NEW PRODUCT NEWS

HARDMILL

new

High Performance Solid Carbide End Mill for High Hardness Materials

TaeguTec
Member IMC Group

HARDMILL

High Performance Solid Carbide End Mill for High Hardness Materials

TaeguTec is pleased to introduce the HARDMILL, a new solid carbide end mill for high speed machining of high hardness materials.

Applied with TaeguTec's TT5505 coating grade, the HARDMILL is the latest for improved tool life with an ultra fine grain size substrate for excellent surface finish. It is a dedicated cutting tool for high speed machining of hardened workpieces while the end mill's optimized shape enables higher productivity and performance.

Available in 645 standard items, the HARDMILL solid carbide end mill comes in three types : flat, radius and ball nose type in a wide selection of neck lengths covering a broad range of applications.

Further advantages of the HARDMILL is high precision and stability because of the improved "R" accuracy (±5μm) and diameter tolerance (0 ~ -10μm ; D ≤ 6mm).

FEATURES

- Best solution for High Speed Machining on high-hardness materials
- TT5505 : The new ultra fine substrate with the latest PVD coating grade for hardness & temperature resistant properties that improve tool life and surface finish
- Extensive range of end mills covering a wide range of applications (Flat, Radius and Ball nose in various neck lengths : 645 standard items)
- Advanced design for high speed machining on hardened materials
- High precision, accurate end mills ('R' accuracy tolerance: ±5µm, diameter tolerance : 0 ~ -10µm ; D ≤ 6mm)

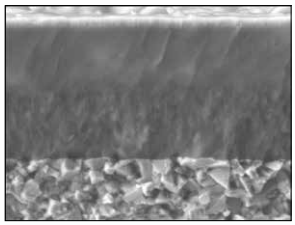
Recommended applications ;

- Machining of hardened steel (< 65HRC) ; cold-worked & hot-worked die steel, HSS, tool steel, pre-hardened steel
  Ex) D2(SKD11), H13(SKD61), SKH, STAVAX
- Roughing and finishing in the Mold & Die industry
- High speed machining
- Dry cutting

Features

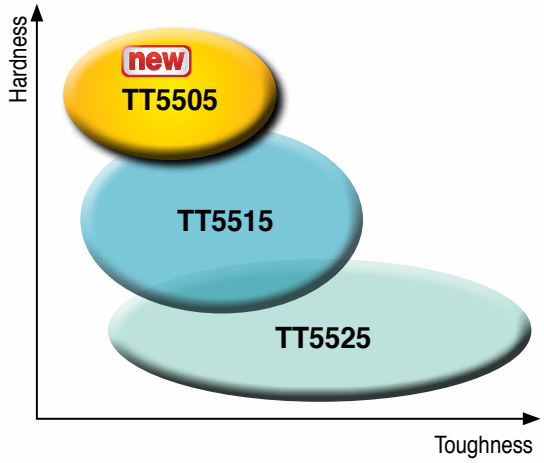
NEW TT5505 grade

·Hardened Steel, Pre-hardened steel
(Hardness < 65 HRC)
·High Speed Machining
·Ultra-fine substrate with new PVD coating

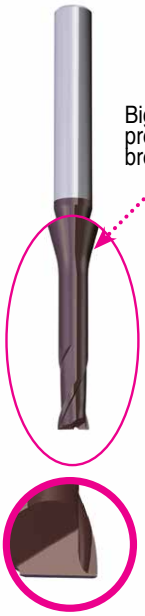


P Steel
H Hardened Mat.

Grade map



Flat



Big radius shape—
prevents vibration and tool breakage of the neck

Small land shape
-prevents chipping

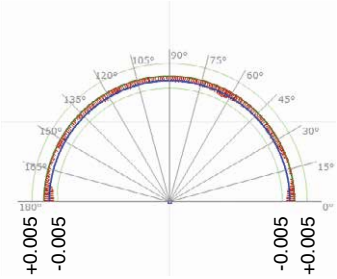
Radius

New TT5505 grade increases tool life credit to better wear resistance

Corner 'R' type for reinforced strength

Ball

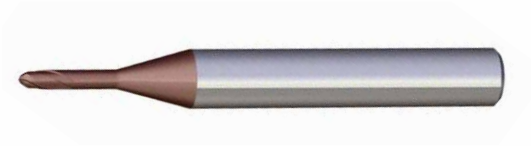
Advanced gash design for high strength and better chip evacuation

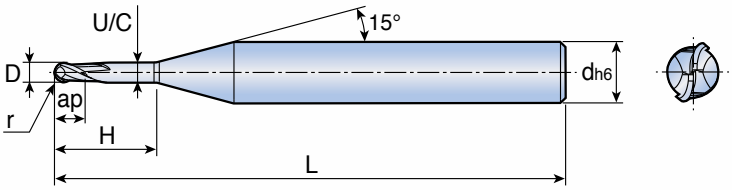


Precise radius means improved accuracy and guaranteed stability :
- 'R' accuracy of the ball nose end mill : ±5μm
- Diameter tolerance : 0 ~ -10μm ; D≤6mm

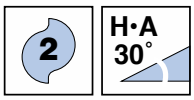
HSB 2

2 Flute Long Neck Ball





- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



r		
	D≤6	±0.005
	D>6	±0.010

D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

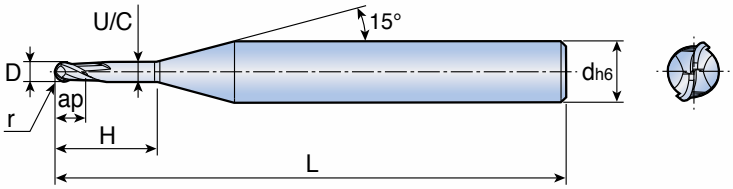
Designation		Dimension (mm)							Grade
		D	r	L	ap	H	U/C	d	TT5505
HSB	2003 003 010	0.3	0.15	45	0.3	1.0	0.27	4.0	●
	2003 003 020	0.3	0.15	45	0.3	2.0	0.27	4.0	●
	2003 003 030	0.3	0.15	45	0.3	3.0	0.27	4.0	●
	2004 004 010	0.4	0.2	45	0.4	1.0	0.36	4.0	●
	2004 004 015	0.4	0.2	45	0.4	1.5	0.36	4.0	●
	2004 004 020	0.4	0.2	45	0.4	2.0	0.36	4.0	●
	2004 004 025	0.4	0.2	45	0.4	2.5	0.36	4.0	●
	2004 004 030	0.4	0.2	45	0.4	3.0	0.36	4.0	●
	2004 004 040	0.4	0.2	45	0.4	4.0	0.36	4.0	●
	2005 005 010	0.5	0.25	45	0.5	1.0	0.45	4.0	●
	2005 005 015	0.5	0.25	45	0.5	1.5	0.45	4.0	●
	2005 005 020	0.5	0.25	45	0.5	2.0	0.45	4.0	●
	2005 005 025	0.5	0.25	45	0.5	2.5	0.45	4.0	●
	2005 005 030	0.5	0.25	45	0.5	3.0	0.45	4.0	●
	2005 005 040	0.5	0.25	45	0.5	4.0	0.45	4.0	●
	2005 005 050	0.5	0.25	45	0.5	5.0	0.45	4.0	●
	2005 005 060	0.5	0.25	45	0.5	6.0	0.45	4.0	●
	2005 005 080	0.5	0.25	45	0.5	8.0	0.45	4.0	●
	2006 006 020	0.6	0.3	45	0.6	2.0	0.55	4.0	●
	2006 006 030	0.6	0.3	45	0.6	3.0	0.55	4.0	●
	2006 006 040	0.6	0.3	45	0.6	4.0	0.55	4.0	●
	2006 006 050	0.6	0.3	45	0.6	5.0	0.55	4.0	●
	2006 006 060	0.6	0.3	45	0.6	6.0	0.55	4.0	●
	2006 006 080	0.6	0.3	45	0.6	8.0	0.55	4.0	●
	2006 006 100	0.6	0.3	45	0.6	10.0	0.55	4.0	●
	2008 008 020	0.8	0.4	45	0.8	2.0	0.75	4.0	●
	2008 008 030	0.8	0.4	45	0.8	3.0	0.75	4.0	●
	2008 008 040	0.8	0.4	45	0.8	4.0	0.75	4.0	●
	2008 008 050	0.8	0.4	45	0.8	5.0	0.75	4.0	●
	2008 008 060	0.8	0.4	45	0.8	6.0	0.75	4.0	●
	2008 008 080	0.8	0.4	45	0.8	8.0	0.75	4.0	●
	2008 008 100	0.8	0.4	45	0.8	10.0	0.75	4.0	●
	2008 008 120	0.8	0.4	45	0.8	12.0	0.75	4.0	●

