YG-1 CO., LTD.

HEAD OFFICE

211, Sewolcheon-ro, Bupyeong-gu, Incheon, South Korea
Phone: +82-32-526-0909
Http://www.yg1.kr
E-mail: yg1@yg1.kr

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YG1YEIS200107002

i-SMART

MODULAR TYPE END MILLS

Ultra-micro Grain Carbide Heads with
Carbide & Steel Holders

SELECTION GUIDE

Please visit globalyg1.com/mat for material search

i-SMART END MILLS

Ultra-micro Grain Carbide Heads
with Carbide & Steel Holders

SERIES	XSEMD98	XSEME59	XSEME60	XSEME01	XSEME68	XSEME36	XSEME75	ZMC	ZMS	ZMT
FLUTE	2	3	4	4	6	4	6	-	-	-
HELIX ANGLE	30°	30°	30°	27°/30° (MULTIPLE HELIX)	45°	27°/30° (MULTIPLE HELIX)	45°	-	-	-
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	-	-	-
SIZE MIN	R5.0	R5.0	R5.0	D10.0	D10.0	D10.0	D10.0	-	-	-
SIZE MAX	R16.0	R16.0	R16.0	D32.0	D32.0	D32.0	D32.0	-	-	-
PAGE	4	5	6	7	9	11	12	13	14	15
	CENTER MATCH	CENTER MATCH	CENTER MATCH	-	-	-	-	STRAIGHT NECK TYPE	STRAIGHT NECK TYPE	TAPER NECK TYPE
	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Y-Coating	Carbide	Steel	Steel
										

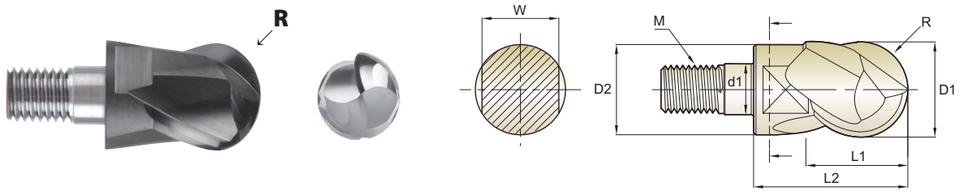
◎ : Excellent ○ : Good

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	XSEMD98	XSEME59	XSEME60	XSEME01	XSEME68	XSEME36	XSEME75	ZMC	ZMS	ZMT
P	1	Non-alloy steel	About 0.15% C Annealed	125		○	○	○	○	○	○	○			
P	2	Non-alloy steel	About 0.45% C Annealed	190	13	○	○	○	○	○	○	○			
P	3	Non-alloy steel	About 0.45% C Quenched & tempered	250	25	○	○	○	◎	○	◎	◎			
P	4	Non-alloy steel	About 0.75% C Annealed	270	28	◎	◎	◎	◎	◎	◎	◎			
P	5	Non-alloy steel	About 0.75% C Quenched & tempered	300	32	◎	◎	◎	◎	◎	◎	◎			
P	6	Low alloy steel	Annealed	180	10	○	○	○	○	○	○	○			
P	7	Low alloy steel	Quenched & tempered	275	29	◎	◎	◎	◎	◎	◎	◎			
P	8	Low alloy steel	Quenched & tempered	300	32	◎	◎	◎	◎	◎	◎	◎			
P	9	Low alloy steel	Quenched & tempered	350	38	◎	◎	◎	◎	◎	◎	◎			
P	10	High alloyed steel, and tool steel	Annealed	200	15	○	○	○	○	○	○	○			
P	11	High alloyed steel, and tool steel	Quenched & Tempered	325	35	◎	◎	◎	◎	◎	◎	◎			
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15										
M	13	Stainless steel	Martensitic Quenched & Tempered	240	23										
M	14	Stainless steel	Austenitic	180	10						○				
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○	○	○	○	○	○			
K	16	Grey cast iron	Pearlitic (Martensitic)	260	26	○	○	○	○	○	○	○			
K	17	Nodular cast iron	Ferritic	160	3	○	○	○	○	○	○	○			
K	18	Nodular cast iron	Pearlitic	250	25	○	○	○	○	○	○	○			
K	19	Malleable cast iron	Ferritic	130		○	○	○	○	○	○	○			
K	20	Malleable cast iron	Pearlitic	230	21	○	○	○	○	○	○	○			
N	21	Aluminum-wrought alloy	Not Curable	60											
N	22	Aluminum-wrought alloy	Curable Hardened	100											
N	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75											
N	24	Aluminum-cast, alloyed	≤ 12% Si, Curable Hardened	90											
N	25	Aluminum-cast, alloyed	> 12% Si, Not Curable	130											
N	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110											
N	27	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90											
N	28	Copper and Copper Alloys (Bronze / Brass)	CuSn, lead-free copper and electrolytic copper	100											
N	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic												
N	30	Non Metallic Materials	Rubber, Wood, etc.												
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15										
S	32	Heat Resistant Super Alloys	Fe Based Cured	280	30										
S	33	Heat Resistant Super Alloys	Ni or Co Based Annealed	250	25										
S	34	Heat Resistant Super Alloys	Ni or Co Based Cured	350	38										
S	35	Heat Resistant Super Alloys	Ni or Co Based Cast	320	34										
S	36	Titanium Alloys	Pure Titanium	400 Rm											
S	37	Titanium Alloys	Alpha + Beta Alloys Hardened	1050 Rm											
H	38	Hardened steel	Hardened	550	55	○	○	○	○	○	○	○			
H	39	Hardened steel	Hardened	630	60	○	○	○	○	○	○	○			
H	40	Chilled Cast Iron	Cast	400	42	◎	◎	◎	◎	◎	◎	◎			
H	41	Hardened Cast Iron	Hardened	550	55	○	○	○	○	○	○	○			

