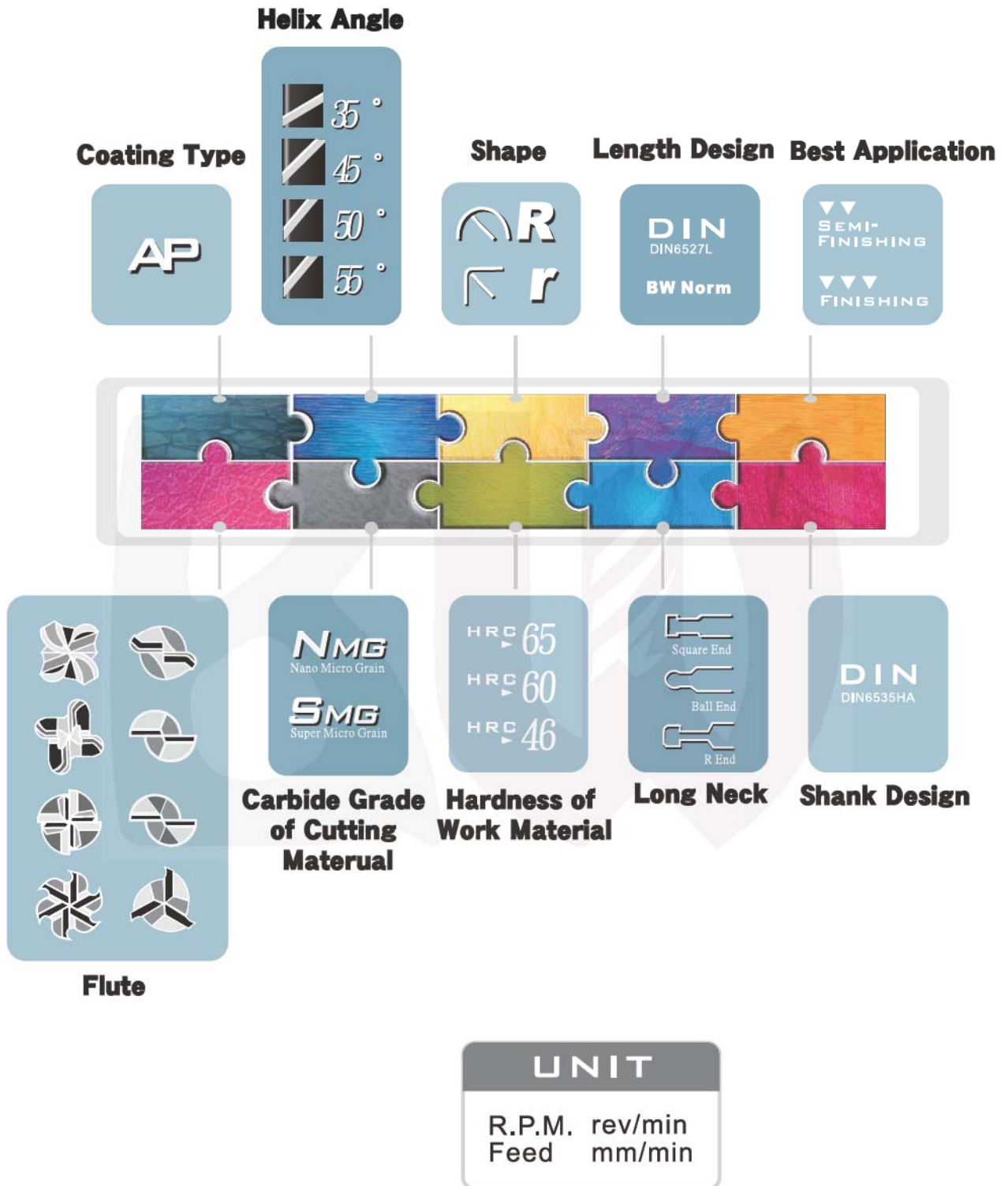


Description Of The Icon



SOLID CARBIDE END MILLS



Solid Carbide Ball Nose End Mills

錫鋼球頭立銑刀

P1 - 2BZ



P3 - 2BSZ



P4 - 4BZ



End Mill

NMG

Nano Micro Grain Solid Carbide



Super Micro Grain Solid Carbide

SMG

P5 - 2BY



P6 - 4BY



P7 - 2BW



P8 - 2BEW



P9 - 2BFW



P10 - 2BGW



P11 - 2BMW



P12 - 2BQW



P13 - 4BK



P14 - 2BH



P15 - 2BD



P16 - 2BC



SOLID CARBIDE END MILLS



II

NMG Ball Nose End Mills

奈米微粒圓頭立銑刀



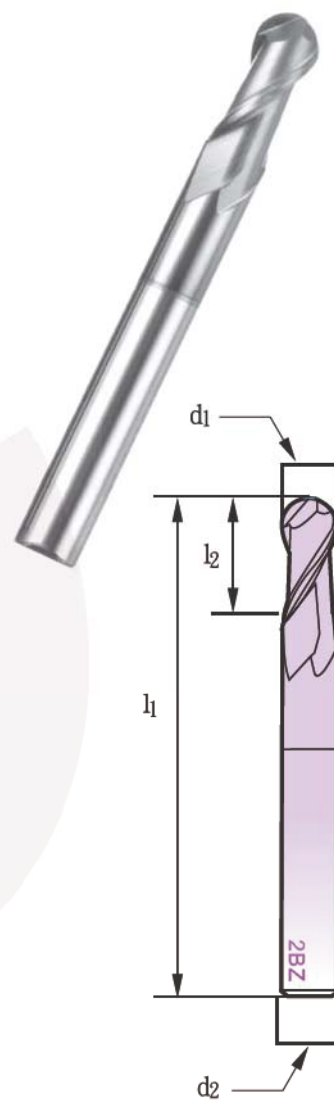
2BZ

2BSZ

4BZ



Order Code	$\varnothing d_1$ (e8/h10)	l_2	l_1	$\varnothing d_2$ (h6)
2BZ002	R0.1	0.4	38	3.0
2BZ003	R0.15	0.6	38	3.0
2BZ004	R0.2	0.8	38	3.0
2BZ005	R0.25	1.0	38	3.0
2BZ006	R0.3	1.2	38	3.0
2BZ007	R0.35	1.4	38	3.0
2BZ008	R0.4	1.6	38	3.0
2BZ010	R0.5	2.0	38	3.0
2BZ012	R0.6	2.4	38	3.0
2BZ014	R0.7	2.8	38	3.0
2BZ015	R0.75	3.0	38	3.0
2BZ016	R0.8	3.2	38	3.0
2BZ018	R0.9	3.6	38	3.0
2BZ020	R1	4.0	38	3.0
2BZ020E	R1	4.0	75	6.0
2BZ030	R1.5	6.0	50	6.0
2BZ030E	R1.5	6.0	75	6.0
2BZ030F	R1.5	6.0	100	6.0
2BZ040	R2	8.0	50	6.0
2BZ040E	R2	8.0	75	6.0
2BZ040F	R2	8.0	100	6.0
2BZ050	R2.5	10.0	50	6.0
2BZ060	R3	12.0	50	6.0
2BZ060E	R3	12.0	75	6.0
2BZ060F	R3	12.0	100	6.0
2BZ070	R3.5	14.0	60	8.0
2BZ070E	R3.5	14.0	75	8.0
2BZ070F	R3.5	14.0	100	8.0
2BZ080	R4	16.0	60	8.0
2BZ080E	R4	16.0	75	8.0
2BZ080F	R4	16.0	100	8.0
2BZ100	R5	20.0	75	10.0
2BZ100F	R5	20.0	100	10.0
2BZ100H	R5	20.0	150	10.0
2BZ120	R6	24.0	75	12.0
2BZ120F	R6	24.0	100	12.0
2BZ120H	R6	24.0	150	12.0
2BZ160	R8	32.0	100	16.0
2BZ160I	R8	32.0	200	16.0
2BZ200	R10	40.0	100	20.0
2BZ200I	R10	40.0	200	20.0

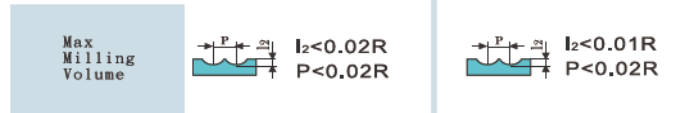


d_1	tol
0.2-2.0	e8
2.0-20.0	h10



