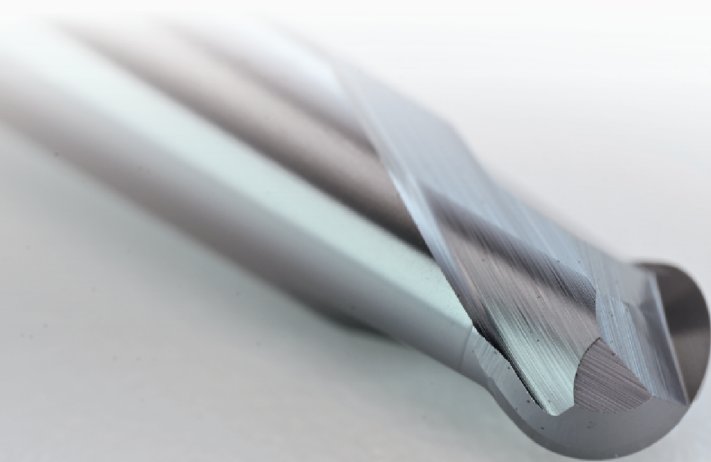


HGX SERIES

HGXPB2 – Highlights

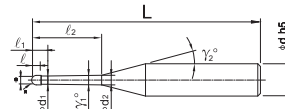
- Two tapered angles available.
- Excellent chip evacuation in deep areas.
- Stable milling with optimized neck design.
- Smooth coating for superior surface finish.
- High precision for tight tolerances.

≤55HRC





HGXPB 2-Flute Taper Neck Ball End Mill



φD	D Tol. [mm]	φD	R Tol. [mm]
D<3	0~-0.010	D<1	±0.003
3<D≤6	0~-0.012	1<D≤6	±0.005

Unit : mm

Type No.	Dia.	Radius	Length of Cut	Under Neck Length	Straight Under Neck	Taper Angle	Neck Taper Angle	Tip Dia.	Shank Dia.	Overall Length	Shank Dia.
	φD	R	l	l ₂	l ₁	γ ₁ /°	γ ₂ /°	φd ₁	φd ₂	L	φd
HGXPB2006-2-T0.4 0450	0.6	R0.3	0.36	2	0.6	0.4	12	0.56	0.58	50	4
HGXPB2006-4-T0.4 0450	0.6	R0.3	0.36	4	0.6	0.4	12	0.56	0.607	50	4
HGXPB2006-6-T0.9 0450	0.6	R0.3	0.36	6	0.6	0.9	12	0.56	0.635	50	4
HGXPB2008-4-T0.4 0450	0.8	R0.4	0.48	4	0.7	0.4	12	0.76	0.806	50	4
HGXPB2008-6-T0.4 0450	0.8	R0.4	0.48	6	0.7	0.4	12	0.76	0.834	50	4
HGXPB2010-6-T0.4 0450	1	R0.5	0.6	6	0.8	0.4	12	0.95	1.023	50	4
HGXPB2010-6-T0.4 0650	1	R0.5	0.6	6	0.8	0.4	12	0.95	1.023	50	6
HGXPB2010-8-T0.4 0450	1	R0.5	0.6	8	0.8	0.4	12	0.95	1.051	50	4
HGXPB2010-8-T0.4 0660	1	R0.5	0.6	8	0.8	0.4	12	0.95	1.051	60	6
HGXPB2010-10-T0.4 0450	1	R0.5	0.6	10	0.8	0.4	12	0.95	1.078	50	4
HGXPB2010-10-T0.4 0660	1	R0.5	0.6	10	0.8	0.4	12	0.95	1.078	60	6
HGXPB2010-15-T0.4 0450	1	R0.5	0.6	15	0.8	0.4	12	0.95	1.148	50	4
HGXPB2010-15-T0.4 0660	1	R0.5	0.6	15	0.8	0.4	12	0.95	1.148	60	6
HGXPB2010-6-T0.9 0450	1	R0.5	0.6	6	0.8	0.9	12	0.95	1.113	50	4
HGXPB2010-6-T0.9 0650	1	R0.5	0.6	6	0.8	0.9	12	0.95	1.113	50	6
HGXPB2010-10-T0.9 0450	1	R0.5	0.6	10	0.8	0.9	12	0.95	1.239	50	4
HGXPB2010-10-T0.9 0660	1	R0.5	0.6	10	0.8	0.9	12	0.95	1.239	60	6
HGXPB2010-15-T0.9 0450	1	R0.5	0.6	15	0.8	0.9	12	0.95	1.396	50	4
HGXPB2010-15-T0.9 0660	1	R0.5	0.6	15	0.8	0.9	12	0.95	1.396	60	6
HGXPB2010-20-T0.9 0460	1	R0.5	0.6	20	0.8	0.9	12	0.95	1.553	60	4
HGXPB2010-20-T0.9 0675	1	R0.5	0.6	20	0.8	0.9	12	0.95	1.553	75	6
HGXPB2015-8-T0.4 0660	1.5	R0.75	0.9	8	1.35	0.4	12	1.42	1.513	60	6
HGXPB2015-10-T0.4 0660	1.5	R0.75	0.9	10	1.35	0.4	12	1.42	1.541	60	6
HGXPB2015-12-T0.4 0660	1.5	R0.75	0.9	12	1.35	0.4	12	1.42	1.569	60	6
HGXPB2015-15-T0.9 0660	1.5	R0.75	0.9	15	1.35	0.9	12	1.42	1.848	60	6
HGXPB2015-20-T0.9 0675	1.5	R0.75	0.9	20	1.35	0.9	12	1.42	2.006	75	6
HGXPB2020-8-T0.4 0650	2	R1	1.2	8	1.7	0.4	12	1.9	1.988	50	6
HGXPB2020-12-T0.4 0660	2	R1	1.2	12	1.7	0.4	12	1.9	2.044	60	6

