

# PRODUCT NEWS

PN-U-001

TYPE  
SKG 09 / MSG 09

**DIJET®**

# SKS-GII

For heat resistant alloy, titanium alloy  
and hardened stainless steel.

- Face mill type  $\phi$  2.00"~ $\phi$  3.00" ( $\phi$  40mm~ $\phi$  80mm)
- Modular type  $\phi$  1.00"~1.50" ( $\phi$  25mm~ $\phi$  42mm)
- Endmill type  $\phi$  1.00"~1.50" ( $\phi$  25mm~ $\phi$  42mm)



MILLS FOR  
AEROSPACE &  
TRANSPORTATION



# MILLING POWER MADE IN JAPAN

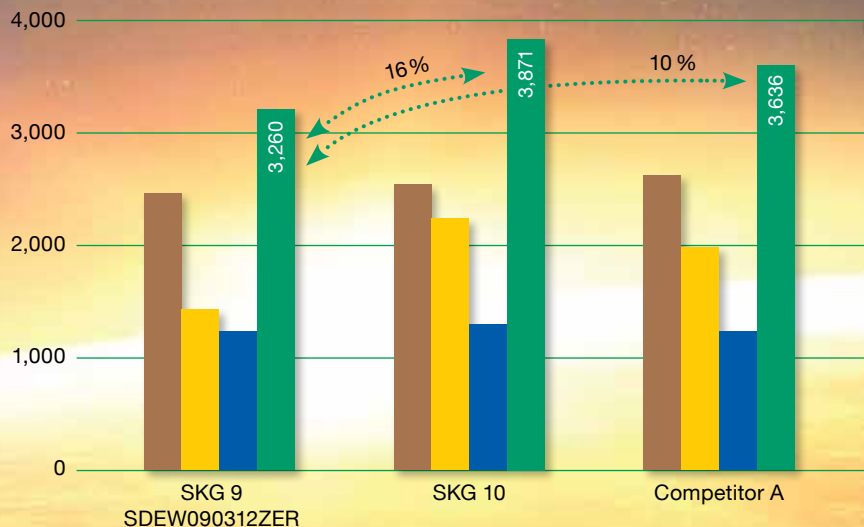
Our high-performance products are designed and developed for the individual demands of high efficiency machining. Innovative manufacturing technology with high precision provides maximum value. Our products offer shorter cycle times up to 50% providing a true competitive advantage.

## Development concept

1. Designed for Ni-base heat resistant alloy, titanium alloy and hardened stainless steel.
2. Achieved Max  $a_p=0.9$  mm even if difficult-to-machine materials.
3. Multi-edge design enables high efficiency machining.
4. Excellent cutting performance due to low cutting force and sharp cutting edge design.