2BZ Recommendations for Cutting Conditions

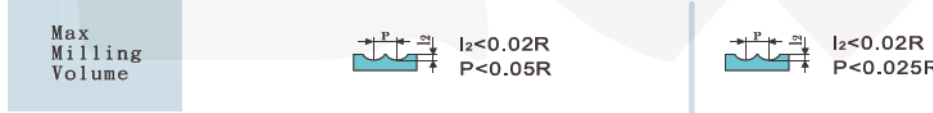
WORK Material	S45C,P20S,PCD		SUS403,SKD11,SCR	
	<HRC30-50		<HRC50-65	
	R. P. M.	Feed	R. P. M.	Feed
2BZ002	42000	760	40000	720
2BZ003	41000	740	39000	710
2BZ004	41500	750	39500	700
2BZ005	40000	880	38000	840
2BZ006	39000	860	37000	820
2BZ007	38000	840	36000	800
2BZ008	37000	820	35000	770



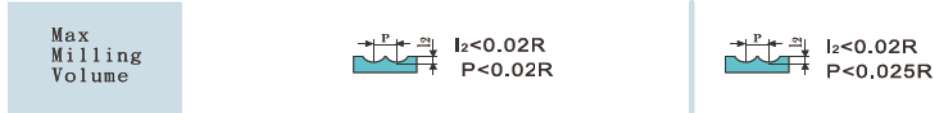
WORK Material	S45C,P20S,PCD		SUS403,SKD11,SCR		Ti-6Al-4V PRE/HARDENED STEELS	
	<HRC30-50		<HRC30-45		<HRC45-65	
	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
2BZ010	35000	1400	32000	1280	30000	1200
2BZ012	31000	1260	30000	1120	29000	1180
2BZ014	30500	1250	29500	1200	28500	1170
2BZ015	30000	1930	29000	1870	28000	1800
2BZ016	29500	1900	28500	1830	27500	1770
2BZ018	28500	1830	27500	1770	26500	1700
2BZ020	28000	2150	27000	2070	26000	2000
2BZ030	26000	3030	25000	2910	24000	2800
2BZ040	22000	3300	21000	3150	20000	3000
2BZ050	21000	3150	20000	3000	19000	2850
2BZ060	20000	3330	19000	3160	18000	3000
2BZ070	19000	3160	18000	3000	17000	2830
2BZ080	18000	4500	17000	4250	16000	4000
2BZ100	16000	4570	15000	4280	14000	4000
2BZ120	15500	4420	14500	4140	13500	3850
2BZ160	9300	2660	9100	2600	8500	2430



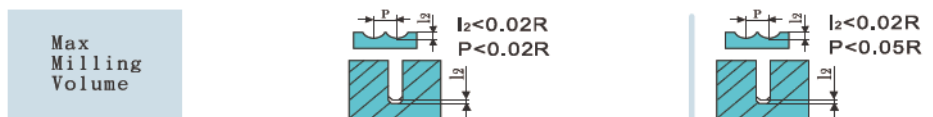
WORK Material	S45C,P20S,PCD		SUS403,SKD11,SCR		Ti-6Al-4V PRE/HARDENED STEELS	
	<HRC30		<HRC30-45		<HRC45-65	
	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
2BZ020E	28000	2150	27000	2070	26000	2000
2BZ030E	26000	3030	25000	2910	24000	2800
2BZ040E	22000	3300	21000	3150	20000	3000
2BZ060E	20000	3330	19000	3160	18000	3000
2BZ070E	19000	3160	18000	3000	17000	2830
2BZ080E	18000	4500	17000	4250	16000	4000



