

**HIGH SPEED CUTTING
HIGH HARD CUTTING**



GUIDE LINES TO ICONS

Carbide



Super micro grain.

Grain Size



Grain size is 0.2 µm



Grain size is 0.4 µm

Helix Angle



Helix Angle is 0°, 5°, 15°, 25°, 30°, 35°, 45°.

Shrink Neck



Best for long neck machine.

Conner R



Conner Radius.

Flute



Work Material Hardness



Work material hardness is up to HRC60, HRC65.

Coating



Good at high speed cutting & high hard cutting.
For Dry cutting, MQL and Wet cutting.



Good at high speed cutting & high hard cutting.
For Dry cutting and MQL.

Ball Nose Shape



It is suitable for three-dimensional curved surface cutting.

Cutting Performance



Excellent



Good



Acceptable



No

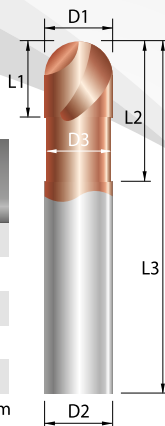
UQB

BALL NOSE END MILLS

D1	R Tolerance
R0.5	±0.01
R0.75	±0.01
R1	±0.01
R1.5	±0.01
R2	±0.01
R2.5	±0.01
R3	±0.01
R4	±0.01
R5	±0.015
R6	±0.015

D2(h6)	D2 Tolerance
Ø4	0 -0.008
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011

unit : mm



Type No.	D1 Diameter	D3 Neck Dia.	L1 Flute Length	L2 Effective Length	L3 O.A.L.	D2 Shank Dia.
UQB0102	R0.5	0.95	1	2.5	50	4
UQB0152	R0.75	1.45	1	3	50	4
UQB0202	R1	1.92	1.5	5	50	4
UQB0302S	R1.5	2.90	2	8	50	4
UQB0302	R1.5	2.90	2	8	50	6
UQB0402S	R2	3.90	4	10	50	4
UQB0402	R2	3.90	4	10	50	6
UQB0502	R2.5	4.80	5	13	50	6
UQB0602	R3	5.80	6	15	50	6
UQB0802	R4	7.70	8	20	60	8
UQB1002	R5	9.60	10	25	75	10
UQB1202	R6	11.5	12	30	75	12

unit : mm



	Finishing
	Semi-finishing
	Roughing

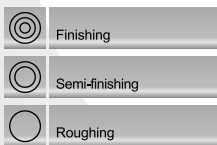
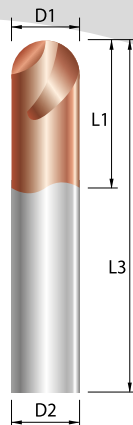
	 Dry Machining
	 MQL (Mist)
	 Emulsion Machining
	 Oil Machining

UB BALL NOSE END MILLS

D1	R Tolerance
R0.5	±0.01
R0.75	±0.01
R1	±0.01
R1.5	±0.01
R2	±0.01
R2.5	±0.01
R3	±0.01
R4	±0.01
R5	±0.015
R6	±0.015
R8	±0.02

D2(h6)	D2 Tolerance
Ø4	0 -0.008
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011
Ø16	0 -0.011

unit : mm



Type No.	D1 Diameter	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UB0102	R0.5	2	50	4
UB0152	R0.75	3	50	4
UB0202	R1	4	50	6
UB0302	R1.5	6	50	6
UB0402	R2	8	50	6
UB0502	R2.5	10	50	6
UB0602	R3	12	50	6
UB0802	R4	16	60	8
UB1002	R5	20	75	10
UB1202	R6	24	75	12
UB1602	R8	32	100	16

unit : mm

UHB UIB UJB

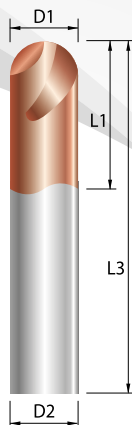
BALL NOSE END MILLS



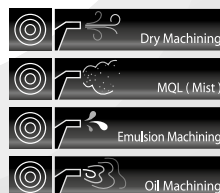
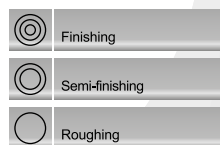
D1	R Tolerance
R1	±0.01
R1.5	±0.01
R2	±0.01
R2.5	±0.01
R3	±0.01
R4	±0.01
R5	±0.015
R6	±0.015
R8	±0.02
R10	±0.02

D2(h6)	D2 Tolerance
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011
Ø16	0 -0.011
Ø20	0 -0.013

unit : mm



Type No.	D1 Diameter	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UHB0202	R1	4	75	6
UHB0302	R1.5	6	75	6
UHB0402	R2	8	75	6
UHB0502	R2.5	10	75	6
UHB0602	R3	12	75	6
UHB0802	R4	16	75	8
UIB0402	R2	8	100	6
UIB0602	R3	12	100	6
UIB0802	R4	16	100	8
UIB1002	R5	20	100	10
UIB1202	R6	24	100	12
UJB1002	R5	20	150	10
UJB1202	R6	24	150	12
UJB1602	R8	32	150	16
UJB2002	R10	40	150	20



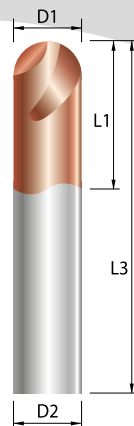
UBX BALL NOSE END MILLS



D1	R Tolerance
R0.5	±0.01
R0.75	±0.01
R1	±0.01
R1.5	±0.01
R2	±0.01
R2.5	±0.01
R3	±0.01
R4	±0.01
R5	±0.015
R6	±0.015
R8	±0.02

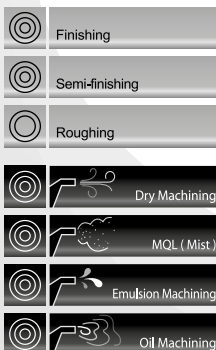
D2(h6)	D2 Tolerance
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011
Ø16	0 -0.011

unit : mm



Type No.	D1 Diameter	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UBX0102	R0.5	2	50	6
UBX0152	R0.75	3	50	6
UBX0202	R1	4	50	6
UBX0302	R1.5	6	50	6
UBX0402	R2	8	50	6
UBX0502	R2.5	10	50	6
UBX0602	R3	12	50	6
UBX0802	R4	16	60	8
UBX1002	R5	20	75	10
UBX1202	R6	24	75	12
UBX1602	R8	32	100	16

unit : mm



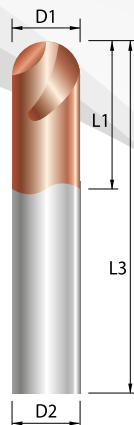
UHBX UIBX

BALL NOSE END MILLS

D1	R Tolerance
R1.5	±0.01
R2	±0.01
R2.5	±0.01
R3	±0.01
R4	±0.01
R5	±0.015
R6	±0.015
R8	±0.02
R10	±0.02

D2(h6)	D2 Tolerance
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011
Ø16	0 -0.011
Ø20	0 -0.013

unit : mm



Type No.	D1 Diameter	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UHBX0302	R1.5	6	75	6
UHBX0402	R2	8	75	6
UHBX0502	R2.5	10	75	6
UHBX0602	R3	12	75	6
UHBX0802	R4	16	75	8
UIBX0602	R3	12	100	6
UIBX0802	R4	16	100	8
UIBX1002	R5	20	100	10
UIBX1202	R6	24	100	12

unit : mm



	Finishing
	Semi-finishing
	Roughing

	 Dry Machining
	 MQL (Mist)
	 Emulsion Machining
	 Oil Machining

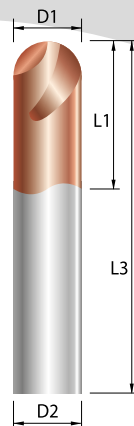


UBG BALL NOSE END MILLS

D1	R Tolerance
R0.5	±0.01
R0.75	±0.01
R1	±0.01
R1.5	±0.01
R2	±0.01
R2.5	±0.01
R3	±0.01
R4	±0.01
R5	±0.015
R6	±0.015
R8	±0.02