## CUTTING FORCE COMPARISON

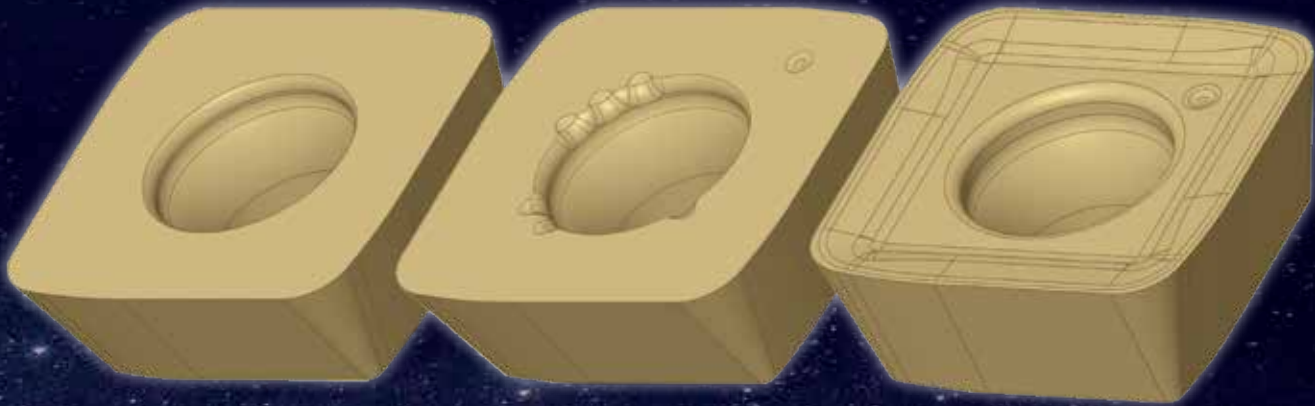


Cutting resistance reduced by high axial rake and sharp cutting edge

- Main
- Back
- Feed
- Results

Mat'l: Titanium Alloy dia:  $\phi 50$   
Overhung length: 135mm  
air  
 $n = 380/\text{min}^{-1}$   
 $V_c = 60\text{m}/\text{min}$   
 $V_f = 230\text{mm}/\text{min}$   
 $f_z = 0.6\text{mm}$   
 $A_p = 0.8\text{mm}$   
 $A_e = 20\text{mm}$

# INSERT LINE-UP



SDEW090312ZER  
(JC7518)

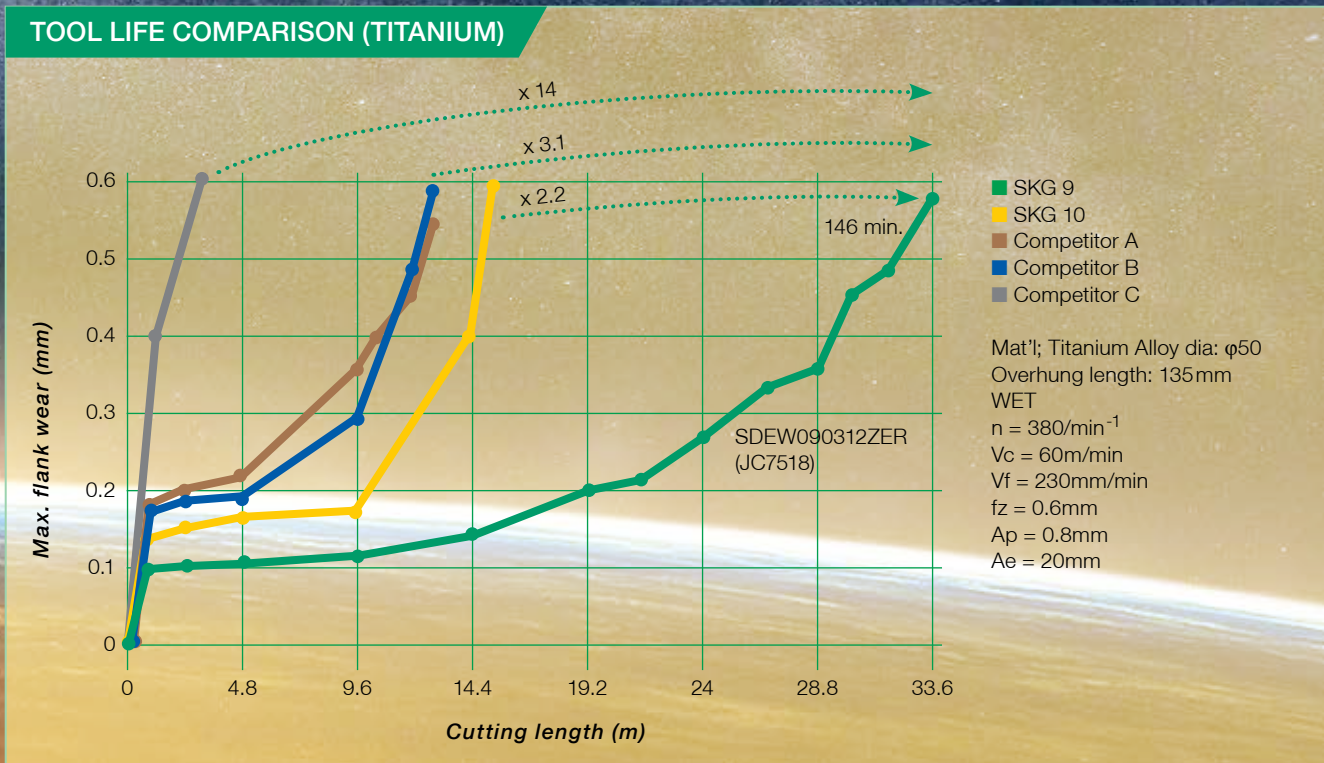
SDEW090312ZER  
(JC7550)