WORK Material	S45C,P20S,PCD		SUS403,SKD11,SCR		Ti-6Al-4V PRE/HARDENED STEELS	
	<HRC30		<HRC30-45		<HRC45-65	
	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
2BZ020F	28000	2150	27000	2070	26000	2000
2BZ030F	26000	3030	25000	2910	24000	2800
2BZ040F	22000	3300	21000	3150	20000	3000
2BZ060F	20000	3330	19000	3160	18000	3000
2BZ070F	19000	3160	18000	3000	17000	2830
2BZ080F	18000	4500	17000	4250	16000	4000
2BZ100F	16000	4570	15000	4280	14000	4000
2BZ120F	15500	4420	14500	4140	13500	3850



WORK Material	S45C,P20S,PCD		SUS403,SKD11,SCR		Ti-6Al-4V PRE/HARDENED STEELS	
	<HRC30		<HRC30-45		<HRC45-65	
	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
2BZ100H	16000	4570	15000	4280	14000	4000
2BZ120H	15500	4420	14500	4140	13500	3850
2BZ160I	9300	2660	9100	2600	8500	2430
2BZ200I	9380	3130	8750	2910	6880	2290



- 2BZ
- 2BSZ
- 4BZ



NMG Short Flute Ball Nose End Mills

奈米微粒短刃圓頭立銑刀



2BZ

2BSZ

4BZ

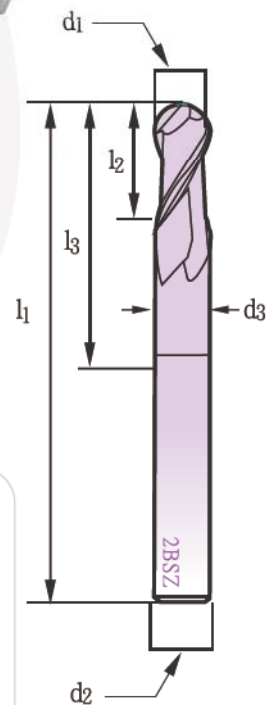
2BSZ



Order Code	Ø d ₁ (e8/h10)	l ₂	l ₃	l ₁	Ø d ₃	Ø d ₂ (h6)
2BSZ010	R0.5	1.0	2.5	38	0.8	3.0
2BSZ015	R0.75	1.5	4	38	1.3	3.0
2BSZ020	R1	2.0	5	38	1.8	3.0
2BSZ030	R1.5	3.0	8	50	2.8	6.0
2BSZ040	R2	4.0	10	50	3.8	6.0
2BSZ050	R2.5	5.0	13	50	4.8	6.0
2BSZ060	R3	6.0	15	50	5.8	6.0
2BSZ070	R3.5	7.0	16	60	6.8	8.0
2BSZ080	R4	8.0	20	60	7.7	8.0
2BSZ100	R5	10.0	25	75	9.7	10.0
2BSZ120	R6	12.0	30	75	11.7	12.0
2BSZ160	R8	16.0	40	100	15.7	16.0

mm

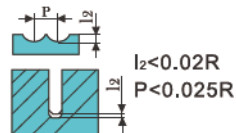
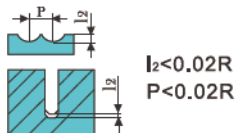
d ₁	tol
0.2-2.0	e8
2.0-16.0	h10



2BSZ Recommendations for Cutting Conditions

WORK Material	S45C,P20S,FCD		SUS403,SKD11,SCr		Ti-6Al-4V PRE/HARDENED STEELS	
	<HRC30		<HRC30-45		<HRC45-65	
Order Code	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
2BSZ010	35000	1400	32000	1280	30000	1200
2BSZ015	30000	1930	29000	1870	28000	1800
2BSZ020	28000	2150	27000	2070	26000	2000
2BSZ030	26000	3030	25000	2910	24000	2800
2BSZ040	22000	3300	21000	3150	20000	3000
2BSZ050	21000	3150	20000	3000	19000	2850
2BSZ060	20000	3330	19000	3160	18000	3000
2BSZ070	19000	3160	18000	3000	17000	2830
2BSZ080	18000	4500	17000	4250	16000	4000
2BSZ100	16000	4570	15000	4280	14000	4000
2BSZ120	15500	4420	14500	4140	13500	3850
2BSZ160	9000	1900	8800	1860	8500	1800

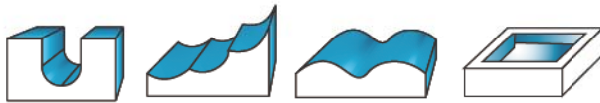
Max
Milling
Volume



NMG Ball Nose End Mills

奈米微粒圓頭立銑刀

4BZ

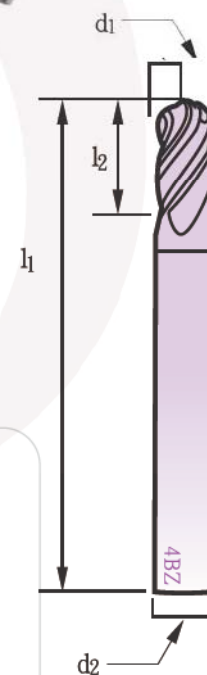


2BZ

2BSZ

4BZ

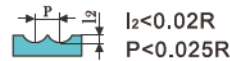
Order Code	Ø d ₁ (h10)	l ₂	l ₁	Ø d ₂ (h6)
4BZ030	R1.5	6.0	50	6.0
4BZ040	R2	8.0	50	6.0
4BZ050	R2.5	10.0	50	6.0
4BZ060	R3	12.0	50	6.0
4BZ060F	R3	12.0	100	6.0
4BZ080	R4	16.0	60	8.0
4BZ080F	R4	16.0	100	8.0
4BZ100	R5	20.0	75	10.0
4BZ100F	R5	20.0	100	10.0
4BZ120	R6	24.0	75	12.0
4BZ120F	R6	24.0	100	12.0
4BZ160	R8	32.0	100	16.0
4BZ200	R10	40.0	100	20.0



