

For high hardness (HRC50~63)

H-Star Endmill

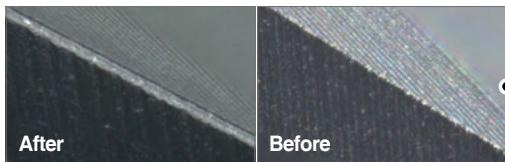
- **High hardness coating layer** - Ensuring stable cutting from high Si content, increased wear resistance and frictional heat resistance due to applying a new AlTiSiN series coating layer
- **High hardness substrate** - Containing ultra-fine WC + Co 9% and expanded general application range by maximizing cutting edge feature
- **Edge treatment** - Increased chipping resistance in the beginning of high hardness steel cutting and enhanced wear resistance lead to stable cutting

Code system

ES	R	70	4	100	15	32	-	10
H-Star Endmill	Type	Length, Shank type	No. of flute	Tool dia.	Corner R	Effective		Shank dia.
	B: Ball E: Flat R: Radius XE: Flat (irregular flute spacing) XR: Radius (irregular flute spacing) PM: Power mill RB: Rib ball RE: Rib flat RR: Rib radius LNB: Long neck ball TNB: Taper neck ball LNS: Long neck flat LNR: Long neck radius	70: Neck 71: Straight, neck 72: Long shank neck 73: Long shank 74: Helix 35°	2: 2 flutes 3: 3 flutes 4: 4 flutes 6: 6 flutes	010: Ø1.0mm 060: Ø6.0mm 065: Ø6.5mm 100: Ø10.0mm	05: 0.5mm 15: 1.5mm 20: 2.0mm	10: 10mm 12: 12mm 32: 32mm		06: Ø6.0mm 10: Ø10.0mm 12: Ø12.0mm

Features

• Edge treatment



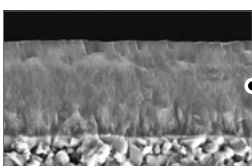
- Enhancing chipping resistance in the beginning of high hardness steel cutting
- Increased wear resistance and stable cutting performance

• High hardness substrate

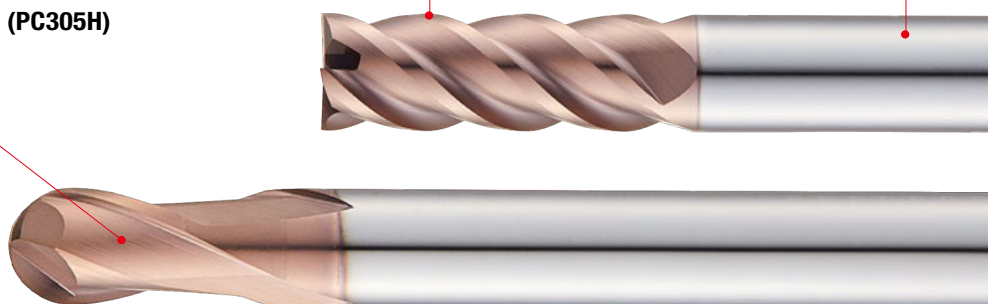


- Ultra-fine WC + Co 9%
- Expanded general application range by maximizing cutting edge feature

• High hardness coating layer (PC305H)

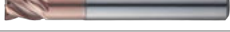
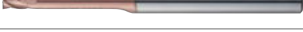
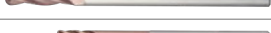


- High Si content
- Enhanced wear resistance
- Stable cutting through frictional heat resistance increase



B Technical Information for H-Star Endmill

Line-up

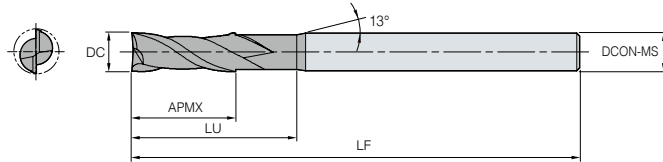
Designation	Appearance	Type	Tolerance	Irregular flute spacing	page
ESE702		2 flutes neck type flat Endmill	Ø0.1 ~ 20.0		B26
ESE712		2 flutes flat Endmill	Ø1.0 ~ 12.0		B27
ESE704		4 flutes neck type flat Endmill	Ø1.0 ~ 20.0		B28
ESE714		4 flutes high helix flat Endmill	Ø1.0 ~ 12.0		B29
ESE724(6)		4&6 flutes neck type flat Endmill	Ø1.0 ~ 12.0		B30
ESE744		4 flutes high helix flat Endmill	Ø1.0 ~ 12.0		B31
ESE716		6 flutes high helix flat Endmill	Ø6.0 ~ 20.0		B32
ESRE712		2 flutes rib neck type flat Endmill	Ø0.1 ~ 12.0		B33~B35
ESRE714		4 flutes rib flat Endmill	Ø0.5 ~ 12.0		B36~B37
ESXE704		4 flutes neck type flat Endmill	Ø1.0 ~ 12.0	●	B38
ESXE714		4 flutes flat Endmill	Ø2.0 ~ 12.0	●	B38
ESLNS20		2 flutes long neck type flat Endmill	Ø0.1 ~ 5.0		B39~B42
ESLNS40		4 flutes long neck type flat Endmill	Ø1.0 ~ 5.0		B43~B44
ESR702		2 flutes neck type radius Endmill	Ø1.0 ~ 12.0		B45~B47
ESR732		2 flutes long shank radius Endmill	Ø1.0 ~ 12.0		B48
ESR704		4 flutes neck type radius Endmill	Ø1.0 ~ 12.0		B49~B50
ESR714		4 flutes radius Endmill	Ø3.0 ~ 12.0		B51
ESR724		4 flutes neck type radius Endmill	Ø6.0 ~ 12.0		B51
ESR734		4 flutes long shank radius Endmill	Ø1.0 ~ 12.0		B52
ESR706		6 flutes neck type radius Endmill	Ø6.0 ~ 12.0		B53
ESR736		6 flutes radius Endmill	Ø6.0 ~ 12.0		B53
ESRR712		2 flutes rib radius Endmill	Ø0.2 ~ 16.0		B54~B59
ESRR714		4 flutes rib radius Endmill	Ø0.5 ~ 20.0		B60~B66
ESXR704		4 flutes neck type radius Endmill	Ø1.0 ~ 12.0	●	B67
ESLNR20		2 flutes long radius Endmill	Ø0.2 ~ 3.0		B68~B71
ESTNR20		2 flutes tapered neck type radius Endmill	Ø0.2 ~ 3.0		B72~B73
ESPM4		4 flutes neck type radius Endmill	Ø3.0 ~ 12.0		B74
ESB702		2 flutes neck type ball Endmill	Ø0.1 ~ 12.0		B75
ESB712		2 flutes ball Endmill	Ø1.0 ~ 12.0		B76
ESB703		3 flutes neck type ball Endmill	Ø2.0 ~ 12.0		B77
ESB734		4 flutes 15° helix ball Endmill	Ø2.0 ~ 10.0		B78
ESRB712		2 flutes rib ball Endmill	Ø0.1 ~ 12.0		B79~B82
ESLNB20		2 flutes long neck type ball Endmill	Ø0.1 ~ 5.0		B83~B86
ESTNB20		2 flutes tapered neck type ball Endmill	Ø0.2 ~ 10.0		B87~B90
ESTNB30		3 flutes tapered neck type ball Endmill	Ø2.0 ~ 5.0		B91

ESE702

2 flutes neck type flat



CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	DC Ø0.1 ~ Ø6 Ø8 ~ Ø20	Tolerance 0.000 ~ -0.012 0.000 ~ -0.015
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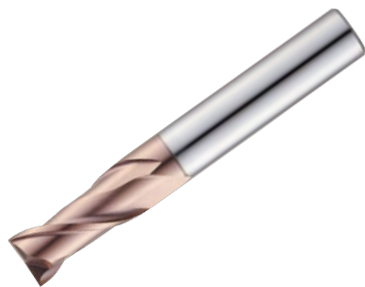


(mm)

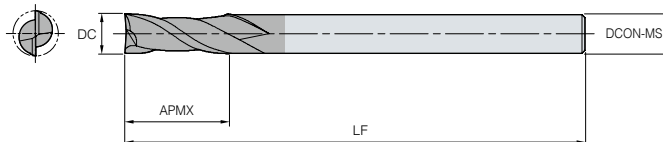
Designation	DC	DCON-MS	APMX	LU	LF
ESE 702001	0.1	4	0.2	-	40
702002	0.2	4	0.4	-	40
702003	0.3	4	0.5	-	40
702004	0.4	4	0.7	-	40
702005	0.5	4	1	-	40
702006	0.6	4	1.2	-	40
702007	0.7	4	1.4	-	40
702008	0.8	4	1.6	-	40
702009	0.9	4	2	-	40
702010	1	6	1.5	-	40
702010S4	1	4	1.5	-	40
702015	1.5	6	2.2	-	40
702020	2	6	3	6	40
702020S4	2	4	3	6	40
702025	2.5	6	4	6	40
702030	3	6	4	7	45
702035	3.5	6	6	9	45
702040	4	6	6	9	45
702045	4.5	6	6	10	45
702050	5	6	6	11	50
702060	6	6	7	14	50
702080	8	8	9	18	60
702100	10	10	12	25	75
702120	12	12	15	30	75
702160	16	16	18	38	90
702200	20	20	24	45	100

ESE712

2 flutes flat



DC	Tolerance
Ø1 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø12	0.000 ~ -0.015



(mm)

	Designation	DC	DCON-MS	APMX	LF
ESE	712010	1	6	3	40
	712010-02	1	6	2	40
	712010-02S4	1	4	2	40
	712010-04	1	6	4	40
	712012	1.2	6	3	40
	712015	1.5	6	4	40
	712015S4	1.5	4	4	40
	712015-06	1.5	6	6	40
	712015-08	1.5	6	8	40
	712020	2	6	5	40
	712020S4	2	4	5	40
	712020-08	2	6	8	40
	712020-10	2	6	10	50
	712025	2.5	6	6	40
	712025S4	2.5	4	6	40
	712030	3	6	8	45
	712030S4	3	4	8	45
	712030-10	3	6	10	50
	712030-12	3	6	12	50
	712035	3.5	6	10	45
	712040	4	6	10	45
	712040S4	4	4	10	45
	712040-12	4	6	12	50
	712040-16	4	6	16	60
	712045	4.5	6	11	45
	712050	5	6	13	50
	712055	5.5	6	13	50
	712060	6	6	13	50
	712060-15	6	6	15	60
	712065	6.5	8	16	60
	712070	7	8	18	60
	712080	8	8	19	60
	712100	10	10	22	70
	712100-25	10	10	25	70
	712120	12	12	26	75
	712120-30	12	12	30	75

ESE704

4 flutes neck type flat



CARBIDE

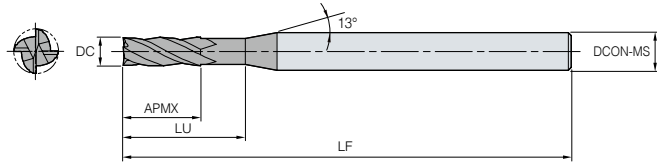
4

H-A
30°

Grade
PC305H

h5
shank

DC	Tolerance
Ø1 - Ø6	0.000 ~ -0.012
Ø8 - Ø20	0.000 ~ -0.015

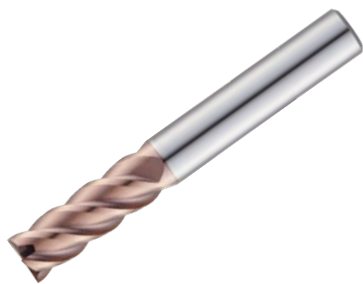


(mm)

Designation	DC	DCON-MS	APMX	LU	LF
ESE 704010	1	6	1.5	-	40
704010S4	1	4	1.5	-	40
704015	1.5	6	2.2	-	40
704015S4	1.5	4	2.2	-	40
704020	2	6	3	6	40
704020S4	2	4	3	6	40
704025	2.5	6	4	6	40
704025S4	2.5	4	4	6	40
704030	3	6	4	7	45
704030S4	3	4	4	7	45
704035	3.5	6	5	9	45
704040	4	6	5	9	45
704040S4	4	4	5	9	45
704045	4.5	6	6	10	45
704050	5	6	6	11	50
704060	6	6	7	14	50
704080	8	8	9	18	60
704100	10	10	12	25	75
704120	12	12	15	30	75
704160	16	16	18	38	90
704200	20	20	24	45	100

ESE714

4 flutes high helix flat



CARBIDE

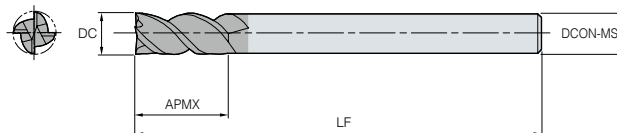
4

H-A
45°

Grade
PC305H

h5
shank

DC	Tolerance
Ø1 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø12	0.000 ~ -0.015

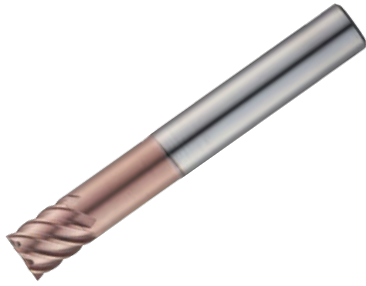


(mm)

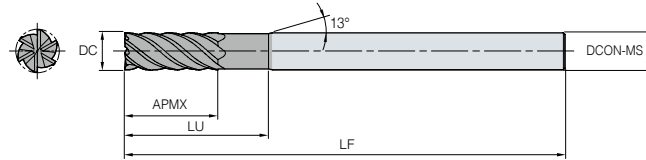
Designation	DC	DCON-MS	APMX	LF
ESE 714010	1	6	2.5	40
714010S4	1	4	2.5	40
714012	1.2	6	3	40
714015	1.5	6	4	40
714015S4	1.5	4	4	40
714020	2	6	5	40
714020S4	2	4	5	40
714025	2.5	6	6	40
714025S4	2.5	4	6	40
714030	3	6	8	45
714030S4	3	4	8	45
714035	3.5	6	9	45
714040	4	6	10	45
714040S4	4	4	10	45
714050	5	6	13	50
714060	6	6	13	50
714060-15	6	6	15	60
714060-15L	6	6	15	90
714080	8	8	19	60
714080L	8	8	19	100
714100	10	10	22	70
714100-25	10	10	25	70
714100-25L	10	10	25	100
714120	12	12	26	75
714120-30	12	12	30	80
714120-30L	12	12	30	100

ESE724(6)

4&6 flutes neck type flat



CARBIDE	4	6	H-A 45°	H-A 60°	Grade PC305H	h5 shank	DC Ø1 - Ø6 Ø8 - Ø12	Tolerance 0.000 ~ -0.012 0.000 ~ -0.015
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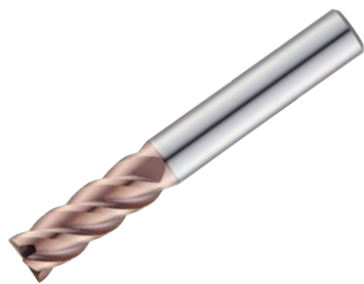


(mm)

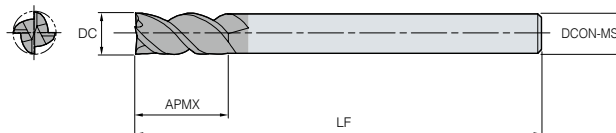
Designation		DC	DCON-MS	APMX	LU	LF	NOF
ESE	724010	1	6	1.5	5	45	4
	724015	1.5	6	2.2	6	45	4
	724020	2	6	3	8	45	4
	724030	3	6	4	9	50	4
	724040	4	6	5	12	50	4
	724040S4L	4	4	5	12	75	4
	724050	5	6	6	15	50	4
	726060	6	6	7	20	60	6
	726080	8	8	9	25	70	6
	726100	10	10	12	32	75	6
	726120	12	12	15	38	80	6

ESE744

4 flutes flat



DC	Tolerance
Ø1 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø12	0.000 ~ -0.015

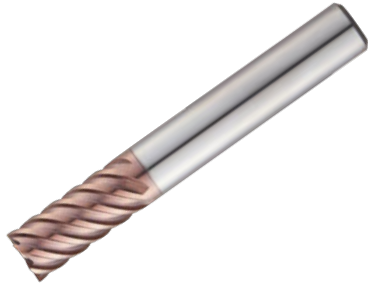


(mm)

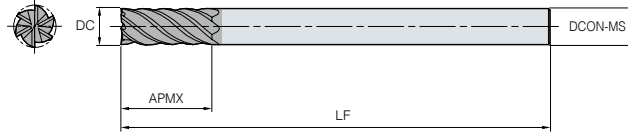
Designation		DC	DCON-MS	APMX	LF
ESE	744010S3	1	3	2.5	40
	744010S4	1	4	2.5	40
	744010	1	6	2.5	40
	744012S3	1.2	3	3	40
	744012S4	1.2	4	3	40
	744015S3	1.5	3	4	40
	744015S4	1.5	4	4	40
	744015	1.5	6	4	40
	744020S3	2	3	6	40
	744020S4	2	4	6	40
	744020	2	6	6	40
	744025S3	2.5	3	8	45
	744025S4	2.5	4	8	45
	744025	2.5	6	8	45
	744030S3	3	3	8	50
	744030S4	3	4	8	45
	744030	3	6	8	45
	744035	3.5	6	10	45
	744040S4	4	4	11	45
	744040	4	6	11	45
	744045	4.5	6	11	45
	744050	5	6	13	50
	744055	5.5	6	13	50
	744060	6	6	13	50
	744080	8	8	19	60
	744100	10	10	22	70
	744120	12	12	26	75

ESE716

6 flutes high helix flat



CARBIDE	6	H-A 50°	Grade PC305H	h5 shank	DC Ø6 Ø8 - Ø20	Tolerance 0.000 ~ -0.012 0.000 ~ -0.015
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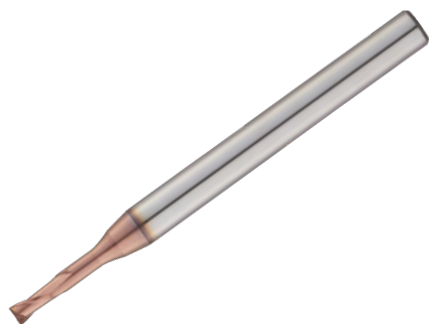


(mm)

Designation		DC	DCON-MS	APMX	LF
ESE	716060	6	6	13	50
	716080	8	8	18	60
	716100	10	10	22	70
	716120	12	12	26	75
	716160	16	16	35	90
	716200	20	20	44	100

ESRE712

2 flutes rib neck type flat



CARBIDE

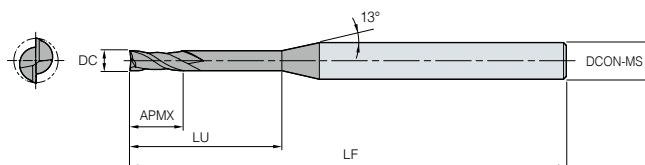
2

H-A
30°

Grade
PC305H

h5 shank

DC	Tolerance
Ø0.1 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø12	0.000 ~ -0.015



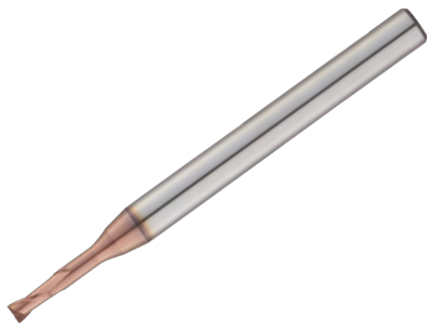
(mm)

	Designation	DC	DCON-MS	APMX	LU	LF
ESRE	712001003	0.1	4	0.15	0.3	40
	712001005	0.1	4	0.15	0.5	40
	71200101	0.1	4	0.15	1	40
	712002005	0.2	4	0.3	0.5	40
	712002015	0.2	4	0.3	1.5	40
	71200201	0.2	4	0.3	1	40
	71200202	0.2	4	0.3	2	40
	712003015	0.3	4	0.5	1.5	40
	71200301	0.3	4	0.5	1	40
	712003025	0.3	4	0.5	2.5	40
	71200302	0.3	4	0.5	2	40
	71200303	0.3	4	0.5	3	40
	71200304	0.3	4	0.5	4	40
	71200305	0.3	4	0.5	5	40
	712004015	0.4	4	0.6	1.5	40
	71200401	0.4	4	0.6	1	40
	712004025	0.4	4	0.6	2.5	40
	71200402	0.4	4	0.6	2	40
	71200403	0.4	4	0.6	3	40
	71200404	0.4	4	0.6	4	40
	71200405	0.4	4	0.6	5	40
	71200406	0.4	4	0.6	6	40
	71200408	0.4	4	0.6	8	40
	71200410	0.5	4	0.6	10	40
	712005015	0.5	4	0.7	1.5	45
	71200501	0.5	4	0.7	1	45
	712005025	0.5	4	0.7	2.5	45
	71200502	0.5	4	0.7	2	45
	71200503	0.5	4	0.7	3	45
	71200504	0.5	4	0.7	4	45
	71200505	0.5	4	0.7	5	45
	71200506	0.5	4	0.7	6	45
	71200508	0.5	4	0.7	8	45
	71200510	0.5	4	0.7	10	45
	71200512	0.5	4	0.7	12	45
	71200514	0.5	4	0.7	14	45
	71200516	0.5	4	0.7	16	45
	71200602	0.6	4	0.9	2	45

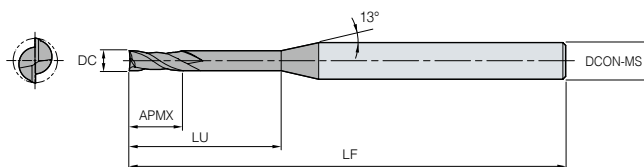
	Designation	DC	DCON-MS	APMX	LU	LF
ESRE	71200603	0.6	4	0.9	3	45
	71200604	0.6	4	0.9	4	45
	71200605	0.6	4	0.9	5	45
	71200606	0.6	4	0.9	6	45
	71200608	0.6	4	0.9	8	45
	71200610	0.6	4	0.9	10	45
	71200612	0.6	4	0.9	12	45
	71200614	0.6	4	0.9	14	45
	71200616	0.6	4	0.9	16	45
	71200702	0.7	4	1.2	2	45
	71200704	0.7	4	1.2	4	45
	71200706	0.7	4	1.2	6	45
	71200708	0.7	4	1.2	8	45
	71200710	0.7	4	1.2	10	45
	71200712	0.7	4	1.2	12	45
	71200802	0.8	4	1.2	2	45
	71200803	0.8	4	1.2	3	45
	71200804	0.8	4	1.2	4	45
	71200805	0.8	4	1.2	5	45
	71200806	0.8	4	1.2	6	45
	71200808	0.8	4	1.2	8	45
	71200810	0.8	4	1.2	10	45
	71200812	0.8	4	1.2	12	45
	71200814	0.8	4	1.2	14	45
	71200816	0.8	4	1.2	16	45
	71200820	0.8	4	1.2	20	50
	71200906	0.9	4	1.3	6	45
	71200908	0.9	4	1.3	8	45
	71200910	0.9	4	1.3	10	45
	71201002	1	4	1.5	2	50
	71201003	1	4	1.5	3	50
	71201004	1	4	1.5	4	50
	71201005	1	4	1.5	5	50
	71201006	1	4	1.5	6	50
	71201007	1	4	1.5	7	50
	71201008	1	4	1.5	8	50
	71201010	1	4	1.5	10	50
	71201012	1	4	1.5	12	50

ESRE712

2 flutes rib neck type flat



CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	DC Ø0.1 ~ Ø6 Ø8 ~ Ø12	Tolerance 0.000 ~ -0.012 0.000 ~ -0.015
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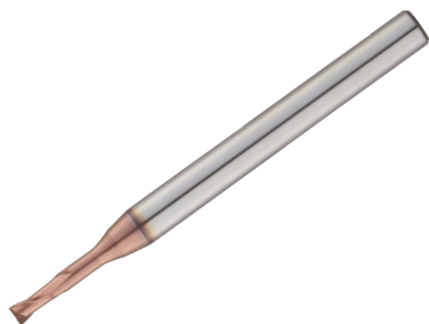


Designation	DC	DCON-MS	APMX	LU	LF
ESRE 71201014	1	4	1.5	14	50
71201016	1	4	1.5	16	50
71201018	1	4	1.5	18	50
71201020	1	4	1.5	20	50
71201022	1	4	1.5	22	60
71201026	1	4	1.5	26	60
71201030	1	4	1.5	30	70
71201040	1	4	1.5	40	80
71201050	1	4	1.5	50	100
71201204	1.2	4	1.8	4	50
71201206	1.2	4	1.8	6	50
71201208	1.2	4	1.8	8	50
71201210	1.2	4	1.8	10	50
71201212	1.2	4	1.8	12	50
71201214	1.2	4	1.8	14	50
71201216	1.2	4	1.8	16	50
71201220	1.2	4	1.8	20	50
71201226	1.2	4	1.8	26	60
71201230	1.2	4	1.8	30	70
71201406	1.4	4	2.1	6	50
71201408	1.4	4	2.1	8	50
71201410	1.4	4	2.1	10	50
71201414	1.4	4	2.1	14	50
71201416	1.4	4	2.1	16	50
71201420	1.4	4	2.1	20	50
71201504	1.5	4	2.3	4	50
71201505	1.5	4	2.3	5	50
71201506	1.5	4	2.3	6	50
71201507	1.5	4	2.3	7	50
71201508	1.5	4	2.3	8	50
71201510	1.5	4	2.3	10	50
71201512	1.5	4	2.3	12	50
71201514	1.5	4	2.3	14	50
71201516	1.5	4	2.3	16	50
71201518	1.5	4	2.3	18	50
71201520	1.5	4	2.3	20	50
71201522	1.5	4	2.3	22	60
71201526	1.5	4	2.3	26	60

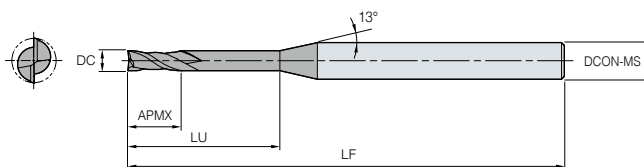
Designation	DC	DCON-MS	APMX	LU	LF
ESRE 71201530	1.5	4	2.3	30	70
71201608	1.6	4	2.3	8	50
71201610	1.6	4	2.3	10	50
71201612	1.6	4	2.3	12	50
71201616	1.6	4	2.3	16	50
71201620	1.6	4	2.3	20	50
71201808	1.8	4	2.7	8	50
71201810	1.8	4	2.7	10	50
71201812	1.8	4	2.7	12	50
71201816	1.8	4	2.7	16	50
71201820	1.8	4	2.7	20	50
71202006	2	4	3	6	50
71202008	2	4	3	8	50
71202010	2	4	3	10	50
71202012	2	4	3	12	50
71202014	2	4	3	14	50
71202016	2	4	3	16	50
71202018	2	4	3	18	50
71202020	2	4	3	20	50
71202022	2	4	3	22	60
71202026	2	4	3	26	60
71202030	2	4	3	30	70
71202035	2	4	3	35	70
71202040	2	4	3	40	80
71202045	2	4	3	45	90
71202050	2	4	3	50	100
71202060	2	4	3	60	110
71202508	2.5	4	4	8	50
71202510	2.5	4	4	10	50
71202512	2.5	4	4	12	50
71202514	2.5	4	4	14	50
71202516	2.5	4	4	16	50
71202518	2.5	4	4	18	50
71202520	2.5	4	4	20	50
71202522	2.5	4	4	22	60
71202526	2.5	4	4	26	60
71202530	2.5	4	4	30	70
71202535	2.5	4	4	35	70

ESRE712

2 flutes rib neck type flat



DC	Tolerance
Ø0.1 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø12	0.000 ~ -0.015



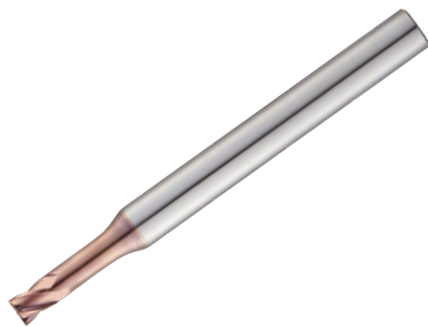
(mm)

	Designation	DC	DCON-MS	APMX	LU	LF
ESRE	71202540	2.5	4	4	40	80
	71202545	2.5	4	4	45	90
	71202550	2.5	4	4	50	100
	71203006	3	6	4.5	6	50
	71203008	3	6	4.5	8	50
	71203010	3	6	4.5	10	50
	71203012	3	6	4.5	12	50
	71203014	3	6	4.5	14	60
	71203016	3	6	4.5	16	60
	71203018	3	6	4.5	18	60
	71203020	3	6	4.5	20	60
	71203022	3	6	4.5	22	65
	71203026	3	6	4.5	26	65
	71203030	3	6	4.5	30	70
	71203035	3	6	4.5	35	70
	71203040	3	6	4.5	40	80
	71203045	3	6	4.5	45	90
	71203050	3	6	4.5	50	100
	71203060	3	6	4.5	60	100
	71204008	4	6	6	8	50
	71204010	4	6	6	10	50
	71204012	4	6	6	12	50
	71204014	4	6	6	14	60
	71204016	4	6	6	16	60
	71204018	4	6	6	18	60
	71204020	4	6	6	20	60
	71204022	4	6	6	22	65
	71204026	4	6	6	26	65

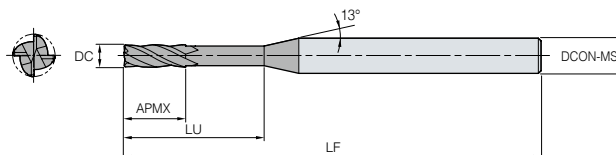
	Designation	DC	DCON-MS	APMX	LU	LF
ESRE	71204030	4	6	6	30	70
	71204035	4	6	6	35	70
	71204040	4	6	6	40	80
	71204045	4	6	6	45	90
	71204050	4	6	6	50	100
	71204060	4	6	6	60	100
	71205016	5	6	8	16	60
	71205020	5	6	8	20	60
	71205026	5	6	8	26	65
	71205030	5	6	8	30	70
	71205035	5	6	8	35	75
	71205040	5	6	8	40	80
	71205050	5	6	8	50	90
	71205060	5	6	8	60	100
	71206015	6	6	9	15	60
	71206020	6	6	9	20	60
	71206030	6	6	9	30	70
	71206032	6	6	9	32	90
	71208025	8	8	12	25	70
	71208030	8	8	12	30	80
	71208042	8	8	12	42	100
	71210030	10	10	15	30	75
	71210035	10	10	15	35	80
	71210045	10	10	15	45	100
	71212035	12	12	20	35	80
	71212040	12	12	20	40	90
	71212050	12	12	20	50	110

ESRE714

4 flutes rib flat



CARBIDE	4	H-A 30°	Grade PC305H	h5 shank	DC Ø0.5 ~ Ø6 Ø8 ~ Ø12	Tolerance 0.000 ~ -0.012 0.000 ~ -0.015
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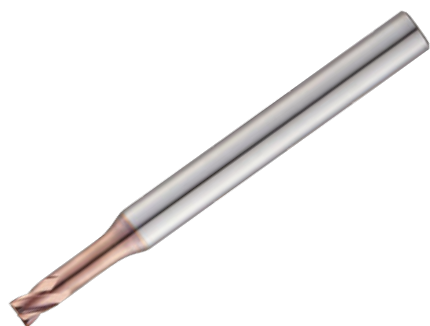


	Designation	DC	DCON-MS	APMX	LU	LF
ESRE	71400501	0.5	4	0.5	1	40
	71400502	0.5	4	0.5	2	40
	71400503	0.5	4	0.5	3	45
	71400504	0.5	4	0.5	4	45
	71400505	0.5	4	0.5	5	45
	71400506	0.5	4	0.5	6	45
	71400508	0.5	4	0.5	8	45
	71400510	0.5	4	0.5	10	50
	71400601	0.6	4	0.6	1	45
	71400602	0.6	4	0.6	2	45
	71400603	0.6	4	0.6	3	45
	71400604	0.6	4	0.6	4	45
	71400605	0.6	4	0.6	5	45
	71400606	0.6	4	0.6	6	45
	71400608	0.6	4	0.6	8	45
	71400610	0.6	4	0.6	10	50
	71400612	0.6	4	0.6	12	50
	71400702	0.7	4	0.7	2	45
	71400704	0.7	4	0.7	4	45
	71400706	0.7	4	0.7	6	45
	71400708	0.7	4	0.7	8	45
	71400710	0.7	4	0.7	10	50
	71400801	0.8	4	0.8	1	40
	71400802	0.8	4	0.8	2	40
	71400803	0.8	4	0.8	3	40
	71400804	0.8	4	0.8	4	40
	71400805	0.8	4	0.8	5	40
	71400806	0.8	4	0.8	6	40
	71400808	0.8	4	0.8	8	40
	71400810	0.8	4	0.8	10	50
	71400812	0.8	4	0.8	12	50
	71400816	0.8	4	0.8	16	50
	71401002	1	4	1	2	45
	71401003	1	4	1	3	45
	71401004	1	4	1	4	45
	71401006	1	4	1	6	45
	71401008	1	4	1	8	45
	71401010	1	4	1	10	50
	71401012	1	4	1	12	50
	71401014	1	4	1	14	50

