



MORSE
CUTTING TOOLS



SPHERICAL BALL SOLID CARBIDE END MILLS

- 2-Flute & 4-Flute
- 220° Cutting Arc 1/16"-1/2"
- 270° Cutting Arc 1/32"-1/2"
- 300° Cutting Arc 1/16"-1/2"
- Center Cutting
- Micrograin Carbide
- nACo Coated



For a Wide Range of Applications including Multi-Axis Machining, Undercutting, Deburring and many other operations in Pre-Hardened Steels up to 45Rc Hardness.

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Spherical Ball End Mills



Micrograin Carbide - Center Cutting
220°, 270° & 300° Cutting Arc
2-Flute & 4-Flute

List No. 5920 - 220° Arc - nACo Coated
List No. 5922 - 270° Arc - nACo Coated
List No. 5924 - 300° Arc - nACo Coated

TOLERANCES

Diameter < 1/8" +/- .0005"
Diameter ≥ 1/8" +.000" / -.002"
Shank Dia. h6 Tolerance for Shrink Fit Holders

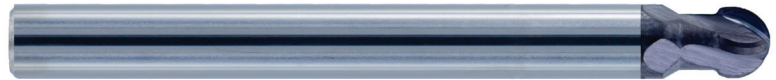
Designed for Multi-Axis Machining, Undercutting, Deburring and many other operations in Pre-Hardened Steels up to 45Rc Hardness.

nACo - Aluminum Titanium Nitride + Silicon Nitride coating for high heat and wear resistance.

List No. 5920 - 2-Flute - 220°

DIA.	SHANK DIA.	LOC	NECK DIA.	NECK LENGTH	OAL	EDP NO.
1/16	1/8	.042	.047	.150	1-1/2	98900
3/32	1/8	.063	.070	.150	1-1/2	98901
1/8	1/8	.084	.094	.150	1-1/2	98902
1/8	1/8	.084	.094	.150	3	98903
3/16	3/16	.126	.141	.150	2	98904
3/16	3/16	.126	.141	.150	3	98905
1/4	1/4	.168	.188	.200	2-1/2	98906
1/4	1/4	.168	.188	.200	4	98907
3/8	3/8	.252	.281	.200	2-1/2	98908
3/8	3/8	.252	.281	.200	4	98909
1/2	1/2	.336	.375	.250	3	98910
1/2	1/2	.336	.375	.250	6	98911

List No. 5920 - 4-Flute - 220°



DIA.	SHANK DIA.	LOC	NECK DIA.	NECK LENGTH	OAL	EDP NO.
1/16	1/8	.042	.047	.150	1-1/2	98912
3/32	1/8	.063	.070	.150	1-1/2	98913
1/8	1/8	.084	.094	.150	1-1/2	98914
1/8	1/8	.084	.094	.500	1-1/2	98915
1/8	1/8	.084	.094	.150	3	98916
1/8	1/8	.084	.094	1.000	3	98917
1/8	1/8	.084	.094	1.500	3	98918
3/16	3/16	.126	.141	.150	2	98919
3/16	3/16	.126	.141	.500	2	98920
3/16	3/16	.126	.141	.150	3	98921
3/16	3/16	.126	.141	1.000	3	98922
1/4	1/4	.168	.188	.200	2-1/2	98923
1/4	1/4	.168	.188	.750	2-1/2	98924
1/4	1/4	.168	.188	.200	4	98925
1/4	1/4	.168	.188	1.500	4	98926
1/4	1/4	.168	.188	2.250	4	98927
5/16	5/16	.210	.234	.750	2-1/2	98928
5/16	5/16	.210	.234	1.500	4	98929
3/8	3/8	.252	.281	.200	2-1/2	98930
3/8	3/8	.252	.281	.750	2-1/2	98931
3/8	3/8	.252	.281	.200	4	98932
3/8	3/8	.252	.281	1.500	4	98933
3/8	3/8	.252	.281	2.250	4	98934
1/2	1/2	.336	.375	.250	3	98935
1/2	1/2	.336	.375	1.000	3	98936
1/2	1/2	.336	.375	.250	6	98937
1/2	1/2	.336	.375	2.000	6	98938



Spherical Ball End Mills



List No. 5922 - 2-Flute - 270°

DIA.	SHANK DIA.	LOC	NECK DIA.	NECK LENGTH	OAL	EDP NO.
1/32	1/8	.027	.016	.062	1-1/2	98939
1/32	1/8	.027	.016	.093	1-1/2	98940
1/32	1/8	.027	.016	.125	1-1/2	98941
1/32	1/8	.027	.016	.187	1-1/2	98942
3/64	1/8	.040	.029	.093	1-1/2	98943
1/16	1/8	.053	.037	.093	1-1/2	98944
1/16	1/8	.053	.037	.125	1-1/2	98945
1/16	1/8	.053	.037	.187	1-1/2	98946
1/16	1/8	.053	.037	.250	1-1/2	98947
1/16	1/8	.053	.037	.312	1-1/2	98948
5/64	1/8	.067	.045	.125	1-1/2	98949
3/32	1/8	.079	.054	.125	1-1/2	98953
3/32	1/8	.079	.054	.250	1-1/2	98954
3/32	1/8	.079	.054	.312	1-1/2	98950
3/32	1/8	.079	.054	.375	1-1/2	98955
3/32	1/8	.079	.054	.500	2	98951
3/32	1/8	.079	.054	.625	2	98952