HGXPB 2-Flute Taper Neck Ball End Mill

Unit : mm

Type No.	Dia.	Radius	Length of Cut	Under Neck Length	Straight Under Neck	Taper Angle	Neck Taper Angle	Tip Dia.	Shank Dia.	Overall Length	Shank Dia.
	φD	R	l	l ₂	l ₁	γ ₁ /°	γ ₂ /°	φd ₁	φd ₂	L	φd
HGXPB2020-16-T0.4 0660	2	R1	1.2	16	1.7	0.4	12	1.9	2.1	60	6
HGXPB2020-20-T0.4 0675	2	R1	1.2	20	1.7	0.4	12	1.9	2.156	75	6
HGXPB2020-12-T0.9 0660	2	R1	1.2	12	1.7	0.9	12	1.9	2.224	60	6
HGXPB2020-16-T0.9 0660	2	R1	1.2	16	1.7	0.9	12	1.9	2.349	60	6
HGXPB2020-20-T0.9 0675	2	R1	1.2	20	1.7	0.9	12	1.9	2.475	75	6
HGXPB2020-25-T0.9 0675	2	R1	1.2	25	1.7	0.9	12	1.9	2.631	75	6
HGXPB2020-30-T0.9 0675	2	R1	1.2	30	1.7	0.9	12	1.9	2.699	75	6
HGXPB2020-40-T0.9 06100	2	R1	1.2	40	1.7	0.9	12	1.9	3.103	100	6
HGXPB2030-8-T0.4 0650	3	R1.5	1.8	8	2.5	0.4	12	2.9	2.977	50	6
HGXPB2030-16-T0.4 0660	3	R1.5	1.8	16	2.5	0.4	12	2.9	3.088	60	6
HGXPB2030-20-T0.4 0660	3	R1.5	1.8	20	2.5	0.4	12	2.9	3.144	60	6
HGXPB2030-16-T0.9 0660	3	R1.5	1.8	16	2.5	0.9	12	2.9	3.292	60	6
HGXPB2030-20-T0.9 0660	3	R1.5	1.8	20	2.5	0.9	12	2.9	3.45	60	6
HGXPB2030-30-T0.9 0675	3	R1.5	1.8	30	2.5	0.9	12	2.9	3.764	75	6
HGXPB2030-40-T0.9 06100	3	R1.5	1.8	40	2.5	0.9	12	2.9	4.392	100	6
HGXPB2040-20-T0.9 0875	4	R2	6	20	8	0.9	12	2.9	4.277	75	8
HGXPB2040-30-T0.9 08100	4	R2	6	30	8	0.9	12	3.9	4.591	100	8
HGXPB2040-40-T0.9 08100	4	R2	6	40	8	0.9	12	3.9	4.905	100	8
HGXPB2060-30-T0.9 08100	6	R3	9	30	12	0.9	12	5.85	6.416	100	8
HGXPB2060-45-T0.9 08100	6	R3	9	45	12	0.9	12	5.85	6.887	100	8

TABLE OF RECOMMENDED MILLING MATERIALS

○ Very suitable ○ Suitable

CARBON STEELS	ALLOY STEELS	PREHARDENED STEELS	HARDENED STEELS				CAST IRON DUCTILE CAST IRON	COPPER ALLOYS	ALUMINUM ALLOY	GRAPHITE	TITANIUM ALLOY	HEAT RESISTANT ALLOYS	PLASTIC
			~55HRC	~60HRC	~65HRC	~70HRC							
○	○	○	○					○					