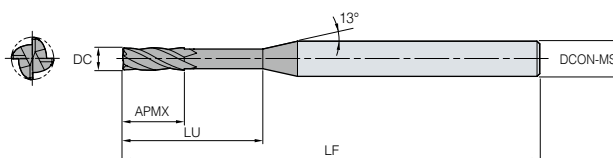
	Designation	DC	DCON-MS	APMX	LU	LF
ESRE	71401016	1	4	1	16	50
	71401018	1	4	1	18	60
	71401020	1	4	1	20	60
	71401204	1.2	4	1.2	4	45
	71401206	1.2	4	1.2	6	45
	71401208	1.2	4	1.2	8	45
	71401210	1.2	4	1.2	10	50
	71401212	1.2	4	1.2	12	50
	71401216	1.2	4	1.2	16	50
	71401218	1.2	4	1.2	18	60
	71401220	1.2	4	1.2	20	60
	71401406	1.4	4	1.4	6	45
	71401408	1.4	4	1.4	8	45
	71401410	1.4	4	1.4	10	50
	71401412	1.4	4	1.4	12	50
	71401414	1.4	4	1.4	14	50
	71401416	1.4	4	1.4	16	50
	71401504	1.5	4	1.5	4	45
	71401506	1.5	4	1.5	6	45
	71401508	1.5	4	1.5	8	45
	71401510	1.5	4	1.5	10	50
	71401512	1.5	4	1.5	12	50
	71401516	1.5	4	1.5	16	50
	71401518	1.5	4	1.5	18	60
	71401520	1.5	4	1.5	20	60
	71401525	1.5	4	1.5	25	60
	71401530	1.5	4	1.5	30	70
	71401606	1.6	4	1.6	6	45
	71401608	1.6	4	1.6	8	45
	71401610	1.6	4	1.6	10	50
	71401612	1.6	4	1.6	12	50
	71401614	1.6	4	1.6	14	50
	71401616	1.6	4	1.6	16	50
	71401618	1.6	4	1.6	18	60
	71401620	1.6	4	1.6	20	60
	71401625	1.6	4	1.6	25	70
	71401806	1.8	4	1.8	6	45
	71401808	1.8	4	1.8	8	45
	71401810	1.8	4	1.8	10	50
	71401812	1.8	4	1.8	12	50

ESRE714

4 flutes rib flat



CARBIDE	4	H-A 30°	Grade PC305H	h5 shank	DC	Tolerance
					Ø0.5 ~ Ø6	0.000 ~ -0.012
					Ø8 ~ Ø12	0.000 ~ -0.015



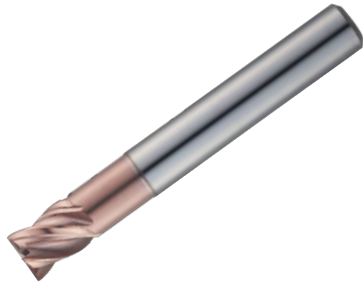
(mm)

	Designation	DC	DCON-MS	APMX	LU	LF
ESRE	71401816	1.8	4	1.8	16	50
	71401820	1.8	4	1.8	20	60
	71401825	1.8	4	1.8	25	70
	71402004	2	4	2	4	45
	71402006	2	4	2	6	45
	71402008	2	4	2	8	45
	71402010	2	4	2	10	50
	71402012	2	4	2	12	50
	71402014	2	4	2	14	50
	71402016	2	4	2	16	50
	71402018	2	4	2	18	50
	71402020	2	4	2	20	50
	71402022	2	4	2	22	60
	71402025	2	4	2	25	60
	71402030	2	4	2	30	70
	71402510	2.5	4	2.5	10	50
	71402512	2.5	4	2.5	12	50
	71402516	2.5	4	2.5	16	50
	71402520	2.5	4	2.5	20	50
	71402525	2.5	4	2.5	25	60
	71402530	2.5	4	2.5	30	70
	71403006	3	6	3	6	45
	71403008	3	6	3	8	45
	71403010	3	6	3	10	50
	71403012	3	6	3	12	50
	71403016	3	6	3	16	55
	71403020	3	6	3	20	60
	71403025	3	6	3	25	65
	71403030	3	6	3	30	70
	71403035	3	6	3	35	75
	71403040	3	6	3	40	80
	71403045	3	6	3	45	90
	71403050	3	6	3	50	100
	71403060	3	6	3	60	110
	71403512	3.5	6	3.5	12	50
	71403516	3.5	6	3.5	16	55
	71403520	3.5	6	3.5	20	60
	71403525	3.5	6	3.5	25	65
	71403530	3.5	6	3.5	30	70
	71403535	3.5	6	3.5	35	75

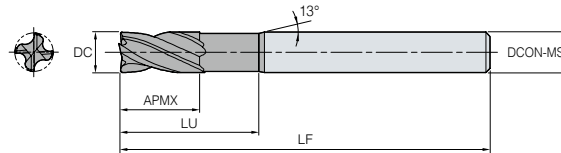
	Designation	DC	DCON-MS	APMX	LU	LF
ESRE	71403540	3.5	6	3.5	40	80
	71404006	4	6	4	6	50
	71404008	4	6	4	8	50
	71404010	4	6	4	10	50
	71404012	4	6	4	12	50
	71404016	4	6	4	16	55
	71404020	4	6	4	20	60
	71404025	4	6	4	25	65
	71404030	4	6	4	30	70
	71404040	4	6	4	40	80
	71404045	4	6	4	45	90
	71404050	4	6	4	50	100
	71404060	4	6	4	60	110
	71404512	4.5	6	4.5	12	50
	71404516	4.5	6	4.5	16	55
	71404520	4.5	6	4.5	20	60
	71404525	4.5	6	4.5	25	65
	71404530	4.5	6	4.5	30	70
	71404540	4.5	6	4.5	40	80
	71405016	5	6	5	16	60
	71405020	5	6	5	20	60
	71405025	5	6	5	25	65
	71405030	5	6	5	30	70
	71405040	5	6	5	40	80
	71405050	5	6	5	50	100
	71405060	5	6	5	60	110
	71406020	6	6	6	20	60
	71406030	6	6	6	30	75
	71406040	6	6	6	40	80
	71406050	6	6	6	50	90
	71406060	6	6	6	60	100
	71408025	8	8	12	25	65
	71408040	8	8	12	40	100
	71408050	8	8	12	50	110
	71410030	10	10	15	30	70
	71410050	10	10	15	50	100
	71410060	10	10	15	60	120
	71412040	12	12	18	40	80
	71412060	12	12	18	60	110
	71412070	12	12	18	70	130

ESXE704

4 flutes neck type flat



CARBIDE	4	H-A Multi	Grade PC305H	h5 shank	DC	Tolerance
					ALL	0.000 ~ -0.020

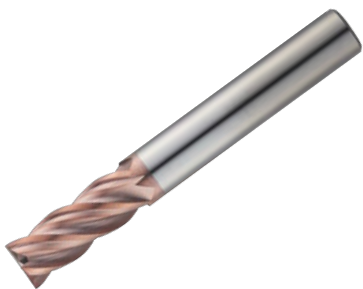


(mm)

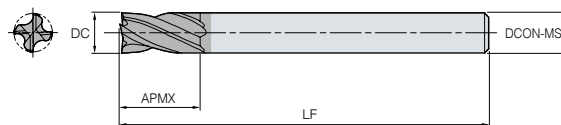
Designation	DC	DCON-MS	APMX	LU	LF
ESXE 704010	1	4	1.5	4	45
704020	2	4	3	6	45
704030	3	6	4	7	45
704040	4	6	5	9	45
704060	6	6	7	14	50
704080	8	8	9	18	60
704100	10	10	12	25	75
704120	12	12	15	30	75

ESXE714

4 flutes flat



CARBIDE	4	H-A Multi	Grade PC305H	h5 shank	DC	Tolerance
					ALL	0.000 ~ -0.020

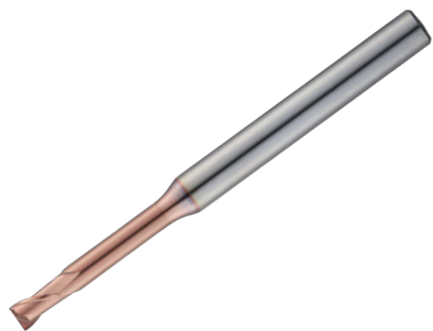


(mm)

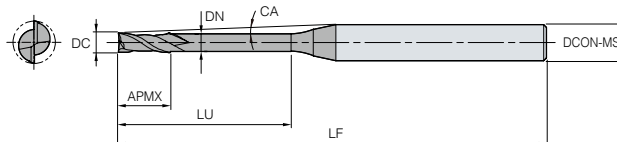
Designation	DC	DCON-MS	APMX	LF
ESXE 714020	2	4	5	45
714030	3	6	8	45
714040	4	6	10	45
714040S4	4	4	10	45
714060	6	6	16	50
714080	8	8	20	60
714100	10	10	25	75
714120	12	12	35	85

ESLNS20

2 flutes long neck type flat



CARBIDE	2	H-A 45°	Grade PC305H	h5 shank	DC	Tolerance
					ALL	0.000 ~ -0.012

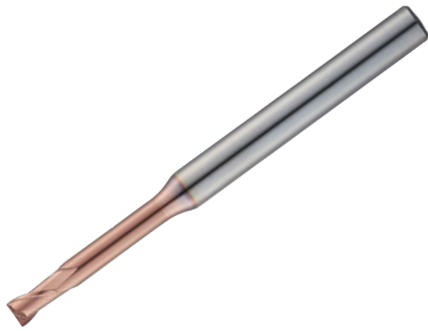


(mm)

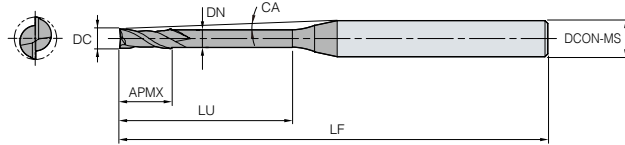
Designation	DC	DCON-MS	APMX	LU	LF	DN	CA	Effective length by inclination angle				
								0.5°	1°	1.5°	2°	3°
ESLNS 2001-0.3	0.1	4	0.15	0.3	45	0.08	11.6	0.4	0.4	0.5	0.5	0.5
2001-0.5	0.1	4	0.15	0.5	45	0.08	11.4	0.6	0.7	0.7	0.7	0.8
2001-1	0.1	4	0.15	1	45	0.08	10.9	1.2	1.2	1.2	1.3	1.4
2002-0.5	0.2	4	0.3	0.5	50	0.17	11.3	1.2	1.3	1.5	1.7	2
2002-1	0.2	4	0.3	1	50	0.17	10.8	1.7	1.9	2.2	2.4	2.7
2002-1.5	0.2	4	0.3	1.5	50	0.17	10.3	2.3	2.5	2.8	3	3.4
2003-1	0.3	4	0.45	1	50	0.27	10.8	1.7	1.9	2.2	2.4	2.7
2003-1.5	0.3	4	0.45	1.5	50	0.27	10.3	2.3	2.5	2.8	3	3.4
2003-2	0.3	4	0.45	2	50	0.27	9.8	2.8	3.1	3.4	3.6	4.1
2003-2.5	0.3	4	0.45	2.5	50	0.27	9.4	3.4	3.7	4	4.3	4.7
2003-3	0.3	4	0.45	3	50	0.27	9	3.9	4.3	4.6	4.9	5.4
2004-1	0.4	4	0.6	1	50	0.37	10.7	1.7	1.9	2.2	2.4	2.7
2004-1.5	0.4	4	0.6	1.5	50	0.37	10.2	2.3	2.5	2.8	3	3.4
2004-2	0.4	4	0.6	2	50	0.37	9.7	2.8	3.1	3.4	3.6	4.1
2004-2.5	0.4	4	0.6	2.5	50	0.37	9.3	3.4	3.7	4	4.3	4.7
2004-3	0.4	4	0.6	3	50	0.37	8.9	3.9	4.3	4.6	4.9	5.4
2004-3.5	0.4	4	0.6	3.5	50	0.37	8.6	4.5	4.9	5.2	5.5	6
2004-4	0.4	4	0.6	4	50	0.37	8.2	5	5.4	5.8	6.1	6.6
2004-5	0.4	4	0.6	5	50	0.37	7.6	6.1	6.6	6.9	7.3	7.8
2004-6	0.4	4	0.6	6	50	0.37	7.1	7.2	7.7	8.1	8.4	9
2005-1	0.5	4	0.75	1	50	0.47	10.7	1.7	1.9	2.2	2.4	2.7
2005-1.5	0.5	4	0.75	1.5	50	0.47	10.2	2.3	2.5	2.8	3	3.4
2005-2	0.5	4	0.75	2	50	0.47	9.7	2.8	3.1	3.4	3.6	4.1
2005-2.5	0.5	4	0.75	2.5	50	0.47	9.3	3.4	3.7	4	4.3	4.7
2005-3	0.5	4	0.75	3	50	0.47	8.9	3.9	4.3	4.6	4.9	5.4
2005-4	0.5	4	0.75	4	50	0.47	8.1	5	5.4	5.8	6.1	6.6
2005-5	0.5	4	0.75	5	50	0.47	7.5	6.1	6.6	6.9	7.3	7.8
2005-6	0.5	4	0.75	6	50	0.47	7	7.2	7.7	8.1	8.4	9
2005-8	0.5	4	0.75	8	50	0.47	6.2	9.3	9.9	10.3	10.7	11.4
2006-2	0.6	4	0.9	2	50	0.57	9.6	2.8	3.1	3.4	3.6	4.1
2006-4	0.6	4	0.9	4	50	0.57	6.9	7.2	7.7	8.1	8.4	9
2006-6	0.6	4	0.9	6	50	0.57	6.1	9.3	9.9	10.3	10.7	11.4
2006-8	0.6	4	0.9	8	50	0.57	5.4	11.5	12.1	12.6	13	13.7
2006-10	0.6	4	0.9	10	50	0.57	9.6	2.8	3.1	3.4	3.6	4.1
2007-2	0.7	4	1.05	2	50	0.67	8	5	5.4	5.8	6.1	6.6
2007-4	0.7	4	1.05	4	50	0.67	6.9	7.2	7.7	8.1	8.4	9
2007-6	0.7	4	1.05	6	50	0.67	6	9.3	9.9	10.3	10.7	11.4
2007-8	0.7	4	1.05	8	50	0.67	5.3	11.5	12.1	12.6	13	13.7
2007-10	0.7	4	1.2	10	50	0.77	7.9	5	5.4	5.8	6.1	6.6
2008-4	0.8	4	1.2	4	50	0.77	6.8	7.2	7.7	8.1	8.4	9

ESLNS20

2 flutes long neck type flat



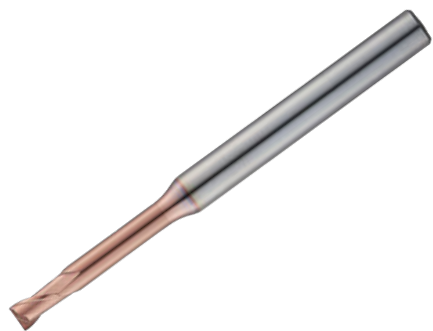
CARBIDE	2	H-A 45°	Grade PC305H	h5 shank	DC	Tolerance
					ALL	0.000 ~ -0.012



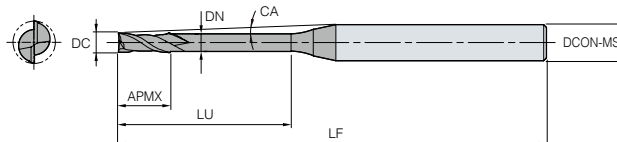
									(mm)				
Designation		DC	DCON-MS	APMX	LU	LF	DN	CA	Effective length by inclination angle				
									0.5°	1°	1.5°	2°	3°
ESLNS	2008-6	0.8	4	1.2	6	50	0.77	5.9	9.3	9.9	10.3	10.7	11.4
	2008-8	0.8	4	1.2	8	50	0.77	5.2	11.5	12.1	12.6	13	13.7
	2008-10	0.8	4	1.2	10	50	0.77	4.7	13.6	14.2	14.8	15.2	16
	2008-12	0.8	4	1.2	12	55	0.77	6.7	7.2	7.7	8.1	8.4	9.1
	2009-6	0.9	4	1.35	6	50	0.86	5.8	9.4	9.9	10.4	10.7	11.4
	2009-8	0.9	4	1.35	8	50	0.86	5.1	11.5	12.1	12.6	13	13.7
	2009-10	0.9	4	1.35	10	55	0.86	4.6	13.6	14.3	14.8	15.2	16
	2009-12	0.9	4	1.35	12	55	0.86	9.4	2.9	3.2	3.4	3.7	4.1
	2010-2	1	4	1.5	2	50	0.96	7.7	5.1	5.5	5.8	6.1	6.6
	2010-4	1	4	1.5	4	50	0.96	6.6	7.2	7.7	8.1	8.4	9.1
	2010-6	1	4	1.5	6	50	0.96	5.7	9.4	9.9	10.4	10.7	11.4
	2010-8	1	4	1.5	8	50	0.96	5	11.5	12.1	12.6	13	13.7
	2010-10	1	4	1.5	10	55	0.96	4.5	13.6	14.3	14.8	15.2	16
	2010-12	1	4	1.5	12	55	0.96	4.1	15.7	16.4	17	17.4	18.7
	2010-14	1	4	1.5	14	60	0.96	3.8	17.8	18.6	19.1	19.6	21.3
	2010-16	1	4	1.5	16	60	0.96	3.2	22	22.8	23.5	24	26.6
	2010-20	1	4	1.5	20	60	0.96	6.3	7.3	7.7	8.1	8.5	9.1
	2012-6	1.2	4	1.8	6	50	1.15	5.5	9.4	9.9	10.4	10.8	11.4
	2012-8	1.2	4	1.8	8	50	1.15	4.8	11.5	12.1	12.6	13	13.7
	2012-10	1.2	4	1.8	10	50	1.15	11.5	12.1	12.6	13	13.7	16
	2012-12	1.2	4	1.8	12	55	1.15	4.3	13.6	14.3	14.8	15.2	16
	2012-16	1.2	4	1.8	16	55	1.15	3.6	17.8	18.6	19.2	19.7	21.3
	2014-6	1.4	4	2.1	6	50	1.34	6.1	7.3	7.8	8.1	8.5	9.1
	2014-8	1.4	4	2.1	8	50	1.34	5.3	9.4	10	10.4	10.8	11.5
	2014-10	1.4	4	2.1	10	50	1.34	4.6	11.6	12.1	12.6	13	13.8
	2014-12	1.4	4	2.1	12	55	1.34	4.1	13.7	14.3	14.8	15.3	16.1
	2014-14	1.4	4	2.1	14	55	1.34	3.7	15.8	16.5	17	17.5	18.7
	2014-16	1.4	4	2.1	16	55	1.34	3.4	17.9	18.6	19.2	19.7	21.4
	2015-4	1.5	4	2.25	4	50	1.44	7.2	5.2	5.5	5.9	6.2	6.7
	2015-6	1.5	4	2.25	6	50	1.44	6	7.3	7.8	8.1	8.5	9.1
	2015-8	1.5	4	2.25	8	50	1.44	5.1	9.4	10	10.4	10.8	11.5
	2015-10	1.5	4	2.25	10	50	1.44	4.5	11.6	12.1	12.6	13	13.8
	2015-12	1.5	4	2.25	12	55	1.44	4	13.7	14.3	14.8	15.3	16.1
	2015-14	1.5	4	2.25	14	55	1.44	3.6	15.8	16.5	17	17.5	18.7
	2015-16	1.5	4	2.25	16	55	1.44	3.3	17.9	18.6	19.2	19.7	-
	2015-18	1.5	4	2.25	18	60	1.44	3	20	20.7	21.3	21.9	-
2015-20	1.5	4	2.25	20	60	1.44	2.8	22	22.9	23.5	24.1	-	
2015-25	1.5	4	2.25	25	65	1.44	2.4	27.3	28.1	28.8	30	-	
2016-6	1.6	4	2.4	6	50	1.54	5.9	7.3	7.8	8.1	8.5	9.1	
2016-8	1.6	4	2.4	8	50	1.54	5	9.4	10	10.4	10.8	11.5	

ESLNS20

2 flutes long neck type flat



DC	Tolerance
ALL	0.000 ~ -0.012

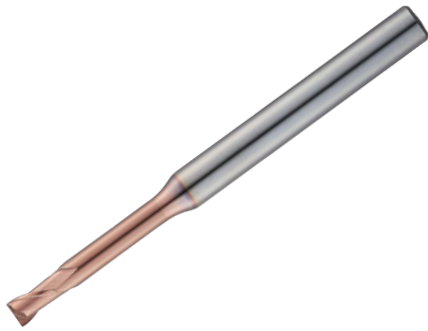


(mm)

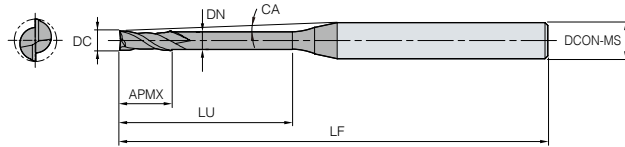
	Designation	DC	DCON-MS	APMX	LU	LF	DN	CA	Effective length by inclination angle				
									0.5°	1°	1.5°	2°	3°
ESLNS	2016-10	1.6	4	2.4	10	50	1.54	4.4	11.6	12.1	12.6	13	13.8
	2016-12	1.6	4	2.4	12	55	1.54	3.9	13.7	14.3	14.8	15.3	16.1
	2016-14	1.6	4	2.4	14	55	1.54	3.5	15.8	16.5	17	17.5	18.7
	2016-16	1.6	4	2.4	16	55	1.54	3.2	17.9	18.6	19.2	19.7	21.4
	2016-18	1.6	4	2.4	18	60	1.54	2.9	20	20.7	21.3	21.9	-
	2016-20	1.6	4	2.4	20	60	1.54	2.7	22	22.9	23.5	24.1	-
	2018-6	1.8	4	2.7	6	50	1.73	5.6	7.4	7.8	8.2	8.5	9.1
	2018-8	1.8	4	2.7	8	50	1.73	4.8	9.5	10	10.4	10.8	11.5
	2018-10	1.8	4	2.7	10	50	1.73	4.2	11.6	12.2	12.6	13	13.8
	2018-12	1.8	4	2.7	12	55	1.73	3.7	13.7	14.3	14.8	15.3	16.1
	2018-14	1.8	4	2.7	14	55	1.73	3.3	15.8	16.5	17	17.5	18.8
	2018-16	1.8	4	2.7	16	55	1.73	3	17.9	18.6	19.2	19.7	-
	2018-18	1.8	4	2.7	18	60	1.73	2.7	20	20.7	21.3	21.9	-
	2018-20	1.8	4	2.7	20	60	1.73	2.5	22.1	22.9	23.5	24.1	-
	2020-4	2	4	3	4	50	1.92	6.5	5.3	5.6	5.9	6.2	6.7
	2020-6	2	4	3	6	50	1.92	5.3	7.4	7.8	8.2	8.5	9.1
	2020-8	2	4	3	8	50	1.92	4.5	9.5	10	10.4	10.8	11.5
	2020-10	2	4	3	10	50	1.92	3.9	11.6	12.2	12.7	13.1	13.8
	2020-12	2	4	3	12	55	1.92	3.4	13.7	14.3	14.9	15.3	16.1
	2020-14	2	4	3	14	55	1.92	3.1	15.8	16.5	17	17.5	18.8
	2020-16	2	4	3	16	55	1.92	2.8	17.9	18.6	19.2	19.7	-
	2020-18	2	4	3	18	60	1.92	2.6	20	20.8	21.4	21.9	-
	2020-20	2	4	3	20	60	1.92	2.4	22.1	22.9	23.5	24.1	-
	2020-25	2	4	3	25	65	1.92	2	27.3	28.2	28.9	-	-
	2020-30	2	4	3	30	70	1.92	1.7	32.5	33.4	34.4	-	-
	2025-8	2.5	4	3.75	8	50	2.4	3.7	9.6	10.1	10.5	10.9	11.5
	2025-10	2.5	4	3.75	10	50	2.4	3.1	11.7	12.2	12.7	13.1	13.8
	2025-12	2.5	4	3.75	12	55	2.4	2.7	13.8	14.4	14.9	15.3	-
	2025-14	2.5	4	3.75	14	55	2.4	2.4	15.9	16.5	17.1	17.5	-
	2025-16	2.5	4	3.75	16	55	2.4	2.2	18	18.7	19.2	19.7	-
	2025-18	2.5	4	3.75	18	55	2.4	2	20.1	20.8	21.4	-	-
	2025-20	2.5	4	3.75	20	60	2.4	1.8	22.1	22.9	23.5	-	-
	2025-25	2.5	4	3.75	25	60	2.4	1.5	27.3	28.2	-	-	-
	2025-30	2.5	4	3.75	30	70	2.4	1.3	32.6	33.5	-	-	-
	2030-8	3	6	4.5	8	55	2.88	5.6	9.6	10.1	10.5	10.9	11.5
	2030-10	3	6	4.5	10	55	2.88	5	11.7	12.3	12.7	13.1	13.8
	2030-12	3	6	4.5	12	60	2.88	4.5	13.8	14.4	14.9	15.4	16.3
	2030-14	3	6	4.5	14	60	2.88	4.1	15.9	16.6	17.1	17.6	18.9
	2030-16	3	6	4.5	16	60	2.88	3.7	18	18.7	19.3	19.8	21.6
	2030-18	3	6	4.5	18	60	2.88	3.4	20.1	20.8	21.4	21.9	24.2

ESLNS20

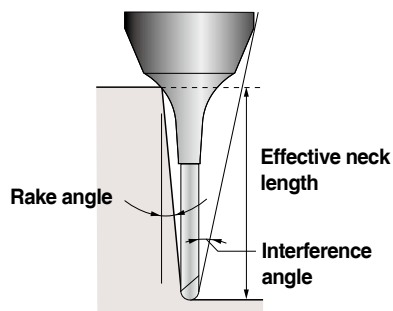
2 flutes long neck type flat



CARBIDE	2	H-A 45°	Grade PC305H	h5 shank	DC	Tolerance
					ALL	0.000 ~ -0.012



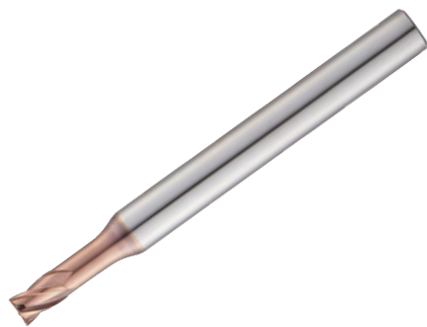
									(mm)				
Designation	ESLNS	DC	DCON-MS	APMX	LU	LF	DN	CA	Effective length by inclination angle				
									0.5°	1°	1.5°	2°	3°
2030-20		3	6	4.5	20	65	2.88	3.2	22.2	23	23.6	24.2	26.9
2030-25		3	6	4.5	25	70	2.88	2.7	27.4	28.2	28.9	30.2	-
2030-30		3	6	4.5	30	75	2.88	2.4	32.6	33.5	34.5	36.2	-
2030-35		3	6	4.5	35	80	2.88	2.1	37.7	38.7	40.2	42.2	-
2030-40		3	6	4.5	40	90	2.88	1.9	42.9	43.9	45.9	-	-
2040-12		4	6	6	12	60	3.85	3.4	13.9	14.5	15	15.4	16.3
2040-16		4	6	6	16	60	3.85	2.8	18.1	18.8	19.3	19.8	-
2040-20		4	6	6	20	70	3.85	2.3	22.3	23	23.6	24.3	-
2040-25		4	6	6	25	70	3.85	2	27.4	28.3	28.9	-	-
2040-30		4	6	6	30	80	3.85	1.7	32.6	33.5	34.6	-	-
2040-35		4	6	6	35	80	3.85	1.5	37.8	38.8	-	-	-
2040-40		4	6	6	40	90	3.85	1.3	42.9	44	-	-	-
2040-45		4	6	6	45	90	3.85	1.2	48.1	49.4	-	-	-
2040-50		4	6	6	50	100	3.85	1.1	53.2	54.8	-	-	-
2050-16		5	6	7.5	16	60	4.85	1.5	18.1	18.8	-	-	-
2050-20		5	6	7.5	20	60	4.85	1.3	22.3	23	-	-	-
2050-25		5	6	7.5	25	70	4.85	1.1	27.4	28.3	-	-	-
2050-30		5	6	7.5	30	70	4.85	0.9	32.6	-	-	-	-
2050-35		5	6	7.5	35	80	4.85	0.8	37.8	-	-	-	-
2050-40		5	6	7.5	40	90	4.85	0.7	42.9	-	-	-	-
2050-50		5	6	7.5	50	100	4.85	0.6	53.2	-	-	-	-



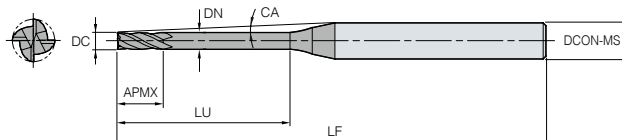
※ The marked effective neck length is the default value to prevent interference with the workpiece.
Proper control of the processing environment is required.

ESLNS40

4 flutes long neck type flat



DC	Tolerance
ALL	0.000 ~ -0.012

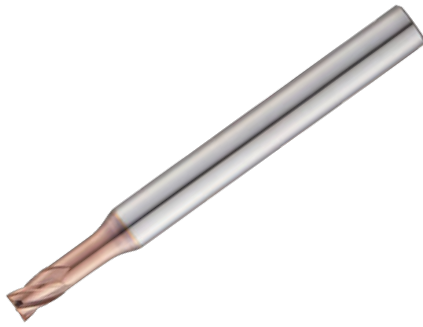


(mm)

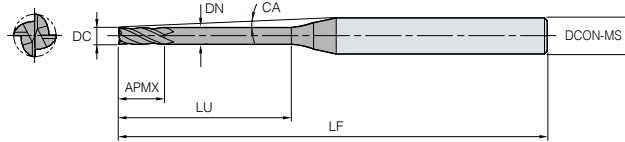
Designation		DC	DCON-MS	APMX	LU	LF	DN	CA	Effective length by inclination angle				
									0.5°	1°	1.5°	2°	3°
ESLNS	4010-4	1	4	1.5	4	50	0.96	7.7	5.1	5.5	5.8	6.1	6.6
	4010-6	1	4	1.5	6	50	0.96	6.6	7.2	7.7	8.1	8.4	9.1
	4010-8	1	4	1.5	8	50	0.96	5.7	9.4	9.9	10.4	10.7	11.4
	4010-10	1	4	1.5	10	50	0.96	5	11.5	12.1	12.6	13	13.7
	4015-4	1.5	4	2.25	4	50	1.44	7.2	5.2	5.5	5.9	6.2	6.7
	4015-6	1.5	4	2.25	6	50	1.44	6	7.3	7.8	8.1	8.5	9.1
	4015-8	1.5	4	2.25	8	50	1.44	5.1	9.4	10	10.4	10.8	11.5
	4015-10	1.5	4	2.25	10	50	1.44	4.5	11.6	12.1	12.6	13	13.8
	4015-12	1.5	4	2.25	12	55	1.44	4	13.7	14.3	14.8	15.3	16.1
	4015-14	1.5	4	2.25	14	55	1.44	3.6	15.8	16.5	17	17.5	18.7
	4015-16	1.5	4	2.25	16	55	1.44	3.3	17.9	18.6	19.2	19.7	-
	4015-18	1.5	4	2.25	18	60	1.44	3	20	20.7	21.3	21.9	-
	4015-20	1.5	4	2.25	20	60	1.44	2.8	22	22.9	23.5	24.1	-
	4015-25	1.5	4	2.25	25	65	1.44	2.4	27.3	28.1	28.8	30	-
	4020-4	2	4	3	4	50	1.92	6.5	5.3	5.6	5.9	6.2	6.7
	4020-6	2	4	3	6	50	1.92	5.3	7.4	7.8	8.2	8.5	9.1
	4020-8	2	4	3	8	50	1.92	4.5	9.5	10	10.4	10.8	11.5
	4020-10	2	4	3	10	50	1.92	3.9	11.6	12.2	12.7	13.1	13.8
	4020-12	2	4	3	12	55	1.92	3.4	13.7	14.3	14.9	15.3	16.1
	4020-14	2	4	3	14	55	1.92	3.1	15.8	16.5	17	17.5	18.8
	4020-16	2	4	3	16	55	1.92	2.8	17.9	18.6	19.2	19.7	-
	4020-18	2	4	3	18	60	1.92	2.6	20	20.8	21.4	21.9	-
	4020-20	2	4	3	20	60	1.92	2.4	22.1	22.9	23.5	24.1	-
	4020-25	2	4	3	25	65	1.92	2	27.3	28.2	28.9	-	-
	4020-30	2	4	3	30	70	1.92	1.7	32.5	33.4	34.4	-	-
	4025-8	2.5	4	3.75	8	50	2.4	3.7	9.6	10.1	10.5	10.9	11.5
	4025-10	2.5	4	3.75	10	50	2.4	3.1	11.7	12.2	12.7	13.1	13.8
	4025-12	2.5	4	3.75	12	55	2.4	2.7	13.8	14.4	14.9	15.3	-
	4025-14	2.5	4	3.75	14	55	2.4	2.4	15.9	16.5	17.1	17.5	-
	4025-16	2.5	4	3.75	16	55	2.4	2.2	18	18.7	19.2	19.7	-
	4025-18	2.5	4	3.75	18	60	2.4	2	20.1	20.8	21.4	-	-
	4025-20	2.5	4	3.75	20	60	2.4	1.8	22.1	22.9	23.5	-	-
	4025-25	2.5	4	3.75	25	65	2.4	1.5	27.3	28.2	-	-	-
	4025-30	2.5	4	3.75	30	70	2.4	1.3	32.6	33.5	-	-	-
	4030-8	3	6	4.5	8	55	2.88	5.6	9.6	10.1	10.5	10.9	11.5
	4030-10	3	6	4.5	10	55	2.88	5	11.7	12.3	12.7	13.1	13.8

ESLNS40

4 flutes long neck type flat



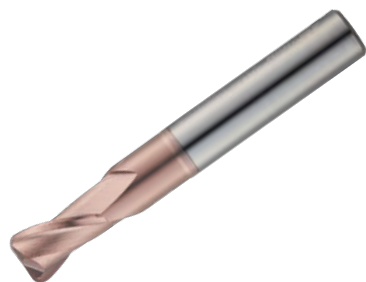
CARBIDE	4	H-A 30°	Grade PC305H	h5 shank	DC	Tolerance
					ALL	0.000 ~ -0.012



