SKS-GII

SKG/MSG Type

SKS-GII

SKG/MSG Type

Features 3 Flat top insert

SKG-10 type insert : Max ap=1.5mm

SKG-14 type insert : Max ap=2.5mm

Features 4 Chip breaker insert

Optimized cutting edge for machining of difficult to cut materials like titanium alloy.

Effective for machining that requires reduced cutting loads or long overhang application.

SM breaker for
difficult to cut materials

PM breaker for
mould steel

Features 5

Insert grades for a wide range of materials
<JC8118><JC8050><JC7550><DS150>

mould steel, hardned steel
from 38HRC upto 50HRC
JC8118

mould steel, general steel
below 36HRC
JC8050

Titanium alloy, stainless steel
JC7550、DS150

ISO	P					M					K				S				H		
	P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30	S01	S10	S20	S30	H01	H10	H20
Range		JC8118										JC8118				NEW DS150				JC8118	
				JC8050																	
									JC7550								JC7550				

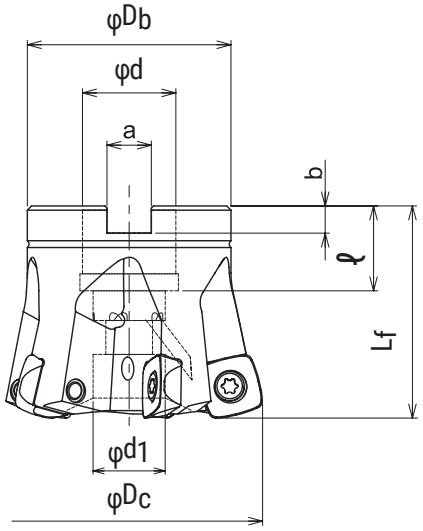
Features 6

Excellent chip evacuation

SKS-GII SKG/MSG Type

■ MSG10 Modular Head Type

G-Body Through coolant hole | Face Milling | Copy Milling | Pocket Milling | Helical Interpolation | Plunge Milling



Cat.No.	Stock	No. of inserts	Dimensions (mm)								Arbor set bolt	Weight (kg)	Inserts	Fig.
			φDc	Lf	φDb	φd	φd1	a	b	ℓ				
SKG-4050R-14-22	●	4	50	50	40	22	14	10.4	6.3	19.05	M10X1.5X35★	0.3	SPNW14...; SPMT14...	1
SKG-4052R-14-22	●		52		42		17				M10X1.5X35★	0.3		
SKG-4063R-14-22	●		63		48					20	M10	0.5		
SKG-4063R-14-27	●					27	20	12.4	7	22	M12X1.75X35★	0.5		
SKG-5066R-14-27	●	5	66		50						M12X1.75X35★	0.5		
SKG-5080R-14-27	●		80		60		37				M12X1.75X35★	0.8		
SKG-6100R-14-32	●	6	100	63	70	32	45	14.4	8	25	M16	1.6		

Screw	Torque(N.m)	Wrench
CSW-513H	5.5	A-20

SKS-GII SKG/MSG Type

■ SKG14 Type Insert

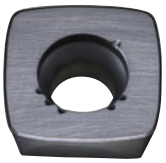
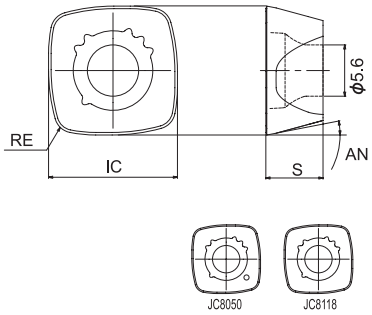
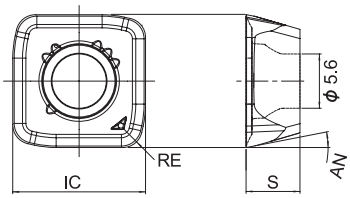


