



Solid Carbide End Mills

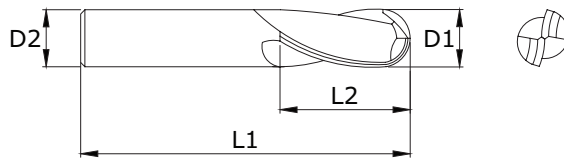
Proton Plus Series

2 Flute

Centre cutting Proton Plus ball nose end mill for 45-60 HRC



H1-H3



Unit : mm				
Diameter	EDP No	Flute Length	Overall Length	Shank Diameter
Ø D1		L2	L1	Ø D2
6	FBK0503367	12	102	6
8	FBK0501558	16	100	8
10	FBK0503912	32	152	10
12	FBK0503913	32	152	12

\*Custom Solution possible Refer page 2.171

Tensile strength: N/mm<sup>2</sup> | Hardness: HRC

P0	P1	P2	P3	P4	P5	P6	M1	M2	M3	K1	K2	K3
<530	<530	<530	600-850	850-1400	600-900	900-1350	<600	600-800	<800	125-500	<600	>600
-	-	<25	<35	35-48	<35	35-48	-	<25	<30	<32	<28	<43

N1	N2	N3	N4	N5	N6	N7	S1-Fe Based	S2-Co Based	S3-Ni Based	S4-Ti Based	H1	H2	H3	H4
Wrought Al	Si<12.2%	Si>12.2%	Cu, Zn Alloy	Ny, Pt, Ru, Re, FgC, Gr, CFRP, Comp	NMC		500-1200	1000-1500	600-1700	900-1600	-	-	-	-
-	-	-	-	-	-	-	25-48	25-48	<48	33-48	44-48	48-55	56-60	61-70



Solid Carbide End Mills

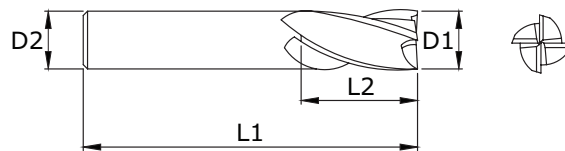
HSM Series

4 Flute

Centre cutting HSM end mill for 30-45 HRC steel



P2-P4



Unit : mm

Diameter Ø D1	EDP No	Flute Length	Overall Length	Shank Diameter
		L2	L1	Ø D2
3	FBK0501200	12	38	3
4	FBK0501974	14	51	4
5	FBK0501326	20	51	5
6	FBK0501366	20	64	6
8	FBK0501975	20	64	8
10	FBK0500846	25	70	10
12	FBK0500942	25	76	12
14	FBK0501017	30	89	14
16	FBK0501048	30	89	16
20	FBK0501125	38	102	20

\*Custom Solution possible Refer page 2.171

Tensile strength: N/mm<sup>2</sup> | Hardness: HRC

P0	P1	P2	P3	P4	P5	P6	M1	M2	M3	K1	K2	K3
<530	<530	<530	600-850	850-1400	600-900	900-1350	<600	600-800	<800	125-500	<600	>600
-	-	<25	<35	35-48	<35	35-48	-	<25	<30	<32	<28	<43

N1	N2	N3	N4	N5	N6	N7	S1-Fe Based	S2-Co Based	S3-Ni Based	S4-Ti Based	H1	H2	H3	H4
Wrought Al	Si<12.2%	Si>12.2%	Cu, Zn Alloy	Ny, Pt, Ru, Re, FgC, Gr, CFRP, Comp	NMC		500-1200	1000-1500	600-1700	900-1600	-	-	-	-
-	-	-	-	-	-	-	25-48	25-48	<48	33-48	44-48	48-55	56-60	61-70



Solid Carbide End Mills

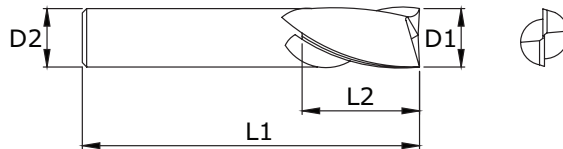
HSM Series

2 Flute

Centre cutting HSM end mill for 30-45 HRC Steel



P2-P4



Unit : mm

Diameter ØD1	EDP No	Flute Length	Overall Length	Shank Diameter
		L2	L1	ØD2
3	FBK0501196	12	38	3
4	FBK0501986	14	51	4
5	FBK0501318	20	51	5
6	FBK0501987	20	64	6
8	FBK0501441	20	64	8
10	FBK0500834	25	70	10
12	FBK0500932	25	76	12
14	FBK0501015	30	89	14
16	FBK0501046	30	89	16
20	FBK0501122	38	102	20

