

SEC-Grooving Tools **SSH** series

Rev. 3

Suppresses chattering
with a tough carbide body
Supports internal grooving
from $\varnothing 8\text{mm}$



Inserts for 2mm/3mm
Grooving Depths

16
expanded
items



SumiSm^{oil}

Internal Grooving Tools

SSH Series

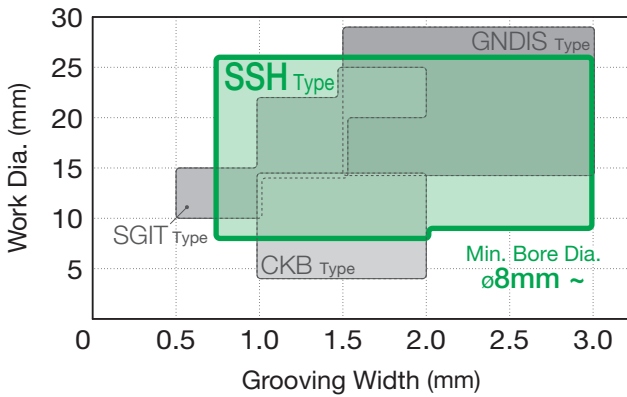
Tough carbide body for stable machining even with small diameters

Internal coolant supply for outstanding chip evacuation

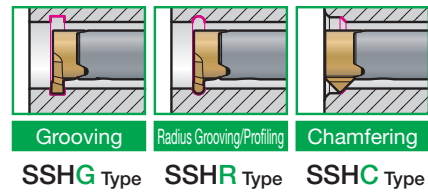
Adopts AC1030U for excellent machined surface quality

In addition to grooving applications, we have a lineup for circlip groove machining
 09/10 sized inserts expanded to support grooving depths of 2mm (min. bore dia. 9mm) and 3mm (min. bore dia. 10mm)

Application Range



Insert Lineup



Product Range

Grooving/Radius Shape
 Grooving/C-Chamfering
 Radius Grooving/Profiling
 Chamfering

Applications	Insert Type	Insert Size	Min. Bore Dia. (mm)	Max. Grooving Depth (mm)	Width of Cut / Cutting Edge Corner Shape (mm)														Applicable Holder			
					0.74	0.80	0.84	0.94	1.00	1.19	1.20	1.39	1.50	1.69	1.80	2.00	2.20	2.50		3.00	Chamfering	
Grooving	SSHG	08	8	1.0	C0.05	C0.05	C0.05	C0.05	C0.05	C0.05	C0.05	C0.05	C0.05	C0.05	C0.05						E00□-SSHMN000-08	
		NEW	09	9	2.0					R0.1			R0.1			R0.1		R0.1	R0.1			
		NEW	10	10	3.0					R0.1			R0.1			R0.1		R0.1	R0.1			
	14	14	1.6	1.2	C0.05															E00□-SSHMN000-14		
Radius Grooving/Profiling	SSHHR	08	8	1.0		R0.4			R0.5		R0.6		R0.75		R0.9	R1.0					E00□-SSHMN000-08	
	14	14	1.6					R0.5													E00□-SSHMN000-14	
Chamfering	SSHC	08	8	1.4																	E00□-SSHMN000-08	

09/10 sized inserts are only right-handed.