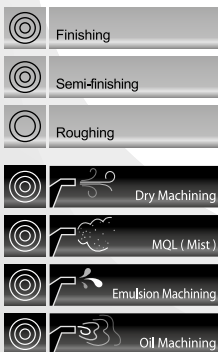
D2(h6)	D2 Tolerance
Ø4	0 -0.008
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011
Ø16	0 -0.011

unit : mm



Type No.	D1 Diameter	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UBG0102	R0.5	2	50	4
UBG0152	R0.75	3	50	4
UBG0202	R1	4	50	4
UBG0302	R1.5	6	50	4
UBG0402	R2	8	50	4
UBG0502	R2.5	10	50	6
UBG0602	R3	12	50	6
UBG0802	R4	16	60	8
UBG1002	R5	20	75	10
UBG1202	R6	24	75	12
UBG1602	R8	32	100	16

unit : mm



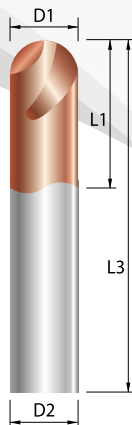
UHBG UIBG

BALL NOSE END MILLS

D1	R Tolerance
R1	±0.01
R1.5	±0.01
R2	±0.01
R2.5	±0.01
R3	±0.01
R4	±0.01
R5	±0.015
R6	±0.015

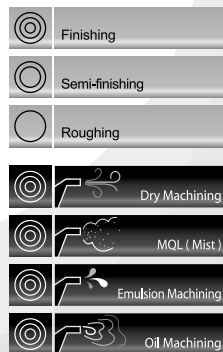
D2(h6)	D2 Tolerance
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011

unit : mm



Type No.	D1 Diameter	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UHBG0202	R1	4	75	6
UHBG0302	R1.5	6	75	6
UHBG0402	R2	8	75	6
UHBG0502	R2.5	10	75	6
UHBG0602	R3	12	75	6
UHBG0802	R4	16	75	8
UIBG0402	R2	8	100	6
UIBG0602	R3	12	100	6
UIBG0802	R4	16	100	8
UIBG1002	R5	20	100	10
UIBG1202	R6	24	100	12

unit : mm



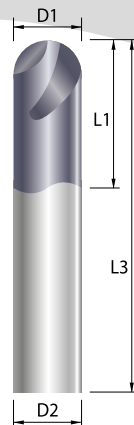


2T UBT BALL NOSE END MILLS

D1	R Tolerance
R0.5	±0.01
R0.75	±0.01
R1	±0.01
R1.5	±0.01
R2	±0.01
R2.5	±0.01
R3	±0.01
R4	±0.01
R5	±0.015
R6	±0.015
R8	±0.02

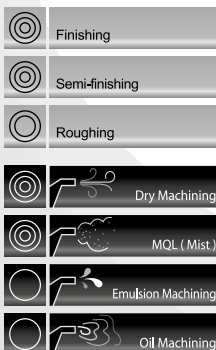
D2(h6)	D2 Tolerance
Ø4	0 -0.008
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011
Ø16	0 -0.011

unit : mm



Type No.	D1 Diameter	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UBT0102	R0.5	2	50	4
UBT0152	R0.75	3	50	4
UBT0202	R1	4	50	6
UBT0302	R1.5	6	50	6
UBT0402	R2	8	50	6
UBT0502	R2.5	10	50	6
UBT0602	R3	12	50	6
UBT0802	R4	16	60	8
UBT1002	R5	20	75	10
UBT1202	R6	24	75	12
UBT1602	R8	32	100	16

unit : mm



UHBT UIBT

BALL NOSE END MILLS

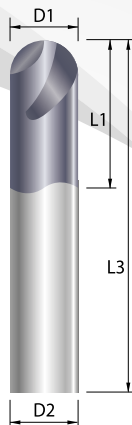
D1	R Tolerance
R1.5	±0.01
R2	±0.01
R2.5	±0.01
R3	±0.01
R4	±0.01
R5	±0.015
R6	±0.015
R8	±0.02
R10	±0.02

D2(h6)	D2 Tolerance
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011
Ø16	0 -0.011
Ø20	0 -0.013

unit : mm

Type No.	D1 Diameter	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UHBT0302	R1.5	6	75	6
UHBT0402	R2	8	75	6
UHBT0502	R2.5	10	75	6
UHBT0602	R3	12	75	6
UHBT0802	R4	16	75	8
UIBT0602	R3	12	100	6
UIBT0802	R4	16	100	8
UIBT1002	R5	20	100	10
UIBT1202	R6	24	100	12

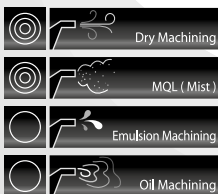
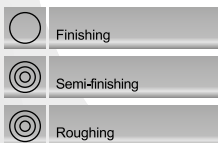
unit : mm



	Finishing
	Semi-finishing
	Roughing

	 Dry Machining
	 MQL (Mist)
	 Emulsion Machining
	 Oil Machining

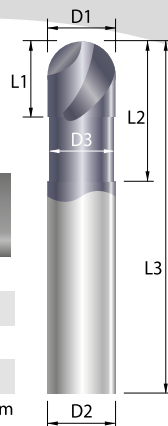
UOB BALL NOSE END MILLS



D1	R Tolerance
R0.5	±0.01
R0.75	±0.01
R1	±0.01
R1.5	±0.01
R2	±0.01
R3	±0.01
R4	±0.01
R5	±0.015

D2(h6)	D2 Tolerance
Ø4	0 -0.008
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009

unit : mm



Type No.	D1 Diameter	D3 Neck Dia.	L1 Flute Length	L2 Effective Length	L3 O.A.L.	D2 Shank Dia.
UOB0102	R0.5	0.95	1	3	50	4
UOB0152	R0.75	1.44	2	5	50	4
UOB0202	R1	1.92	3	6	50	6
UOB0302S	R1.5	2.90	4	8	50	4
UOB0302	R1.5	2.90	4	8	50	6
UOB0302L	R1.5	2.90	4	8	75	6
UOB0402S	R2	3.90	5	10	50	4
UOB0402	R2	3.90	5	10	50	6
UOB0402L	R2	3.90	5	10	75	6
UOB0602	R3	5.80	6	12	50	6
UOB0602M	R3	5.80	6	12	75	6
UOB0602L	R3	5.80	6	16	100	6
UOB0802	R4	7.70	8	16	60	8
UOB0802L	R4	7.70	8	25	100	8
UOB1002	R5	9.60	10	20	75	10
UOB1002L	R5	9.60	10	30	100	10

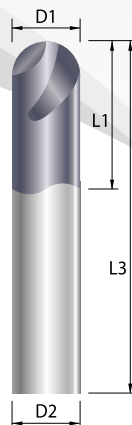
4T UBT

BALL NOSE END MILLS

D1	R Tolerance
R1	±0.01
R1.5	±0.01
R2	±0.01
R2.5	±0.01
R3	±0.01
R4	±0.01
R5	±0.015
R6	±0.015