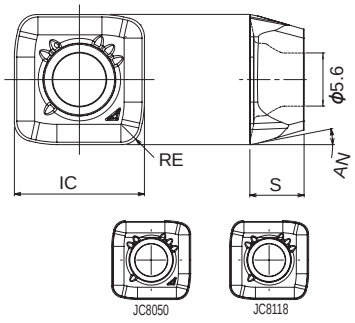
Fig. 1

Fig. 2

Fig. 3





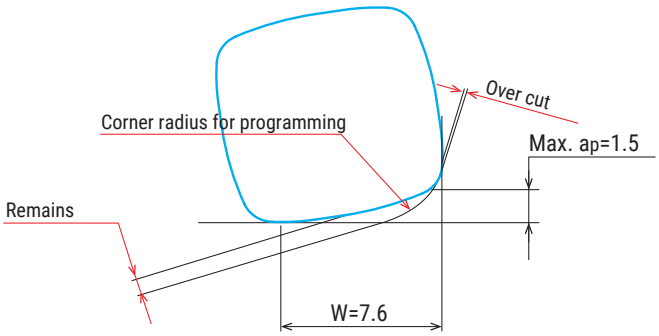


Cat.No.	Tolerance	PVD Coating				Dimensions (mm)				Fig.
		DS150	JC7550	JC8050	JC8118	RE	IC	S	AN	
SPNW140515ZTR	N			●	●	1.5	13.7	5.56	11°	1
SPMT140520ZPER-SM	M	●	●			2				2
SPMT140520ZPTR-PM				●	●					3

SKS-GII SKG/MSG Type

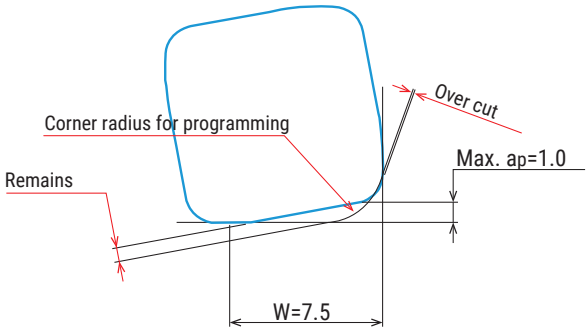
■ Definition of corner shape for programming

● SPNW100415ZTR



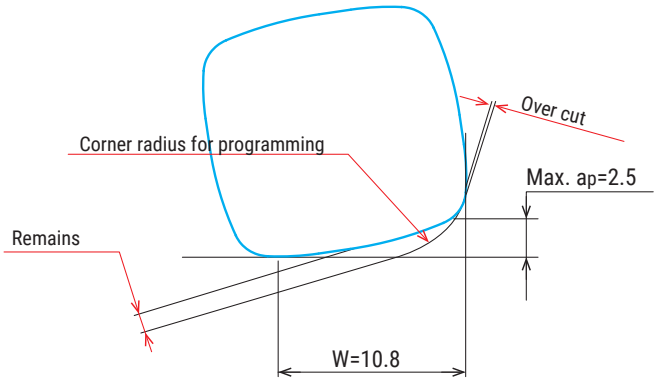
Corner radius for programming	Over cut	Remains
R2.5	0	0.99
R3.0 (Standard)	0	0.84
R3.5	0.09	0.71
R4.0	0.23	0.59

● SPE(M)T100415ZPER-SM
SPMT100415ZPTR-PM



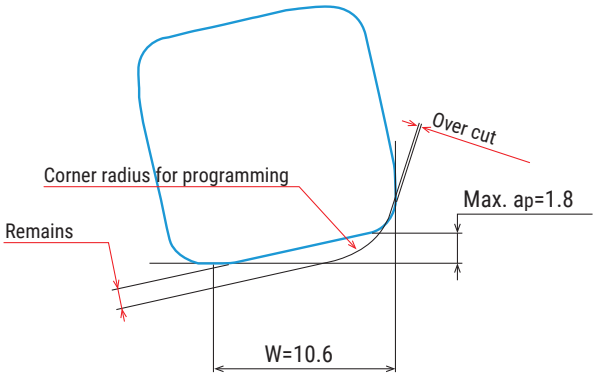
Corner radius for programming	Over cut	Remains
R2.5 (Standard)	0	0.77
R3.0	0.09	0.68
R3.5	0.25	0.60
R4.0	0.43	0.52

● SPNW140515ZTR



Corner radius for programming	Over cut	Remains
R3.5	0	1.60
R4.0 (Standard)	0	1.46
R4.5	0.06	1.32
R5.0	0.17	1.19