SDET090312ZZDER-SM  
(JC7550)

Wear resistance ← → Fracture resistance

Inserts	Titanium alloy	Inconel	SUS630	SUS316L
SDEW090312ZER (JC7518)	○	○	○	
SDEW090312ZER (JC7550)	●			○ ●
SDET090312ZZDER-SM (JC7550)		●	●	

○ Stable machining  
● Unstable machining





# SKS GII-09 High Feed

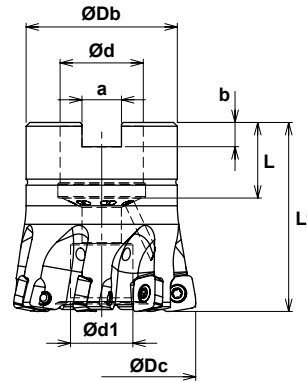
INCH

METRIC

## SKG-09 Face Mills & Modular Heads

For heat resistant alloys, titanium alloy & hardened stainless steel.  
SKG-09 & MSG-09 Style

**G-Body**

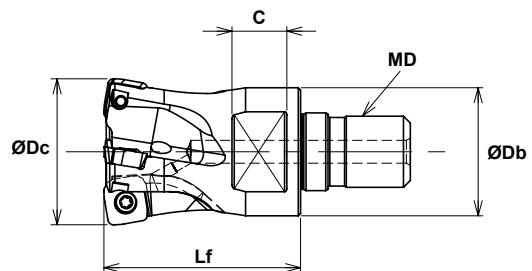
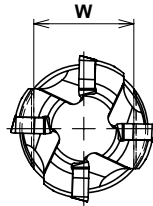


### Face Mill Specifications

	CATALOG NUMBER	STK	DIMENSIONS							INSERT	Q	PARTS		
			ØDc	Lf	ØDb	Ød	Ød1	a	b			L	Screw	Wrench
INCH	SKG-7200R-09-075	•	2.00	2.00	1.77	.750	.590	.319	.197	.750	SDEW090312ZER SDET090312ZDER-SM	7	DSW-307H	T-10
	SKG-8250R-09-075	•	2.50	2.00	1.89	.750	.669	.319	.197	.750		8		
	SKG-9300R-09-100	•	3.00	2.00	2.21	1.00	.787	.374	.236	.945		9		
	SKG-9300R-09-125	•	3.00	2.00	2.68	1.25	1.02	.500	.315	.945		9		
METRIC	SKG-5040R-09-16	•	40	40	37	16	13.5	8.4	5.6	18		5		
	SKG-7050R-09-22	•	50	50	40	22	16.5	10.4	6.3	20		7		
	SKG-7052R-09-22	◦	52	50	40	22	16.5	10.4	6.3	20		7		
	SKG-8063R-09-22	•	63	50	48	22	17	10.4	6.3	20		8		
	SKG-8066R-09-27	◦	66	50	50	27	20	12.4	7	22		8		
SKG-9080R-09-27	•	80	50	60	27	20	12.4	7	22	9				

Note: All cutters are supplied without inserts or wrenches.

**G-Body**



### Modular Head Specifications

	CATALOG NUMBER	STK	DIMENSIONS					INSERT	Q	PARTS		
			ØDc	Lf	ØDb	MD	C			W	Screw	Wrench
INCH	MSG-3100-09-M12	•	1.00	1.38	.905	M12	11	19	SDEW090312ZER SDET090312ZDER-SM	3	DSW-307H	T-10
	MSG-4125-09-M16	•	1.25	1.69	1.10	M16	12	22		4		
	MSG-5150-09-M16	•	1.50	1.69	1.26	M16	12	22		5		
METRIC	MSG-3025-09-M12	•	25	35	23	M12	11	19		3		
	MSG-4028-09-M12	•	28	35	23.6	M12	11	19		4		
	MSG-4032-09-M16	•	32	43	28	M16	12	22		4		
	MSG-5035-09-M16	•	35	43	29	M16	12	22		5		
	MSG-5040-09-M16	•	40	43	32	M16	14	26		5		
MSG-5042-09-M16	◦	42	43	32	M16	14	26	5				

Note: All cutters are supplied without inserts or wrenches.



