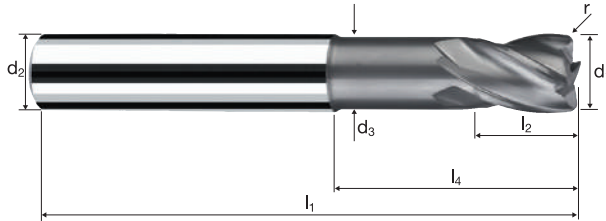
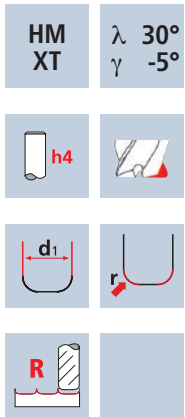


Corner radius end mills ToroX

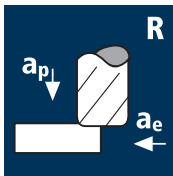
Tolerance r 0/+0.015, 3xd



Rm 850-1100	Rm 1100-1300	Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Ti Titanium	GG(G) Tool Steel HSS
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Ø Code	Coating		Article-N°		ø-Code							X-AL
	d ₁ 0/-0.01	d ₂ h4	d ₃	l ₁	l ₂	l ₃	l ₄	r 0/+0.015	α	z	X7100	
Example: Order-N°.	X		7100		138							
138	2.00	6.00	1.90	57	3.00	6.00	14.31	0.200	8.5°	4	●	
178	3.00	6.00	2.80	57	4.00	9.00	15.63	0.200	5.8°	4	●	
218	4.00	6.00	3.70	57	5.00	12.00	16.95	0.200	3.6°	4	●	
258	5.00	6.00	4.60	57	6.00	15.00	18.27	0.200	1.7°	4	●	
297	6.00	6.00	5.50	57	7.00	19.34	20.00	0.200	0.0°	4	●	
385	8.00	8.00	7.40	63	9.00	25.29	26.00	0.200	0.0°	4	●	
445	10.00	10.00	9.20	72	11.00	30.20	31.00	0.200	0.0°	4	●	
496	12.00	12.00	11.00	83	13.00	36.13	37.00	0.200	0.0°	4	●	
140	2.00	6.00	1.90	57	3.00	6.00	14.31	0.500	8.7°	4	●	
180	3.00	6.00	2.80	57	4.00	9.00	15.63	0.500	6.0°	4	●	
220	4.00	6.00	3.70	57	5.00	12.00	16.95	0.500	3.7°	4	●	
260	5.00	6.00	4.60	57	6.00	15.00	18.27	0.500	1.7°	4	●	
300	6.00	6.00	5.50	57	7.00	19.34	20.00	0.500	0.0°	4	●	
388	8.00	8.00	7.40	63	9.00	25.29	26.00	0.500	0.0°	4	●	
448	10.00	10.00	9.20	72	11.00	30.20	31.00	0.500	0.0°	4	●	
498	12.00	12.00	11.00	83	13.00	36.13	37.00	0.500	0.0°	4	●	

Application



Material

Hardened tool steel
42 - 48 HRC



d1 [mm]	z	v _c [m/min]	f _s [mm]	a _p [mm]	a _e [mm]	n [min ⁻¹]	v _t [mm/min]	r [mm]
2.00	4	180	0.030	0.600	1.200	28650	3440	0.50
3.00	4	180	0.045	0.600	1.800	19100	3440	0.50
4.00	4	180	0.050	0.600	2.400	14325	2865	0.50
5.00	4	180	0.055	0.600	3.000	11460	2520	0.50
6.00	4	180	0.060	0.600	3.600	9550	2290	0.50
8.00	4	180	0.075	0.600	4.800	7160	2150	0.50
10.00	4	180	0.095	0.600	6.000	5730	2175	0.50
12.00	4	180	0.115	0.600	7.200	4775	2195	0.50