Cutting Parameter

HGXPB 2-Flute Taper Neck Ball End Mill

Workpiece					Carbon Steels, Alloy Steels (30~40HRC)				Pre-Hardened Steels (35~45HRC)				High Speed Steels, Hardened Steels (46-55HRC)			
Type No.	Ball radius mm	Tool dia. mm	BHTA2 Neck Angle	Under Neck Length	n min ⁻¹	Vf mm/min	ap mm	ae mm	n min ⁻¹	Vf mm/min	ap mm	ae mm	n min ⁻¹	Vf mm/min	ap mm	ae mm
HGXPB2006-2-T0.4 0450	0.3	0.6	0.4	2	32500	1480	0.03	0.035	29250	1332	0.025	0.025	26000	1184	0.015	0.02
HGXPB2006-4-T0.4 0450	0.3	0.6	0.4	4	31800	1420	0.025	0.033	28626	1278	0.02	0.03	26000	1136	0.012	0.018
HGXPB2006-6-T0.9 0450	0.3	0.6	0.9	6	31800	1420	0.025	0.033	28626	1278	0.02	0.03	20800	1136	0.012	0.018
HGXPB2008-4-T0.4 0450	0.4	0.8	0.4	4	26980	1523	0.032	0.04	24282	1370	0.03	0.035	21584	1218	0.025	0.03
HGXPB2008-6-T0.4 0450	0.4	0.8	0.4	6	25386	1269	0.028	0.038	22847	1142	0.025	0.033	20308	1015	0.02	0.028
HGXPB2010-6-T0.4 0450	0.5	1	0.4	6	21252	1523	0.05	0.045	17920	1368	0.04	0.045	16640	1218	0.03	0.04
HGXPB2010-6-T0.4 0650	0.5	1	0.4	6	21252	1523	0.05	0.045	17920	1368	0.04	0.045	16640	1218	0.03	0.04
HGXPB2010-8-T0.4 0450	0.5	1	0.4	8	20252	1523	0.05	0.045	17920	1368	0.04	0.045	16640	1218	0.03	0.035
HGXPB2010-8-T0.4 0660	0.5	1	0.4	8	20252	1523	0.05	0.045	17920	1368	0.04	0.045	16640	1218	0.03	0.035
HGXPB2010-10-T0.4 0450	0.5	1	0.4	10	17688	1114	0.035	0.04	14560	1000	0.032	0.04	13520	890	0.028	0.032
HGXPB2010-10-T0.4 0660	0.5	1	0.4	10	17688	1114	0.035	0.04	14560	1000	0.032	0.04	13520	890	0.028	0.032
HGXPB2010-15-T0.4 0450	0.5	1	0.4	15	15240	792	0.025	0.038	11650	712	0.022	0.038	10820	632	0.02	0.03
HGXPB2010-15-T0.4 0660	0.5	1	0.4	15	15240	792	0.025	0.038	11650	712	0.022	0.038	10820	632	0.02	0.03
HGXPB2010-6-T0.9 0450	0.5	1	0.9	6	21252	1523	0.05	0.045	17920	1368	0.04	0.045	16640	1218	0.03	0.04
HGXPB2010-6-T0.9 0650	0.5	1	0.9	6	21252	1523	0.05	0.045	17920	1368	0.04	0.045	16640	1218	0.03	0.04
HGXPB2010-10-T0.9 0450	0.5	1	0.9	10	17688	1114	0.035	0.04	14560	1000	0.032	0.04	13520	890	0.028	0.032
HGXPB2010-10-T0.9 0660	0.5	1	0.9	10	17688	1114	0.035	0.04	14560	1000	0.032	0.04	13520	890	0.028	0.032
HGXPB2010-15-T0.9 0450	0.5	1	0.9	15	15240	792	0.025	0.038	11650	712	0.022	0.038	10820	632	0.02	0.03
HGXPB2010-15-T0.9 0660	0.5	1	0.9	15	15240	792	0.025	0.038	11650	712	0.022	0.038	10820	632	0.02	0.03
HGXPB2010-20-T0.9 0460	0.5	1	0.9	20	14340	792	0.02	0.035	11650	712	0.018	0.035	10820	632	0.015	0.025
HGXPB2010-20-T0.9 0675	0.5	1	0.9	20	14340	792	0.02	0.035	11650	712	0.018	0.035	10820	632	0.015	0.025
HGXPB2015-8-T0.4 0660	0.75	1.5	0.4	8	18200	1680	0.05	0.05	16380	1512	0.04	0.05	14560	1344	0.03	0.05
HGXPB2015-10-T0.4 0660	0.75	1.5	0.4	10	17230	1650	0.05	0.05	15508	1485	0.04	0.05	13784	1320	0.03	0.05
HGXPB2015-12-T0.4 0660	0.75	1.5	0.4	12	16800	1520	0.05	0.05	15120	1368	0.04	0.05	13440	1216	0.03	0.05
HGXPB2015-15-T0.9 0660	0.75	1.5	0.9	15	15200	1480	0.04	0.04	13680	1332	0.035	0.04	12160	1184	0.025	0.04
HGXPB2015-20-T0.9 0675	0.75	1.5	0.9	20	13650	1200	0.04	0.04	12285	1080	0.03	0.04	10926	960	0.02	0.04
HGXPB2020-8-T0.4 0650	1	2	0.4	8	15200	1800	0.08	0.08	13680	1620	0.08	0.06	12160	1440	0.05	0.05
HGXPB2020-12-T0.4 0660	1	2	0.4	12	13820	1780	0.07	0.08	12438	1602	0.07	0.06	11050	1424	0.05	0.05
HGXPB2020-16-T0.4 0660	1	2	0.4	16	12680	1660	0.063	0.07	11412	1494	0.063	0.06	10144	1328	0.04	0.05
HGXPB2020-20-T0.4 0675	1	2	0.4	20	10500	1320	0.043	0.07	9450	1188	0.043	0.05	8400	1056	0.03	0.04
HGXPB2020-12-T0.9 0660	1	2	0.9	12	15200	1850	0.08	0.08	13680	1660	0.08	0.06	12160	1470	0.05	0.05