CARBIDE MODULAR HEAD

2 FLUTE BALL NOSE (Center Match)

XSEMD98 SERIES



CARBIDE 2 30° P.17

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D1	D2	L1	L2	W	d1	M
XSEMD98100	R5.0	**10.0**	9.2	10	17.5	8	6.5	M6
XSEMD98120	R6.0	**12.0**	11.2	12	20.5	10	6.5	M6
XSEMD98160	R8.0	**16.0**	15	16	25.5	13	8.5	M8
XSEMD98200	R10.0	**20.0**	19	20	30	17	10.5	M10
XSEMD98250	R12.5	**25.0**	24	25	37	22	12.5	M12
XSEMD98300	R15.0	**30.0**	29	30	43	27	17.0	M16
XSEMD98320	R16.0	**32.0**	31	32	45	27	17.0	M16

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)
±0.01	0 ~ - 0.02

◎ : Excellent ○ : Good

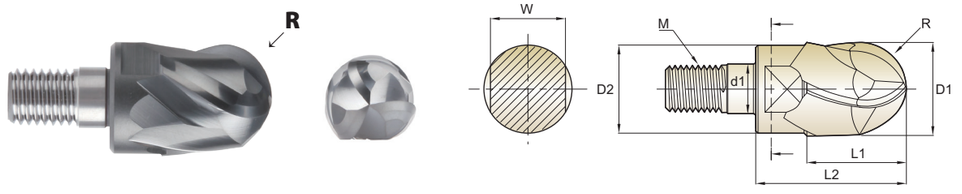
ISO	P											M					K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○	○	◎	○

CARBIDE MODULAR HEAD

3 FLUTE BALL NOSE (Center Match)

XSEME59 SERIES



CARBIDE 3 30° P.17

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D1	D2	L1	L2	W	d1	M
XSEME59100	R5.0	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME59120	R6.0	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME59160	R8.0	**16.0**	15	16	25.5	13	8.5	M8
XSEME59200	R10.0	**20.0**	19	20	30	17	10.5	M10
XSEME59250	R12.5	**25.0**	24	25	37	22	12.5	M12
XSEME59300	R15.0	**30.0**	29	30	43	27	17.0	M16
XSEME59320	R16.0	**32.0**	31	32	45	27	17.0	M16

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)
±0.01	0 ~ - 0.02

◎ : Excellent ○ : Good

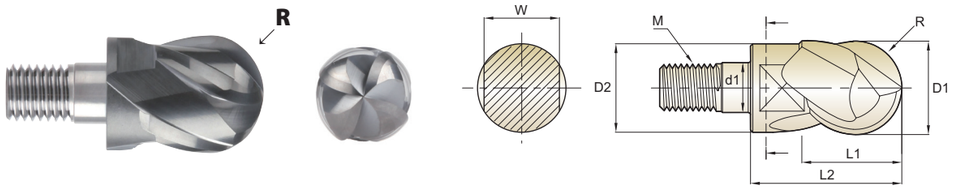
ISO	P											M					K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○	○	◎	○

CARBIDE MODULAR HEAD

4 FLUTE BALL NOSE (Center Match)

XSEME60 SERIES



CARBIDE 4 30° P.18

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D1	D2	L1	L2	W	d1	M
XSEME60100	R5.0	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME60120	R6.0	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME60160	R8.0	**16.0**	15	16	25.5	13	8.5	M8
XSEME60200	R10.0	**20.0**	19	20	30	17	10.5	M10
XSEME60250	R12.5	**25.0**	24	25	37	22	12.5	M12
XSEME60300	R15.0	**30.0**	29	30	43	27	17.0	M16
XSEME60320	R16.0	**32.0**	31	32	45	27	17.0	M16

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)
±0.01	0 ~ - 0.02

◎ : Excellent ○ : Good

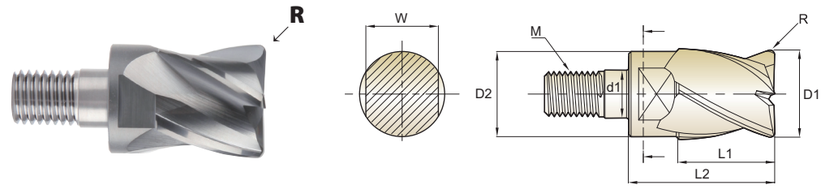
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○	○	◎	○

CARBIDE MODULAR HEAD

4 FLUTE MULTIPLE HELIX CORNER RADIUS

XSEME01 SERIES



CARBIDE 4 27°/30° P.19

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D1	D2	L1	L2	W	d1	M
XSEME01100 010	R0.1	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 020	R0.2	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 030	R0.3	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 050	R0.5	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 100	R1.0	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 150	R1.5	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 200	R2.0	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 250	R2.5	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 300	R3.0	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01100 400	R4.0	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME01120 010	R0.1	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 020	R0.2	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 030	R0.3	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 050	R0.5	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 100	R1.0	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 150	R1.5	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 200	R2.0	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 250	R2.5	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 300	R3.0	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 400	R4.0	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME01120 500	R5.0	**12.0**	11.2	12	20.5	10	6.5	M6

▶ NEXT PAGE

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)
±0.02	0 ~ - 0.03

◎ : Excellent ○ : Good

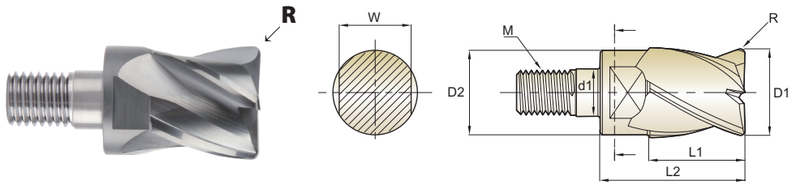
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○	○	◎	○