- Refer to recommended cutting conditions in the bible catalog

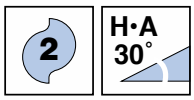
● : Standard Item

HSB 2

2 Flute Long Neck Ball



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



r		
	D≤6	±0.005
	D>6	±0.010

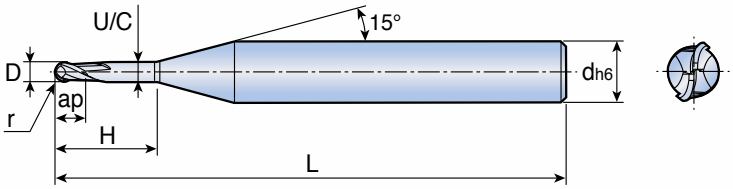
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)							Grade
		D	r	L	ap	H	U/C	d	TT5505
HSB	2010 010 030	1.0	0.5	50	1.0	3	0.97	4.0	●
	2010 010 040	1.0	0.5	50	1.0	4	0.97	4.0	●
	2010 010 050	1.0	0.5	50	1.0	5	0.97	4.0	●
	2010 010 060	1.0	0.5	50	1.0	6	0.97	4.0	●
	2010 010 070	1.0	0.5	50	1.0	7	0.97	4.0	●
	2010 010 080	1.0	0.5	50	1.0	8	0.95	4.0	●
	2010 010 090	1.0	0.5	50	1.0	9	0.95	4.0	●
	2010 010 100	1.0	0.5	50	1.0	10	0.95	4.0	●
	2010 010 120	1.0	0.5	50	1.0	12	0.93	4.0	●
	2010 010 140	1.0	0.5	50	1.0	14	0.93	4.0	●
	2010 010 160	1.0	0.5	50	1.0	16	0.93	4.0	●
	2010 010 180	1.0	0.5	55	1.0	18	0.93	4.0	●
	2010 010 200	1.0	0.5	55	1.0	20	0.93	4.0	●
	2012 012 040	1.2	0.6	50	1.2	4	1.15	4.0	●
	2012 012 060	1.2	0.6	50	1.2	6	1.15	4.0	●
	2012 012 080	1.2	0.6	50	1.2	8	1.15	4.0	●
	2012 012 100	1.2	0.6	50	1.2	10	1.15	4.0	●
	2012 012 120	1.2	0.6	50	1.2	12	1.13	4.0	●
	2015 015 040	1.5	0.75	50	1.5	4	1.45	4.0	●
	2015 015 060	1.5	0.75	50	1.5	6	1.45	4.0	●
	2015 015 080	1.5	0.75	50	1.5	8	1.45	4.0	●
	2015 015 100	1.5	0.75	50	1.5	10	1.45	4.0	●
	2015 015 120	1.5	0.75	50	1.5	12	1.43	4.0	●
	2015 015 140	1.5	0.75	50	1.5	14	1.43	4.0	●
	2015 015 160	1.5	0.75	50	1.5	16	1.41	4.0	●
	2015 015 180	1.5	0.75	55	1.5	18	1.41	4.0	●
	2015 015 200	1.5	0.75	55	1.5	20	1.39	4.0	●
	2020 030 060	2.0	1.0	50	3.0	6	1.95	4.0	●
	2020 030 080	2.0	1.0	50	3.0	8	1.95	4.0	●
	2020 030 100	2.0	1.0	50	3.0	10	1.95	4.0	●
	2020 030 120	2.0	1.0	50	3.0	12	1.93	4.0	●
	2020 030 140	2.0	1.0	50	3.0	14	1.93	4.0	●
	2020 030 160	2.0	1.0	50	3.0	16	1.93	4.0	●
	2020 030 180	2.0	1.0	55	3.0	18	1.93	4.0	●
	2020 030 200	2.0	1.0	55	3.0	20	1.93	4.0	●
	2020 030 250	2.0	1.0	60	3.0	25	1.93	4.0	●
	2020 030 300	2.0	1.0	70	3.0	30	1.93	4.0	●

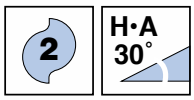
● : Standard Item

HSB 2

2 Flute Long Neck Ball



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



r		
	D≤6	±0.005
	D>6	±0.010

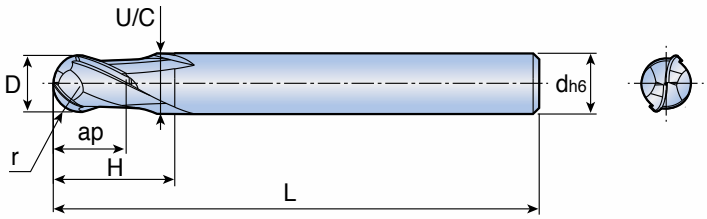
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation	Dimension (mm)							Grade
	D	r	L	ap	H	U/C	d	TT5505
HSB 2025 035 080	2.5	1.25	55	3.5	8	2.45	4.0	●
2025 035 100	2.5	1.25	55	3.5	10	2.45	4.0	●
2025 035 120	2.5	1.25	55	3.5	12	2.43	4.0	●
2025 035 160	2.5	1.25	55	3.5	16	2.41	4.0	●
2025 035 200	2.5	1.25	55	3.5	20	2.41	4.0	●
2030 040 080	3.0	1.5	55	4.0	8	2.85	6.0	●
2030 040 100	3.0	1.5	55	4.0	10	2.85	6.0	●
2030 040 120	3.0	1.5	55	4.0	12	2.85	6.0	●
2030 040 140	3.0	1.5	55	4.0	14	2.85	6.0	●
2030 040 160	3.0	1.5	55	4.0	16	2.85	6.0	●
2030 040 180	3.0	1.5	60	4.0	18	2.85	6.0	●
2030 040 200	3.0	1.5	60	4.0	20	2.85	6.0	●
2030 040 250	3.0	1.5	60	4.0	25	2.85	6.0	●
2030 040 300	3.0	1.5	75	4.0	30	2.85	6.0	●
2030 040 350	3.0	1.5	75	4.0	35	2.85	6.0	●
2030 040 400	3.0	1.5	80	4.0	40	2.85	6.0	●
2040 050 100	4.0	2.0	55	5.0	10	3.9	6.0	●
2040 050 120	4.0	2.0	55	5.0	12	3.9	6.0	●
2040 050 160	4.0	2.0	55	5.0	16	3.9	6.0	●
2040 050 200	4.0	2.0	60	5.0	20	3.9	6.0	●
2040 050 250	4.0	2.0	60	5.0	25	3.9	6.0	●
2040 050 300	4.0	2.0	75	5.0	30	3.9	6.0	●
2040 050 350	4.0	2.0	75	5.0	35	3.9	6.0	●
2040 050 400	4.0	2.0	80	5.0	40	3.9	6.0	●
2050 060 120	5.0	2.5	70	6.0	12	4.9	6.0	●
2050 060 300	5.0	2.5	70	6.0	30	4.9	6.0	●

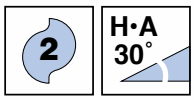
● : Standard Item

HSB 2

2 Flute Long Neck Ball



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



r		
	D≤6	±0.005
	D>6	±0.010

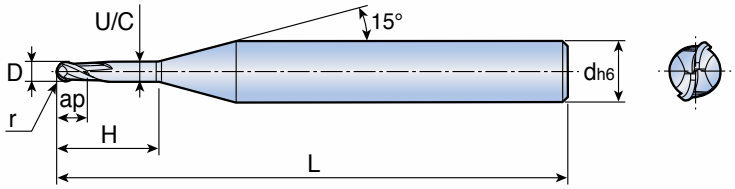
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation	Dimension (mm)							Grade
	D	r	L	ap	H	U/C	d	TT5505
HSB 2060 080 150	6.0	3	60	8	15	5.9	6.0	●
2060 080 200	6.0	3	60	8	20	5.9	6.0	●
2060 080 300	6.0	3	80	8	30	5.9	6.0	●
2060 080 350	6.0	3	80	8	35	5.9	6.0	●
2080 100 150	8.0	4	80	10	15	7.9	8.0	●
2080 100 200	8.0	4	80	10	20	7.9	8.0	●
2080 100 300	8.0	4	100	10	30	7.9	8.0	●
2100 120 200	10.0	5	80	12	20	9.9	10.0	●
2100 120 250	10.0	5	80	12	25	9.9	10.0	●
2100 120 350	10.0	5	100	12	35	9.9	10.0	●
2120 140 250	12.0	6	80	14	25	11.9	12.0	●
2120 140 400	12.0	6	110	14	40	11.9	12.0	●

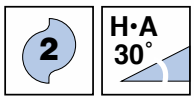
● : Standard Item

HSB 2...S6

2 Flute Long Neck Ball (Shank 6mm)



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



r		
	D≤6	±0.005
	D>6	±0.010

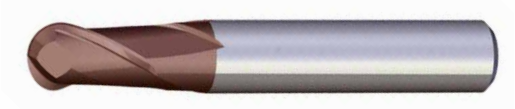
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

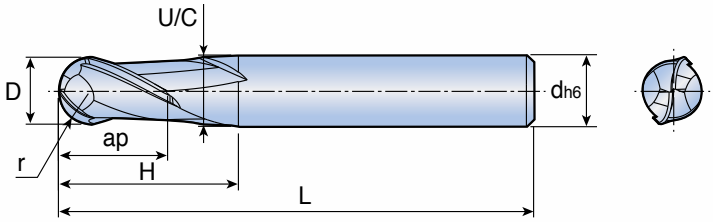
Designation	Dimension (mm)							Grade
	D	r	L	ap	H	U/C	d	TT5505
HSB 2006 006 020 S6	0.6	0.3	45	0.6	2	0.55	6.0	●
2006 006 040 S6	0.6	0.3	45	0.6	4	0.55	6.0	●
2006 006 060 S6	0.6	0.3	45	0.6	6	0.55	6.0	●
2008 008 020 S6	0.8	0.4	45	0.8	2	0.75	6.0	●
2008 008 040 S6	0.8	0.4	45	0.8	4	0.75	6.0	●
2008 008 060 S6	0.8	0.4	45	0.8	6	0.75	6.0	●
2008 008 080 S6	0.8	0.4	45	0.8	8	0.75	6.0	●
2010 010 030 S6	1.0	0.5	50	1.0	3	0.95	6.0	●
2010 010 040 S6	1.0	0.5	50	1.0	4	0.95	6.0	●
2010 010 060 S6	1.0	0.5	50	1.0	6	0.95	6.0	●
2010 010 080 S6	1.0	0.5	50	1.0	8	0.95	6.0	●
2010 010 100 S6	1.0	0.5	50	1.0	10	0.95	6.0	●
2015 015 040 S6	1.5	0.75	50	1.5	4	1.45	6.0	●
2015 015 060 S6	1.5	0.75	50	1.5	6	1.45	6.0	●
2015 015 080 S6	1.5	0.75	50	1.5	8	1.45	6.0	●
2015 015 100 S6	1.5	0.75	50	1.5	10	1.45	6.0	●
2015 015 120 S6	1.5	0.75	50	1.5	12	1.45	6.0	●
2020 030 060 S6	2.0	1.0	50	3.0	6	1.95	6.0	●
2020 030 080 S6	2.0	1.0	50	3.0	8	1.95	6.0	●
2020 030 100 S6	2.0	1.0	50	3.0	10	1.95	6.0	●
2020 030 120 S6	2.0	1.0	50	3.0	12	1.95	6.0	●
2020 030 160 S6	2.0	1.0	50	3.0	16	1.95	6.0	●

