

SEC-Sumi Dual Mill **DMSL** series/**DMSW** series

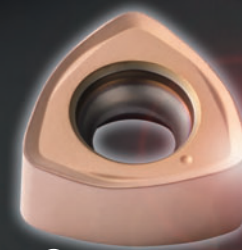
Rev. 2

For ultra-high-feeds and large depths of cut



New Small diameter series (diameters $\phi 16\text{mm}\sim$)
Introducing the DMSL type

Expansion Insert for DMSW type
Expansion of L type Chipbreaker



6-cornered
Double-sided Inserts
For DMSW type



4-cornered
Double-sided Inserts
For DMSL type



■ Features

- Complex arc-shaped cutting edge achieves a smaller cutting angle and a larger depth of cut simultaneously
High-efficiency machining at maximum feed rate per tooth of 3.5mm/t is possible
- Small cutting angle controls cutting force toward the back force direction
Stable machining without chatter even with long tool overhang amount
- Introducing the small diameters DMSL series
Lineup of diameters ø16mm and up
(Shell type/Shank type/Modular type)

■ Product Range

Type	Cat. No.	Max. Diameter (mm)																				
		ø16	ø18	ø20	ø22	ø25	ø26	ø28	ø30	ø32	ø35	ø40	ø42	ø50	ø52	ø63	ø66	ø80	ø85	ø100	ø125	ø160
Shell	DMSL 06000RS										5 6		5 8	8	8	8	9					
	DMSL 06000R <small>Inch</small>													5 8		8						
	DMSW 08000RS													4 5	4 5	4 5 6*	5 6	6 8	6 8	6	8	10
	DMSW 08000R <small>Inch</small>													4 5		4 5 6		6 8		6	8	10
Shank	DMSL 06000E	2	2	3 4	3 4	4 5		4 5	5	5 6	5	6										
	DMSL 06000EL	2	2	3	3	4		4	5	5	5	6										
	DMSW 08000E										2	3		3		4						
	DMSW 08000EL										2	3		3		4						
Modular	DMSL 06000M	2	2	3 4	3 4	4 5	4	4 5	5	5 6	5	6	6									
	DMSW 08000M									2	3	3										

Number in ● shows the number of teeth Inch Bore * mark: Different-diameter mounting sizes in stock

■ Chipbreaker (DMSL type)

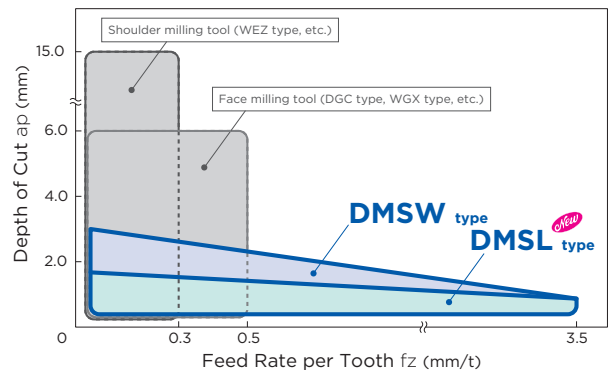
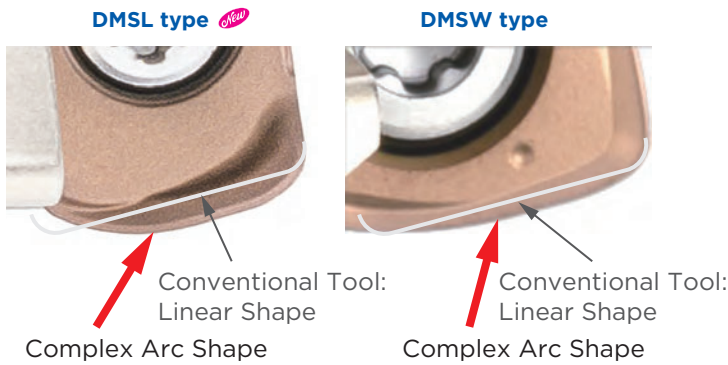
Work Material	P M K S		P M K H
Applications	Low-rigidity Milling	General-purpose to Interrupted Milling	Heavy Interrupted Milling, High-hardness
Features	Low Cutting Force	General-purpose	High Strength
Chipbreaker	L type	G type	H type
Cutting Edge Cross Section			

■ Chipbreaker (DMSW type)