INCH

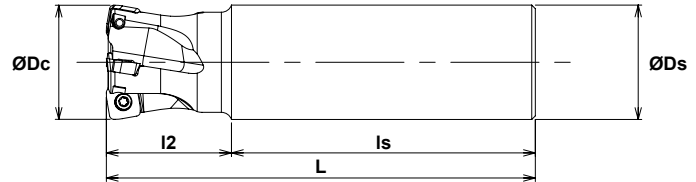
METRIC

# SKS GII-09 High Feed

## SKG-09 End Mills & Inserts

For heat resistant alloys, titanium alloy & hardened stainless steel.

SKGS-09 Style

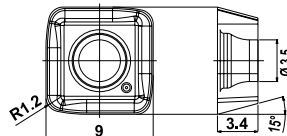
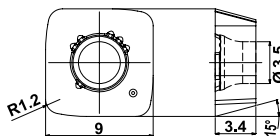


### End Mill Specifications

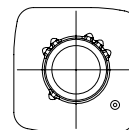
	CATALOG NUMBER	STK	DIMENSIONS					INSERT	Q	PARTS	
			ØDc	L2	Ls	L	ØDs			Screw	Wrench
INCH	SKGS-3100-2.0-09-S100NP	•	1.00	2.00	5.00	7.00	1.00	SDEW090312ZER SDET090312ZDER-SM	3	DSW-307H	T-10
	SKGS-3100-3.0-09-S100NP	•	1.00	3.00	5.00	8.00	1.00		3		
	SKGS-4125-2.0-09-S125NP	•	1.25	2.00	5.00	7.00	1.25		4		
	SKGS-4125-3.0-09-S125NP	•	1.25	3.00	5.00	8.00	1.25		4		
	SKGS-5150-3.0-09-S125NP	•	1.50	3.00	4.00	7.00	1.25		5		
	SKGS-5150-4.75-09-S125NP	•	1.50	4.75	3.25	8.00	1.25		5		
METRIC	SKGS-3025-09-30-S25+A	•	25	30	70	100	25		3		
	SKGS-4032-09-35-S32+A	•	32	35	85	120	32		4		
	SKGS-5035-09-35-S32+A	•	35	35	85	120	32		5		
	SKGS-5040-09-35-S32+A	•	40	35	85	120	32		5		
	SKGS-5042-09-35-S32+A	•	42	35	85	120	32	5			

Note: All cutters are supplied without inserts or wrenches.