D2(h6)	D2 Tolerance
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011

unit : mm



Type No.	D1 Diameter	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UBT0204	R1	4	50	6
UBT0304	R1.5	6	50	6
UBT0404	R2	8	50	6
UBT0504	R2.5	10	50	6
UBT0604	R3	12	50	6
UBT0804	R4	16	60	8
UBT1004	R5	20	75	10
UBT1204	R6	24	75	12

unit : mm

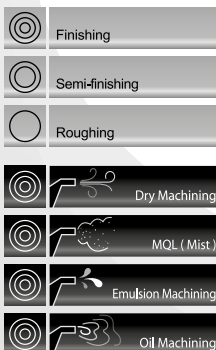


	Finishing
	Semi-finishing
	Roughing

	Dry Machining
	MQL (Mist)
	Emulsion Machining
	Oil Machining



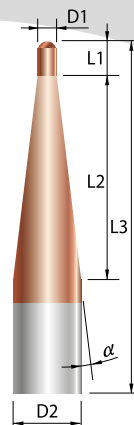
UPB BALL NOSE END MILLS



D1	R Tolerance
R1	±0.01
R1.5	±0.01
R2	±0.01

D2(h6)	D2 Tolerance
Ø6	0 -0.008

unit : mm



Type No.	D1 Diameter	L1 Flute Length	L2 Effective Length	L3 O.A.L.	D2 Shank Dia.	α Taper Angle
UPB0205	R1	3	60	100	6	0.5°
UPB0210	R1	3	60	100	6	1°
UPB0215	R1	3	60	100	6	1.5°
UPB0220	R1	3	57	100	6	2°
UPB0305	R1.5	4	60	100	6	0.5°
UPB0310	R1.5	4	60	100	6	1°
UPB0315	R1.5	4	57	100	6	1.5°
UPB0320	R1.5	4	43	100	6	2°
UPB0405	R2	5	60	100	6	0.5°
UPB0410	R2	5	57	100	6	1°
UPB0415	R2	5	38	100	6	1.5°
UPB0420	R2	5	29	100	6	2°

unit : mm

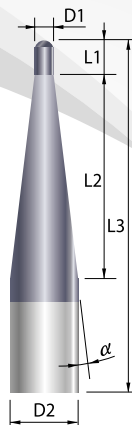
USB

BALL NOSE END MILLS

D1	R Tolerance
R1	±0.01
R1.5	±0.01
R2	±0.01
R3	±0.01

D2(h6)	D2 Tolerance
Ø6	$\begin{smallmatrix} 0 \\ -0.008 \end{smallmatrix}$
Ø8	$\begin{smallmatrix} 0 \\ -0.009 \end{smallmatrix}$
Ø10	$\begin{smallmatrix} 0 \\ -0.009 \end{smallmatrix}$

unit : mm



Type No.	D1 Diameter	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.	α Taper Angle
USB0203	R1	4	75	6	3°
USB0205	R1	4	75	6	5°
USB0315	R1.5	6	100	6	1.5°
USB0303	R1.5	6	75	6	3°
USB0305	R1.5	6	75	6	5°
USB0415	R2	8	100	6	1.5°
USB0405	R2	8	75	6	5°
USB0615	R3	12	100	8	1.5°
USB0603	R3	12	75	8	3°
USB0605	R3	12	100	8	5°
USB0603B	R3	12	100	10	3°
USB0605B	R3	12	100	10	5°

unit : mm



	Finishing
	Semi-finishing
	Roughing

	 Dry Machining
	 MQL (Mist)
	 Emulsion Machining
	 Oil Machining



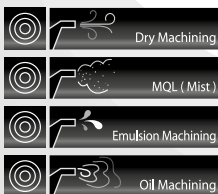
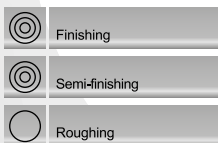
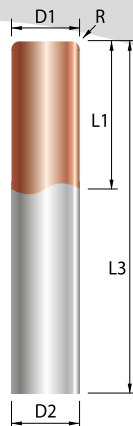
UKR

END MILLS

D1	R Tolerance	D1 Tolerance
1.0	$\begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$
1.5	$\begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$
2.0	$\begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$
2.5	$\begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$
3.0	$\begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$
4.0	$\begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$
5.0	$\begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$
6.0	$\begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$
8.0	$\begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.025 \end{smallmatrix}$
10.0	$\begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.03 \end{smallmatrix}$
12.0	$\begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.035 \end{smallmatrix}$

D2(h6)	D2 Tolerance
Ø4	$\begin{smallmatrix} 0 \\ -0.008 \end{smallmatrix}$
Ø6	$\begin{smallmatrix} 0 \\ -0.008 \end{smallmatrix}$
Ø8	$\begin{smallmatrix} 0 \\ -0.009 \end{smallmatrix}$
Ø10	$\begin{smallmatrix} 0 \\ -0.009 \end{smallmatrix}$
Ø12	$\begin{smallmatrix} 0 \\ -0.011 \end{smallmatrix}$

unit : mm



Type No.	D1 Diameter	R Corner R	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UKR0102	1.0	0.2	3	50	4
UKR0152	1.5	0.2	4	50	4
UKR0202	2.0	0.2	6	50	4
UKR0205	2.0	0.5	6	50	4
UKR0252	2.5	0.2	8	50	4
UKR0255	2.5	0.5	8	50	4
UKR0302	3.0	0.2	8	50	4
UKR0303	3.0	0.3	8	50	4
UKR0305	3.0	0.5	8	50	4
UKR0402	4.0	0.2	11	50	4
UKR0403	4.0	0.3	11	50	4
UKR0405	4.0	0.5	11	50	4
UKR0503	5.0	0.3	13	50	6
UKR0505	5.0	0.5	13	50	6

unit : mm

UKR

END MILLS



Type No.	D1 Diameter	R Corner R	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UKR0602	6.0	0.2	16	50	6
UKR0603	6.0	0.3	16	50	6
UKR0605	6.0	0.5	16	50	6
UKR0610	6.0	1.0	16	50	6
UKR0803	8.0	0.3	20	60	8
UKR0805	8.0	0.5	20	60	8
UKR0810	8.0	1.0	20	60	8
UKR1002	10.0	0.2	25	75	10
UKR1003	10.0	0.3	25	75	10
UKR1005	10.0	0.5	25	75	10
UKR1010	10.0	1.0	25	75	10
UKR1203	12.0	0.3	30	75	12
UKR1205	12.0	0.5	30	75	12
UKR1210	12.0	1.0	30	75	12
UKR1215	12.0	1.5	30	75	12
UKR1220	12.0	2.0	30	75	12

unit : mm



	Finishing
	Semi-finishing
	Roughing
	 Dry Machining
	 MQL (Mist)
	 Emulsion Machining
	 Oil Machining



UXR

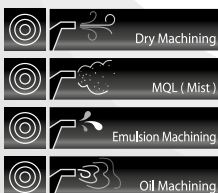
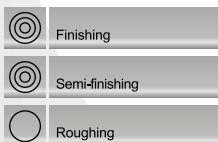
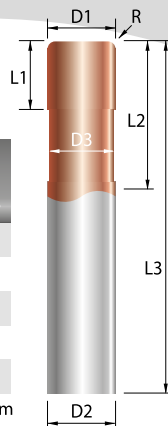
END MILLS



D1	R Tolerance	D1 Tolerance
4.0	$+0.02$ 0	0 -0.02
6.0	$+0.02$ 0	0 -0.02
8.0	$+0.02$ 0	0 -0.025
10.0	$+0.02$ 0	0 -0.03
12.0	$+0.02$ 0	0 -0.035
16.0	$+0.02$ 0	0 -0.04