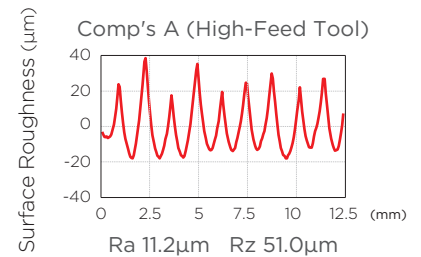
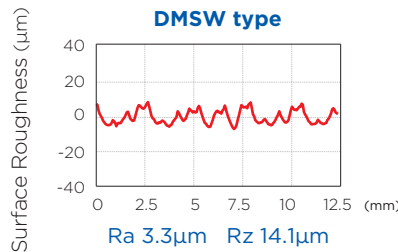
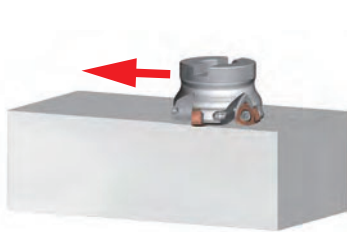
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Features	Low Cutting Force	General-purpose	High Strength
Chipbreaker	L type	G type	H type
Cutting Edge Cross Section			

DMSL series/DMSW series

- Complex arc-shaped cutting edge achieves a smaller cutting angle and a larger depth of cut simultaneously. High-efficiency machining at maximum feed rate per tooth of 3.5mm/t is possible.



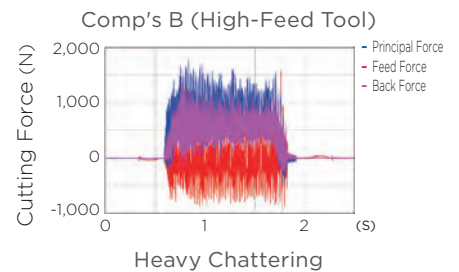
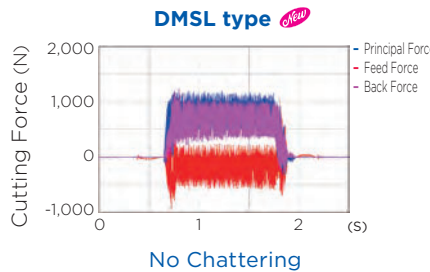
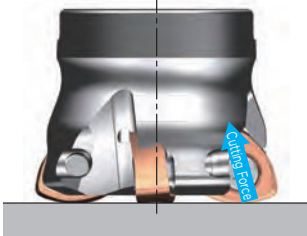
- Even at high feed rates of 2.0mm/t or more, a reasonable surface finish can be attained without a wiper insert.



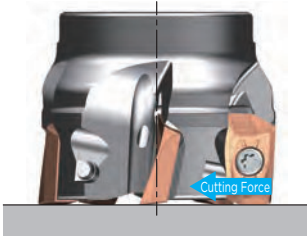
Machine: Vertical Machining Centre BT50, Work Material: S50C Insert: WNMU0807ZNER-G (ACU2500)
 Tool: DMSW 08063RS04 (ø63, 4-tooth) Cutting Conditions: $vc = 150\text{m/min}$, $fz = 2.5\text{mm/t}$, $ap = 0.5\text{mm}$, $ae = 40\text{mm Dry}$

- Small cutting angle controls cutting force toward the back force direction
 Suppresses chatter in long tool overhang machining, increasing efficiency

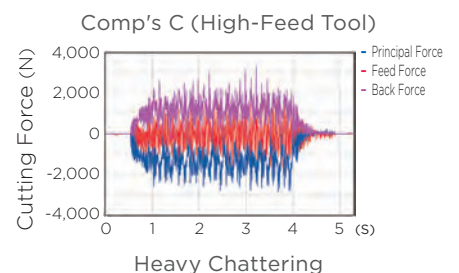
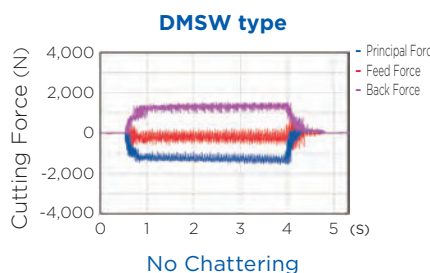
DMSL type/DMSW type



