENGTH, CORNER RADIUS 6刃, 45度螺旋角, 超短, 圆鼻铣刀



► High speed cutting.
高速切削

► Excellent performance in dry cutting.
干切削时性能优越。

► Cutting up to the dimension three times as much as the diameter by reduced Neck.
通过减小颈部, 所切削的尺寸可达3倍的直径

● PLAIN SHANK

● EM897 Series

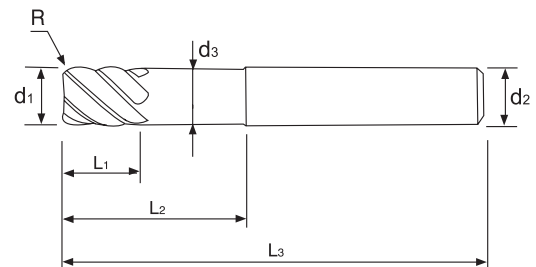
● FLAT SHANK

● EM898 Series

Unit : mm

EDP No.		CORNER RADIUS R	MILL DIAMETER d ₁	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT L ₁	LENGTH BELOW SHANK L ₂	OVERALL LENGTH L ₃	NECK DIAMETER d ₃
PLAIN	FLAT							
EM897060	EM898060	R0.5	6.0	6	6	14	50	5.7
EM897080	EM898080	R0.5	8.0	8	8	24	60	7.65
EM897100	EM898100	R1.0	10.0	10	10	30	70	9.65
EM897120	EM898120	R1.0	12.0	12	12	30	75	11.6

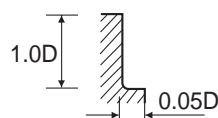
MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0,03	h6



6 FLUTE, STUB CUT, CORNER RADIUS - SIDE CUTTING 6刃, 45度螺旋角, 超短, 圆鼻铣刀 侧铣

● EM897, EM898

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45		HRC45 ~ HRC55		HRC55 ~ HRC65	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²		2000N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6	6670	790	4030	490	2400	95	1320	70
8	5040	850	3020	455	2020	130	1010	70
10	3910	730	2400	360	1630	110	820	60
12	3290	625	2020	300	1390	95	670	60



RPM=REVOLUTION PER MIN.
FEED=mm/min.

6 FLUTE, 45° HELIX, LONG LENGTH, CORNER RADIUS 6刃, 45度螺旋角, 加长, 圆鼻铣刀



- Designed to machine high hardened materials.
设计用于加工高硬度材料。
- High speed cutting and finish milling with high feed rates.
高速切削且能以高进给率精铣。(6和8 刃)
- Superior workpiece finishes.
出色的表面光洁度。
- Superior wear resistant.
高耐磨性 (6和8 刃)
- Suitable for dry milling.
适于干切削 (6和8 刃)

● PLAIN SHANK

● EM835 Series

● FLAT SHANK

● EM845 Series

Unit : mm

EDP No.		CORNER RADIUS R	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
EM835060	EM845060	R0.5	6.0	6	13	70
EM835080	EM845080	R0.5	8.0	8	19	90
EM835100	EM845100	R0.5	10.0	10	22	100
EM835901	EM845901	R1.0	10.0	10	22	100
EM835120	EM845120	R0.5	12.0	12	26	110
EM835902	EM845902	R1.0	12.0	12	26	110
EM835160	EM845160	R1.0	16.0	16	32	130
EM835903	EM845903	R1.5	16.0	16	32	130
EM835200	EM845200	R1.0	20.0	20	38	140
EM835904	EM845904	R1.5	20.0	20	38	140
EM835905	EM845905	R2.0	20.0	20	38	140

MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6

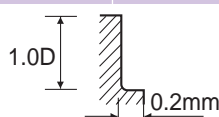
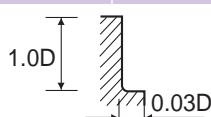
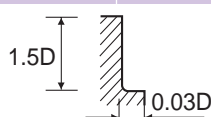


6 FLUTE, 45° HELIX, CORNER RADIUS - SIDE CUTTING 6刃, 45度螺旋角, 加长, 圆鼻铣刀 侧铣

● EM835, EM845

(HIGH SPEED CUTTING)

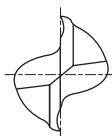
MATERIAL	ALLOY STEELS HEAT RESISTANT STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	~ HRC50		HRC50 ~ HRC60		HRC60 ~ HRC65	
STRENGTH	~ 1750N/mm ²		1750 ~ 2080N/mm ²		2080N/mm ² ~	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED
6	16800	6090	8400	3050	4200	1470
8	12600	6090	6300	3050	3150	1470
10	9980	5990	5040	3050	2520	1470
12	8400	5040	4200	2520	2100	1260
16	6300	3780	3150	1890	1580	950
20	5040	3050	2520	1470	1260	760



RPM=REVOLUTION PER MIN.
FEED=mm/min.