CARBIDE MODULAR HEAD

4 FLUTE MULTIPLE HELIX CORNER RADIUS

XSEME01 SERIES



CARBIDE | 4 | 27°/30° | P.19

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D1	D2	L1	L2	W	d1	M
XSEME01160 050	R0.5	**16.0**	15	16	25.5	13	8.5	M8
XSEME01160 100	R1.0	**16.0**	15	16	25.5	13	8.5	M8
XSEME01160 150	R1.5	**16.0**	15	16	25.5	13	8.5	M8
XSEME01160 200	R2.0	**16.0**	15	16	25.5	13	8.5	M8
XSEME01200 050	R0.5	**20.0**	19	20	30	17	10.5	M10
XSEME01200 100	R1.0	**20.0**	19	20	30	17	10.5	M10
XSEME01200 150	R1.5	**20.0**	19	20	30	17	10.5	M10
XSEME01200 200	R2.0	**20.0**	19	20	30	17	10.5	M10
XSEME01250 050	R0.5	**25.0**	24	25	37	22	12.5	M12
XSEME01250 100	R1.0	**25.0**	24	25	37	22	12.5	M12
XSEME01250 150	R1.5	**25.0**	24	25	37	22	12.5	M12
XSEME01250 200	R2.0	**25.0**	24	25	37	22	12.5	M12
XSEME01300 050	R0.5	**30.0**	29	30	43	27	17.0	M16
XSEME01300 100	R1.0	**30.0**	29	30	43	27	17.0	M16
XSEME01300 150	R1.5	**30.0**	29	30	43	27	17.0	M16
XSEME01300 200	R2.0	**30.0**	29	30	43	27	17.0	M16
XSEME01320 050	R0.5	**32.0**	31	32	45	27	17.0	M16
XSEME01320 100	R1.0	**32.0**	31	32	45	27	17.0	M16
XSEME01320 150	R1.5	**32.0**	31	32	45	27	17.0	M16
XSEME01320 200	R2.0	**32.0**	31	32	45	27	17.0	M16

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)
±0.02	0 ~ - 0.03

◎ : Excellent ○ : Good

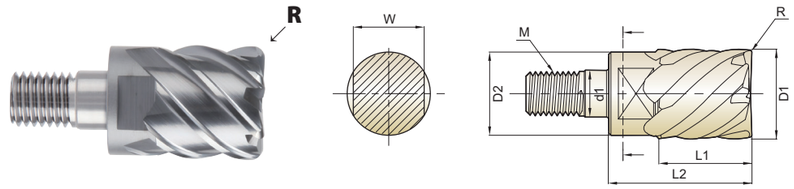
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○	○	◎	○

CARBIDE MODULAR HEAD

6 FLUTE 45° HELIX CORNER RADIUS

XSEME68 SERIES



CARBIDE | 6 | 45° | P.19

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D1	D2	L1	L2	W	d1	M
XSEME68100 030	R0.3	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME68100 050	R0.5	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME68100 100	R1.0	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME68120 030	R0.3	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME68120 050	R0.5	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME68120 100	R1.0	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME68160 050	R0.5	**16.0**	15	16	25.5	13	8.5	M8
XSEME68160 100	R1.0	**16.0**	15	16	25.5	13	8.5	M8
XSEME68160 150	R1.5	**16.0**	15	16	25.5	13	8.5	M8
XSEME68160 200	R2.0	**16.0**	15	16	25.5	13	8.5	M8
XSEME68200 050	R0.5	**20.0**	19	20	30	17	10.5	M10
XSEME68200 100	R1.0	**20.0**	19	20	30	17	10.5	M10
XSEME68200 150	R1.5	**20.0**	19	20	30	17	10.5	M10
XSEME68200 200	R2.0	**20.0**	19	20	30	17	10.5	M10
XSEME68250 050	R0.5	**25.0**	24	25	37	22	12.5	M12
XSEME68250 100	R1.0	**25.0**	24	25	37	22	12.5	M12
XSEME68250 150	R1.5	**25.0**	24	25	37	22	12.5	M12
XSEME68250 200	R2.0	**25.0**	24	25	37	22	12.5	M12
XSEME68300 050	R0.5	**30.0**	29	30	43	27	17.0	M16
XSEME68300 100	R1.0	**30.0**	29	30	43	27	17.0	M16

▶ NEXT PAGE

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)
±0.015	0 ~ - 0.03

◎ : Excellent ○ : Good

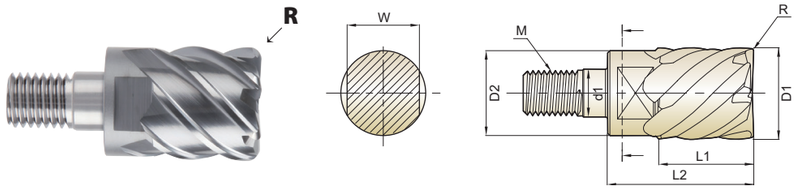
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○	○	◎	○

CARBIDE MODULAR HEAD

6 FLUTE 45˚ HELIX CORNER RADIUS

XSEME68 SERIES



CARBIDE 6 45° P.19

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D1	D2	L1	L2	W	d1	M
XSEME68300 150	R1.5	**30.0**	29	30	43	27	17.0	M16
XSEME68300 200	R2.0	**30.0**	29	30	43	27	17.0	M16
XSEME68320 050	R0.5	**32.0**	31	32	45	27	17.0	M16
XSEME68320 100	R1.0	**32.0**	31	32	45	27	17.0	M16
XSEME68320 150	R1.5	**32.0**	31	32	45	27	17.0	M16
XSEME68320 200	R2.0	**32.0**	31	32	45	27	17.0	M16

Radius Tolerance (mm)	Mill Dia. Tolerance (mm)
±0.015	0 ~ - 0.03

◎ : Excellent ○ : Good

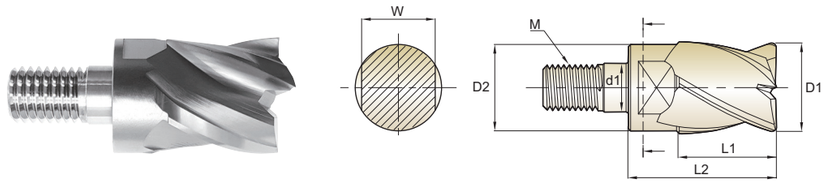
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○	○	◎	○

CARBIDE MODULAR HEAD

4 FLUTE MULTIPLE HELIX

XSEME36 SERIES



CARBIDE 4 27°/30° P.20

Unit : mm

EDP No.	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	D1	D2	L1	L2	W	d1	M
XSEME36100	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME36120	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME36160	**16.0**	15	16	25.5	13	8.5	M8
XSEME36200	**20.0**	19	20	30	17	10.5	M10
XSEME36250	**25.0**	24	25	37	22	12.5	M12
XSEME36300	**30.0**	29	30	43	27	17.0	M16
XSEME36320	**32.0**	31	32	45	27	17.0	M16