● SPMT140520ZPER-SM
SPMT140520ZPTR-PM

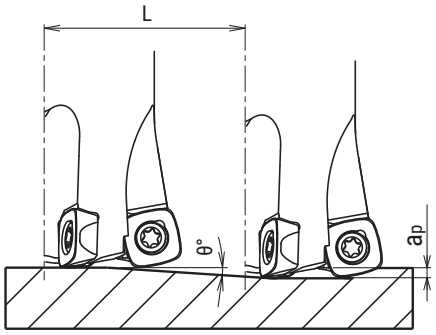


Corner radius for programming	Over cut	Remains
R3.5 (Standard)	0	1.35
R4.0	0.02	1.25
R4.5	0.14	1.12
R5.0	0.29	1.05

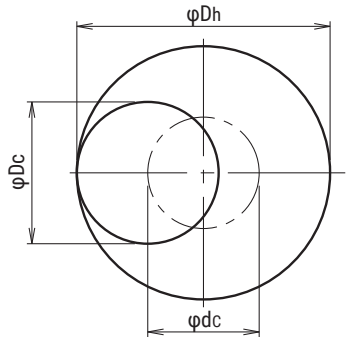
SKS-GII SKG/MSG Type

■ Recommended Data for Profile Milling

Ramping



Helical interpolation



● Calculation of tool pass dia.

$$\varphi dc = \varphi Dh - \varphi Dc$$

Tool pass dia. Bore dia. Tool Dia.

● Depth of cut per one circuit should not exceed max. depth of cut Ap

● Down cutting is recommended, tool pass rotation should be counterclockwise

● In case of ramping and helical interpolation, apply 70% or less feed (Vf) from standard cutting condition table.

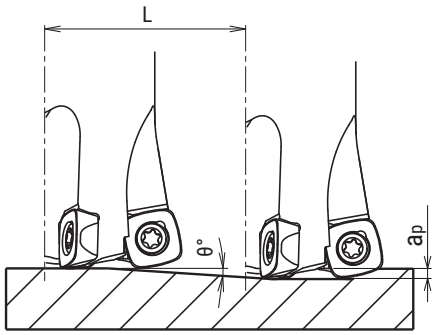
● SPNW100415ZTR / SPNW140515ZTR

Cat.No.	Tool dia. (mm)	Effective Cutting dia. (mm)	Max. depth of cut: ap (mm)	Ramping		Helical interpolation	
				Max. ramping angle θ	Total cutting length at Max. (ap): L (mm)	Min. Bore dia. Dh min. (mm)	Max. Bore dia. Dh max. (mm)
MSG-2025-10	25	9.8	1.5	1°	85.9	36	48
MSG-3032-10	32	16.8	1.5	1°	85.9	50	62
MSG-3035-10	35	19.8	1.5	1°	85.9	56	70
MSG-4040-10	40	24.8	1.5	1°	85.9	66	78
MSG-4042-10	42	26.8	1.5	1°	85.9	70	82
SKG-*050R-10	50	34.8	1.5	1°	85.9	86	98
SKG-5052R-10	52	36.8	1.5	1°	85.9	90	102
SKG-*063R-10	63	47.8	1.5	0°45'	114.6	112	124
SKG-6066R-10	66	50.8	1.5	0°45'	114.6	118	130
SKG-6080R-10	80	64.8	1.5	0°30'	171.9	146	158
SKG-4050R-14	50	28.4	2.5	1°	143.2	80	98
SKG-4052R-14	52	30.4	2.5	1°	143.2	84	102
SKG-*063R-14	63	41.4	2.5	0°45'	191	106	124
SKG-5066R-14	66	44.4	2.5	0°45'	191	112	130
SKG-5080R-14	80	58.4	2.5	0°30'	286.5	140	158
SKG-6100R-14	100	78.4	2.5	0°20'	430	180	198
SKG-6125R-14	125	103.4	2.5	0°20'	430	230	248
SKG-7160R-14	160	138.4	2.5	0°15'	573	300	318

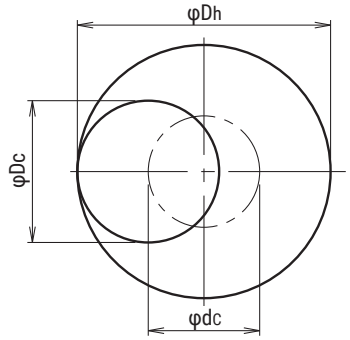
SKS-GII SKG/MSG Type

■ Recommended Data for Profile Milling

Ramping



Helical interpolation



● Calculation of tool pass dia.

$$\varphi dc = \varphi Dh - \varphi Dc$$

Tool pass dia. Bore dia. Tool Dia.