Hardened tool steel
48 - 52 HRC



2.00	4	140	0.025	0.600	1.200	22280	2230	0.50
3.00	4	140	0.040	0.600	1.800	14855	2375	0.50
4.00	4	140	0.045	0.600	2.400	11140	2005	0.50
5.00	4	140	0.050	0.600	3.000	8915	1785	0.50
6.00	4	140	0.055	0.600	3.600	7425	1635	0.50
8.00	4	140	0.070	0.600	4.800	5570	1560	0.50
10.00	4	140	0.085	0.600	6.000	4455	1515	0.50
12.00	4	140	0.105	0.600	7.200	3715	1560	0.50

Hardened tool steel
52 - 56 HRC



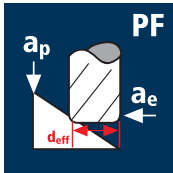
2.00	4	100	0.025	0.600	1.200	15915	1590	0.50
3.00	4	100	0.035	0.600	1.800	10610	1485	0.50
4.00	4	100	0.040	0.600	2.400	7960	1275	0.50
5.00	4	100	0.045	0.600	3.000	6365	1145	0.50
6.00	4	100	0.050	0.600	3.600	5305	1060	0.50
8.00	4	100	0.060	0.600	4.800	3980	955	0.50
10.00	4	100	0.080	0.600	6.000	3185	1020	0.50
12.00	4	100	0.095	0.600	7.200	2655	1010	0.50

Hardened tool steel
56 - 60 HRC



2.00	4	70	0.015	0.600	0.800	11140	670	0.50
3.00	4	70	0.025	0.600	1.200	7425	745	0.50
4.00	4	70	0.030	0.600	1.600	5570	670	0.50
5.00	4	70	0.030	0.600	2.000	4455	535	0.50
6.00	4	70	0.035	0.600	2.400	3715	520	0.50
8.00	4	70	0.045	0.600	3.200	2785	500	0.50
10.00	4	70	0.055	0.600	4.000	2230	490	0.50
12.00	4	70	0.065	0.600	4.800	1855	485	0.50

Application



Material

Hardened tool steel
42 - 48 HRC



d1 [mm]	z	v _c [m/min]	f _s [mm]	a _p [mm]	a _e [mm]	d _{eff} [mm]	n [min ⁻¹]	v _t [mm/min]	β [°]
2.00	4	263	0.045	0.100	0.100	1.99	42070	7570	45°
3.00	4	360	0.065	0.120	0.120	3.00	38195	9930	45°
4.00	4	360	0.085	0.120	0.120	4.00	28650	9740	45°
5.00	4	360	0.100	0.160	0.160	5.00	22920	9165	45°
6.00	4	360	0.135	0.180	0.180	6.00	19100	10315	45°
8.00	4	360	0.150	0.200	0.200	7.99	14340	8605	45°
10.00	4	360	0.200	0.240	0.240	9.97	11495	9195	45°
12.00	4	360	0.170	0.260	0.260	11.96	9580	6515	45°

Hardened tool steel
48 - 52 HRC



2.00	4	250	0.045	0.100	0.100	1.99	39990	7200	45°
3.00	4	250	0.060	0.120	0.120	3.00	26525	6365	45°
4.00	4	250	0.080	0.120	0.120	4.00	19895	6365	45°
5.00	4	250	0.095	0.160	0.160	5.00	15915	6050	45°
6.00	4	250	0.130	0.180	0.180	6.00	13265	6895	45°
8.00	4	250	0.145	0.200	0.200	7.99	9960	5775	45°
10.00	4	250	0.190	0.240	0.240	9.97	7980	6065	45°
12.00	4	250	0.160	0.260	0.260	11.96	6655	4260	45°

Hardened tool steel
52 - 56 HRC



2.00	4	180	0.040	0.100	0.100	1.99	28790	4605	45°
3.00	4	180	0.055	0.120	0.120	3.00	19100	4200	45°
4.00	4	180	0.075	0.120	0.120	4.00	14325	4295	45°
5.00	4	180	0.085	0.160	0.160	5.00	11460	3895	45°
6.00	4	180	0.115	0.180	0.180	6.00	9550	4395	45°
8.00	4	180	0.130	0.200	0.200	7.99	7170	3730	45°
10.00	4	180	0.170	0.240	0.240	9.97	5745	3910	45°
12.00	4	180	0.145	0.260	0.260	11.96	4790	2780	45°