Mill Dia. Tolerance (mm)
0 ~ - 0.03

◎ : Excellent ○ : Good

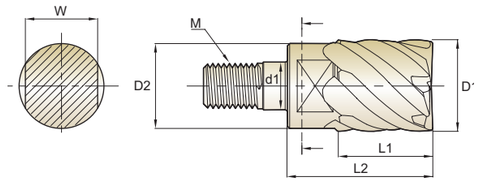
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	◎	◎	◎	○	◎	◎	◎	○	◎			○	○	○	○	○	○	○

ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○	○	◎	○

CARBIDE MODULAR HEAD

6 FLUTE 45˚ HELIX

XSEME75 SERIES



CARBIDE | 6 | 45° P.21

Unit : mm

EDP No.	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	D_1	D_2	L_1	L_2	W	d_1	M
XSEME75100	**10.0**	9.2	10	17.5	8	6.5	M6
XSEME75120	**12.0**	11.2	12	20.5	10	6.5	M6
XSEME75160	**16.0**	15	16	25.5	13	8.5	M8
XSEME75200	**20.0**	19	20	30	17	10.5	M10
XSEME75250	**25.0**	24	25	37	22	12.5	M12
XSEME75300	**30.0**	29	30	43	27	17.0	M16
XSEME75320	**32.0**	31	32	45	27	17.0	M16

Mill Dia. Tolerance (mm)
0 ~ - 0.03

◎ : Excellent ○ : Good

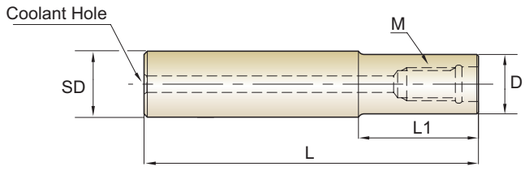
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	◎	◎	◎	○	◎	◎	◎	○	◎				○	○	○	○	○	○

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended																		○	○	◎	○

CARBIDE HOLDER

STRAIGHT NECK TYPE

ZMC SERIES



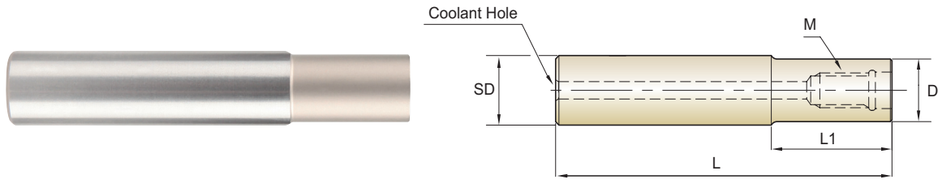
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Overall Length	Neck Length	Neck Diameter	Thread	Wrench No.	Coolant Hole
		SD	L	L_1	D	M		
ZMC1001100	**10.0**	10.0	70	20	9.5	M6	SPIS0810	2
ZMC1002100	**10.0**	10.0	100	40	9.5	M6	SPIS0810	2
ZMC1003100	**10.0**	10.0	130	70	9.5	M6	SPIS0810	2
ZMC1201120	**12.0**	12.0	80	20	11.5	M6	SPIS0810	2
ZMC1202120	**12.0**	12.0	100	40	11.5	M6	SPIS0810	2
ZMC1203120	**12.0**	12.0	130	70	11.5	M6	SPIS0810	2
ZMC1601160	**16.0**	16.0	100	40	15.5	M8	SPIS1300	3
ZMC1602160	**16.0**	16.0	150	80	15.5	M8	SPIS1300	3
ZMC1603160	**16.0**	16.0	200	120	15.5	M8	SPIS1300	3
ZMC2001200	**20.0**	20.0	100	40	19.5	M10	SPIS1700	4
ZMC2002200	**20.0**	20.0	150	80	19.5	M10	SPIS1700	4
ZMC2003200	**20.0**	20.0	200	120	19.5	M10	SPIS1700	4
ZMC2004200	**20.0**	20.0	250	160	19.5	M10	SPIS1700	4
ZMC2501250	**25.0**	25.0	150	70	24.3	M12	SPIS2200	5
ZMC2502250	**25.0**	25.0	200	100	24.3	M12	SPIS2200	5
ZMC2503250	**25.0**	25.0	250	150	24.3	M12	SPIS2200	5
ZMC2504250	**25.0**	25.0	300	200	24.3	M12	SPIS2200	5
ZMC3001320	**30.0/32.0**	32.0	150	70	29.0	M16	SPIS2700	6
ZMC3002320	**30.0/32.0**	32.0	200	120	29.0	M16	SPIS2700	6
ZMC3003320	**30.0/32.0**	32.0	250	150	29.0	M16	SPIS2700	6
ZMC3004320	**30.0/32.0**	32.0	300	200	29.0	M16	SPIS2700	6
ZMC3005320	**30.0/32.0**	32.0	350	250	29.0	M16	SPIS2700	6

▶ The wrench (1pc) for the relevant item is included. More items are available for sale upon request.
▶ Please refer to the wrench table on the next page.

STEEL HOLDER
STRAIGHT NECK TYPE

ZMS SERIES



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Overall Length	Neck Length	Neck Diameter	Thread	Wrench No.	Coolant Hole
		SD	L	L1	D	M		
ZMS1001100	**10.0**	10.0	70.0	20.0	9.0	M6	SPIS0810	3
ZMS1201120	**12.0**	12.0	90.0	30.0	11.0	M6	SPIS0810	3
ZMS1601160	**16.0**	16.0	100.0	30.0	15.0	M8	SPIS1300	4
ZMS2001200	**20.0**	20.0	100.0	30.0	19.0	M10	SPIS1700	5
ZMS2501250	**25.0**	25.0	115.0	40.0	24.0	M12	SPIS2200	5
ZMS3001320	**30.0/32.0**	32.0	125.0	40.0	29.0	M16	SPIS2700	6

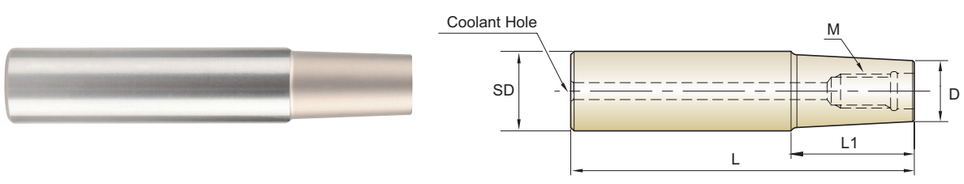
▶ The wrench (1pc) for the relevant item is included. More items are available for sale upon request.