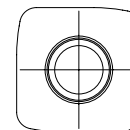
### INSERTS



### GRADE MARKINGS



JC7550



JC7518

CATALOG NUMBER	TOLERANCE	PVD COATED	
		JC7550	JC7518
SDEW090312ZER	E	•	•
SDET090312ZDER-SM		•	



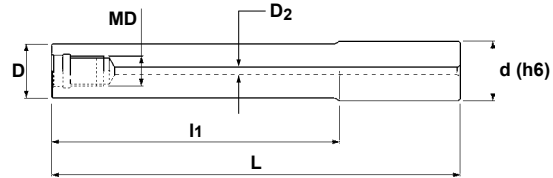
# SKS-GII-09 High Feed

**INCH**

## MODULAR HEAD HOLDERS

MSN Type

Solid Carbide with Coolant Thru



### Specifications - Carbide

CATALOG NUMBER	STK	DIMENSIONS					
		D	l1	L	d	MD	D2
MSN-M12-0.5-S100C	•	.945	.500	3.50	1.00	M12	.236
MSN-M12-1.0-S100C	•	.945	1.00	4.00	1.00	M12	.236
MSN-M12-2.0-S100C	•	.945	2.00	5.00	1.00	M12	.236
MSN-M12-3.0-S100C	•	.945	3.00	6.00	1.00	M12	.236
MSN-M12-4.0-S100C	•	.945	4.00	7.00	1.00	M12	.236
MSN-M12-5.0-S100C	•	.945	5.00	8.00	1.00	M12	.236
MSN-M12-6.0-S100C	•	.945	6.00	9.00	1.00	M12	.236
MSN-M12-8.0-S100C	•	.945	8.00	11.00	1.00	M12	.236
MSN-M16-0.5-S125C	•	1.14	.500	3.50	1.25	M16	.315
MSN-M16-1.0-S125C	•	1.14	1.00	4.00	1.25	M16	.315
MSN-M16-2.0-S125C	•	1.14	2.00	5.00	1.25	M16	.315
MSN-M16-4.0-S125C	•	1.14	4.00	7.00	1.25	M16	.315
MSN-M16-6.0-S125C	•	1.14	6.00	9.00	1.25	M16	.315
MSN-M16-8.0-S125C	•	1.14	8.00	11.00	1.25	M16	.315



**METRIC**

# SKS GII-09 High Feed

## MODULAR HEAD HOLDERS

MSN Type

Solid Carbide with Coolant Thru



Fig. 1

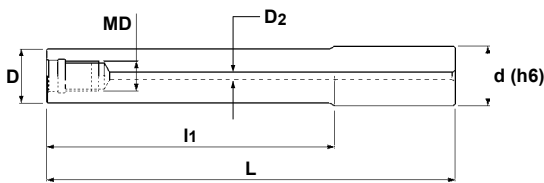
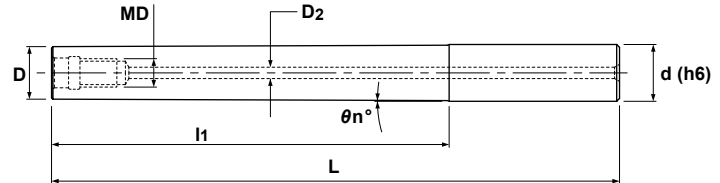


Fig. 2



### Specifications

CATALOG NUMBER	STK	DIMENSIONS						FIG.	
		D	l1	L	d	$\theta n^\circ$	MD		D2
MSN-M12-25-S25C	•	24	25	90	25	-	M12	6	1
MSN-M12-55-S25C	•	24	55	120	25	-	M12	6	1
MSN-M12-100T-S32C	•	23.5	100	180	32	2°	M12	6	2
MSN-M12-105-S25C	•	24	105	170	25	-	M12	6	1
MSN-M12-135-S25C	•	24	135	215	25	-	M12	6	1
MSN-M12-155-S25C	•	24	155	220	25	-	M12	6	1
MSN-M12-200-S25C	•	24	200	265	25	-	M12	6	1
MSN-M16-25-S32C	•	29	25	90	32	-	M16	8	1
MSN-M16-55-S32C	•	29	55	120	32	-	M16	8	1
MSN-M16-77-S32C	•	29	77	157	32	-	M16	8	1
MSN-M16-97-S32C	•	29	97	177	32	-	M16	8	1
MSN-M16-105-S32C	•	29	105	170	32	-	M16	8	1
MSN-M16-117T-S32C	•	29	117	197	32	0°38'	M16	8	2
MSN-M16-127-S32C	•	29	127	207	32	-	M16	8	1
MSN-M16-127T-S32C	•	29	127	207	32	0°30'	M16	8	2
MSN-M16-155-S32C	•	29	155	220	32	-	M16	8	1
MSN-M16-177-S32C	•	29	177	257	32	-	M16	8	1
MSN-M16-177T-S32C	•	29	177	257	32	0°23'	M16	8	2
MSN-M16-195-S32C	•	29	195	260	32	-	M16	8	1
MSN-M16-197T-S32C	•	29	197	277	32	0°23'	M16	8	2
MSN-M16-225-S32C	•	29	225	290	32	-	M16	8	1
MSN-M16-245-S32C	•	29	245	310	32	-	M16	8	1
MSN-M16-295-S32C	•	29	295	360	32	-	M16	8	1



