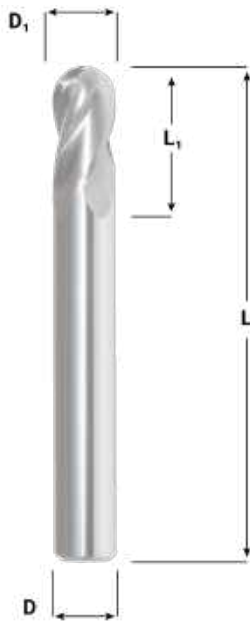


GENERAL PURPOSE

Solid Carbide End Mills For Ferrous And Non-Ferrous Materials



FEATURES/DESCRIPTION	APPLICATION	FEATURES																																							
4-Flute Metric Ball Nose End Mills • Universal application • Sub-micron grade carbide substrate for wear resistance • Multiple coating options • Diameter Tol.: +0/-0.002" • Shank Tol.: +0/-0.0005" • All listed dimensions in millimeters	    	CARBIDE 4FL BALL 30° P199 Bright TiN TiCN AlTiN																																							
<table><tr><th colspan="3">STEEL</th><th colspan="2">STAINLESS</th><th colspan="2">CAST IRON</th><th colspan="2">NON-FERROUS</th><th colspan="2">HRSA</th><th colspan="2">HARDENED STEEL</th></tr><tr><td>P1</td><td>P2</td><td>P3</td><td>M1</td><td>M2</td><td>K1</td><td>K2</td><td>N1</td><td>N2</td><td>S1</td><td>S2</td><td>H1</td><td>H2</td></tr><tr><td>○</td><td>○</td><td>○</td><td></td><td></td><td>○</td><td>○</td><td>○</td><td>○</td><td></td><td></td><td>○</td><td></td></tr></table>			STEEL			STAINLESS		CAST IRON		NON-FERROUS		HRSA		HARDENED STEEL		P1	P2	P3	M1	M2	K1	K2	N1	N2	S1	S2	H1	H2	○	○	○			○	○	○	○			○	
STEEL			STAINLESS		CAST IRON		NON-FERROUS		HRSA		HARDENED STEEL																														
P1	P2	P3	M1	M2	K1	K2	N1	N2	S1	S2	H1	H2																													
○	○	○			○	○	○	○			○																														
● Best ○ Good																																									

Series 220M 4FL | Multi Length | Ball Nose | Metric

Dia.(D1)	LOC(L1)	OAL(L)	Shank(D)	Bright	TiN	TiCN	AlTiN
1	4	39	3	223-001400	-	223-001400C	223-001400B
1.5	4.5	39	3	223-001405	223-001410C	-	223-001410B
2	8	39	3	223-001421	-	-	223-001420B
2.5	9.5	39	3	223-001425	-	223-001425C	223-001425B
3	12	39	3	223-001430	-	223-001430C	223-001430B
3.5	12	51	4	223-001435	-	223-001435C	223-001435B
4	14	51	4	223-001440	-	223-001440C	223-001440B
4.5	16	51	5	223-001445	-	223-001445C	223-001445B
5	16	51	5	223-001450	-	223-001450C	223-001450B
6	19	63	6	223-001460	-	223-001460C	223-001460B
7	19	63	8	223-001470	-	223-001470C	223-001470B
8	20	63	8	223-001480	-	223-001480C	223-001480B
9	22	63	10	223-001490	223-001490C	-	223-001490B
10	22	76	10	223-001500	-	223-001500C	223-001500B
11	25	76	12	223-001510	-	223-001510C	223-001510B
12	25	76	12	223-001520	-	223-001520C	223-001520B
14	32	90	14	223-001540	-	223-001540C	223-001540B
16	32	102	16	223-001560	-	223-001560C	223-001560B
18	38	102	18	223-001580	-	223-001580C	223-001580B
20	38	102	20	223-001600	-	223-001600C	223-001600B
22	38	102	22	223-001620	-	-	223-001620B
25	38	102	25	223-001650	-	-	223-001650B

*bold numbers are EDPs for ordering