4BZ Recommendations for Cutting Conditions

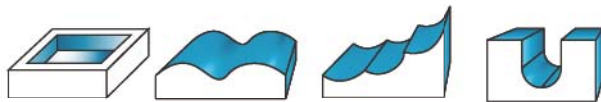
WORK Material	S45C,P20S, FCD		SUS403,SKD11,SCR		T1-6A1-4V PRE/HARDENED STEELS	
	<HRC30		<HRC30-45		<HRC45-65	
Order Code	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
4BZ030	28000	2150	27000	2070	26000	2000
4BZ040	26000	3030	25000	2910	24000	2800
4BZ050	21000	3150	20000	3000	19000	2850
4BZ060	20000	3330	19000	3160	18000	3000
4BZ060F	20000	3330	19000	3160	18000	3000
4BZ080	18000	4500	17000	4250	16000	4000
4BZ080F	18000	4500	17000	4250	16000	4000
4BZ100	16000	4570	15000	4280	14000	4000
4BZ100F	16000	4570	15000	4280	14000	4000
4BZ120	15500	4420	14500	4140	13500	3850
4BZ120F	15500	4420	14500	4140	13500	3850
4BZ160	9300	2660	9100	2600	8500	2430
4BZ200	9380	3130	8750	2910	6880	2290

Max
Milling
Volume

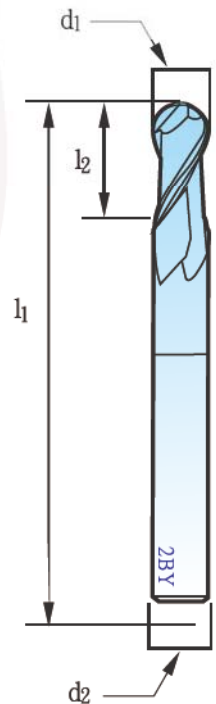


SMG Ball Nose End Mills

極細微粒圓頭銑刀



Order Code	$\varnothing d_1$ (h10)	l_2	l_1	$\varnothing d_2$ (h6)
2BY020	R1	4.0	38	3.0
2BY030	R1.5	6.0	50	6.0
2BY040	R2	8.0	50	6.0
2BY060	R3	12.0	50	6.0
2BY080	R4	16.0	60	8.0
2BY100	R5	20.0	75	10.0
2BY120	R6	24.0	75	12.0
2BY160	R8	32.0	100	16.0
2BY200	R10	40.0	100	20.0



2BY Recommendations for Cutting Conditions

Order Code	S45C, P20S, FCD		SUS403, SKD11, SCr		T1-6A1-4V PRE/HARDENED STEELS	
	<HRC30		<HRC30-45		<HRC45-60	
	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
2BY020	27000	2080	26000	2000	25000	1920
2BY030	25000	2920	24000	2800	23000	2680
2BY040	21000	3150	20000	3000	19000	2850
2BY060	19000	3170	18000	3000	17000	2830
2BY080	17000	4250	16000	4000	15000	3750
2BY100	15000	4290	14000	4000	13000	3720
2BY120	14500	4140	13500	3850	12500	3570
2BY160	9000	2570	8500	2430	8000	2290
2BY200	7000	2330	6500	2170	6000	2000

Max Milling Volume



2BY

4BY

2BW

2BEW

2BFW

2BGW

2BMW

2BQW

4BK

2BH

2BD

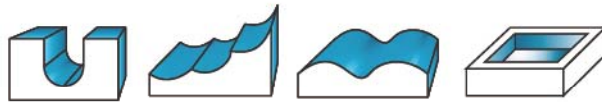
2BC



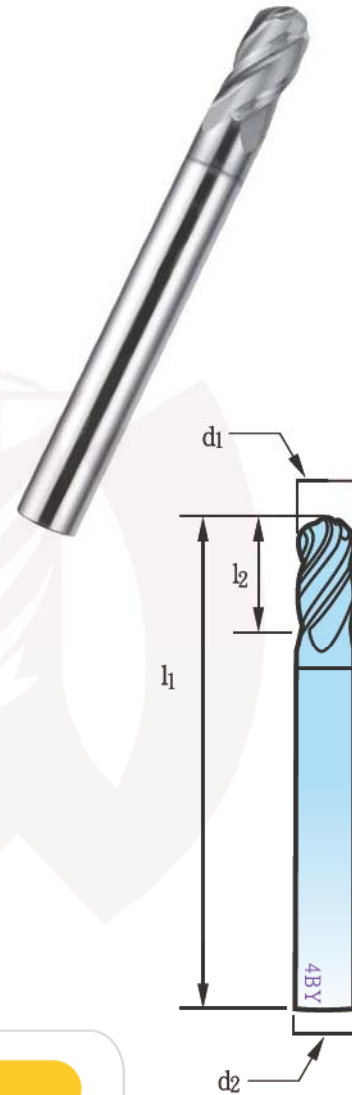
SMG Ball Nose End Mills

極細微粒圓頭銑刀

4BY



Order Code	$\varnothing d_1$ (h10)	l_2	l_1	$\varnothing d_2$ (h6)
4BY050	R2.5	10.0	50	6.0
4BY060	R3	12.0	50	6.0
4BY080	R4	16.0	60	8.0
4BY100	R5	20.0	75	10.0
4BY120	R6	24.0	75	12.0
4BY160	R8	32.0	100	16.0
4BY200	R10	40.0	100	20.0