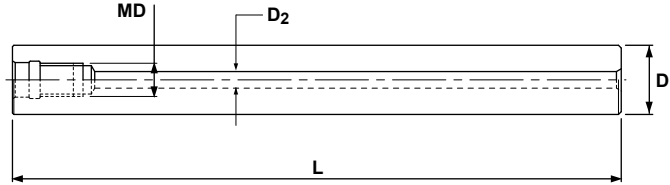
# SKS-GII-09 High Feed

**METRIC**

## MODULAR HEAD HOLDERS

MSN Type - Straight

Solid Carbide with Coolant Thru



### Specifications

CATALOG NUMBER	STK	DIMENSIONS			
		D	L	MD	D2
MSN-M12-185S-S23C	•	23	185	M12	6
MSN-M12-265S-S23C	•	23	265	M12	6
MSN-M12-185S-S24C	•	24	185	M12	6
MSN-M12-265S-S24C	•	24	265	M12	6
MSN-M12-145S-S25C	•	25	145	M12	6
MSN-M12-215S-S25C	•	25	215	M12	6
MSN-M12-285S-S25C	•	25	285	M12	6
MSN-M16-160S-S28C	•	28	160	M16	8
MSN-M16-230S-S28C	•	28	230	M16	8
MSN-M16-310S-S28C	•	28	310	M16	8
MSN-M16-157S-S32C	•	32	157	M16	8
MSN-M16-217S-S32C	•	32	217	M16	8
MSN-M16-287S-S32C	•	32	287	M16	8
MSN-M16-357S-S32C	•	32	357	M16	8





**INCH**

**METRIC**

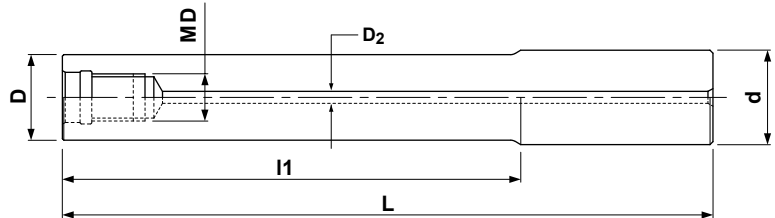
# SKS GII-09 High Feed

## MODULAR HEAD HOLDERS

MGN Type

G-Body with Coolant Thru

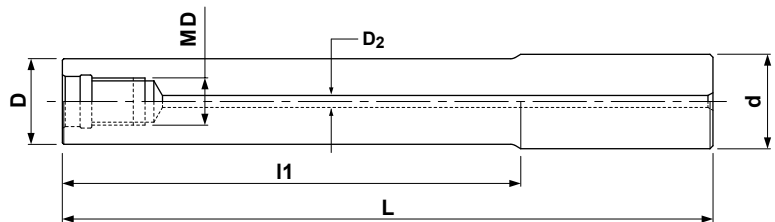
**G-Body**



### Specifications - Inch

CATALOG NUMBER	STK	DIMENSIONS					
		D	l1	L	d	MD	D2
MGN-M12-0.5-S100	•	.945	.500	3.50	1.00	M12	.236
MGN-M12-1.0-S100	•	.945	1.00	4.00	1.00	M12	.236
MGN-M12-2.0-S100	•	.945	2.00	5.00	1.00	M12	.236
MGN-M12-3.0-S100	•	.945	3.00	6.00	1.00	M12	.236
MGN-M16-0.5-S125	•	1.14	.500	3.50	1.25	M16	.315
MGN-M16-1.0-S125	•	1.14	1.00	4.00	1.25	M16	.315
MGN-M16-2.0-S125	•	1.14	2.00	5.00	1.25	M16	.315
MGN-M16-3.0-S125	•	1.14	3.00	6.00	1.25	M16	.315

**G-Body**



### Specifications - Metric

CATALOG NUMBER	STK	DIMENSIONS					
		D	l1	L	d	MD	D2
MGN-M12-35-S25	•	24	35	105	25	M12	4
MGN-M12-85-S25	•	24	85	165	25	M12	4
MGN-M16-37-S32	•	29	37	107	32	M16	6
MGN-M16-77-S32	•	29	77	157	32	M16	6

