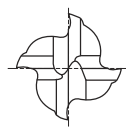


HSSCo8 & HSS, 4 FLUTE REGULAR LENGTH DOUBLE CENTER CUTTING

► Series E2053 end mills are the double-end version of E2039 center cutting single-end tools. They are used for slotting, shallow pocketing, tracer milling or die sinking and similar operation.



P.883, 888, 892

Unit : Inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
13289	13039	1/8	3/8	3/8	3-1/16
13290	13040	9/64	3/8	7/16	3-1/8
13291	13041	5/32	3/8	7/16	3-1/8
13292	13042	11/64	3/8	1/2	3-1/4
13293	13043	3/16	3/8	1/2	3-1/4
13294	13044	13/64	3/8	9/16	3-1/4
13295	13045	7/32	3/8	9/16	3-1/4
13296	13046	15/64	3/8	5/8	3-3/8
13297	13047	1/4	3/8	5/8	3-3/8
13298	13048	17/64	3/8	11/16	3-3/8
13299	13049	9/32	3/8	11/16	3-3/8
13300	13050	19/64	3/8	3/4	3-1/2
13301	13051	5/16	3/8	3/4	3-1/2
13302	13052	21/64	3/8	3/4	3-1/2
13303	13053	11/32	3/8	3/4	3-1/2
13304	13054	23/64	3/8	3/4	3-1/2
13305	13055	3/8	3/8	3/4	3-1/2
13307	13057	25/64	1/2	1	4-1/8
13309	13059	13/32	1/2	1	4-1/8
13311	13061	27/64	1/2	1	4-1/8
13313	13063	7/16	1/2	1	4-1/8
13315	13065	29/64	1/2	1	4-1/8
13317	13067	15/32	1/2	1	4-1/8

■ The TiN coated, TiCN coated or TiAlN coated is available on your request.

■ Coating Codes for Cobalt

Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)

■ Coating Codes for HSS

Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)

► Coated Price Shown in Price List. Call for Availability.

CBN
END MILL

i-Xmill
END MILL

X5070
END MILLS

4G MILLS
END MILLS

X-SPEED
ROUGHER
END MILLS

X-POWER
END MILLS

JET-POWER
END MILLS

V7 Mill STEEL
END MILLS

V7 Mill INOX
END MILLS

ALU-POWER
END MILLS

D-POWER
END MILLS

STANDARD
CARBIDE
END MILLS

TANK-POWER
END MILLS

STANDARD
COBALT
& HSS
END MILLS

TECHNICAL
DATA

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HRc20	HRc20~30	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

CARBIDE

HSS


**COBALT & HSS
END MILLS**
E2053 SERIES

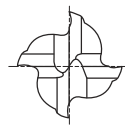
 8% COBALT (M42)
FLAT SHANK

E1053 SERIES

 HSS (M2)
FLAT SHANK

HSSCo8 & HSS, 4 FLUTE REGULAR LENGTH DOUBLE CENTER CUTTING

► Series E2053 end mills are the double-end version of E2039 center cutting single-end tools. They are used for slotting, shallow pocketing, tracer milling or die sinking and similar operation.


 HSS
Co8

HSS

4

30°

FLAT



P.883, 888, 892

Unit : Inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
13319	13069	31/64	1/2	1	4-1/8
13321	13071	1/2	1/2	1	4-1/8
13330	13080	9/16	5/8	1-3/8	5
13337	13087	5/8	5/8	1-3/8	5
13350	13100	11/16	3/4	1-5/8	5-5/8
13359	13109	3/4	3/4	1-5/8	5-5/8
13377	13127	13/16	7/8	1-7/8	6-1/8
13394	13144	7/8	7/8	1-7/8	6-1/8
13426	13176	1	1	1-7/8	6-3/8

■ The TiN coated, TiCN coated or TiAlN coated is available on your request.

■ Coating Codes for Cobalt

Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)

■ Coating Codes for HSS

Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)

► Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~—.0010	* * 0~—.0020

**The shank of end mills is the same diameter as the cutting portion.

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
~HRc20	HRc20~30	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	○				○			○			