Designation		DC	DCON-MS	APMX	LU	LF	DN	CA	Effective length by inclination angle				
									0.5°	1°	1.5°	2°	3°
									(mm)				
ESLNS	4030-12	3	6	4.5	12	60	2.88	4.5	13.8	14.4	14.9	15.4	16.3
	4030-14	3	6	4.5	14	60	2.88	4.1	15.9	16.6	17.1	17.6	18.9
	4030-16	3	6	4.5	16	60	2.88	3.7	18	18.7	19.3	19.8	21.6
	4030-18	3	6	4.5	18	60	2.88	3.4	20.1	20.8	21.4	21.9	24.2
	4030-20	3	6	4.5	20	65	2.88	3.2	22.2	23	23.6	24.2	26.9
	4030-25	3	6	4.5	25	70	2.88	2.7	27.4	28.2	28.9	30.2	-
	4030-30	3	6	4.5	30	75	2.88	2.4	32.6	33.5	34.5	36.2	-
	4030-35	3	6	4.5	35	80	2.88	2.1	37.7	38.7	40.2	42.2	-
	4030-40	3	6	4.5	40	90	2.88	1.9	42.9	43.9	45.9	-	-
	4040-12	4	6	6	12	60	3.85	3.4	13.9	14.5	15	15.4	16.3
	4040-16	4	6	6	16	60	3.85	2.8	18.1	18.8	19.3	19.8	-
	4040-20	4	6	6	20	70	3.85	2.3	22.3	23	23.6	24.3	-
	4040-25	4	6	6	25	70	3.85	2	27.4	28.3	28.9	-	-
	4040-30	4	6	6	30	80	3.85	1.7	32.6	33.5	34.6	-	-
	4040-35	4	6	6	35	80	3.85	1.5	37.8	38.8	-	-	-
	4040-40	4	6	6	40	90	3.85	1.3	42.9	44	-	-	-
	4040-45	4	6	6	45	90	3.85	1.2	48.1	49.4	-	-	-
	4040-50	4	6	6	50	100	3.85	1.1	53.2	54.8	-	-	-
	4050-16	5	6	7.5	16	60	4.85	1.5	18.1	18.8	-	-	-
	4050-20	5	6	7.5	20	60	4.85	1.3	22.3	23	-	-	-
	4050-25	5	6	7.5	25	70	4.85	1.1	27.4	28.3	-	-	-
	4050-30	5	6	7.5	30	70	4.85	0.9	32.6	-	-	-	-
	4050-35	5	6	7.5	35	80	4.85	0.8	37.8	-	-	-	-
	4050-40	5	6	7.5	40	90	4.85	0.7	42.9	-	-	-	-
	4050-50	5	6	7.5	50	100	4.85	0.6	53.2	-	-	-	-

ESR702

2 flutes neck type radius



CARBIDE

2

H-A
30°

Grade
PC305H

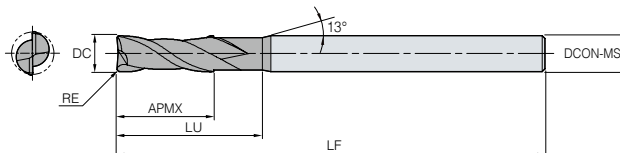
h5
shank

RE
±0.01

RE
±0.015

DC6 or below Above DC6

DC	Tolerance
Ø1 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø12	0.000 ~ -0.015



(mm)

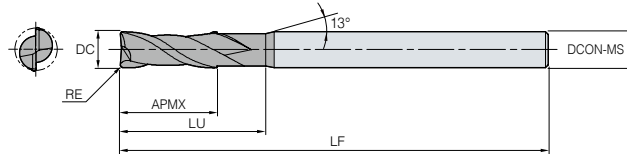
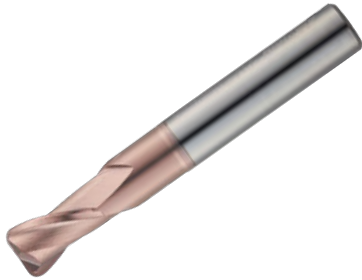
	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESR	70201000503S4	1	4	1.5	3	50	0.05
	70201000504S4	1	4	1.5	4	50	0.05
	70201000506S4	1	4	1.5	6	50	0.05
	70201000508S4	1	4	1.5	8	50	0.05
	70201000510S4	1	4	1.5	10	50	0.05
	7020100103S4	1	4	1.5	3	50	0.1
	7020100104	1	6	1.5	4	50	0.1
	7020100104S4	1	4	1.5	4	50	0.1
	7020100106	1	6	1.5	6	50	0.1
	7020100106S4	1	4	1.5	6	50	0.1
	7020100108S4	1	4	1.5	8	50	0.1
	7020100110S4	1	4	1.5	10	50	0.1
	7020100203S4	1	4	1.5	3	50	0.2
	7020100204	1	6	1.5	4	50	0.2
	7020100204S4	1	4	1.5	4	50	0.2
	7020100206	1	6	1.5	6	50	0.2
	7020100206S4	1	4	1.5	6	50	0.2
	7020100208S4	1	4	1.5	8	50	0.2
	7020100210	1	6	1.5	10	50	0.2
	7020100210S4	1	4	1.5	10	50	0.2
	7020100212	1	6	1.5	12	50	0.2
	7020100303S4	1	4	1.5	3	50	0.3
	7020100304S4	1	4	1.5	4	50	0.3
	7020100306S4	1	4	1.5	6	50	0.3
	7020100308S4	1	4	1.5	8	50	0.3
	7020100310S4	1	4	1.5	10	50	0.3
	7020120208	1.2	6	2	8	50	0.2
	7020120212	1.2	6	2	12	50	0.2
	70201500504S4	1.5	4	2.5	4	50	0.05
	70201500506S4	1.5	4	2.5	6	50	0.05
	70201500508S4	1.5	4	2.5	8	50	0.05
	70201500510S4	1.5	4	2.5	10	50	0.05
	70201500512S4	1.5	4	2.5	12	50	0.05
	7020150104S4	1.5	4	2.5	4	50	0.1
	7020150106S4	1.5	4	2.5	6	50	0.1
	7020150108S4	1.5	4	2.5	8	50	0.1
	7020150110S4	1.5	4	2.5	10	50	0.1
	7020150112S4	1.5	4	2.5	12	50	0.1
	7020150204	1.5	6	2.5	4	50	0.2

	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESR	7020150204S4	1.5	4	2.5	4	50	0.2
	7020150206	1.5	6	2.5	6	50	0.2
	7020150206S4	1.5	4	2.5	6	50	0.2
	7020150208	1.5	6	2.5	8	50	0.2
	7020150208S4	1.5	4	2.5	8	50	0.2
	7020150210	1.5	6	2.5	10	50	0.2
	7020150210S4	1.5	4	2.5	10	50	0.2
	7020150212S4	1.5	4	2.5	12	50	0.2
	7020150215	1.5	6	2.5	15	50	0.2
	7020150304S4	1.5	4	2.5	4	50	0.3
	7020150306S4	1.5	4	2.5	6	50	0.3
	7020150308S4	1.5	4	2.5	8	50	0.3
	7020150310S4	1.5	4	2.5	10	50	0.3
	7020150312S4	1.5	4	2.5	12	50	0.3
	7020150504S4	1.5	4	2.5	4	50	0.5
	7020150506S4	1.5	4	2.5	6	50	0.5
	7020150508S4	1.5	4	2.5	8	50	0.5
	7020150510S4	1.5	4	2.5	10	50	0.5
	7020150512S4	1.5	4	2.5	12	50	0.5
	7020200106S4	2	4	3	6	50	0.1
	7020200108	2	6	3	8	50	0.1
	7020200108S4	2	4	3	8	50	0.1
	7020200110S4	2	4	3	10	50	0.1
	7020200112	2	6	3	12	50	0.1
	7020200112S4	2	4	3	12	50	0.1
	7020200116S4	2	4	3	16	50	0.1
	7020200120S4	2	4	3	20	50	0.1
	7020200206	2	6	3	6	50	0.2
	7020200206S4	2	4	3	6	50	0.2
	7020200208S4	2	4	3	8	50	0.2
	7020200209	2	6	3	9	50	0.2
	7020200210S4	2	4	3	10	50	0.2
	7020200212S4	2	4	3	12	50	0.2
	7020200216	2	6	3	16	50	0.2
	7020200216S4	2	4	3	16	50	0.2
	7020200220S4	2	4	3	20	50	0.2
	7020200306	2	6	3	6	50	0.3
	7020200306S4	2	4	3	6	50	0.3
	7020200308S4	2	4	3	8	50	0.3

ESR702

2 flutes neck type radius

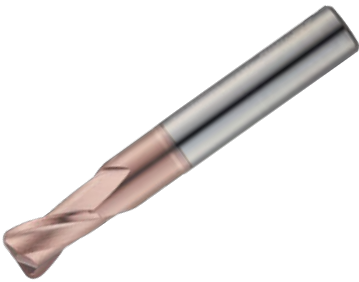
CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC	Tolerance
					DC6 or below	Above DC6	Ø1 ~ Ø6 Ø8 ~ Ø12	0.000 ~ -0.012 0.000 ~ -0.015



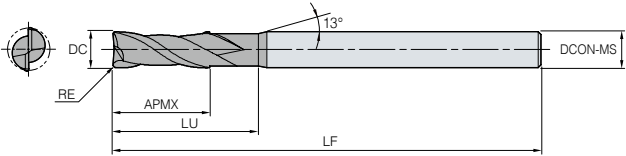
								(mm)
Designation		DC	DCON-MS	APMX	LU	LF	RE	
ESR	7020200310S4	2	4	3	10	50	0.3	
	7020200312S4	2	4	3	12	50	0.3	
	7020200316S4	2	4	3	16	50	0.3	
	7020200320S4	2	4	3	20	50	0.3	
	7020200506	2	6	3	6	50	0.5	
	7020200506S4	2	4	3	6	50	0.5	
	7020200508S4	2	4	3	8	50	0.5	
	7020200509	2	6	3	9	50	0.5	
	7020200510S4	2	4	3	10	50	0.5	
	7020200512	2	6	3	12	50	0.5	
	7020200512S4	2	4	3	12	50	0.5	
	7020200516	2	6	3	16	50	0.5	
	7020200516S4	2	4	3	16	50	0.5	
	7020200520S4	2	4	3	20	50	0.5	
	7020250208S4	2.5	4	3.5	8	50	0.2	
	7020250210S4	2.5	4	3.5	10	50	0.2	
	7020250212S4	2.5	4	3.5	12	50	0.2	
	7020250216S4	2.5	4	3.5	16	50	0.2	
	7020250308S4	2.5	4	3.5	8	50	0.3	
	7020250310S4	2.5	4	3.5	10	50	0.3	
	7020250312S4	2.5	4	3.5	12	50	0.3	
	7020250316S4	2.5	4	3.5	16	50	0.3	
	7020250508S4	2.5	4	3.5	8	50	0.5	
	7020250510S4	2.5	4	3.5	10	50	0.5	
	7020250512S4	2.5	4	3.5	12	50	0.5	
	7020250516S4	2.5	4	3.5	16	50	0.5	
	7020300108	3	6	4.5	8	55	0.1	
	7020300110	3	6	4.5	10	55	0.1	
	7020300112	3	6	4.5	12	55	0.1	
	7020300116	3	6	4.5	16	55	0.1	
	7020300120	3	6	4.5	20	60	0.1	
	7020300208	3	6	4.5	8	55	0.2	
	7020300209	3	6	4.5	9	55	0.2	
	7020300210	3	6	4.5	10	55	0.2	
	7020300212	3	6	4.5	12	55	0.2	
	7020300216	3	6	4.5	16	55	0.2	
	7020300208	3	6	4.5	8	55	0.2	
	7020300209	3	6	4.5	9	55	0.2	
	7020300210	3	6	4.5	10	55	0.2	
ESR	7020300212	3	6	4.5	12	55	0.2	
	7020300216	3	6	4.5	16	55	0.2	
	7020300220	3	6	4.5	20	60	0.2	
	7020300308	3	6	4.5	8	55	0.3	
	7020300309	3	6	4.5	9	55	0.3	
	7020300310	3	6	4.5	10	55	0.3	
	7020300312	3	6	4.5	12	55	0.3	
	7020300314	3	6	4.5	14	55	0.3	
	7020300316	3	6	4.5	16	55	0.3	
	7020300320	3	6	4.5	20	60	0.3	
	7020300508	3	6	4.5	8	55	0.5	
	7020300509	3	6	4.5	9	55	0.5	
	7020300510	3	6	4.5	10	55	0.5	
	7020300512	3	6	4.5	12	55	0.5	
	7020300516	3	6	4.5	16	55	0.5	
	7020300520	3	6	4.5	20	60	0.5	
ESR	7020301008	3	6	4.5	8	55	1	
	7020301010	3	6	4.5	10	55	1	
	7020301012	3	6	4.5	12	55	1	
	7020301016	3	6	4.5	16	55	1	
	7020301020	3	6	4.5	20	60	1	
	7020301025	3	6	4.5	25	60	1	
	7020400110	4	6	6	10	55	0.1	
	7020400112	4	6	6	12	55	0.1	
	7020400116	4	6	6	16	55	0.1	
	7020400120	4	6	6	20	60	0.1	
	7020400125	4	6	6	25	60	0.1	
	7020400210	4	6	6	10	55	0.2	
	7020400212	4	6	6	12	55	0.2	
	7020400216	4	6	6	16	55	0.2	
	7020400220	4	6	6	20	60	0.2	
	7020400225	4	6	6	25	60	0.2	
ESR	7020400310	4	6	6	10	55	0.3	
	7020400312	4	6	6	12	55	0.3	
	7020400316	4	6	6	16	55	0.3	
	7020400320	4	6	6	20	60	0.3	
	7020400325	4	6	6	25	60	0.3	
	7020400510	4	6	6	10	55	0.5	
	7020400512	4	6	6	12	55	0.5	

ESR702

2 flutes neck type radius



CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC	Tolerance
					DC6 or below	Above DC6	Ø1 ~ Ø6 Ø8 ~ Ø12	0.000 ~ -0.012 0.000 ~ -0.015



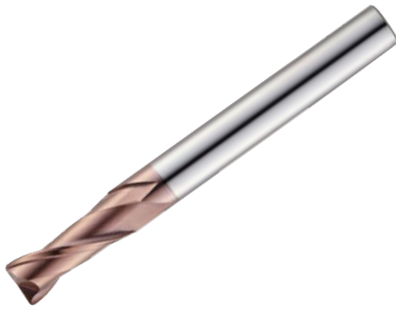
	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESR	7020400516	4	6	6	16	55	0.5
	7020400520	4	6	6	20	60	0.5
	7020400525	4	6	6	25	60	0.5
	7020400530	4	6	6	30	70	0.5
	7020401010	4	6	6	10	55	1
	7020401012	4	6	6	12	55	1
	7020401016	4	6	6	16	55	1
	7020401020	4	6	6	20	60	1
	7020401025	4	6	6	25	60	1
	7020401030	4	6	6	30	70	1
	7020500318	5	6	8	18	60	0.3
	7020600220	6	6	9	20	60	0.2
	7020600320	6	6	9	20	60	0.3
	7020600520	6	6	9	20	60	0.5
	7020601020	6	6	9	20	60	1
	7020601520	6	6	9	20	60	1.5
	7020602020	6	6	9	20	60	2

(mm)

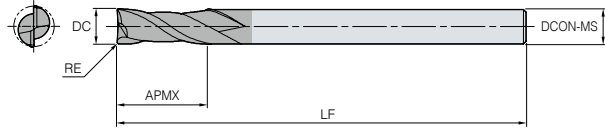
	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESR	7020800225	8	8	12	25	60	0.2
	7020800325	8	8	12	25	60	0.3
	7020800525	8	8	12	25	60	0.5
	7020801025	8	8	12	25	60	1
	7020801525	8	8	12	25	60	1.5
	7021000232	10	10	15	32	70	0.2
	7021000332	10	10	15	32	70	0.3
	7021000532	10	10	15	32	70	0.5
	7021001032	10	10	15	32	70	1
	7021001532	10	10	15	32	70	1.5
	7021002032	10	10	15	32	70	2
	7021200338	12	12	18	38	80	0.3
	7021200538	12	12	18	38	80	0.5
	7021201038	12	12	18	38	80	1
	7021201538	12	12	18	38	80	1.5
	7021202038	12	12	18	38	80	2

ESR732

2 flutes long shank radius



CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC	Tolerance
					DC6 or below	Above DC6	Ø1 - Ø6 Ø8 - Ø12	0.000 ~ -0.012 0.000 ~ -0.015



														(mm)
Designation		DC	DCON-MS	APMX	LF	RE	Designation		DC	DCON-MS	APMX	LF	RE	
ESR	73201001	1	6	2	50	0.1	ESR	73205002	5	6	13	80	0.2	
	73201002	1	6	2	50	0.2		73205003	5	6	13	80	0.3	
	73201003	1	6	2	50	0.3		73205005	5	6	13	80	0.5	
	73201501	1.5	6	3	50	0.1		73205010	5	6	13	80	1	
	73201502	1.5	6	3	50	0.2		73206001	6	6	15	90	0.1	
	73201503	1.5	6	3	50	0.3		73206002	6	6	15	90	0.2	
	73201505	1.5	6	3	50	0.5		73206003	6	6	15	90	0.3	
	73202001	2	6	5	50	0.1		73206005	6	6	15	90	0.5	
	73202002	2	6	5	50	0.2		73206010	6	6	15	90	1	
	73202003	2	6	5	50	0.3		73208001	8	8	20	100	0.1	
	73202005	2	6	5	50	0.5		73208002	8	8	20	100	0.2	
	73202501	2.5	6	7	60	0.1		73208003	8	8	20	100	0.3	
	73202502	2.5	6	7	60	0.2		73208005	8	8	20	100	0.5	
	73202503	2.5	6	7	60	0.3		73208010	8	8	20	100	1	
	73202505	2.5	6	7	60	0.5		73208020	8	8	20	100	2	
	73203001	3	6	8	60	0.1		73210002	10	10	25	100	0.2	
	73203002	3	6	8	60	0.2		73210003	10	10	25	100	0.3	
	73203003	3	6	8	60	0.3		73210005	10	10	25	100	0.5	
	73203005	3	6	8	60	0.5		73210010	10	10	25	100	1	
	73204001	4	6	10	70	0.1		73210020	10	10	25	100	2	
	73204002	4	6	10	70	0.2		73212002	12	12	30	110	0.2	
	73204003	4	6	10	70	0.3		73212003	12	12	30	110	0.3	
	73204005	4	6	10	70	0.5		73212005	12	12	30	110	0.5	
	73204010	4	6	10	70	1		73212010	12	12	30	110	1	
	73205001	5	6	13	80	0.1		73212020	12	12	30	110	2	

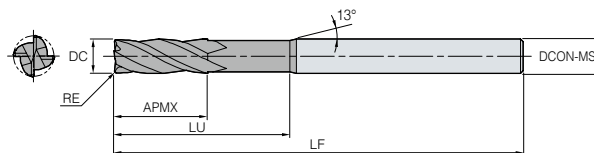
ESR704

4 flutes neck type radius



DC6 or below Above DC6

DC	Tolerance
Ø1 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø12	0.000 ~ -0.015



(mm)

	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESR	7040100103S4	1	4	2	3	50	0.1
	7040100104S4	1	4	2	4	50	0.1
	7040100106S4	1	4	2	6	50	0.1
	7040100203S4	1	4	2	3	50	0.2
	7040100204S4	1	4	2	4	50	0.2
	7040100206S4	1	4	2	6	50	0.2
	7040100303S4	1	4	2	3	50	0.3
	7040100304S4	1	4	2	4	50	0.3
	7040100306S4	1	4	2	6	50	0.3
	7040150104S4	1.5	4	2.5	4	50	0.1
	7040150106S4	1.5	4	2.5	6	50	0.1
	7040150204S4	1.5	4	2.5	4	50	0.2
	7040150206S4	1.5	4	2.5	6	50	0.2
	7040150304S4	1.5	4	2.5	4	50	0.3
	7040150306S4	1.5	4	2.5	6	50	0.3
	7040200106S4	2	4	3	6	50	0.1
	7040200108S4	2	4	3	8	50	0.1
	7040200206S4	2	4	3	6	50	0.2
	7040200208	2	6	3	8	50	0.2
	7040200208S4	2	4	3	8	50	0.2
	7040200210	2	6	3	10	50	0.2
	7040200212	2	6	3	12	50	0.2
	7040200306S4	2	4	3	6	50	0.3
	7040200308S4	2	4	3	8	50	0.3
	7040200506S4	2	4	3	6	50	0.5
	7040200508S4	2	4	3	8	50	0.5
	7040250106S4	2.5	4	3.5	6	50	0.1
	7040300108	3	6	4	8	55	0.1
	7040300110	3	6	4	10	55	0.1
	7040300112	3	6	4	12	55	0.1
	7040300116	3	6	4	16	55	0.1
	7040300120	3	6	4	20	60	0.1
	7040300208	3	6	4	8	55	0.2
	7040300210	3	6	4	10	55	0.2
	7040300212	3	6	4	12	55	0.2
	7040300216	3	6	4	16	55	0.2

	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESR	7040300220	3	6	4	20	60	0.2
	7040300308	3	6	4	8	55	0.3
	7040300309	3	6	4	9	55	0.3
	7040300310	3	6	4	10	55	0.3
	7040300312	3	6	4	12	55	0.3
	7040300316	3	6	4	16	55	0.3
	7040300320	3	6	4	20	60	0.3
	7040300508	3	6	4	8	55	0.5
	7040300509	3	6	4	9	55	0.5
	7040300510	3	6	4	10	55	0.5
	7040300512	3	6	4	12	55	0.5
	7040300516	3	6	4	16	55	0.5
	7040300520	3	6	4	20	60	0.5
	7040301008	3	6	4	8	55	1
	7040301010	3	6	4	10	55	1
	7040301012	3	6	4	12	55	1
	7040301016	3	6	4	16	55	1
	7040301020	3	6	4	20	60	1
	7040400110	4	6	6	10	55	0.1
	7040400112	4	6	6	12	55	0.1
	7040400116	4	6	6	16	55	0.1
	7040400120	4	6	6	20	60	0.1
	7040400125	4	6	6	25	60	0.1
	7040400210	4	6	6	10	55	0.2
	7040400212	4	6	6	12	55	0.2
	7040400216	4	6	6	16	55	0.2
	7040400220	4	6	6	20	60	0.2
	7040400225	4	6	6	25	60	0.2
	7040400310	4	6	6	10	55	0.3
	7040400312	4	6	6	12	55	0.3
	7040400316	4	6	6	16	55	0.3
	7040400320	4	6	6	20	60	0.3
	7040400325	4	6	6	25	60	0.3
	7040400510	4	6	6	10	55	0.5
	7040400512	4	6	6	12	55	0.5
	7040400516	4	6	6	16	55	0.5

ESR704

4 flutes neck type radius

CARBIDE

4

H-A
30°

Grade
PC305H

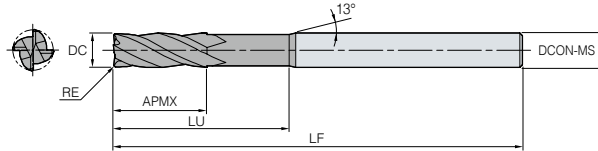
h5
shank

RE
±0.01

RE
±0.015

DC6 or below Above DC6

DC	Tolerance
Ø1 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø12	0.000 ~ -0.015



Designation	DC	DCON-MS	APMX	LU	LF	RE
ESR 7040400520	4	6	6	20	60	0.5
7040400525	4	6	6	25	60	0.5
7040401010	4	6	6	10	55	1
7040401012	4	6	6	12	55	1
7040401016	4	6	6	16	55	1
7040401020	4	6	6	20	60	1
7040401025	4	6	6	25	60	1
7040600220	6	6	9	20	60	0.2
7040600320	6	6	9	20	60	0.3
7040600520	6	6	9	20	60	0.5
7040601020	6	6	9	20	60	1
7040601520	6	6	9	20	60	1.5
7040602020	6	6	9	20	60	2
7040800225	8	8	12	25	60	0.2
7040800325	8	8	12	25	60	0.3

Designation	DC	DCON-MS	APMX	LU	LF	RE
ESR 7040800525	8	8	12	25	60	0.5
7040801025	8	8	12	25	60	1
7040801525	8	8	12	25	60	1.5
7040802025	8	8	12	25	60	2
7041000232	10	10	15	32	70	0.2
7041000332	10	10	15	32	70	0.3
7041000532	10	10	15	32	70	0.5
7041001032	10	10	15	32	70	1
7041001532	10	10	15	32	70	1.5
7041002032	10	10	15	32	70	2
7041200338	12	12	18	38	80	0.3
7041200538	12	12	18	38	80	0.5
7041201038	12	12	18	38	80	1
7041201538	12	12	18	38	80	1.5
7041202038	12	12	18	38	80	2

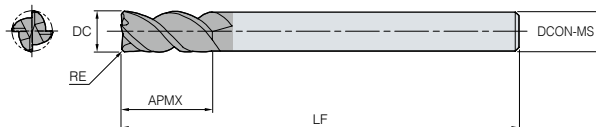
(mm)

ESR714

4 flutes radius



CARBIDE	4	H-A 45°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC	Tolerance
					DC6 or below	Above DC6	Ø3 ~ Ø6 Ø8 ~ Ø12	0.000 ~ -0.012 0.000 ~ -0.015



(mm)

Designation	DC	DCON-MS	APMX	LF	RE
ESR 7140303	3	6	8	50	0.3
7140305S4	3	4	8	50	0.5
7140305	3	6	8	50	0.5
7140403	4	6	11	50	0.3
7140405	4	6	11	50	0.5
7140405S4	4	4	11	50	0.5
7140410	4	6	11	50	1
7140603	6	6	15	60	0.3
7140605	6	6	15	60	0.5
7140610	6	6	15	60	1
7140803	8	8	20	60	0.3
7140805	8	8	20	60	0.5
7140810	8	8	20	60	1
7140815	8	8	20	60	1.5
7140820	8	8	20	60	2

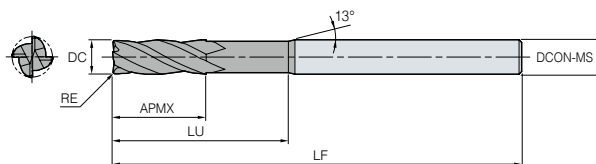
Designation	DC	DCON-MS	APMX	LF	RE
ESR 7141003	10	10	25	70	0.3
7141005	10	10	25	70	0.5
7141010	10	10	25	70	1
7141015	10	10	25	70	1.5
7141020	10	10	25	70	2
7141025	10	10	25	70	2.5
7141030	10	10	25	70	3
7141203	12	12	30	80	0.3
7141205	12	12	30	80	0.5
7141210	12	12	30	80	1
7141215	12	12	30	80	1.5
7141220	12	12	30	80	2
7141225	12	12	30	80	2.5
7141230	12	12	30	80	3

ESR724

4 flutes neck type radius



CARBIDE	4	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC	Tolerance
					DC6 or below	Above DC6	Ø6 Ø8 ~ Ø12	0.000 ~ -0.012 0.000 ~ -0.015



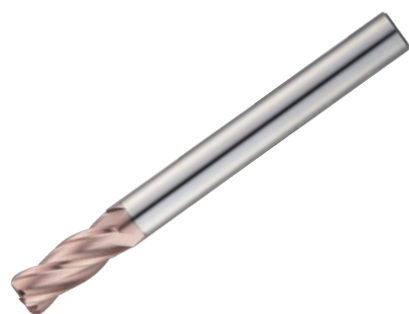
(mm)

Designation	DC	DCON-MS	APMX	LU	LF	RE
ESR 7240600520	6	6	9	20	90	0.5
7240601020	6	6	9	20	90	1
7240800525	8	8	12	25	100	0.5
7240801025	8	8	12	25	100	1
7241000532	10	10	15	32	100	0.5

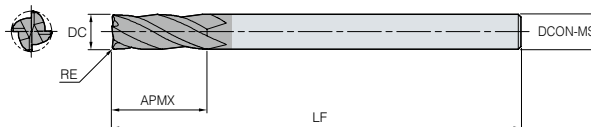
Designation	DC	DCON-MS	APMX	LU	LF	RE
ESR 7241001032	10	10	15	32	100	1
7241002032	10	10	15	32	100	2
7241200538	12	12	18	38	110	0.5
7241201038	12	12	18	38	110	1
7241202038	12	12	18	38	110	2

ESR734

4 flutes long shank radius



CARBIDE	4	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC	Tolerance
					DC6 or below	Above DC6	$\varnothing 1 - \varnothing 6$ $\varnothing 8 - \varnothing 12$	0.000 ~ -0.012 0.000 ~ -0.015

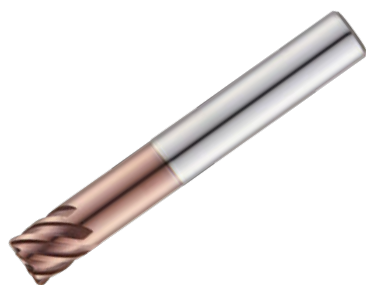


Designation	DC	DCON-MS	APMX	LF	RE
ESR 73401001	1	6	2	50	0.1
73401002	1	6	2	50	0.2
73401003	1	6	2	50	0.3
73401501	1.5	6	3	50	0.1
73401502	1.5	6	3	50	0.2
73401503	1.5	6	3	50	0.3
73401505	1.5	6	3	50	0.5
73402001	2	6	5	50	0.1
73402002	2	6	5	50	0.2
73402003	2	6	5	50	0.3
73402005	2	6	5	50	0.5
73402501	2.5	6	7	60	0.1
73402502	2.5	6	7	60	0.2
73402503	2.5	6	7	60	0.3
73402505	2.5	6	7	60	0.5
73403001	3	6	8	60	0.1
73403002	3	6	8	60	0.2
73403003	3	6	8	60	0.3
73403005	3	6	8	60	0.5
73404001	4	6	10	70	0.1
73404002	4	6	10	70	0.2
73404002S4	4	4	10	70	0.2
73404003	4	6	10	70	0.3
73404005	4	6	10	70	0.5
73404005S4	4	4	10	70	0.5
73404010	4	6	10	70	1
73405001	5	6	13	80	0.1

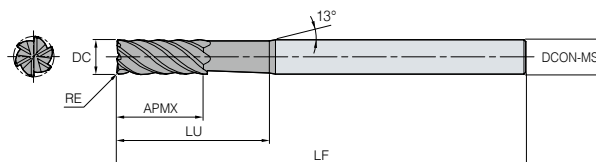
Designation	DC	DCON-MS	APMX	LF	RE
ESR 73405002	5	6	13	80	0.2
73405003	5	6	13	80	0.3
73405005	5	6	13	80	0.5
73405010	5	6	13	80	1
73406001	6	6	15	90	0.1
73406002	6	6	15	90	0.2
73406003	6	6	15	90	0.3
73406005	6	6	15	90	0.5
73406010	6	6	15	90	1
73408001	8	8	20	100	0.1
73408002	8	8	20	100	0.2
73408003	8	8	20	100	0.3
73408005	8	8	20	100	0.5
73408010	8	8	20	100	1
73408020	8	8	20	100	2
73410002	10	10	25	100	0.2
73410003	10	10	25	100	0.3
73410005	10	10	25	100	0.5
73410010	10	10	25	100	1
73410020	10	10	25	100	2
73412002	12	12	30	110	0.2
73412003	12	12	30	110	0.3
73412005	12	12	30	110	0.5
73412010	12	12	30	110	1
73412010L	12	12	30	150	1
73412020	12	12	30	110	2

ESR706

6 flutes neck type radius



CARBIDE	6	H-A 45°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC Ø6 Ø8 ~ Ø12	Tolerance 0.000 ~ -0.012 0.000 ~ -0.015
					DC6 or below Above DC6			

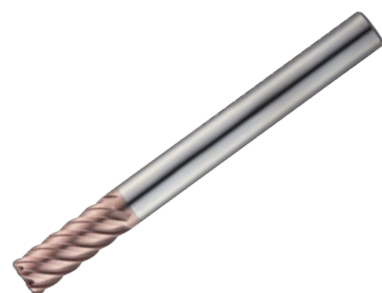


(mm)

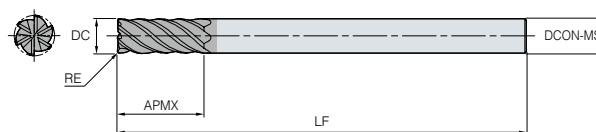
Designation		DC	DCON-MS	APMX	LU	LF	RE
ESR	7060600314	6	6	6	14	50	0.3
	7060600514	6	6	6	14	50	0.5
	7060800524	8	8	8	24	60	0.5
	7060801024	8	8	8	24	60	1
	7061000530	10	10	10	30	70	0.5
	7061001030	10	10	10	30	70	1
	7061200530	12	12	12	30	75	0.5
	7061201030	12	12	12	30	75	1

ESR736

6 flutes radius



CARBIDE	6	H-A 45°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC Ø6 Ø8 ~ Ø12	Tolerance 0.000 ~ -0.012 0.000 ~ -0.015
					DC6 or below Above DC6			

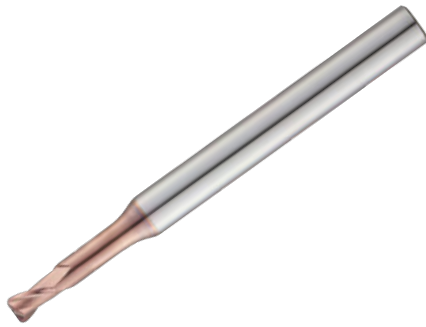


(mm)

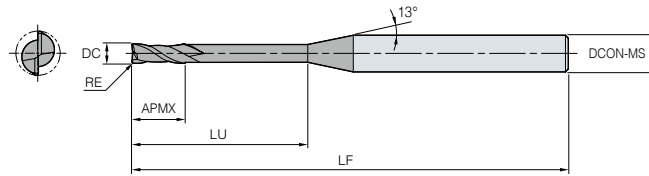
Designation		DC	DCON-MS	APMX	LF	RE
ESR	73606005	6	6	15	90	0.5
	73606010	6	6	15	90	1
	73608005	8	8	20	100	0.5
	73608010	8	8	20	100	1
	73610005	10	10	25	100	0.5
	73610010	10	10	25	100	1
	73612005	12	12	30	110	0.5
	73612010	12	12	30	110	1

ESRR712

2 flutes rib ball



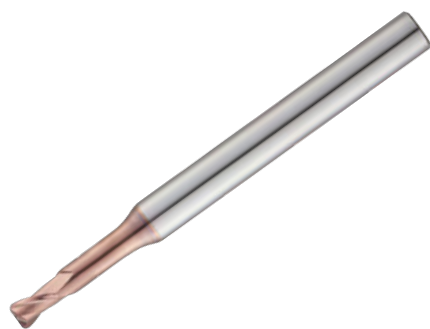
CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC Ø0.2 ~ Ø6 Ø8 ~ Ø16	Tolerance 0.000 ~ -0.012 0.000 ~ -0.015
					DC6 or below Above DC6			



