KTG SH

Super High Hardness & Super High Speed Cutting

End Mill Series For High Hardness Steeles

Super Hardness Steel Coating "SH" - SH Power Ball

Features

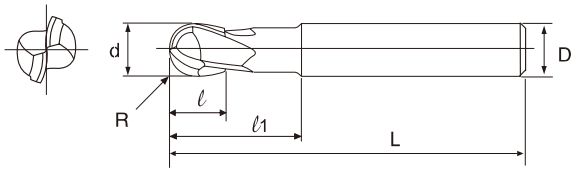
Developed NaNo SH Coating of high adhesion and high hardness is adopted.

Long Tool Life • The tool life has drastically been improved
High Acuracy • Less dimensional change, It's suitable for finishing

A new geometry is adopted to ensure rigidety and execllent R accuracy & specially cutting edge.

High Efficient • A powerful roughing is available
High Acuracy • Highly accurate finish cutting is possible

- The tool exhibits it's power to various materials from pre-harden steel(45 HRC class to high hardness 65 HRC class)
- Especially for pre-harden steel cutting, this tool shows incomparably longer life than with the tool of conventional type(3 times or more longer than of a general TiAln material)
- R tolerance: ±0.01mm. Highly accurate finish cutting is possible



Dimensions

MODE	R	D	ℓ	ℓ1	Neck Dia	L	D
KTG 0102SH	0.5R	1	1	2.5	0.96	50	6
KTG 0152SH	0.75R	1.5	1.5	4	1.46	50	6
KTG 0202SH	1R	2	2	6	1.96	50	6
KTG 0252SH	1.25R	2.5	2.5	7	2.46	50	6
KTG 0302SH	1.5R	3	3	8	2.96	50	6
KTG 4402SH	2R	4	4	8	3.96	50	4
KTG 0402SH	2R	4	4	8	3.96	50	6
KTG 0502SH	2.5R	5	5	12	4.96	50	6
KTG 0602SH	3R	6	6	13	5.96	50	6
KTG 0802SH	4R	8	8	16	7.9	60	8
KTG 1002SH	5R	10	10	20	9.9	75	10
KTG 1202SH	6R	12	12	24	11.9	75	12

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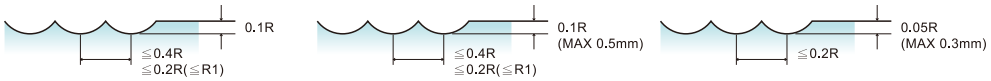
Standard Cutting Conditions