Hardened tool steel
56 - 60 HRC



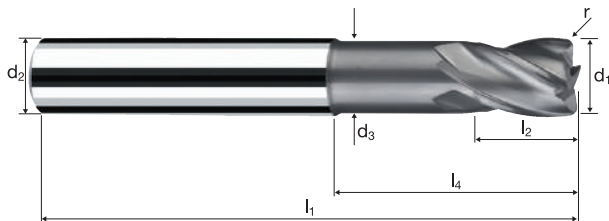
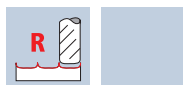
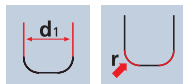
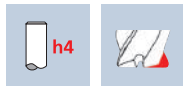
2.00	4	100	0.025	0.100	0.100	1.99	15995	1600	45°
3.00	4	100	0.035	0.120	0.120	3.00	10610	1485	45°
4.00	4	100	0.045	0.120	0.120	4.00	7960	1430	45°
5.00	4	100	0.050	0.160	0.160	5.00	6365	1275	45°
6.00	4	100	0.070	0.180	0.180	6.00	5305	1485	45°
8.00	4	100	0.075	0.200	0.200	7.99	3985	1195	45°
10.00	4	100	0.100	0.240	0.240	9.97	3195	1275	45°
12.00	4	100	0.085	0.260	0.260	11.96	2660	905	45°

Corner radius end mills ToroX


Tolerance r 0/+0.015, 3xd



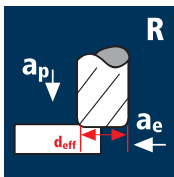
HM
XT λ 30°
 γ -5°



Rm	Rm	Rm	HRC	HRC	HRC	Ti	GG(G) Tool Steel HSS
850-1100	1100-1300	1300-1500	48-56	56-60	> 60	Titanium	

Ø Code	d ₁ 0/-0.01	d ₂ h4	d ₃	l ₁	l ₂	l ₃	l ₄	r 0/+0.015	α	z	Example: Order-N°.	
											Coating X	Article-N° 7100
											X-AL	
												X7100
222	4.00	6.00	3.70	57	5.00	12.00	16.95	1.000	3.8°	4		●
262	5.00	6.00	4.60	57	6.00	15.00	18.27	1.000	1.8°	4		●
302	6.00	6.00	5.50	57	7.00	19.34	20.00	1.000	0.0°	4		●
391	8.00	8.00	7.40	63	9.00	25.29	26.00	1.000	0.0°	4		●
450	10.00	10.00	9.20	72	11.00	30.20	31.00	1.000	0.0°	4		●
501	12.00	12.00	11.00	83	13.00	36.13	37.00	1.000	0.0°	4		●
395	8.00	8.00	7.40	63	9.00	25.29	26.00	2.000	0.0°	4		●
455	10.00	10.00	9.20	72	11.00	30.20	31.00	2.000	0.0°	4		●
505	12.00	12.00	11.00	83	13.00	36.13	37.00	2.000	0.0°	4		●

Application



Material

Hardened tool steel
42 - 48 HRC



d1 [mm]	z	v _c [m/min]	f _t [mm]	a _s [mm]	a _e [mm]	d _{eff} [mm]	n [min ⁻¹]	v _t [mm/min]	r [mm]
4.00	4	200	0.055	0.600	2.400	3.83	16620	3655	1.00
5.00	4	200	0.060	0.600	3.000	4.83	13180	3165	1.00
6.00	4	200	0.065	0.600	3.600	5.83	10920	2840	1.00
8.00	4	200	0.080	0.600	4.800	7.83	8130	2600	1.00
10.00	4	200	0.105	0.600	6.000	9.83	6475	2720	1.00
12.00	4	200	0.125	0.600	7.200	11.83	5380	2690	1.00

