

Ball nose end mills SpheroX

Tolerance $r \pm 0.005$, 3xd



new!

HM
XA

λ 40°
 γ 0°

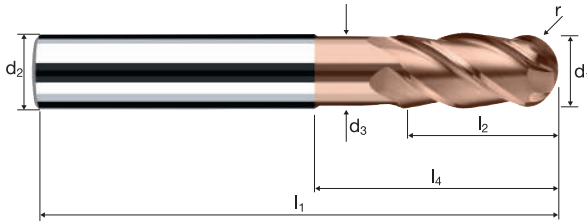
h4

SC

Vario

R

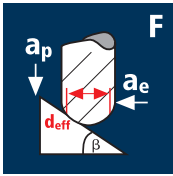
F



		Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60		Ti Titanium	HSS
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Ø Code	d ₁	d ₂ h4	d ₃	l ₁	l ₂	l ₃	l ₄	r ±0.005	α	z	DURO-Si	
												H7490
100	1.00	6.00	0.95	57	2.00	3.00	13.08	0.500	11.8°	4	●	
140	2.00	6.00	1.90	57	4.00	6.00	14.31	1.000	9.0°	4	●	
180	3.00	6.00	2.80	57	6.00	9.00	15.63	1.500	6.4°	4	●	
220	4.00	6.00	3.70	57	8.00	12.00	16.95	2.000	4.0°	4	●	
260	5.00	6.00	4.60	57	10.00	15.00	18.27	2.500	2.0°	4	●	
300	6.00	6.00	5.50	57	12.00	19.34	20.00	3.000	0.0°	4	●	
391	8.00	8.00	7.40	63	16.00	25.29	26.00	4.000	0.0°	4	●	
450	10.00	10.00	9.20	72	20.00	30.20	31.00	5.000	0.0°	4	●	
501	12.00	12.00	11.00	83	24.00	36.13	37.00	6.000	0.0°	4	●	
610	16.00	16.00	15.00	92	32.00	42.13	43.00	8.000	0.0°	4	●	