- 2BY
- 4BY
- 2BW
- 2BEW
- 2BFW
- 2BGW
- 2BMW
- 2BQW
- 4BK
- 2BH
- 2BD
- 2BC

4BY Recommendations for Cutting Conditions

WORKMaterial	S45C,P20S,PCD		SUS403,SKD11,SCr		Ti-6Al-4V PRE/HARDENED STEELS	
	<HRC30		<HRC30-45		<HRC45-60	
	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
4BY050	20000	3000	19000	2850	18000	2700
4BY060	19000	3170	18000	3000	17000	2830
4BY080	17000	4250	16000	4000	15000	3750
4BY100	15000	4290	14000	4000	13000	3710
4BY120	14500	4140	13500	1400	12500	3570
4BY160	9000	2570	8500	2430	8000	2290
4BY200	7000	2330	6500	2170	6000	2000

Max Milling Volume



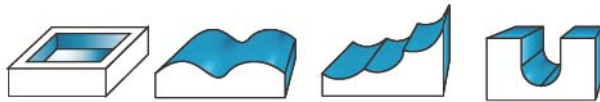
$l_2 < 0.02R$
 $P < 0.02R$



$l_2 < 0.015R$
 $P < 0.025R$

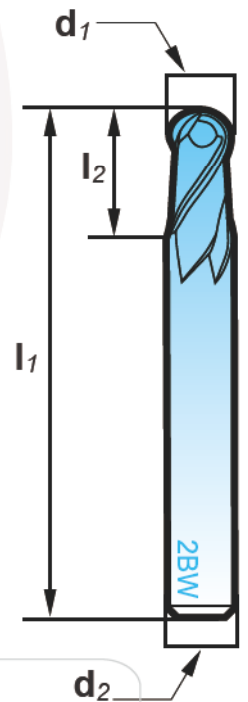
SMG Ball Nose End Mills

極細微粒圓頭銑刀



Order Code.	d ₁	l ₂	l ₁	d ₂
型號	直徑	刃長	全長	柄徑
2BW010	R0.5	2	50	4
2BW015	R0.75	3	50	4
2BW020	R1.0	4	50	6
2BW030	R1.5	6	50	6
2BW040	R2.0	8	50	6
2BW060	R3.0	12	50	6
2BW080	R4.0	16	60	8
2BW100	R5.0	20	75	10
2BW120	R6.0	24	75	12
2BW160	R8.0	32	100	16

unit:mm



2BY

4BY

2BW

2BEW

2BFW

2BGW

2BMW

2BQW

4BK

2BH

2BD

2BC

2BW Recommendations for Cutting Conditions

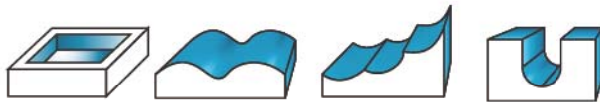
WORK Material	S45C.S50C		SCM.P20.PDS5.PDS3.SKD11		NAK80		SKD61	
	HB150~250		HRC20~35		HRC35~45		HRC45~55	
Order Code	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
2BW010	27000	1900	25000	1400	23000	1300	17000	1250
2BW020	25000	1800	20000	1200	20000	1200	15000	1200
2BW030	25000	1800	20000	1200	20000	1200	15000	1200
2BW030	22000	1200	18000	1000	18000	1000	15000	1200
2BW060	20000	6000	16500	5000	16500	5000	13000	4500
2BW080	15000	5000	12500	4500	12500	4500	10000	3600
2BW100	12000	4500	10000	4000	10000	4000	8000	3200
2BW120	10000	4000	8300	3200	8300	3200	6600	2000

D: Diameter XY ≤ 0.01~0.3R Z ≤ 0.01R XY ≤ 0.01~0.02R Z ≤ 0.01R

SMG Long Shank Ball Nose End Mills

極細微粒長柄圓頭銑刀

2BEW



Order Code.	d ₁	l ₂	l ₁	d ₂
型號	直徑	刃長	全長	柄徑
2BEW020	R1.0	4	75	6
2BEW030	R1.5	6	75	6
2BEW040	R2.0	8	75	6
2BEW060	R3.0	12	75	6
2BEW080	R4.0	16	75	8

unit:mm



- 2BY
- 4BY
- 2BW
- 2BEW**
- 2BFW
- 2BGW
- 2BMW
- 2BQW
- 4BK
- 2BH
- 2BD
- 2BC

2BEW Recommendations for Cutting Conditions

WORK Material	S45C.S50C		SCM.P20.PDS5.PDS3.SKD11		NAK80		SKD61	
	HB150~250		HRC20~35		HRC35~45		HRC45~55	
Order Code	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
2BEW020	20000	1800	18000	1500	12000	1200	13500	1000
2BEW030	20000	1800	18000	1500	12000	1200	13500	1000
2BEW040	25000	4500	20000	3200	15000	3200	13500	1200
2BEW060	16500	3600	13000	3200	10000	3200	9000	2800
2BEW080	12500	4500	10000	4000	10000	4000	9000	3000

D: Diameter

XY ≤ 0.01R

Z ≤ 0.01R



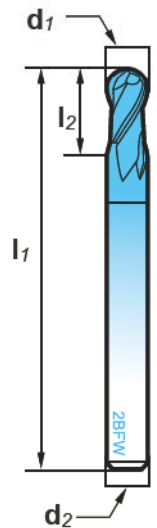
SMG Long Shank Ball Nose End Mills

極細微粒長柄圓頭銑刀



unit:mm

Order Code.	d ₁	l ₂	l ₁	d ₂
型號	直徑	刃長	全長	柄徑
2BFW040	R2.0	8	100	6
2BFW060	R3.0	12	100	6
2BFW080	R4.0	16	100	8
2BFW100	R5.0	20	100	10
2BFW120	R6.0	24	100	12