Work material	Alloy steels, Tool steels, Prehardened steels, SCM, SKD61, SKD11, NAK, AISI H13, AISI D2 ect.					Hardened steels, SKD61, SKD11, STAVAX, AISI H13 ect.				Hardened steels, SKD11, SKH, SKS, ASP23, AISI H13 ect.			
R (mm)	Inclination of Machining Surface	Speed (min^{-1})	Feed (mm/min)	mm Pf Pick feed	mm Ad Milling Amount	Speed (min^{-1})	Feed (mm/min)	mm Pf Pick feed	mm Ad Milling Amount	Speed (min^{-1})	Feed (mm/min)	mm Pf Pick feed	mm Ad Milling Amount
0.5R	$\alpha \leqq 15°$	40000	3120	≦0.2R	≦0.1R	35000	2340	≦0.2R	≦0.1R	21000	1300	≦0.2R	≦0.05R
	$\alpha > 15°$	35000	2080	≦0.2R	≦0.1R	30000	1430	≦0.2R	≦0.1R	15000	740	≦0.2R	≦0.05R
0.75R	$\alpha \leqq 15°$	40000	3900	≦0.2R	≦0.1R	30000	2470	≦0.2R	≦0.1R	14000	1160	≦0.2R	≦0.05R
	$\alpha > 15°$	30000	2210	≦0.4R	≦0.1R	25000	1560	≦0.4R	≦0.1R	10000	610	≦0.2R	≦0.05R
1R	$\alpha \leqq 15°$	35000	3900	≦0.4R	≦0.1R	25000	2340	≦0.4R	≦0.1R	11000	1040	≦0.2R	≦0.05R
	$\alpha > 15°$	25000	2210	≦0.4R	≦0.1R	20000	1430	≦0.4R	≦0.1R	8000	560	≦0.2R	≦0.05R
1.25R	$\alpha \leqq 15°$	33000	3900	≦0.4R	≦0.1R	22000	2210	≦0.4R	≦0.1R	9300	920	≦0.2R	≦0.05R
	$\alpha > 15°$	24000	2210	≦0.4R	≦0.1R	17000	1300	≦0.4R	≦0.1R	6500	480	≦0.2R	≦0.05R
1.5R	$\alpha \leqq 15°$	30000	3900	≦0.4R	≦0.1R	20000	2210	≦0.4R	≦0.1R	8000	870	≦0.2R	≦0.05R
	$\alpha > 15°$	23000	2210	≦0.4R	≦0.1R	15000	1300	≦0.4R	≦0.1R	5600	450	≦0.2R	≦0.05R
2R	$\alpha \leqq 15°$	25000	3900	≦0.4R	≦0.1R	17000	2210	≦0.4R	≦0.1R	6400	830	≦0.2R	≦0.05R
	$\alpha > 15°$	20000	2210	≦0.4R	≦0.1R	13000	1300	≦0.4R	≦0.1R	4500	440	≦0.2R	≦0.05R
2.5R	$\alpha \leqq 15°$	23000	3900	≦0.4R	≦0.1R	15000	2210	≦0.4R	≦0.1R	5000	710	≦0.2R	≦0.05R
	$\alpha > 15°$	17000	2210	≦0.4R	≦0.1R	11000	1300	≦0.4R	≦0.1R	3500	380	≦0.2R	≦0.05R
3R	$\alpha \leqq 15°$	20000	3900	≦0.4R	≦0.1R	13000	2210	≦0.4R	≦0.1R	4200	690	≦0.2R	≦0.05R
	$\alpha > 15°$	15000	2210	≦0.4R	≦0.1R	10000	1300	≦0.4R	≦0.1R	2900	350	≦0.2R	≦0.05R
4R	$\alpha \leqq 15°$	15000	3900	≦0.4R	≦0.1R	10000	2210	≦0.4R	≦0.1R	3200	700	≦0.2R	≦0.05R
	$\alpha > 15°$	11000	2210	≦0.4R	≦0.1R	7500	1300	≦0.4R	≦0.1R	2200	360	≦0.2R	≦0.05R
5R	$\alpha \leqq 15°$	12000	3770	≦0.4R	≦0.1R	8000	2080	≦0.4R	≦0.1R	2500	660	≦0.2R	≦0.05R
	$\alpha > 15°$	9000	2080	≦0.4R	≦0.1R	6000	1170	≦0.4R	≦0.1R	1800	350	≦0.2R	≦0.05R
6R	$\alpha \leqq 15°$	10000	3250	≦0.4R	≦0.1R	6600	1820	≦0.4R	≦0.1R	2100	570	≦0.2R	≦0.05R
	$\alpha > 15°$	7500	1820	≦0.4R	≦0.1R	5000	1040	≦0.4R	≦0.1R	1500	300	≦0.2R	≦0.05R
Depth of cut													

High Speed Milling Conditions

0.5R	(R)	40000	3120	0.2	0.05	40000	2470	0.15	0.04	30000	1560	0.1	0.03
	(F)	40000	3900	0.1	0.05	40000	3120	0.8	0.04	30000	1950	0.6	0.03
1R	(R)	40000	6240	0.2	0.2	40000	4940	0.2	0.15	20000	2080	0.15	0.12
	(F)	40000	7800	0.2	0.1	40000	6240	0.1	0.1	20000	2600	0.1	0.06
2R	(R)	30000	6240	0.4	0.3	30000	4940	0.3	0.2	20000	2470	0.25	0.15
	(F)	30000	7800	0.2	0.15	30000	6240	0.2	0.1	20000	3120	0.2	0.1
3R	(R)	20000	5200	0.6	0.4	20000	4160	0.5	0.3	16000	2470	0.3	0.2
	(F)	20000	6500	0.2	0.2	20000	5200	0.2	0.2	16000	3120	0.2	0.2
4R	(R)	16000	4940	1	0.8	16000	3900	0.8	0.6	10000	1820	0.7	0.5
	(F)	16000	6240	0.2	0.2	16000	4940	0.2	0.2	10000	2340	0.2	0.2
5R	(R)	12000	4680	2	1	12000	3640	1	0.8	8000	1560	1	0.7
	(F)	12000	5850	0.3	0.3	12000	4680	0.2	0.2	8000	2080	0.2	0.2
6R	(R)	10000	3900	3	1.2	10000	3120	1.5	1.2	6400	1248	1.5	1
	(F)	10000	4870	0.3	0.3	10000	3900	0.2	0.2	6400	1560	0.2	0.2
Depth of cut													

Caution :

1. α is the inclination of machining surface.
2. If the rigidity of the machine or the work material installation is very low, or chattering and noise are generated, please reduce the revolutin and the feed rate propotionately.
3. Cutting condition may be considerably different due to the overhang(milling depth and neck length),depth of cut, and machine tools.
4. If the depth of cut is shallow, the revolution and feed rate can be incerased.