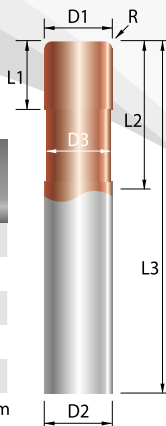
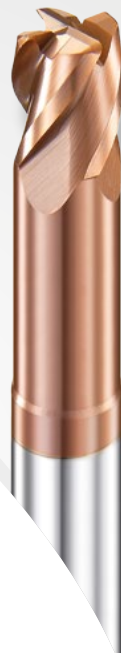
D2(h6)	D2 Tolerance
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011
Ø16	0 -0.011

unit : mm



Type No.	D1 Diameter	D3 Neck Dia.	R Corner R	L1 Flute Length	L2 Effective Length	L3 O.A.L.	D2 Shank Dia.
UXR0403	4.0	3.90	0.3	6	12	50	6
UXR0405	4.0	3.90	0.5	6	12	50	6
UXR0603	6.0	5.80	0.3	8	18	50	6
UXR0605	6.0	5.80	0.5	8	18	50	6
UXR0610	6.0	5.80	1.0	8	18	50	6
UXR0803	8.0	7.70	0.3	10	24	60	8
UXR0805	8.0	7.70	0.5	10	24	60	8
UXR0810	8.0	7.70	1.0	10	24	60	8
UXR1005	10.0	9.60	0.5	12	30	75	10
UXR1010	10.0	9.60	1.0	12	30	75	10
UXR1020	10.0	9.60	2.0	12	30	75	10
UXR1030	10.0	9.60	3.0	12	30	75	10
UXR1205	12.0	11.5	0.5	15	36	75	12
UXR1210	12.0	11.5	1.0	15	36	75	12
UXR1605	16.0	15.5	0.5	24	40	100	16
UXR1610	16.0	15.5	1.0	24	40	100	16

ULXR END MILLS



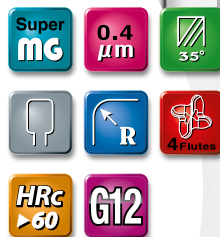
unit : mm

D1	R Tolerance	D1 Tolerance
6.0	$+0.02$ 0	0 -0.02
8.0	$+0.02$ 0	0 -0.025
10.0	$+0.02$ 0	0 -0.03
12.0	$+0.02$ 0	0 -0.035
16.0	$+0.02$ 0	0 -0.04

D2(h6)	D2 Tolerance
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011
Ø16	0 -0.011

Type No.	D1 Diameter	D3 Neck Dia.	R Corner R	L1 Flute Length	L2 Effective Length	L3 O.A.L.	D2 Shank Dia.
ULXR0605	6.0	5.80	0.5	6	18	75	6
ULXR0610	6.0	5.80	1.0	6	18	75	6
ULXR0805	8.0	7.80	0.5	8	24	100	8
ULXR0810	8.0	7.80	1.0	8	24	100	8
ULXR1005	10.0	9.60	0.5	10	30	100	10
ULXR1010	10.0	9.60	1.0	10	30	100	10
ULXR1020	10.0	9.60	2.0	10	30	100	10
ULXR1205	12.0	11.5	0.5	12	36	100	12
ULXR1210	12.0	11.5	1.0	12	36	100	12
ULXR1220	12.0	11.5	2.0	12	36	100	12
ULXR1610	16.0	15.5	1.0	16	40	150	16
ULXR1620	16.0	15.5	2.0	16	40	150	16

unit : mm



	Finishing
	Semi-finishing
	Roughing

	Dry Machining
	MQL (Mist)
	Emulsion Machining
	Oil Machining



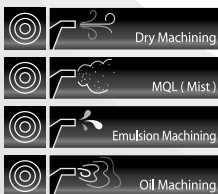
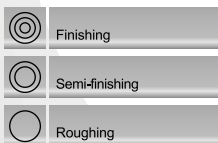
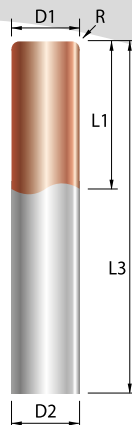
UER

END MILLS

D1	R Tolerance	D1 Tolerance
2.0	+0.02 0	0 -0.02
3.0	+0.02 0	0 -0.02
4.0	+0.02 0	0 -0.02
5.0	+0.02 0	0 -0.02
6.0	+0.02 0	0 -0.02
8.0	+0.02 0	0 -0.025
10.0	+0.02 0	0 -0.03
12.0	+0.02 0	0 -0.035
16.0	+0.02 0	0 -0.04

D2(h6)	D2 Tolerance
Ø4	0 -0.008
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011

unit : mm



Type No.	D1 Diameter	R Corner R	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UER0202	2.0	0.2	6	50	4
UER0205	2.0	0.5	6	50	4
UER0302S	3.0	0.2	8	50	3
UER0305S	3.0	0.5	8	50	3
UER0402	4.0	0.2	10	50	4
UER0405	4.0	0.5	10	50	4
UER0505	5.0	0.5	13	50	6
UER0510	5.0	1.0	13	50	6
UER0605	6.0	0.5	16	50	6
UER0610	6.0	1.0	16	50	6
UER0805	8.0	0.5	20	60	8
UER0810	8.0	1.0	20	60	8
UER1005	10.0	0.5	30	75	10
UER1010	10.0	1.0	30	75	10
UER1020	10.0	2.0	30	75	10
UER1030	10.0	3.0	30	75	10
UER1210	12.0	1.0	30	75	12
UER1220	12.0	2.0	30	75	12
UER1230	12.0	3.0	30	75	12
UER1610	16.0	1.0	45	100	16
UER1620	16.0	2.0	45	100	16
UER1630	16.0	3.0	45	100	16

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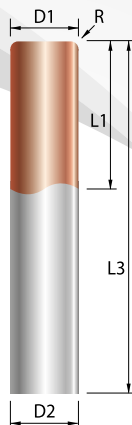
unit : mm

ULR

END MILLS

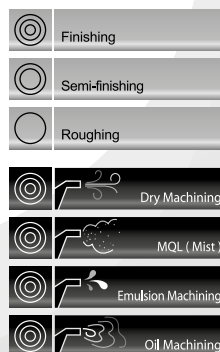
D1	R Tolerance	D1 Tolerance	D2(h6)	D2 Tolerance
6.0	$\begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$	Ø6	$\begin{smallmatrix} 0 \\ -0.008 \end{smallmatrix}$
8.0	$\begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.025 \end{smallmatrix}$	Ø8	$\begin{smallmatrix} 0 \\ -0.009 \end{smallmatrix}$
10.0	$\begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.03 \end{smallmatrix}$	Ø10	$\begin{smallmatrix} 0 \\ -0.009 \end{smallmatrix}$
12.0	$\begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.035 \end{smallmatrix}$	Ø12	$\begin{smallmatrix} 0 \\ -0.011 \end{smallmatrix}$
16.0	$\begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.04 \end{smallmatrix}$	Ø16	$\begin{smallmatrix} 0 \\ -0.011 \end{smallmatrix}$

unit : mm

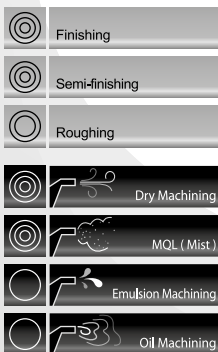


Type No.	D1 Diameter	R Corner R	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
ULR0605	6.0	0.5	16	75	6
ULR0610	6.0	1.0	16	75	6
ULR0805	8.0	0.5	20	100	8
ULR0810	8.0	1.0	20	100	8
ULR1005	10.0	0.5	25	100	10
ULR1010	10.0	1.0	25	100	10
ULR1020	10.0	2.0	25	100	10
ULR1205	12.0	0.5	30	100	12
ULR1210	12.0	1.0	30	100	12
ULR1220	12.0	2.0	30	100	12
ULR1610	16.0	1.0	45	150	16
ULR1620	16.0	2.0	45	150	16

unit : mm



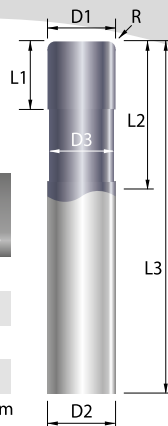
UPR END MILLS



D1	R Tolerance	D1 Tolerance
3.0	+0.02 0	0 -0.02
4.0	+0.02 0	0 -0.02
6.0	+0.02 0	0 -0.02
8.0	+0.02 0	0 -0.025
10.0	+0.02 0	0 -0.03
12.0	+0.02 0	0 -0.035