■ Chip Evacuation

Stable and smooth evacuation of curled chips even in small bore diameters



SSH Type

Evacuation is poor, may cause sudden tool fracture

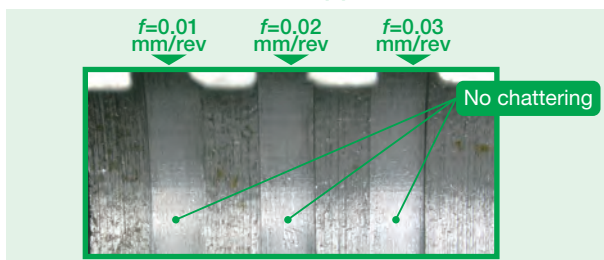


Competitor's Product A

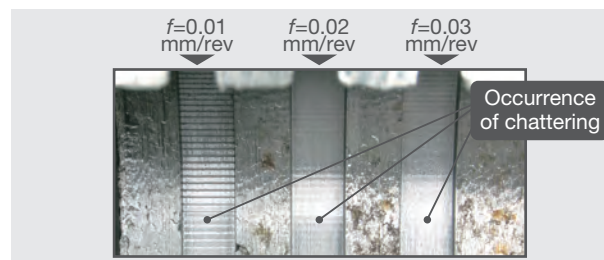
Work Material: S45C Cutting Diameter: $\phi 13\text{mm}$ Cutting Conditions: $v_c = 50\text{m/min}$ $f = 0.02\text{mm/rev}$ $a_p = 1.0\text{mm}$ Wet (Oil-based)

■ Chatter Resistance

Outstanding sharpness and carbide shank suppress chatter



SSH Type

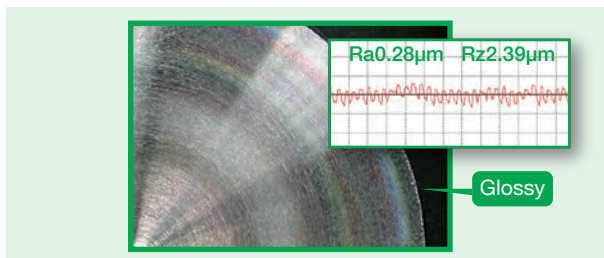


Competitor's Product B

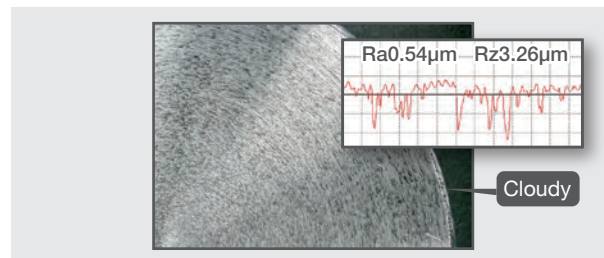
Work Material: S45C Cutting Diameter: $\phi 13\text{mm}$ Cutting Conditions: $v_c = 100\text{m/min}$ $f = 0.01, 0.02, 0.03\text{mm/rev}$ $a_p = 0.2\text{mm}$ Wet (Oil-based)

■ Machined Surface Quality

Glossy, beautiful surface finish

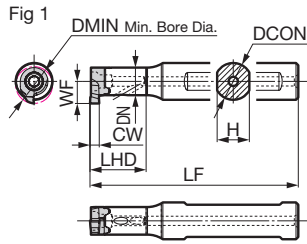


SSH Type



Competitor's Product C

Work Material: SCM440 Cutting Diameter: $\phi 30\text{mm}$ Cutting Conditions: $v_c = 180\text{m/min}$ $f = 0.02\text{mm/rev}$ $a_p = 0.2\text{mm}$ Wet (Oil-based)



HOLDERS

PARTS

Dimensions (mm)

Cat. No.	Stock	Shank Diameter DCON	Neck Dia. DN	Width H	Overall Length LF	Head Length LHD	Min. Bore Dia. DMIN	Width of Cut CW	Applicable Inserts	Fig	Dimensions (mm)		
											Flat Screw	Wrench	
E08D-SSH M N125-08	●	8	6	7	60(60.4)	12.5(12.9)	8 ~	0.74 to 3.00	SSH□ R/L 08 ... SSH□ R 09 ... SSH□ R 10 ...	1	BFTX02608IPS	1.2	TRX08IP
E08E-SSH M N210-08	●	8	6	7	70(70.4)	21.0(21.4)	8 ~	0.74 to 3.00		1			
E12E-SSH M N125-08	●	12	6	11	70(70.4)	12.5(12.9)	8 ~	0.74 to 3.00		1			
E12F-SSH M N210-08	●	12	6	11	80(80.4)	21.0(21.4)	8 ~	0.74 to 3.00		1			
E12G-SSH M N300-08	●	12	6	11	90(90.4)	30.0(30.4)	8 ~	0.74 to 3.00		1			
E12H-SSH M N420-08	●	12	6	11	100(100.4)	42.0(42.4)	8 ~	0.74 to 3.00	1	1	1	1	