 CBN
END MILL

 i-Xmill
END MILL

 X5070
END MILLS

 4G MILLS
END MILLS

 X-SPEED
ROUGHER
END MILLS

 X-POWER
END MILLS

 JET-POWER
END MILLS

 V7 Mill STEEL
END MILLS

 V7 Mill INOX
END MILLS

 ALU-POWER
END MILLS

 D-POWER
END MILLS

 STANDARD
CARBIDE
END MILLS

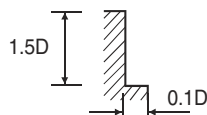
 TANK-POWER
END MILLS

 STANDARD
COBALT
& HSS
END MILLS

 TECHNICAL
DATA

HSSCo8 & HSS, MULTI FLUTE FINISH - SIDE CUTTING

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS			~HRc20		HRc20~HRc30		HRc30~HRc40			
STRENGTH	~ 500N/mm ²		500~800N/mm ²		800~1000N/mm ²		1000~1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1/8	3500	4.3	3200	3.1	2500	2.4	1600	1.2	11000	15.0
1/4	1800	7.1	1600	5.7	1200	3.5	800	2.4	5600	18.5
3/8	1100	7.9	900	6.3	800	4.7	450	2.6	3100	23.6
1/2	900	8.7	800	7.1	630	4.7	400	3.0	2500	22.4
5/8	700	8.7	560	6.3	450	4.1	280	2.6	2000	20.9
3/4	630	7.9	500	6.3	400	4.1	250	2.6	1800	20.9
13/16	500	7.9	450	6.3	350	4.1	220	2.6	1400	17.7
15/16	500	7.9	450	6.3	350	4.1	220	2.6	1400	17.7
1	450	7.1	400	5.7	310	3.5	180	2.0	1200	16.5
1-1/2	310	4.7	250	3.5	200	2.4	120	1.4	900	13.0
1-3/4	280	4.7	220	3.5	150	2.4	110	1.4	800	11.8
2	280	4.7	190	3.5	110	1.8	80	1.0	630	11.8

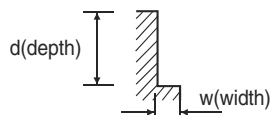


※ The Feed, in long & extra long types, should be reduced by around 50%.

RPM = rev./min.
FEED = inch/min.

HSSCo8, MULTI FLUTE 60° HELIX FINISH - SIDE CUTTING

MATERIAL		MILD STEELS		ALLOY STEELS		TOOL STEELS STAINLESS STEELS		CAST IRON	
HARDNESS		~HRc13		HRc13~HRc32		HRc25~HRc35		~HRc20	
DIAMETER	w×d	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1/4	0.02 × 0.35	1840	3.6	1250	2.2	980	1.8	2050	4.8
1/4	0.08 × 0.35	1600	3.6	650	2.2	510	1.6	1100	4.5
5/8	0.02 × 1	750	2.9	460	2.0	390	1.4	840	4.1
5/8	0.18 × 1	650	2.9	400	2.0	340	1.4	730	4.1
3/4	0.02 × 1.2	520	2.5	370	1.8	300	1.4	630	4.1
3/4	0.26 × 1.2	450	2.5	320	1.8	260	1.4	550	4.1
1	0.02 × 1.6	460	2.9	290	1.8	240	1.4	510	4.3
1	0.30 × 1.6	400	2.9	250	1.8	210	1.4	440	4.3
1-1/2	0.02 × 1.6	280	2.5	170	1.4	150	1.3	320	3.6
1-1/2	0.80 × 1.6	240	2.5	150	1.4	130	1.3	280	3.6
2	0.02 × 2	220	2.2	140	1.3	115	1.1	260	2.9
2	1.60 × 2	190	2.2	120	1.3	100	1.1	225	2.9

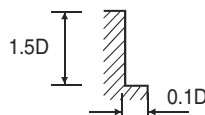


※ The Feed, in long & extra long types, should be reduced by around 50%.

RPM = rev./min.
FEED = inch/min.


HSSCo8 & HSS, 3 FLUTE FINISH TiN-COATED - SIDE CUTTING

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS	~ 500N/mm ²		~HRC20		HRC20~HRC30		HRC30~HRC40			
STRENGTH	~ 500N/mm ²		500~800N/mm ²		800~1000N/mm ²		1000~1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3/32	6720	2.9	5400	1.9	4800	1.7	2640	0.7	14400	8.5
1/8	4200	3.7	3840	2.9	3000	2.2	1920	1.0	13200	13.2
1/4	2160	6.4	1920	5.2	1440	3.1	960	2.2	6720	16.6
3/8	1320	7.2	1080	5.6	960	4.2	540	2.4	3720	21.2
1/2	1080	7.8	960	6.4	756	4.2	480	2.6	3000	20.3
9/16	960	7.8	840	5.6	672	4.2	420	2.6	2640	19.0
5/8	840	7.8	672	5.6	540	3.7	336	2.4	2400	19.0
11/16	756	7.2	600	5.6	480	3.7	300	2.4	2160	19.0
7/8	600	7.2	540	5.6	420	3.7	264	2.4	1680	16.1
1	540	6.4	480	5.2	372	3.1	216	1.7	1440	15.1
1-1/8	430	5.6	420	4.4	336	2.9	192	1.4	1320	14.2

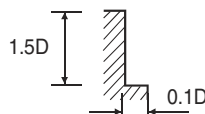


※ The Feed, in long & extra long types, should be reduced by around 50%.

RPM = rev./min.
FEED = inch/min.