● : Standard Item

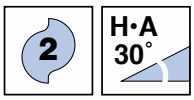
HSB 2...S

2 Flute Short Ball





- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



r		
	D≤6	±0.005
	D>6	±0.010

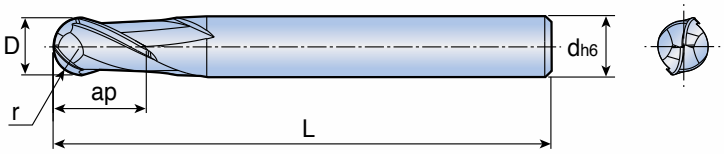
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation	Dimension (mm)							Grade
	D	r	L	ap	H	U/C	d	TT5505
HSB 2010S	1.0	0.5	38	1.5	2.5	0.95	6.0	●
2015S	1.5	0.75	38	2.5	4.5	1.45	6.0	●
2020S	2.0	1.0	38	3.0	6.5	1.45	6.0	●
2030S	3.0	1.5	38	4.5	8.0	2.9	6.0	●
2040S	4.0	2.0	54	6.0	10.0	3.9	6.0	●
2050S	5.0	2.5	54	7.5	15.0	4.9	6.0	●
2060S	6.0	3.0	54	9.0	17.0	5.9	6.0	●
2080S	8.0	4.0	58	12.0	20.0	7.9	8.0	●
2100S	10.0	5.0	66	15.0	25.0	9.9	10.0	●
2120S	12.0	6.0	73	18.0	30.0	11.9	12.0	●

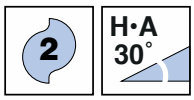
● : Standard Item

HSB 2...M

2 Flute Medium Ball



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



r		
	D≤6	±0.005
	D>6	±0.010

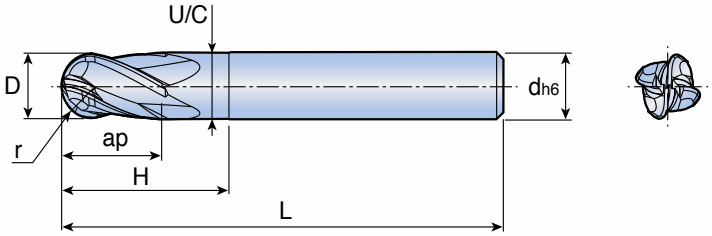
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)					Grade
		D	r	L	ap	d	TT5505
HSB	2003M	0.3	0.15	45	0.6	4.0	●
	2004M	0.4	0.2	45	0.8	4.0	●
	2005M	0.5	0.25	45	1.0	4.0	●
	2006M	0.6	0.3	45	1.2	4.0	●
	2007M	0.7	0.35	45	1.4	4.0	●
	2008M	0.8	0.4	45	1.6	4.0	●
	2009M	0.9	0.45	45	1.8	4.0	●
	2010M	1.0	0.5	50	2.5	6.0	●
	2015M	1.5	0.75	50	4.0	6.0	●
	2020M	2.0	1.0	50	5.0	6.0	●
	2025M	2.5	1.25	60	7.0	6.0	●
	2030M	3.0	1.5	60	8.0	6.0	●
	2035M	3.5	1.75	70	8.0	6.0	●
	2040M	4.0	2.0	70	8.0	6.0	●
	2045M	4.5	2.25	80	10.0	6.0	●
	2050M	5.0	2.5	80	10.0	6.0	●
	2060M	6.0	3.0	90	12.0	6.0	●
	2080M	8.0	4.0	100	14.0	8.0	●
	2100M	10.0	5.0	100	18.0	10.0	●
	2120M	12.0	6.0	110	22.0	12.0	●

● : Standard Item

HSB 4...M

4 Flute Medium Ball



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC

r		
	D≤6	±0.005
	D>6	±0.010

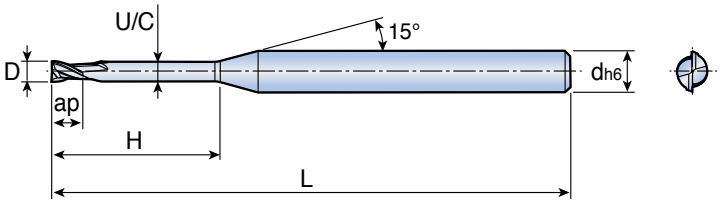
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation	Dimension (mm)							Grade
	D	r	L	ap	H	U/C	d	TT5505
HSB 4040M	4.0	2.0	70	6.0	10	3.9	6.0	●
4050M	5.0	2.5	80	7.5	15	4.9	6.0	●
4060M	6.0	3.0	80	9.0	17	5.9	6.0	●
4080M	8.0	4.0	90	12.0	20	7.9	8.0	●
4100M	10.0	5.0	100	15.0	25	9.9	10.0	●
4120M	12.0	6.0	110	18.0	30	11.9	12.0	●

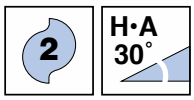
● : Standard Item

HSF 2

2 Flute Long Neck Flat



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



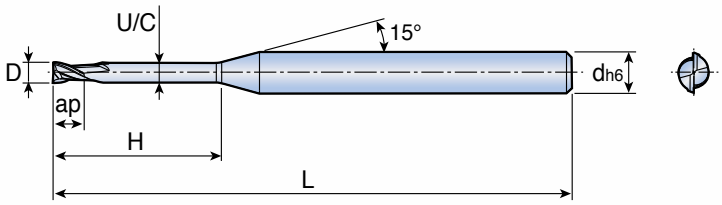
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)						Grade
		D	L	ap	H	U/C	d	TT5505
HSF	2003 004 010	0.3	45	0.4	1.0	0.27	4.0	●
	2003 004 020	0.3	45	0.4	2..0	0.27	4.0	●
	2003 004 030	0.3	45	0.4	3.0	0.27	4.0	●
	2004 006 010	0.4	45	0.6	1.0	0.37	4.0	●
	2004 006 015	0.4	45	0.6	1.5	0.37	4.0	●
	2004 006 020	0.4	45	0.6	2.0	0.37	4.0	●
	2004 006 025	0.4	45	0.6	2.5	0.37	4.0	●
	2004 006 030	0.4	45	0.6	3.0	0.37	4.0	●
	2004 006 040	0.4	45	0.6	4.0	0.37	4.0	●
	2004 006 050	0.4	45	0.6	5.0	0.37	4.0	●
	2004 006 060	0.4	45	0.6	6.0	0.37	4.0	●
	2005 007 010	0.5	45	0.7	1.0	0.45	4.0	●
	2005 007 015	0.5	45	0.7	1.5	0.45	4.0	●
	2005 007 020	0.5	45	0.7	2.0	0.45	4.0	●
	2005 007 025	0.5	45	0.7	2.5	0.45	4.0	●
	2005 007 030	0.5	45	0.7	3.0	0.45	4.0	●
	2005 007 040	0.5	45	0.7	4.0	0.45	4.0	●
	2005 007 050	0.5	45	0.7	5.0	0.45	4.0	●
	2005 007 060	0.5	45	0.7	6.0	0.45	4.0	●
	2005 007 080	0.5	45	0.7	8.0	0.45	4.0	●
	2006 009 020	0.6	45	0.9	2.0	0.55	4.0	●
	2006 009 030	0.6	45	0.9	3.0	0.55	4.0	●
	2006 009 040	0.6	45	0.9	4.0	0.55	4.0	●
	2006 009 050	0.6	45	0.9	5.0	0.55	4.0	●
	2006 009 060	0.6	45	0.9	6.0	0.55	4.0	●
	2006 009 080	0.6	45	0.9	8.0	0.55	4.0	●
	2006 009 100	0.6	45	0.9	10.0	0.55	4.0	●
	2007 012 020	0.7	45	1.2	2.0	0.65	4.0	●
	2007 012 040	0.7	45	1.2	4.0	0.65	4.0	●
	2007 012 060	0.7	45	1.2	6.0	0.65	4.0	●
	2007 012 080	0.7	45	1.2	8.0	0.65	4.0	●
	2007 012 100	0.7	45	1.2	10.0	0.65	4.0	●