Hardened tool steel
48 - 52 HRC



4.00	4	160	0.050	0.600	2.400	3.83	13300	2660	1.00
5.00	4	160	0.055	0.600	3.000	4.83	10545	2320	1.00
6.00	4	160	0.060	0.600	3.600	5.83	8735	2095	1.00
8.00	4	160	0.070	0.600	4.800	7.83	6505	1820	1.00
10.00	4	160	0.095	0.600	6.000	9.83	5180	1970	1.00
12.00	4	160	0.115	0.600	7.200	11.83	4305	1980	1.00

Hardened tool steel
52 - 56 HRC



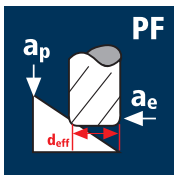
4.00	4	150	0.045	0.600	2.400	3.83	12465	2245	1.00
5.00	4	150	0.050	0.600	3.000	4.83	9885	1975	1.00
6.00	4	150	0.055	0.600	3.600	5.83	8190	1800	1.00
8.00	4	150	0.065	0.600	4.800	7.83	6100	1585	1.00
10.00	4	150	0.085	0.600	6.000	9.83	4855	1650	1.00
12.00	4	150	0.105	0.600	7.200	11.83	4035	1695	1.00

Hardened tool steel
56 - 60 HRC



4.00	4	70	0.030	0.600	1.600	3.83	5820	700	1.00
5.00	4	70	0.035	0.600	2.000	4.83	4615	645	1.00
6.00	4	70	0.040	0.600	2.400	5.83	3820	610	1.00
8.00	4	70	0.045	0.600	3.200	7.83	2845	510	1.00
10.00	4	70	0.060	0.600	4.000	9.83	2265	545	1.00
12.00	4	70	0.075	0.600	4.800	11.83	1885	565	1.00

Application



Material

Hardened tool steel
42 - 48 HRC



d1 [mm]	z	v _c [m/min]	f _t [mm]	a _s [mm]	a _e [mm]	d _{eff} [mm]	n [min ⁻¹]	v _t [mm/min]	β [°]
4.00	4	300	0.065	0.180	0.180	3.97	24055	6255	45°
5.00	4	300	0.075	0.240	0.240	4.99	19135	5740	45°
6.00	4	300	0.090	0.270	0.270	6.00	15915	5730	45°
8.00	4	300	0.125	0.300	0.300	8.00	11935	5970	45°
10.00	4	300	0.145	0.360	0.360	9.99	9560	5545	45°
12.00	4	300	0.170	0.390	0.390	11.98	7970	5420	45°

Hardened tool steel
48 - 52 HRC



4.00	4	220	0.060	0.180	0.180	3.97	17640	4235	45°
5.00	4	220	0.070	0.240	0.240	4.99	14035	3930	45°
6.00	4	220	0.085	0.270	0.270	6.00	11670	3970	45°
8.00	4	220	0.120	0.300	0.300	8.00	8755	4200	45°
10.00	4	220	0.140	0.360	0.360	9.99	7010	3925	45°
12.00	4	220	0.160	0.390	0.390	11.98	5845	3740	45°

Hardened tool steel
52 - 56 HRC



4.00	4	160	0.055	0.180	0.180	3.97	12830	2820	45°
5.00	4	160	0.065	0.240	0.240	4.99	10205	2655	45°
6.00	4	160	0.075	0.270	0.270	6.00	8490	2545	45°
8.00	4	160	0.110	0.300	0.300	8.00	6365	2800	45°
10.00	4	160	0.125	0.360	0.360	9.99	5100	2550	45°
12.00	4	160	0.145	0.390	0.390	11.98	4250	2465	45°

Hardened tool steel
56 - 60 HRC



4.00	4	80	0.035	0.180	0.180	3.97	6415	900	45°
5.00	4	80	0.040	0.240	0.240	4.99	5105	815	45°
6.00	4	80	0.045	0.270	0.270	6.00	4245	765	45°
8.00	4	80	0.065	0.300	0.300	8.00	3185	830	45°
10.00	4	80	0.075	0.360	0.360	9.99	2550	765	45°
12.00	4	80	0.085	0.390	0.390	11.98	2125	725	45°