2 FLUTE, TAPER 2刃, 锥度



► Designed for milling die cavity.
设计用于铣模腔

► Suitable for machining tool steel alloy steel, mold steel and other high hardened materials.
适于加工合金工具钢, 模具钢及其它高硬度材料。

X-POWER

● PLAIN SHANK

● EM837 Series

● FLAT SHANK

● EM847 Series

Unit : mm

EDP No.		MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	TAPER ANGLE (°)
PLAIN	FLAT					
EM837913		2.0	4	6	45	30°
EM837020		2.0	4	6	45	1°
EM837901		2.0	4	6	45	2°
EM837902		2.0	4	6	45	3°
EM837914	EM847914	3.0	6	10	55	30°
EM837030	EM847030	3.0	6	10	55	1°
EM837903	EM847903	3.0	6	10	55	2°
EM837904	EM847904	3.0	6	10	55	3°
EM837915	EM847915	4.0	6	15	55	30°
EM837040	EM847040	4.0	6	15	55	1°
EM837905	EM847905	4.0	6	15	55	2°
EM837906	EM847906	4.0	6	15	55	3°
EM837916	EM847916	5.0	6	15	60	30°
EM837050	EM847050	5.0	6	15	60	1°
EM837907	EM847907	5.0	6	15	60	2°
EM837908	EM847908	5.0	6	15	60	3°
EM837917	EM847917	6.0	6	20	60	30°
EM837060	EM847060	6.0	6	20	60	1°
EM837909	EM847909	6.0	6	20	60	2°
EM837910	EM847910	6.0	8	20	65	3°
EM837918	EM847918	8.0	8	25	70	30°
EM837080	EM847080	8.0	8	25	70	1°
EM837911	EM847911	8.0	8	25	70	2°
EM837912	EM847912	8.0	10	25	75	3°

► We can supply various sizes and taper angle.

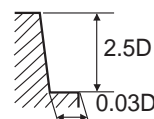
MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.03	h6



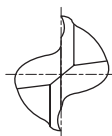
2 FLUTE, TAPER - SIDE CUTTING 2刃, 锥度 侧铣

● EM837, EM847

MATERIAL	NON ALLOYED STEELS ALLOY STEELS		ALLOY STEELS HEAT RESISTANT STEELS	
HARDNESS	~ HRC30		HRC30 ~ HRC45	
STRENGTH	~ 1000N/mm ²		1000 ~ 1500N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED
2	8400	170	6300	125
3	4410	120	3570	100
4	3570	140	2840	115
5	3050	180	2410	145
6	2630	210	2100	170
8	2000	250	1580	180



RPM=REVOLUTION PER MIN.
FEED=mm/min.



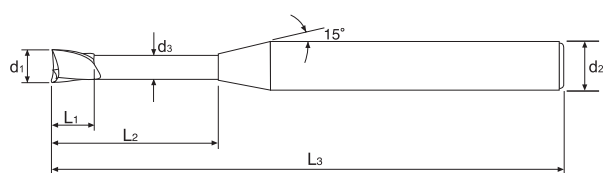
p.E105

●PLAIN SHANK

●EM883 Series

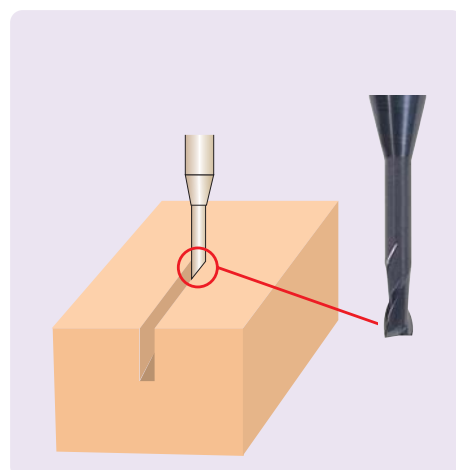
Unit : mm

EDP No. PLAIN	MILL DIAMETER d_1	SHANK DIAMETER $d_2(h6)$	LENGTH OF CUT L_1	LENGTH BELOW SHANK L_2	OVERALL LENGTH L_3	NECK DIAMETER d_3
EM883004	0.4	4	0.6	2	45	0.37
EM883984	0.4	4	0.6	3	45	0.37
EM883985	0.4	4	0.6	4	45	0.37
EM883986	0.4	4	0.6	5	45	0.37
EM883005	0.5	4	0.7	2	45	0.45
EM883988	0.5	4	0.7	4	45	0.45
EM883989	0.5	4	0.7	6	45	0.45
EM883990	0.5	4	0.7	8	45	0.45
EM883006	0.6	4	0.9	2	45	0.55
EM883991	0.6	4	0.9	4	45	0.55
EM883992	0.6	4	0.9	6	45	0.55
EM883993	0.6	4	0.9	8	45	0.55
EM883819	0.6	4	0.9	10	45	0.55