● Depth of cut per one circuit should not exceed max. depth of cut Ap

● Down cutting is recommended, tool pass rotation should be counterclockwise

● In case of ramping and helical interpolation, apply 70% or less feed (Vf) from standard cutting condition table.

● SPE (M) T100415ZPER-SM, SPMT100415ZPTR-PM

● SPMT140520ZPER-SM, SPMT140520ZPTR-PM

Cat.No.	Tool dia. (mm)	Effective Cutting dia. (mm)	Max. depth of cut: ap (mm)	Ramping		Helical interpolation	
				Max. ramping angle θ	Total cutting length at Max. (ap) : L (mm)	Min. Bore dia. Dh min. (mm)	Max. Bore dia. Dh max. (mm)
MSG-2025-10	25	10	1.0	1°	57.3	36	48
MSG-3032-10	32	17	1.0	1°	57.3	50	62
MSG-3035-10	35	20	1.0	1°	57.3	56	70
MSG-4040-10	40	25	1.0	1°	57.3	66	78
MSG-4042-10	42	27	1.0	1°	57.3	70	82
SKG-*050R-10	50	35	1.0	1°	57.3	86	98
SKG-5052R-10	52	37	1.0	1°	57.3	90	102
SKG-*063R-10	63	48	1.0	0°45'	76.4	112	124
SKG-6066R-10	66	51	1.0	0°45'	76.4	118	130
SKG-6080R-10	80	65	1.0	0°30'	114.6	146	158
SKG-4050R-14	50	28.8	1.8	1°	103.1	80	98
SKG-4052R-14	52	30.8	1.8	1°	103.1	84	102
SKG-*063R-14	63	41.8	1.8	0°45'	137.5	106	124
SKG-5066R-14	66	44.8	1.8	0°45'	137.5	112	130
SKG-5080R-14	80	58.8	1.8	0°30'	206.3	140	158
SKG-6100R-14	100	78.8	1.8	0°20'	206.3	180	198
SKG-6125R-14	125	123.8	1.8	0°20'	206.3	230	248
SKG-7160R-14	160	138.8	1.8	0°15'	412.5	300	318