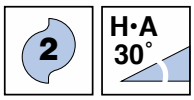
● : Standard Item

HSF 2

2 Flute Long Neck Flat



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



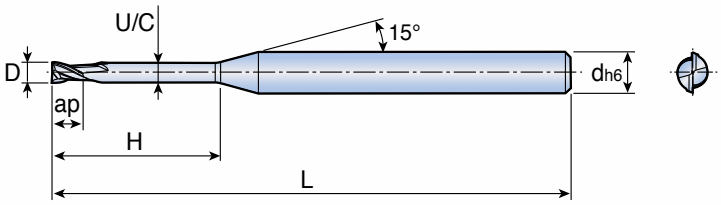
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)						Grade
		D	L	ap	H	U/C	d	TT5505
HSF	2008 012 020	0.8	45	1.2	2	0.75	4.0	●
	2008 012 040	0.8	45	1.2	4	0.75	4.0	●
	2008 012 060	0.8	45	1.2	6	0.75	4.0	●
	2008 012 080	0.8	45	1.2	8	0.73	4.0	●
	2008 012 100	0.8	45	1.2	10	0.73	4.0	●
	2008 012 120	0.8	45	1.2	12	0.73	4.0	●
	2010 015 030	1.0	50	1.5	3	0.97	4.0	●
	2010 015 040	1.0	50	1.5	4	0.97	4.0	●
	2010 015 060	1.0	50	1.5	6	0.97	4.0	●
	2010 015 080	1.0	50	1.5	8	0.95	4.0	●
	2010 015 100	1.0	50	1.5	10	0.95	4.0	●
	2010 015 120	1.0	50	1.5	12	0.93	4.0	●
	2010 015 140	1.0	50	1.5	14	0.93	4.0	●
	2010 015 160	1.0	50	1.5	16	0.91	4.0	●
	2010 015 180	1.0	55	1.5	18	0.91	4.0	●
	2010 015 200	1.0	55	1.5	20	0.85	4.0	●
	2012 018 040	1.2	50	1.8	4	1.17	4.0	●
	2012 018 060	1.2	50	1.8	6	1.17	4.0	●
	2012 018 080	1.2	50	1.8	8	1.15	4.0	●
	2012 018 100	1.2	50	1.8	10	1.15	4.0	●
	2012 018 120	1.2	50	1.8	12	1.15	4.0	●
	2012 018 160	1.2	50	1.8	16	1.13	4.0	●
	2015 023 040	1.5	50	2.3	4	1.47	4.0	●
	2015 023 060	1.5	50	2.3	6	1.47	4.0	●
	2015 023 080	1.5	50	2.3	8	1.45	4.0	●
	2015 023 100	1.5	50	2.3	10	1.45	4.0	●
	2015 023 120	1.5	50	2.3	12	1.43	4.0	●
	2015 023 140	1.5	50	2.3	14	1.43	4.0	●
	2015 023 160	1.5	50	2.3	16	1.41	4.0	●
	2015 023 180	1.5	55	2.3	18	1.41	4.0	●
	2015 023 200	1.5	55	2.3	20	1.41	4.0	●

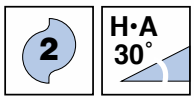
● : Standard Item

HSF 2

2 Flute Long Neck Flat



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



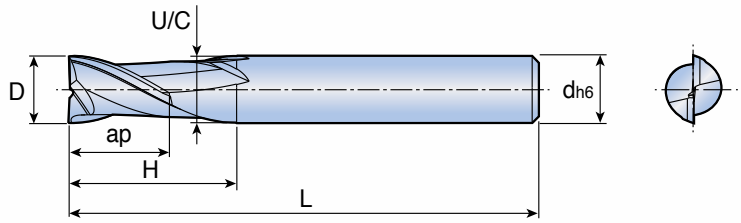
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)						Grade
		D	L	ap	H	U/C	d	TT5505
HSF	2020 030 060	2.0	50	3.0	6	1.95	4.0	●
	2020 030 080	2.0	50	3.0	8	1.95	4.0	●
	2020 030 100	2.0	50	3.0	10	1.95	4.0	●
	2020 030 120	2.0	50	3.0	12	1.93	4.0	●
	2020 030 160	2.0	50	3.0	16	1.91	4.0	●
	2020 030 180	2.0	55	3.0	18	1.91	4.0	●
	2020 030 200	2.0	55	3.0	20	1.91	4.0	●
	2020 030 250	2.0	60	3.0	25	1.91	4.0	●
	2020 030 300	2.0	70	3.0	30	1.91	4.0	●
	2025 040 080	2.5	50	4.0	8	2.4	4.0	●
	2025 040 100	2.5	50	4.0	10	2.4	4.0	●
	2025 040 120	2.5	50	4.0	12	2.4	4.0	●
	2025 040 160	2.5	50	4.0	16	2.4	4.0	●
	2025 040 200	2.5	55	4.0	20	2.4	4.0	●
	2030 045 080	3.0	55	4.5	8	2.85	6.0	●
	2030 045 100	3.0	55	4.5	10	2.85	6.0	●
	2030 045 120	3.0	55	4.5	12	2.85	6.0	●
	2030 045 160	3.0	55	4.5	16	2.85	6.0	●
	2030 045 180	3.0	60	4.5	18	2.85	6.0	●
	2030 045 200	3.0	60	4.5	20	2.85	6.0	●
	2030 045 250	3.0	60	4.5	25	2.85	6.0	●
	2030 045 300	3.0	70	4.5	30	2.85	6.0	●
	2030 045 350	3.0	75	4.5	35	2.85	6.0	●
	2030 045 400	3.0	80	4.5	40	2.85	6.0	●
	2040 060 100	4.0	55	6.0	10	3.9	6.0	●
	2040 060 120	4.0	55	6.0	12	3.9	6.0	●
	2040 060 160	4.0	55	6.0	16	3.9	6.0	●
	2040 060 200	4.0	60	6.0	20	3.9	6.0	●
	2040 060 250	4.0	60	6.0	25	3.9	6.0	●
	2040 060 300	4.0	70	6.0	30	3.9	6.0	●
	2040 060 350	4.0	75	6.0	35	3.9	6.0	●
	2040 060 400	4.0	80	6.0	40	3.9	6.0	●

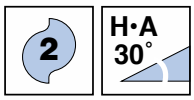
● : Standard Item

HSF 2

2 Flute Long Neck Flat



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



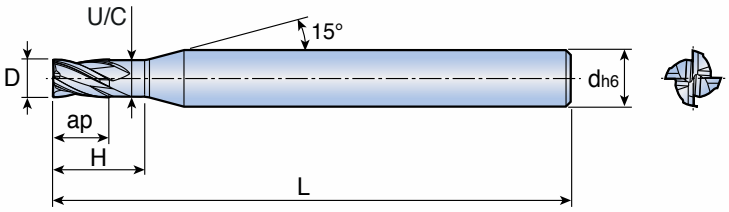
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)						Grade
		D	L	ap	H	U/C	d	TT5505
HSF	2050 080 150	5.0	60	8	15	4.8	6.0	●
	2050 080 300	5.0	90	8	30	4.8	6.0	●
	2060 090 150	6.0	60	9	15	5.9	6.0	●
	2060 090 200	6.0	80	9	20	5.9	6.0	●
	2060 090 300	6.0	90	9	30	5.9	6.0	●
	2080 120 200	8.0	65	12	20	7.9	8.0	●
	2080 120 300	8.0	80	12	30	7.9	8.0	●
	2080 120 400	8.0	100	12	40	7.9	8.0	●
	2100 150 250	10.0	70	15	25	9.9	10.0	●
	2100 150 350	10.0	85	15	35	9.9	10.0	●
	2100 150 450	10.0	100	15	45	9.9	10.0	●
	2120 180 300	12.0	80	18	30	11.9	12.0	●
	2120 180 400	12.0	100	18	40	11.9	12.0	●
	2120 180 500	12.0	120	18	50	11.9	12.0	●

● : Standard Item

HSF 4

4 Flute Long Neck Flat



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC

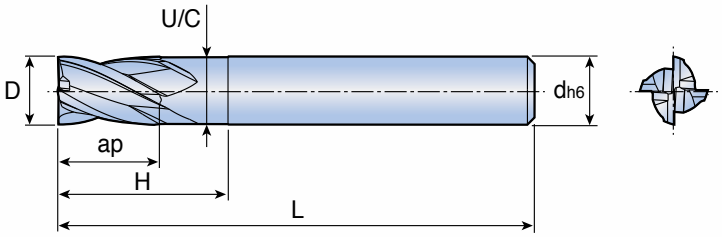
D	□□
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)						Grade
		D	L	ap	H	U/C	d	TT5505
HSF	4010 015 030	1.0	50	1.5	3	0.97	4.0	●
	4010 015 040	1.0	50	1.5	4	0.97	4.0	●
	4010 015 060	1.0	50	1.5	6	0.97	4.0	●
	4010 015 080	1.0	50	1.5	8	0.97	4.0	●
	4010 015 100	1.0	50	1.5	10	0.97	4.0	●
	4015 025 040	1.5	50	2.5	4	1.45	4.0	●
	4015 025 060	1.5	50	2.5	6	1.45	4.0	●
	4015 025 080	1.5	50	2.5	8	1.45	4.0	●
	4015 025 100	1.5	50	2.5	10	1.45	4.0	●
	4015 025 120	1.5	50	2.5	12	1.45	4.0	●
	4015 025 160	1.5	50	2.5	16	1.45	4.0	●
	4020 030 060	2.0	50	3.0	6	1.95	4.0	●
	4020 030 080	2.0	50	3.0	8	1.95	4.0	●
	4020 030 100	2.0	50	3.0	10	1.95	4.0	●
	4020 030 120	2.0	50	3.0	12	1.95	4.0	●
	4020 030 160	2.0	50	3.0	16	1.95	4.0	●
	4020 030 200	2.0	50	3.0	20	1.95	4.0	●
	4030 045 080	3.0	55	4.5	8	2.85	6.0	●
	4030 045 100	3.0	55	4.5	10	2.85	6.0	●
	4030 045 120	3.0	55	4.5	12	2.85	6.0	●
	4030 045 160	3.0	55	4.5	16	2.85	6.0	●
	4030 045 200	3.0	60	4.5	20	2.85	6.0	●
	4040 060 100	4.0	55	6.0	10	3.90	6.0	●
	4040 060 120	4.0	55	6.0	12	3.90	6.0	●
	4040 060 160	4.0	55	6.0	16	3.90	6.0	●
	4040 060 200	4.0	60	6.0	20	3.90	6.0	●
	4040 060 250	4.0	60	6.0	25	3.90	6.0	●
	4050 080 150	5.0	60	8.0	15	4.80	6.0	●
	4050 080 300	5.0	90	8.0	30	4.80	6.0	●