Overall Length LF and Head Length LHD are dimensions with SSHG Type / SSHR Type inserts mounted. Parentheses show dimensions with SSHG R 09 ... Type (09 size) / SSHG R 10 ... Type (10 size) mounted. Min. Bore Dia. DMIN above is the dimension when 08 sized inserts are mounted, it is 9mm with 09 sized inserts and 10mm with 10 sized inserts.

Refer to the Insert Stock Table on page 5 for cutting edge distance WF dimensions.

IDENTIFICATION TABLE

E 08 D - SSHM N 125 - 08

Shank Material Code Shank Dia. (mm) Shank Length Code Series Feed Direction Head Length Reference (mm) x 10 Min. Bore Dia. (mm) *With 08 sized insert mounted

Inserts (For E08□-SSHM○○○-08 / E12□-SSHM○○○-08) (Coated Carbide)

Dimensions (mm)

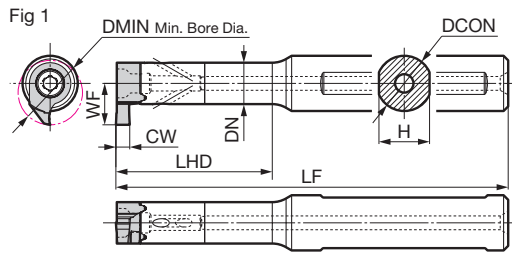
Applications	Cat. No.	AC108DU		Width of Cut CW	Maximum Grooving Depth CDX	Corner Radius RE	Cutting Edge Distance WF3	Cutting Edge Distance WF	Thickness S	Cutting Edge Distance E2	Applicable Holder	Fig	Fig 1 (Grooving)
		R	L										
Grooving (08 size)	SSHG R/L 0807400	●	●	0.74	1.0	—	3.2	4.80	3.6	0.4	E08□-SSHM○○○-08 E12□-SSHM○○○-08	1	Fig 1 (Grooving)
	R/L 0808400	●	●	0.84	1.0	—	3.2	4.80	3.6	0.4		1	
	R/L 0809400	●	●	0.94	1.0	—	3.2	4.80	3.6	0.4		1	
	R/L 0810000	●	●	1.00	1.0	—	3.2	4.80	3.1	—		1	
	R/L 0810010	●	●	1.00	1.0	0.10	3.2	4.80	3.1	—		2	
	R/L 0811900	●	●	1.19	1.0	—	3.2	4.80	3.1	—		1	
	R/L 0813900	●	●	1.39	1.0	—	3.2	4.80	3.0	—		1	
	R/L 0815000	●	●	1.50	1.0	—	3.2	4.80	3.0	—		1	
	R/L 0815010	●	●	1.50	1.0	0.10	3.2	4.80	3.0	—		2	
	R/L 0816900	●	●	1.69	1.0	—	3.2	4.80	3.0	—		1	
	R/L 0820000	●	●	2.00	1.0	—	3.2	4.80	3.0	—		1	
	R/L 0820010	●	●	2.00	1.0	0.10	3.2	4.80	3.0	—		2	
R/L 0820020	●	●	2.00	1.0	0.20	3.2	4.80	3.0	—	2			
Grooving (09 size)	SSHG R 0910010	●	—	1.00	2.0	0.10	3.6	5.50	3.5	—	E08□-SSHM○○○-08 E12□-SSHM○○○-08	2	Fig 3 (Radius Grooving/Profiling)
	R 0915010	●	—	1.50	2.0	0.10	3.6	5.50	3.4	—		2	
	R 0920010	●	—	2.00	2.0	0.10	3.6	5.50	3.4	—		2	
	R 0920020	●	—	2.00	2.0	0.20	3.6	5.50	3.4	—		2	
	R 0925010	●	—	2.50	2.0	0.10	3.6	5.50	3.4	—		2	
	R 0925020	●	—	2.50	2.0	0.20	3.6	5.50	3.4	—		2	
	R 0930010	●	—	3.00	2.0	0.10	3.6	5.50	3.4	—		2	