WRENCH

Model	Wrench No.	Wrench Width	Mill Diameter	Clamping Torque [N·m]
	SPIS0810	8	10.0	6.5
		10	12.0	6.5
	SPIS1300	13	16.0	10
	SPIS1700	17	20.0	12
	SPIS2200	22	25.0	15
	SPIS2700	27	30.0 32.0	20

STEEL HOLDER
TAPER NECK TYPE

ZMT SERIES

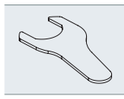


Unit : mm

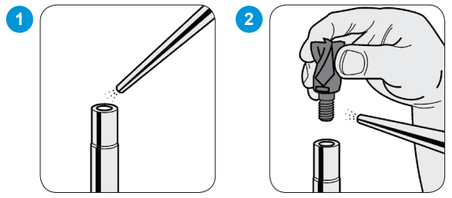
EDP No.	Mill Diameter	Shank Diameter	Overall Length	Neck Length	Neck Diameter	Thread	Wrench No.	Coolant Hole
		SD	L	L1	D	M		
ZMT1001120	**10.0**	12.0	100.0	50.0	9.0	M6	SPIS0810	3
ZMT1201160	**12.0**	16.0	130.0	70.0	11.0	M6	SPIS0810	3
ZMT1601200	**16.0**	20.0	150.0	90.0	15.0	M8	SPIS1300	4
ZMT2001250	**20.0**	25.0	170.0	100.0	19.0	M10	SPIS1700	5
ZMT2501320	**25.0**	32.0	200.0	110.0	24.0	M12	SPIS2200	5
ZMT3001320	**30.0/32.0**	32.0	200.0	110.0	29.0	M16	SPIS2700	6

▶ The wrench (1pc) for the relevant item is included. More items are available for sale upon request.

WRENCH

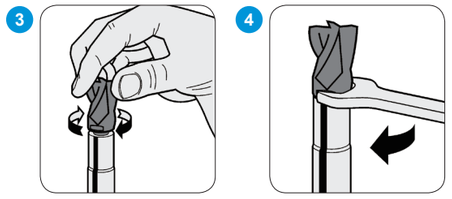
Model	Wrench No.	Wrench Width	Mill Diameter	Clamping Torque [N·m]
	SPIS0810	8	10.0	6.5
		10	12.0	6.5
	SPIS1300	13	16.0	10
	SPIS1700	17	20.0	12
	SPIS2200	22	25.0	15
	SPIS2700	27	30.0 32.0	20

INSTRUCTION MANUAL



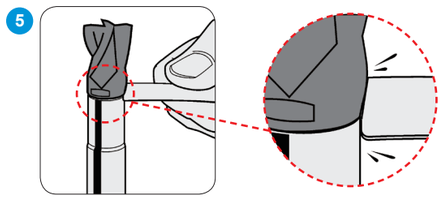
Step 1, 2 : Clean

Please be sure to remove dirt and debris on all adjoining surfaces before assembling. (air preferred)



Step 3, 4 : Assembly

Mount the modular head onto the shank by hand until it fits then use the supplied wrench to tighten.



Step 5, 6 : Final Check

Re-check and make sure there is no gap.

Notice

Please tighten the screw with designated torque, too much torque will damage the screw.

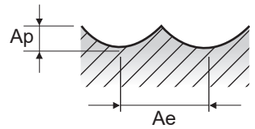
Mill Diameter	Clamping Torque
D	[N·m]
10	6.5
12	6.5
16	10.0
20	12.0
25	15.0
30	20.0
32	20.0

XSEMD98 SERIES

2 FLUTE BALL NOSE

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.

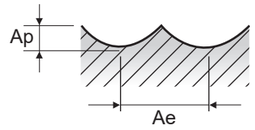
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 10	12	16	20	25	30	32
P	1-8	Non-alloy steel Low alloy steel	0.08D	0.03D	Vc	175	170	168	168	167	167	167
					fz	0.199	0.212	0.238	0.264	0.270	0.299	0.300
					RPM	5580	4510	3340	2670	2130	1770	1660
					FEED	2220	1910	1590	1410	1150	1060	995
	9		0.08D	0.03D	Vc	168	165	162	162	162	162	162
					fz	0.174	0.188	0.206	0.227	0.231	0.250	0.250
					RPM	5340	4380	3220	2580	2060	1720	1610
					FEED	1860	1645	1320	1170	950	860	805
	10-11.1	High alloyed steel, and tool steel	0.08D	0.03D	Vc	175	170	168	168	167	167	167
					fz	0.199	0.212	0.238	0.264	0.270	0.299	0.300
					RPM	5580	4510	3340	2670	2130	1770	1660
					FEED	2220	1910	1590	1410	1150	1060	995
	11.2		0.08D	0.03D	Vc	168	165	162	162	162	162	162
					fz	0.174	0.188	0.206	0.227	0.231	0.250	0.250
					RPM	5340	4380	3220	2580	2060	1720	1610
					FEED	1860	1645	1320	1170	950	860	805
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.08D	0.03D	Vc	175	170	168	168	167	167	167
					fz	0.199	0.212	0.238	0.264	0.270	0.299	0.300
					RPM	5580	4510	3340	2670	2130	1770	1660
					FEED	2220	1910	1590	1410	1150	1060	995
H	38.1 - 38.2	Hardened steel	0.08D	0.03D	Vc	141	138	136	136	136	136	136
					fz	0.160	0.170	0.189	0.208	0.211	0.229	0.230
					RPM	4500	3660	2700	2160	1730	1440	1350
					FEED	1440	1245	1020	900	730	660	620
	40	Chilled Cast Iron	0.08D	0.03D	Vc	168	165	162	162	162	162	162
					fz	0.174	0.188	0.206	0.227	0.231	0.250	0.250
					RPM	5340	4380	3220	2580	2060	1720	1610
					FEED	1860	1645	1320	1170	950	860	805
	41	Hardened Cast Iron	0.08D	0.03D	Vc	141	138	136	136	136	136	136
					fz	0.160	0.170	0.189	0.208	0.211	0.229	0.230
					RPM	4500	3660	2700	2160	1730	1440	1350
					FEED	1440	1245	1020	900	730	660	620