(Reference) Shoulder Milling Tool



Machine: Vertical Machining Centre BT50, Work Material: S50C
 Tool: DMSL 06020E03 (D = ø20, 3 teeth)
 Insert: LNMU 06T3ZNER-G (ACU2500)
 Cutting Conditions: $vc = 160\text{m/min}$, $fz = 0.60\text{mm/t}$, $ap = 0.8\text{mm}$, $ae = 20\text{mm}$, $L = 100\text{mm}$, Dry



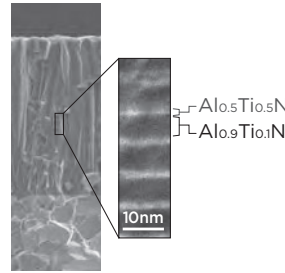
Machine: Vertical Machining Centre BT50, Work Material: S50C
 Tool: DMSW 08050RS04 (D = ø50, 4 teeth)
 Insert: WNMU 0807ZNER-G (ACU2500)
 Cutting Conditions: $vc = 160\text{m/min}$, $fz = 0.65\text{mm/t}$, $ap = 0.8\text{mm}$, $ae = 45\text{mm}$, $L = 340\text{mm}$, Dry

Grade Features

In addition to XCU2500 (applicable to various work materials), **XCS2000/ACS2500/ACS3000** grades, ideal for machining titanium alloys, heat-resistant alloys and stainless steel, have been added to the lineup.

Work Material	Finishing to Light Cutting	Medium Cutting	Rough to Heavy Cutting
Steel Coated Carbide	ACU2500		
	XCU2500		
	ACP2000		
	ACP3000		
Stainless Steel Exotic Alloy Coated Carbide	ACU2500		
	XCU2500		
	XCS2000		
	ACS2500		
Cast Iron Coated Carbide	ACU2500		
	XCU2500		
	ACK2000		
	ACK3000		

New CVD Coating Layer Features



Pure Cubic Crystal AlTiN with High-Al Content

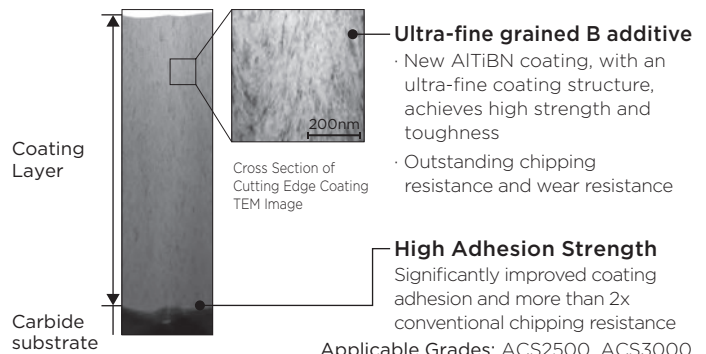
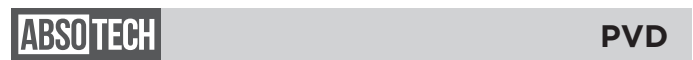
With proprietary structural control technology, differently composed layers of AlTiN are stacked at the nanometre level. With a high-Al composition containing over 80% Al on average, it also maintains a cubic crystalline structure to achieve excellent thermal resistance and high hardness. Vastly improved wear resistance.

Special Surface Treatment

Proprietary surface treatment introduces high compression stress to the coating, suppressing the development of cracks. Greatly improved fracture and thermal crack resistance.

Applicable Grade: XCS2000

New PVD Coating Layer Features



Ultra-fine grained B additive

- New AlTiBN coating, with an ultra-fine coating structure, achieves high strength and toughness
- Outstanding chipping resistance and wear resistance

High Adhesion Strength

Significantly improved coating adhesion and more than 2x conventional chipping resistance

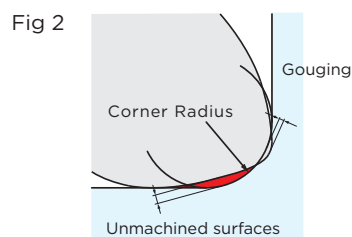
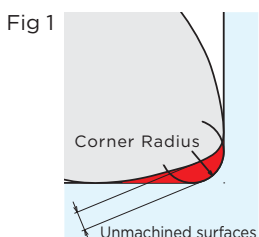
Applicable Grades: ACS2500, ACS3000