SKS-GII

SKG/MSG Type

■ Recommended cutting conditions

● SKG14 Type

		50/52 4N					63 4N					66 5N				
		ℓ (mm)	ap (mm)	ae (mm)	n (min⁻¹)	Vf (mm/min)	ℓ (mm)	ap (mm)	ae (mm)	n (min⁻¹)	Vf (mm/min)	ℓ (mm)	ap (mm)	ae (mm)	n (min⁻¹)	Vf (mm/min)
Carbon steel (S50C, S55C) below 250HB	JC8050 (JC8118) SPNW SPMT-PM	~150	2★	~28	890	6,410	~150	2★	~40	710	5,110	~150	2★	~44	680	6,120
		200	1.8	~28	890	6,410	200	1.8	~40	710	5,110	200	1.8	~44	680	6,120
		250	1.5	~28	830	4,980	250	1.5	~40	660	3,960	250	1.5	~44	630	4,730
		300	0.8	~28	760	4,560	300	0.8	~40	610	3,660	300	0.8	~44	580	4,350
		350	0.6	~28	640	3,580	350	0.6	~40	510	2,860	350	0.6	~44	480	3,360
Tool & die steel (SKD61, SKD11) below 255HB	JC8050 (JC8118) SPNW SPMT-PM	~150	2★	~28	890	6,410	~150	2★	~40	710	5,110	~150	2★	~44	680	6,120
		200	1.8	~28	890	6,410	200	1.8	~40	710	5,110	200	1.8	~44	680	6,120
		250	1.5	~28	830	4,980	250	1.5	~40	660	3,960	250	1.5	~44	630	4,730
		300	0.8	~28	760	4,560	300	0.8	~40	610	3,660	300	0.8	~44	580	4,350
		350	0.6	~28	640	3,580	350	0.6	~40	510	2,860	350	0.6	~44	480	3,360
Mold steel (HPM7, PX5, P20) 30-36 HRC	JC8050 (JC8118) SPNW SPMT-PM	~150	2★	~28	890	6,410	~150	2★	~40	710	5,110	~150	2★	~44	680	6,120
		200	1.8	~28	890	6,410	200	1.8	~40	710	5,110	200	1.8	~44	680	6,120
		250	1.5	~28	830	4,980	250	1.5	~40	660	3,960	250	1.5	~44	630	4,730
		300	0.8	~28	760	4,560	300	0.8	~40	610	3,660	300	0.8	~44	580	4,350
		350	0.6	~28	640	3,580	350	0.6	~40	510	2,860	350	0.6	~44	480	3,360
Mold steel (NAK80, HPM1, P21) 38-43HRC	JC8118 (JC8050) SPNW SPMT-PM	~150	1.6	~28	640	3,840	~150	1.6	~40	510	3,060	~150	1.6	~44	480	3,600
		200	1.4	~28	640	3,840	200	1.4	~40	510	3,060	200	1.4	~44	480	3,600
		250	1.2	~28	640	3,840	250	1.2	~40	510	3,060	250	1.2	~40	480	3,600
		300	0.7	~28	510	2,860	300	0.7	~40	400	2,240	300	0.7	~40	390	2,730
		350	-	-	-	-	350	-	-	-	-	350	-	-	-	-
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	JC8118 SPNW	~150	1	~28	570	2,740	~150	1	~40	450	2,160	~150	1	~44	430	2,580
		200	1	~28	570	2,280	200	1	~40	450	1,800	200	1	~44	430	2,150
		250	0.8	~28	570	1,820	250	0.8	~40	450	1,440	250	0.8	~40	430	1,720
		300	0.5	~28	450	1,260	300	0.5	~40	350	980	300	0.5	~40	340	1,190
		350	-	-	-	-	350	-	-	-	-	350	-	-	-	-
Gery & Nodular cast iron (FC, FCD) below 300HB	JC8118 SPNW SPMT-PM	~150	2★	~28	1,150	8,280	~150	2★	~40	910	6,550	~150	2★	~44	870	7,830
		200	1.8	~28	1,150	8,280	200	1.8	~40	910	6,550	200	1.8	~44	870	7,830
		250	1.5	~28	1,150	6,900	250	1.5	~40	910	5,460	250	1.5	~44	870	6,530
		300	0.8	~28	1,020	6,120	300	0.8	~40	810	4,860	300	0.8	~44	770	5,780
		350	0.6	~28	1,020	5,710	350	0.6	~40	810	4,540	350	0.6	~44	770	5,390
Stainless steel (SUS304) below 250HB	JC7550 SPMT-SM	~150	1.3	~28	950	4,940	~150	1.3	~40	760	4,260	~150	1.3	~44	760	5,320
		200	1.3	~28	950	4,940	200	1.3	~40	760	3,950	200	1.3	~44	760	4,940
		250	1.1	~28	830	3,980	250	1.1	~40	660	3,170	250	1.1	~40	660	3,960
		300	0.9	~28	760	3,040	300	0.9	~40	610	2,440	300	0.9	~40	610	3,050
		350	0.7	~28	640	2,560	350	0.7	~40	510	2,040	350	0.7	~40	510	2,550
Titanium alloy (Ti-6Al-4V)	DS150 SPMT-SM	~150	1.3	~28	380	910	~150	1.3	~40	300	720	~150	1.3	~44	300	900
		200	1.1	~28	380	910	200	1.1	~40	300	720	200	1.1	~44	300	900
		250	0.9	~28	380	760	250	0.9	~40	300	600	250	0.9	~40	300	750
		300	0.7	~28	380	610	300	0.7	~40	300	480	300	0.7	~40	300	600
		350	-	-	-	-	350	-	-	-	-	350	-	-	-	-

Note
1. Please adjust cutting conditions according to machine rigidity or work rigidity. (the above table is guide for cutting on a #50 BT machine.)
2. In case of chatter ocurring, recommended to reduce ap or rpm and keep feed per tooth.
3. ap should be reduced when using on low rigidity machine.
4. Use air blow.

★: ap≦1.8 when using SPMT14 insert.