Unit : mm

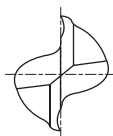
MILL DIA. TOLERANCE	SHANK DIA. TOLERANCE
0 - 0.015	0 - 0.008





2 FLUTE END MILLS FOR RIB PROCESSING

2刃, 深腔加工用铣刀



p.E105

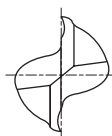
X-POWER

● PLAIN SHANK

● EM883 Series

Unit : mm

EDP No. PLAIN	MILL DIAMETER d ₁	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT L ₁	LENGTH BELOW SHANK L ₂	OVERALL LENGTH L ₃	NECK DIAMETER d ₃
EM883007	0.7	4	1.0	2	45	0.65
EM883820	0.7	4	1.0	3	45	0.65
EM883906	0.7	4	1.0	4	45	0.65
EM883907	0.7	4	1.0	6	45	0.65
EM883821	0.7	4	1.0	8	45	0.65
EM883822	0.7	4	1.0	10	45	0.65
EM883008	0.8	4	1.2	4	45	0.75
EM883908	0.8	4	1.2	6	45	0.75
EM883909	0.8	4	1.2	8	45	0.75
EM883994	0.8	4	1.2	10	45	0.75
EM883995	0.8	4	1.2	12	45	0.75
EM883009	0.9	4	1.35	6	45	0.85
EM883910	0.9	4	1.35	8	45	0.85
EM883911	0.9	4	1.35	10	45	0.85
EM883823	0.9	4	1.35	15	50	0.85
EM883996	1.0	4	1.5	4	45	0.95
EM883010	1.0	4	1.5	6	45	0.95
EM883912	1.0	4	1.5	8	45	0.95
EM883913	1.0	4	1.5	10	45	0.95
EM883914	1.0	4	1.5	12	45	0.95
EM883997	1.0	4	1.5	16	50	0.95
EM883998	1.0	4	1.5	20	55	0.95
EM883012	1.2	4	1.8	6	45	1.15
EM883915	1.2	4	1.8	8	45	1.15
EM883916	1.2	4	1.8	10	45	1.15
EM883917	1.2	4	1.8	12	45	1.15
EM883999	1.2	4	1.8	16	50	1.15
EM883824	1.4	4	2.1	6	45	1.35
EM883918	1.4	4	2.1	8	45	1.35
EM883919	1.4	4	2.1	10	45	1.35
EM883920	1.4	4	2.1	12	45	1.35
EM883921	1.4	4	2.1	14	50	1.35
EM883922	1.4	4	2.1	16	50	1.35
EM883825	1.4	4	2.1	22	55	1.35
EM883015	1.5	4	2.3	6	45	1.45
EM883923	1.5	4	2.3	8	45	1.45
EM883924	1.5	4	2.3	10	45	1.45
EM883925	1.5	4	2.3	12	45	1.45
EM883926	1.5	4	2.3	14	50	1.45
EM883927	1.5	4	2.3	16	50	1.45
EM883928	1.5	4	2.3	18	55	1.45
EM883810	1.5	4	2.3	20	55	1.45



p.E105

● PLAIN SHANK

● EM883 Series

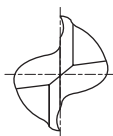
Unit : mm

EDP No. PLAIN	MILL DIAMETER d ₁	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT L ₁	LENGTH BELOW SHANK L ₂	OVERALL LENGTH L ₃	NECK DIAMETER d ₃
EM883930	1.6	4	2.4	6	45	1.55
EM883016	1.6	4	2.4	8	45	1.55
EM883931	1.6	4	2.4	10	45	1.55
EM883932	1.6	4	2.4	12	45	1.55
EM883826	1.6	4	2.4	14	50	1.55
EM883827	1.6	4	2.4	16	50	1.55
EM883828	1.6	4	2.4	18	55	1.55
EM883829	1.6	4	2.4	20	55	1.55
EM883830	1.6	4	2.4	26	60	1.55
EM883018	1.8	4	2.7	6	45	1.75
EM883944	1.8	4	2.7	8	45	1.75
EM883945	1.8	4	2.7	10	45	1.75
EM883946	1.8	4	2.7	12	45	1.75
EM883947	1.8	4	2.7	14	50	1.75
EM883948	1.8	4	2.7	16	50	1.75
EM883949	1.8	4	2.7	18	55	1.75
EM883950	1.8	4	2.7	20	55	1.75
EM883831	1.8	4	2.7	25	60	1.75
EM883958	2.0	4	3.0	6	45	1.95
EM883020	2.0	4	3.0	8	45	1.95
EM883959	2.0	4	3.0	10	45	1.95
EM883960	2.0	4	3.0	12	45	1.95
EM883961	2.0	4	3.0	14	50	1.95
EM883962	2.0	4	3.0	16	50	1.95
EM883963	2.0	4	3.0	18	55	1.95
EM883964	2.0	4	3.0	20	55	1.95
EM883966	2.0	4	3.0	25	60	1.95
EM883814	2.0	4	3.0	30	70	1.95
EM883967	2.5	4	3.7	8	45	2.40
EM883025	2.5	4	3.7	10	45	2.40
EM883968	2.5	4	3.7	12	45	2.40
EM883969	2.5	4	3.7	14	50	2.40
EM883970	2.5	4	3.7	16	55	2.40
EM883971	2.5	4	3.7	18	55	2.40
EM883972	2.5	4	3.7	20	60	2.40
EM883973	2.5	4	3.7	25	70	2.40
EM883974	2.5	4	3.7	30	80	2.40