XSEME59 SERIES

3 FLUTE BALL NOSE

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 10	12	16	20	25	30	32
P	1-8	Non-alloy steel Low alloy steel	0.05D	0.02D	Vc	307	307	307	307	307	307	307
					fz	0.201	0.225	0.234	0.238	0.248	0.259	0.268
					RPM	9770	8150	6100	4880	3910	3260	3050
					FEED	5890	5490	4280	3490	2910	2530	2450
	9		0.05D	0.02D	Vc	257	257	257	257	257	257	257
					fz	0.168	0.187	0.199	0.209	0.219	0.230	0.234
					RPM	8190	6830	5110	4090	3270	2730	2560
					FEED	4130	3830	3050	2560	2150	1880	1800
	10-11.1	High alloyed steel, and tool steel	0.05D	0.02D	Vc	307	307	307	307	307	307	307
					fz	0.201	0.225	0.234	0.238	0.248	0.259	0.268
					RPM	9770	8150	6100	4880	3910	3260	3050
					FEED	5890	5490	4280	3490	2910	2530	2450
	11.2		0.05D	0.02D	Vc	257	257	257	257	257	257	257
					fz	0.168	0.187	0.199	0.209	0.219	0.230	0.234
					RPM	8190	6830	5110	4090	3270	2730	2560
					FEED	4130	3830	3050	2560	2150	1880	1800
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	0.02D	Vc	307	307	307	307	307	307	307
					fz	0.201	0.225	0.234	0.238	0.248	0.259	0.268
					RPM	9770	8150	6100	4880	3910	3260	3050
					FEED	5890	5490	4280	3490	2910	2530	2450
H	38.1 - 38.2	Hardened steel	0.05D	0.02D	Vc	208	208	208	208	208	208	208
					fz	0.156	0.173	0.180	0.190	0.200	0.210	0.221
					RPM	6620	5520	4140	3310	2650	2210	2070
					FEED	3100	2870	2240	1890	1590	1390	1370
	40	Chilled Cast Iron	0.05D	0.02D	Vc	257	257	257	257	257	257	257
					fz	0.168	0.187	0.199	0.209	0.219	0.230	0.234
					RPM	8190	6830	5110	4090	3270	2730	2560
					FEED	4130	3830	3050	2560	2150	1880	1800
	41	Hardened Cast Iron	0.05D	0.02D	Vc	208	208	208	208	208	208	208
					fz	0.156	0.173	0.180	0.190	0.200	0.210	0.221
					RPM	6620	5520	4140	3310	2650	2210	2070
					FEED	3100	2870	2240	1890	1590	1390	1370

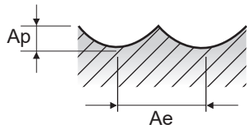


XSEME60 SERIES

4 FLUTE BALL NOSE

Vc = m/min. RPM = rev./min. fz = mm/tooth FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 10	12	16	20	25	30	32
P	1-8	Non-alloy steel Low alloy steel	0.05D	0.02D	Vc	341	341	341	341	341	341	341
					fz	0.148	0.165	0.175	0.179	0.186	0.194	0.201
					RPM	10850	9050	6780	5430	4340	3620	3390
					FEED	6430	5960	4750	3880	3230	2810	2720
	9		0.05D	0.02D	Vc	286	286	286	286	286	286	286
					fz	0.126	0.140	0.149	0.156	0.164	0.172	0.176
					RPM	9100	7500	5680	4550	3640	3030	2840
					FEED	4590	4260	3390	2840	2390	2090	2000
	10-11.1	High alloyed steel, and tool steel	0.05D	0.02D	Vc	341	341	341	341	341	341	341
					fz	0.148	0.165	0.175	0.179	0.186	0.194	0.201
					RPM	10850	9050	6780	5430	4340	3620	3390
					FEED	6430	5960	4750	3880	3230	2810	2720
	11.2		0.05D	0.02D	Vc	286	286	286	286	286	286	286
					fz	0.126	0.140	0.149	0.156	0.164	0.172	0.176
					RPM	9100	7500	5680	4550	3640	3030	2840
					FEED	4590	4260	3390	2840	2390	2090	2000
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	0.02D	Vc	341	341	341	341	341	341	341
					fz	0.148	0.165	0.175	0.179	0.186	0.194	0.201
					RPM	10850	9050	6780	5430	4340	3620	3390
					FEED	6430	5960	4750	3880	3230	2810	2720
H	38.1 - 38.2	Hardened steel	0.05D	0.02D	Vc	231	231	231	231	231	231	231
					fz	0.117	0.130	0.135	0.143	0.150	0.157	0.165
					RPM	7350	6130	4600	3680	2940	2450	2300
					FEED	3450	3190	2490	2100	1760	1540	1520
	40	Chilled Cast Iron	0.05D	0.02D	Vc	286	286	286	286	286	286	286
					fz	0.126	0.140	0.149	0.156	0.164	0.172	0.176
					RPM	9100	7500	5680	4550	3640	3030	2840
					FEED	4590	4260	3390	2840	2390	2090	2000
	41	Hardened Cast Iron	0.05D	0.02D	Vc	231	231	231	231	231	231	231
					fz	0.117	0.130	0.135	0.143	0.150	0.157	0.165
					RPM	7350	6130	4600	3680	2940	2450	2300
					FEED	3450	3190	2490	2100	1760	1540	1520

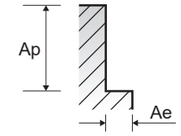


XSEME01 SERIES

4 FLUTE CORNER RADIUS - SIDE CUTTING

Vc = m/min. RPM = rev./min. fz = mm/tooth FEED = mm/min.