Application



Material

Hardened tool steel
52 - 56 HRC



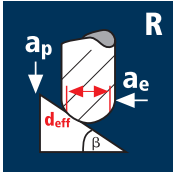
Hardened tool steel
56 - 60 HRC



Hardened tool steel
> 60 HRC



High speed steel,
hardened
64 - 70 HRC



Hardened tool steel
52 - 56 HRC



Hardened tool steel
56 - 60 HRC



Hardened tool steel
> 60 HRC



High speed steel,
hardened
64 - 70 HRC



d1 [mm]	z	v _c [m/min]	f _s [mm]	a _p [mm]	a _e [mm]	d _{eff} [mm]	n [min ⁻¹]	v _r [mm/min]	β [°]
1.00	4	120	0.014	0.030	0.090	0.91	41975	2350	45°
2.00	4	160	0.022	0.030	0.120	1.72	29610	2605	45°
3.00	4	200	0.034	0.050	0.150	2.59	24580	3345	45°
4.00	4	200	0.042	0.050	0.180	3.39	18780	3155	45°
5.00	4	200	0.048	0.050	0.210	4.17	15265	2930	45°
6.00	4	200	0.052	0.050	0.230	4.94	12885	2680	45°
8.00	4	200	0.056	0.080	0.280	6.67	9545	2140	45°
10.00	4	200	0.060	0.080	0.310	8.22	7745	1860	45°
12.00	4	200	0.066	0.100	0.340	9.89	6435	1700	45°
1.00	4	120	0.014	0.030	0.090	0.91	41975	2350	45°
2.00	4	120	0.022	0.030	0.120	1.72	22210	1955	45°
3.00	4	150	0.034	0.050	0.150	2.59	18435	2505	45°
4.00	4	150	0.042	0.050	0.180	3.39	14085	2365	45°
5.00	4	150	0.048	0.050	0.210	4.17	11450	2200	45°
6.00	4	150	0.052	0.050	0.230	4.94	9665	2010	45°
8.00	4	150	0.056	0.080	0.280	6.67	7160	1605	45°
10.00	4	150	0.060	0.080	0.310	8.22	5810	1395	45°
12.00	4	150	0.066	0.100	0.340	9.89	4830	1275	45°
1.00	4	80	0.014	0.030	0.090	0.91	27985	1565	45°
2.00	4	80	0.022	0.030	0.120	1.72	14805	1305	45°
3.00	4	100	0.034	0.050	0.150	2.59	12290	1670	45°
4.00	4	100	0.042	0.050	0.180	3.39	9390	1575	45°
5.00	4	100	0.048	0.050	0.210	4.17	7635	1465	45°
6.00	4	100	0.052	0.050	0.230	4.94	6445	1340	45°
8.00	4	100	0.056	0.080	0.280	6.67	4770	1070	45°
10.00	4	100	0.060	0.080	0.310	8.22	3870	930	45°
12.00	4	100	0.066	0.100	0.340	9.89	3220	850	45°
1.00	4	50	0.014	0.030	0.090	0.91	17490	980	45°
2.00	4	50	0.022	0.030	0.120	1.72	9255	815	45°
3.00	4	60	0.034	0.050	0.150	2.59	7375	1005	45°
4.00	4	60	0.042	0.050	0.180	3.39	5635	945	45°
5.00	4	60	0.048	0.050	0.210	4.17	4580	880	45°
6.00	4	60	0.052	0.050	0.230	4.94	3865	805	45°
8.00	4	60	0.056	0.080	0.280	6.67	2865	640	45°
10.00	4	60	0.060	0.080	0.310	8.22	2325	560	45°
12.00	4	60	0.066	0.100	0.340	9.89	1930	510	45°
1.00	4	130	0.023	0.180	0.180	0.99	41800	3845	30°
2.00	4	130	0.039	0.280	0.280	1.92	21550	3360	30°
3.00	4	130	0.049	0.360	0.360	2.83	14620	2865	30°
4.00	4	130	0.058	0.480	0.480	3.77	10975	2545	30°
5.00	4	130	0.065	0.600	0.600	4.71	8785	2285	30°
6.00	4	130	0.070	0.720	0.720	5.66	7310	2045	30°
8.00	4	130	0.086	0.960	0.960	7.54	5490	1890	30°
10.00	4	130	0.098	1.200	1.200	9.43	4390	1720	30°
12.00	4	130	0.101	1.440	1.440	11.31	3660	1480	30°
1.00	4	80	0.014	0.160	0.160	0.97	26250	1470	30°
2.00	4	80	0.023	0.250	0.250	1.90	13405	1235	30°
3.00	4	80	0.029	0.320	0.320	2.78	9160	1065	30°
4.00	4	80	0.035	0.430	0.430	3.72	6845	960	30°
5.00	4	80	0.039	0.540	0.540	4.65	5475	855	30°
6.00	4	80	0.042	0.650	0.650	5.58	4565	765	30°
8.00	4	80	0.051	0.860	0.860	7.43	3425	700	30°
10.00	4	80	0.058	1.080	1.080	9.30	2740	635	30°
12.00	4	80	0.061	1.300	1.300	11.16	2280	555	30°
1.00	4	60	0.011	0.130	0.130	0.95	20105	885	30°
2.00	4	60	0.019	0.200	0.200	1.84	10380	790	30°
3.00	4	60	0.023	0.250	0.250	2.69	7100	655	30°
4.00	4	60	0.028	0.340	0.340	3.59	5320	595	30°
5.00	4	60	0.031	0.420	0.420	4.48	4265	530	30°
6.00	4	60	0.034	0.500	0.500	5.37	3555	485	30°
8.00	4	60	0.041	0.670	0.670	7.17	2665	435	30°
10.00	4	60	0.047	0.840	0.840	8.96	2130	400	30°
12.00	4	60	0.049	1.010	1.010	10.76	1775	350	30°
1.00	4	40	0.009	0.130	0.130	0.95	13405	480	30°
2.00	4	40	0.015	0.200	0.200	1.84	6920	415	30°
3.00	4	40	0.019	0.250	0.250	2.69	4735	360	30°
4.00	4	40	0.023	0.340	0.340	3.59	3545	325	30°
5.00	4	40	0.025	0.420	0.420	4.48	2840	285	30°
6.00	4	40	0.027	0.500	0.500	5.37	2370	255	30°
8.00	4	40	0.033	0.670	0.670	7.17	1775	235	30°
10.00	4	40	0.037	0.840	0.840	8.96	1420	210	30°
12.00	4	40	0.039	1.010	1.010	10.76	1185	185	30°