2BY

4BY

2BW

2BEW

2BFW

2BGW

2BMW

2BQW

4BK

2BH

2BD

2BC

2BEW Recommendations for Cutting Conditions

WORK Material	S45C.S50C		SCM.P20.PDS5.PDS3.SKD11		NAK80		SKD61	
	HB150~250		HRC20~35		HRC35~45		HRC45~55	
Order Code	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
2BEW020	20000	1800	18000	1500	12000	1200	13500	1000
2BEW030	20000	1800	18000	1500	12000	1200	13500	1000
2BEW040	25000	4500	20000	3200	15000	3200	13500	1200
2BEW060	16500	3600	13000	3200	10000	3200	9000	2800
2BEW080	12500	4500	10000	4000	10000	4000	9000	3000

D: Diameter

XY ≤ 0.01R

Z ≤ 0.01R

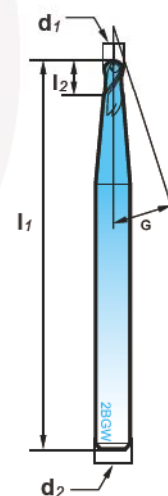
SMG Taper Neck Ball Nose End Mills

極細微粒長柄圓頭銑刀



unit:mm

Order Code.	d ₁	l ₂	l ₁	d ₂	G
型號	直徑	刃長	全長	柄徑	斜角
2BGW0203	R1.0	4	75	6	3°
2BGW0205	R1.0	4	75	6	5°
2BGW0315	R1.5	6	100	6	1.5°
2BGW0303	R1.5	6	75	6	3°
2BGW0305	R1.5	6	75	6	5°
2BGW0415	R2.0	8	100	6	1.5°
2BGW0403	R2.0	8	100	6	3°
2BGW0405	R2.0	8	75	6	5°
2BGW0615	R3.0	12	100	8	1.5°
2BGW0603	R3.0	12	75	8	3°
2BGW0605	R3.0	12	100	8	5°



- 2BY
- 4BY
- 2BW
- 2BEW
- 2BFW
- 2BGW**
- 2BMW
- 2BQW
- 4BK
- 2BH
- 2BD
- 2BC

2BGW Recommendations for Cutting Conditions

WORK Material	S45C.S50C		SCM.P20.PDS5.PDS3.SKD11		NAK80		SKD61	
	HB150~250		HRC20~35		HRC35~45		HRC45~55	
	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
2BGW0203	26250	1890	21000	1260	21000	1260	15750	1260
2BGW0205	26250	1890	21000	1260	21000	1260	15750	1260
2BGW0315	26250	1890	21000	1260	21000	1260	15750	1260
2BGW0303	26250	1890	21000	1260	21000	1260	15750	1260
2BGW0305	26250	1890	21000	1260	21000	1260	15750	1260
2BGW0415	23100	1260	18900	1050	18900	1050	15750	1260
2BGW0403	23100	1260	18900	1050	18900	1050	15750	1260
2BGW0405	23100	1260	18900	1050	18900	1050	15750	1260
2BGW0615	21000	6300	17325	5250	17325	5250	13650	4725
2BGW0603	21000	6300	17325	5250	17325	5250	13650	4725
2BGW0605	23100	6300	17325	5250	17325	5250	13650	4725

D: Diameter XY ≤ 0.01~0.3D Z ≤ 0.01D

SMG Miniature Ball Nose End Mills

極細微粒小徑圓頭銑刀



Order Code.	d ₁	l ₂	l ₁	d ₂
型號	直徑	刃長	全長	柄徑
2BMW002	R0.1	0.4	50	4
2BMW003	R0.15	0.6	50	4
2BMW004	R0.2	0.8	50	4
2BMW005	R0.25	1.0	50	4
2BMW006	R0.3	1.2	50	4
2BMW007	R0.35	1.4	50	4
2BMW008	R0.4	1.6	50	4
2BMW010	R0.5	2.0	50	4

unit:mm



2BY

4BY

2BW

2BEW

2BFW

2BGW

2BMW

2BQW

4BK

2BH

2BD

2BC

2BMW Recommendations for Cutting Conditions

WORK Material	S45C.S50C		SCM.P20.PDS5.PDS3.SKD11		NAK80		SKD61	
	HB150~250		HRC20~35		HRC35~45		HRC45~55	
Order Code	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
2BMW002	30000	500~700	30000	450~600	25000	500~800	20000	400~600
2BMW003	30000	500~700	30000	450~600	25000	500~800	20000	400~600
2BMW004	30000	600~800	30000	500~700	25000	500~800	20000	400~600
2BMW005	30000	600~800	30000	500~700	25000	500~800	20000	400~600
2BMW006	25000	800~1000	25000	600~1000	20000	500~800	18000	400~600
2BMW007	25000	800~1000	25000	600~1000	20000	500~800	18000	400~600
2BMW008	20000	800~1000	20000	600~1000	20000	500~800	18000	400~600
2BMW010	20000	800~1000	20000	600~1000	20000	500~800	18000	400~600