D2(h6)	D2 Tolerance
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011

unit : mm



Type No.	D1 Diameter	D3 Neck Dia.	R Corner R	L1 Flute Length	L2 Effective Length	L3 O.A.L.	D2 Shank Dia.
UPR0305	3.0	2.90	0.5	3	12	50	6
UPR0405	4.0	3.90	0.5	4	12	50	6
UPR0605	6.0	5.80	0.5	6	15	50	6
UPR0610	6.0	5.80	1.0	6	15	50	6
UPR0805	8.0	7.70	0.5	8	20	60	8
UPR0810	8.0	7.70	1.0	8	20	60	8
UPR1010	10.0	9.60	1.0	10	25	75	10
UPR1020	10.0	9.60	2.0	10	25	75	10
UPR1030	10.0	9.60	3.0	10	25	75	10
UPR1210	12.0	11.5	1.0	12	30	75	12
UPR1220	12.0	11.5	2.0	12	30	75	12

unit : mm

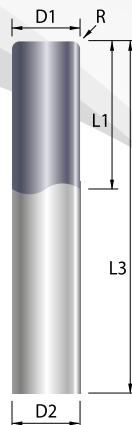
UGR

END MILLS

D1	R Tolerance	D1 Tolerance
2.0	+0.02 0	0 -0.02
3.0	+0.02 0	0 -0.02
4.0	+0.02 0	0 -0.02
5.0	+0.02 0	0 -0.02
6.0	+0.02 0	0 -0.02
8.0	+0.02 0	0 -0.025
10.0	+0.02 0	0 -0.03
12.0	+0.02 0	0 -0.035
16.0	+0.02 0	0 -0.04

D2(h6)	D2 Tolerance
Ø3	0 -0.006
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011
Ø16	0 -0.011

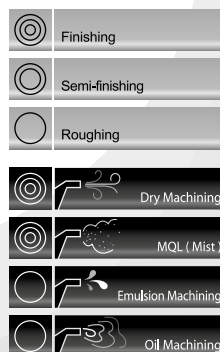
unit : mm



Type No.	D1 Diameter	R Corner R	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UGR0202	2.0	0.2	6	50	6
UGR0205	2.0	0.5	6	50	6
UGR0302S	3.0	0.2	8	50	3
UGR0305S	3.0	0.5	8	50	3
UGR0402	4.0	0.2	10	50	6
UGR0405	4.0	0.5	10	50	6
UGR0505	5.0	0.5	13	50	6
UGR0510	5.0	1.0	13	50	6
UGR0605	6.0	0.5	16	50	6
UGR0610	6.0	1.0	16	50	6
UGR0805	8.0	0.5	20	60	8
UGR0810	8.0	1.0	20	60	8
UGR1005	10.0	0.5	25	75	10
UGR1010	10.0	1.0	25	75	10
UGR1020	10.0	2.0	25	75	10
UGR1030	10.0	3.0	25	75	10
UGR1210	12.0	1.0	30	75	12
UGR1220	12.0	2.0	30	75	12
UGR1230	12.0	3.0	30	75	12
UGR1610	16.0	1.0	45	100	16
UGR1620	16.0	2.0	45	100	16
UGR1630	16.0	3.0	45	100	16

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Unit. mm





UVR

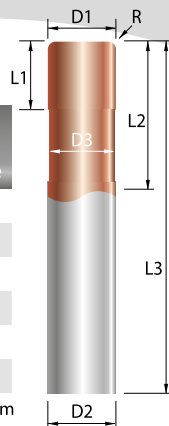
END MILLS



D1	R Tolerance	D1 Tolerance
6.0	+0.02 0	0 -0.02
8.0	+0.02 0	0 -0.025
10.0	+0.02 0	0 -0.03
12.0	+0.02 0	0 -0.035
16.0	+0.02 0	0 -0.04
20.0	+0.02 0	0 -0.04

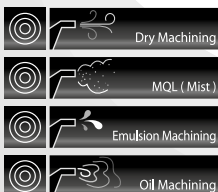
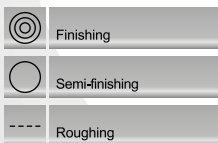
D2(h6)	D2 Tolerance
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011
Ø16	0 -0.011
Ø20	0 -0.013

unit : mm



Type No.	D1 Diameter	D3 Neck Dia.	R Corner R	L1 Flute Length	L2 Effective Length	L3 O.A.L.	D2 Shank Dia.
UVR0606	6.0	5.80	0.3	8	20	50	6
UVR0806	8.0	7.70	0.3	10	25	60	8
UVR1006	10.0	9.60	0.5	12	30	75	10
UVR1206	12.0	11.5	0.5	15	36	75	12
UVR1606	16.0	15.4	1.0	24	40	100	16
UVR2006	20.0	19.4	1.0	30	50	100	20

unit : mm



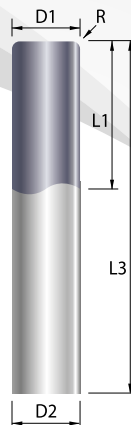
UVTR

END MILLS



D1	R Tolerance	D1 Tolerance	D2(h6)	D2 Tolerance
6.0	$+0.02$ 0	0 -0.02	Ø6	0 -0.008
8.0	$+0.02$ 0	0 -0.025	Ø8	0 -0.009
10.0	$+0.02$ 0	0 -0.03	Ø10	0 -0.009
12.0	$+0.02$ 0	0 -0.035	Ø12	0 -0.011
16.0	$+0.02$ 0	0 -0.04	Ø16	0 -0.011
20.0	$+0.02$ 0	0 -0.04	Ø20	0 -0.013

unit : mm



Type No.	D1 Diameter	R Corner R	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UVTR0605	6.0	0.5	16	50	6
UVTR0610	6.0	1.0	16	50	6
UVTR0805	8.0	0.5	20	60	8
UVTR0810	8.0	1.0	20	60	8
UVTR1010	10.0	1.0	25	75	10
UVTR1210	12.0	1.0	30	75	12
UVTR1610	16.0	1.0	40	100	16
UVTR1620	16.0	2.0	40	100	16
UVTR2020	20.0	2.0	45	100	20

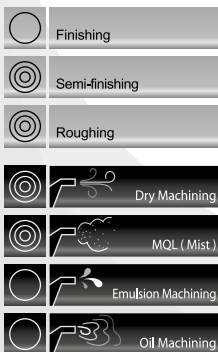
unit : mm



	Finishing
	Semi-finishing
	Roughing

		Dry Machining
		MQL (Mist)
		Emulsion Machining
		Oil Machining

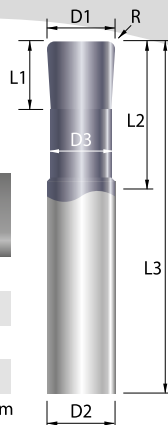
UOR END MILLS



D1	R Tolerance
2.0	+0.02 0
3.0	+0.02 0
4.0	+0.02 0
6.0	+0.02 0
8.0	+0.02 0
10.0	+0.02 0
12.0	+0.02 0