2 FLUTE END MILLS FOR RIB PROCESSING

2刃, 深腔加工用铣刀



p.E105

● PLAIN SHANK

● EM883 Series

Unit : mm

EDP No. PLAIN	MILL DIAMETER d ₁	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT L ₁	LENGTH BELOW SHANK L ₂	OVERALL LENGTH L ₃	NECK DIAMETER d ₃
EM883030	3.0	6	4.5	8	45	2.85
EM883975	3.0	6	4.5	10	45	2.85
EM883976	3.0	6	4.5	12	45	2.85
EM883977	3.0	6	4.5	14	50	2.85
EM883978	3.0	6	4.5	16	55	2.85
EM883979	3.0	6	4.5	18	55	2.85
EM883980	3.0	6	4.5	20	60	2.85
EM883981	3.0	6	4.5	25	65	2.85
EM883832	3.0	6	4.5	30	70	2.85
EM883833	3.0	6	4.5	35	80	2.85
EM883983	3.0	6	4.5	40	90	2.85
EM883040	4.0	6	6	12	50	3.85
EM883801	4.0	6	6	16	60	3.85
EM883802	4.0	6	6	20	60	3.85
EM883803	4.0	6	6	25	70	3.85
EM883834	4.0	6	6	30	70	3.85
EM883835	4.0	6	6	35	80	3.85
EM883836	4.0	6	6	40	90	3.85
EM883837	4.0	6	6	45	90	3.85
EM883838	4.0	6	6	50	100	3.85
EM883050	5.0	6	7.5	16	60	4.85
EM883804	5.0	6	7.5	20	60	4.85
EM883805	5.0	6	7.5	25	70	4.85
EM883806	5.0	6	7.5	30	80	4.85
EM883839	5.0	6	7.5	35	80	4.85
EM883840	5.0	6	7.5	40	80	4.85
EM883841	5.0	6	7.5	50	110	4.85
EM883060	6.0	6	9	20	80	5.85
EM883807	6.0	6	9	30	90	5.85
EM883808	6.0	6	9	40	100	5.85
EM883809	6.0	6	9	50	110	5.85

2 FLUTE, BALL NOSE FOR RIB PROCESSING 2刃, 球头, 深腔加工用铣刀



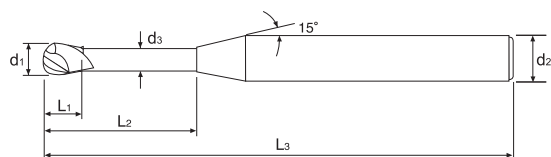
p.E105

● PLAIN SHANK

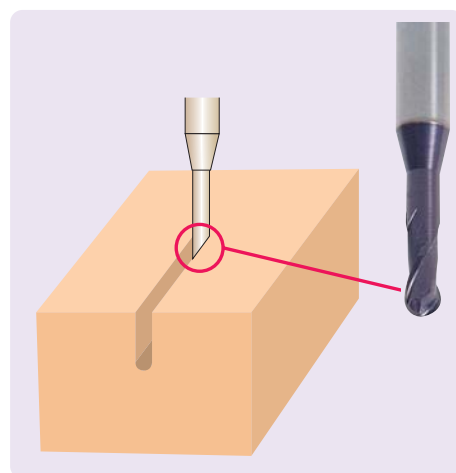
● EM886 Series

Unit : mm

EDP No. PLAIN	MILL DIAMETER d_1	SHANK DIAMETER $d_2(h6)$	LENGTH OF CUT L_1	LENGTH BELOW SHANK L_2	OVERALL LENGTH L_3	NECK DIAMETER d_3
EM886004	0.4	4	0.6	1	45	0.37
EM886960	0.4	4	0.6	2	45	0.37
EM886961	0.4	4	0.6	3	45	0.37
EM886005	0.5	4	0.7	2	45	0.45
EM886962	0.5	4	0.7	4	45	0.45
EM886963	0.5	4	0.7	6	45	0.45
EM886964	0.5	4	0.7	8	45	0.45
EM886957	0.6	4	0.9	2	45	0.55
EM886915	0.6	4	0.9	4	45	0.55
EM886006	0.6	3	0.9	6	35	0.55
EM886916	0.6	4	0.9	6	45	0.55
EM886917	0.6	4	0.9	8	45	0.55
EM886918	0.8	4	1.2	2	45	0.75
EM886919	0.8	4	1.2	4	45	0.75
EM886008	0.8	4	1.2	6	45	0.75
EM886901	0.8	4	1.2	8	45	0.75
EM886965	0.8	4	1.2	10	45	0.75