HSSCo8 & HSS, MULTI FLUTE FINISH TiN-COATED - SIDE CUTTING

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS	~ 500N/mm ²		~HRC20		HRC20~HRC30		HRC30~HRC40			
STRENGTH	~ 500N/mm ²		500~800N/mm ²		800~1000N/mm ²		1000~1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1/8	4200	5.2	3840	3.7	3000	2.9	1920	1.4	13200	18.0
1/4	2640	8.5	1920	6.8	1440	4.2	960	2.9	6720	22.2
3/8	1320	9.5	1080	7.6	960	5.6	540	3.1	3700	28.3
1/2	1080	10.4	960	8.5	756	5.6	480	3.6	3000	26.9
5/8	840	10.4	672	7.6	540	4.9	336	3.1	2400	25.1
3/4	756	9.5	600	7.6	480	4.9	300	3.1	2160	25.1
7/8	600	9.5	540	7.6	420	4.9	264	3.1	1680	21.2
15/16	600	9.5	540	7.6	420	4.9	264	3.1	1680	21.2
1	540	8.5	480	6.8	372	4.2	216	2.4	1440	19.8
1-1/2	372	5.6	300	4.2	240	2.9	144	1.7	1080	15.6
1-3/4	336	5.6	264	4.2	216	2.9	132	1.7	960	14.2
2	336	5.6	264	4.2	168	2.2	96	1.2	960	14.2

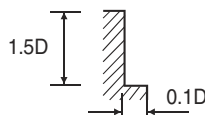


※ The Feed, in long & extra long types, should be reduced by around 50%.

RPM = rev./min.
FEED = inch/min.

HSSCo8 & HSS, 3 FLUTE FINISH TiCN-COATED - SIDE CUTTING

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS	~ 500N/mm ²		~HRc20		HRc20~HRc30		HRc30~HRc40			
STRENGTH	~ 500N/mm ²		500~800N/mm ²		800~1000N/mm ²		1000~1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3/32	7280	3.1	5850	2.1	5200	1.8	2860	0.8	15600	9.2
1/8	4550	4.0	4160	3.1	3250	2.3	2080	1.0	14300	14.3
1/4	2240	6.9	2080	5.6	1560	3.4	1040	2.3	7280	17.9
5/16	1820	7.8	1430	5.1	1170	4.0	728	2.6	5200	22.5
1/2	1170	8.5	1040	6.9	819	4.6	520	2.9	3250	22.0
9/16	1040	8.5	910	6.1	728	4.6	455	2.9	2860	20.5
5/8	910	8.5	728	6.1	585	4.6	364	2.6	2600	20.5
11/16	819	7.8	650	6.1	520	4.0	325	2.6	2340	20.5
7/8	650	7.8	585	6.1	455	4.0	286	2.6	1820	17.4
1	585	6.9	520	5.6	403	3.4	234	1.8	1560	16.4
1-1/8	520	6.1	455	4.8	362	3.1	208	1.6	1430	15.3

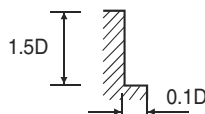


※ The Feed, in long & extra long types, should be reduced by around 50%.

RPM = rev./min.
FEED = inch/min.

HSSCo8 & HSS, MULTI FLUTE FINISH TiCN-COATED - SIDE CUTTING

MATERIAL	CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		CARBON STEELS ALLOY STEELS TOOL STEELS		ALUMINUM ALUMINUM ALLOYS	
HARDNESS	~ 500N/mm ²		~HRc20		HRc20~HRc30		HRc30~HRc40			
STRENGTH	~ 500N/mm ²		500~800N/mm ²		800~1000N/mm ²		1000~1300N/mm ²			
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1/8	4550	5.6	4160	4.0	3250	3.1	22080	1.6	14300	19.5
1/4	2340	9.2	2090	8.4	1560	4.6	1040	3.1	7280	24.1
3/8	1430	10.3	1170	8.2	1040	6.1	585	3.4	4030	30.7
1/2	1170	11.3	1040	9.2	818	6.1	520	3.9	3250	29.1
5/8	910	11.3	728	8.2	585	5.3	364	3.4	2600	27.2
3/4	819	10.3	650	8.2	520	5.3	325	3.4	2340	27.2
7/8	650	10.3	585	8.2	455	5.3	286	3.4	1820	23.0
15/16	650	10.3	585	8.2	455	5.3	234	3.4	1820	23.0
1	585	9.2	520	8.4	403	4.6	208	2.6	1560	21.9
1-1/2	403	6.1	325	4.6	260	3.1	156	1.8	1170	16.9
1-3/4	364	6.1	286	4.6	234	3.1	143	1.8	1040	15.3
2	364	6.1	286	4.6	182	2.3	104	1.3	1040	15.3



※ The Feed, in long & extra long types, should be reduced by around 50%.

RPM = rev./min.
FEED = inch/min.