														(mm)			
Designation		DC	DCON-MS		APMX	LU	LF	RE	Designation		DC	DCON-MS		APMX	LU	LF	RE
ESRR	712002002005	0.2	4	0.2	0.5	40	0.02		ESRR	71200500503	0.5	4	0.5	3	45	0.05	
	71200200201	0.2	4	0.2	1	40	0.02			71200500504	0.5	4	0.5	4	45	0.05	
	712002002015	0.2	4	0.2	1.5	40	0.02			71200500505	0.5	4	0.5	5	45	0.05	
	712002005005	0.2	4	0.2	0.5	40	0.05			71200500506	0.5	4	0.5	6	45	0.05	
	71200200501	0.2	4	0.2	1	40	0.05			71200500508	0.5	4	0.5	8	45	0.05	
	712002005015	0.2	4	0.2	1.5	40	0.05			71200500510	0.5	4	0.5	10	45	0.05	
	71200300201	0.3	4	0.3	1	40	0.02			71200501001	0.5	4	0.5	1	45	0.1	
	71200300202	0.3	4	0.3	2	40	0.02			712005010015	0.5	4	0.5	1.5	45	0.1	
	71200300203	0.3	4	0.3	3	40	0.02			71200501002	0.5	4	0.5	2	45	0.1	
	71200300501	0.3	4	0.3	1	40	0.05			712005010025	0.5	4	0.5	2.5	45	0.1	
	71200300502	0.3	4	0.3	2	40	0.05			71200501003	0.5	4	0.5	3	45	0.1	
	71200300503	0.3	4	0.3	3	40	0.05			71200501004	0.5	4	0.5	4	45	0.1	
	71200400201	0.4	4	0.4	1	40	0.02			71200501005	0.5	4	0.5	5	45	0.1	
	71200400202	0.4	4	0.4	2	40	0.02			71200501006	0.5	4	0.5	6	45	0.1	
	71200400203	0.4	4	0.4	3	40	0.02			71200501008	0.5	4	0.5	8	45	0.1	
	71200400204	0.4	4	0.4	4	40	0.02			71200501010	0.5	4	0.5	10	45	0.1	
	71200400501	0.4	4	0.4	1	40	0.05			71200600202	0.6	4	0.6	2	45	0.02	
	71200400502	0.4	4	0.4	2	40	0.05			71200600203	0.6	4	0.6	3	45	0.02	
	71200400503	0.4	4	0.4	3	40	0.05			71200600204	0.6	4	0.6	4	45	0.02	
	71200400504	0.4	4	0.4	4	40	0.05			71200600206	0.6	4	0.6	6	45	0.02	
	71200401001	0.4	4	0.4	1	40	0.1			71200600208	0.6	4	0.6	8	45	0.02	
	712004010015	0.4	4	0.4	1.5	40	0.1			71200600210	0.6	4	0.6	10	45	0.02	
	71200401002	0.4	4	0.4	2	40	0.1			71200600212	0.6	4	0.6	12	50	0.02	
	71200401003	0.4	4	0.4	3	40	0.1			71200600502	0.6	4	0.6	2	45	0.05	
	71200401004	0.4	4	0.4	4	40	0.1			71200600503	0.6	4	0.6	3	45	0.05	
	71200500201	0.5	4	0.5	1	45	0.02			71200600504	0.6	4	0.6	4	45	0.05	
	712005002015	0.5	4	0.5	1.5	45	0.02			71200600506	0.6	4	0.6	6	45	0.05	
	71200500202	0.5	4	0.5	2	45	0.02			71200600508	0.6	4	0.6	8	45	0.05	
	712005002025	0.5	4	0.5	2.5	45	0.02			71200600510	0.6	4	0.6	10	45	0.05	
	71200500203	0.5	4	0.5	3	45	0.02			71200600512	0.6	4	0.6	12	50	0.05	
	71200500204	0.5	4	0.5	4	45	0.02			71200601002	0.6	4	0.6	2	45	0.1	
	71200500205	0.5	4	0.5	5	45	0.02			71200601003	0.6	4	0.6	3	45	0.1	
	71200500206	0.5	4	0.5	6	45	0.02			71200601004	0.6	4	0.6	4	45	0.1	
	71200500208	0.5	4	0.5	8	45	0.02			71200601006	0.6	4	0.6	6	45	0.1	
	71200500210	0.5	4	0.5	10	45	0.02			71200601008	0.6	4	0.6	8	45	0.1	
	71200500501	0.5	4	0.5	1	45	0.05			71200601010	0.6	4	0.6	10	45	0.1	
	712005005015	0.5	4	0.5	1.5	45	0.05			71200601012	0.6	4	0.6	12	50	0.1	
	71200500502	0.5	4	0.5	2	45	0.05			71200701002	0.7	4	0.7	2	45	0.1	
	712005005025	0.5	4	0.5	2.5	45	0.05			71200701004	0.7	4	0.7	4	45	0.1	

ESRR712

2 flutes rib ball



CARBIDE

2

H-A
30°

Grade
PC305H

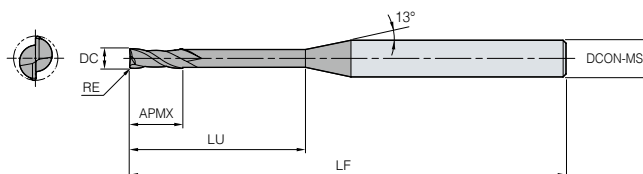
h5 shank

RE
±0.01

RE
±0.015

DC6 or below Above DC6

DC	Tolerance
Ø0.2 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø16	0.000 ~ -0.015



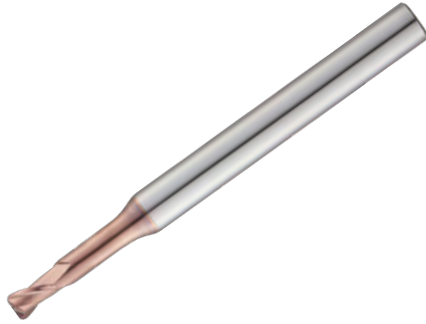
(mm)

	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRR	71200701006	0.7	4	0.7	6	45	0.1
	71200701008	0.7	4	0.7	8	45	0.1
	71200701010	0.7	4	0.7	10	45	0.1
	71200800202	0.8	4	0.8	2	45	0.02
	71200800204	0.8	4	0.8	4	45	0.02
	71200800206	0.8	4	0.8	6	45	0.02
	71200800208	0.8	4	0.8	8	45	0.02
	71200800210	0.8	4	0.8	10	45	0.02
	71200800212	0.8	4	0.8	12	50	0.02
	71200800502	0.8	4	0.8	2	45	0.05
	71200800504	0.8	4	0.8	4	45	0.05
	71200800506	0.8	4	0.8	6	45	0.05
	71200800508	0.8	4	0.8	8	45	0.05
	71200800510	0.8	4	0.8	10	45	0.05
	71200800512	0.8	4	0.8	12	50	0.05
	71200801002	0.8	4	0.8	2	45	0.1
	71200801004	0.8	4	0.8	4	45	0.1
	71200801006	0.8	4	0.8	6	45	0.1
	71200801008	0.8	4	0.8	8	45	0.1
	71200801010	0.8	4	0.8	10	45	0.1
	71200801012	0.8	4	0.8	12	50	0.1
	71200802002	0.8	4	0.8	2	45	0.2
	71200802004	0.8	4	0.8	4	45	0.2
	71200802006	0.8	4	0.8	6	45	0.2
	71200802008	0.8	4	0.8	8	45	0.2
	71200802010	0.8	4	0.8	10	45	0.2
	71200802012	0.8	4	0.8	12	50	0.2
	71201000204	1	4	1	4	45	0.02
	71201000206	1	4	1	6	45	0.02
	71201000208	1	4	1	8	45	0.02
	71201000210	1	4	1	10	50	0.02
	71201000212	1	4	1	12	50	0.02
	71201000214	1	4	1	14	50	0.02
	71201000216	1	4	1	16	50	0.02
	71201000220	1	4	1	20	50	0.02
	71201000504	1	4	1	4	45	0.05
	71201000506	1	4	1	6	45	0.05
	71201000508	1	4	1	8	45	0.05
	71201000510	1	4	1	10	50	0.05

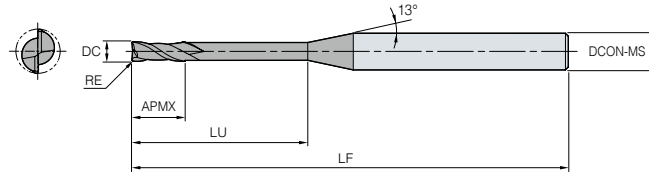
	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRR	71201000512	1	4	1	12	50	0.05
	71201000514	1	4	1	14	50	0.05
	71201000516	1	4	1	16	50	0.05
	71201000520	1	4	1	20	50	0.05
	71201001004	1	4	1	4	45	0.1
	71201001006	1	4	1	6	45	0.1
	71201001008	1	4	1	8	45	0.1
	71201001010	1	4	1	10	50	0.1
	71201001012	1	4	1	12	50	0.1
	71201001014	1	4	1	14	50	0.1
	71201001016	1	4	1	16	50	0.1
	71201001020	1	4	1	20	50	0.1
	71201002004	1	4	1	4	45	0.2
	71201002006	1	4	1	6	45	0.2
	71201002008	1	4	1	8	45	0.2
	71201002010	1	4	1	10	50	0.2
	71201002012	1	4	1	12	50	0.2
	71201002014	1	4	1	14	50	0.2
	71201002016	1	4	1	16	50	0.2
	71201002020	1	4	1	20	50	0.2
	71201003004	1	4	1	4	45	0.3
	71201003006	1	4	1	6	45	0.3
	71201003008	1	4	1	8	45	0.3
	71201003010	1	4	1	10	50	0.3
	71201003012	1	4	1	12	50	0.3
	71201003014	1	4	1	14	50	0.3
	71201003016	1	4	1	16	50	0.3
	71201003020	1	4	1	20	50	0.3
	71201200204	1.2	4	1.2	4	45	0.02
	71201200206	1.2	4	1.2	6	45	0.02
	71201200208	1.2	4	1.2	8	45	0.02
	71201200210	1.2	4	1.2	10	50	0.02
	71201200212	1.2	4	1.2	12	50	0.02
	71201200214	1.2	4	1.2	14	50	0.02
	71201200216	1.2	4	1.2	16	50	0.02
	71201200220	1.2	4	1.2	20	50	0.02
	71201200504	1.2	4	1.2	4	45	0.05
	71201200506	1.2	4	1.2	6	45	0.05
	71201200508	1.2	4	1.2	8	45	0.05

ESRR712

2 flutes rib ball



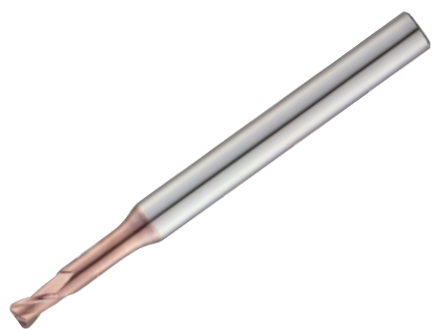
CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC Ø0.2 ~ Ø6 Ø8 ~ Ø16	Tolerance 0.000 ~ -0.012 0.000 ~ -0.015
					DC6 or below Above DC6			



Designation		DC	DCON-MS	APMX	LU	LF	RE		
ESRR	71201200510	1.2	4	1.2	10	50	0.05		
	71201200512	1.2	4	1.2	12	50	0.05		
	71201200514	1.2	4	1.2	14	50	0.05		
	71201200516	1.2	4	1.2	16	50	0.05		
	71201200520	1.2	4	1.2	20	50	0.05		
	71201201004	1.2	4	1.2	4	45	0.1		
	71201201006	1.2	4	1.2	6	45	0.1		
	71201201008	1.2	4	1.2	8	45	0.1		
	71201201010	1.2	4	1.2	10	50	0.1		
	71201201012	1.2	4	1.2	12	50	0.1		
	71201201014	1.2	4	1.2	14	50	0.1		
	71201201016	1.2	4	1.2	16	50	0.1		
	71201201020	1.2	4	1.2	20	50	0.1		
	71201202004	1.2	4	1.2	4	45	0.2		
	71201202006	1.2	4	1.2	6	45	0.2		
	71201202008	1.2	4	1.2	8	45	0.2		
	71201202010	1.2	4	1.2	10	50	0.2		
	71201202012	1.2	4	1.2	12	50	0.2		
	71201202014	1.2	4	1.2	14	50	0.2		
	71201202016	1.2	4	1.2	16	50	0.2		
	71201202020	1.2	4	1.2	20	50	0.2		
	71201203004	1.2	4	1.2	4	45	0.3		
	71201203006	1.2	4	1.2	6	45	0.3		
	71201203008	1.2	4	1.2	8	45	0.3		
	71201203010	1.2	4	1.2	10	50	0.3		
	71201203012	1.2	4	1.2	12	50	0.3		
	71201203014	1.2	4	1.2	14	50	0.3		
	71201203016	1.2	4	1.2	16	50	0.3		
	71201203020	1.2	4	1.2	20	50	0.3		
	71201500204	1.5	4	1.5	4	45	0.02		
	71201500206	1.5	4	1.5	6	45	0.02		
	71201500208	1.5	4	1.5	8	45	0.02		
	71201500210	1.5	4	1.5	10	50	0.02		
	71201500212	1.5	4	1.5	12	50	0.02		
	71201500214	1.5	4	1.5	14	50	0.02		
	71201500216	1.5	4	1.5	16	50	0.02		
	71201500220	1.5	4	1.5	20	50	0.02		
	71201500504	1.5	4	1.5	4	45	0.05		
	71201500506	1.5	4	1.5	6	45	0.05		
ESRR	71201500508	1.5	4	1.5	8	45	0.05		
	71201500510	1.5	4	1.5	10	50	0.05		
	71201500512	1.5	4	1.5	12	50	0.05		
	71201500514	1.5	4	1.5	14	50	0.05		
	71201500516	1.5	4	1.5	16	50	0.05		
	71201500520	1.5	4	1.5	20	50	0.05		
	71201501004	1.5	4	1.5	4	45	0.1		
	71201501006	1.5	4	1.5	6	45	0.1		
	71201501008	1.5	4	1.5	8	45	0.1		
	71201501010	1.5	4	1.5	10	50	0.1		
	71201501012	1.5	4	1.5	12	50	0.1		
	71201501014	1.5	4	1.5	14	50	0.1		
	71201501016	1.5	4	1.5	16	50	0.1		
	71201501020	1.5	4	1.5	20	50	0.1		
	71201502004	1.5	4	1.5	4	45	0.2		
	71201502006	1.5	4	1.5	6	45	0.2		
	71201502008	1.5	4	1.5	8	45	0.2		
	71201502010	1.5	4	1.5	10	50	0.2		
	71201502012	1.5	4	1.5	12	50	0.2		
	71201502014	1.5	4	1.5	14	50	0.2		
	71201502016	1.5	4	1.5	16	50	0.2		
	71201502020	1.5	4	1.5	20	50	0.2		
	71201503004	1.5	4	1.5	4	45	0.3		
	71201503006	1.5	4	1.5	6	45	0.3		
	71201503008	1.5	4	1.5	8	45	0.3		
	71201503010	1.5	4	1.5	10	50	0.3		
	71201503012	1.5	4	1.5	12	50	0.3		
	71201503014	1.5	4	1.5	14	50	0.3		
	71201503016	1.5	4	1.5	16	50	0.3		
	71201503020	1.5	4	1.5	20	50	0.3		
	71201505004	1.5	4	1.5	4	45	0.5		
	71201505006	1.5	4	1.5	6	45	0.5		
	71201505008	1.5	4	1.5	8	45	0.5		
	71201505010	1.5	4	1.5	10	50	0.5		
	71201505012	1.5	4	1.5	12	50	0.5		
	71201505014	1.5	4	1.5	14	50	0.5		
	71201505016	1.5	4	1.5	16	50	0.5		
	71201505020	1.5	4	1.5	20	50	0.5		
	71202000206	2	4	2	6	45	0.02		

ESRR712

2 flutes rib ball



CARBIDE

2

H-A
30°

Grade
PC305H

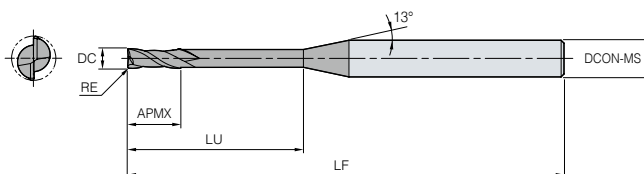
h5 shank

RE
±0.01

RE
±0.015

DC6 or below Above DC6

DC	Tolerance
Ø0.2 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø16	0.000 ~ -0.015



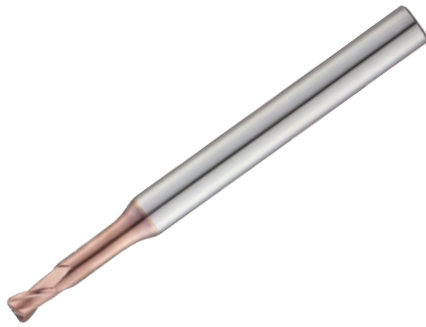
(mm)

	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRR	71202000208	2	4	2	8	45	0.02
	71202000210	2	4	2	10	50	0.02
	71202000212	2	4	2	12	50	0.02
	71202000214	2	4	2	14	50	0.02
	71202000216	2	4	2	16	50	0.02
	71202000220	2	4	2	20	50	0.02
	71202000225	2	4	2	25	60	0.02
	71202000506	2	4	2	6	45	0.05
	71202000508	2	4	2	8	45	0.05
	71202000510	2	4	2	10	50	0.05
	71202000512	2	4	2	12	50	0.05
	71202000514	2	4	2	14	50	0.05
	71202000516	2	4	2	16	50	0.05
	71202000520	2	4	2	20	50	0.05
	71202000525	2	4	2	25	60	0.05
	71202001006	2	4	2	6	45	0.1
	71202001008	2	4	2	8	45	0.1
	71202001010	2	4	2	10	50	0.1
	71202001012	2	4	2	12	50	0.1
	71202001014	2	4	2	14	50	0.1
	71202001016	2	4	2	16	50	0.1
	71202001020	2	4	2	20	50	0.1
	71202001025	2	4	2	25	60	0.1
	71202001030	2	4	2	30	70	0.1
	71202002006	2	4	2	6	45	0.2
	71202002008	2	4	2	8	45	0.2
	71202002010	2	4	2	10	50	0.2
	71202002012	2	4	2	12	50	0.2
	71202002014	2	4	2	14	50	0.2
	71202002016	2	4	2	16	50	0.2
	71202002020	2	4	2	20	50	0.2
	71202002025	2	4	2	25	60	0.2
	71202002030	2	4	2	30	70	0.2
	71202003006	2	4	2	6	45	0.3
	71202003008	2	4	2	8	45	0.3
	71202003010	2	4	2	10	50	0.3
	71202003012	2	4	2	12	50	0.3
	71202003014	2	4	2	14	50	0.3
	71202003016	2	4	2	16	50	0.3

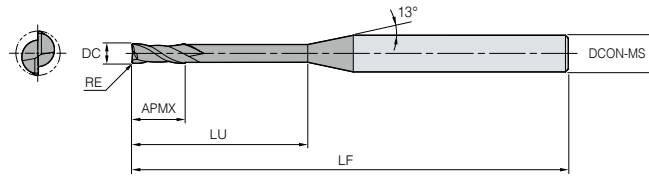
	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRR	71202003020	2	4	2	20	50	0.3
	71202003025	2	4	2	25	60	0.3
	71202003030	2	4	2	30	70	0.3
	71202005006	2	4	2	6	45	0.5
	71202005008	2	4	2	8	45	0.5
	71202005010	2	4	2	10	50	0.5
	71202005012	2	4	2	12	50	0.5
	71202005014	2	4	2	14	50	0.5
	71202005016	2	4	2	16	50	0.5
	71202005020	2	4	2	20	50	0.5
	71202005025	2	4	2	25	60	0.5
	71202005030	2	4	2	30	70	0.5
	71202501010	2.5	4	2.5	10	50	0.1
	71202501016	2.5	4	2.5	16	50	0.1
	71202501020	2.5	4	2.5	20	50	0.1
	71202501025	2.5	4	2.5	25	60	0.1
	71202501030	2.5	4	2.5	30	70	0.1
	71202502010	2.5	4	2.5	10	50	0.2
	71202502016	2.5	4	2.5	16	50	0.2
	71202502020	2.5	4	2.5	20	50	0.2
	71202503010	2.5	4	2.5	10	50	0.3
	71202503016	2.5	4	2.5	16	50	0.3
	71202503020	2.5	4	2.5	20	50	0.3
	71202505010	2.5	4	2.5	10	50	0.5
	71202505016	2.5	4	2.5	16	50	0.5
	71202505020	2.5	4	2.5	20	50	0.5
	71203001010	3	6	3	10	50	0.1
	71203001012	3	6	3	12	50	0.1
	71203001016	3	6	3	16	55	0.1
	71203001020	3	6	3	20	60	0.1
	71203001025	3	6	3	25	65	0.1
	71203001030	3	6	3	30	70	0.1
	71203001035	3	6	3	35	75	0.1
	71203001040	3	6	3	40	80	0.1
	71203002010	3	6	3	10	50	0.2
	71203002012	3	6	3	12	50	0.2
	71203002016	3	6	3	16	55	0.2
	71203002020	3	6	3	20	60	0.2
	71203002025	3	6	3	25	65	0.2

ESRR712

2 flutes rib ball



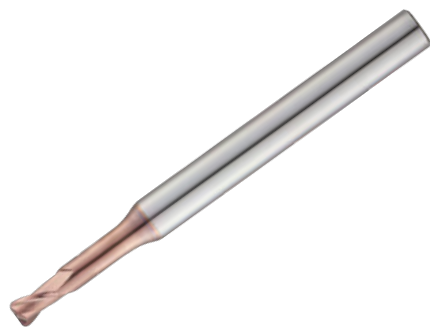
CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC Ø0.2 ~ Ø6 Ø8 ~ Ø16	Tolerance 0.000 ~ -0.012 0.000 ~ -0.015
					DC6 or below Above DC6			



																(mm)	
Designation		DC	DCON-MS		APMX	LU	LF	RE	Designation		DC	DCON-MS		APMX	LU	LF	RE
ESRR	71203002030	3	6	3	30	70	0.2	ESRR	71204002035	4	6	4	35	75	0.2		
	71203002035	3	6	3	35	75	0.2		71204002040	4	6	4	40	80	0.2		
	71203002040	3	6	3	40	80	0.2		71204003012	4	6	4	12	50	0.3		
	71203003010	3	6	3	10	50	0.3		71204003016	4	6	4	16	55	0.3		
	71203003012	3	6	3	12	50	0.3		71204003020	4	6	4	20	60	0.3		
	71203003016	3	6	3	16	55	0.3		71204003025	4	6	4	25	65	0.3		
	71203003020	3	6	3	20	60	0.3		71204003030	4	6	4	30	70	0.3		
	71203003025	3	6	3	25	65	0.3		71204003035	4	6	4	35	75	0.3		
	71203003030	3	6	3	30	70	0.3		71204003040	4	6	4	40	80	0.3		
	71203003035	3	6	3	35	75	0.3		71204005012	4	6	4	12	50	0.5		
	71203003040	3	6	3	40	80	0.3		71204005016	4	6	4	16	55	0.5		
	71203005010	3	6	3	10	50	0.5		71204005020	4	6	4	20	60	0.5		
	71203005012	3	6	3	12	50	0.5		71204005025	4	6	4	25	65	0.5		
	71203005016	3	6	3	16	55	0.5		71204005030	4	6	4	30	70	0.5		
	71203005020	3	6	3	20	60	0.5		71204005035	4	6	4	35	75	0.5		
	71203005025	3	6	3	25	65	0.5		71204005040	4	6	4	40	80	0.5		
	71203005030	3	6	3	30	70	0.5		71204010012	4	6	4	12	50	1		
	71203005035	3	6	3	35	75	0.5		71204010016	4	6	4	16	55	1		
	71203005040	3	6	3	40	80	0.5		71204010020	4	6	4	20	60	1		
	71203010010	3	6	3	10	50	1		71204010025	4	6	4	25	65	1		
	71203010012	3	6	3	12	50	1		71204010030	4	6	4	30	70	1		
	71203010016	3	6	3	16	55	1		71204010035	4	6	4	35	75	1		
	71203010020	3	6	3	20	60	1		71204010040	4	6	4	40	80	1		
	71203010025	3	6	3	25	65	1		71205002015	5	6	6	15	60	0.2		
	71203010030	3	6	3	30	70	1		71205002025	5	6	6	25	70	0.2		
	71203010035	3	6	3	35	75	1		71205002030	5	6	6	30	70	0.2		
	71203010040	3	6	3	40	80	1		71205002040	5	6	6	40	80	0.2		
	71204001012	4	6	4	12	50	0.1		71205005015	5	6	6	15	60	0.5		
	71204001016	4	6	4	16	55	0.1		71205005025	5	6	6	25	70	0.5		
	71204001020	4	6	4	20	60	0.1		71205005030	5	6	6	30	70	0.5		
	71204001025	4	6	4	25	65	0.1		71205005040	5	6	6	40	80	0.5		
	71204001030	4	6	4	30	70	0.1		71205010015	5	6	6	15	60	1		
	71204001035	4	6	4	35	75	0.1		71205010025	5	6	6	25	70	1		
	71204001040	4	6	4	40	80	0.1		71205010030	5	6	6	30	70	1		
	71204002012	4	6	4	12	50	0.2		71205010040	5	6	6	40	80	1		
	71204002016	4	6	4	16	55	0.2		71206001020	6	6	7	20	60	0.1		
	71204002020	4	6	4	20	60	0.2		71206001040	6	6	7	40	80	0.1		
	71204002025	4	6	4	25	65	0.2		71206002020	6	6	7	20	60	0.2		
	71204002030	4	6	4	30	70	0.2		71206002040	6	6	7	40	80	0.2		

ESRR712

2 flutes rib ball



CARBIDE

2

H-A
30°

Grade
PC305H

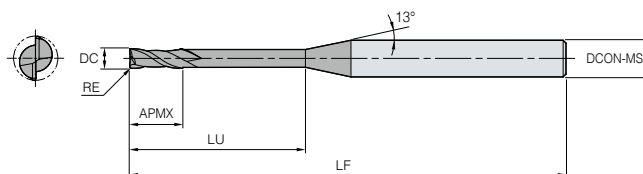
h5
shank

RE
±0.01

RE
±0.015

DC6 or below Above DC6

DC	Tolerance
Ø0.2 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø16	0.000 ~ -0.015



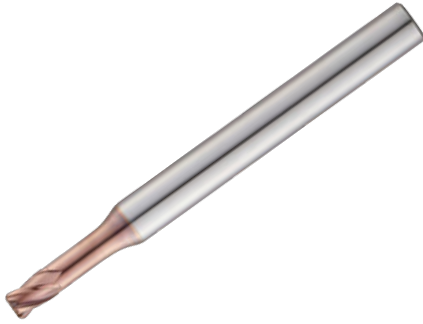
(mm)

	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRR	71206003020	6	6	7	20	60	0.3
	71206003040	6	6	7	40	80	0.3
	71206005020	6	6	7	20	60	0.5
	71206005040	6	6	7	40	80	0.5
	71206010020	6	6	7	20	60	1
	71206010040	6	6	7	40	80	1
	71206015020	6	6	7	20	60	1.5
	71206015040	6	6	7	40	80	1.5
	71208002022	8	8	9	22	65	0.2
	71208003022	8	8	9	22	65	0.3
	71208005022	8	8	9	22	65	0.5
	71208010022	8	8	9	22	65	1
	71208015022	8	8	9	22	65	1.5
	71210002024	10	10	11	24	70	0.2

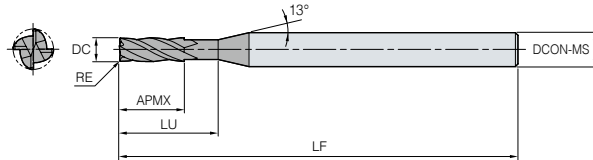
	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRR	71210003024	10	10	11	24	70	0.3
	71210005024	10	10	11	24	70	0.5
	71210010024	10	10	11	24	70	1
	71210015024	10	10	11	24	70	1.5
	71210020024	10	10	11	24	70	2
	71212002026	12	12	13	26	80	0.2
	71212003026	12	12	13	26	80	0.3
	71212005026	12	12	13	26	80	0.5
	71212010026	12	12	13	26	80	1
	71212015026	12	12	13	26	80	1.5
	71212020026	12	12	13	26	80	2
	71212030026	12	12	13	26	80	3
	71216005035	16	16	20	35	110	0.5
	71216010035	16	16	20	35	110	1

ESRR714

4 flutes rib ball



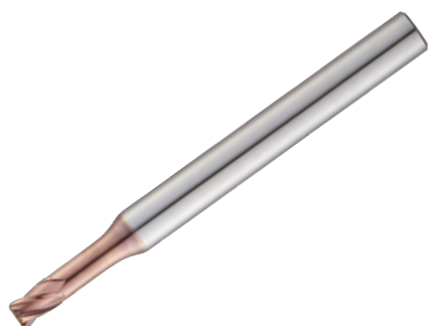
CARBIDE	4	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC Ø0.5 ~ Ø6 Ø8 ~ Ø20	Tolerance 0.000 ~ -0.012 0.000 ~ -0.015
					DC6 or below Above DC6			



Designation		DC	DCON-MS	APMX	LU	LF	RE		
ESRR	71400500502	0.5	4	0.5	2	45	0.05		
	71400500504	0.5	4	0.5	4	45	0.05		
	71400500506	0.5	4	0.5	6	45	0.05		
	71400500508	0.5	4	0.5	8	45	0.05		
	71400501002	0.5	4	0.5	2	45	0.1		
	71400501004	0.5	4	0.5	4	45	0.1		
	71400501006	0.5	4	0.5	6	45	0.1		
	71400501008	0.5	4	0.5	8	45	0.1		
	71400600502	0.6	4	0.6	2	45	0.05		
	71400600504	0.6	4	0.6	4	45	0.05		
	71400600506	0.6	4	0.6	6	45	0.05		
	71400600508	0.6	4	0.6	8	45	0.05		
	71400601002	0.6	4	0.6	2	45	0.1		
	71400601004	0.6	4	0.6	4	45	0.1		
	71400601006	0.6	4	0.6	6	45	0.1		
	71400601008	0.6	4	0.6	8	45	0.1		
	71400700502	0.7	4	0.7	2	45	0.05		
	71400700504	0.7	4	0.7	4	45	0.05		
	71400700506	0.7	4	0.7	6	45	0.05		
	71400700508	0.7	4	0.7	8	45	0.05		
	71400701002	0.7	4	0.7	2	45	0.1		
	71400701004	0.7	4	0.7	4	45	0.1		
	71400701006	0.7	4	0.7	6	45	0.1		
	71400701008	0.7	4	0.7	8	45	0.1		
	71400800202	0.8	4	0.8	2	45	0.02		
	71400800204	0.8	4	0.8	4	45	0.02		
	71400800206	0.8	4	0.8	6	45	0.02		
	71400800208	0.8	4	0.8	8	45	0.02		
	71400800210	0.8	4	0.8	10	45	0.02		
	71400800212	0.8	4	0.8	12	50	0.02		
	71400800502	0.8	4	0.8	2	45	0.05		
	71400800504	0.8	4	0.8	4	45	0.05		
	71400800506	0.8	4	0.8	6	45	0.05		
	71400800508	0.8	4	0.8	8	45	0.05		
	71400800510	0.8	4	0.8	10	45	0.05		
	71400800512	0.8	4	0.8	12	50	0.05		
	71400801002	0.8	4	0.8	2	45	0.1		
	71400801004	0.8	4	0.8	4	45	0.1		
	71400801006	0.8	4	0.8	6	45	0.1		
									(mm)
ESRR	71400801008	0.8	4	0.8	8	45	0.1		
	71400801010	0.8	4	0.8	10	45	0.1		
	71400801012	0.8	4	0.8	12	50	0.1		
	71401000204	1	4	1	4	45	0.02		
	71401000206	1	4	1	6	45	0.02		
	71401000208	1	4	1	8	45	0.02		
	71401000210	1	4	1	10	50	0.02		
	71401000212	1	4	1	12	50	0.02		
	71401000214	1	4	1	14	50	0.02		
	71401000216	1	4	1	16	50	0.02		
	71401000220	1	4	1	20	50	0.02		
	71401000503	1	4	1	3	45	0.05		
	71401000504	1	4	1	4	45	0.05		
	71401000506	1	4	1	6	45	0.05		
	71401000508	1	4	1	8	45	0.05		
	71401000510	1	4	1	10	50	0.05		
	71401000512	1	4	1	12	50	0.05		
	71401000514	1	4	1	14	50	0.05		
	71401000516	1	4	1	16	50	0.05		
	71401000520	1	4	1	20	50	0.05		
	71401001003	1	4	1	3	45	0.1		
	71401001004	1	4	1	4	45	0.1		
	71401001006	1	4	1	6	45	0.1		
	71401001008	1	4	1	8	45	0.1		
	71401001010	1	4	1	10	50	0.1		
	71401001012	1	4	1	12	50	0.1		
	71401001014	1	4	1	14	50	0.1		
	71401001016	1	4	1	16	50	0.1		
	71401001020	1	4	1	20	50	0.1		
	71401002003	1	4	1	3	45	0.2		
	71401002004	1	4	1	4	45	0.2		
	71401002006	1	4	1	6	45	0.2		
	71401002008	1	4	1	8	45	0.2		
	71401002010	1	4	1	10	50	0.2		
	71401002012	1	4	1	12	50	0.2		
	71401002014	1	4	1	14	50	0.2		
	71401002016	1	4	1	16	50	0.2		
	71401002020	1	4	1	20	50	0.2		
	71401003003	1	4	1	3	45	0.3		

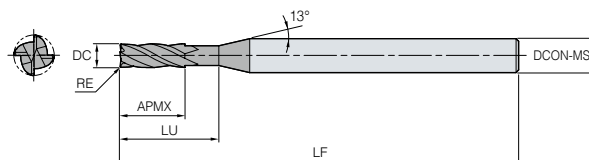
ESRR714

4 flutes rib ball



DC6 or below Above DC6

DC	Tolerance
Ø0.5 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø20	0.000 ~ -0.015