MILL DIA. TOLERANCE(mm)	SHANK DIA. TOLERANCE
0 - 0.02	h6





2 FLUTE, BALL NOSE FOR RIB PROCESSING 2刃, 球头, 深腔加工用铣刀



p.E105

X-POWER

● PLAIN SHANK

● EM886 Series

Unit : mm

EDP No. PLAIN	MILL DIAMETER d ₁	SHANK DIAMETER d ₂ (h6)	LENGTH OF CUT L ₁	LENGTH BELOW SHANK L ₂	OVERALL LENGTH L ₃	NECK DIAMETER d ₃
EM886920	1.0	4	1.5	3	45	0.95
EM886921	1.0	4	1.5	4	45	0.95
EM886923	1.0	4	1.5	5	45	0.95
EM886010	1.0	4	1.5	6	45	0.95
EM886924	1.0	4	1.5	7	45	0.95
EM886902	1.0	4	1.5	8	45	0.95
EM886925	1.0	4	1.5	9	45	0.95
EM886903	1.0	4	1.5	10	45	0.95
EM886904	1.0	4	1.5	12	45	0.95
EM886926	1.0	4	1.5	14	50	0.95
EM886927	1.0	4	1.5	16	50	0.95
EM886966	1.0	4	1.5	20	55	0.95
EM886012	1.2	4	1.8	8	45	1.15
EM886905	1.2	4	1.8	12	45	1.15
EM886928	1.4	4	2.1	8	45	1.35
EM886014	1.4	4	2.1	12	45	1.35
EM886929	1.4	4	2.1	16	50	1.35
EM886930	1.5	4	2.3	6	45	1.45
EM886015	1.5	4	2.3	8	45	1.45
EM886931	1.5	4	2.3	10	45	1.45
EM886906	1.5	4	2.3	12	45	1.45
EM886907	1.5	4	2.3	16	50	1.45
EM886932	1.5	4	2.3	20	55	1.45
EM886933	1.6	4	2.4	8	45	1.55
EM886934	1.6	4	2.4	12	45	1.55
EM886016	1.6	4	2.4	16	50	1.55
EM886935	1.6	4	2.4	20	55	1.55
EM886936	1.8	4	2.7	8	45	1.75
EM886937	1.8	4	2.7	12	45	1.75
EM886018	1.8	4	2.7	16	50	1.75
EM886938	1.8	4	2.7	20	55	1.75
EM886939	2.0	4	3.0	4	45	1.95
EM886940	2.0	4	3.0	6	45	1.95
EM886020	2.0	4	3.0	8	45	1.95
EM886941	2.0	4	3.0	10	45	1.95
EM886942	2.0	4	3.0	12	50	1.95
EM886943	2.0	4	3.0	14	50	1.95
EM886909	2.0	4	3.0	16	50	1.95
EM886910	2.0	4	3.0	20	55	1.95
EM886944	2.0	4	3.0	22	60	1.95
EM886945	2.0	4	3.0	25	60	1.95
EM886967	2.0	4	3.0	30	70	1.95

2 FLUTE, BALL NOSE FOR RIB PROCESSING 2刃, 球头, 深腔加工用铣刀



p.E105

● PLAIN SHANK

● EM886 Series

Unit : mm

EDP No. PLAIN	MILL DIAMETER d_1	SHANK DIAMETER $d_2(h6)$	LENGTH OF CUT L_1	LENGTH BELOW SHANK L_2	OVERALL LENGTH L_3	NECK DIAMETER d_3
EM886946	3.0	6	4.5	8	50	2.85
EM886947	3.0	6	4.5	10	50	2.85
EM886948	3.0	6	4.5	12	50	2.85
EM886030	3.0	6	4.5	16	55	2.85
EM886911	3.0	6	4.5	20	60	2.85
EM886968	3.0	6	4.5	25	65	2.85
EM886969	3.0	6	4.5	30	70	2.85
EM886970	3.0	6	4.5	35	80	2.85
EM886949	4.0	6	6.0	10	60	3.85
EM886950	4.0	6	6.0	12	60	3.85
EM886040	4.0	6	6.0	16	60	3.85
EM886912	4.0	6	6.0	20	65	3.85
EM886913	4.0	6	6.0	25	70	3.85
EM886971	4.0	6	6.0	30	70	3.85
EM886972	4.0	6	6.0	35	80	3.85
EM886973	4.0	6	6.0	40	90	3.85
EM886974	4.0	6	6.0	45	90	3.85
EM886975	4.0	6	6.0	50	100	3.85
EM886050	5.0	6	7.5	16	60	4.85
EM886951	5.0	6	7.5	20	60	4.85
EM886952	5.0	6	7.5	25	70	4.85
EM886953	5.0	6	7.5	30	80	4.85
EM886976	5.0	6	7.5	35	80	4.85
EM886060	6.0	6	9	20	80	5.85
EM886954	6.0	6	9	30	90	5.85
EM886955	6.0	6	9	40	100	5.85
EM886956	6.0	6	9	50	110	5.85