SKS-GII — SKG/MSG Type

■ Recommended cutting conditions

● SKG14 Type

Material	Grade	Tool dia.(mm)														
		80					100					125				
		5N					6N					6N				
		ℓ (mm)	ap (mm)	ae (mm)	n (min⁻¹)	Vf (mm/min)	ℓ (mm)	ap (mm)	ae (mm)	n (min⁻¹)	Vf (mm/min)	ℓ (mm)	ap (mm)	ae (mm)	n (min⁻¹)	Vf (mm/min)
Carbon steel (S50C, S55C) below 250HB	JC8050 (JC8118) SPNW SPMT-PM	~150	2★	~56	600	5,400	~150	2★	~70	480	5,180	~150	2★	~87	380	4,100
		200	1.8	~56	600	5,400	200	1.8	~70	480	5,180	200	1.8	~87	380	4,100
		250	1.5	~56	560	4,200	250	1.5	~70	450	4,050	250	1.5	~87	360	3,240
		300	0.8	~56	520	3,900	300	0.8	~70	410	3,690	300	0.8	~87	330	2,970
		350	0.6	~56	440	3,080	350	0.6	~70	350	2,940	350	0.6	~87	280	2,350
Tool & die steel (SKD61, SKD11) below 255HB	JC8050 (JC8118) SPNW SPMT-PM	~150	2★	~56	600	5,400	~150	2★	~70	480	5,180	~150	2★	~87	380	4,100
		200	1.8	~56	600	5,400	200	1.8	~70	480	5,180	200	1.8	~87	380	4,100
		250	1.5	~56	560	4,200	250	1.5	~70	450	4,050	250	1.5	~87	360	3,240
		300	0.8	~56	520	3,900	300	0.8	~70	410	3,690	300	0.8	~87	330	2,970
		350	0.6	~56	440	3,080	350	0.6	~70	350	2,940	350	0.6	~87	280	2,350
Mold steel (HPM7, PX5, P20) 30-36 HRC	JC8050 (JC8118) SPNW SPMT-PM	~150	2★	~56	600	5,400	~150	2★	~70	480	5,180	~150	2★	~87	380	4,100
		200	1.8	~56	600	5,400	200	1.8	~70	480	5,180	200	1.8	~87	380	4,100
		250	1.5	~56	560	4,200	250	1.5	~70	450	4,050	250	1.5	~87	360	3,240
		300	0.8	~56	520	3,900	300	0.8	~70	410	3,690	300	0.8	~87	330	2,970
		350	0.6	~56	440	3,080	350	0.6	~70	350	2,940	350	0.6	~87	280	2,350
Mold steel (NAK80, HPM1, P21) 38-43HRC	JC8118 (JC8050) SPNW SPMT-PM	~150	1.6	~56	400	3,000	~150	1.6	~70	320	2,880	~150	1.6	~87	250	2,250
		200	1.4	~56	400	3,000	200	1.4	~70	320	2,880	200	1.4	~87	250	2,250
		250	1.2	~56	400	3,000	250	1.2	~70	320	2,880	250	1.2	~87	250	2,250
		300	0.7	~56	320	2,240	300	0.7	~70	250	2,100	300	0.7	~87	200	1,680
		350	-	-	-	-	350	-	-	-	-	350	-	-	-	-
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	JC8118 SPNW	~150	1	~56	360	2,160	~150	1	~70	290	2,090	~150	1	~87	230	1,660
		200	1	~56	360	1,800	200	1	~70	290	1,740	200	1	~87	230	1,380
		250	0.8	~52	360	1,440	250	0.8	~60	290	1,390	250	0.8	~75	230	1,100
		300	0.5	~52	280	980	300	0.5	~60	220	920	300	0.5	~75	180	760
		350	-	-	-	-	350	-	-	-	-	350	-	-	-	-
Gery & Nodular cast iron (FC, FCD) below 300HB	JC8118 SPNW SPMT-PM	~150	2★	~56	720	6,480	~150	2★	~70	570	6,160	~150	2★	~87	460	4,970
		200	1.8	~56	720	6,480	200	1.8	~70	570	6,160	200	1.8	~87	460	4,970
		250	1.5	~56	720	5,400	250	1.5	~70	570	5,130	250	1.5	~87	460	4,140
		300	0.8	~56	640	4,800	300	0.8	~70	510	4,590	300	0.8	~87	410	3,690
		350	0.6	~56	640	4,480	350	0.6	~70	510	4,280	350	0.6	~87	410	3,440
Stainless steel (SUS304) below 250HB	JC7550 SPMT-SM	~150	1.5	~56	600	4,200	~150	1.5	~70	480	4,030	~150	1.5	~87	380	3,190
		200	1.5	~56	600	3,900	200	1.5	~70	480	3,740	200	1.5	~87	380	2,960
		250	1.3	~52	520	3,120	250	1.3	~60	410	2,950	250	1.3	~75	330	2,380
		300	1.1	~52	480	2,400	300	1.1	~60	380	2,280	300	1.1	~75	310	1,860
		350	0.9	~52	400	2,000	350	0.9	~60	320	1,920	350	0.9	~75	250	1,500
Titanium alloy (Ti-6Al-4V)	DS150 SPMT-SM	~150	1.3	~56	240	720	~150	1.3	~70	190	680	~150	1.3	~87	150	540
		200	1.1	~56	240	720	200	1.1	~70	190	680	200	1.1	~87	150	540
		250	0.9	~52	240	600	250	0.9	~60	190	570	250	0.9	~75	150	450
		300	0.7	~52	240	480	300	0.7	~60	190	460	300	0.7	~75	150	360
		350	-	-	-	-	350	-	-	-	-	350	-	-	-	-