Cutting Parameter

HGXPB 2-Flute Taper Neck Ball End Mill

Workpiece					Carbon Steels, Alloy Steels (30~40HRC)				Pre-Hardened Steels (35~45HRC)				High Speed Steels, Hardened Steels (46-55HRC)			
Type No.	Ball radius mm	Tool dia. mm	BHTA2 Neck Angle	Under Neck Length	n min ⁻¹	Vf mm/min	ap mm	ae mm	n min ⁻¹	Vf mm/min	ap mm	ae mm	n min ⁻¹	Vf mm/min	ap mm	ae mm
HGXPB2020-16-T0.9 0660	1	2	0.9	16	13820	1830	0.07	0.08	12438	1642	0.07	0.06	11050	1454	0.05	0.05
HGXPB2020-20-T0.9 0675	1	2	0.9	20	12680	1710	0.063	0.07	11412	1534	0.063	0.06	10144	1358	0.04	0.05
HGXPB2020-25-T0.9 0675	1	2	0.9	25	10500	1380	0.043	0.07	9450	1228	0.043	0.05	8400	1086	0.03	0.04
HGXPB2020-30-T0.9 0675	1	2	0.9	30	9500	1020	0.042	0.06	8550	909	0.042	0.05	7600	807	0.03	0.04
HGXPB2020-40-T0.9 06100	1	2	0.9	40	7800	738	0.026	0.05	7020	659	0.026	0.04	6240	590	0.025	0.03
HGXPB2030-8-T0.4 0650	1.5	3	0.4	8	12,738	2,200	0.08	0.1	11,464	1,980	0.08	0.1	10,190	1,760	0.05	0.1
HGXPB2030-16-T0.4 0660	1.5	3	0.4	16	11,354	2,000	0.07	0.1	10,219	1,800	0.07	0.1	9,083	1,600	0.05	0.1
HGXPB2030-20-T0.4 0660	1.5	3	0.4	20	10,386	1,800	0.063	0.1	9,374	1,620	0.063	0.1	8,309	1,440	0.05	0.1
HGXPB2030-16-T0.9 0660	1.5	3	0.9	16	12,738	2,250	0.08	0.1	11,464	2,020	0.08	0.1	10,190	1,780	0.05	0.1
HGXPB2030-20-T0.9 0660	1.5	3	0.9	20	11,354	2,050	0.07	0.1	10,219	1,840	0.07	0.1	9,083	1,620	0.05	0.1
HGXPB2030-30-T0.9 0675	1.5	3	0.9	30	10,386	1,850	0.063	0.1	9,374	1,660	0.063	0.1	8,309	1,460	0.05	0.1
HGXPB2030-40-T0.9 06100	1.5	3	0.9	40	7,680	1,250	0.042	0.08	6,912	1,120	0.042	0.08	6,144	980	0.04	0.08
HGXPB2040-20-T0.9 0875	2	4	0.9	20	12,000	2400	0.03	0.06	11,000	1800	0.03	0.06	10,000	1400	0.03	0.06
HGXPB2040-30-T0.9 08100	2	4	0.9	30	10,100	1,526	0.065	0.1	9,000	1,295	0.065	0.1	7,800	1,064	0.05	0.08
HGXPB2040-40-T0.9 08100	2	4	0.9	40	8,100	1,155	0.05	0.08	7,200	980	0.05	0.08	6,200	798	0.04	0.08
HGXPB2060-30-T0.9 08100	3	6	0.9	30	9,000	3,000	0.08	0.15	9,000	2,800	0.08	0.15	9,000	2,500	0.06	0.15
HGXPB2060-45-T0.9 08100	3	6	0.9	45	7,600	1,800	0.06	0.12	6,000	1,800	0.06	0.12	5,200	735	0.05	0.1