D : Diameter XY ≤ 0.01R Z ≤ 0.01R

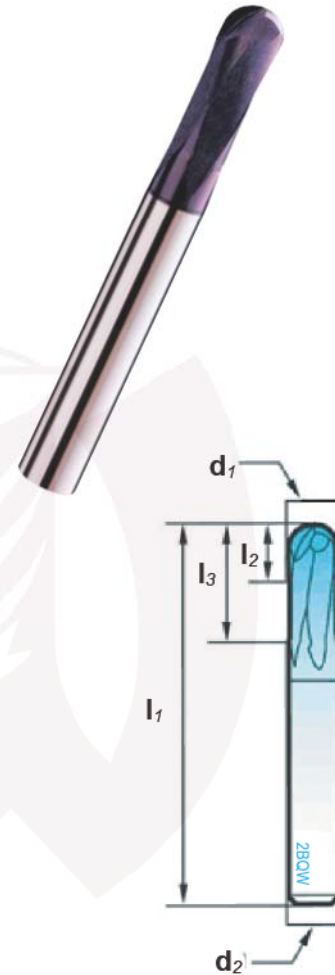
SMG Ball Nose End Mills

極細微粒圓頭銑刀

2BQW



Order Code.	d ₁	l ₂	l ₃	l ₁	d ₂
型號	直徑	刃長	有效長	全長	柄徑
2BQW010	R0.5	1	3	50	4
2BQW015	R0.75	2	5	50	4
2BQW020	R1.0	3	6	50	6
2BQW030	R1.5	4	8	50	6
2BQW030E	R1.5	4	8	75	6
2BQW040	R2.0	5	10	50	6
2BQW040E	R2.0	5	10	75	6
2BQW060	R3.0	6	12	50	6
2BQW060F	R3.0	6	16	100	6
2BQW080	R4.0	8	16	60	8
2BQW080F	R4.0	8	25	100	8
2BQW100	R5.0	10	20	75	10
2BQW100F	R5.0	10	30	100	10



2BQW Recommendations for Cutting Conditions

WORK Material	NAK80		SKD61		SKD11	
	HRC40		HRC50		HRC60	
Order Code	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
2BQW010	45000	2100	16000	1300	12000	1100
2BQW015	45000	2100	16000	1300	12000	1100
2BQW020	40000	2000	15000	1200	10000	1000
2BQW030	26000	2000	15000	1200	10000	1000
2BQW030E	26000	2000	15000	1200	10000	1000
2BQW040	20000	3200	15000	1200	10000	1000
2BQW040E	20000	3200	15000	1200	10000	1000
2BQW060	13000	4800	10000	4000	6400	1500
2BQW0602F	13000	4800	10000	4000	6400	1500
2BQW080	10000	4000	10000	3600	4800	1500
2BQW080F	10000	4000	10000	3600	4800	1500
2BQW100	8000	3600	8000	3200	3800	1500
2BQW100F	8000	3600	8000	3200	3800	1500

D : Diameter

XY ≤ 0-01R Z ≤ 0-02R



- 2BY
- 4BY
- 2BW
- 2BEW
- 2BFW
- 2BGW
- 2BMW
- 2BQW
- 4BK
- 2BH
- 2BD
- 2BC



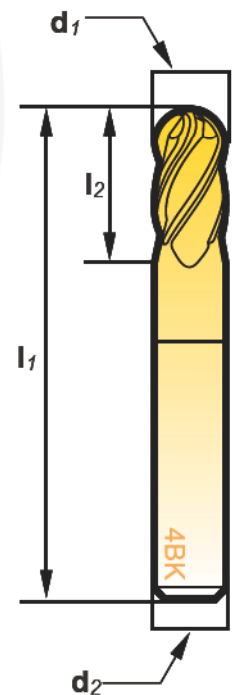
SMG Ball Nose End Mills

極細微粒圓頭銑刀



Order Code.	d ₁	l ₂	l ₁	d ₂
型號	直徑	刃長	全長	柄徑
4BK020	R1.0	4	50	4
4BK030	R1.5	6	50	4
4BK040	R2.0	8	50	4
4BK050	R2.5	10	50	6
4BK060	R3.0	12	50	6
4BK080	R4.0	16	60	8
4BK100	R5.0	20	75	10
4BK120	R6.0	24	75	12

unit:mm



2BY

4BY

2BW

2BEW

2BFW

2BGW

2BMW

2BQW

4BK

2BH

2BD

2BC

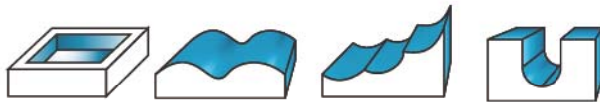
2BK Recommendations for Cutting Conditions

WORK Material	S45C.S50C		SCM.P20.PDS5.PDS3.SKD11		NAK80		SKD61	
	HB150~250		HRC20~35		HRC35~45		HRC45~55	
	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
4BK020	18400	400~1000	14605	300~800	12650	200~400	7360	80~250
4BK030	12190	400~1000	9775	300~800	8545	200~400	4888	80~250
4BK040	9200	400~1000	7360	300~800	6498	200~400	3680	80~250
4BK060	6095	400~1000	4830	300~800	4313	200~400	2415	80~250
4BK080	4600	400~1000	3680	300~800	3220	200~400	1840	80~250
4BK100	3680	400~1000	2875	300~800	2588	200~400	1380	80~250
4BK120	3105	400~1000	2415	300~800	2185	200~400	1150	80~250

D : Diameter XY ≤ 0.01D Z ≤ 0.01~0.3D XY ≤ 0.01~0.02D Z ≤ 0.01~0.3D

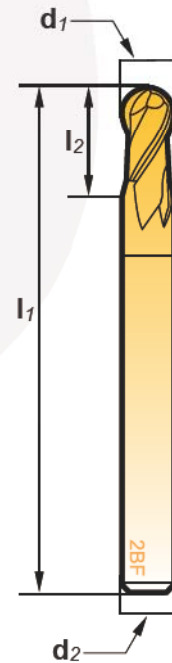
SMG Long Shank Ball Nose End Mills

極細微粒長柄圓頭銑刀



unit:mm

Order Code.	d ₁	l ₂	l ₁	d ₂
型號	直徑	刃長	全長	柄徑
2BH060	R3.0	12	150	6
2BH080	R4.0	16	150	8
2BH100	R5.0	20	150	10
2BH120	R6.0	24	150	12