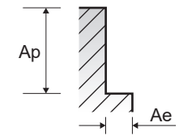
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 10	12	16	20	25	30	32
P	1-8	Non-alloy steel Low alloy steel	0.05D	0.8D	Vc	156	156	156	156	156	156	156
					fz	0.023	0.023	0.023	0.023	0.023	0.023	0.023
					RPM	4970	4140	3100	2480	1990	1650	1550
					FEED	455	380	280	230	180	150	140
	9		0.05D	0.8D	Vc	105	105	105	105	105	105	105
					fz	0.027	0.027	0.027	0.027	0.027	0.027	0.026
					RPM	3340	2780	2090	1670	1340	1110	1040
					FEED	360	300	225	180	145	120	110
	10-11.1	High alloyed steel, and tool steel	0.05D	0.8D	Vc	156	156	156	156	156	156	156
					fz	0.023	0.023	0.023	0.023	0.023	0.023	0.023
					RPM	4970	4140	3100	2480	1990	1650	1550
					FEED	455	380	280	230	180	150	140
	11.2		0.05D	0.8D	Vc	105	105	105	105	105	105	105
					fz	0.027	0.027	0.027	0.027	0.027	0.027	0.026
					RPM	3340	2780	2090	1670	1340	1110	1040
					FEED	360	300	225	180	145	120	110
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.02D	0.8D	Vc	156	156	156	156	156	156	156
					fz	0.023	0.023	0.023	0.023	0.023	0.023	0.023
					RPM	4960	4140	3100	2480	1990	1650	1550
					FEED	460	380	280	230	180	150	140
H	38.1 - 38.2	Hardened steel	0.02D	0.8D	Vc	63	63	63	63	63	63	63
					fz	0.021	0.021	0.022	0.023	0.023	0.024	0.024
					RPM	2020	1680	1250	1000	800	670	630
					FEED	170	140	110	90	75	65	60
	40	Chilled Cast Iron	0.05D	0.8D	Vc	105	105	105	105	105	105	105
					fz	0.027	0.027	0.027	0.027	0.027	0.027	0.026
					RPM	3340	2780	2090	1670	1340	1110	1040
					FEED	360	300	225	180	145	120	110
	41	Hardened Cast Iron	0.02D	0.8D	Vc	63	63	63	63	63	63	63
					fz	0.021	0.021	0.022	0.023	0.023	0.024	0.024
					RPM	2020	1680	1250	1000	800	670	630
					FEED	170	140	110	90	75	65	60



XSEME68 SERIES

6 FLUTE CORNER RADIUS - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 10	12	16	20	25	30	32
P	1-8	Non-alloy steel Low alloy steel	0.05D	1.0D	Vc	302	302	302	302	302	302	302
					fz	0.051	0.058	0.067	0.070	0.070	0.075	0.075
					RPM	9600	8010	6000	4800	3850	3200	3000
					FEED	2940	2790	2400	2010	1615	1440	1350
	9		0.05D	1.0D	Vc	294	294	294	294	294	294	294
					fz	0.025	0.025	0.025	0.025	0.027	0.029	0.030
					RPM	9360	7800	5850	4680	3740	3120	2920
					FEED	1400	1170	880	690	600	540	525
	10-11.1	High alloyed steel, and tool steel	0.05D	1.0D	Vc	302	302	302	302	302	302	302
					fz	0.051	0.058	0.067	0.070	0.070	0.075	0.075
					RPM	9600	8010	6000	4800	3850	3200	3000
					FEED	2940	2700	2400	2010	1615	1440	1350
	11.2		0.05D	1.0D	Vc	294	294	294	294	294	294	294
					fz	0.025	0.025	0.025	0.025	0.027	0.029	0.030
					RPM	9360	7800	5850	4680	3740	3120	2920
					FEED	1400	1170	880	690	600	540	525
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	1.0D	Vc	302	302	302	302	302	302	302
					fz	0.051	0.058	0.067	0.070	0.070	0.075	0.075
					RPM	9600	8010	6000	4800	3850	3200	3000
					FEED	2940	2790	2400	2010	1615	1440	1350
H	38.1 - 38.2	Hardened steel	0.02D	1.0D	Vc	181	181	181	181	181	181	181
					fz	0.006	0.006	0.006	0.006	0.007	0.007	0.007
					RPM	5760	4800	3600	2880	2305	1920	1800
					FEED	210	180	130	110	90	85	80
	40	Chilled Cast Iron	0.05D	1.0D	Vc	294	294	294	294	294	294	294
					fz	0.025	0.025	0.025	0.025	0.027	0.029	0.030
					RPM	9360	7800	5850	4680	3740	3120	2920
					FEED	1400	1170	880	690	600	540	525
	41	Hardened Cast Iron	0.02D	1.0D	Vc	181	181	181	181	181	181	181
					fz	0.006	0.006	0.006	0.006	0.007	0.007	0.007
					RPM	5760	4800	3600	2880	2305	1920	1800
					FEED	210	180	130	110	90	85	80