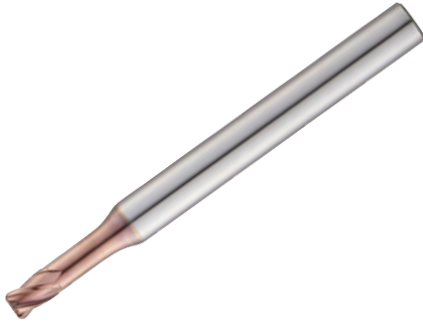
(mm)

	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRR	71401003004	1	4	1	4	45	0.3
	71401003006	1	4	1	6	45	0.3
	71401003008	1	4	1	8	45	0.3
	71401003010	1	4	1	10	50	0.3
	71401003012	1	4	1	12	50	0.3
	71401003014	1	4	1	14	50	0.3
	71401003016	1	4	1	16	50	0.3
	71401003020	1	4	1	20	50	0.3
	71401200204	1.2	4	1.2	4	45	0.02
	71401200206	1.2	4	1.2	6	45	0.02
	71401200208	1.2	4	1.2	8	45	0.02
	71401200210	1.2	4	1.2	10	50	0.02
	71401200212	1.2	4	1.2	12	50	0.02
	71401200214	1.2	4	1.2	14	50	0.02
	71401200216	1.2	4	1.2	16	50	0.02
	71401200220	1.2	4	1.2	20	50	0.02
	71401200503	1.2	4	1.2	3	45	0.05
	71401200504	1.2	4	1.2	4	45	0.05
	71401200506	1.2	4	1.2	6	45	0.05
	71401200508	1.2	4	1.2	8	45	0.05
	71401200510	1.2	4	1.2	10	50	0.05
	71401200512	1.2	4	1.2	12	50	0.05
	71401200514	1.2	4	1.2	14	50	0.05
	71401200516	1.2	4	1.2	16	50	0.05
	71401200520	1.2	4	1.2	20	50	0.05
	71401201003	1.2	4	1.2	3	45	0.1
	71401201004	1.2	4	1.2	4	45	0.1
	71401201006	1.2	4	1.2	6	45	0.1
	71401201008	1.2	4	1.2	8	45	0.1
	71401201010	1.2	4	1.2	10	50	0.1
	71401201012	1.2	4	1.2	12	50	0.1
	71401201014	1.2	4	1.2	14	50	0.1
	71401201016	1.2	4	1.2	16	50	0.1
	71401201020	1.2	4	1.2	20	50	0.1
	71401202003	1.2	4	1.2	3	45	0.2
	71401202004	1.2	4	1.2	4	45	0.2
	71401202006	1.2	4	1.2	6	45	0.2
	71401202008	1.2	4	1.2	8	45	0.2
	71401202010	1.2	4	1.2	10	50	0.2

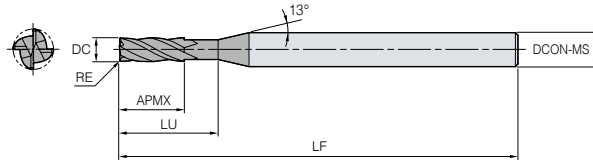
	Designation	DC	DCON-MS	APMX	LU	RE	LF
ESRR	71401202012	1.2	4	1.2	12	0.2	50
	71401202014	1.2	4	1.2	14	0.2	50
	71401202016	1.2	4	1.2	16	0.2	50
	71401202020	1.2	4	1.2	20	0.2	50
	71401203003	1.2	4	1.2	3	0.3	45
	71401203004	1.2	4	1.2	4	0.3	45
	71401203006	1.2	4	1.2	6	0.3	45
	71401203008	1.2	4	1.2	8	0.3	45
	71401203010	1.2	4	1.2	10	0.3	50
	71401203012	1.2	4	1.2	12	0.3	50
	71401203016	1.2	4	1.2	16	0.3	50
	71401203020	1.2	4	1.2	20	0.3	50
	71401500206	1.5	4	1.5	6	0.02	45
	71401500208	1.5	4	1.5	8	0.02	45
	71401500210	1.5	4	1.5	10	0.02	50
	71401500212	1.5	4	1.5	12	0.02	50
	71401500214	1.5	4	1.5	14	0.02	50
	71401500216	1.5	4	1.5	16	0.02	50
	71401500220	1.5	4	1.5	20	0.02	50
	71401500222	1.5	4	1.5	22	0.02	60
	71401500504	1.5	4	1.5	4	0.05	45
	71401500506	1.5	4	1.5	6	0.05	45
	71401500508	1.5	4	1.5	8	0.05	45
	71401500510	1.5	4	1.5	10	0.05	50
	71401500512	1.5	4	1.5	12	0.05	50
	71401500514	1.5	4	1.5	14	0.05	50
	71401500516	1.5	4	1.5	16	0.05	50
	71401500520	1.5	4	1.5	20	0.05	50
	71401500522	1.5	4	1.5	22	0.05	60
	71401500526	1.5	4	1.5	26	0.05	60
	71401501004	1.5	4	1.5	4	0.1	45
	71401501006	1.5	4	1.5	6	0.1	45
	71401501008	1.5	4	1.5	8	0.1	45
	71401501010	1.5	4	1.5	10	0.1	50
	71401501012	1.5	4	1.5	12	0.1	50
	71401501014	1.5	4	1.5	14	0.1	50
	71401501016	1.5	4	1.5	16	0.1	50
	71401501020	1.5	4	1.5	20	0.1	50
	71401501022	1.5	4	1.5	22	0.1	60

ESRR714

4 flutes rib ball



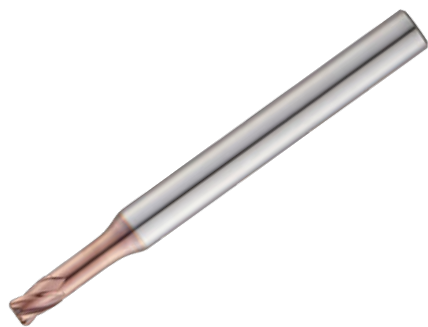
CARBIDE	4	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC Ø0.5 ~ Ø6 Ø8 ~ Ø20	Tolerance 0.000 ~ -0.012 0.000 ~ -0.015
					DC6 or below Above DC6			



Designation		DC	DCON-MS	APMX	LU	LF	RE		
ESRR	71401501026	1.5	4	1.5	26	60	0.1		
	71401502004	1.5	4	1.5	4	45	0.2		
	71401502006	1.5	4	1.5	6	45	0.2		
	71401502008	1.5	4	1.5	8	45	0.2		
	71401502010	1.5	4	1.5	10	50	0.2		
	71401502012	1.5	4	1.5	12	50	0.2		
	71401502014	1.5	4	1.5	14	50	0.2		
	71401502016	1.5	4	1.5	16	50	0.2		
	71401502020	1.5	4	1.5	20	50	0.2		
	71401502022	1.5	4	1.5	22	60	0.2		
	71401502025	1.5	4	1.5	25	60	0.2		
	71401503004	1.5	4	1.5	4	45	0.3		
	71401503006	1.5	4	1.5	6	45	0.3		
	71401503008	1.5	4	1.5	8	45	0.3		
	71401503010	1.5	4	1.5	10	50	0.3		
	71401503012	1.5	4	1.5	12	50	0.3		
	71401503014	1.5	4	1.5	14	50	0.3		
	71401503016	1.5	4	1.5	16	50	0.3		
	71401503020	1.5	4	1.5	20	50	0.3		
	71401503022	1.5	4	1.5	22	60	0.3		
	71401503025	1.5	4	1.5	25	60	0.3		
	71401505004	1.5	4	1.5	4	45	0.5		
	71401505006	1.5	4	1.5	6	45	0.5		
	71401505008	1.5	4	1.5	8	45	0.5		
	71401505010	1.5	4	1.5	10	50	0.5		
	71401505012	1.5	4	1.5	12	50	0.5		
	71401505014	1.5	4	1.5	14	50	0.5		
	71401505016	1.5	4	1.5	16	50	0.5		
	71401505020	1.5	4	1.5	20	50	0.5		
	71401505022	1.5	4	1.5	22	60	0.5		
	71401505025	1.5	4	1.5	25	60	0.5		
	71402000206	2	4	2	6	45	0.02		
	71402000208	2	4	2	8	45	0.02		
	71402000210	2	4	2	10	50	0.02		
	71402000212	2	4	2	12	50	0.02		
	71402000214	2	4	2	14	50	0.02		
	71402000216	2	4	2	16	50	0.02		
	71402000220	2	4	2	20	50	0.02		
	71402000225	2	4	2	25	60	0.02		
Designation		DC	DCON-MS	APMX	LU	LF	RE		
ESRR	71402000230	2	4	2	30	70	0.02		
	71402000506	2	4	2	6	45	0.05		
	71402000508	2	4	2	8	45	0.05		
	71402000510	2	4	2	10	50	0.05		
	71402000512	2	4	2	12	50	0.05		
	71402000514	2	4	2	14	50	0.05		
	71402000516	2	4	2	16	50	0.05		
	71402000520	2	4	2	20	50	0.05		
	71402000525	2	4	2	25	60	0.05		
	71402000530	2	4	2	30	70	0.05		
	71402001006	2	4	2	6	45	0.1		
	71402001008	2	4	2	8	45	0.1		
	71402001010	2	4	2	10	50	0.1		
	71402001012	2	4	2	12	50	0.1		
	71402001014	2	4	2	14	50	0.1		
	71402001016	2	4	2	16	50	0.1		
	71402001020	2	4	2	20	50	0.1		
	71402001022	2	4	2	22	60	0.1		
	71402001025	2	4	2	25	60	0.1		
	71402001030	2	4	2	30	70	0.1		
	71402002006	2	4	2	6	45	0.2		
	71402002008	2	4	2	8	45	0.2		
	71402002010	2	4	2	10	50	0.2		
	71402002012	2	4	2	12	50	0.2		
	71402002014	2	4	2	14	50	0.2		
	71402002016	2	4	2	16	50	0.2		
	71402002020	2	4	2	20	50	0.2		
	71402002022	2	4	2	22	60	0.2		
	71402002025	2	4	2	25	60	0.2		
	71402002030	2	4	2	30	70	0.2		
	71402003006	2	4	2	6	45	0.3		
	71402003008	2	4	2	8	45	0.3		
	71402003010	2	4	2	10	50	0.3		
	71402003012	2	4	2	12	50	0.3		
	71402003014	2	4	2	14	50	0.3		
	71402003016	2	4	2	16	50	0.3		
	71402003020	2	4	2	20	50	0.3		
	71402003022	2	4	2	22	60	0.3		
	71402003025	2	4	2	25	60	0.3		

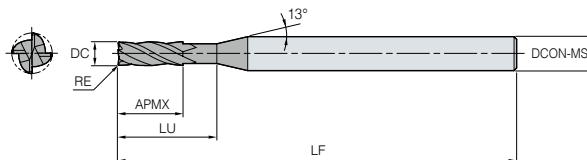
ESRR714

4 flutes rib ball



DC	Tolerance
Ø0.5 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø20	0.000 ~ -0.015

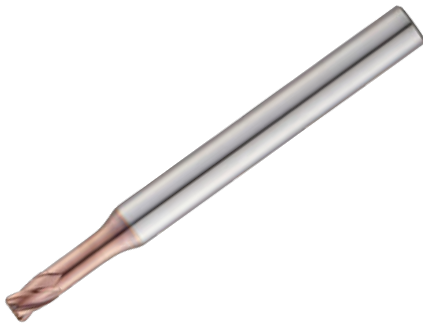
DC6 or below Above DC6



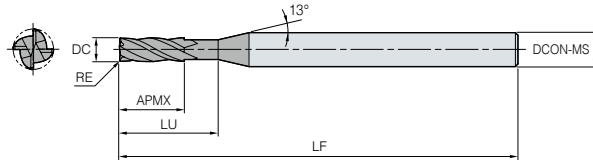
(mm)

Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRR 71402003030	2	4	2	30	70	0.3
71402005006	2	4	3	6	45	0.5
71402005008	2	4	2	8	45	0.5
71402005010	2	4	2	10	50	0.5
71402005012	2	4	2	12	50	0.5
71402005014	2	4	2	14	50	0.5
71402005016	2	4	2	16	50	0.5
71402005020	2	4	2	20	50	0.5
71402005022	2	4	2	22	60	0.5
71402005025	2	4	2	25	60	0.5
71402005030	2	4	2	30	70	0.5
71402501008	2.5	4	2.5	8	45	0.1
71402501010	2.5	4	2.5	10	50	0.1
71402501012	2.5	4	2.5	12	50	0.1
71402501014	2.5	4	2.5	14	50	0.1
71402501016	2.5	4	2.5	16	50	0.1
71402501020	2.5	4	2.5	20	50	0.1
71402501025	2.5	4	2.5	25	60	0.1
71402501030	2.5	4	2.5	30	70	0.1
71402502008	2.5	4	2.5	8	45	0.2
71402502010	2.5	4	2.5	10	50	0.2
71402502012	2.5	4	2.5	12	50	0.2
71402502014	2.5	4	2.5	14	50	0.2
71402502016	2.5	4	2.5	16	50	0.2
71402502020	2.5	4	2.5	20	50	0.2
71402502025	2.5	4	2.5	25	60	0.2
71402502030	2.5	4	2.5	30	70	0.2
71402503008	2.5	4	2.5	8	45	0.3
71402503010	2.5	4	2.5	10	50	0.3
71402503012	2.5	4	2.5	12	50	0.3
71402503014	2.5	4	2.5	14	50	0.3
71402503016	2.5	4	2.5	16	50	0.3
71402503020	2.5	4	2.5	20	50	0.3
71402503025	2.5	4	2.5	25	60	0.3
71402503030	2.5	4	2.5	30	70	0.3
71402505008	2.5	4	2.5	8	45	0.5
71402505010	2.5	4	2.5	10	50	0.5
71402505012	2.5	4	2.5	12	50	0.5
71402505014	2.5	4	2.5	14	50	0.5

Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRR 71402505016	2.5	4	2.5	16	50	0.5
71402505020	2.5	4	2.5	20	50	0.5
71402505025	2.5	4	2.5	25	60	0.5
71402505030	2.5	4	2.5	30	70	0.5
71403001008	3	6	3	8	45	0.1
71403001010	3	6	3	10	50	0.1
71403001012	3	6	3	12	50	0.1
71403001014	3	6	3	14	50	0.1
71403001016	3	6	3	16	55	0.1
71403001020	3	6	3	20	60	0.1
71403001025	3	6	3	25	65	0.1
71403001030	3	6	3	30	70	0.1
71403001035	3	6	3	35	75	0.1
71403001040	3	6	3	40	80	0.1
71403001045	3	6	3	45	90	0.1
71403002008	3	6	3	8	45	0.2
71403002010	3	6	3	10	50	0.2
71403002012	3	6	3	12	50	0.2
71403002014	3	6	3	14	50	0.2
71403002016	3	6	3	16	55	0.2
71403002020	3	6	3	20	60	0.2
71403002025	3	6	3	25	65	0.2
71403002030	3	6	3	30	70	0.2
71403002035	3	6	3	35	75	0.2
71403002040	3	6	3	40	80	0.2
71403002045	3	6	3	45	90	0.2
71403003008	3	6	3	8	45	0.3
71403003010	3	6	3	10	50	0.3
71403003012	3	6	3	12	50	0.3
71403003014	3	6	3	14	50	0.3
71403003016	3	6	3	16	55	0.3
71403003020	3	6	3	20	60	0.3
71403003025	3	6	3	25	65	0.3
71403003030	3	6	3	30	70	0.3
71403003035	3	6	3	35	75	0.3
71403003040	3	6	3	40	80	0.3
71403003045	3	6	3	45	90	0.3
71403005008	3	6	3	8	45	0.5
71403005010	3	6	3	10	50	0.5

ESRR714**4 flutes rib ball**

CARBIDE	4	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC Ø0.5 ~ Ø6 Ø8 ~ Ø20	Tolerance 0.000 ~ -0.012 0.000 ~ -0.015
					DC6 or below Above DC6			

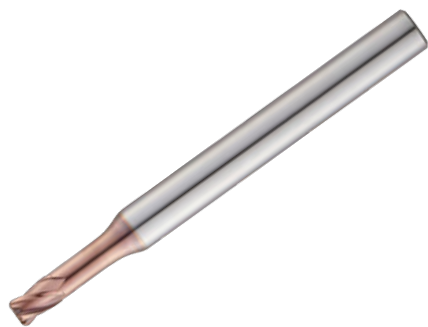


Designation		DC	DCON-MS	APMX	LU	LF	RE
ESRR	71403005012	3	6	3	12	50	0.5
	71403005014	3	6	3	14	50	0.5
	71403005016	3	6	3	16	55	0.5
	71403005020	3	6	3	20	60	0.5
	71403005025	3	6	3	25	65	0.5
	71403005030	3	6	3	30	70	0.5
	71403005035	3	6	3	35	75	0.5
	71403005040	3	6	3	40	80	0.5
	71403005045	3	6	3	45	90	0.5
	71403005050	3	6	3	50	100	0.5
	71403010008	3	6	3	8	45	1
	71403010010	3	6	3	10	50	1
	71403010012	3	6	3	12	50	1
	71403010014	3	6	3	14	50	1
	71403010016	3	6	3	16	55	1
	71403010020	3	6	3	20	60	1
	71403010025	3	6	3	25	65	1
	71403010030	3	6	3	30	70	1
	71403010035	3	6	3	35	75	1
	71403010040	3	6	3	40	80	1
	71403010045	3	6	3	45	90	1
	71403010050	3	6	3	50	100	1
	71404001010	4	6	4	10	50	0.1
	71404001012	4	6	4	12	50	0.1
	71404001013	4	6	4	13	55	0.1
	71404001016	4	6	4	16	55	0.1
	71404001020	4	6	4	20	60	0.1
	71404001025	4	6	4	25	65	0.1
	71404001030	4	6	4	30	70	0.1
	71404001035	4	6	4	35	75	0.1
	71404001040	4	6	4	40	80	0.1
	71404001045	4	6	4	45	90	0.1
	71404001050	4	6	4	50	100	0.1
	71404002010	4	6	4	10	50	0.2
	71404002012	4	6	4	12	50	0.2
	71404002013	4	6	4	13	55	0.2
	71404002016	4	6	4	16	55	0.2
	71404002020	4	6	4	20	60	0.2
	71404002025	4	6	4	25	65	0.2

Designation		DC	DCON-MS	APMX	LU	LF	RE
ESRR	71404002030	4	6	4	30	70	0.2
	71404002035	4	6	4	35	75	0.2
	71404002040	4	6	4	40	80	0.2
	71404002045	4	6	4	45	90	0.2
	71404002050	4	6	4	50	100	0.2
	71404003010	4	6	4	10	50	0.3
	71404003012	4	6	4	12	50	0.3
	71404003013	4	6	4	13	55	0.3
	71404003016	4	6	4	16	55	0.3
	71404003020	4	6	4	20	60	0.3
	71404003025	4	6	4	25	65	0.3
	71404003030	4	6	4	30	70	0.3
	71404003035	4	6	4	35	75	0.3
	71404003040	4	6	4	40	80	0.3
	71404003045	4	6	4	45	90	0.3
	71404003050	4	6	4	50	100	0.3
	71404005010	4	6	4	10	50	0.5
	71404005012	4	6	4	12	50	0.5
	71404005013	4	6	4	13	55	0.5
	71404005016	4	6	4	16	55	0.5
	71404005020	4	6	4	20	60	0.5
	71404005025	4	6	4	25	65	0.5
	71404005030	4	6	4	30	70	0.5
	71404005035	4	6	4	35	75	0.5
	71404005040	4	6	4	40	80	0.5
	71404005045	4	6	4	45	90	0.5
	71404005050	4	6	4	50	100	0.5
	71404005055	4	6	4	55	100	0.5
	71404010010	4	6	4	10	50	1
	71404010012	4	6	4	12	50	1
	71404010013	4	6	4	13	55	1
	71404010016	4	6	4	16	55	1
	71404010020	4	6	4	20	60	1
	71404010025	4	6	4	25	65	1
	71404010030	4	6	4	30	70	1
	71404010035	4	6	4	35	75	1
	71404010040	4	6	4	40	80	1
	71404010045	4	6	4	45	90	1
	71404010050	4	6	4	50	100	1

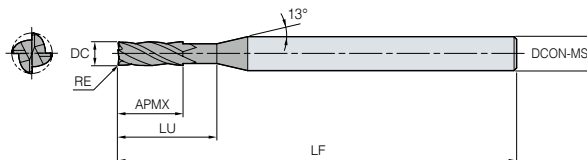
ESRR714

4 flutes rib ball



DC	Tolerance
Ø0.5 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø20	0.000 ~ -0.015

DC6 or below Above DC6



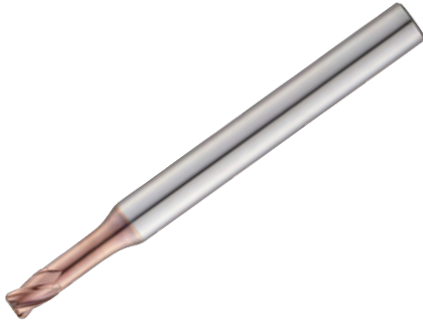
(mm)

	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRR	71404010055	4	6	4	55	100	1
	71405001016	5	6	5	16	60	0.1
	71405001030	5	6	5	30	70	0.1
	71405001040	5	6	5	40	80	0.1
	71405002016	5	6	5	16	60	0.2
	71405002030	5	6	5	30	70	0.2
	71405002040	5	6	5	40	80	0.2
	71405003016	5	6	5	16	60	0.3
	71405003030	5	6	5	30	70	0.3
	71405003040	5	6	5	40	80	0.3
	71405005016	5	6	5	16	60	0.5
	71405005030	5	6	5	30	70	0.5
	71405005040	5	6	5	40	80	0.5
	71405005050	5	6	5	50	100	0.5
	71405005060	5	6	5	60	110	0.5
	71405010016	5	6	5	16	60	1
	71405010030	5	6	5	30	70	1
	71405010040	5	6	5	40	80	1
	71405010050	5	6	5	50	100	1
	71405010060	5	6	5	60	110	1
	71405015015	5	6	5	15	60	1.5
	71405020015	5	6	5	15	60	2
	71406001020	6	6	7	20	60	0.1
	71406001040	6	6	7	40	80	0.1
	71406001050	6	6	7	50	100	0.1
	71406002020	6	6	7	20	60	0.2
	71406002040	6	6	7	40	80	0.2
	71406002050	6	6	7	50	100	0.2
	71406003020	6	6	7	20	60	0.3
	71406003030	6	6	7	30	70	0.3
	71406003040	6	6	7	40	80	0.3
	71406003050	6	6	7	50	100	0.3
	71406005020	6	6	7	20	60	0.5
	71406005030	6	6	7	30	70	0.5
	71406005040	6	6	7	40	80	0.5
	71406005050	6	6	7	50	100	0.5
	71406005060	6	6	7	60	110	0.5
	71406010020	6	6	7	20	60	1
	71406010030	6	6	7	30	70	1

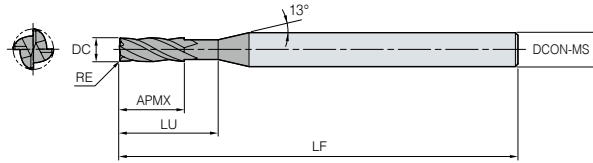
	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRR	71406010040	6	6	7	40	80	1
	71406010050	6	6	7	50	100	1
	71406010060	6	6	7	60	110	1
	71406015020	6	6	7	20	60	1.5
	71406015040	6	6	7	40	80	1.5
	71406015050	6	6	7	50	100	1.5
	71406020020	6	6	7	20	60	2
	71406020030	6	6	7	30	70	2
	71406020040	6	6	7	40	80	2
	71406020050	6	6	7	50	100	2
	71408001025	8	8	9	25	70	0.1
	71408002022	8	8	9	22	65	0.2
	71408002040	8	8	9	40	100	0.2
	71408003022	8	8	9	22	65	0.3
	71408003040	8	8	9	40	100	0.3
	71408005022	8	8	9	22	65	0.5
	71408005035	8	8	9	35	100	0.5
	71408005040	8	8	9	40	100	0.5
	71408005050	8	8	9	50	120	0.5
	71408005060	8	8	9	60	120	0.5
	71408010022	8	8	9	22	65	1
	71408010035	8	8	9	35	100	1
	71408010040	8	8	9	40	100	1
	71408010050	8	8	9	50	120	1
	71408010060	8	8	9	60	120	1
	71408015022	8	8	9	22	65	1.5
	71408015040	8	8	9	40	100	1.5
	71408020022	8	8	9	22	65	2
	71408020040	8	8	9	40	100	2
	71408020050	8	8	9	50	120	2
	71410001030	10	10	11	30	75	0.1
	71410002024	10	10	11	24	70	0.2
	71410002040	10	10	11	40	100	0.2
	71410003024	10	10	11	24	70	0.3
	71410003040	10	10	11	40	100	0.3
	71410005024	10	10	11	24	70	0.5
	71410005040	10	10	11	40	100	0.5
	71410005050	10	10	11	50	120	0.5
	71410005060	10	10	11	60	120	0.5

ESRR714

4 flutes rib ball



CARBIDE	4	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC Ø0.5 ~ Ø6 Ø8 ~ Ø20	Tolerance 0.000 ~ -0.012 0.000 ~ -0.015
					DC6 or below Above DC6			



Designation		DC	DCON-MS	APMX	LU	LF	RE
ESRR	71410010024	10	10	11	24	70	1
	71410010040	10	10	11	40	100	1
	71410010050	10	10	11	50	120	1
	71410010060	10	10	11	60	120	1
	71410015024	10	10	11	24	70	1.5
	71410015040	10	10	11	40	100	1.5
	71410020024	10	10	11	24	70	2
	71410020040	10	10	11	40	100	2
	71410020050	10	10	11	50	120	2
	71410025024	10	10	11	24	70	2.5
	71412002032	12	12	13	32	80	0.2
	71412003026	12	12	13	26	80	0.3
	71412003045	12	12	13	45	110	0.3
	71412005026	12	12	13	26	80	0.5
	71412005040	12	12	13	40	110	0.5
	71412005060	12	12	13	60	130	0.5

Designation		DC	DCON-MS	APMX	LU	LF	RE
ESRR	71412010026	12	12	13	26	80	1
	71412010040	12	12	13	40	110	1
	71412010060	12	12	13	60	130	1
	71412015026	12	12	13	26	80	1.5
	71412020026	12	12	13	26	80	2
	71412020040	12	12	13	40	110	2
	71412030026	12	12	13	26	80	3
	71416005035	16	16	20	35	100	0.5
	71416005050	16	20	35	50	150	0.5
	71416010035	16	16	20	35	100	1
	71416010050	16	20	35	50	150	1
	71420005040	20	20	25	40	100	0.5
	71420005055	20	20	40	55	150	0.5
	71420010040	20	20	25	40	100	1
	71420010055	20	20	40	55	150	1

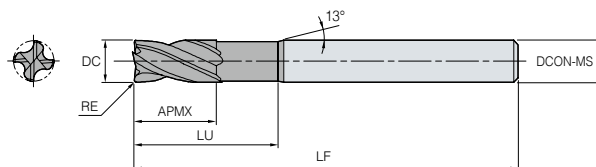
ESXR704

4 flutes neck type radius



DC6 or below Above DC6

DC	Tolerance
ALL	0.000 ~ -0.020



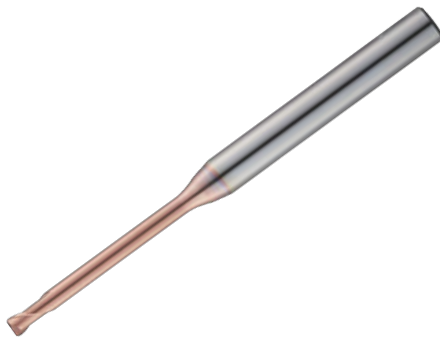
(mm)

	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESXR	70401000504	1	4	1.5	4	45	0.05
	70402000506	2	4	3	6	45	0.05
	70402000507	2	4	2.5	7	50	0.05
	7040200107	2	4	2.5	7	50	0.1
	7040300107	3	6	4	7	45	0.1
	7040300109	3	6	4	9	55	0.1
	7040300209	3	6	4	9	55	0.2
	7040300309	3	6	4	9	55	0.3
	7040300312	3	6	4	12	55	0.3
	7040300316	3	6	4	16	55	0.3
	7040400109	4	6	5	9	45	0.1
	7040400212	4	6	5	12	55	0.2
	7040400212S4	4	4	5	12	55	0.2
	7040400312	4	6	5	12	55	0.3
	7040400316	4	6	5	16	55	0.3
	7040400320	4	6	5	20	55	0.3
	7040400512	4	6	5	12	55	0.5
	7040400516	4	6	5	16	55	0.5
	7040400516S4	4	4	5	16	55	0.5
	7040400520	4	6	5	20	55	0.5
	7040401012	4	6	5	12	55	1
	7040500116	5	6	6	16	60	0.1
	7040500216	5	6	6	16	60	0.2
	7040500316	5	6	6	16	60	0.3
	7040500516	5	6	6	16	60	0.5
	7040501016	5	6	6	16	60	1
	7040600120	6	6	7	20	60	0.1
	7040600214	6	6	7	14	50	0.2

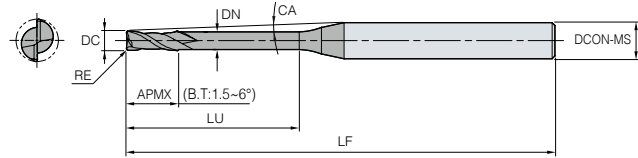
	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESXR	7040600220	6	6	7	20	60	0.2
	7040600320	6	6	7	20	60	0.3
	7040600520	6	6	7	20	60	0.5
	7040601020	6	6	7	20	60	1
	7040601520	6	6	7	20	60	1.5
	7040800125	8	8	9	25	60	0.1
	7040800218	8	8	9	18	60	0.2
	7040800225	8	8	9	25	60	0.2
	7040800325	8	8	9	25	60	0.3
	7040800525	8	8	9	25	60	0.5
	7040801025	8	8	9	25	60	1
	7040801525	8	8	9	25	60	1.5
	7040802025	8	8	9	25	60	2
	7041000225	10	10	12	25	75	0.2
	7041000232	10	10	11	32	75	0.2
	7041000332	10	10	11	32	75	0.3
	7041000532	10	10	11	32	75	0.5
	7041001032	10	10	11	32	75	1
	7041001532	10	10	11	32	75	1.5
	7041002032	10	10	11	32	75	2
	7041200238	12	12	12	38	75	0.2
	7041200330	12	12	15	30	75	0.3
	7041200338	12	12	12	38	75	0.3
	7041200538	12	12	12	38	75	0.5
	7041201038	12	12	12	38	75	1
	7041201538	12	12	12	38	75	1.5
	7041202038	12	12	12	38	75	2

ESLNR20

2 flutes long neck type radius



CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	DC	Tolerance
						ALL	0.000 ~ -0.012

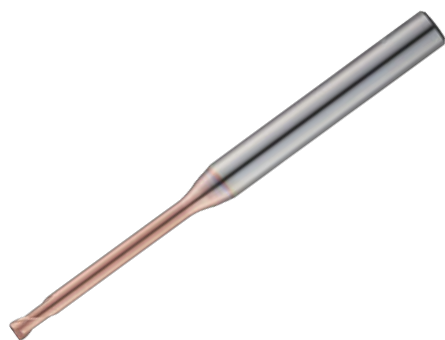


(mm)

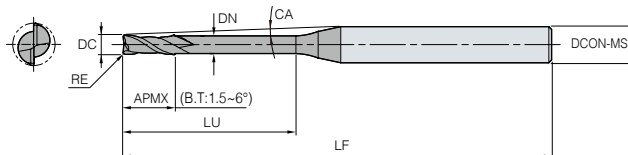
Designation		DC	DCON-MS	APMX	LU	LF	DN	CA	RE	Effective length by inclination angle				
										0.5°	1°	1.5°	2°	3°
ESLNR	2002-0.5-005	0.2	4	0.15	0.5	50	0.17	11.4	0.05	0.9	1	1	1.1	12
	2002-1-005	0.2	4	0.15	1	50	0.17	10.9	0.05	1.6	1.7	1.9	2	2.3
	2002-1.5-005	0.2	4	0.15	1.5	50	0.17	10.3	0.05	2.1	2.3	2.5	2.7	3
	2002-2-005	0.2	4	0.15	2	50	0.17	9.9	0.05	2.8	3.1	3.4	3.6	4.1
	2003-1-005	0.3	4	0.25	1	50	0.27	10.8	0.05	1.4	1.5	1.6	1.7	1.9
	2003-1.5-005	0.3	4	0.25	1.5	50	0.27	10.3	0.05	2.1	2.3	2.5	2.7	3
	2003-2.5-005	0.3	4	0.25	2.5	50	0.27	9.8	0.05	2.7	2.9	3.1	3.3	3.6
	2003-2-005	0.3	4	0.25	2	50	0.27	9.4	0.05	3.2	3.5	3.7	3.9	4.3
	2003-3-005	0.3	4	0.25	3	50	0.27	9	0.05	3.9	4.3	4.6	4.9	5.4
	2004-1-005	0.4	4	0.3	1	50	0.37	10.8	0.05	1.4	1.5	1.6	1.7	1.9
	2004-1.5-005	0.4	4	0.3	1.5	50	0.37	10.3	0.05	2	2.1	2.2	2.3	2.5
	2004-2-005	0.4	4	0.3	2	50	0.37	9.8	0.05	2.7	2.9	3.1	3.3	3.6
	2004-2.5-005	0.4	4	0.3	2.5	50	0.37	9.4	0.05	3.2	3.5	3.7	3.9	4.3
	2004-3-005	0.4	4	0.3	3	50	0.37	9	0.05	3.8	4	4.3	4.5	4.9
	2004-3.5-005	0.4	4	0.3	3.5	50	0.37	8.6	0.05	4.3	4.6	4.9	5.1	5.5
	2004-4-005	0.4	4	0.3	4	50	0.37	8.3	0.05	5	5.4	5.8	6.1	6.6
	2004-2-01	0.4	4	0.3	2	50	0.37	9.8	0.1	2.7	2.9	3.1	3.3	3.6
	2004-3-01	0.4	4	0.3	3	50	0.37	9	0.1	3.8	4	4.3	4.5	4.9
	2004-4-01	0.4	4	0.3	4	50	0.37	8.3	0.1	5	5.4	5.8	6.1	6.6
	2005-1-005	0.5	4	0.35	1	50	0.47	10.8	0.05	1.4	1.5	1.6	1.7	1.9
	2005-2-005	0.5	4	0.35	2	50	0.47	9.7	0.05	2.5	2.6	2.8	2.9	3.1
	2005-3-005	0.5	4	0.35	3	50	0.47	8.9	0.05	3.8	4	4.3	4.5	4.9
	2005-4-005	0.5	4	0.35	4	50	0.47	8.2	0.05	4.8	5.2	5.4	5.7	6.1
	2005-5-005	0.5	4	0.35	5	50	0.47	7.6	0.05	6.1	6.6	6.9	7.3	7.8
	2005-6-005	0.5	4	0.35	6	50	0.47	7	0.05	7.2	7.7	8.1	8.4	9
	2005-1-01	0.5	4	0.35	1	50	0.47	10.8	0.1	1.4	1.5	1.6	1.7	1.9
	2005-2-01	0.5	4	0.35	2	50	0.47	9.8	0.1	2.5	2.6	2.8	2.9	3.1
	2005-3-01	0.5	4	0.35	3	50	0.47	8.9	0.1	3.8	4	4.3	4.5	4.9
	2005-4-01	0.5	4	0.35	4	50	0.47	8.2	0.1	4.8	5.2	5.4	5.7	6.1
	2005-5-01	0.5	4	0.35	5	50	0.47	7.6	0.1	6.1	6.5	6.9	7.2	7.8
	2005-6-01	0.5	4	0.35	6	50	0.47	7.1	0.1	7.2	7.7	8.1	8.4	9
	2006-2-01	0.6	4	0.4	2	50	0.57	9.7	0.1	2.5	2.6	2.8	2.9	3.1
	2006-4-01	0.6	4	0.4	4	50	0.57	8.1	0.1	4.8	5.2	5.4	5.7	6.1
	2006-6-01	0.6	4	0.4	6	50	0.57	7	0.1	7.2	7.7	8.1	8.4	9