- 2BY
- 4BY
- 2BW
- 2BEW
- 2BFW
- 2BGW
- 2BMW
- 2BQW
- 4BK
- 2BH**
- 2BD
- 2BC

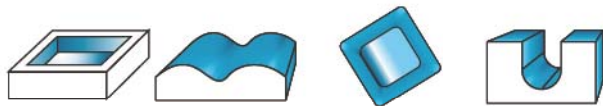
2BH Recommendations for Cutting Conditions

WORK Material	S45C.S50C		SCM.P20.PDS5.PDS3.SKD11		NAK80		SKD61	
	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
Order Code	HB150~250		HRC20~35		HRC35~45		HRC45~55	
2BH060	6095	300~800	4830	200~600	3680	200~400	2415	100~200
2BH080	4600	300~800	3680	200~600	2760	200~400	1840	100~200
2BH100	3680	300~800	2875	200~600	2185	200~400	1380	100~200
2BH120	3105	300~800	2415	200~600	1840	200~400	1150	100~200

D : Diameter XY ≤ 0.01D Z ≤ 0.01~0.3D XY ≤ 0.1D Z ≤ 0.1~0.3D

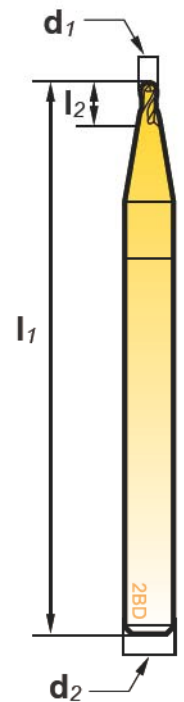
SMG Long Shank Ball Nose End Mills

極細微粒小柄圓頭銑刀



unit:mm

Order Code.	d ₁	l ₂	l ₁	d ₂
型號	直徑	刃長	全長	柄徑
2BD010	R0.5	2	50	3
2BD015	R0.75	3	50	3
2BD020	R1.0	4	50	3
2BD025	R1.25	5	50	3
2BD030	R1.5	6	50	3
2BD030E	R1.5	6	75	3
2BD030F	R1.5	6	100	3
2BD040	R2.0	8	75	4
2BD040F	R2.0	8	100	4



2BY

4BY

2BW

2BEW

2BFW

2BGW

2BMW

2BQW

4BK

2BH

2BD

2BC

2BD Recommendations for Cutting Conditions

WORK Material	S45C.S50C		SCM.P20.PDS5.PDS3.SKD11		NAK80		SKD61	
	HB150~250		HRC20~35		HRC35~45		HRC45~55	
Order Code	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
2BD010	40000	800	40000	800	36000	800	32000	600
2BD015	40000	1000	38000	1000	25000	1000	21000	800
2BD020	35000	1200	35000	1200	18000	1200	16000	850
2BD025	33000	1400	32000	1400	15000	1300	12800	900
2BD030	30000	1500	30000	1500	12000	1500	10000	900
2BD030E	30000	1000	30000	800	12000	500	10000	900
2BD030F	25000	800	25000	6000	12000	300	10000	900
2BD040	25000	1200	25000	1000	9000	800	8000	900
2BD040F	25000	900	25000	750	9000	500	8000	900

D : Diameter XY ≤ 0.02R Z ≤ 0.01R XY ≤ 0.01R Z ≤ 0.02R

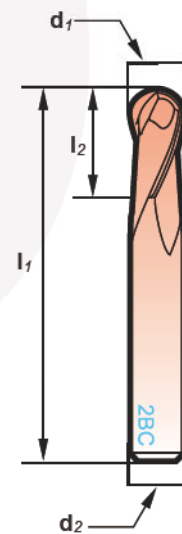
SMG Ball Nose End Mills

極細微粒銅鋁用圓頭銑刀



unit:mm

Order Code.	d ₁	l ₂	l ₁	d ₂
型號	直徑	刃長	全長	柄徑
2BC010	R0.5	3	50	4
2BC015	R0.75	4	50	4
2BC020	R1.0	6	50	4
2BC030	R1.5	6	50	4
2BC040	R2.0	8	50	4
2BC060	R3.0	12	50	6
2BC080	R4.0	16	60	8
2BC100	R5.0	20	75	10
2BC120	R6.0	24	75	12



- 2BY
- 4BY
- 2BW
- 2BEW
- 2BFW
- 2BGW
- 2BMW
- 2BQW
- 4BK
- 2BH
- 2BD
- 2BC**

2BC Recommendations for Cutting Conditions

WORKMaterial	Al		Cu-Mg	
	1070		4032	
Order Code	R. P. M.	Feed	R. P. M.	Feed
2BC010	32000	850	30000	830
2BC015	32000	830	30000	820
2BC020	30000	800	30000	800
2BC030	30000	800	27000	800
2BC040	24000	1000	20000	1000
2BC060	16000	1000	13500	1000
2BC080	12000	1000	10000	1000
2BC100	9600	1200	8000	1200
2BC120	8000	1200	6600	1200

WORKMaterial	Mg		Mg-Si		Zn-Mg	
	5052		6061		7075	
Order Code	R. P. M.	Feed	R. P. M.	Feed	R. P. M.	Feed
2BC010	28000	700	26000	680	24000	670
2BC015	26000	750	24000	670	23000	660
2BC020	25000	720	22000	650	25000	600
2BC030	13000	400	21600	500	27000	640
2BC040	10000	500	12800	640	16000	800
2BC060	6500	500	10800	640	13500	800
2BC080	5000	600	8000	640	10000	800
2BC100	4000	600	8000	640	10000	800
2BC120	3300	700	5300	780	6600	960

D : Diameter XY ≤ 0.1R Z ≤ 0.01R