● : Standard Item

HSF 4

4 Flute Long Neck Flat



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC

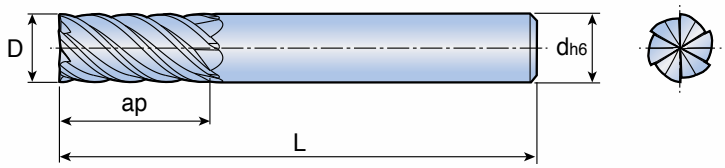
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)						Grade
		D	L	ap	H	U/C	d	TT5505
HSF	4060 090 150	6.0	60	9	15	5.9	6.0	●
	4060 090 200	6.0	80	9	20	5.9	6.0	●
	4060 090 300	6.0	100	9	30	5.9	6.0	●
	4080 120 200	8.0	65	12	20	7.9	8.0	●
	4080 120 300	8.0	80	12	30	7.9	8.0	●
	4080 120 400	8.0	100	12	40	7.9	8.0	●
	4100 150 250	10.0	70	15	25	9.9	10.0	●
	4100 150 350	10.0	80	15	35	9.9	10.0	●
	4100 150 450	10.0	100	15	45	9.9	10.0	●
	4120 180 300	12.0	80	18	30	11.9	12.0	●
	4120 180 400	12.0	100	18	40	11.9	12.0	●
	4120 180 500	12.0	120	18	50	11.9	12.0	●

● : Standard Item

HSF 6...M

6 Flute Medium Flat



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC • Finishing

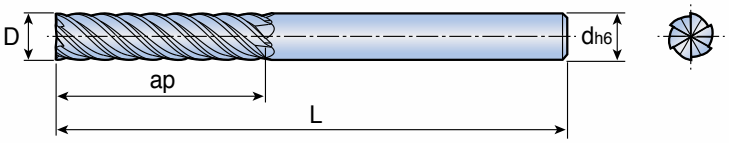
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)				Grade
		D	L	ap	d	TT5505
HSF	6030M	3.0	50	8	6.0	●
	6040M	4.0	60	10	6.0	●
	6050M	5.0	60	15	6.0	●
	6060M	6.0	60	15	6.0	●
	6080M	8.0	65	20	8.0	●
	6100M	10.0	70	22	10.0	●
	6120M	12.0	80	26	12.0	●

● : Standard Item

HSF 6...XLT

6 Flute Extra Long Flat



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC • Finishing

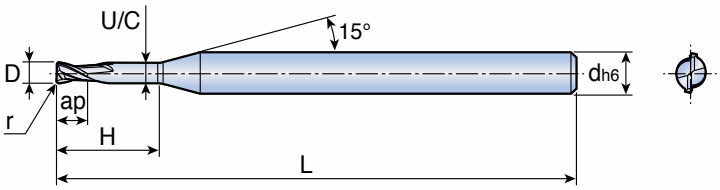
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)				Grade
		D	L	ap	d	TT5505
HSF	6050XLT	5.0	80	25	6.0	●
	6060XLT	6.0	80	25	6.0	●
	6080XLT	8.0	90	35	8.0	●
	6100XLT	10.0	100	45	10.0	●
	6120XLT	12.0	110	55	12.0	●

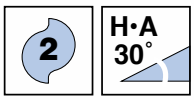
●: Standard Item

HSR 2

2 Flute Long Neck Corner Radius



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



r ±0.005

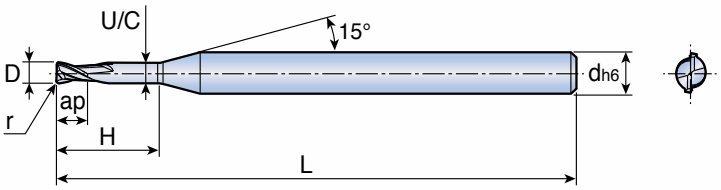
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)							Grade
		D	r	L	ap	H	U/C	d	TT5505
HSR	2003 005 010	0.3	0.05	45	0.4	1.0	0.27	4.0	●
	2003 005 020	0.3	0.05	45	0.4	2.0	0.27	4.0	●
	2003 005 030	0.3	0.05	45	0.4	3.0	0.27	4.0	●
	2004 005 010	0.4	0.05	45	0.6	1.0	0.37	4.0	●
	2004 005 015	0.4	0.05	45	0.6	1.5	0.37	4.0	●
	2004 005 025	0.4	0.05	45	0.6	2.5	0.37	4.0	●
	2004 005 030	0.4	0.05	45	0.6	3.0	0.37	4.0	●
	2004 005 040	0.4	0.05	45	0.6	4.0	0.37	4.0	●
	2005 005 010	0.5	0.05	45	0.7	1.0	0.45	4.0	●
	2005 005 015	0.5	0.05	45	0.7	1.5	0.45	4.0	●
	2005 005 025	0.5	0.05	45	0.7	2.5	0.45	4.0	●
	2005 005 030	0.5	0.05	45	0.7	3.0	0.45	4.0	●
	2005 005 040	0.5	0.05	45	0.7	4.0	0.45	4.0	●
	2006 005 020	0.6	0.05	45	0.9	2.0	0.55	4.0	●
	2006 005 040	0.6	0.05	45	0.9	4.0	0.55	4.0	●
	2006 005 060	0.6	0.05	45	0.9	6.0	0.55	4.0	●
	2006 010 020	0.6	0.10	45	0.9	2.0	0.55	4.0	●
	2006 010 040	0.6	0.10	45	0.9	4.0	0.55	4.0	●
	2006 010 060	0.6	0.10	45	0.9	6.0	0.55	4.0	●
	2006 020 020	0.6	0.20	45	0.9	2.0	0.55	4.0	●
	2006 020 040	0.6	0.20	45	0.9	4.0	0.55	4.0	●
	2006 020 060	0.6	0.20	45	0.9	6.0	0.55	4.0	●
	2008 005 020	0.8	0.05	45	1.2	2.0	0.75	4.0	●
	2008 005 040	0.8	0.05	45	1.2	4.0	0.75	4.0	●
	2008 005 060	0.8	0.05	45	1.2	6.0	0.75	4.0	●
	2008 005 080	0.8	0.05	45	1.2	8.0	0.73	4.0	●
	2008 010 020	0.8	0.10	45	1.2	2.0	0.75	4.0	●
	2008 010 040	0.8	0.10	45	1.2	4.0	0.75	4.0	●
	2008 010 060	0.8	0.10	45	1.2	6.0	0.75	4.0	●
	2008 010 080	0.8	0.10	45	1.2	8.0	0.73	4.0	●
	2008 020 020	0.8	0.20	45	1.2	2.0	0.75	4.0	●
	2008 020 040	0.8	0.20	45	1.2	4.0	0.75	4.0	●
	2008 020 060	0.8	0.20	45	1.2	6.0	0.75	4.0	●
	2008 020 080	0.8	0.20	45	1.2	8.0	0.73	4.0	●

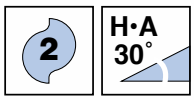
● : Standard Item

HSR 2

2 Flute Long Neck Corner Radius



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



r ±0.005

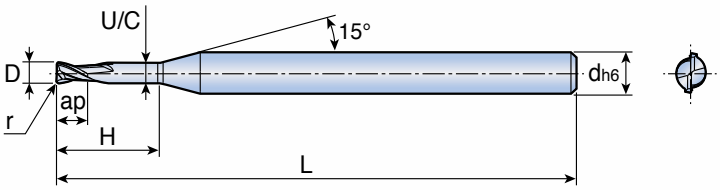
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)							Grade
		D	r	L	ap	H	U/C	d	TT5505
HSR	2010 005 030	1.0	0.05	50	2.0	3	0.97	4.0	●
	2010 005 040	1.0	0.05	50	2.0	4	0.97	4.0	●
	2010 005 060	1.0	0.05	50	2.0	6	0.97	4.0	●
	2010 005 080	1.0	0.05	50	2.0	8	0.95	4.0	●
	2010 005 100	1.0	0.05	50	2.0	10	0.95	4.0	●
	2010 010 030	1.0	0.10	50	2.0	3	0.97	4.0	●
	2010 010 040	1.0	0.10	50	2.0	4	0.97	4.0	●
	2010 010 060	1.0	0.10	50	2.0	6	0.97	4.0	●
	2010 010 080	1.0	0.10	50	2.0	8	0.95	4.0	●
	2010 010 100	1.0	0.10	50	2.0	10	0.95	4.0	●
	2010 020 030	1.0	0.20	50	2.0	3	0.97	4.0	●
	2010 020 040	1.0	0.20	50	2.0	4	0.97	4.0	●
	2010 020 060	1.0	0.20	50	2.0	6	0.97	4.0	●
	2010 020 080	1.0	0.20	50	2.0	8	0.95	4.0	●
	2010 020 100	1.0	0.20	50	2.0	10	0.95	4.0	●
	2010 030 030	1.0	0.30	50	2.0	3	0.97	4.0	●
	2010 030 040	1.0	0.30	50	2.0	4	0.97	4.0	●
	2010 030 060	1.0	0.30	50	2.0	6	0.97	4.0	●
	2010 030 080	1.0	0.30	50	2.0	8	0.95	4.0	●
	2010 030 100	1.0	0.30	50	2.0	10	0.95	4.0	●
	2012 010 040	1.2	0.10	50	2.2	4	1.17	4.0	●
	2012 010 060	1.2	0.10	50	2.2	6	1.17	4.0	●
	2012 010 080	1.2	0.10	50	2.2	8	1.15	4.0	●
	2012 010 100	1.2	0.10	50	2.2	10	1.15	4.0	●
	2012 020 040	1.2	0.20	50	2.2	4	1.17	4.0	●
	2012 020 060	1.2	0.20	50	2.2	6	1.17	4.0	●
	2012 020 080	1.2	0.20	50	2.2	8	1.15	4.0	●
	2012 020 100	1.2	0.20	50	2.2	10	1.15	4.0	●
	2012 030 040	1.2	0.30	50	2.2	4	1.17	4.0	●
	2012 030 060	1.2	0.30	50	2.2	6	1.17	4.0	●
	2012 030 080	1.2	0.30	50	2.2	8	1.15	4.0	●
	2012 030 100	1.2	0.30	50	2.2	10	1.15	4.0	●