ESLNR20

2 flutes long neck type radius



CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	DC	Tolerance
						ALL	0.000 ~ -0.012

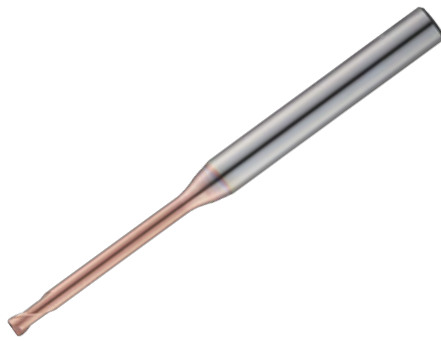


(mm)

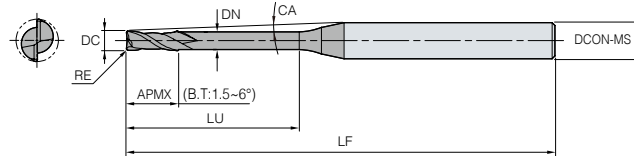
Designation		DC	DCON-MS	APMX	LU	LF	DN	CA	RE	Effective length by inclination angle				
										0.5°	1°	1.5°	2°	3°
ESLNR	2006-8-01	0.6	4	0.4	8	50	0.57	6.1	0.1	9.3	9.9	10.3	10.7	11
	2006-10-01	0.6	4	0.4	10	50	0.57	5.5	0.1	11.5	12.1	12.5	13	13.7
	2008-4-01	0.8	4	0.5	4	50	4	8	0.1	4.8	5.2	5.4	5.7	6.1
	2008-6-01	0.8	4	0.5	6	50	6	6.8	0.1	7	7.4	7.7	7.9	8.4
	2008-8-01	0.8	4	0.5	8	50	8	5.9	0.1	9.3	9.9	10.3	10.7	11.4
	2008-12-01	0.8	4	0.5	12	50	12	4.7	0.1	13.6	14.2	14.7	15.2	16
	2008-4-02	0.8	4	0.5	4	50	4	8	0.2	4.8	5.1	5.4	5.6	6.1
	2008-6-02	0.8	4	0.5	6	50	6	6.9	0.2	7	7.3	7.7	7.9	8.4
	2010-4-01	1	4	0.8	4	50	0.94	7.7	0.1	4.7	4.9	5.1	5.2	5.5
	2010-6-01	1	4	0.8	6	50	0.94	6.6	0.1	7.1	7.4	7.7	8	8.5
	2010-8-01	1	4	0.8	8	50	0.94	5.7	0.1	9.2	9.6	9.9	10.2	10.8
	2010-10-01	1	4	0.8	10	50	0.94	5.1	0.1	11.6	12.1	12.6	13	13.7
	2010-12-01	1	4	0.8	12	55	0.94	4.5	0.1	13.7	14.3	14.8	15.3	16
	2010-16-01	1	4	0.8	16	60	0.94	3.8	0.1	17.9	18.6	19.2	19.7	21.3
	2010-20-01	1	4	0.8	20	60	0.94	3.2	0.1	22	22.8	23.5	24	26.7
	2010-4-02	1	4	0.8	4	50	0.94	7.8	0.2	4.7	4.9	5.1	5.2	5.5
	2010-6-02	1	4	0.8	6	50	0.94	6.6	0.2	7.1	7.4	7.7	8	8.5
	2010-8-02	1	4	0.8	8	50	0.94	5.8	0.2	9.2	9.6	9.9	10.2	10.8
	2010-10-02	1	4	0.8	10	50	0.94	5.1	0.2	11.6	12.1	12.6	13	13.7
	2010-12-02	1	4	0.8	12	55	0.94	4.6	0.2	13.7	14.3	14.8	15.2	16
	2010-16-02	1	4	0.8	16	60	0.94	3.8	0.2	17.9	18.6	19.2	19.7	21.3
	2010-20-02	1	4	0.8	20	60	0.94	3.2	0.2	22	22.8	23.5	24	26.6
	2010-6-03	1	4	0.8	6	50	0.94	6.7	0.3	7.1	7.4	7.7	8	8.4
	2010-10-03	1	4	0.8	10	50	0.94	5.1	0.3	11.5	12.1	12.6	13	13.7
	2010-16-03	1	4	0.8	16	60	0.94	3.8	0.3	17.9	18.6	19.1	19.6	21.3
	2010-20-03	1	4	0.8	20	60	0.94	3.2	0.3	22	22.8	23.5	24	26.6
	2015-4-01	1.5	4	1.35	4	50	1.42	7.2	0.1	4.8	4.9	5.1	5.3	5.5
	2015-8-01	1.5	4	1.35	8	50	1.42	5.2	0.1	9.2	9.6	10	10.3	10.8
	2015-12-01	1.5	4	1.35	12	55	1.42	4	0.1	13.4	13.9	14.3	14.7	16.1
	2015-15-01	1.5	4	1.35	15	55	1.42	3.5	0.1	16.9	17.6	18.1	18.6	20.1
	2015-20-01	1.5	4	1.35	20	60	1.42	2.8	0.1	22.1	22.9	23.5	24.1	-
	2015-4-02	1.5	4	1.35	4	50	1.42	7.3	0.2	4.7	4.9	5.1	5.3	5.5
	2015-8-02	1.5	4	1.35	8	50	1.42	5.2	0.2	9.2	9.6	10	10.3	10.8
	2015-12-02	1.5	4	1.35	12	55	1.42	4.1	0.2	13.4	13.9	14.3	14.7	16.1

ESLNR20

2 flutes long neck type radius



CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	DC	Tolerance
						ALL	0.000 ~ -0.012

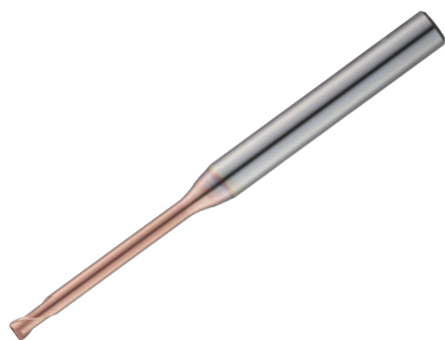


(mm)

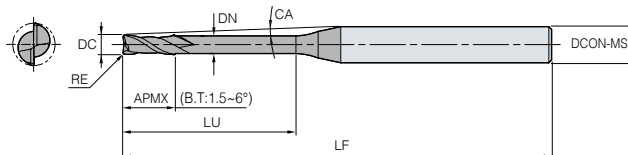
Designation		DC	DCON-MS	APMX	LU	LF	DN	CA	RE	Effective length by inclination angle				
										0.5°	1°	1.5°	2°	3°
ESLNR	2015-15-02	1.5	4	1.35	15	55	1.42	3.5	0.2	16.9	17.5	18.1	18.6	20
	2015-20-02	1.5	4	1.35	20	60	1.42	2.8	0.2	22.1	22.9	23.5	24.1	-
	2015-8-03	1.5	4	1.35	8	50	1.42	5.2	0.3	9.2	9.6	10	10.3	10.8
	2015-15-03	1.5	4	1.35	15	55	1.42	3.5	0.3	16.9	17.5	18.1	18.6	20
	2015-20-03	1.5	4	1.35	20	60	1.42	2.8	0.3	22.1	22.9	23.5	24	-
	2020-6-02	2	4	1.7	6	50	1.92	5.4	0.2	6.8	7.1	7.3	7.5	8.1
	2020-8-02	2	4	1.7	8	50	1.92	4.6	0.2	8.9	9.2	9.4	9.7	10.8
	2020-12-02	2	4	1.7	12	55	1.92	3.5	0.2	13.4	13.9	14.3	14.7	16.1
	2020-16-02	2	4	1.7	16	55	1.92	2.8	0.2	17.6	18.1	18.6	19.3	-
	2020-20-02	2	4	1.7	20	60	1.92	2.4	0.2	22.1	22.9	23.5	24.1	-
	2020-25-02	2	4	1.7	25	65	1.92	2	0.2	27.3	28.2	28.8	-	-
	2020-30-02	2	4	1.7	30	70	1.92	1.7	0.2	32.5	33.4	34.4	-	-
	2020-8-03	2	4	1.7	8	50	1.92	4.6	0.3	8.9	9.2	9.4	9.7	10.7
	2020-16-03	2	4	1.7	16	55	1.92	2.8	0.3	17.6	18.1	18.6	19.3	-
	2020-20-03	2	4	1.7	20	60	1.92	2.4	0.3	22.1	22.9	23.5	24	-
	2020-6-05	2	4	1.7	6	50	1.92	5.5	0.5	6.8	7.1	7.3	7.4	8
	2020-8-05	2	4	1.7	8	50	1.92	4.7	0.5	8.9	9.2	9.4	9.6	10.7
	2020-12-05	2	4	1.7	12	55	1.92	3.5	0.5	13.4	13.9	14.3	14.6	16
	2020-16-05	2	4	1.7	16	55	1.92	2.9	0.5	17.6	18.1	18.6	19.2	-
	2020-20-05	2	4	1.7	20	60	1.92	2.4	0.5	22.1	22.9	23.5	24	-
	2020-25-05	2	4	1.7	25	65	1.92	2	0.5	27.3	28.1	28.8	-	-
	2020-30-05	2	4	1.7	30	70	1.92	1.7	0.5	32.5	33.4	34.3	-	-
	2020-8-08	2	4	1.7	8	50	1.92	4.8	0.8	8.9	9.2	9.4	9.6	10.6
	2020-16-08	2	4	1.7	16	55	1.92	2.9	0.8	17.6	18.1	18.6	19.2	-
	2020-20-08	2	4	1.7	20	60	1.92	2.4	0.8	22.1	22.8	23.5	24	-
	2030-8-02	3	6	2.5	8	55	2.86	5.7	0.2	9	9.3	9.5	9.9	10.9
	2030-12-02	3	6	2.5	12	60	2.86	4.5	0.2	13.1	13.5	14	14.7	16.2
	2030-16-02	3	6	2.5	16	60	2.86	3.8	0.2	17.7	18.2	18.7	19.5	21.6
	2030-20-02	3	6	2.5	20	65	2.86	3.2	0.2	21.8	22.4	23.1	24.2	26.9
	2030-30-02	3	6	2.5	30	75	2.86	2.4	0.2	32.6	33.5	34.5	36.2	-
	2030-35-02	3	6	2.5	35	80	2.86	2.1	0.2	37.7	38.7	40.2	42.2	-
	2030-8-03	3	6	2.5	8	55	2.86	5.7	0.3	9	9.3	9.5	9.9	10.9
	2030-16-03	3	6	2.5	16	60	2.86	3.8	0.3	17.7	18.2	18.7	19.4	21.5
	2030-20-03	3	6	2.5	20	65	2.86	3.2	0.3	21.8	22.4	23.1	24.2	26.8

ESLNR20

2 flutes long neck type radius

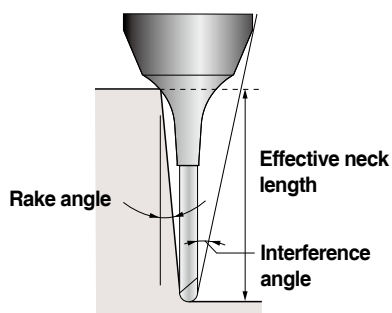


CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	DC	Tolerance
						ALL	0.000 ~ -0.012



(mm)

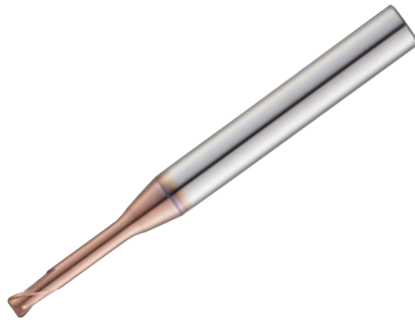
Designation		DC	DCON-MS	APMX	LU	LF	DN	CA	RE	Effective length by inclination angle				
										0.5°	1°	1.5°	2°	3°
ESLNR	2030-30-03	3	6	2.5	30	75	2.86	2.4	0.3	32.6	33.5	34.5	36.2	-
	2030-8-05	3	6	2.5	8	55	2.86	5.8	0.5	9	9.3	9.5	9.8	10.8
	2030-12-05	3	6	2.5	12	60	2.86	4.6	0.5	13.1	13.5	13.9	14.6	16.2
	2030-16-05	3	6	2.5	16	60	2.86	3.8	0.5	17.7	18.2	18.7	19.4	21.5
	2030-20-05	3	6	2.5	20	65	2.86	3.2	0.5	21.8	22.4	23.1	24.2	26.8
	2030-30-05	3	6	2.5	30	75	2.86	2.4	0.5	32.6	33.5	34.5	36.1	-
	2030-35-05	3	6	2.5	35	80	2.86	2.1	0.5	37.7	38.7	40.2	42.1	-



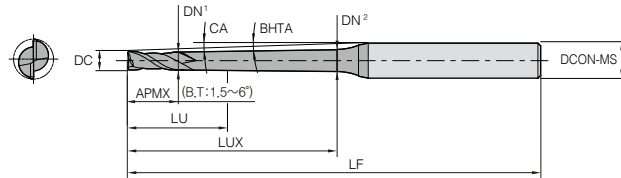
※ The marked effective neck length is the default value to prevent interference with the workpiece.
Proper control of the processing environment is required.

ESTNR20

2 flutes tapered neck type radius



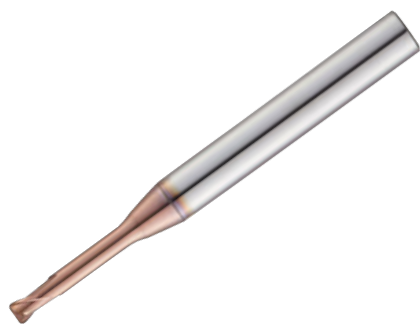
CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	DC	Tolerance
						ALL	0.000 ~ -0.012



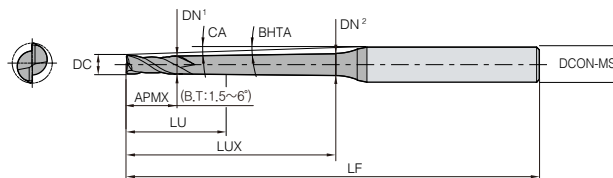
													(mm)				
ESTNR	Designation	DC	DCON-MS	APMX	LU	LUX	CA	BHTA(°)	DN1	DN2	LF	RE	Effective length by inclination angle				
													0.5°	1°	1.5°	2°	3°
	2002-2-09005	0.2	4	0.15	1.1	2	0.9	10	0.17	0.23	50	0.05	-	2.8	3.1	3.4	3.9
	2004-4-09005	0.4	4	0.3	1.25	4	0.9	8.4	0.37	0.49	50	0.05	-	4.9	5.3	5.7	6.3
	2004-5-09005	0.4	4	0.3	1.25	5	0.9	7.8	0.37	0.52	50	0.05	-	5.9	6.4	6.8	7.5
	2004-4-0901	0.4	4	0.3	1.25	4	0.9	8.5	0.37	0.49	50	0.1	-	4.9	5.3	5.7	6.3
	2004-5-0901	0.4	4	0.3	1.25	5	0.9	7.9	0.37	0.52	50	0.1	-	5.9	6.4	6.8	7.5
	2005-5-0901	0.5	4	0.35	1.3	5	0.9	7.8	0.47	0.62	50	0.1	-	5.9	6.4	6.8	7.5
	2005-8-0901	0.5	4	0.35	1.3	8	0.9	6.4	0.47	0.71	50	0.1	-	9	9.7	10.2	11
	2005-10-0901	0.5	4	0.35	1.3	10	0.9	5.8	0.47	0.77	55	0.1	-	11	11.8	12.4	13.2
	2006-12-0901	0.6	4	0.4	1.35	12	0.9	5.1	0.57	0.93	55	0.1	-	13	13.9	14.5	15.5
	2006-15-0901	0.6	4	0.4	1.35	15	0.9	4.5	0.57	1.3	55	0.1	-	16.1	17.1	17.8	18.8
	2008-6-0402	0.8	4	0.5	2.64	6	0.4	7	0.77	0.85	50	0.2	6.6	7.1	7.5	7.8	8.3
	2008-12-0902	0.8	4	0.5	1.45	12	0.9	5	0.77	1.13	55	0.2	-	13	13.9	14.5	15.5
	2010-8-0402	1	6	0.8	5.09	8	0.4	7.4	0.94	14	55	0.2	8.8	9.3	9.7	10.1	10.6
	2010-10-0902	1	6	0.8	5.09	10	0.9	6.8	0.94	1.23	55	0.2	-	11.2	11.9	12.4	13.3
	2010-15-0902	1	6	0.8	2.7	15	0.9	5.6	0.94	1.39	60	0.2	-	16.3	17.2	17.8	18.8
	2010-20-0902	1	6	0.8	2.7	20	0.9	4.8	0.94	1.54	65	0.2	-	21.3	22.4	23.2	24.7
	2010-25-0902	1	6	0.8	2.7	25	0.9	4.1	0.94	1.7	70	0.2	-	26.4	27.6	28.5	30.9
	2010-30-0902	1	6	0.8	2.7	30	0.9	3.7	0.94	1.86	75	0.2	-	31.5	32.8	33.7	37
	2010-35-0902	1	6	0.8	2.7	35	0.9	3.3	0.94	2.2	80	0.2	-	36.5	38	39	43.2
	2010-8-0403	1	6	0.8	2.7	8	0.4	7.4	0.94	14	55	0.3	8.8	9.3	9.7	10	10.6
	2010-15-0903	1	6	0.8	2.7	15	0.9	5.6	0.94	1.39	60	0.3	-	16.3	17.2	17.8	18.8
	2010-25-0903	1	6	0.8	2.7	25	0.9	4.2	0.94	1.7	70	0.3	-	26.4	27.6	28.5	30.8
	2010-30-0903	1	6	0.8	2.7	30	0.9	3.7	0.94	1.86	75	0.3	-	31.5	32.8	33.7	37
	2015-10-0402	1.5	6	1.35	7.07	10	0.4	6.4	1.42	1.54	55	0.2	11	11.5	11.9	12.3	13
	2015-15-0902	1.5	6	1.35	7.07	15	0.9	5.3	1.42	1.85	60	0.2	-	16.4	17.3	17.9	18.9
	2015-20-0902	1.5	6	1.35	3.89	20	0.9	4.5	1.42	2.1	65	0.2	-	21.5	22.5	23.2	24.9
	2015-25-0902	1.5	6	1.35	3.89	25	0.9	3.9	1.42	2.16	70	0.2	-	26.6	27.7	28.5	31
	2015-30-0902	1.5	6	1.35	3.89	30	0.9	3.4	1.42	2.32	75	0.2	-	31.6	32.9	33.8	37.1
	2015-10-0403	1.5	6	1.35	3.89	10	0.4	6.4	1.42	1.54	55	0.3	11	11.5	11.9	12.3	13
	2015-20-0903	1.5	6	1.35	3.89	20	0.9	4.5	1.42	2.1	65	0.3	-	21.5	22.5	23.2	24.8
	2015-25-0903	1.5	6	1.35	3.89	25	0.9	3.9	1.42	2.16	70	0.3	-	26.5	27.7	28.5	31
	2015-30-0903	1.5	6	1.35	3.89	30	0.9	3.4	1.42	2.32	75	0.3	-	31.6	32.9	33.8	37.1
	2020-30-0902	2	6	1.7	7.42	30	0.9	3.1	1.92	2.81	70	0.2	-	31.6	32.9	33.8	37.2
	2020-40-0902	2	6	1.7	7.42	40	0.9	2.5	1.92	3.12	80	0.2	-	41.8	43.3	44.6	-
	2020-50-0902	2	6	1.7	7.42	50	0.9	2.1	1.92	3.44	90	0.2	-	51.9	53.6	55.7	-
	2020-12-0403	2	6	1.7	7.42	12	0.4	5.5	1.92	2.06	55	0.3	13	13.6	14.1	14.5	15.6
	2020-20-0903	2	6	1.7	4.24	20	0.9	4.1	1.92	2.5	65	0.3	-	21.5	22.5	23.2	24.9
	2020-30-0903	2	6	1.7	4.24	30	0.9	3.1	1.92	2.81	70	0.3	-	31.6	32.9	33.8	37.1

ESTNR20

2 flutes tapered neck type radius

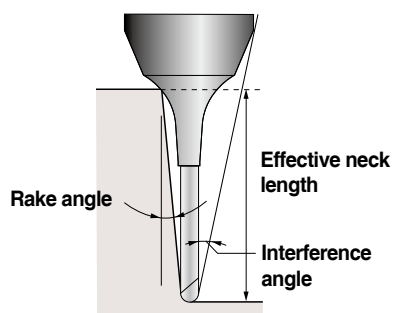


CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	DC	Tolerance
						ALL	0.000 ~ -0.012



(mm)

Designation	DC	DCON-MS	APMX	LU	LUX	CA	BHTA(°)	DN¹	DN²	LF	RE	Effective length by inclination angle				
												0.5°	1°	1.5°	2°	3°
ESTNR 2020-40-0903	2	6	1.7	4.24	40	0.9	2.5	1.92	3.12	80	0.3	-	41.7	43.3	44.6	-
2020-50-0903	2	6	1.7	4.24	50	0.9	2.1	1.92	3.44	90	0.3	-	51.8	53.6	55.7	-
2020-8-0405	2	6	1.7	4.24	8	0.4	6.8	1.92	2.01	50	0.5	8.7	9	9.3	9.5	10.4
2020-12-0405	2	6	1.7	4.24	12	0.4	5.6	1.92	2.06	55	0.5	13	13.6	14.1	14.4	15.5
2020-16-0405	2	6	1.7	4.24	16	0.4	4.7	1.92	2.12	60	0.5	17	17.8	18.3	18.7	20.7
2020-20-0905	2	6	1.7	4.24	20	0.9	4.2	1.92	2.5	65	0.5	-	21.5	22.5	23.2	24.8
2020-25-0905	2	6	1.7	4.24	25	0.9	3.6	1.92	2.65	65	0.5	-	26.6	27.7	28.5	30.9
2020-30-0905	2	6	1.7	4.24	30	0.9	3.1	1.92	2.81	70	0.5	-	31.6	32.9	33.8	37.1
2020-40-0905	2	6	1.7	4.24	40	0.9	2.5	1.92	3.12	80	0.5	-	41.7	43.2	44.6	-
2020-50-0905	2	6	1.7	4.24	50	0.9	2.1	1.92	3.44	90	0.5	-	51.8	53.6	55.6	-
2030-40-0902	3	6	2.5	6.95	40	0.9	2	2.86	4.04	80	0.2	-	42	43.4	-	-
2030-50-0902	3	6	2.5	6.95	50	0.9	1.6	2.86	4.35	90	0.2	-	52.1	53.7	-	-
2030-60-0902	3	6	2.5	6.95	60	0.9	1.4	2.86	4.67	100	0.2	-	62.2	-	-	-
2030-40-0903	3	6	2.5	6.95	40	0.9	2	2.86	4.04	80	0.3	-	42	43.4	-	-
2030-50-0903	3	6	2.5	6.95	50	0.9	1.7	2.86	4.35	90	0.3	-	52.1	53.7	-	-
2030-60-0903	3	6	2.5	6.95	60	0.9	1.4	2.86	4.67	100	0.3	-	62.2	-	-	-
2030-40-0905	3	6	2.5	6.95	40	0.9	2	2.86	4.04	80	0.5	-	42	43.4	-	-
2030-50-0905	3	6	2.5	6.95	50	0.9	1.7	2.86	4.35	90	0.5	-	52.1	53.7	-	-
2030-60-0905	3	6	2.5	6.95	60	0.9	1.4	2.86	4.67	100	0.5	-	62.1	-	-	-

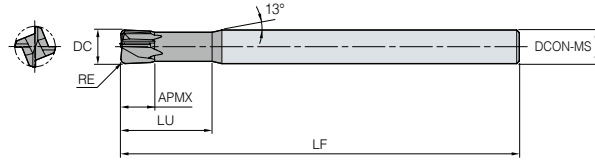


※ The marked effective neck length is the default value to prevent interference with the workpiece.
Proper control of the processing environment is required.

ESPM4

4 flutes neck type radius

CARBIDE	4	H-A 0°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC	Tolerance
					DC6 or below	Above DC6	Ø3 - Ø6 Ø8 - Ø12	0.000 ~ -0.012 0.000 ~ -0.015



(mm)

Designation	DC	DCON-MS	APMX	LU	LF	RE
ESPM 4030-05	3	6	1.2	8	50	0.5
4040-05	4	6	1.5	10	50	0.5
4060-05	6	6	2.5	12	60	0.5
4060-10	6	6	2.5	12	60	1
4060-15	6	6	2.5	12	60	1.5
4060-15L	6	6	2.5	12	90	1.5
4080-10	8	8	3.5	16	60	1
4080-20	8	8	3.5	16	60	2
4080-20L	8	8	3.5	16	100	2
4100-10	10	10	4	20	70	1
4100-20	10	10	4	20	70	2
4100-20L	10	10	4	20	100	2
4120-20	12	12	5	25	80	2
4120-30	12	12	5	25	80	3
4120-30L	12	12	5	25	110	3

ESB702

2 flutes neck type ball



CARBIDE

2

H-A
30°

Grade
PC305H

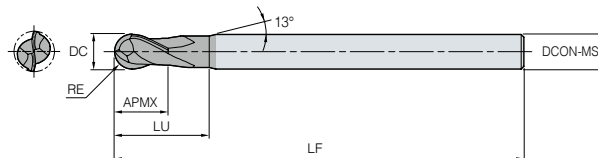
h5
shank

RE
±0.005

RE
±0.008

DC6 or below Above DC6

DC	Tolerance
Ø0.1 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø12	0.000 ~ -0.015



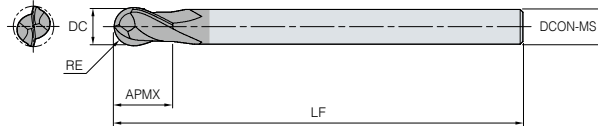
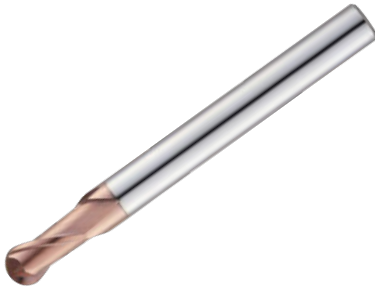
(mm)

Designation		DC	DCON-MS	APMX	LU	LF	RE
ESB	702001	0.1	4	0.15	-	40	0.05
	702002	0.2	4	0.3	-	40	0.1
	702003	0.3	4	0.5	-	40	0.15
	702004	0.4	4	0.6	-	40	0.2
	702005	0.5	4	0.7	-	40	0.25
	702006	0.6	4	0.9	-	40	0.3
	702007	0.7	4	1.1	-	40	0.35
	702008	0.8	4	1.2	-	40	0.4
	702009	0.9	4	1.4	-	40	0.45
	702010	1	6	1.5	3	50	0.5
	702010S4	1	4	1.5	-	45	0.5
	702015	1.5	6	2.0	4	50	0.75
	702015S4	1.5	4	2.0	-	45	0.75
	702020	2	6	2.5	5	50	1
	702020S4	2	4	2.5	-	45	1
	702025	2.5	6	3.0	7	50	1.25
	702030	3	6	4.0	10	60	1.5
	702030S	3	6	4.0	10	50	1.5
	702030S4	3	4	4.0	-	45	1.5
	702031	3	6	4.0	10	70	1.5
	702040	4	6	5.0	10	60	2
	702040S	4	6	5.0	10	50	2
	702040S4	4	4	5.0	-	45	2
	702041	4	6	5.0	10	70	2
	702050	5	6	6.0	12	60	2.5
	702060	6	6	7.0	12	60	3
	702061	6	6	7.0	12	90	3
	702080	8	8	9.0	15	70	4
	702081	8	8	9.0	15	100	4
	702100	10	10	11.0	25	75	5
	702101	10	10	11.0	25	100	5
	702120	12	12	12	25	80	6
	702121	12	12	12	25	110	6

ESB712

2 flutes ball

CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.005	RE ±0.008	DC	Tolerance
					DC6 or below	Above DC6	Ø1 ~ Ø6 Ø8 ~ Ø12	0.000 ~ -0.012 0.000 ~ -0.015

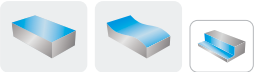
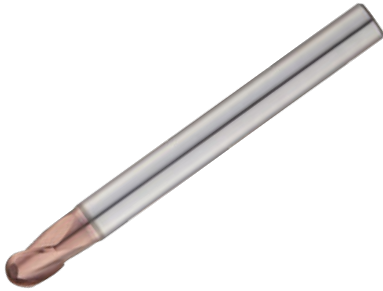


(mm)

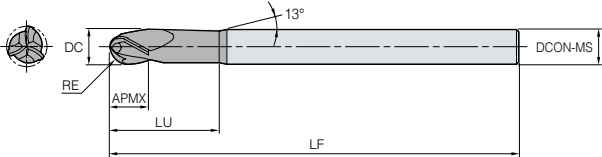
Designation	DC	DCON-MS	APMX	LF	RE
ESB 712010	1	6	2.5	50	0.5
712010S	1	6	1.5	40	0.5
712010S4	1	4	2.5	50	0.5
712012	1.2	6	3	50	0.6
712015	1.5	6	4	50	0.75
712015S	1.5	6	2.5	40	0.75
712015S4	1.5	4	4	50	0.75
712020	2	6	5	50	1
712020S	2	6	3	40	1
712020S4	2	4	5	50	1
712025	2.5	6	7	60	1.25
712030	3	6	8	60	1.5
712030S	3	6	4.5	50	1.5
712030S4	3	4	8	60	1.5
712040	4	6	8	70	2
712040S	4	6	6	50	2
712050	5	6	10	80	2.5
712050S	5	6	7.5	50	2.5
712060	6	6	12	90	3
712060S	6	6	9	50	3
712080S	8	8	12	50	4
712081	8	8	14	100	4
712100	10	10	18	100	5
712100S	10	10	15	60	5
712120	12	12	22	110	6
712120S	12	12	18	60	6

ESB703

3 flutes neck type ball



CARBIDE	3	H-A 30°	Grade PC305H	h5 shank	RE ±0.005	RE ±0.008	DC	Tolerance
					DC6 or below	Above DC6	Ø2 ~ Ø6 Ø8 ~ Ø12	0.000 ~ -0.012 0.000 ~ -0.015

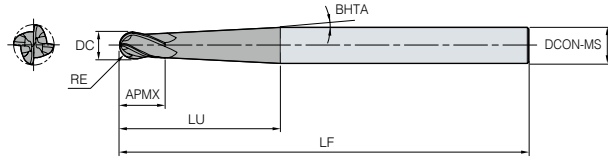
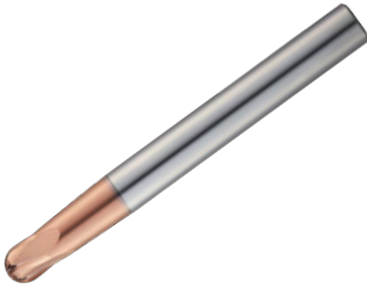


		(mm)					
	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESB	703020	2	6	2.5	5	50	1
	703025	2.5	6	3	7	50	1.25
	703030	3	6	4	10	60	1.5
	703030S	3	6	4	10	50	1.5
	703031	3	6	4	10	70	1.5
	703040	4	6	5	10	60	2
	703040S	4	6	5	10	50	2
	703041	4	6	5	10	70	2
	703050	5	6	6	12	60	2.5
	703060	6	6	7	12	60	3
	703061	6	6	7	12	90	3
	703080	8	8	9	15	70	4
	703081	8	8	9	15	100	4
	703100	10	10	11	25	75	5
	703101	10	10	11	25	100	5
	703120	12	12	12	25	80	6
	703121	12	12	12	25	110	6

ESB734

4 flutes 15° helix ball

CARBIDE	4	H-A 15°	Grade PC305H	h5 shank	RE ±0.005	RE ±0.008	DC	Tolerance
					DC6 or below	Above DC6	$\varnothing 2 - \varnothing 6$ $\varnothing 8 - \varnothing 10$	0.000 ~ -0.012 0.000 ~ -0.015

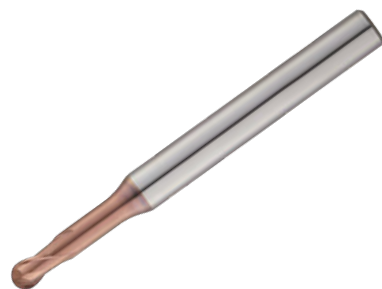


(mm)