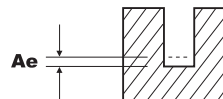


2 FLUTE, FOR RIB PROCESSING 2刃, 深腔加工用铣刀

●EM883

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON			ALLOY STEELS HEAT RESISTANT STEELS			HARDENED STEELS		
HARDNESS	~ HRc30			HRc30 ~ HRc45			HRc45 ~ HRc55		
STRENGTH	~ 1000N/mm ²			1000 ~ 1500N/mm ²			1500 ~ 2000N/mm ²		
DIAMETER	RPM	FEED	Ae (mm)	RPM	FEED	Ae (mm)	RPM	FEED	Ae (mm)
0.4	31000~40000	200~440	0.007~0.018	22500~28000	85~340	0.007~0.018	14300~17000	30~90	0.004~0.008
0.5	31000~40000	200~440	0.009~0.022	22500~28000	85~340	0.009~0.022	14300~17000	30~90	0.004~0.009
0.6	31000~40000	250~570	0.011~0.026	22500~28000	110~430	0.011~0.026	14300~17000	40~110	0.005~0.011
0.7	31000~40000	250~570	0.012~0.031	22500~28000	110~430	0.012~0.031	14300~17000	40~110	0.006~0.013
0.8	27000~35000	280~630	0.014~0.035	19500~24500	120~480	0.014~0.035	12500~14800	45~125	0.007~0.015
0.9	25000~31500	280~720	0.030~0.060	17500~22500	160~540	0.030~0.060	11000~12500	55~130	0.008~0.016
1	22500~28000	280~810	0.045~0.090	15700~20000	190~600	0.045~0.090	10000~12500	65~130	0.009~0.018
1.2	18500~22500	280~900	0.055~0.100	13000~16500	190~600	0.055~0.100	8300~10500	65~130	0.010~0.022
1.4	16000~20000	280~900	0.062~0.125	11500~14000	190~600	0.062~0.125	7200~9000	65~130	0.012~0.025
1.5	14500~18500	280~900	0.070~0.135	10500~13500	190~600	0.070~0.135	6700~8200	65~130	0.014~0.028
1.6	14000~18000	280~900	0.075~0.145	10200~12800	190~600	0.075~0.145	6400~8000	65~130	0.015~0.030
1.8	13000~16500	280~900	0.080~0.160	9200~11500	190~600	0.080~0.160	5700~7200	65~130	0.016~0.032
2	12000~14500	280~900	0.090~0.180	8300~10500	190~600	0.090~0.180	5300~6600	65~130	0.018~0.035
2.5	9500~12000	280~900	0.112~0.235	6700~8500	190~600	0.112~0.235	4300~5300	65~130	0.022~0.045
3	8000~10000	280~900	0.135~0.270	5500~7000	190~600	0.135~0.270	3500~4400	65~130	0.028~0.055
2	6000~7500	280~900	0.180~0.36	4100~5300	190~600	0.180~0.36	2600~3300	65~130	0.036~0.072
5	4800~6000	280~900	0.225~0.450	3300~4200	190~600	0.225~0.450	2100~2600	65~130	0.045~0.090
6	4000~5000	280~900	0.270~0.540	2800~3500	190~600	0.270~0.540	1750~2600	65~130	0.054~0.108

(Depth of Cut per one pass)



RPM=REVOLUTION PER MIN.
FEED=mm/min.