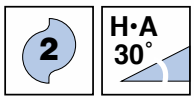
● : Standard Item

HSR 2

2 Flute Long Neck Corner Radius



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



r ±0.005

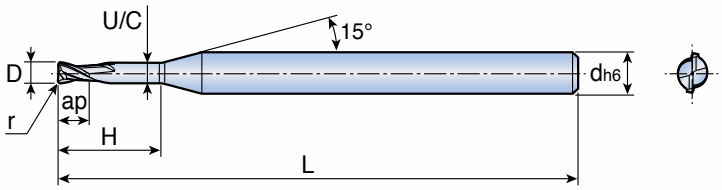
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)							Grade
		D	r	L	ap	H	U/C	d	TT5505
HSR	2015 005 040	1.5	0.05	50	2.5	4	1.47	4.0	●
	2015 005 060	1.5	0.05	50	2.5	6	1.47	4.0	●
	2015 005 080	1.5	0.05	50	2.5	8	1.45	4.0	●
	2015 005 100	1.5	0.05	50	2.5	10	1.45	4.0	●
	2015 005 120	1.5	0.05	50	2.5	12	1.43	4.0	●
	2015 010 040	1.5	0.10	50	2.5	4	1.47	4.0	●
	2015 010 060	1.5	0.10	50	2.5	6	1.47	4.0	●
	2015 010 080	1.5	0.10	50	2.5	8	1.45	4.0	●
	2015 010 100	1.5	0.10	50	2.5	10	1.45	4.0	●
	2015 010 120	1.5	0.10	50	2.5	12	1.43	4.0	●
	2015 020 040	1.5	0.20	50	2.5	4	1.47	4.0	●
	2015 020 060	1.5	0.20	50	2.5	6	1.47	4.0	●
	2015 020 080	1.5	0.20	50	2.5	8	1.45	4.0	●
	2015 020 100	1.5	0.20	50	2.5	10	1.45	4.0	●
	2015 020 120	1.5	0.20	50	2.5	12	1.43	4.0	●
	2015 030 040	1.5	0.30	50	2.5	4	1.47	4.0	●
	2015 030 060	1.5	0.30	50	2.5	6	1.47	4.0	●
	2015 030 080	1.5	0.30	50	2.5	8	1.45	4.0	●
	2015 030 100	1.5	0.30	50	2.5	10	1.45	4.0	●
	2015 030 120	1.5	0.30	50	2.5	12	1.43	4.0	●
	2015 050 040	1.5	0.50	50	2.5	4	1.47	4.0	●
	2015 050 060	1.5	0.50	50	2.5	6	1.47	4.0	●
	2015 050 080	1.5	0.50	50	2.5	8	1.45	4.0	●
	2015 050 100	1.5	0.50	50	2.5	10	1.45	4.0	●
	2015 050 120	1.5	0.50	50	2.5	12	1.43	4.0	●
	2020 010 060	2.0	0.10	50	3.0	6	1.95	4.0	●
	2020 010 080	2.0	0.10	50	3.0	8	1.95	4.0	●
	2020 010 100	2.0	0.10	50	3.0	10	1.95	4.0	●
	2020 010 120	2.0	0.10	50	3.0	12	1.93	4.0	●
	2020 010 160	2.0	0.10	50	3.0	16	1.91	4.0	●
	2020 010 200	2.0	0.10	50	3.0	20	1.91	4.0	●
	2020 020 060	2.0	0.20	50	3.0	6	1.95	4.0	●
	2020 020 080	2.0	0.20	50	3.0	8	1.95	4.0	●
	2020 020 100	2.0	0.20	50	3.0	10	1.95	4.0	●
	2020 020 120	2.0	0.20	50	3.0	12	1.93	4.0	●
	2020 020 160	2.0	0.20	50	3.0	16	1.91	4.0	●
	2020 020 200	2.0	0.20	50	3.0	20	1.91	4.0	●

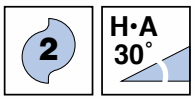
● : Standard Item

HSR 2

2 Flute Long Neck Corner Radius



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



r ±0.005

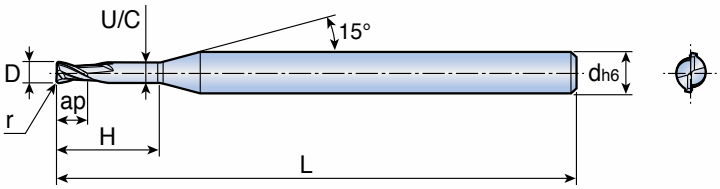
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)							Grade
		D	r	L	ap	H	U/C	d	TT5505
HSR	2020 030 060	2.0	0.3	50	3.0	6	1.95	4.0	●
	2020 030 080	2.0	0.3	50	3.0	8	1.95	4.0	●
	2020 030 100	2.0	0.3	50	3.0	10	1.95	4.0	●
	2020 030 120	2.0	0.3	50	3.0	12	1.93	4.0	●
	2020 030 160	2.0	0.3	50	3.0	16	1.91	4.0	●
	2020 030 200	2.0	0.3	50	3.0	20	1.91	4.0	●
	2020 050 060	2.0	0.5	50	3.0	6	1.95	4.0	●
	2020 050 080	2.0	0.5	50	3.0	8	1.95	4.0	●
	2020 050 100	2.0	0.5	50	3.0	10	1.95	4.0	●
	2020 050 120	2.0	0.5	50	3.0	12	1.93	4.0	●
	2020 050 160	2.0	0.5	50	3.0	16	1.91	4.0	●
	2020 050 200	2.0	0.5	50	3.0	20	1.91	4.0	●
	2025 020 080	2.5	0.2	55	3.5	8	2.4	4.0	●
	2025 020 100	2.5	0.2	55	3.5	10	2.4	4.0	●
	2025 020 120	2.5	0.2	55	3.5	12	2.4	4.0	●
	2025 020 160	2.5	0.2	55	3.5	16	2.4	4.0	●
	2025 030 080	2.5	0.3	55	3.5	8	2.4	4.0	●
	2025 030 100	2.5	0.3	55	3.5	10	2.4	4.0	●
	2025 030 120	2.5	0.3	55	3.5	12	2.4	4.0	●
	2025 030 160	2.5	0.3	55	3.5	16	2.4	4.0	●
	2025 050 080	2.5	0.5	55	3.5	8	2.4	4.0	●
	2025 050 100	2.5	0.5	55	3.5	10	2.4	4.0	●
	2025 050 120	2.5	0.5	55	3.5	12	2.4	4.0	●
	2025 050 160	2.5	0.5	55	3.5	16	2.4	4.0	●
	2030 010 080	3.0	0.1	55	4.5	8	2.85	6.0	●
	2030 010 100	3.0	0.1	55	4.5	10	2.85	6.0	●
	2030 010 120	3.0	0.1	55	4.5	12	2.85	6.0	●
	2030 010 160	3.0	0.1	55	4.5	16	2.85	6.0	●
	2030 010 200	3.0	0.1	60	4.5	20	2.85	6.0	●
	2030 020 080	3.0	0.2	55	4.5	8	2.85	6.0	●
	2030 020 100	3.0	0.2	55	4.5	10	2.85	6.0	●
	2030 020 120	3.0	0.2	55	4.5	12	2.85	6.0	●
	2030 020 160	3.0	0.2	55	4.5	16	2.85	6.0	●
	2030 020 200	3.0	0.2	60	4.5	20	2.85	6.0	●
	2030 030 080	3.0	0.3	55	4.5	8	2.85	6.0	●
	2030 030 100	3.0	0.3	55	4.5	10	2.85	6.0	●
	2030 030 120	3.0	0.3	55	4.5	12	2.85	6.0	●