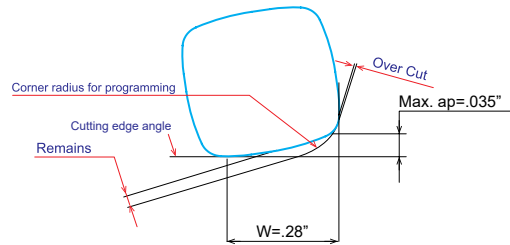


# SKS GII-09 High Feed

INCH

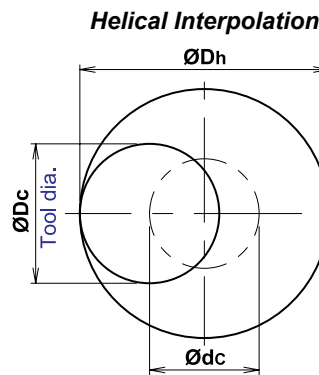
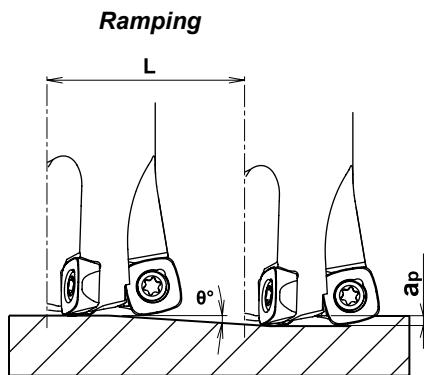
METRIC

## Definition of corner shape for programming



CORNER RADIUS FOR PROGRAMMING	Overcut	Remains
.059"	0	.032"
.078" (Standard)	0	.029"
.098"	0.003	.026"

## Recommended Data for Profile Milling



• Calculation of tool pass dia.

$$\text{Ødc} = \text{ØDh} - \text{ØDc}$$

Tool pass dia.    Bore dia.    Tool Dia.

- Down cutting is recommended, tool pass rotation should be counterclockwise.
- Depth of cut per one circuit should not exceed max. depth of cut Ap.
- In case of ramping and helical interpolation, apply 70% or less feed (F) from standard cutting condition table.

TOOL DIAMETER I	EFFECTIVE CUTTING DIA.	MAX. DEPTH OF CUT: AP	RAMPING		HELICAL INTERPOLATION		
			MAX. RAMP ANGLE	TOTAL CUTTING LENGTH AT MAX AP: L	MIN. BORE DIAMETER: Dh min	MAX. BORE DIAMETER: Dh max	
INCH	1.00	.437	.035	1°	2.030	1.476	1.921
	1.25	.685	.035	1°	2.030	1.974	2.421
	1.50	.933	.035	1°	2.030	2.472	2.921
	2.00	1.433	.035	1°	2.030	3.472	3.921
	2.50	1.937	.035	0.75°	2.707	4.475	4.921
	3.00	2.437	.035	0.75°	3.691	5.476	5.921
METRIC	25	10.7	0.9	1°	51.6	37	48
	28	13.7	0.9	1°	51.6	43	54
	32	17.6	0.9	1°	51.6	51	62
	35	20.6	0.9	1°	51.6	57	68
	40	25.7	0.9	1°	51.6	67	78
	42	27.7	0.9	1°	51.6	71	82
	50	35.6	0.9	1°	51.6	87	98
	52	37.6	0.9	1°	51.6	91	102
	63	48.7	0.9	0.75°	68.8	113	124
	66	51.7	0.9	0.75°	68.8	119	130
	80	65.7	0.9	0.5°	103.1	147	158



# PROPER MOUNTING OF MODULAR HEADS

## ■ Cleaning

Remove dirt and chips with air from the connecting thread and face of modular head and MSN/MGN shank holder.

## ■ Initial Tightening

Tighten by hand until the head and the shank holder faces touch.

## ■ Final Tightening

Tighten slowly with torque control spanner wrench or DIJET DS type spanner wrench and confirm that there is no gap.