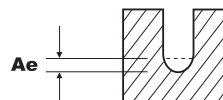


2 FLUTE, BALL NOSE FOR RIB PROCESSING 2刃, 球头, 深腔加工用铣刀

●EM886

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON			ALLOY STEELS HEAT RESISTANT STEELS			HARDENED STEELS		
HARDNESS	~ HRc30			HRc30 ~ HRc45			HRc45 ~ HRc55		
STRENGTH	~ 1000N/mm ²			1000 ~ 1500N/mm ²			1500 ~ 2000N/mm ²		
DIAMETER	RPM	FEED	Ae (mm)	RPM	FEED	Ae (mm)	RPM	FEED	Ae (mm)
0.4	31000~40000	175~490	0.018~0.036	22500~28500	88~270	0.018~0.036	14300~18000	88~175	0.004~0.007
0.5	31000~40000	175~490	0.023~0.045	22500~28500	88~270	0.023~0.045	14300~18000	88~175	0.005~0.009
0.6	31000~40000	225~630	0.027~0.054	22500~28500	110~350	0.027~0.054	14300~18000	110~225	0.005~0.011
0.8	31000~40000	225~630	0.036~0.072	22500~28500	110~350	0.036~0.072	14300~18000	110~225	0.007~0.014
1	29000~36500	250~700	0.045~0.090	20500~26000	125~390	0.045~0.090	13000~16300	125~250	0.009~0.018
1.2	24000~30500	250~780	0.055~0.100	17000~21500	125~390	0.055~0.100	10800~13700	125~250	0.010~0.022
1.4	21000~26000	250~780	0.062~0.125	15000~18000	125~390	0.062~0.125	9400~11700	125~250	0.012~0.025
1.5	19000~24000	250~780	0.070~0.135	13500~17500	125~390	0.070~0.135	8700~10700	125~250	0.014~0.028
1.6	18000~23500	250~780	0.075~0.145	13200~16500	125~390	0.075~0.145	8300~10400	125~250	0.015~0.030
1.8	17000~21500	250~780	0.080~0.160	12000~15000	125~390	0.080~0.160	7400~9400	125~250	0.016~0.032
2	15500~19000	250~780	0.090~0.180	11000~13500	125~390	0.090~0.180	6900~8600	125~250	0.018~0.035
3	10500~13000	250~780	0.135~0.270	7000~9000	125~390	0.135~0.270	4600~5700	125~250	0.028~0.055
4	8500~11000	250~780	0.180~0.360	5800~7800	125~390	0.180~0.360	3900~4900	125~250	0.035~0.070
5	6800~8800	250~780	0.225~0.450	4600~6200	125~390	0.225~0.450	3100~3900	125~250	0.044~0.088
6	5700~7300	250~780	0.270~0.540	3900~5200	125~390	0.270~0.540	2600~3300	125~250	0.053~0.105

(Depth of Cut per one pass)



RPM=REVOLUTION PER MIN.
FEED=mm/min.



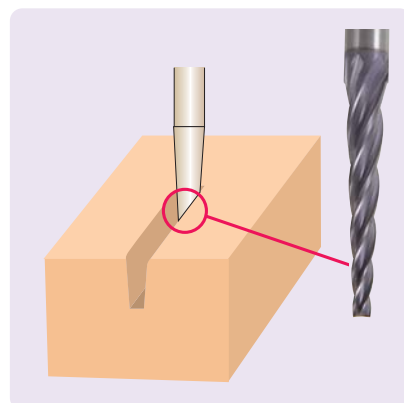
● **PLAIN SHANK**

● **EM889 Series**

Unit : mm

EDP No. PLAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	TAPER ANGLE	OVERALL LENGTH
EM889952	1.0	4	8	30	45
EM889954	1.0	4	12	30	45
EM889010	1.0	4	8	1°	45
EM889959	1.0	4	12	1°	45
EM889960	1.0	4	8	1°30	45
EM889962	1.0	4	12	1°30	45
EM889963	1.0	4	8	2°	45
EM889965	1.0	4	12	2°	45
EM889968	1.2	4	8	30	45
EM889970	1.2	4	12	30	45
EM889012	1.2	4	8	1°	45
EM889977	1.2	4	12	1°	45
EM889979	1.2	4	8	1°30	45
EM889981	1.2	4	12	1°30	45
EM889983	1.2	4	8	2°	45
EM889985	1.2	4	12	2°	45
EM889987	1.5	4	8	30	45
EM889991	1.5	4	12	30	45
EM889992	1.5	4	16	30	50
EM889015	1.5	4	8	1°	45
EM889801	1.5	4	12	1°	45
EM889802	1.5	4	16	1°	50
EM889804	1.5	4	8	1°30	45
EM889806	1.5	4	12	1°30	45
EM889807	1.5	4	16	1°30	50
EM889809	1.5	4	8	2°	45
EM889811	1.5	4	12	2°	45
EM889812	1.5	4	16	2°	50
EM889869	2.0	4	12	30	45
EM889870	2.0	4	16	30	50
EM889878	2.0	4	12	1°	45
EM889879	2.0	4	16	1°	50
EM889883	2.0	4	12	1°30	45
EM889884	2.0	4	16	1°30	50
EM889888	2.0	4	12	2°	45
EM889889	2.0	4	16	2°	50