D2(h6)	D2 Tolerance
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011

unit : mm



Type No.	D1 Diameter	D3 Neck Dia.	R Corner R	L1 Flute Length	L2 Effective Length	L3 O.A.L.	D2 Shank Dia.
UOR0203	2.0	1.8	0.3	0.8	5	50	6
UOR0205	2.0	1.8	0.5	0.8	5	50	6
UOR0308	3.0	2.7	0.8	1.2	8	50	6
UOR0310	3.0	2.7	1.0	1.2	8	50	6
UOR0405	4.0	3.6	0.5	1.6	10	50	6
UOR0405L	4.0	3.6	0.5	1.6	10	75	6
UOR0410	4.0	3.6	1.0	1.6	10	50	6
UOR0410L	4.0	3.6	1.0	1.6	10	75	6
UOR0610	6.0	5.4	1.0	2.5	13	50	6
UOR0610M	6.0	5.4	1.0	2.5	13	75	6
UOR0610L	6.0	5.4	1.0	2.5	13	100	6
UOR0615	6.0	5.4	1.5	2.5	13	50	6
UOR0615M	6.0	5.4	1.5	2.5	13	75	6
UOR0615L	6.0	5.4	1.5	2.5	13	100	6

unit : mm

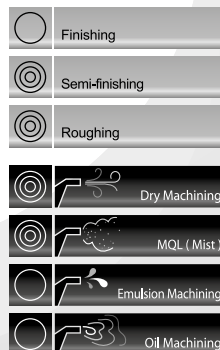
UOR

END MILLS

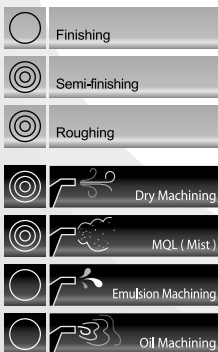


Type No.	D1 Diameter	D3 Neck Dia.	R Corner R	L1 Flute Length	L2 Effective Length	L3 O.A.L.	D2 Shank Dia.
UOR0810	8.0	7.2	1.0	3.5	16	60	8
UOR0810L	8.0	7.2	1.0	3.5	16	100	8
UOR0820	8.0	7.2	2.0	3.5	16	60	8
UOR0820L	8.0	7.2	2.0	3.5	16	100	8
UOR1010	10.0	9.0	1.0	4.0	20	75	10
UOR1010L	10.0	9.0	1.0	4.0	20	100	10
UOR1020	10.0	9.0	2.0	4.0	20	75	10
UOR1020L	10.0	9.0	2.0	4.0	20	100	10
UOR1220	12.0	11.0	2.0	5.0	25	75	12
UOR1220L	12.0	11.0	2.0	5.0	25	100	12
UOR1230	12.0	11.0	3.0	5.0	25	75	12
UOR1230L	12.0	11.0	3.0	5.0	25	100	12

unit : mm



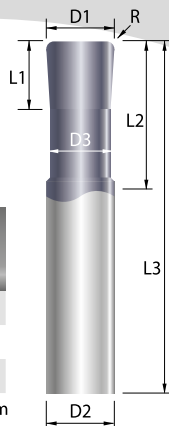
UEYR END MILLS



D1	R Tolerance	D1 Tolerance
2.0	+0.02 0	0 -0.02
2.5	+0.02 0	0 -0.02
3.0	+0.02 0	0 -0.02
4.0	+0.02 0	0 -0.02
6.0	+0.02 0	0 -0.02
8.0	+0.02 0	0 -0.025
10.0	+0.02 0	0 -0.03

D2(h6)	D2 Tolerance
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009

unit : mm



Type No.	D1 Diameter	D3 Neck Dia.	R Corner R	L1 Flute Length	L2 Effective Length	L3 O.A.L.	D2 Shank Dia.
UEYR0202	2.0	1.92	0.2	2.0	6	50	6
UEYR0205	2.0	1.92	0.5	2.0	6	50	6
UEYR0252	2.5	2.40	0.2	2.5	8	50	6
UEYR0255	2.5	2.40	0.5	2.5	8	50	6
UEYR0302	3.0	2.90	0.2	3.0	8	50	6
UEYR0305	3.0	2.90	0.5	3.0	8	50	6
UEYR0402	4.0	3.90	0.2	4.0	11	50	6
UEYR0403	4.0	3.90	0.3	4.0	11	50	6
UEYR0405	4.0	3.90	0.5	4.0	11	50	6
UEYR0602	6.0	5.80	0.2	6.0	16	50	6
UEYR0603	6.0	5.80	0.3	6.0	16	50	6
UEYR0605	6.0	5.80	0.5	6.0	16	50	6
UEYR0610	6.0	5.80	1.0	6.0	16	50	6
UEYR0615	6.0	5.80	1.5	6.0	16	50	6

unit : mm

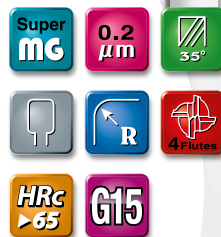
UEYR

END MILLS



Type No.	D1 Diameter	D3 Neck Dia.	R Corner R	L1 Flute Length	L2 Effective Length	L3 O.A.L.	D2 Shank Dia.
UEYR0803	8.0	7.70	0.3	8.0	20	60	8
UEYR0805	8.0	7.70	0.5	8.0	20	60	8
UEYR0810	8.0	7.70	1.0	8.0	20	60	8
UEYR0820	8.0	7.70	2.0	8.0	20	60	8
UEYR1003	10.0	9.60	0.3	10.0	25	75	10
UEYR1005	10.0	9.60	0.5	10.0	25	75	10
UEYR1010	10.0	9.60	1.0	10.0	25	75	10
UEYR1020	10.0	9.60	2.0	10.0	25	75	10

unit : mm



	Finishing
	Semi-finishing
	Roughing

		Dry Machining
		MQL (Mist)
		Emulsion Machining
		Oil Machining



UNR

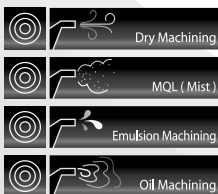
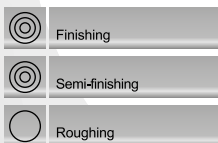
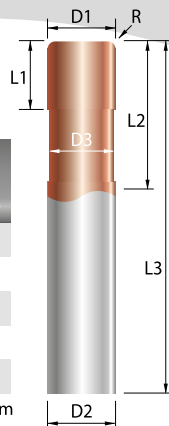
END MILLS



D1	R Tolerance	D1 Tolerance
4.0	$+0.02$ 0	0 -0.02
6.0	$+0.02$ 0	0 -0.02
8.0	$+0.02$ 0	0 -0.025
10.0	$+0.02$ 0	0 -0.03
12.0	$+0.02$ 0	0 -0.035
16.0	$+0.02$ 0	0 -0.04

D2(h6)	D2 Tolerance
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011
Ø16	0 -0.011

unit : mm



Type No.	D1 Diameter	D3 Neck Dia.	R Corner R	L1 Flute Length	L2 Effective Length	L3 O.A.L.	D2 Shank Dia.
UNR0402	4.0	3.90	0.2	6	12	50	6
UNR0405	4.0	3.90	0.5	6	12	50	6
UNR0602	6.0	5.80	0.2	8	18	50	6
UNR0605	6.0	5.80	0.5	8	18	50	6
UNR0610	6.0	5.80	1.0	8	18	50	6
UNR0802	8.0	7.70	0.2	10	24	60	8
UNR0805	8.0	7.70	0.5	10	24	60	8
UNR0810	8.0	7.70	1.0	10	24	60	8
UNR1003	10.0	9.60	0.3	12	30	75	10
UNR1005	10.0	9.60	0.5	12	30	75	10
UNR1010	10.0	9.60	1.0	12	30	75	10
UNR1020	10.0	9.60	2.0	12	30	75	10
UNR1210	12.0	11.5	1.0	15	36	75	12
UNR1220	12.0	11.5	2.0	15	36	75	12
UNR1605	16.0	15.4	0.5	24	40	100	16
UNR1610	16.0	15.4	1.0	24	40	100	16