	R 0930020	●	—	3.00	2.0	0.20	3.6	5.50	3.4	—		2	
Grooving (10 size)	SSHG R 1010010	●	—	1.00	3.0	0.10	3.6	6.50	3.5	—	E08□-SSHM○○○-08 E12□-SSHM○○○-08	2	Fig 4 (Chamfering)
	R 1015010	●	—	1.50	3.0	0.10	3.6	6.50	3.4	—		2	
	R 1020010	●	—	2.00	3.0	0.10	3.6	6.50	3.4	—		2	
	R 1020020	●	—	2.00	3.0	0.20	3.6	6.50	3.4	—		2	
	R 1025010	●	—	2.50	3.0	0.10	3.6	6.50	3.4	—		2	
	R 1025020	●	—	2.50	3.0	0.20	3.6	6.50	3.4	—		2	
	R 1030010	●	—	3.00	3.0	0.10	3.6	6.50	3.4	—		2	
	R 1030020	●	—	3.00	3.0	0.20	3.6	6.50	3.4	—		2	
Radius Grooving/ Profiling	SSHR R/L 08080	●	●	0.80	1.0	0.40	3.2	4.80	3.1	—	E08□-SSHM○○○-08 E12□-SSHM○○○-08	3	Fig 4 (Chamfering)
	R/L 08100	●	●	1.00	1.0	0.50	3.2	4.80	3.1	—		3	
	R/L 08120	●	●	1.20	1.0	0.60	3.2	4.80	3.1	—		3	
	R/L 08150	●	●	1.50	1.0	0.75	3.2	4.80	3.0	—		3	
	R/L 08180	●	●	1.80	1.0	0.90	3.2	4.80	3.0	—		3	
	R/L 08200	●	●	2.00	1.0	1.00	3.2	4.80	3.0	—		3	
Chamfering	SSHC R/L 08454502	●	●	—	1.4	0.20	1.8	4.65	3.6	—		4	Figure shows right-handed (R) tool.

Min. Bore Dia. DMIN dimension for 08 size: 8mm, 09 size: 9mm, 10 size: 10mm.

Recommended Cutting Conditions

Work Material	P Carbon Steel / Alloy Steel	M Stainless Steel	K Cast Iron
Cutting Speed v_c (m/min)	20-200	15-80	20-160
Feed Rate f (mm/rev)	0.01-0.03	0.01-0.03	0.01-0.03

● mark: Standard stocked item ● mark: Standard stock (expanded item) — mark: Not available



HOLDERS

PARTS

Dimensions (mm)

Cat. No.	Stock	Shank Diameter DCON	Neck Dia. DN	Width H	Overall Length LF	Head Length LHD	Min. Bore Dia. DMIN	Width of Cut CW	Applicable Inserts	Fig	Dimensions (mm)		
											Flat Screw	Wrench	
E12X-SSH N195-14	●	12	9	11	75	19.5	14	0.74 to 3.00	SSH□ R/L 14...	1	BFTX0412IPS	5.0	LT15IP
E12H-SSH N340-14	●	12	9	11	100	34.0	14	0.74 to 3.00		1			
E12J-SSH N450-14	●	12	9	11	110	45.0	14	0.74 to 3.00		1			
E12X-SSH N640-14	●	12	9	11	130	64.0	14	0.74 to 3.00		1			
E16F-SSH N195-14	●	16	9	14	80	19.5	14	0.74 to 3.00		1			
E16H-SSH N340-14	●	16	9	14	100	34.0	14	0.74 to 3.00		1			
E16J-SSH N450-14	●	16	9	14	110	45.0	14	0.74 to 3.00		1			
E16X-SSH N640-14	●	16	9	14	130	64.0	14	0.74 to 3.00		1			