\*Custom Solution possible Refer page 2.171

Tensile strength: N/mm<sup>2</sup> | Hardness: HRC

P0	P1	P2	P3	P4	P5	P6	M1	M2	M3	K1	K2	K3
<530	<530	<530	600-850	850-1400	600-900	900-1350	<600	600-800	<800	125-500	<600	>600
-	-	<25	<35	35-48	<35	35-48	-	<25	<30	<32	<28	<43

N1	N2	N3	N4	N5	N6	N7	S1-Fe Based	S2-Co Based	S3-Ni Based	S4-Ti Based	H1	H2	H3	H4
Wrought Al	Si<12.2%	Si>12.2%	Cu, Zn Alloy	Ny, Pi, Ru, Re, Fg	C, Gr, CFRP, Comp	NMC	500-1200	1000-1500	600-1700	900-1600	-	-	-	-
-	-	-	-	-	-	-	25-48	25-48	<48	33-48	44-48	48-55	56-60	61-70



Solid Carbide End Mills

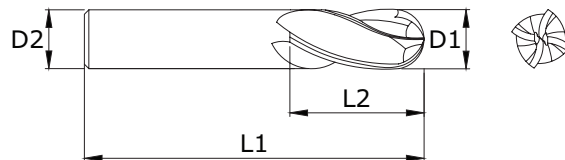
HSM Series

4 Flute

Centre cutting HSM ball nose end mill for 30-45 HRC Steel



P2-P4



Unit : mm

Diameter	EDP No	Flute Length	Overall Length	Shank Diameter
Ø D1		L2	L1	Ø D2
3	FBK0501198	12	38	3
4	FBK0501980	14	51	4
5	FBK0501322	20	51	5
6	FBK0501361	20	64	6
8	FBK0501448	20	64	8
10	FBK0500838	25	70	10
12	FBK0500937	25	76	12
16	FBK0501047	30	89	16
20	FBK0501981	38	102	20

\*Custom Solution possible Refer page 2.171

Tensile strength: N/mm<sup>2</sup> | Hardness: HRC

P0	P1	P2	P3	P4	P5	P6	M1	M2	M3	K1	K2	K3
<530	<530	<530	600-850	850-1400	600-900	900-1350	<600	600-800	<800	125-500	<600	>600
-	-	<25	<35	35-48	<35	35-48	-	<25	<30	<32	<28	<43

N1	N2	N3	N4	N5	N6	N7	S1-Fe Based	S2-Co Based	S3-Ni Based	S4-Ti Based	H1	H2	H3	H4
Wrought Al	Si<12.2%	Si>12.2%	Cu, Zn Alloy	Ny, Pt, Ru, Re, Fg	C, Gr, CFRP, Comp	NMC	500-1200	1000-1500	600-1700	900-1600	-	-	-	-
-	-	-	-	-	-	-	25-48	25-48	<48	33-48	44-48	48-55	56-60	61-70



Solid Carbide End Mills

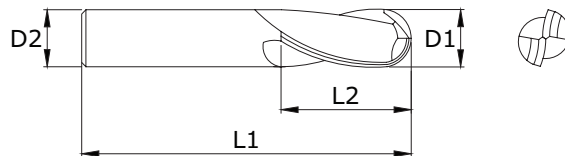
HSM Series

2 Flute

Centre cutting HSM ball nose end mill for 30-45 HRC



P2-P4



Unit : mm

Diameter ØD1	EDP No	Flute Length	Overall Length	Shank Diameter
		L2	L1	ØD2
3	FBK0501195	12	38	3
4	FBK0501241	14	51	4
5	FBK0501320	20	51	5
6	FBK0501992	20	64	6
8	FBK0501437	20	64	8
10	FBK0501993	25	70	10
12	FBK0501994	25	76	12
16	FBK0501045	30	89	16
20	FBK0501995	38	102	20

\*Custom Solution possible Refer page 2.171

Tensile strength: N/mm<sup>2</sup> | Hardness: HRC

P0	P1	P2	P3	P4	P5	P6	M1	M2	M3	K1	K2	K3
<530	<530	<530	600-850	850-1400	600-900	900-1350	<600	600-800	<800	125-500	<600	>600
-	-	<25	<35	35-48	<35	35-48	-	<25	<30	<32	<28	<43

N1	N2	N3	N4	N5	N6	N7	S1-Fe Based	S2-Co Based	S3-Ni Based	S4-Ti Based	H1	H2	H3	H4
Wrought Al	Si<12.2%	Si>12.2%	Cu, Zn Alloy	Ny, PI, Ru, Re, Fg	C, Gr, CFRP, Comp	NMC	500-1200	1000-1500	600-1700	900-1600	-	-	-	-
-	-	-	-	-	-	-	25-48	25-48	<48	33-48	44-48	48-55	56-60	61-70