Attention: Final tightening without initial tightening cause connecting thread damage.



Thread	Tightening torque	Spanner size
M6	8N · m	8 ◆
M8	16N · m	10, 12 ◆
M10	16N · m	14, 15
M12	20N · m	17, 19
M16	25N · m	22, 26

### Modular heads are supplied without spanner wrench.

In case of choosing torque control spanner wrench, confirm that the wrench size is matched to the dimensions W & C of each modular head. (There are some cases that modifying the thickness of spanner wrench is necessary)

◆ = DIJET stocks DS-8 and DS-12 type spanner wrenches.

### Note:

1. Only use torque control spanner wrench or DIJET DS type spanner wrench.
2. Only apply gentle pressure on wrench.
3. Please confirm there is no gap between MSN/MGN shank holder and modular head

## SELECTION OF MSN CARBIDE SHANK HOLDER

$$\varnothing D_c - \varnothing D_1 \geq 1\text{mm}$$

When using modular head over  $\varnothing 16\text{mm}$ , **please select MSN carbide shank which the diameter ( $\varnothing D_1$ ) is 1 mm or smaller than modular head ( $\varnothing D_c$ ).**

Wrong selection can cause damage to the carbide shank.

Coolant or air blow is recommended to remove the chips.



### Caution for mounting in shrink fit holder.

When you use a carbide shank and a modular head on a shrink fit holder, please shrink fit only the carbide shank without mounting the modular head. Mount the modular head on the shank after shrink fit operation is complete.

In case of shrink fit MSN shank + modular head together, it will be difficult to loosen due to heat dissipation.



# SKS GII-09 High Feed

INCH

METRIC

## Recommended Cutting Data for SKG-09

Material	Insert	Grade	SFM	IPT	DOC	WOC
Cast Iron	SDEW090312ZER	JC7518 (JC7550)	700	.040" - .050"	.025" - .035"	70%
Carbon Steel	SDEW090312ZER	JC7550	600	.030" - .050"	.025" - .035"	70%
Low Alloy Steel	SDEW090312ZER	JC7550	550	.030" - .050"	.025" - .035"	70%
Mold Steel	SDEW090312ZER	JC7550	500	.020" - .040"	.025" - .035"	60%
Tool & Die Steel	SDEW090312ZER	JC7518 (JC7550)	400	.010" - .020"	.020" - .030"	60%
Stainless (Austenitic)	SDEW090312ZER (SDET090312ZDER-SM)	JC7550	500	.035" - .045"	.020" - .030"	60%
Stainless (Martensitic)	SDEW090312ZER (SDET090312ZDER-SM)	JC7550	600	.035" - .045"	.020" - .030"	60%
Stainless (Super Duplex)	SDEW090312ZER (SDET090312ZDER-SM)	JC7518 (JC7550)	300	.015" - .020"	.020" - .030"	40%-60%
Titanium	SDEW090312ZER (SDET090312ZDER-SM)	JC7518 (JC7550)	200	.025" - .030"	.020" - .030"	60%
Inconel	SDEW090312ZER	JC7518 (JC7550)	100	.025" - .030"	.015" - .025"	40%-60%

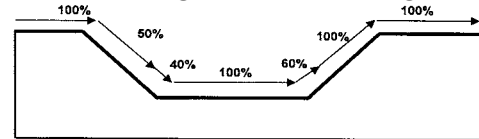
**NOTE:** 1. These parameters are for stable machining with steel bodies at lengths 4XD. See table below for longer applications.  
 2. RPM = 3.82 x SFM / Dia.  
 3. IPM = RPM x IPT x # of flutes (or teeth)

## Additional Cutting Data For Longer Tools

Reach/Dia.	~4.0	4.0~4.5	4.5~5.3	5.3~5.7	5.7~6.2	6.3~
rpm %	100	90	80	80	75	70
Feed %	100	90	90	80	75	70

**NOTE:** The above percentages should be applied, according to tool ratio.

## Reduced Cutting Data For Cutting Pattern



**NOTE:** Feed should be reduced when cutting the above pattern



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