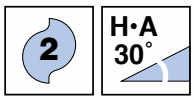
● : Standard Item

HSR 2

2 Flute Long Neck Corner Radius



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



r ±0.005

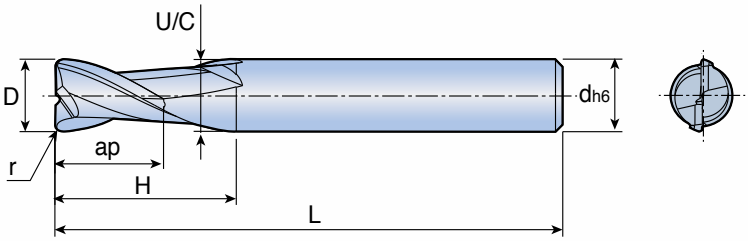
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)							Grade
		D	r	L	ap	H	U/C	d	TT5505
HSR	2030 030 160	3.0	0.3	55	4.5	16	2.85	6.0	●
	2030 030 200	3.0	0.3	60	4.5	20	2.85	6.0	●
	2030 050 080	3.0	0.5	55	4.5	8	2.85	6.0	●
	2030 050 100	3.0	0.5	55	4.5	10	2.85	6.0	●
	2030 050 120	3.0	0.5	55	4.5	12	2.85	6.0	●
	2030 050 160	3.0	0.5	55	4.5	16	2.85	6.0	●
	2030 050 200	3.0	0.5	60	4.5	20	2.85	6.0	●
	2030 100 080	3.0	1.0	55	4.5	8	2.85	6.0	●
	2030 100 100	3.0	1.0	55	4.5	10	2.85	6.0	●
	2030 100 120	3.0	1.0	55	4.5	12	2.85	6.0	●
	2030 100 160	3.0	1.0	55	4.5	16	2.85	6.0	●
	2030 100 200	3.0	1.0	60	4.5	20	2.85	6.0	●
	2040 010 100	4.0	0.1	55	6.0	10	3.9	6.0	●
	2040 010 120	4.0	0.1	55	6.0	12	3.9	6.0	●
	2040 010 160	4.0	0.1	55	6.0	16	3.9	6.0	●
	2040 010 200	4.0	0.1	60	6.0	20	3.9	6.0	●
	2040 010 250	4.0	0.1	60	6.0	25	3.9	6.0	●
	2040 020 100	4.0	0.2	55	6.0	10	3.9	6.0	●
	2040 020 120	4.0	0.2	55	6.0	12	3.9	6.0	●
	2040 020 160	4.0	0.2	55	6.0	16	3.9	6.0	●
	2040 020 200	4.0	0.2	60	6.0	20	3.9	6.0	●
	2040 020 250	4.0	0.2	60	6.0	25	3.9	6.0	●
	2040 030 100	4.0	0.3	55	6.0	10	3.9	6.0	●
	2040 030 120	4.0	0.3	55	6.0	12	3.9	6.0	●
	2040 030 160	4.0	0.3	55	6.0	16	3.9	6.0	●
	2040 030 200	4.0	0.3	60	6.0	20	3.9	6.0	●
	2040 030 250	4.0	0.3	60	6.0	25	3.9	6.0	●
	2040 050 100	4.0	0.5	55	6.0	10	3.9	6.0	●
	2040 050 120	4.0	0.5	55	6.0	12	3.9	6.0	●
	2040 050 160	4.0	0.5	55	6.0	16	3.9	6.0	●
	2040 050 200	4.0	0.5	60	6.0	20	3.9	6.0	●
	2040 050 250	4.0	0.5	60	6.0	25	3.9	6.0	●
	2040 100 100	4.0	1.0	55	6.0	10	3.9	6.0	●
	2040 100 120	4.0	1.0	55	6.0	12	3.9	6.0	●
	2040 100 160	4.0	1.0	55	6.0	16	3.9	6.0	●
	2040 100 200	4.0	1.0	60	6.0	20	3.9	6.0	●
	2040 100 250	4.0	1.0	60	6.0	25	3.9	6.0	●

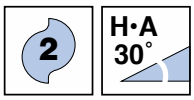
● : Standard Item

HSR 2

2 Flute Long Neck Corner Radius



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC



r ±0.005

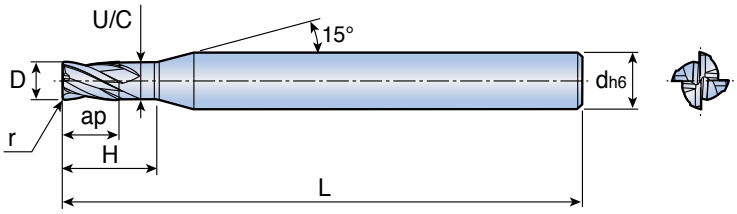
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)							Grade
		D	r	L	ap	H	U/C	d	TT5505
HSR	2060 020 150	6.0	0.2	60	9	15	5.9	6.0	●
	2060 030 150	6.0	0.3	60	9	15	5.9	6.0	●
	2060 030 200	6.0	0.3	60	9	20	5.9	6.0	●
	2060 050 150	6.0	0.5	60	9	15	5.9	6.0	●
	2060 050 200	6.0	0.5	60	9	20	5.9	6.0	●
	2060 100 150	6.0	1.0	60	9	15	5.9	6.0	●
	2060 100 200	6.0	1.0	60	9	20	5.9	6.0	●
	2060 150 150	6.0	1.5	60	9	15	5.9	6.0	●
	2060 200 150	6.0	2.0	60	9	15	5.9	6.0	●
	2080 020 200	8.0	0.2	65	12	20	7.9	8.0	●
	2080 030 200	8.0	0.3	65	12	20	7.9	8.0	●
	2080 050 200	8.0	0.5	65	12	20	7.9	8.0	●
	2080 100 200	8.0	1.0	65	12	20	7.9	8.0	●
	2080 150 200	8.0	1.5	65	12	20	7.9	8.0	●
	2100 020 250	10.0	0.2	75	15	25	9.9	10.0	●
	2100 030 250	10.0	0.3	75	15	25	9.9	10.0	●
	2100 050 250	10.0	0.5	75	15	25	9.9	10.0	●
	2100 100 250	10.0	1.0	75	15	25	9.9	10.0	●
	2100 150 250	10.0	1.5	75	15	25	9.9	10.0	●
	2100 200 250	10.0	2.0	75	15	25	9.9	10.0	●
	2120 030 280	12.0	0.3	85	18	28	11.9	12.0	●
	2120 050 280	12.0	0.5	85	18	28	11.9	12.0	●
	2120 100 280	12.0	1.0	85	18	28	11.9	12.0	●
	2120 150 280	12.0	1.5	85	18	28	11.9	12.0	●
	2120 200 280	12.0	2.0	85	18	28	11.9	12.0	●

● : Standard Item

HSR 4

4 Flute Long Neck Corner Radius



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC

r ±0.005

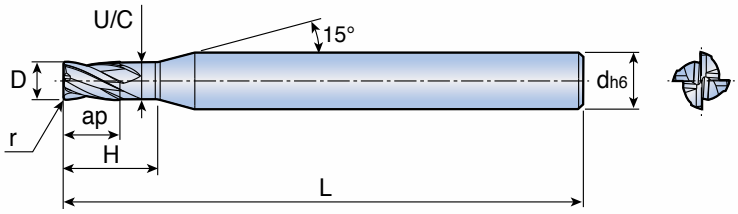
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)							Grade
		D	r	L	ap	H	U/C	d	TT5505
HSR	4010 010 030	1.0	0.1	50	2.0	3	0.97	4.0	●
	4010 010 040	1.0	0.1	50	2.0	4	0.97	4.0	●
	4010 010 060	1.0	0.1	50	2.0	6	0.97	4.0	●
	4010 020 030	1.0	0.2	50	2.0	3	0.97	4.0	●
	4010 020 040	1.0	0.2	50	2.0	4	0.97	4.0	●
	4010 020 060	1.0	0.2	50	2.0	6	0.97	4.0	●
	4010 030 030	1.0	0.3	50	2.0	3	0.97	4.0	●
	4010 030 040	1.0	0.3	50	2.0	4	0.97	4.0	●
	4010 030 060	1.0	0.3	50	2.0	6	0.97	4.0	●
	4015 010 040	1.5	0.1	50	2.5	4	1.45	4.0	●
	4015 010 060	1.5	0.1	50	2.5	6	1.45	4.0	●
	4015 020 040	1.5	0.2	50	2.5	4	1.45	4.0	●
	4015 020 060	1.5	0.2	50	2.5	6	1.45	4.0	●
	4015 030 040	1.5	0.3	50	2.5	4	1.45	4.0	●
	4015 030 060	1.5	0.3	50	2.5	6	1.45	4.0	●
	4020 010 060	2.0	0.1	50	3.0	6	1.95	4.0	●
	4020 010 080	2.0	0.1	50	3.0	8	1.95	4.0	●
	4020 020 060	2.0	0.2	50	3.0	6	1.95	4.0	●
	4020 020 080	2.0	0.2	50	3.0	8	1.95	4.0	●
	4020 030 060	2.0	0.3	50	3.0	6	1.95	4.0	●
	4020 030 080	2.0	0.3	50	3.0	8	1.95	4.0	●
	4020 050 060	2.0	0.5	50	3.0	6	1.95	4.0	●
	4020 050 080	2.0	0.5	50	3.0	8	1.95	4.0	●