Refer to the Insert Stock Table on page 7 for cutting edge distance WF dimensions.

IDENTIFICATION TABLE

E 12 X - SSHM N 195 - 14

Shank Material Code	Shank Dia. (mm)	Shank Length Code	Series	Feed Direction	Head Length Reference (mm) × 10	Min. Bore Dia. (mm)
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Inserts (For E12□-SSHM○○○-14 / E16□-SSHM○○○-14) (Coated Carbide)

Dimensions (mm)

Applications	Cat. No.	AC1030U		Width of Cut CW	Maximum Grooving Depth CDX	Corner Radius RE	Cutting Edge Distance WF3	Cutting Edge Distance WF	Thickness S	Cutting Edge Distance E2	Applicable Holder	Fig	
		R	L										
Grooving (14 size)	SSHG R/L 1407400	●	●	0.74	1.2	—	5.3	9.0	5.5	0.2	E12□-SSHM○○○-14 E16□-SSHM○○○-14	1	Fig 1 (Grooving) Fig 2 (Grooving) Fig 3 (Radius Grooving/Profiling)
	R/L 1408400	●	●	0.84	1.3	—	5.3	9.0	5.5	0.2		1	
	R/L 1409400	●	●	0.94	1.5	—	5.3	9.0	5.5	0.2		1	
	R/L 1410000	●	●	1.00	1.6	—	5.3	9.0	5.5	0.2		1	
	R/L 1410010	●	●	1.00	1.6	0.10	5.3	9.0	5.5	0.2		2	
	R/L 1411900	●	●	1.19	4.0	—	5.3	9.0	5.2	—		1	
	R/L 1413900	●	●	1.39	4.0	—	5.3	9.0	5.1	—		1	
	R/L 1415000	●	●	1.50	4.0	—	5.3	9.0	5.1	—		1	
	R/L 1415010	●	●	1.50	4.0	0.10	5.3	9.0	5.1	—		2	
	R/L 1416900	●	●	1.69	4.0	—	5.3	9.0	5.1	—		1	
	R/L 1420000	●	●	2.00	4.0	—	5.3	9.0	5.1	—		1	
	R/L 1420010	●	●	2.00	4.0	0.10	5.3	9.0	5.1	—		2	
	R/L 1420020	●	●	2.00	4.0	0.20	5.3	9.0	5.1	—		2	
	R/L 1425000	●	●	2.50	4.0	—	5.3	9.0	5.1	—		1	
	R/L 1425010	●	●	2.50	4.0	0.10	5.3	9.0	5.1	—		2	
	R/L 1425020	●	●	2.50	4.0	0.20	5.3	9.0	5.1	—		2	
R/L 1430000	●	●	3.00	4.0	—	5.3	9.0	5.1	—	1			
R/L 1430010	●	●	3.00	4.0	0.10	5.3	9.0	5.1	—	2			
R/L 1430020	●	●	3.00	4.0	0.20	5.3	9.0	5.1	—	2			
Radius Grooving/ Profiling	SSHR R/L 14100	●	●	1.00	1.6	0.50	5.3	9.0	5.2	—	E12□-SSHM○○○-14 E16□-SSHM○○○-14	3	Fig 3 (Radius Grooving/Profiling)
	R/L 14120	●	●	1.20	4.0	0.60	5.3	9.0	5.2	—		3	
	R/L 14150	●	●	1.50	4.0	0.75	5.3	9.0	5.1	—		3	
	R/L 14180	●	●	1.80	4.0	0.90	5.3	9.0	5.1	—		3	
	R/L 14200	●	●	2.00	4.0	1.00	5.3	9.0	5.1	—		3	
	R/L 14220	●	●	2.20	4.0	1.10	5.3	9.0	5.1	—		3	
	R/L 14250	●	●	2.50	4.0	1.25	5.3	9.0	5.1	—		3	
R/L 14300	●	●	3.00	4.0	1.50	5.3	9.0	5.1	—	3			