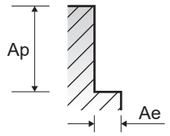


XSEME36 SERIES

4 FLUTE - SIDE CUTTING

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 10	12	16	20	25	30	32
P	1-8	Non-alloy steel Low alloy steel	0.05D	0.6D	Vc	128	129	130	132	134	134	134
					fz	0.040	0.040	0.040	0.040	0.040	0.040	0.040
					RPM	4080	3430	2590	2100	1700	1420	1330
					FEED	650	545	415	335	270	230	215
	9		0.05D	0.6D	Vc	79	79	80	82	82	82	82
					fz	0.030	0.030	0.030	0.030	0.031	0.032	0.032
					RPM	2500	2100	1590	1300	1050	870	820
					FEED	300	250	190	155	130	110	105
	10-11.1	High alloyed steel, and tool steel	0.05D	0.6D	Vc	128	129	130	132	134	134	134
					fz	0.040	0.040	0.040	0.040	0.040	0.040	0.040
					RPM	4080	3430	2590	2100	1700	1420	1330
					FEED	650	545	415	335	270	230	215
	11.2		0.05D	0.6D	Vc	79	79	80	82	82	82	82
					fz	0.030	0.030	0.030	0.030	0.031	0.032	0.032
					RPM	2500	2100	1590	1300	1050	870	820
					FEED	300	250	190	155	130	110	105
M	12-13	Stainless steel	0.05D	0.6D	Vc	66	66	66	66	67	67	67
					fz	0.035	0.035	0.035	0.035	0.035	0.035	0.035
					RPM	2100	1750	1310	1050	850	710	670
					FEED	300	245	180	150	120	100	95
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.05D	0.6D	Vc	128	129	130	132	134	134	134
					fz	0.039	0.040	0.040	0.040	0.040	0.040	0.040
					RPM	4080	3430	2590	2100	1700	1420	1330
					FEED	640	545	415	335	270	230	215
H	38.1 - 38.2	Hardened steel	0.05D	0.6D	Vc	53	53	53	53	53	53	53
					fz	0.013	0.013	0.013	0.012	0.011	0.011	0.011
					RPM	1700	1400	1050	850	680	560	530
					FEED	90	70	55	40	30	25	25
	40	Chilled Cast Iron	0.05D	0.6D	Vc	79	79	80	82	82	82	82
					fz	0.030	0.030	0.030	0.030	0.031	0.032	0.032
					RPM	2500	2100	1590	1300	1050	870	820
					FEED	300	250	190	155	130	110	105
	41	Hardened Cast Iron	0.05D	0.6D	Vc	53	53	53	53	53	53	53
					fz	0.013	0.013	0.013	0.012	0.011	0.011	0.011
					RPM	1700	1400	1050	850	680	560	530
					FEED	90	70	55	40	30	25	25



XSEME75 SERIES

6 FLUTE - SIDE CUTTING

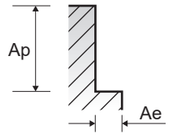
NORMAL SPEED

Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 10	12	16	20	25	30	32
P	1-8	Non-alloy steel Low alloy steel	0.1D	0.8D	Vc	111	111	111	111	111	111	111
					fz	0.099	0.099	0.100	0.100	0.100	0.100	0.100
					RPM	3530	2945	2205	1765	1410	1180	1100
					FEED	2100	1750	1325	1060	845	710	660
	9		0.05D	0.8D	Vc	77	77	77	77	77	77	77
					fz	0.094	0.094	0.094	0.094	0.094	0.094	0.094
					RPM	2450	2040	1530	1220	980	815	765
					FEED	1380	1150	860	690	555	460	430
	10-11.1	High alloyed steel, and tool steel	0.1D	0.8D	Vc	111	111	111	111	111	111	111
					fz	0.099	0.099	0.100	0.100	0.100	0.100	0.100
					RPM	3530	2945	2205	1765	1410	1180	1100
					FEED	2100	1750	1325	1060	845	710	660
	11.2		0.05D	0.8D	Vc	77	77	77	77	77	77	77
					fz	0.094	0.094	0.094	0.094	0.094	0.094	0.094
					RPM	2450	2040	1530	1220	980	815	765
					FEED	1380	1150	860	690	555	460	430
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	0.8D	Vc	111	111	111	111	111	111	111
					fz	0.099	0.099	0.100	0.100	0.100	0.100	0.100
					RPM	3530	2940	2205	1765	1410	1180	1100
					FEED	2100	1765	1325	1060	845	710	660
H	38.1 - 38.2	Hardened steel	0.05D	0.6D	Vc	33	33	33	33	33	33	33
					fz	0.033	0.034	0.034	0.035	0.035	0.036	0.036
					RPM	1050	880	655	525	420	350	330
					FEED	210	180	130	110	85	75	70
	40	Chilled Cast Iron	0.05D	0.8D	Vc	77	77	77	77	77	77	77
					fz	0.094	0.094	0.094	0.094	0.094	0.094	0.094
					RPM	2450	2040	1530	1220	980	815	765
					FEED	1380	1150	860	690	555	460	430
	41	Hardened Cast Iron	0.05D	0.6D	Vc	33	33	33	33	33	33	33
					fz	0.033	0.034	0.034	0.035	0.035	0.036	0.036
					RPM	1050	880	655	525	420	350	330
					FEED	210	180	130	110	85	75	70

HIGH SPEED

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 10	12	16	20	25	30	32
P	11.2	High alloyed steel, and tool steel	0.05D	0.6D	Vc	332	332	332	332	332	332	332
					fz	0.095	0.095	0.095	0.095	0.095	0.095	0.095
					RPM	10570	8810	6600	5290	4230	3520	3300
					FEED	6020	5020	3765	3050	2400	2000	1890
H	38.1 - 38.2	Hardened steel	0.05D	0.4D	Vc	166	166	166	166	166	166	166
					fz	0.096	0.095	0.095	0.095	0.095	0.095	0.095
					RPM	5290	4410	3300	2645	2114	1761	1651
					FEED	3050	2520	1880	1470	1200	1000	940
	40	Chilled Cast Iron	0.05D	0.6D	Vc	332	332	332	332	332	332	332
					fz	0.095	0.095	0.095	0.095	0.095	0.095	0.095
					RPM	10570	8810	6600	5290	4230	3520	3300
					FEED	6020	5020	3765	3050	2400	2000	1890
	41	Hardened Cast Iron	0.05D	0.4D	Vc	166	166	166	166	166	166	166
					fz	0.096	0.095	0.095	0.095	0.095	0.095	0.095
					RPM	5290	4410	3300	2645	2114	1761	1651
					FEED	3050	2520	1880	1470	1200	1000	940



MEMO

HIGH QUALITY PRODUCTS and ON TIME DELIVERY for WORLD-WIDE CUSTOMERS

Since 1982, YG-1 has been committed to quality, innovation and the unique customer experience.
Our performance and experience have granted YG-1 the global impression of one of the leading manufacturers of high quality cutting tool solutions. This global footprint expands over 75 countries, with international logistic centers, pledging to our customers to give the best service available today - and tomorrow.

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HONG KONG, JAPAN, PHILIPPINES, TAIWAN
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YG-1 CO., LTD.

* For more information on sales network, please contact the head office as below;

YG-1 HEAD OFFICE
211, Sewolcheon-ro, Bupyeong-gu, Incheon, South Korea
Phone : +82-32-526-0909
E-mail : yg1@yg1.kr
www.yg1.kr