● : Standard Item

HSR 4

4 Flute Long Neck Corner Radius



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC

r ±0.005

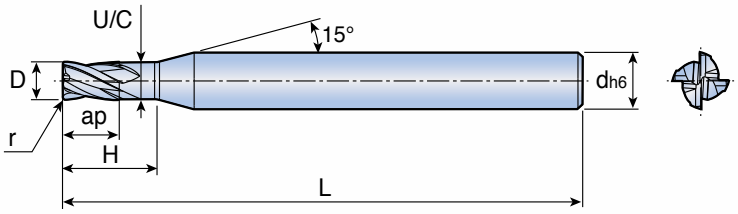
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation	Dimension (mm)							Grade
	D	r	L	ap	H	U/C	d	TT5505
HSR 4030 010 080	3.0	0.1	55	4	8	2.85	6.0	●
4030 010 100	3.0	0.1	55	4	10	2.85	6.0	●
4030 010 120	3.0	0.1	55	4	12	2.85	6.0	●
4030 010 160	3.0	0.1	55	4	16	2.85	6.0	●
4030 010 200	3.0	0.1	60	4	20	2.85	6.0	●
4030 020 080	3.0	0.2	55	4	8	2.85	6.0	●
4030 020 100	3.0	0.2	55	4	10	2.85	6.0	●
4030 020 120	3.0	0.2	55	4	12	2.85	6.0	●
4030 020 160	3.0	0.2	55	4	16	2.85	6.0	●
4030 020 200	3.0	0.2	60	4	20	2.85	6.0	●
4030 030 080	3.0	0.3	55	4	8	2.85	6.0	●
4030 030 100	3.0	0.3	55	4	10	2.85	6.0	●
4030 030 120	3.0	0.3	55	4	12	2.85	6.0	●
4030 030 160	3.0	0.3	55	4	16	2.85	6.0	●
4030 030 200	3.0	0.3	60	4	20	2.85	6.0	●
4030 050 080	3.0	0.5	55	4	8	2.85	6.0	●
4030 050 100	3.0	0.5	55	4	10	2.85	6.0	●
4030 050 120	3.0	0.5	55	4	12	2.85	6.0	●
4030 050 160	3.0	0.5	55	4	16	2.85	6.0	●
4030 050 200	3.0	0.5	60	4	20	2.85	6.0	●
4030 100 080	3.0	1.0	55	4	8	2.85	6.0	●
4030 100 100	3.0	1.0	55	4	10	2.85	6.0	●
4030 100 120	3.0	1.0	55	4	12	2.85	6.0	●
4030 100 160	3.0	1.0	55	4	16	2.85	6.0	●
4030 100 200	3.0	1.0	60	4	20	2.85	6.0	●

● : Standard Item

HSR 4

4 Flute Long Neck Corner Radius



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC

r ±0.005

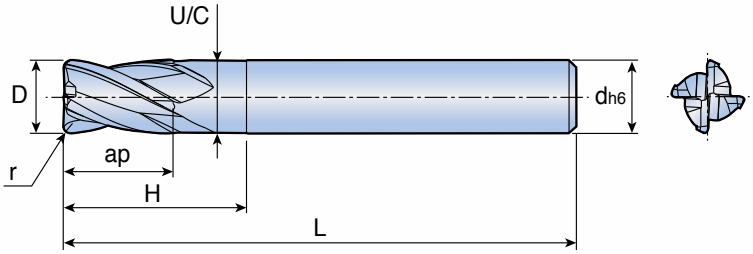
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation	Dimension (mm)							Grade
	D	r	L	ap	H	U/C	d	TT5505
HSR 4040 010 100	4.0	0.1	55	6	10	3.9	6.0	●
4040 010 120	4.0	0.1	55	6	12	3.9	6.0	●
4040 010 160	4.0	0.1	55	6	16	3.9	6.0	●
4040 010 200	4.0	0.1	60	6	20	3.9	6.0	●
4040 010 250	4.0	0.1	60	6	25	3.9	6.0	●
4040 020 100	4.0	0.2	55	6	10	3.9	6.0	●
4040 020 120	4.0	0.2	55	6	12	3.9	6.0	●
4040 020 160	4.0	0.2	55	6	16	3.9	6.0	●
4040 020 200	4.0	0.2	60	6	20	3.9	6.0	●
4040 020 250	4.0	0.2	60	6	25	3.9	6.0	●
4040 030 100	4.0	0.3	55	6	10	3.9	6.0	●
4040 030 120	4.0	0.3	55	6	12	3.9	6.0	●
4040 030 160	4.0	0.3	55	6	16	3.9	6.0	●
4040 030 200	4.0	0.3	60	6	20	3.9	6.0	●
4040 030 250	4.0	0.3	60	6	25	3.9	6.0	●
4040 050 100	4.0	0.5	55	6	10	3.9	6.0	●
4040 050 120	4.0	0.5	55	6	12	3.9	6.0	●
4040 050 160	4.0	0.5	55	6	16	3.9	6.0	●
4040 050 200	4.0	0.5	60	6	20	3.9	6.0	●
4040 050 250	4.0	0.5	60	6	25	3.9	6.0	●
4040 100 100	4.0	1.0	55	6	10	3.9	6.0	●
4040 100 120	4.0	1.0	55	6	12	3.9	6.0	●
4040 100 160	4.0	1.0	55	6	16	3.9	6.0	●
4040 100 200	4.0	1.0	60	6	20	3.9	6.0	●
4040 100 250	4.0	1.0	60	6	25	3.9	6.0	●

● : Standard Item

HSR 4

4 Flute Long Neck Corner Radius



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC

r ±0.005

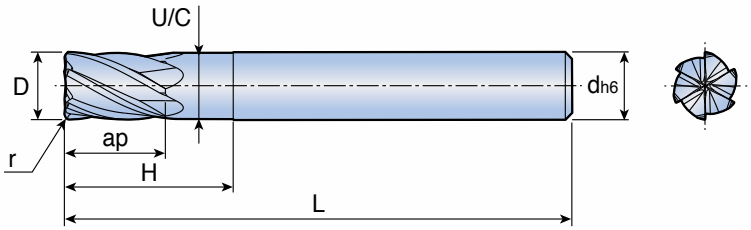
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)							Grade
		D	r	L	ap	H	U/C	d	TT5505
HSR	4060 020 150	6.0	0.2	60	9	15	5.9	6.0	●
	4060 030 150	6.0	0.3	60	9	15	5.9	6.0	●
	4060 050 150	6.0	0.5	60	9	15	5.9	6.0	●
	4060 100 150	6.0	1.0	60	9	15	5.9	6.0	●
	4060 150 150	6.0	1.5	60	9	15	5.9	6.0	●
	4060 200 150	6.0	2.0	60	9	15	5.9	6.0	●
	4080 020 200	8.0	0.2	70	12	20	7.9	8.0	●
	4080 030 200	8.0	0.3	70	12	20	7.9	8.0	●
	4080 050 200	8.0	0.5	70	12	20	7.9	8.0	●
	4080 100 200	8.0	1.0	70	12	20	7.9	8.0	●
	4080 150 200	8.0	1.5	70	12	20	7.9	8.0	●
	4080 200 200	8.0	2.0	70	12	20	7.9	8.0	●
	4100 020 250	10.0	0.2	75	15	25	9.9	10.0	●
	4100 030 250	10.0	0.3	75	15	25	9.9	10.0	●
	4100 050 250	10.0	0.5	75	15	25	9.9	10.0	●
	4100 100 250	10.0	1.0	75	15	25	9.9	10.0	●
	4100 150 250	10.0	1.5	75	15	25	9.9	10.0	●
	4100 200 250	10.0	2.0	75	15	25	9.9	10.0	●
	4120 030 300	12.0	0.3	85	18	30	11.9	12.0	●
	4120 050 300	12.0	0.5	85	18	30	11.9	12.0	●
	4120 100 300	12.0	1.0	85	18	30	11.9	12.0	●
	4120 150 300	12.0	1.5	85	18	30	11.9	12.0	●
	4120 200 300	12.0	2.0	85	18	30	11.9	12.0	●

● : Standard Item

HSR 6

6 Flute Long Neck Corner Radius



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC • Finishing

r ±0.005

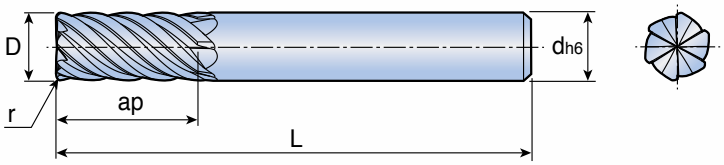
D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation		Dimension (mm)							Grade
		D	r	L	ap	H	U/C	d	TT5505
HSR	6060 050 150	6.0	0.5	60	9	15	5.8	6.0	●
	6060 100 150	6.0	1.0	60	9	15	5.8	6.0	●
	6080 050 200	8.0	0.5	70	12	20	7.8	8.0	●
	6080 100 200	8.0	1.0	70	12	20	7.8	8.0	●
	6100 050 250	10.0	0.5	75	15	25	9.8	10.0	●
	6100 100 250	10.0	1.0	75	15	25	9.8	10.0	●
	6120 050 300	12.0	0.5	85	18	30	11.6	12.0	●
	6120 100 300	12.0	1.0	85	18	30	11.6	12.0	●

● : Standard Item

HSR 6...M

6 Flute Medium Corner Radius



- High Speed Machining (H.S.M)
- Hardened Steels, Pre-hardened Steels
- Hardness < 65 HRC • Finishing

r ±0.005

D	Tolerance
D≤6	0 - -0.010
D>6	0 - -0.015

Designation	Dimension (mm)					Grade
	D	r	L	ap	d	TT5505
HSR 6060M 050	6.0	0.5	60	15	6.0	●
6060M 100	6.0	1.0	60	15	6.0	●
6080M 050	8.0	0.5	65	20	8.0	●
6080M 100	8.0	1.0	65	20	8.0	●
6100M 050	10.0	0.5	70	22	10.0	●
6100M 100	10.0	1.0	70	22	10.0	●
6100M 150	10.0	1.5	70	22	10.0	●
6120M 050	12.0	0.5	80	26	12.0	●
6120M 100	12.0	1.0	80	26	12.0	●
6120M 150	12.0	1.5	80	26	12.0	●

● : Standard Item