Designation	DC	DCON-MS	APMX	LU	LF	RE	BHTA(°)
ESB 734020-2.5	2	4	2	25	60	1	2.5
734020-3.5	2	4	2	18	60	1	3.5
734025-2.5	2.5	4	3	20	60	1.25	2.5
734025-3.0	2.5	4	3	17	60	1.25	3
734030-2.0	3	6	3	46	70	1.5	2
734030-2.5	3	6	3	37	70	1.5	2.5
734040-2.0	4	6	4	33	70	2	2
734040-2.5	4	6	4	27	70	2	2.5
734050-2.5	5	6	5	16	70	2.5	2.5
734060-1.5	6	8	6	44	100	3	1.5
734060-2.5	6	8	6	29	100	3	2.5
734080-1.5	8	10	8	46	100	4	1.5
734080-2.5	8	10	8	31	100	4	2.5
734100-1.5	10	12	10	48	110	5	1.5
734100-2.5	10	12	10	33	110	5	2.5

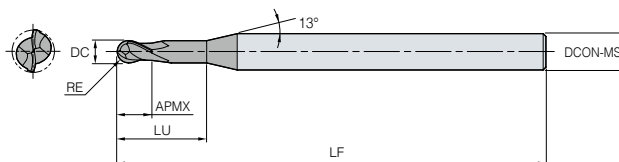
ESRB712

2 flutes rib ball



DC6 or below Above DC6

DC	Tolerance
Ø0.1 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø12	0.000 ~ -0.015



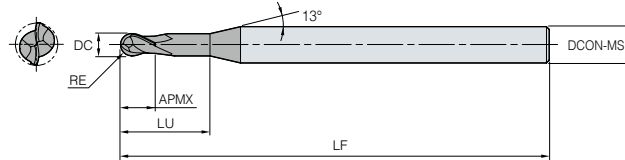
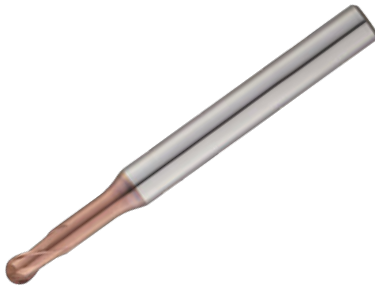
(mm)

Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRB 712001002	0.1	4	0.1	0.2	40	0.05
712001003	0.1	4	0.1	0.3	40	0.05
712001005	0.1	4	0.1	0.5	40	0.05
71200101	0.1	4	0.1	1	40	0.05
712002005	0.2	4	0.2	0.5	40	0.1
712002015	0.2	4	0.2	1.5	40	0.1
71200201	0.2	4	0.2	1	40	0.1
71200202	0.2	4	0.2	2	40	0.1
71200203	0.2	4	0.2	3	40	0.1
712003015	0.3	4	0.3	1.5	40	0.15
71200301	0.3	4	0.3	1	40	0.15
712003025	0.3	4	0.3	2.5	40	0.15
71200302	0.3	4	0.3	2	40	0.15
71200303	0.3	4	0.3	3	40	0.15
71200304	0.3	4	0.3	4	40	0.15
71200305	0.3	4	0.3	5	40	0.15
712004015	0.4	4	0.4	1.5	40	0.2
71200401	0.4	4	0.4	1	40	0.2
712004025	0.4	4	0.4	2.5	40	0.2
71200402	0.4	4	0.4	2	40	0.2
71200403	0.4	4	0.4	3	40	0.2
71200404	0.4	4	0.4	4	40	0.2
71200405	0.4	4	0.4	5	40	0.2
71200406	0.4	4	0.4	6	40	0.2
71200408	0.4	4	0.4	8	40	0.2
71200410	0.4	4	0.4	10	40	0.2
712005015	0.5	4	0.5	1.5	45	0.25
71200501	0.5	4	0.5	1	45	0.25
71200501S6	0.5	6	0.5	1	45	0.25
712005025	0.5	4	0.5	2.5	45	0.25
71200502	0.5	4	0.5	2	45	0.25
71200502S6	0.5	6	0.5	2	45	0.25
71200503	0.5	4	0.5	3	45	0.25
71200504	0.5	4	0.5	4	45	0.25
71200504S6	0.5	6	0.5	4	45	0.25
71200505	0.5	4	0.5	5	45	0.25
71200506	0.5	4	0.5	6	45	0.25
71200508	0.5	4	0.5	8	45	0.25
71200510	0.5	4	0.5	10	45	0.25

Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRB 71200512	0.5	4	0.5	12	45	0.25
71200514	0.5	4	0.5	14	45	0.25
71200516	0.5	4	0.5	16	45	0.25
71200601	0.6	4	0.6	1	45	0.3
71200601S6	0.6	6	0.6	1	45	0.3
71200602	0.6	4	0.6	2	45	0.3
71200602S6	0.6	6	0.6	2	45	0.3
71200603	0.6	4	0.6	3	45	0.3
71200603S6	0.6	6	0.6	3	45	0.3
71200604	0.6	4	0.6	4	45	0.3
71200604S6	0.6	6	0.6	4	45	0.3
71200605	0.6	4	0.6	5	45	0.3
71200605S6	0.6	6	0.6	5	45	0.3
71200606	0.6	4	0.6	6	45	0.3
71200606S6	0.6	6	0.6	6	45	0.3
71200608	0.6	4	0.6	8	45	0.3
71200608S6	0.6	6	0.6	8	45	0.3
71200610	0.6	4	0.6	10	45	0.3
71200610S6	0.6	6	0.6	10	45	0.3
71200612	0.6	4	0.6	12	45	0.3
71200612S6	0.6	6	0.6	12	45	0.3
71200614	0.6	4	0.6	14	45	0.3
71200614S6	0.6	6	0.6	14	45	0.3
71200616	0.6	4	0.6	16	45	0.3
71200616S6	0.6	6	0.6	16	50	0.3
71200702	0.7	4	0.7	2	45	0.35
71200704	0.7	4	0.7	4	45	0.35
71200706	0.7	4	0.7	6	45	0.35
71200708	0.7	4	0.7	8	45	0.35
71200710	0.7	4	0.7	10	45	0.35
71200712	0.7	4	0.7	12	45	0.35
71200801	0.8	4	0.8	1	45	0.4
71200801S6	0.8	6	0.8	1	45	0.4
71200802	0.8	4	0.8	2	45	0.4
71200802S6	0.8	6	0.8	2	45	0.4
71200803	0.8	4	0.8	3	45	0.4
71200803S6	0.8	6	0.8	3	45	0.4
71200804	0.8	4	0.8	4	45	0.4
71200804S6	0.8	6	0.8	4	45	0.4

ESRB712**2 flutes rib ball**

DC6 or below Above DC6



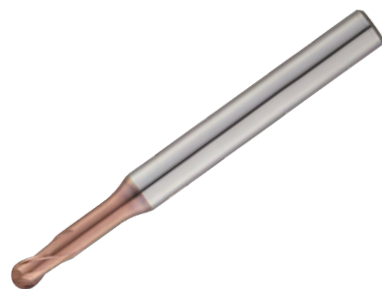
(mm)

	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRB	71200805	0.8	4	0.8	5	45	0.4
	71200805S6	0.8	6	0.8	5	45	0.4
	71200806	0.8	4	0.8	6	45	0.4
	71200806S6	0.8	6	0.8	6	45	0.4
	71200808	0.8	4	0.8	8	45	0.4
	71200808S6	0.8	6	0.8	8	45	0.4
	71200810	0.8	4	0.8	10	45	0.4
	71200810S6	0.8	6	0.8	10	45	0.4
	71200812	0.8	4	0.8	12	45	0.4
	71200812S6	0.8	6	0.8	12	45	0.4
	71200814	0.8	4	0.8	14	45	0.4
	71200814S6	0.8	6	0.8	14	45	0.4
	71200816	0.8	4	0.8	16	45	0.4
	71200816S6	0.8	6	0.8	16	50	0.4
	71200820	0.8	4	0.8	20	50	0.4
	71200820S6	0.8	6	0.8	20	55	0.4
	71200904	0.9	4	0.9	4	45	0.45
	71200906	0.9	4	0.9	6	45	0.45
	71200908	0.9	4	0.9	8	45	0.45
	71200910	0.9	4	0.9	10	45	0.45
	71201002	1	4	1	2	50	0.5
	71201002S6	1	6	1	2	50	0.5
	71201003	1	4	1	3	50	0.5
	71201003S6	1	6	1	3	50	0.5
	71201004	1	4	1	4	50	0.5
	71201004S6	1	6	1	4	50	0.5
	71201005	1	4	1	5	50	0.5
	71201005S6	1	6	1	5	50	0.5
	71201006	1	4	1	6	50	0.5
	71201006S6	1	6	1	6	50	0.5
	71201007	1	4	1	7	50	0.5
	71201007S6	1	6	1	7	50	0.5
	71201008	1	4	1	8	50	0.5
	71201008S6	1	6	1	8	50	0.5
	71201009	1	4	1	9	50	0.5
	71201009S6	1	6	1	9	50	0.5
	71201010	1	4	1	10	50	0.5
	71201010S6	1	6	1	10	50	0.5
	71201012	1	4	1	12	50	0.5

	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRB	71201012S6	1	6	1	12	50	0.5
	71201014	1	4	1	14	50	0.5
	71201014S6	1	6	1	14	50	0.5
	71201016	1	4	1	16	50	0.5
	71201016S6	1	6	1	16	50	0.5
	71201018	1	4	1	18	50	0.5
	71201018S6	1	6	1	18	50	0.5
	71201020	1	4	1	20	55	0.5
	71201020S6	1	6	1	20	55	0.5
	71201022	1	4	1	22	60	0.5
	71201022S6	1	6	1	22	60	0.5
	71201026	1	4	1	26	60	0.5
	71201026S6	1	6	1	26	60	0.5
	71201030	1	4	1	30	70	0.5
	71201030S6	1	6	1	30	70	0.5
	71201040	1	4	1	40	80	0.5
	71201050	1	4	1	50	100	0.5
	71201204	1.2	4	1.2	4	50	0.6
	71201206	1.2	4	1.2	6	50	0.6
	71201208	1.2	4	1.2	8	50	0.6
	71201210	1.2	4	1.2	10	50	0.6
	71201212	1.2	4	1.2	12	50	0.6
	71201216	1.2	4	1.2	16	50	0.6
	71201220	1.2	4	1.2	20	50	0.6
	71201226	1.2	4	1.2	26	60	0.6
	71201406	1.4	4	1.4	6	50	0.7
	71201408	1.4	4	1.4	8	50	0.7
	71201410	1.4	4	1.4	10	50	0.7
	71201412	1.4	4	1.4	12	50	0.7
	71201416	1.4	4	1.4	16	50	0.7
	71201503	1.5	4	1.5	3	50	0.75
	71201503S6	1.5	6	1.5	3	50	0.75
	71201504	1.5	4	1.5	4	50	0.75
	71201504S6	1.5	6	1.5	4	50	0.75
	71201505	1.5	4	1.5	5	50	0.75
	71201506	1.5	4	1.5	6	50	0.75
	71201506S6	1.5	6	1.5	6	50	0.75
	71201507	1.5	4	1.5	7	50	0.75
	71201508	1.5	4	1.5	8	50	0.75

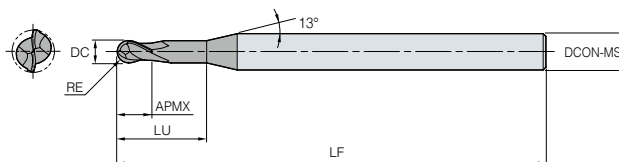
ESRB712

2 flutes rib ball



DC6 or below Above DC6

DC	Tolerance
Ø0.1 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø12	0.000 ~ -0.015



(mm)

	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRB	71201508S6	1.5	6	1.5	8	50	0.75
	71201510	1.5	4	1.5	10	50	0.75
	71201510S6	1.5	6	1.5	10	50	0.75
	71201512	1.5	4	1.5	12	50	0.75
	71201512S6	1.5	6	1.5	12	50	0.75
	71201514	1.5	4	1.5	14	50	0.75
	71201514S6	1.5	6	1.5	14	50	0.75
	71201516	1.5	4	1.5	16	50	0.75
	71201516S6	1.5	6	1.5	16	50	0.75
	71201518	1.5	4	1.5	18	50	0.75
	71201518S6	1.5	6	1.5	18	50	0.75
	71201520	1.5	4	1.5	20	55	0.75
	71201520S6	1.5	6	1.5	20	55	0.75
	71201522	1.5	4	1.5	22	60	0.75
	71201522S6	1.5	6	1.5	22	60	0.75
	71201526	1.5	4	1.5	26	60	0.75
	71201526S6	1.5	6	1.5	26	60	0.75
	71201530	1.5	4	1.5	30	70	0.75
	71201530S6	1.5	6	1.5	30	70	0.75
	71201535	1.5	4	1.5	35	70	0.75
	71201535S6	1.5	6	1.5	35	70	0.75
	71201540	1.5	4	1.5	40	80	0.75
	71201540S6	1.5	6	1.5	40	80	0.75
	71201604	1.6	4	1.6	4	50	0.8
	71201606	1.6	4	1.6	6	50	0.8
	71201608	1.6	4	1.6	8	50	0.8
	71201610	1.6	4	1.6	10	50	0.8
	71201612	1.6	4	1.6	12	50	0.8
	71201616	1.6	4	1.6	16	50	0.8
	71201620	1.6	4	1.6	20	50	0.8
	71201804	1.8	4	1.8	4	50	0.9
	71201806	1.8	4	1.8	6	50	0.9
	71201808	1.8	4	1.8	8	50	0.9
	71201810	1.8	4	1.8	10	50	0.9
	71201812	1.8	4	1.8	12	50	0.9
	71201816	1.8	4	1.8	16	50	0.9
	71201820	1.8	4	1.8	20	50	0.9
	71202004	2	4	2	4	50	1
	71202004S6	2	6	2	4	50	1

	Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRB	71202006	2	4	2	6	50	1
	71202006S6	2	6	2	6	50	1
	71202008	2	4	2	8	50	1
	71202008S6	2	6	2	8	50	1
	71202010	2	4	2	10	50	1
	71202010S6	2	6	2	10	50	1
	71202012	2	4	2	12	50	1
	71202012S6	2	6	2	12	50	1
	71202014	2	4	2	14	50	1
	71202014S6	2	6	2	14	50	1
	71202016	2	4	2	16	50	1
	71202016S6	2	6	2	16	50	1
	71202018	2	4	2	18	55	1
	71202018S6	2	6	2	18	55	1
	71202020	2	4	2	20	55	1
	71202020S6	2	6	2	20	55	1
	71202022	2	4	2	22	60	1
	71202022S6	2	6	2	22	60	1
	71202026	2	4	2	26	60	1
	71202026S6	2	6	2	26	60	1
	71202030	2	4	2	30	70	1
	71202030S6	2	6	2	30	70	1
	71202035	2	4	2	35	70	1
	71202035S6	2	6	2	35	70	1
	71202040	2	4	2	40	80	1
	71202040S6	2	6	2	40	80	1
	71202045	2	4	2	45	90	1
	71202045S6	2	6	2	45	90	1
	71202050	2	4	2	50	100	1
	71202050S6	2	6	2	50	100	1
	71202060	2	4	2	60	110	1
	71202508	2.5	4	2.5	8	50	1.25
	71202510	2.5	4	2.5	10	50	1.25
	71202512	2.5	4	2.5	12	50	1.25
	71202516	2.5	4	2.5	16	50	1.25
	71202520	2.5	4	2.5	20	50	1.25
	71202522	2.5	4	2.5	22	60	1.25
	71202526	2.5	4	2.5	26	60	1.25
	71202530	2.5	4	2.5	30	70	1.25

ESRB712

2 flutes rib ball

CARBIDE

2

H-A
30°

Grade
PC305H

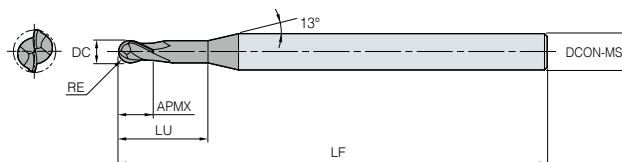
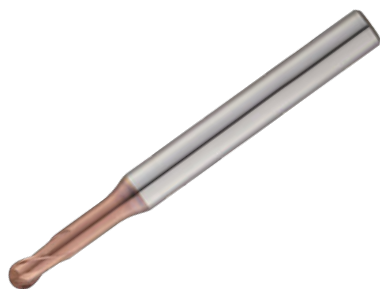
h5
shank

RE
±0.005

RE
±0.008

DC6 or below Above DC6

DC	Tolerance
Ø0.1 ~ Ø6	0.000 ~ -0.012
Ø8 ~ Ø12	0.000 ~ -0.015

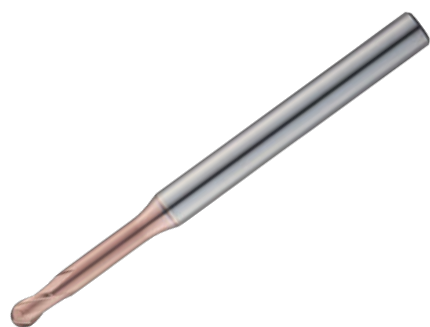


Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRB 71202535	2.5	4	2.5	35	70	1.25
71202540	2.5	4	2.5	40	80	1.25
71202545	2.5	4	2.5	45	90	1.25
71202550	2.5	4	2.5	50	100	1.25
71203006	3	6	3	6	50	1.5
71203008	3	6	3	8	50	1.5
71203010	3	6	3	10	50	1.5
71203012	3	6	3	12	50	1.5
71203014	3	6	3	14	60	1.5
71203016	3	6	3	16	60	1.5
71203018	3	6	3	18	60	1.5
71203020	3	6	3	20	60	1.5
71203022	3	6	3	22	65	1.5
71203026	3	6	3	26	65	1.5
71203030	3	6	3	30	70	1.5
71203035	3	6	3	35	70	1.5
71203040	3	6	3	40	80	1.5
71203045	3	6	3	45	90	1.5
71203050	3	6	3	50	100	1.5
71203060	3	6	3	60	100	1.5
71203510	3.5	6	3	10	50	1.75
71203516	3.5	6	3	16	60	1.75
71203520	3.5	6	3	20	60	1.75
71203526	3.5	6	3	26	65	1.75
71203530	3.5	6	3	30	70	1.75
71204008	4	6	4	8	50	2
71204010	4	6	4	10	50	2
71204012	4	6	4	12	50	2
71204014	4	6	4	14	60	2
71204016	4	6	4	16	60	2
71204018	4	6	4	18	60	2
71204020	4	6	4	20	60	2
71204022	4	6	4	22	65	2
71204026	4	6	4	26	65	2

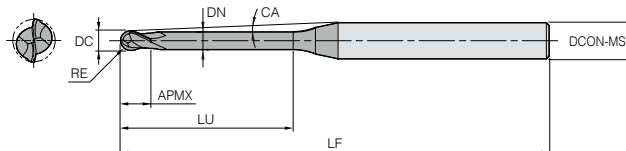
Designation	DC	DCON-MS	APMX	LU	LF	RE
ESRB 71204030	4	6	4	30	70	2
71204035	4	6	4	35	70	2
71204040	4	6	4	40	80	2
71204045	4	6	4	45	90	2
71204050	4	6	4	50	100	2
71204055	4	6	4	55	100	2
71204060	4	6	4	60	100	2
71205015	5	6	6	15	60	2.5
71205020	5	6	6	20	60	2.5
71205026	5	6	6	26	65	2.5
71205030	5	6	6	30	70	2.5
71205035	5	6	6	35	70	2.5
71205040	5	6	6	40	80	2.5
71205045	5	6	6	45	90	2.5
71205050	5	6	6	50	100	2.5
71205055	5	6	6	55	100	2.5
71205060	5	6	6	60	100	2.5
7120602090	6	6	12	20	90	3
71206020	6	6	8	20	60	3
7120603090	6	6	12	30	90	3
71206030	6	6	8	30	60	3
71208025100	8	8	14	25	100	4
71208025	8	8	10	25	70	4
71208035100	8	8	14	35	100	4
71208035	8	8	10	35	70	4
71210030100	10	10	18	30	100	5
71210030	10	10	12	30	75	5
71210040100	10	10	18	40	100	5
71210040	10	10	12	40	75	5
71212032110	12	12	22	32	110	6
71212032	12	12	14	32	80	6
71212045110	12	12	22	45	110	6
71212045	12	12	14	45	80	6

ESLNB20

2 flutes long neck type ball



CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.005	RE ±0.008	DC	Tolerance
					DC6 or below	Above DC6	ALL	0.000 ~ -0.012

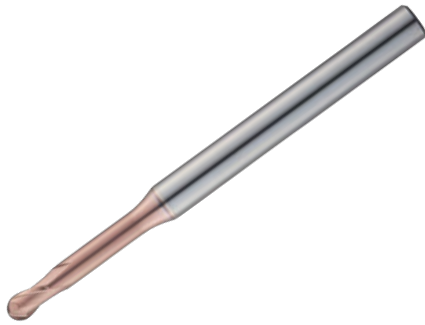


(mm)

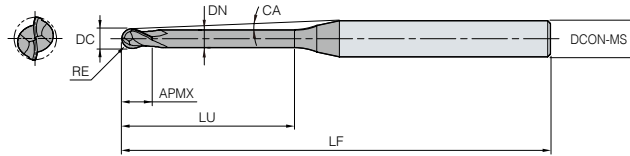
Designation	DC	DCON-MS	APMX	LU	LF	DN	CA	RE	Effective length by inclination angle				
									0.5°	1°	1.5°	2°	3°
ESLNB 2001-0.2	0.1	4	0.08	0.2	45	0.08	11.8	0.05	0.3	0.3	0.3	0.4	0.4
2001-0.3	0.1	4	0.08	0.3	45	0.08	11.7	0.05	0.4	0.4	0.5	0.5	0.5
2001-0.5	0.1	4	0.08	0.5	45	0.08	11.4	0.05	0.6	0.7	0.7	0.7	0.8
2002-0.5	0.2	4	0.15	0.5	50	0.17	11.5	0.1	1.2	1.3	1.5	1.6	2
2002-1	0.2	4	0.15	1	50	0.17	10.9	0.1	1.7	1.9	2.1	2.3	2.7
2002-1.5	0.2	4	0.15	1.5	50	0.17	10.4	0.1	2.3	2.5	2.8	3	3.4
2002-2	0.2	4	0.15	2	50	0.17	9.9	0.1	2.8	3.1	3.4	3.6	4.1
2002-2.5	0.2	4	0.15	2.5	50	0.17	9.5	0.1	3.4	3.7	4	4.2	4.7
2002-3.0	0.2	4	0.15	3	50	0.17	9.1	0.1	3.9	4.3	4.6	4.9	5.4
2003-1	0.3	4	0.25	1	50	0.27	10.9	0.15	1.7	1.9	2.1	2.3	2.7
2003-1.5	0.3	4	0.25	1.5	50	0.27	10.4	0.15	2.3	2.5	2.7	3	3.4
2003-2	0.3	4	0.25	2	50	0.27	9.9	0.15	2.8	3.1	3.4	3.6	4
2003-2.5	0.3	4	0.25	2.5	50	0.27	9.5	0.15	3.4	3.7	4	4.2	4.7
2003-3	0.3	4	0.25	3	50	0.27	9.1	0.15	3.9	4.3	4.6	4.8	5.3
2004-1	0.4	4	0.3	1	50	0.37	11	0.2	1.7	1.9	2.1	2.3	2.7
2004-1.5	0.4	4	0.3	1.5	50	0.37	10.4	0.2	2.3	2.5	2.7	2.9	3.4
2004-2	0.4	4	0.3	2	50	0.37	9.9	0.2	2.8	3.1	3.4	3.6	4
2004-2.5	0.4	4	0.3	2.5	50	0.37	9.5	0.2	3.4	3.7	4	4.2	4.7
2004-3	0.4	4	0.3	3	50	0.37	9.1	0.2	3.9	4.3	4.6	4.8	5.3
2004-3.5	0.4	4	0.3	3.5	50	0.37	8.7	0.2	4.5	4.8	5.2	5.4	6
2004-4	0.4	4	0.3	4	50	0.37	8.3	0.2	5	5.4	5.7	6	6.6
2004-4.5	0.4	4	0.3	4.5	50	0.37	8	0.2	5.6	6	6.3	6.6	7.2
2005-1	0.5	4	0.35	1	50	0.47	11	0.25	1.7	1.9	2.1	2.3	2.6
2005-2	0.5	4	0.35	2	50	0.47	9.9	0.25	2.8	3.1	3.3	3.6	4
2005-3	0.5	4	0.35	3	50	0.47	9	0.25	3.9	4.3	4.6	4.8	5.3
2005-4	0.5	4	0.35	4	50	0.47	8.3	0.25	5	5.4	5.7	6	6.6
2005-5	0.5	4	0.35	5	50	0.47	7.7	0.25	6.1	6.5	6.9	7.2	7.8
2005-6	0.5	4	0.35	6	50	0.47	7.1	0.25	7.2	7.6	8	8.4	9
2005-8	0.5	4	0.35	8	50	0.47	6.3	0.25	9.3	9.9	10.3	10.7	11.4
2006-1	0.6	4	0.4	1	50	0.57	11	0.3	1.7	1.9	2.1	2.3	2.6
2006-2	0.6	4	0.4	2	50	0.57	9.9	0.3	2.8	3.1	3.3	3.6	4
2006-3	0.6	4	0.4	3	50	0.57	9	0.3	3.9	4.3	4.5	4.8	5.3
2006-4	0.6	4	0.4	4	50	0.57	8.3	0.3	5	5.4	5.7	6	6.6
2006-5	0.6	4	0.4	5	50	0.57	7.6	0.3	6.1	6.5	6.9	7.2	7.8
2006-6	0.6	4	0.4	6	50	0.57	7.1	0.3	7.2	7.6	8	8.4	9
2006-7	0.6	4	0.4	7	50	0.57	6.6	0.3	8.3	8.8	9.2	9.5	10.2

ESLNB20

2 flutes long neck type ball



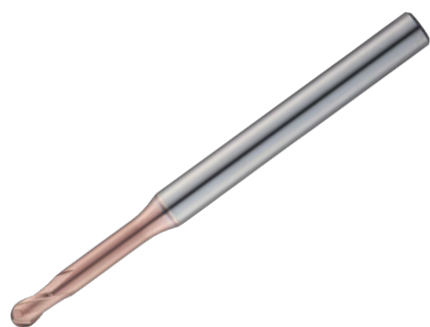
CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.005	RE ±0.008	DC	Tolerance
					DC6 or below	Above DC6	ALL	0.000 ~ -0.012



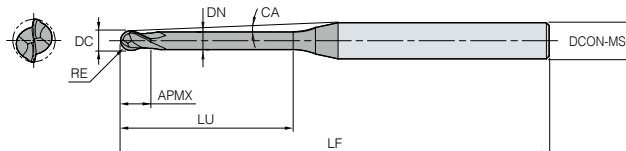
										(mm)				
Designation		DC	DCON-MS	APMX	LU	LF	DN	CA	RE	Effective length by inclination angle				
										0.5°	1°	1.5°	2°	3°
ESLNB	2006-8	0.6	4	0.4	8	50	0.57	6.2	0.3	9.3	9.9	10.3	10.7	11.4
	2006-9	0.6	4	0.4	9	50	0.57	5.8	0.3	10.4	10.9	11.4	11.8	12.5
	2006-10	0.6	4	0.4	10	50	0.57	5.5	0.3	11.4	12	12.5	12.9	13.7
	2006-12	0.6	4	0.4	12	50	0.57	5	0.3	13.6	14.2	14.7	15.2	16
	2008-2	0.8	4	0.5	2	50	0.77	9.9	0.4	2.8	3.1	3.3	3.5	4
	2008-4	0.8	4	0.5	4	50	0.77	8.2	0.4	5	5.4	5.7	6	6.5
	2008-5	0.8	4	0.5	5	50	0.77	7.5	0.4	6.1	6.5	6.9	7.2	7.8
	2008-6	0.8	4	0.5	6	50	0.77	7	0.4	7.2	7.6	8	8.4	9
	2008-8	0.8	4	0.5	8	50	0.77	6.1	0.4	9.3	9.8	10.3	10.7	11.3
	2008-10	0.8	4	0.5	10	50	0.77	5.4	0.4	11.4	12	12.5	12.9	13.7
	2010-2	1	4	0.8	2	50	0.96	9.9	0.5	2.9	3.1	3.3	3.5	4
	2010-3	1	4	0.8	3	50	0.96	8.9	0.5	4	4.3	4.5	4.8	5.3
	2010-4	1	4	0.8	4	50	0.96	8.1	0.5	5	5.4	5.7	6	6.5
	2010-5	1	4	0.8	5	50	0.96	7.4	0.5	6.1	6.5	6.9	7.2	7.8
	2010-6	1	4	0.8	6	50	0.96	6.8	0.5	7.2	7.7	8	8.4	9
	2010-7	1	4	0.8	7	50	0.96	6.3	0.5	8.3	8.8	9.2	9.5	10.2
	2010-8	1	4	0.8	8	50	0.96	5.9	0.5	9.3	9.9	10.3	10.7	11.3
	2010-9	1	4	0.8	9	50	0.96	5.5	0.5	10.4	11	11.4	11.8	12.5
	2010-10	1	4	0.8	10	50	0.96	5.2	0.5	11.5	12	12.5	12.9	13.7
	2010-12	1	4	0.8	12	55	0.96	4.6	0.5	13.6	14.2	14.7	15.2	15.9
	2010-14	1	4	0.8	14	55	0.96	4.2	0.5	15.7	16.4	16.9	17.4	18.5
	2010-16	1	4	0.8	16	55	0.96	3.8	0.5	17.8	18.5	19.1	19.6	21.2
	2010-18	1	4	0.8	18	60	0.96	3.5	0.5	19.9	20.7	21.3	21.8	23.8
	2010-20	1	4	0.8	20	60	0.96	3.3	0.5	22	22.8	23.4	24	26.5
	2012-4	1.2	4	1.1	4	50	1.15	7.9	0.6	5.1	5.4	5.7	6	6.5
	2012-6	1.2	4	1.1	6	50	1.15	6.6	0.6	7.2	7.7	8	8.4	9
	2012-8	1.2	4	1.1	8	50	1.15	5.7	0.6	9.4	9.9	10.3	10.7	11.3
	2012-10	1.2	4	1.1	10	50	1.15	5	0.6	11.5	12.1	12.5	12.9	13.7
	2012-12	1.2	4	1.1	12	55	1.15	4.5	0.6	13.6	14.2	14.7	15.2	15.9
	2014-8	1.4	4	1.3	8	50	1.34	5.5	0.7	9.4	9.9	10.3	10.7	11.3
	2014-12	1.4	4	1.3	12	55	1.34	4.3	0.7	13.6	14.2	14.7	15.2	15.9
	2014-16	1.4	4	1.3	16	55	1.34	3.5	0.7	17.8	18.5	19.1	19.6	21.2
	2015-4	1.5	4	1.35	4	50	1.44	7.7	0.75	5.1	5.4	5.7	6	6.5
	2015-6	1.5	4	1.35	6	50	1.44	6.4	0.75	7.3	7.7	8	8.4	9
	2015-8	1.5	4	1.35	8	50	1.44	5.4	0.75	9.4	9.9	10.3	10.7	11.3
	2015-10	1.5	4	1.35	10	50	1.44	4.7	0.75	11.5	12.1	12.5	12.9	13.7

ESLNB20

2 flutes long neck type ball



CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.005	RE ±0.008	DC	Tolerance
					DC6 or below	Above DC6	ALL	0.000 ~ -0.012

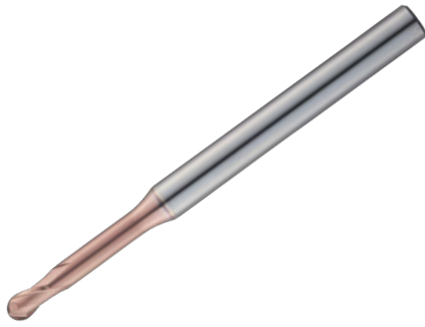


(mm)

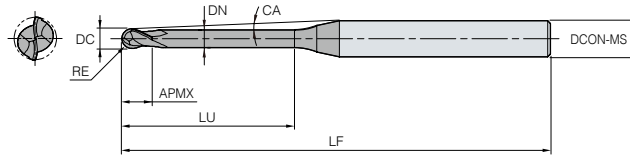
	Designation	DC	DCON-MS	APMX	LU	LF	DN	CA	RE	Effective length by inclination angle				
										0.5°	1°	1.5°	2°	3°
ESLNB	2015-12	1.5	4	1.35	12	55	1.44	4.2	0.75	13.6	14.2	14.7	15.2	15.9
	2015-14	1.5	4	1.35	14	55	1.44	3.8	0.75	15.7	16.4	16.9	17.4	18.5
	2015-16	1.5	4	1.35	16	55	1.44	3.4	0.75	17.8	18.5	19.1	19.6	21.1
	2015-20	1.5	4	1.35	20	60	1.44	2.9	0.75	22	22.8	23.4	24	-
	2016-8	1.6	4	1.4	8	50	1.54	5.3	0.8	9.4	9.9	10.3	10.7	11.3
	2016-10	1.6	4	1.4	10	55	1.54	4.6	0.8	11.5	12.1	12.5	12.9	13.7
	2016-12	1.6	4	1.4	12	55	1.54	4.1	0.8	13.6	14.2	14.7	15.2	15.9
	2016-16	1.6	4	1.4	16	55	1.54	3.3	0.8	17.8	18.5	19.1	19.6	21.1
	2016-20	1.6	4	1.4	20	60	1.54	2.8	0.8	22	22.8	23.4	24	-
	2018-8	1.8	4	1.6	8	50	1.73	5.1	0.9	9.4	9.9	10.3	10.7	11.3
	2018-12	1.8	4	1.6	12	55	1.73	3.9	0.9	13.7	14.3	14.7	15.2	15.9
	2018-16	1.8	4	1.6	16	55	1.73	3.1	0.9	17.9	18.6	19.1	19.6	21.1
	2018-20	1.8	4	1.6	20	60	1.73	2.6	0.9	22	22.8	23.4	24	-
	2020-3	2	4	1.7	3	50	1.92	8.3	1	4.1	4.4	4.6	4.8	5.2
	2020-4	2	4	3	4	50	1.92	7.3	1	5.2	5.5	5.8	6	6.5
	2020-6	2	4	3	6	50	1.92	5.8	1	7.3	7.7	8.1	8.4	9
	2020-8	2	4	3	8	50	1.92	4.9	1	9.5	9.9	10.3	10.7	11.3
	2020-10	2	4	3	10	50	1.92	4.2	1	11.6	12.1	12.6	12.9	13.6
	2020-12	2	4	3	12	55	1.92	3.7	1	13.7	14.3	14.8	15.2	15.9
	2020-14	2	4	3	14	55	1.92	3.2	1	15.8	16.4	16.9	17.4	18.5
	2020-16	2	4	3	16	55	1.92	2.9	1	17.9	18.6	19.1	19.6	-
	2020-18	2	4	3	18	60	1.92	2.7	1	20	20.7	21.3	21.8	-
	2020-20	2	4	3	20	60	1.92	2.4	1	22.1	22.8	23.4	24	-
	2020-22	2	4	3	22	60	1.92	2.3	1	24.1	24.9	25.6	26.3	-
	2020-25	2	4	3	25	65	1.92	2	1	27.3	28.1	28.8	-	-
	2020-30	2	4	3	30	70	1.92	1.7	1	32.4	33.4	34.2	-	-
	2020-35	2	4	3	35	75	1.92	1.5	1	37.6	38.6	-	-	-
	2020-40	2	4	3	40	80	1.92	1.4	1	42.8	43.8	-	-	-
	2025-10	2.5	4	4	10	50	2.4	3.4	1.25	11.6	12.1	12.6	13	13.6
	2025-16	2.5	4	4	16	55	2.4	2.3	1.25	17.9	18.6	19.1	19.6	-
	2025-20	2.5	4	4	20	60	2.4	1.9	1.25	22.1	22.8	23.5	-	-
	2030-8	3	6	4	8	55	2.88	6.2	1.5	9.6	10	10.4	10.7	11.3
	2030-10	3	6	4	10	55	2.88	5.5	1.5	11.7	12.2	12.6	13	13.6
	2030-13	3	6	4	13	60	2.88	4.6	1.5	14.8	15.4	15.9	16.3	17.1
	2030-16	3	6	4	16	60	2.88	4	1.5	18	18.6	19.1	19.6	21.1
	2030-18	3	6	4	18	60	2.88	3.6	1.5	20	20.7	21.3	21.8	23.7