Characteristic Values of Grade

Work Material	Grade	Hardness (HRA)	TRS (GPa)	Coating type	Coating Thickness (µm)	Features
Steel Coated Carbide	ACU2500	91.6	3.8	ABSOTECH	3	· General-purpose grade covering steel, stainless steel, and cast iron machining · Adopts a carbide substrate with excellent fracture resistance and wear resistance, plus a new coating with excellent wear resistance and chipping resistance, realising stable long tool life on various work materials
	XCU2500	89.5	3.2	ABSOTECH X	6	· General-purpose grade for a wide variety of materials such as steel, cast iron and stainless steel · New coating combining wear and fracture resistance realises long tool life in medium-speed to high-speed machining
	ACP2000	89.5	3.2	ABSOTECH	10	· For high-speed machining of steel · Stable long tool life in high-speed machining is realised by adopting a tough carbide substrate and a new coating with excellent thermal crack resistance
	ACP3000	89.5	3.2	ABSOTECH	3	· Our 1st recommended grade for milling steel · Carbide substrate with excellent thermal crack resistance, plus a new coating with excellent wear resistance and chipping resistance, realises stable long tool life over a wide range of cutting conditions
Stainless Steel Exotic Alloy Coated Carbide	<i>new</i> XCS2000	89.8	3.4	ABSOTECH X	4	· For high-speed machining of exotic alloys · New coating combining wear and fracture resistance realises overwhelming long tool life in medium-speed to high-speed machining
	<i>new</i> ACS2500	90.8	4.2	ABSOTECH	3	· First recommendation for titanium alloy applications · Carbide substrate with excellent wear and adhesion resistance, coupled with a chipping-resistant coating, balances excellent wear and fracture resistance
	<i>new</i> ACS3000	89.8	3.4	ABSOTECH	3	· Suitable for a wide range of exotic alloy machining applications · Realises superb stability due to a high-toughness carbide substrate with a highly chipping-resistant coating
Cast Iron Coated Carbide	ACK2000	91.7	3.1	ABSOTECH	10	· For high-speed cast iron milling · Stable long tool life in high-speed machining is realised by adopting a tough carbide substrate and a new coating with excellent thermal resistance
	ACK3000	91.7	3.1	ABSOTECH	3	· Our 1st recommended grade for milling cast iron · Adopts a high thermal conductivity carbide substrate and a new coating with excellent wear resistance and chipping resistance, realising stable long tool life over a wide range of cast iron machining operations

Precautions for Corner Finishing

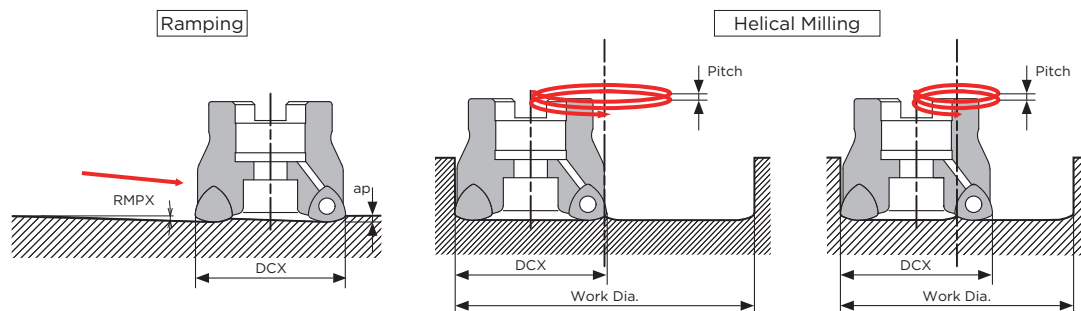
* Corners will have unmachined surfaces or gouges with respect to the expected corner profile.



DMSL type				DMSW type			
Corner Radius	Unmachined surfaces	Gouging	Fig	Corner Radius	Unmachined surfaces	Gouging	Fig
0.5	0.88	0	1	2.0	1.22	0	1
1.0	0.69	0	1	2.5	1.08	0	1
1.5	0.54	0	1	3.0	0.95	0	1
2.0	0.41	0.02	2	3.5	0.83	0.04	2

(mm)

■ Ramping/Helical Milling Upper Limit



Precautions for Helical Milling

- Above the max. machining diameter, the centre uncut portion can be removed by traverse cutting with the same cutter.
- Below the min. machining diameter, the centre uncut portion cannot be removed with the same cutter.