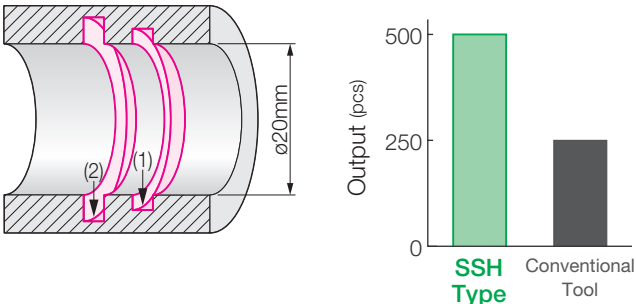
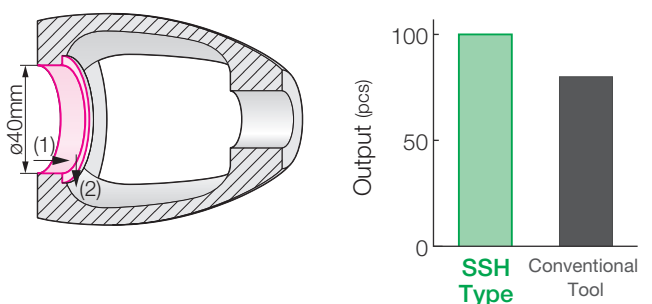
Min. Bore Dia. DMIN dimension for 14 size: 14mm.

Recommended Cutting Conditions

Work Material	 P Carbon Steel / Alloy Steel	 M Stainless Steel	 K Cast Iron
Cutting Speed v_c (m/min)	20-200	15-80	20-160
Feed Rate f (mm/rev)	0.01-0.03	0.01-0.03	0.01-0.03

● mark: Standard stocked item

Application Examples

STKM Bearing Component P	Titanium Alloy Case S
<p>Stable chip evacuation doubles tool life</p> 	<p>Achieves 1.25x tool life in titanium alloy Excellent machined surface quality too</p> 
<p>Holder: E16F-SSHMN195-14 Insert: SSHGR1420020 (AC1030U) Cutting Conditions: $v_c=100\text{m/min}$, $f=0.06\text{mm/rev}$ (1) $a_p=2.0\text{mm}$ (2) $a_p=3.5\text{mm}$ Wet</p>	<p>Holder: E16F-SSHMN195-14 Insert: SSHGR1416900 (AC1030U) Cutting Conditions: $v_c=60\text{m/min}$, $f=0.04\text{mm/rev}$ (1) $a_p=0.1$ to 0.2mm (2) $a_p=3.5\text{mm}$ Wet</p>

Sumitomo Electric Cutting Tools Official Apps for iOS/Android



Cutting calculation App

SumiTool Calculator



Grade & chipbreaker comparison App

SumiTool Converter



< SAFETY NOTES >



- Very hot or lengthy chips may be discharged while the machine is in operation. Therefore, machine guards, safety goggles or other protective covers must be used. Fire safety precautions must also be considered.

- Please handle with care as this product has sharp edges.
- Improper cutting conditions or mis-handling of the tool may result in breakages or projectiles. Therefore, please use the tool within its recommended conditions.

- When using non-water soluble cutting oil, precautions against fire must be taken and please ensure that a fire extinguisher is placed near the machine.

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<https://www.sumitool.com/global>