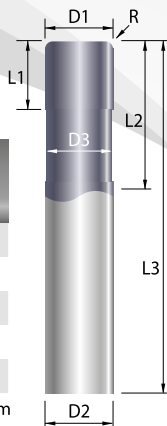
UHR

END MILLS



D1	R Tolerance	D1 Tolerance
6.0	$+0.02$ 0	0 -0.02
8.0	$+0.02$ 0	0 -0.025
10.0	$+0.02$ 0	0 -0.03
12.0	$+0.02$ 0	0 -0.035
16.0	$+0.02$ 0	0 -0.04

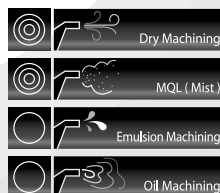
D2(h6)	D2 Tolerance
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011
Ø16	0 -0.011



unit : mm

Type No.	D1 Diameter	D3 Neck Dia.	R Corner R	L1 Flute Length	L2 Effective Length	L3 O.A.L.	D2 Shank Dia.
UHR0605	6.0	5.80	0.5	8	30	75	6
UHR0805	8.0	7.70	0.5	10	40	100	8
UHR1005	10.0	9.60	0.5	12	50	100	10
UHR1010	10.0	9.60	1.0	12	50	100	10
UHR1205	12.0	11.6	0.5	15	50	100	12
UHR1610	16.0	15.4	1.0	24	50	150	16

unit : mm





2T UET

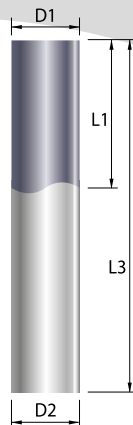
BALL NOSE END MILLS



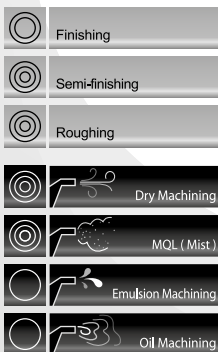
D1	D1 Tolerance
1.0	$\frac{0}{-0.02}$
1.5	$\frac{0}{-0.02}$
2.0	$\frac{0}{-0.02}$
3.0	$\frac{0}{-0.02}$
4.0	$\frac{0}{-0.02}$
5.0	$\frac{0}{-0.02}$
6.0	$\frac{0}{-0.02}$
8.0	$\frac{0}{-0.025}$
10.0	$\frac{0}{-0.03}$
12.0	$\frac{0}{-0.035}$
16.0	$\frac{0}{-0.04}$

D2(h6)	D2 Tolerance
Ø3	$\frac{0}{-0.006}$
Ø4	$\frac{0}{-0.008}$
Ø6	$\frac{0}{-0.008}$
Ø8	$\frac{0}{-0.009}$
Ø10	$\frac{0}{-0.009}$
Ø12	$\frac{0}{-0.011}$
Ø16	$\frac{0}{-0.011}$

unit : mm



Type No.	D1 Diameter	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UET0102S	1.0	3	50	3
UET0102	1.0	3	50	4
UET0152S	1.5	4	50	3
UET0152	1.5	4	50	4
UET0202S	2.0	6	50	3
UET0202	2.0	6	50	4
UET0302S	3.0	8	50	3
UET0302M	3.0	8	50	4
UET0302	3.0	8	50	6
UET0402M	4.0	11	50	4
UET0402	4.0	11	50	6
UET0502	5.0	13	50	6
UET0602	6.0	16	50	6
UET0802	8.0	20	60	8
UET1002	10.0	25	75	10
UET1202	12.0	30	75	12
UET1602	16.0	45	100	16



unit : mm

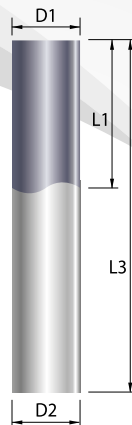
4T UET

BALL NOSE END MILLS

D1	D1 Tolerance
1.0	0 -0.02
1.5	0 -0.02
2.0	0 -0.02
3.0	0 -0.02
4.0	0 -0.02
5.0	0 -0.02
6.0	0 -0.02
8.0	0 -0.025
10.0	0 -0.03
12.0	0 -0.035
16.0	0 -0.04
20.0	0 -0.04

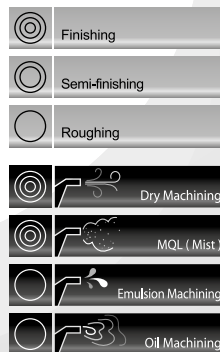
D2(h6)	D2 Tolerance
Ø3	0 -0.006
Ø4	0 -0.008
Ø6	0 -0.008
Ø8	0 -0.009
Ø10	0 -0.009
Ø12	0 -0.011
Ø16	0 -0.011
Ø20	0 -0.013

unit : mm



Type No.	D1 Diameter	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UET0104	1.0	3	50	4
UET0154	1.5	4	50	4
UET0204	2.0	6	50	4
UET0304S	3.0	8	50	3
UET0304M	3.0	8	50	4
UET0304	3.0	8	50	6
UET0404S	4.0	11	50	4
UET0404	4.0	11	50	6
UET0504	5.0	13	50	6
UET0604	6.0	16	50	6
UET0804	8.0	20	60	8
UET1004	10.0	25	75	10
UET1204	12.0	30	75	12
UET1604	16.0	45	100	16
UET2004	20.0	45	100	20

unit : mm





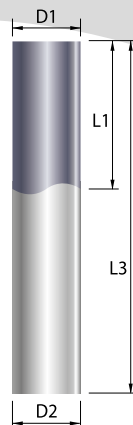
UEX

END MILLS

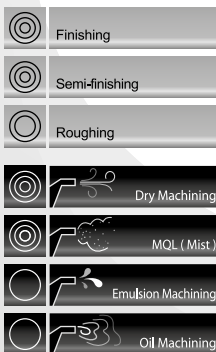
D1	D1 Tolerance
1.0	$0^{-0.02}$
1.5	$0^{-0.02}$
2.0	$0^{-0.02}$
3.0	$0^{-0.02}$
4.0	$0^{-0.02}$
5.0	$0^{-0.02}$
6.0	$0^{-0.02}$
8.0	$0^{-0.025}$
10.0	$0^{-0.03}$
12.0	$0^{-0.035}$
16.0	$0^{-0.04}$
20.0	$0^{-0.04}$

D2(h6)	D2 Tolerance
Ø4	$0^{-0.008}$
Ø6	$0^{-0.008}$
Ø8	$0^{-0.009}$
Ø10	$0^{-0.009}$
Ø12	$0^{-0.011}$
Ø16	$0^{-0.011}$
Ø20	$0^{-0.013}$

unit : mm



Type No.	D1 Diameter	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UEX0104S	1.0	3	50	4
UEX0104	1.0	3	50	6
UEX0154S	1.5	4	50	4
UEX0154	1.5	4	50	6
UEX0204S	2.0	6	50	4
UEX0204	2.0	6	50	6
UEX0304S	3.0	8	50	4
UEX0304	3.0	8	50	6
UEX0404S	4.0	11	50	4
UEX0404	4.0	11	50	6
UEX0504	5.0	13	50	6
UEX0604	6.0	16	50	6
UEX0804	8.0	20	60	8
UEX1004	10.0	22	75	10
UEX1204	12.0	26	75	12
UEX1604	16.0	36	100	16
UEX2004	20.0	40	100	20