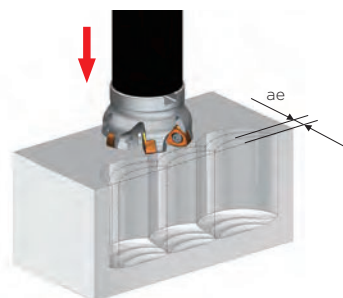
DMSL type

Max. Dia. DCX (mm)	Ramping	Helical Milling					
	Max. Ramping Angle RMPX (°)	Max. Machining Dia. (mm)	Max. Pitch (mm/rev)	Standard Diameter (mm)	Max. Pitch (mm/rev)	Min. Machining Dia. (mm)	Max. Pitch (mm/rev)
16	0.6	31.3	0.6	24.4	0.3	23.8	0.25
18	0.8	35.3	0.8	28.3	0.4	27.2	0.3
20	1.0	39.3	1.0	32.3	0.6	30.5	0.3
22	1.0	43.3	1.0	36.3	0.7	34.3	0.3
25	1.0	49.3	1.0	42.3	0.9	39.9	0.3
26	1.0	51.3	1.0	44.3	0.9	41.8	0.3
28	0.9	55.3	1.0	48.2	0.9	45.7	0.3
30	0.8	59.3	1.0	52.2	1.0	49.6	0.3
32	0.7	63.3	1.0	56.2	1.0	53.6	0.3
35	0.6	69.3	1.0	62.2	1.0	59.5	0.3
40	0.5	79.3	1.0	72.2	1.0	69.6	0.3
42	0.5	83.3	1.0	76.2	1.0	73.5	0.3
50	Not recommended						
52							
63							
66							
80							

DMSW type

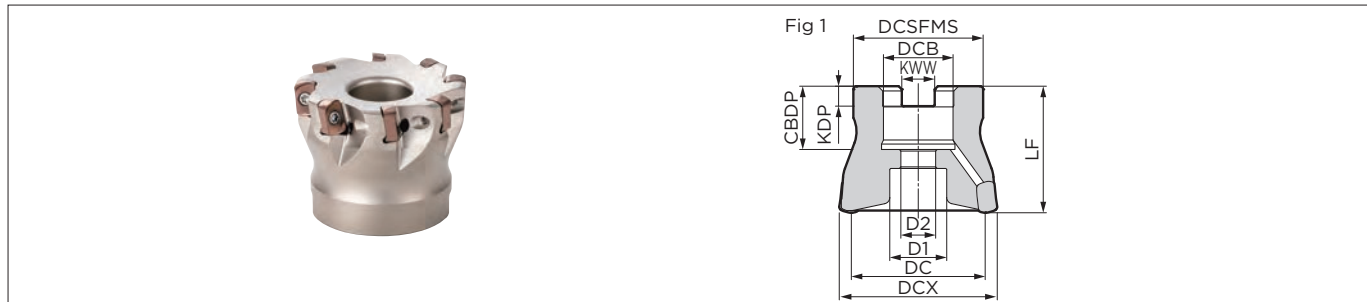
Max. Dia. DCX (mm)	Ramping	Helical Milling					
	Max. Ramping Angle RMPX (°)	Max. Machining Dia. (mm)	Max. Pitch (mm/rev)	Standard Diameter (mm)	Max. Pitch (mm/rev)	Min. Machining Dia. (mm)	Max. Pitch (mm/rev)
35	0.5	69.3	1.3	53.5	0.5	52.0	0.5
40	0.8	79.3	2.0	63.4	1.0	60.2	0.5
42	0.8	83.3	2.0	67.4	1.0	63.9	0.5
50	1.4	99.3	2.0	83.3	2.0	79.1	1.0
52	1.4	103.3	2.0	87.3	2.0	82.8	1.0
63	1.2	125.3	2.0	109.3	2.0	103.6	1.0
66	1.2	131.3	2.0	115.3	2.0	109.4	1.0
80	1.2	159.3	2.0	143.2	2.0	134.0	1.0
85	1.2	169.3	2.0	153.2	2.0	144.0	1.0
100	0.8	199.3	2.0	183.2	2.0	174.0	1.0
125	Not recommended						
160							

■ Plunge Cutting Upper Limit



	Max. ae (mm)	Max. fz (mm/t)
DMSL type	4	0.2
DMSW type	10	0.2

Rake Angle	Radial	-8° to -12.5°	1.5mm 17°
	Axial	-8°	



■ Body (Shell type)

Dimensions (mm)