MILL DIA. TOLERANCE(mm)	0 - 0.015
TAPER ANGLE TOLERANCE	± 5
SHANK DIA. TOLERANCE(mm)	h6





4 FLUTE, TAPER BALL NOSE FOR RIB PROCESSING, 25° HELIX ANGLE 4刃, 锥度, 球头 25度螺旋角, 深腔加工用铣刀



$R : \pm 0.01\text{mm}$



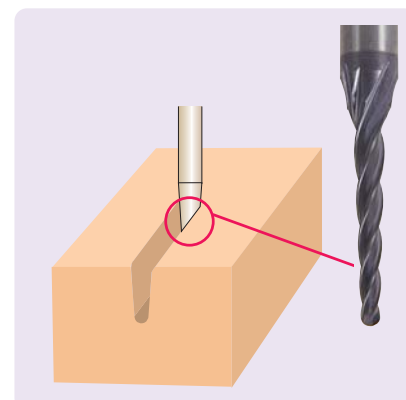
● PLAIN SHANK

● EM890 Series

Unit : mm

EDP No. PLAIN	MILL DIAMETER	SHANK DIAMETER h6	LENGTH OF CUT	TAPER ANGLE	OVERALL LENGTH
EM890909	1.0	4	8	30	45
EM890911	1.0	4	12	30	45
EM890010	1.0	4	8	1°	45
EM890916	1.0	4	12	1°	45
EM890917	1.0	4	8	1°30	45
EM890919	1.0	4	12	1°30	45
EM890920	1.0	4	8	2°	45
EM890922	1.0	4	12	2°	45
EM890923	1.2	4	8	30	45
EM890925	1.2	4	12	30	45
EM890012	1.2	4	8	1°	45
EM890932	1.2	4	12	1°	45
EM890934	1.2	4	8	1°30	45
EM890936	1.2	4	12	1°30	45
EM890938	1.2	4	8	2°	45
EM890940	1.2	4	12	2°	45
EM890942	1.5	4	8	30	45
EM890944	1.5	4	12	30	45
EM890945	1.5	4	16	30	50
EM890015	1.5	4	8	1°	45
EM890953	1.5	4	12	1°	45
EM890954	1.5	4	16	1°	50
EM890956	1.5	4	8	1°30	45
EM890958	1.5	4	12	1°30	45
EM890959	1.5	4	16	1°30	50
EM890961	1.5	4	8	2°	45
EM890963	1.5	4	12	2°	45
EM890964	1.5	4	16	2°	50
EM890816	2.0	4	12	30	45
EM890817	2.0	4	16	30	50
EM890825	2.0	4	12	1°	45
EM890826	2.0	4	16	1°	50
EM890830	2.0	4	12	1°30	45
EM890831	2.0	4	16	1°30	50
EM890835	2.0	4	12	2°	45
EM890836	2.0	4	16	2°	50

RADIUS TOLERANCE(mm)	± 0.010
TAPER ANGLE TOLERANCE	± 5
SHANK DIA. TOLERANCE(mm)	h6



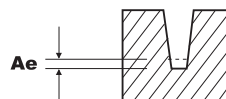
4 FLUTE, TAPER FOR RIB PROCESSING

4刃, 锥度, 25度螺旋角, 深腔加工用铣刀

● EM889

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON			ALLOY STEELS HEAT RESISTANT STEELS			HARDENED STEELS		
HARDNESS	~ HRC30			HRC30 ~ HRC45			HRC45 ~ HRC55		
STRENGTH	~ 1000N/mm ²			1000 ~ 1500N/mm ²			1500 ~ 2000N/mm ²		
DIAMETER	RPM	FEED	Ae (mm)	RPM	FEED	Ae (mm)	RPM	FEED	Ae (mm)
1	20000	700	0.020~0.040	15000	500	0.020~0.030	10000	300	0.010~0.020
1.2	16000	700	0.025~0.050	13000	500	0.025~0.040	8000	300	0.012~0.025
1.5	13000	700	0.030~0.060	10000	500	0.030~0.050	6500	300	0.015~0.030
2	10000	700	0.040~0.080	8000	500	0.040~0.060	5000	300	0.020~0.040

(Depth of Cut per one pass)



RPM=REVOLUTION PER MIN.
FEED=mm/min.

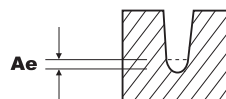
4 FLUTE, TAPER BALL NOSE FOR RIB PROCESSING

4刃, 锥度, 球头 25度螺旋角, 深腔加工用铣刀

● EM890

MATERIAL	NON ALLOYED STEELS ALLOY STEELS CAST IRON			ALLOY STEELS HEAT RESISTANT STEELS			HARDENED STEELS		
HARDNESS	~ HRC30			HRC30 ~ HRC45			HRC45 ~ HRC55		
STRENGTH	~ 1000N/mm ²			1000 ~ 1500N/mm ²			1500 ~ 2000N/mm ²		
DIAMETER	RPM	FEED	Ae (mm)	RPM	FEED	Ae (mm)	RPM	FEED	Ae (mm)
1	20000	700	0.020~0.040	15000	500	0.020~0.030	10000	300	0.010~0.020
1.2	16000	700	0.025~0.050	13000	500	0.025~0.040	8000	300	0.012~0.025
1.5	13000	700	0.030~0.060	10000	500	0.030~0.050	6500	300	0.015~0.030
2	10000	700	0.040~0.080	8000	500	0.040~0.060	5000	300	0.020~0.040

(Depth of Cut per one pass)



RPM=REVOLUTION PER MIN.
FEED=mm/min.