Note
1. Please adjust cutting conditions according to machine rigidity or work rigidity. (the above table is guide for cutting on a #50 BT machine.)
2. In case of chatter ocurring, recommended to reduce ap or rpm and keep feed per tooth.
3. ap should be reduced when using on low rigidity machine.
4. Use air blow.

★: ap≦1.8 when using SPMT14 insert

SKS-GII SKG/MSG Type

■ Recommended cutting conditions

● SKG14 Type

Material	Grade	Tool dia.(mm)				
		160				
		7N				
		ℓ (mm)	ap (mm)	ae (mm)	n (min^{-1})	Vf (mm/min)
Carbon steel (S50C, S55C) below 250HB	JC8050 (JC8118) SPNW SPMT-PM	~150	2★	~112	300	3,780
		200	1.8	~112	300	3,780
		250	1.5	~112	280	2,940
		300	0.8	~112	260	2,730
		350	0.6	~112	220	2,160
Tool & die steel (SKD61, SKD11) below 255HB	JC8050 (JC8118) SPNW SPMT-PM	~150	2★	~112	300	3,780
		200	1.8	~112	300	3,780
		250	1.5	~112	280	2,940
		300	0.8	~112	260	2,730
		350	0.6	~112	220	2,160
Mold steel (HPM7, PX5, P20) 30-36 HRC	JC8050 (JC8118) SPNW SPMT-PM	~150	2★	~112	300	3,780
		200	1.8	~112	300	3,780
		250	1.5	~112	280	2,940
		300	0.8	~112	260	2,730
		350	0.6	~112	220	2,160
Mold steel (NAK80,HPM1,P21) 38-43HRC	JC8118 (JC8050) SPNW SPMT-PM	~150	1.6	~112	200	2,100
		200	1.4	~112	200	2,100
		250	1.2	~112	200	2,100
		300	0.7	~112	160	1,570
		350	-	-	-	-
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	JC8118 SPNW	~150	1	~112	180	1,510
		200	1	~112	180	1,260
		250	0.8	~100	180	1,010
		300	0.5	~100	140	690
		350	-	-	-	-
Gery & Nodular cast iron (FC, FCD) below 300HB	JC8118 SPNW SPMT-PM	~150	2★	~112	360	4,540
		200	1.8	~112	360	4,540
		250	1.5	~112	360	3,780
		300	0.8	~112	320	3,360
		350	0.6	~112	320	3,140
Stainless steel (SUS304) below 250HB	JC7550 SPMT-SM	~150	1.5	~112	300	2,940
		200	1.5	~112	300	2,730
		250	1.3	~100	260	2,180
		300	1.1	~100	240	1,680
		350	0.9	~100	200	1,400
Titanium alloy (Ti-6Al-4V)	DS150 SPMT-SM	~150	1.3	~112	120	500
		200	1.1	~112	120	500
		250	0.9	~100	120	420
		300	0.7	~100	120	340
		350	-	-	-	-

Note
1. Please adjust cutting conditions according to machine rigidity or work rigidity. (the above table is guide for cutting on a #50 BT machine.)
2. In case of chatter ocurring, recommended to reduce ap or rpm and keep feed per tooth.
3. ap should be reduced when using on low rigidity machine.
4. Use air blow.

★: ap≦1.8 when using SPMT14 insert