

Cutting Conditions

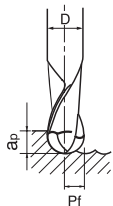
X's-Mill Geo Ball L9340

• Conventional Condition : X's Mill GEO Ball L9340

Work Material Milling Condition	S C, FC Carbon Steels, Cast Irons (~250 HB)		SCM, SKD Alloy Steels, Mold Steels		Hardened Steels, Pre Hardened Steels (30~38 HRC)		Stainless Steels, Hardened Steels (38~45 HRC)		Hardened Steels (45~55 HRC)		Hardened Steels (55~60 HRC)		
	Ball Radius mm	Rotation min ⁻¹	Feed mm/min	Rotation min ⁻¹	Feed mm/min	Rotation min ⁻¹	Feed mm/min	Rotation min ⁻¹	Feed mm/min	Rotation min ⁻¹	Feed mm/min	Rotation min ⁻¹	Feed mm/min
R0.5	32000	820	31000	620	25000	440	22000	330	19000	240	14000	130	
R1	16000	920	15000	680	13000	510	11000	380	9600	280	7200	160	
R2	8000	1000	7600	760	6400	560	5600	430	4800	310	3600	170	
R3	5300	1000	5100	770	4200	550	3700	420	3200	310	2400	170	
R5	3200	1000	3100	780	2500	550	2200	420	1900	300	1400	170	
R8	2000	920	1900	680	1600	510	1400	380	1200	280	900	160	
R10	1600	820	1500	600	1300	460	1100	330	960	250	720	140	
R15	1100	740	1000	530	850	390	700	280	640	220	480	120	
Depth of Cut	ap	0.05D (R<0.5) 0.1D (R≥0.5)								0.05D			
	Pf	0.2D								0.1D			

• High Speed Condition : X's Mill GEO Ball L9340

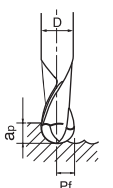
Work Material Milling Condition	S C, FC Carbon Steels, Cast Irons (~250 HB)		SCM, SKD Alloy Steels, Mold Steels		Hardened Steels, Pre Hardened Steels (30~38 HRC)		Stainless Steels, Hardened Steels (38~45 HRC)		Hardened Steels (45~55 HRC)		Hardened Steels (55~60 HRC)			
	Ball Radius mm	Rotation min ⁻¹	Feed mm/min	Rotation min ⁻¹	Feed mm/min	Rotation min ⁻¹	Feed mm/min	Rotation min ⁻¹	Feed mm/min	Rotation min ⁻¹	Feed mm/min	Rotation min ⁻¹	Feed mm/min	
R0.5	60000	3600	60000	3600	60000	3000	60000	3000	60000	2400	48000	1900		
R1	51000	5100	48000	4800	40000	3200	37000	3000	35000	2100	24000	1400		
R2	25000	5000	24000	4800	20000	3200	18000	2500	18000	2200	12000	1400		
R3	17000	4100	16000	3800	13000	2900	12000	2200	12000	1900	8000	1300		
R5	10200	3100	9600	2500	8000	1900	7300	1500	7000	1400	4800	960		
R8	6400	1900	6000	1800	5000	1200	4600	1000	4400	900	3000	600		
R10	5100	1600	4800	1400	4000	1000	3700	890	3500	700	2400	480		
R15	3400	1100	3200	960	2700	650	2400	600	2300	460	1600	320		
Depth of Cut	ap	0.1D								0.05D		0.05D		
	Pf	0.1D								0.05D		0.05D		



1. Use highly rigid machining center and holder.
2. Recommend air blow or oil mist process.
3. When using Pencil Neck Type End Mills, reduce the feed to 70% of table values.
4. When using Long Shank Type End Mills, reduce milling condition according to it's over hang length.
5. Use in wet condition in case of Stainless Steels.

GS MILL Hard Ball L9422

Work Material Milling Condition	Pre-Hardened Steels Mold Steels (40~50 HRC)		Hardened Steels (50~55 HRC)		Hardened Steels, (55~60 HRC)		Hardened Steels (60~65 HRC)		
	Ball Radius mm	Rotation min ⁻¹	Feed mm/min	Rotation min ⁻¹	Feed mm/min	Rotation min ⁻¹	Feed mm/min	Rotation min ⁻¹	Feed mm/min
R0.2	50000	530	50000	530	50000	500	50000	450	
R0.3	50000	830	50000	830	50000	760	50000	690	
R0.5	50000	1360	50000	1360	50000	1250	41970	960	
R0.75	50000	2040	50000	2040	37310	1400	27980	960	
R1	38130	2070	38130	2070	27980	1400	20990	960	
R1.25	30510	2070	30510	2070	22390	1400	16790	960	
R1.5	25420	2070	25420	2070	18660	1400	13990	960	
R2	19070	2070	19070	2070	13990	1400	10490	960	
R2.5	15250	2070	15250	2070	11190	1400	8390	960	
R3	12710	2070	12710	2070	9330	1400	7000	960	
R4	9530	2070	9530	2070	7000	1400	5250	960	
R5	7630	2070	7630	2070	5600	1400	4200	960	
R6	6360	2070	6360	2070	4660	1400	3500	960	
Depth of Cut	ap	0.08D				0.05D			
	Pf	0.25D				0.15D			



1. Use highly rigid machining center and holder.
2. Recommend air blow or oil mist process.
3. Recommend oil mist process. (Most recommended)
4. When depth of the cut is small, can increase feed speed more.