Cat. No.		Stock	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDB	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	DMSL 06040RS05	●	40	32.3	33	40	16	8.4	5.6	18	14	9	5	0.20	1
	06040RS06	●	40	32.3	33	40	16	8.4	5.6	18	14	9	6	0.20	1
	06042RS06		42	34.3	33	40	16	8.4	5.6	18	14	9	6	0.21	1
	06050RS05	●	50	42.3	41	40	22	10.4	6.3	20	18	11	5	0.31	1
	06050RS08	●	50	42.3	41	40	22	10.4	6.3	20	18	11	8	0.30	1
	06052RS08		52	44.3	41	40	22	10.4	6.3	20	18	11	8	0.31	1
	06063RS08		63	55.3	50	40	22	10.4	6.3	20	18	11	8	0.52	1
	06066RS08-27		66	58.3	55	50	27	12.4	7	22	20	14	8	0.69	1
06080RS09	*	80	72.3	55	50	27	12.4	7	22	20	14	9	0.94	1	
Inch	DMSL 06050R05	●	50	42.3	41	40	22.225	8.4	5	20	18	11	5	0.32	1
	06050R08	●	50	42.3	41	40	22.225	8.4	5	20	18	11	8	0.30	1
	06063R08		63	55.3	50	40	22.225	8.4	5	20	18	11	8	0.53	1

Take note of the cutter mounting size (DCB) when selecting a cutter. Inserts are sold separately.

* For mounting the cutters marked with * to an arbor, use a JIS B1176 hex socket bolt (M12 x 30 to 35mm).

■ Identification Code

DMSL 06 066 R S 08 - 27

Series Code Insert Size Max. Dia. Feed Metric Number Mounting
 Size Direction Bore of Teeth Size

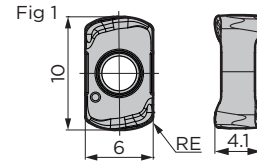
■ Parts

Flat Insert Screw	Integrated Wrench	Anti-seizure Cream
BFTX02507IP	2.0 TRDR08IP	SUMI-P

■ Insert

Dimensions (mm)

Grade Classification		Coated Carbide								Corner Radius RE	Fig
Process	High-speed/Light Cutting		P	P	K	M	S	S			
	General-purpose	K P S	K M	P	P	K	K	M S	M S	M S	
	Roughing	K P S		P		K		M S	M S		
Cat. No.		ACU2500	XCU2500	ACP2000	ACP3000	ACK2000	ACK3000	XCS2000	ACS2500	ACS3000	
LNMU 06T3ZNER-L <i>New</i>		●		●	●			●	●	●	
LNMU 06T3ZNER-G <i>New</i>		●	●	●	●	●	●	●	●	●	
LNMU 06T3ZNER-H <i>New</i>		●		●	●			●	●	●	