List No. 5922 - 4-Flute - 270°



DIA.	SHANK DIA.	LOC	NECK DIA.	NECK LENGTH	OAL	EDP NO.
1/8	1/8	.107	.076	.125	1-1/2	98956
1/8	1/8	.107	.076	.375	1-1/2	98957
1/8	1/8	.107	.076	.500	1-1/2	98958
1/8	1/8	.107	.076	.625	2	98959
1/8	1/8	.107	.076	.750	2	98960
1/8	1/8	.107	.076	1.000	3	98961
1/8	1/8	.107	.076	1.250	3	98962
1/8	1/8	.107	.076	1.500	3	98963
9/64	3/16	.119	.084	.250	2	98964
9/64	3/16	.119	.084	.500	2	98965
3/16	3/16	.160	.117	.125	2	98966
3/16	3/16	.160	.117	.375	2	98967
3/16	3/16	.160	.117	.500	2	98968
3/16	3/16	.160	.117	.750	2	98969
3/16	3/16	.160	.117	1.000	3	98970
3/16	3/16	.160	.117	1.250	3	98971
3/16	3/16	.160	.117	1.500	3	98972
3/16	3/16	.160	.117	1.750	3	98973
1/4	1/4	.213	.158	.375	2-1/2	98974
1/4	1/4	.213	.158	.500	2-1/2	98975
1/4	1/4	.213	.158	.625	2-1/2	98976
1/4	1/4	.213	.158	.750	2-1/2	98977
1/4	1/4	.213	.158	1.125	2-1/2	98978
1/4	1/4	.213	.158	1.500	4	98979
1/4	1/4	.213	.158	2.000	4	98980
1/4	1/4	.213	.158	2.250	4	98981
1/4	1/4	.213	.158	2.500	4	98982

(continued)



Spherical Ball End Mills



List No. 5922 - 4-Flute - 270° (continued)

DIA.	SHANK DIA.	LOC	NECK DIA.	NECK LENGTH	OAL	EDP NO.
5/16	5/16	.266	.201	.375	2-1/2	98983
5/16	5/16	.266	.201	.750	2-1/2	98984
5/16	5/16	.266	.201	1.125	4	98985
5/16	5/16	.266	.201	1.500	4	98986
5/16	5/16	.266	.201	2.000	4	98987
5/16	5/16	.266	.201	2.250	4	98988
3/8	3/8	.320	.241	.187	2-1/2	98989
3/8	3/8	.320	.241	.750	2-1/2	98990
3/8	3/8	.320	.241	1.500	4	98991
3/8	3/8	.320	.241	2.000	4	98992
1/2	1/2	.427	.323	.500	3	98993
1/2	1/2	.427	.323	1.000	6	98994

List No. 5924 - 2-Flute - 300°



DIA.	SHANK DIA.	LOC	NECK DIA.	NECK LENGTH	OAL	EDP NO.
1/16	1/8	.057	.024	.078	1-1/2	98995
5/64	1/8	.072	.031	.093	1-1/2	98996
3/32	1/8	.086	.038	.125	1-1/2	98997

List No. 5924 - 4-Flute - 300°



DIA.	SHANK DIA.	LOC	NECK DIA.	NECK LENGTH	OAL	EDP NO.
1/8	1/8	.116	.053	.093	1-1/2	98998
1/8	1/8	.116	.053	.281	1-1/2	98999
5/32	3/16	.145	.071	.250	2	99000
3/16	3/16	.174	.082	.125	2	99001
3/16	3/16	.174	.082	.437	2	99002
1/4	1/4	.233	.112	.187	2-1/2	99003
1/4	1/4	.233	.112	.625	2-1/2	99004
5/16	5/16	.291	.143	.250	2-1/2	99005
5/16	5/16	.291	.143	.437	2-1/2	99006
3/8	3/8	.349	.172	.250	2-1/2	99007
3/8	3/8	.349	.172	1.000	3	99008
1/2	1/2	.466	.230	.312	3	99009
1/2	1/2	.466	.230	1.250	4	99010

Spherical Ball End Mill Speeds & Feeds ISO-H Pre-Hardened Steels from 25Rc - 45Rc Hardness

TYPE OF CUT	TYPE OF MACHINING	AXIAL DOC	RADIAL DOC	SURFACE SPEED (SFM)	FEED PER TOOTH BY END MILL DIAMETER						
					1/16"	3/32"	1/8"	3/16"	1/4"	3/8"	1/2"
Roughing	Standard	≤ .06 x D	≤ .30 x D	60-180	.0008	.001	.002	.003	.004	.006	.007
	High Speed			250-340							
Finishing	Standard	≤ .07 x D	≤ .02-.60 x D	60-200	.002	.002	.003	.004	.004	.005	.006
	High Speed			250-350							