unit : mm

UVT

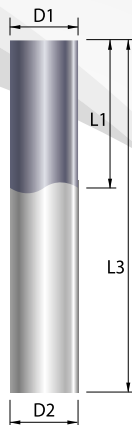
END MILLS

D1	D1 Tolerance	D2(h6)	D2 Tolerance
6.0	$\begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$	Ø6	$\begin{smallmatrix} 0 \\ -0.008 \end{smallmatrix}$
8.0	$\begin{smallmatrix} 0 \\ -0.025 \end{smallmatrix}$	Ø8	$\begin{smallmatrix} 0 \\ -0.009 \end{smallmatrix}$
10.0	$\begin{smallmatrix} 0 \\ -0.03 \end{smallmatrix}$	Ø10	$\begin{smallmatrix} 0 \\ -0.009 \end{smallmatrix}$
12.0	$\begin{smallmatrix} 0 \\ -0.035 \end{smallmatrix}$	Ø12	$\begin{smallmatrix} 0 \\ -0.011 \end{smallmatrix}$
16.0	$\begin{smallmatrix} 0 \\ -0.04 \end{smallmatrix}$	Ø16	$\begin{smallmatrix} 0 \\ -0.011 \end{smallmatrix}$
20.0	$\begin{smallmatrix} 0 \\ -0.04 \end{smallmatrix}$	Ø20	$\begin{smallmatrix} 0 \\ -0.013 \end{smallmatrix}$

unit : mm

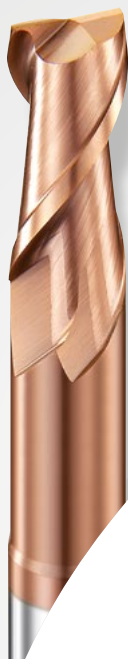
Type No.	D1 Diameter	L1 Flute Length	L3 O.A.L.	D2 Shank Dia.
UVT0606	6.0	16	50	6
UVT0806	8.0	20	60	8
UVT1006	10.0	25	75	10
UVT1206	12.0	30	75	12
UVT1606	16.0	40	100	16
UVT2006	20.0	45	100	20

unit : mm



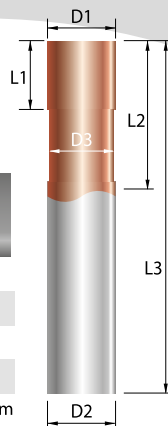
	Finishing
	Semi-finishing
	Roughing

		Dry Machining
		MQL (Mist)
		Emulsion Machining
		Oil Machining



2T ULE

END MILLS



D1	D1 Tolerance
6.0	$\begin{matrix} 0 \\ -0.02 \end{matrix}$
8.0	$\begin{matrix} 0 \\ -0.025 \end{matrix}$
10.0	$\begin{matrix} 0 \\ -0.03 \end{matrix}$
12.0	$\begin{matrix} 0 \\ -0.035 \end{matrix}$

D2(h6)	D2 Tolerance
Ø6	$\begin{matrix} 0 \\ -0.008 \end{matrix}$
Ø8	$\begin{matrix} 0 \\ -0.009 \end{matrix}$
Ø10	$\begin{matrix} 0 \\ -0.009 \end{matrix}$
Ø12	$\begin{matrix} 0 \\ -0.011 \end{matrix}$

unit : mm



	Finishing
	Semi-finishing
	Roughing

		Dry Machining
		MQL (Mist)
		Emulsion Machining
		Oil Machining

Type No.	D1 Diameter	D3 Neck Dia.	L1 Flute Length	L2 Effective Length	L3 O.A.L.	D2 Shank Dia.
ULE0602	6.0	5.80	16	40	100	6
ULE0602X	6.0	5.80	16	40	150	6
ULE0802	8.0	7.70	20	50	100	8
ULE0802X	8.0	7.70	20	50	150	8
ULE1002	10.0	9.60	25	50	100	10
ULE1002X	10.0	9.60	25	50	150	10
ULE1202	12.0	11.5	30	50	100	12
ULE1202X	12.0	11.5	30	50	150	12

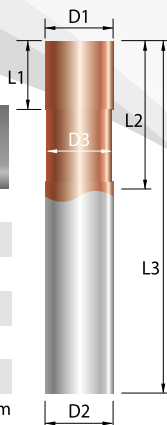
unit : mm

4T ULE

END MILLS

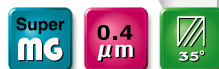
D1	D1 Tolerance	D2(h6)	D2 Tolerance
6.0	$\begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$	Ø6	$\begin{smallmatrix} 0 \\ -0.008 \end{smallmatrix}$
8.0	$\begin{smallmatrix} 0 \\ -0.025 \end{smallmatrix}$	Ø8	$\begin{smallmatrix} 0 \\ -0.009 \end{smallmatrix}$
10.0	$\begin{smallmatrix} 0 \\ -0.03 \end{smallmatrix}$	Ø10	$\begin{smallmatrix} 0 \\ -0.009 \end{smallmatrix}$
12.0	$\begin{smallmatrix} 0 \\ -0.035 \end{smallmatrix}$	Ø12	$\begin{smallmatrix} 0 \\ -0.011 \end{smallmatrix}$
16.0	$\begin{smallmatrix} 0 \\ -0.04 \end{smallmatrix}$	Ø16	$\begin{smallmatrix} 0 \\ -0.011 \end{smallmatrix}$
20.0	$\begin{smallmatrix} 0 \\ -0.04 \end{smallmatrix}$	Ø20	$\begin{smallmatrix} 0 \\ -0.013 \end{smallmatrix}$

unit : mm



Type No.	D1 Diameter	D3 Neck Dia.	L1 Flute Length	L2 Effective Length	L3 O.A.L.	D2 Shank Dia.
ULE0604	6.0	5.80	16	40	100	6
ULE0604X	6.0	5.80	16	40	150	6
ULE0804	8.0	7.70	20	50	100	8
ULE0804X	8.0	7.70	20	50	150	8
ULE1004	10.0	9.60	25	50	100	10
ULE1004X	10.0	9.60	25	50	150	10
ULE1204	12.0	11.5	30	50	100	12
ULE1204X	12.0	11.5	30	50	150	12
ULE1604X	16.0	15.5	40	65	150	16
ULE2004X	20.0	19.0	45	70	150	20

unit : mm



	Finishing
	Semi-finishing
	Roughing

	 Dry Machining
	 MQL (Mist)
	 Emulsion Machining
	 Oil Machining

SELECTION OF DHF High Speed & High Hard Cutting Series



Work Material	End Mills			Corner Radius End Mills			Ball Nose End Mills		
	First Selection	Second Selection	Third Selection	First Selection	Second Selection	Third Selection	First Selection	Second Selection	Third Selection
<i>Alloy Tool Steels / Carbon Tool Steels</i> P20 / P5 / SK3 / SKD61 / SKD11 : 1.2311 / 1.1545 / 1.2379 / 1.2344 : H13 / D2 (HRC 23~32)	UET	-	-	UOR UXR ULXR	UER ULR	-	UBX UHBX	UBG UHBG	UB UHB
<i>Prehardened Steels</i> NAK80 : 1.2083 : AISI420 : M310 (HRC36~45)	UEX	UVT	UET	UOR UXR ULXR	UER ULR	-	UBG UHBG	UBX UHBX	UB UHB
<i>Hardened Steels</i> SKD61 / STAVAX / 17-4PH : 1.2083 / 1.2344 / 1.4542 : H13 / 420 (HRC48~54)	UVT	UEX	UET	UEYR UVTR ULXR	UOR UVR UPR UGR ULR	UXR UER UKR	UOB	UBT UQB UHB	UBX UHBX
<i>Hardened Steels</i> SKD11 / SKH9 : 1.2379 / 1.3342 : D2 / M2 (HRC55~62)	UVT	UEX	UET	UEYR UVTR	UVR UPR	UGR	UOB	UBT UQB UHB	-
<i>Stainless Steels</i> SUS304 : 1.4301 : AISI 304 (HRC 28~32)	UET	-	-	UVR	UXR	UER	UB UHB	UBX UHBX	UBG UHBG
<i>Stainless Steels</i> SUS420J2 / SUS630 : 1.2083 / 1.4542 : AISI 420 / 17-4PH (HRC 28~32)	UET	-	-	UVR	UXR	UER	UB UHB	UBX UHBX	UBG UHBG



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