ESLNB20

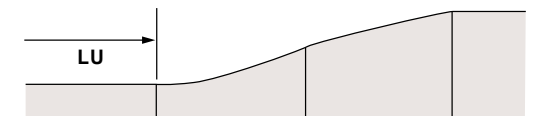
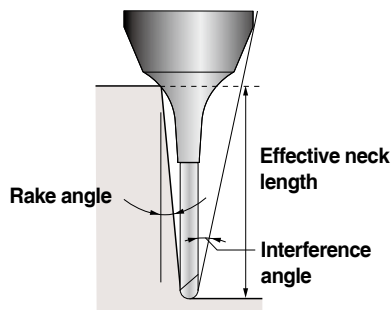
2 flutes long neck type ball



CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.005	RE ±0.008	DC	Tolerance
					DC6 or below	Above DC6	ALL	0.000 ~ -0.012



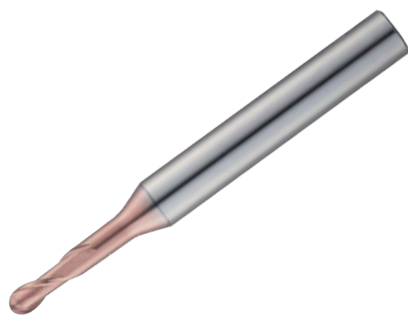
										(mm)				
Designation		DC	DCON-MS	APMX	LU	LF	DN	CA	RE	Effective length by inclination angle				
										0.5°	1°	1.5°	2°	3°
ESLNB	2030-20	3	6	4	20	65	2.88	3.4	1.5	22.1	22.9	23.5	24	26.4
	2030-25	3	6	4	25	70	2.88	2.8	1.5	27.3	28.2	28.8	29.9	-
	2030-30	3	6	4	30	75	2.88	2.5	1.5	32.5	33.4	34.3	35.9	-
	2030-35	3	6	4	35	80	2.88	2.2	1.5	37.7	38.7	40	41.9	-
	2040-10	4	6	5	10	55	3.9	4.5	2	11.6	12.1	12.5	12.9	13.5
	2040-13	4	6	5	13	60	3.9	3.6	2	14.7	15.3	15.8	16.2	17
	2040-16	4	6	5	16	60	3.9	3.1	2	17.9	18.5	19.1	19.5	20.9
	2040-20	4	6	5	20	65	3.9	2.5	2	22.1	22.8	23.4	23.9	-
	2040-25	4	6	5	25	70	3.9	2.1	2	27.3	28.1	28.8	29.8	-
	2040-30	4	6	5	30	75	3.9	1.8	2	32.4	33.4	34.2	-	-
	2040-35	4	6	5	35	80	3.9	1.6	2	37.6	38.6	39.9	-	-
	2040-40	4	6	5	40	80	3.9	1.4	2	42.8	43.8	-	-	-
	2040-45	4	6	5	45	90	3.9	1.2	2	47.9	49.1	-	-	-
	2040-50	4	6	5	50	100	3.9	1.1	2	53.1	54.5	-	-	-
	2050-20	5	6	6	20	65	4.9	1.4	2.5	22	22.8	-	-	-
	2050-25	5	6	6	25	70	4.9	1.2	2.5	27.2	28.1	-	-	-
	2050-30	5	6	6	30	75	4.9	1	2.5	32.4	-	-	-	-
	2050-35	5	6	6	35	80	4.9	0.8	2.5	42.8	-	-	-	-
	2050-40	5	6	6	40	90	4.9	0.7	2.5	42.8	-	-	-	-



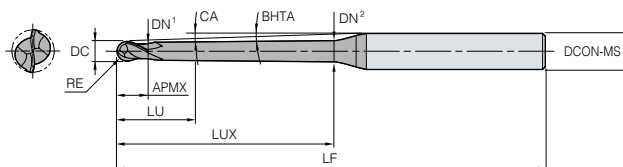
※ The marked effective neck length is the default value to prevent interference with the workpiece.
Proper control of the processing environment is required.

ESTNB20

2 flutes tapered neck type ball



CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC	Tolerance
					DC6 or below	Above DC6	Ø0.2 ~ Ø6 Ø8 ~ Ø10	0.000 ~ -0.012 0.000 ~ -0.015

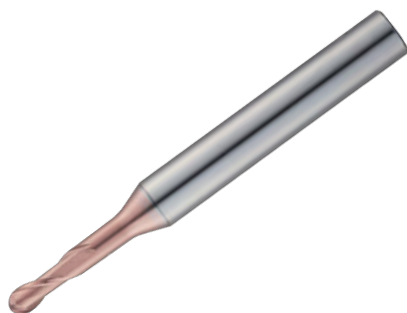


(mm)

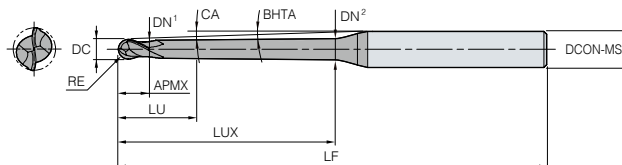
Designation	DC	DCON-MS	APMX	LU	LUX	LF	DN1	DN2	RE	BHTA(°)	CA	Effective length by inclination angle				
												0.5°	1°	1.5°	2°	3°
ESTNB 2002-1-04	0.2	4	0.15	1.35	1	50	0.17	0.18	0.1	0.4	10.9	1.5	1.7	1.8	2	2.3
2002-1.5-04	0.2	4	0.15	1.77	1.5	50	0.17	0.19	0.1	0.4	10.4	2	2.2	2.4	2.6	2.9
2002-2-09	0.2	4	0.15	1.1	2	50	0.17	0.23	0.1	0.9	10.1	-	2.8	3.1	3.4	3.9
2002-2.5-09	0.2	4	0.15	1.1	2.5	50	0.17	0.24	0.1	0.9	9.6	-	3.3	3.7	4	4.5
2003-2-04	0.3	4	0.25	2.19	2	50	0.28	0.29	0.15	0.4	10	2.5	2.8	3	3.2	3.5
2003-3-09	0.3	4	0.25	1.2	3	50	0.28	0.36	0.15	0.9	9.3	-	3.8	4.2	4.5	5.1
2003-4-09	0.3	4	0.25	1.2	4	50	0.28	0.39	0.15	0.9	8.6	-	4.8	5.3	5.7	6.3
2004-2-04	0.4	4	0.3	2.2	2	50	0.37	0.39	0.2	0.4	10	2.5	2.8	3	3.2	3.5
2004-3-04	0.4	4	0.3	2.44	3	50	0.37	0.41	0.2	0.4	9.1	3.6	3.9	4.1	4.4	4.8
2004-4-04	0.4	4	0.3	2.44	4	50	0.37	0.42	0.2	0.4	8.4	4.7	5.2	5.6	5.9	6.5
2004-4-09	0.4	4	0.3	1.25	4	50	0.37	0.49	0.2	0.9	8.5	-	4.8	5.3	5.7	6.3
2004-5-04	0.4	4	0.3	2.44	5	50	0.37	0.44	0.2	0.4	7.8	5.7	6.3	6.7	7.1	7.7
2004-5-09	0.4	4	0.3	1.25	5	50	0.37	0.52	0.2	0.9	7.9	-	5.9	6.4	6.8	7.5
2005-4-04	0.5	4	0.35	2.49	4	50	0.47	0.52	0.25	0.4	8.4	4.6	5	5.3	5.5	5.9
2005-8-09	0.5	4	0.35	1.3	8	50	0.47	0.71	0.25	0.9	6.5	-	8.9	9.6	10.1	10.9
2005-12-09	0.5	4	0.35	1.3	12	50	0.47	0.84	0.25	0.9	5.3	-	13	13.9	14.5	15.4
20054-2-04	0.54	4	0.37	1.8	2	50	0.52	0.54	0.27	0.4	10	2.3	2.5	2.7	2.8	3
20054-4-04	0.54	4	0.37	1.8	4	50	0.52	0.57	0.27	0.4	8.4	4.5	4.9	5.2	5.5	5.9
20054-5-04	0.54	4	0.37	1.8	5	50	0.52	0.59	0.27	0.4	7.8	5.5	6	6.3	6.6	7.1
20054-6-04	0.54	4	0.37	1.8	6	50	0.52	0.6	0.27	0.4	7.2	6.7	7.3	7.8	8.2	8.8
20054-6.5-04	0.54	4	0.37	1.8	6.5	50	0.52	0.61	0.27	0.4	7	7.2	7.9	8.3	8.7	9.4
20054-7-04	0.54	4	0.37	1.8	7	50	0.52	0.61	0.27	0.4	6.8	7.7	8.4	8.9	9.3	10
2006-2-04	0.6	4	0.4	2.17	2	50	0.57	0.59	0.3	0.4	10	2.4	2.5	2.7	2.8	3
2006-4-04	0.6	4	0.4	2.54	4	50	0.57	0.62	0.3	0.4	8.4	4.6	5	5.2	5.5	5.9
2006-6-04	0.6	4	0.4	2.54	6	50	0.57	0.65	0.3	0.4	7.2	6.8	7.4	7.8	8.2	8.8
2006-6-09	0.6	4	0.4	1.35	6	50	0.57	0.75	0.3	0.9	7.3	-	6.9	7.5	7.9	8.6
2006-8-09	0.6	4	0.4	1.35	8	50	0.57	0.81	0.3	0.9	6.4	-	8.9	9.6	10.1	10.9
2006-10-04	0.6	4	0.4	2.54	10	50	0.57	0.7	0.3	0.4	5.6	10.8	11.7	12.2	12.7	13.5
2006-10-09	0.6	4	0.4	1.35	10	50	0.57	0.87	0.3	0.9	5.7	-	11	11.8	12.3	13.2
2006-12-09	0.6	4	0.4	1.35	12	55	0.57	0.93	0.3	0.9	5.2	-	13	13.9	14.5	15.4
2006-15-04	0.6	4	0.4	2.54	15	55	0.57	0.77	0.3	0.4	4.4	15.9	17	17.6	18.2	19.2
2006-15-09	0.6	4	0.4	1.35	15	55	0.57	1.03	0.3	0.9	4.5	-	16.1	17.1	17.7	18.8
2008-4-04	0.8	4	0.5	2.64	4	50	0.77	0.82	0.4	0.4	8.3	4.6	4.9	5.2	5.5	5.9
2008-6-04	0.8	4	0.5	2.64	6	50	0.77	0.85	0.4	0.4	7.1	6.6	7.1	7.5	7.7	8.3
2008-8-09	0.8	4	0.5	1.45	8	50	0.77	1.01	0.4	0.9	6.3	-	8.9	9.6	10.1	10.9
2008-12-09	0.8	4	0.5	1.45	12	55	0.77	1.13	0.4	0.9	5	-	13	13.9	14.5	15.4

ESTNB20

2 flutes tapered neck type ball



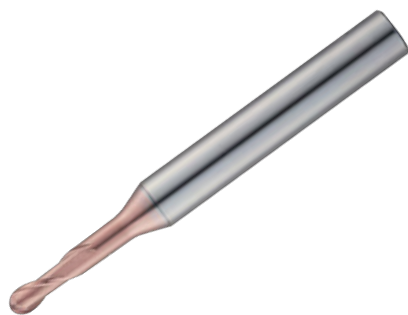
CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC Ø0.2 ~ Ø6 Ø8 ~ Ø10	Tolerance 0.000 ~ -0.012 0.000 ~ -0.015
					DC6 or below Above DC6			



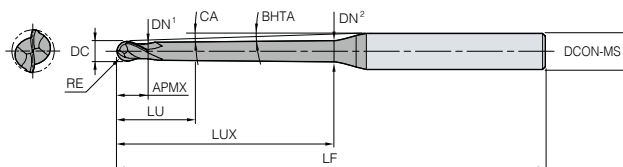
													(mm)				
ESTNB	Designation	DC	DCON-MS	APMX	LU	LUX	LF	DN1	DN2	RE	BHTA(°)	CA	Effective length by inclination angle				
													0.5°	1°	1.5°	2°	3°
	2008-16-09	0.8	4	0.5	1.45	16	55	0.77	1.26	0.4	0.9	4.2	-	17.1	18.1	18.8	19.9
	2009-4-04	0.9	4	0.6	3.46	4	50	0.86	0.91	0.45	0.4	8.2	4.5	4.7	4.9	5.1	5.4
	2009-8-04	0.9	4	0.6	3.46	8	55	0.86	0.96	0.45	0.4	6.1	8.7	9.3	9.7	10	10.6
	2009-12-04	0.9	4	0.6	3.46	12	55	0.86	1.02	0.45	0.4	4.8	12.9	13.8	14.4	14.9	15.7
	2009-16-04	0.9	4	0.6	3.46	16	60	0.86	1.08	0.45	0.4	4	17	18	18.7	19.3	20.5
	2009-18-04	0.9	4	0.6	3.46	18	65	0.86	1.1	0.45	0.4	3.7	19.1	20.1	20.9	21.5	23.1
	2009-20-04	0.9	4	0.6	3.46	20	65	0.86	1.13	0.45	0.4	3.4	21.1	22.2	23	23.6	25.6
	2009-22-04	0.9	4	0.6	3.46	22	65	0.86	1.16	0.45	0.4	3.2	23.1	24.3	25.1	25.8	28.2
	2009-24-04	0.9	4	0.6	3.46	24	70	0.86	1.19	0.45	0.4	3	25.2	26.4	27.2	27.9	-
	2010-6-04	1	6	0.8	5.09	6	50	0.94	1.01	0.5	0.4	8.3	6.8	7.2	7.5	7.8	8.3
	2010-8-04	1	6	0.8	5.09	8	55	0.94	1.04	0.5	0.4	7.5	8.8	9.3	9.7	10	10.6
	2010-10-04	1	6	0.8	5.09	10	55	0.94	1.07	0.5	0.4	6.8	11	11.7	12.3	12.7	13.5
	2010-10-09	1	6	0.8	2.7	10	55	0.94	1.23	0.5	0.9	6.9	-	11.2	11.9	12.4	13.2
	2010-15-09	1	6	0.8	2.7	15	60	0.94	1.39	0.5	0.9	5.7	-	16.2	17.1	17.8	18.8
	2010-20-04	1	6	0.8	5.09	20	65	0.94	1.21	0.5	0.4	4.7	21.2	22.3	23	23.6	25.7
	2010-20-09	1	6	0.8	2.7	20	65	0.94	1.54	0.5	0.4	4.8	-	21.3	22.4	23.1	24.6
	2010-25-09	1	6	0.8	2.7	25	70	0.94	1.7	0.5	0.4	4.2	-	26.4	27.6	28.4	30.8
	2010-30-04	1	6	0.8	5.09	30	75	0.94	1.35	0.5	0.4	3.6	31.3	32.7	33.6	34.8	38.5
	2010-30-09	1	6	0.8	2.7	30	75	0.94	1.86	0.5	0.9	3.7	-	31.4	32.8	33.7	36.9
	2010-35-09	1	6	0.8	2.7	35	80	0.94	2.02	0.5	0.9	3.3	-	36.5	38	39	43.1
	2010-40-09	1	6	0.8	2.7	40	85	0.94	2.17	0.5	0.9	3	-	41.6	43.2	44.4	-
	2010-50-09	1	6	0.8	2.7	50	95	0.94	2.49	0.5	0.9	2.5	-	51.7	53.5	55.5	-
	2010-60-09	1	6	0.8	2.7	60	105	0.94	2.8	0.5	0.9	2.2	-	61.8	63.8	66.6	-
	2010-70-09	1	6	0.8	2.7	70	115	0.94	3.11	0.5	0.9	1.9	-	71.9	74	-	-
	2015-8-04	1.5	6	1.35	7.07	8	55	1.42	1.51	0.75	0.4	7.3	8.9	9.4	9.7	10	10.6
	2015-10-04	1.5	6	1.35	7.07	10	55	1.42	1.54	0.75	0.4	6.6	10.9	11.5	11.9	12.2	12.9
	2015-12-04	1.5	6	1.35	7.07	12	55	1.42	1.57	0.75	0.4	6	13	13.6	14	14.4	15.4
	2015-15-09	1.5	6	1.35	3.89	15	60	1.42	1.85	0.75	0.9	5.4	-	16.4	17.2	17.8	18.8
	2015-20-09	1.5	6	1.35	3.89	20	65	1.42	2.01	0.75	0.9	4.5	-	21.4	22.4	23.2	24.7
	2015-30-09	1.5	6	1.35	3.89	30	75	1.42	2.32	0.75	0.9	3.4	-	31.5	32.9	33.7	37
	2018-4-04	1.8	6	1.6	4.38	4	50	1.73	1.76	0.9	0.4	9.2	4.6	4.8	4.9	5.1	5.4
	2018-8-04	1.8	6	1.6	6.61	8	50	1.73	1.82	0.9	0.4	7.1	8.6	9	9.2	9.4	10.2
	2018-12-04	1.8	6	1.6	6.61	12	55	1.73	1.88	0.9	0.4	5.8	12.9	13.5	14	14.4	15.4
	2018-16-04	1.8	6	1.6	6.61	16	60	1.73	1.93	0.9	0.4	4.9	17	17.7	18.3	18.7	20.5
	2018-20-04	1.8	6	1.6	6.61	20	65	1.73	1.99	0.9	0.4	4.3	21.2	22.3	23	23.6	25.6
	2018-24-04	1.8	6	1.6	6.61	24	65	1.73	2.04	0.9	0.4	3.8	25.3	26.5	27.3	27.9	30.8

ESTNB20

2 flutes tapered neck type ball



CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC	Tolerance
					DC6 or below	Above DC6	Ø0.2 ~ Ø6 Ø8 ~ Ø10	0.000 ~ -0.012 0.000 ~ -0.015

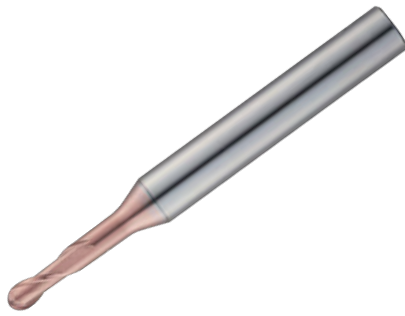


(mm)

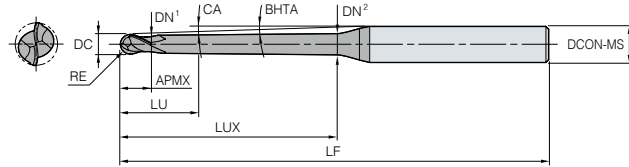
	Designation	DC	DCON-MS	APMX	LU	LUX	LF	DN ¹	DN ²	RE	BHTA(°)	CA	Effective length by inclination angle				
													0.5°	1°	1.5°	2°	3°
ESTNB	2018-28-04	1.8	6	1.6	6.61	28	70	1.73	2.1	0.9	0.4	3.4	29.4	30.6	31.5	32.4	35.9
	2018-32-04	1.8	6	1.6	6.61	32	70	1.73	2.15	0.9	0.4	3	33.4	34.8	35.7	37.1	-
	2018-36-04	1.8	6	1.6	6.61	36	75	1.73	2.21	0.9	0.4	2.8	37.5	38.9	39.9	41.7	-
	2018-38-04	1.8	6	1.6	6.61	38	80	1.73	2.24	0.9	0.4	2.7	39.5	41	42	44	-
	2018-40-04	1.8	6	1.6	6.61	40	80	1.73	2.27	0.9	0.4	2.6	41.5	43.1	44.2	46.3	-
	2020-8-04	2	6	1.7	7.42	8	50	1.92	2.01	1	0.4	7	8.7	9	9.2	9.5	10.2
	2020-12-04	2	6	1.7	7.42	12	55	1.92	2.06	1	0.4	5.7	13	13.6	14	14.4	15.4
	2020-16-04	2	6	1.7	7.42	16	60	1.92	2.12	1	0.4	4.8	17	17.7	18.3	18.7	20.5
	2020-20-04	2	6	1.7	7.42	20	65	1.92	2.18	1	0.4	4.1	21.3	22.3	23	23.6	25.6
	2020-20-09	2	6	1.7	4.24	20	65	1.92	2.5	1	0.9	4.2	-	21.4	22.4	23.2	24.6
	2020-25-09	2	6	1.7	4.24	25	65	1.92	2.65	1	0.9	3.6	-	26.5	27.7	28.5	30.8
	2020-30-04	2	6	1.7	7.42	30	70	1.92	2.32	1	0.4	3.1	31.4	32.7	33.6	34.8	38.5
	2020-30-09	2	6	1.7	4.24	30	70	1.92	2.81	1	0.9	3.2	-	31.6	32.9	33.7	36.9
	2020-35-09	2	6	1.7	4.24	35	75	1.92	2.97	1	0.9	2.8	-	36.6	38	39	-
	2020-40-04	2	6	1.7	7.42	40	80	1.92	2.46	1	0.4	2.5	41.5	43.1	44.2	46.3	-
	2020-40-09	2	6	1.7	4.24	40	80	1.92	3.12	1	0.9	2.6	-	41.7	43.2	44.5	-
	2020-50-09	2	6	1.7	4.24	50	90	1.92	3.44	1	0.9	2.1	-	51.5	53.5	55.5	-
	2020-60-09	2	6	1.7	4.24	60	100	1.92	3.75	1	0.9	1.8	-	61.9	63.8	-	-
	2020-70-09	2	6	1.7	4.24	70	110	1.92	4.07	1	0.9	1.8	-	72	74.1	-	-
	2030-8-04	3	6	2.5	8.5	8	50	2.86	2.94	1.5	0.4	6.3	8.8	9.1	9.3	9.5	10.3
	2030-16-04	3	6	2.5	12.52	16	55	2.86	3.05	1.5	0.4	4.1	17.2	17.8	18.3	18.7	20.6
	2030-20-04	3	6	2.5	12.52	20	60	2.86	3.1	1.5	0.4	3.4	21.2	22	22.6	23.3	25.7
	2030-30-04	3	6	2.5	12.52	30	70	2.86	3.24	1.5	0.4	2.5	31.6	32.8	33.7	34.9	-
	2030-30-09	3	6	2.5	6.95	30	70	2.86	3.72	1.5	0.9	2.6	-	31.8	33	33.8	-
	2030-40-04	3	6	2.5	12.52	40	80	2.86	3.38	1.5	0.4	2	41.7	43.2	44.3	-	-
	2030-40-09	3	6	2.5	6.95	40	80	2.86	4.04	1.5	0.9	2	-	41.9	43.3	-	-
	2030-50-09	3	6	2.5	6.95	50	90	2.86	4.35	1.5	0.9	1.7	-	52	53.6	-	-
	2030-60-09	3	6	2.5	6.95	60	100	2.86	4.67	1.5	0.9	1.4	-	62.1	-	-	-
	2030-70-09	3	6	2.5	6.95	70	110	2.86	4.98	1.5	0.9	1.2	-	72.1	-	-	-
	2040-20-10	4	8	8	12.01	20	70	3.86	4.28	2	1	5	20.5	21.6	22.3	22.8	23.5
	2040-30-10	4	8	8	12.01	30	80	3.86	4.63	2	1	3.51	22	31.6	32.5	33.2	34.16
	2040-40-10	4	8	8	12.01	40	90	3.86	4.98	2	1	2.7	22	42	43.4	44.3	-
	2040-50-10	4	8	8	12.01	50	100	3.86	5.33	2	1	2.2	22	52	53.6	54.7	-
	2040-60-10	4	8	8	12.01	60	110	3.86	5.68	2	1	1.9	22	62	63.8	-	-
	2050-30-10	5	8	10	14.01	30	80	4.86	5.56	2.5	1	2.8	25.5	31.7	32.6	33.2	-
	2050-40-10	5	8	10	14.01	40	90	4.86	5.91	2.5	1	2.1	25.5	41.7	42.8	43.5	-

ESTNB20

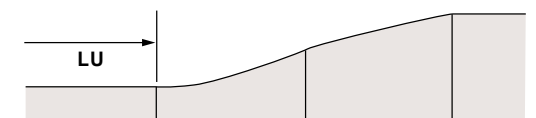
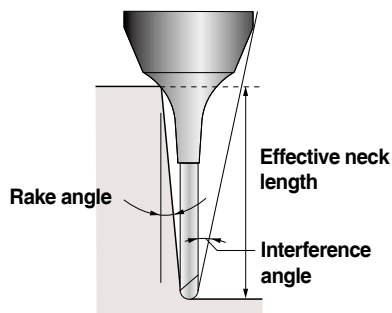
2 flutes tapered neck type ball



CARBIDE	2	H-A 30°	Grade PC305H	h5 shank	RE ±0.01	RE ±0.015	DC Ø0.2 ~ Ø6 Ø8 ~ Ø10	Tolerance 0.000 ~ -0.012 0.000 ~ -0.015
DC6 or below Above DC6								



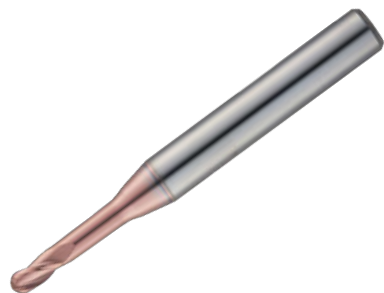
Designation		DC	DCON-MS	APMX	LU	LUX	LF	DN1	DN2	RE	BHTA(°)	CA	Effective length by inclination angle				
													0.5°	1°	1.5°	2°	3°
													(mm)				
ESTNB	2050-60-10	5	8	10	14.01	60	110	4.86	6.61	2.5	1	1.5	25.5	62.1	-	-	-
	2060-30-10	6	8	12	16.01	30	80	5.86	6.49	3	1	1.9	29	31.8	32.6	-	-
	2060-40-10	6	8	12	16.01	40	90	5.86	6.84	3	1	1.5	29	41.8	-	-	-
	2060-50-10	6	8	12	16.01	50	100	5.86	7.19	3	1	1.2	29	51.8	-	-	-
	2060-60-10	6	10	12	16.01	60	110	5.86	7.54	3	1	1.9	29	62.2	63.9	-	-
	2060-70-10	6	10	12	16.01	70	120	5.86	7.89	3	1	1.7	29	72.2	74.1	-	-
	2060-80-10	6	10	12	16.01	80	130	5.86	8.23	3	1	1.5	29	82.2	-	-	-
	2080-50-10	8	10	14	18.01	50	110	7.86	9.12	4	1	1.2	32	51.9	-	-	-
	2080-60-10	8	10	14	18.01	60	120	7.86	9.47	4	1	1	32	-	-	-	-
	2080-70-10	8	10	14	18.01	70	130	7.86	9.82	4	1	0.9	32	-	-	-	-
	2080-80-10	8	12	14	18.01	80	140	7.86	10.16	4	1	1.5	32	82.3	-	-	-
	2100-60-10	10	12	18	22.01	60	130	9.86	11.33	5	1	1.1	39	62.1	-	-	-
	2100-75-10	10	12	18	22.01	75	140	9.86	11.85	5	1	0.9	39	-	-	-	-



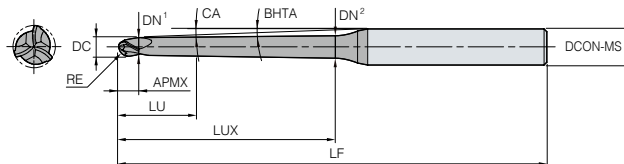
※ The marked effective neck length is the default value to prevent interference with the workpiece.
Proper control of the processing environment is required.

ESTNB30

3 flutes tapered neck type ball



CARBIDE	3	H-A 30°	Grade PC305H	h5 shank	RE ±0.005	DC ALL	Tolerance 0.000 ~ -0.015
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(mm)

	Designation	DC	DCON-MS	APMX	LU	LUX	LF	DN ¹	DN ²	RE	BHTA(°)	CA	Effective length by inclination angle				
													0.5°	1°	1.5°	2°	3°
ESTNB	3020-8-04	2	6	1.7	7.42	8	50	1.92	2.01	1	0.4	7	8.7	9	9.2	9.5	10.2
	3020-12-04	2	6	1.7	7.42	12	55	1.92	2.06	1	0.4	5.7	13	13.6	14	14.4	15.4
	3020-16-04	2	6	1.7	7.42	16	60	1.92	2.12	1	0.4	4.8	17	17.7	18.3	18.7	20.5
	3020-20-04	2	6	1.7	7.42	20	65	1.92	2.18	1	0.4	4.1	21.3	22.3	23	23.6	25.6
	3020-20-09	2	6	1.7	4.24	20	65	1.92	2.5	1	0.9	4.2	-	21.4	22.4	23.2	24.6
	3020-25-09	2	6	1.7	4.24	25	65	1.92	2.65	1	0.9	3.6	-	26.5	27.7	28.5	30.8
	3020-30-04	2	6	1.7	7.42	30	70	1.92	2.32	1	0.4	3.1	31.4	32.7	33.6	34.8	38.5
	3020-30-09	2	6	1.7	4.24	30	70	1.92	2.81	1	0.9	3.2	-	31.6	32.9	33.7	36.9
	3020-35-09	2	6	1.7	4.24	35	75	1.92	2.97	1	0.9	2.8	-	36.6	38	39	-
	3020-40-04	2	6	1.7	7.42	40	80	1.92	2.46	1	0.4	2.5	41.5	43.1	44.2	46.3	-
	3020-40-09	2	6	1.7	4.24	40	80	1.92	3.12	1	0.9	2.6	-	41.7	43.2	44.5	-
	3020-50-09	2	6	1.7	4.24	50	90	1.92	3.44	1	0.9	2.1	-	51.8	53.5	55.5	-
	3020-60-09	2	6	1.7	4.24	60	100	1.92	3.75	1	0.9	1.8	-	61.9	63.8	-	-
	3020-70-09	2	6	1.7	4.24	70	110	1.92	4.07	1	0.9	1.6	-	72	74.1	-	-
	3030-8-04	3	6	2.5	8.5	8	50	2.86	2.94	1.5	0.4	6.3	8.8	9.1	9.3	9.5	10.3
	3030-16-04	3	6	2.5	12.52	16	55	2.86	3.05	1.5	0.4	4.1	17.2	17.8	18.3	18.7	20.6
	3030-20-04	3	6	2.5	12.52	20	60	2.86	3.1	1.5	0.4	3.4	21.2	22	22.6	23.3	25.7
	3030-30-04	3	6	2.5	12.52	30	70	2.86	3.24	1.5	0.4	2.5	31.6	32.8	33.7	34.9	-
	3030-30-09	3	6	2.5	6.95	30	70	2.86	3.72	1.5	0.9	2.6	-	31.8	33	33.8	-
	3030-40-04	3	6	2.5	12.52	40	80	2.86	3.38	1.5	0.4	2	41.7	43.2	44.3	-	-
	3030-40-09	3	6	2.5	6.95	40	80	2.86	4.04	1.5	0.9	2	-	41.9	43.3	-	-
	3030-50-09	3	6	2.5	6.95	50	90	2.86	4.35	1.5	0.9	1.7	-	52	53.6	-	-
	3030-60-09	3	6	2.5	6.95	60	100	2.86	4.67	1.5	0.9	1.4	-	62.1	-	-	-
	3030-70-09	3	6	2.5	6.95	70	110	2.86	4.98	1.5	0.9	1.2	-	72.1	-	-	-
	3040-20-10	4	8	8	12.01	20	70	3.86	4.28	2	1	5	20.5	21.6	22.3	22.8	23.5
	3040-30-10	4	8	8	12.01	30	80	3.86	4.63	2	1	3.6	22	31.6	32.5	33.2	34.1
	3040-40-10	4	8	8	12.01	40	90	3.86	4.98	2	1	2.7	22	42	43.4	44.3	-
	3040-50-10	4	8	8	12.01	50	100	3.86	5.33	2	1	2.2	22	52	53.6	54.7	-
	3040-60-10	4	8	8	12.01	60	110	3.86	5.68	2	1	1.9	22	62	63.8	-	-
	3050-30-10	5	8	10	14.01	30	80	4.86	5.56	2.5	1	2.8	25.5	31.7	32.6	33.2	-
	3050-40-10	5	8	10	14.01	40	90	4.86	5.91	2.5	1	2.1	25.5	41.7	42.8	43.5	-
	3050-60-10	5	8	10	12.52	60	110	4.86	6.61	2.5	1	1.5	25.5	62.1	-	-	-