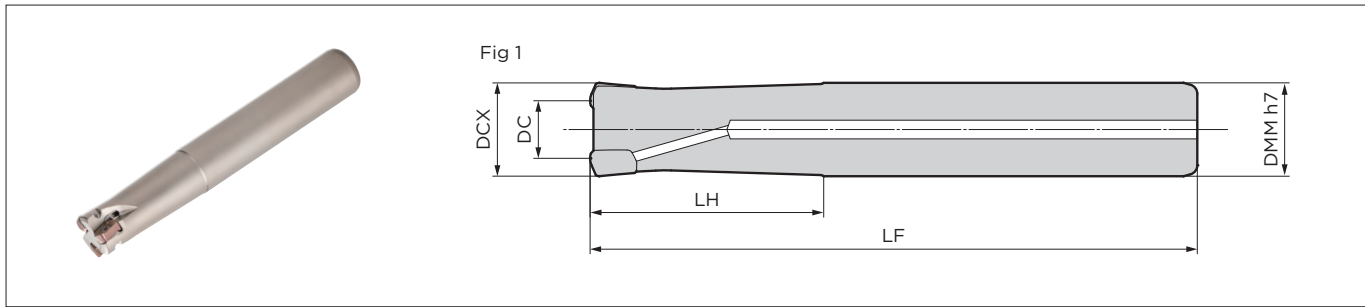


■ Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed vc (m/min)		Feed Rate fz (mm/t)		Grades
			Min.	Optimum - Max.	Min.	Optimum - Max.	
P	General Steel	Below 280HB	100 -	160 - 250	1.0 -	1.5 - 2.0	ACU2500/ACP2000/ACP3000
	Alloy Steel	Below 280HB	100 -	160 - 200	1.0 -	1.5 - 1.8	
	Alloy Steel	Below 42HRC	100 -	150 - 180	0.8 -	1.0 - 1.2	
M	Stainless Steel	—	80 -	120 - 150	0.8 -	1.0 - 1.2	ACU2500/ACS2500/ACS3000
K	Cast Iron	—	100 -	160 - 250	1.0 -	1.5 - 1.8	ACU2500/ACK2000/ACK3000
S	Heat-Resistant Alloy	—	20 -	30 - 40	0.3 -	0.5 - 0.7	ACU2500/ACS2500/ACS3000
	Ti Alloy	—	30 -	50 - 70	0.4 -	0.6 - 0.8	
H	Hardened Steel	Below 52HRC	80 -	100 - 120	0.3 -	0.5 - 0.7	ACU2500/ACP3000

Note : The above figures are guidelines for use with BT50 machine tools at depth of cut (ap) of 0.75mm.
 · The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.

Rake Angle	Radial	-12.5° to -16.5°	1.5mm 17°
	Axial	-8°	



■ Body (Shank type)

Dimensions (mm)

Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Weight (kg)	Fig
DMSL 06016E02	●	16	8.4	16	30	110	2	0.15	1
06018E02	●	18	10.4	16	30	110	2	0.15	1
06020E03	●	20	12.4	20	50	130	3	0.27	1
06020E04	●	20	12.4	20	50	130	4	0.27	1
06022E03	●	22	14.3	20	50	130	3	0.29	1
06022E04	●	22	14.3	20	50	130	4	0.29	1
06025E04	●	25	17.3	25	60	140	4	0.46	1
06025E05	●	25	17.3	25	60	140	5	0.46	1
06028E04	●	28	20.3	25	60	140	4	0.49	1
06028E05	●	28	20.3	25	60	140	5	0.48	1
06030E05	●	30	22.3	32	70	150	5	0.81	1
06032E05	●	32	24.3	32	70	150	5	0.82	1
06032E06	●	32	24.3	32	70	150	6	0.82	1
06035E05	●	35	27.3	32	50	150	5	0.88	1
06040E06	●	40	32.3	32	50	150	6	0.91	1

Inserts are sold separately.

■ Body (Long Shank type)

Dimensions (mm)

Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Weight (kg)	Fig
DMSL 06016EL02	●	16	8.4	16	70	150	2	0.19	1
06018EL02	●	18	10.4	16	50	150	2	0.21	1
06020EL03	●	20	12.4	20	80	160	3	0.33	1
06022EL03	●	22	14.3	20	60	160	3	0.36	1
06025EL04	●	25	17.3	25	100	170	4	0.54	1
06028EL04	●	28	20.3	25	60	170	4	0.60	1
06030EL05	●	30	22.3	32	120	200	5	1.01	1
06032EL05	●	32	24.3	32	120	200	5	1.06	1
06035EL05	●	35	27.3	32	60	210	5	1.21	1
06040EL06	●	40	32.3	32	60	210	6	1.24	1

Inserts are sold separately.

■ Identification Code

DMSL 06 025 E L 04

Series Code Insert Size Max. Dia. Shank type Long Shank Number of Teeth

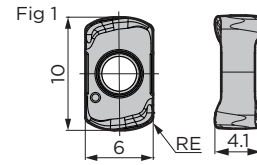
■ Parts

Flat Insert Screw	Integrated Wrench	Anti-seizure Cream
BFTX02507IP	2.0 TRDR08IP	SUMI-P

■ Insert

Dimensions (mm)

Grade Classification		Coated Carbide								Corner Radius RE	Fig	
Process	High-speed/Light Cutting	K	M	P	P	K	K	M	S			
	General-purpose	K	M	P	P	K	K	M	S	M	S	
	Roughing	K	M		P		K		M	S	M	S
Cat. No.		ACU2500	XCU2500	ACP2000	ACP3000	ACK2000	ACK3000	XCS2000	ACS2500	ACS3000		
LNMU 06T3ZNER-L <i>New</i>		●		●	●			●	●	●	1.0	1
LNMU 06T3ZNER-G <i>New</i>		●	●	●	●	●	●	●	●	●	1.0	1
LNMU 06T3ZNER-H <i>New</i>		●		●	●			●	●	●	1.0	1

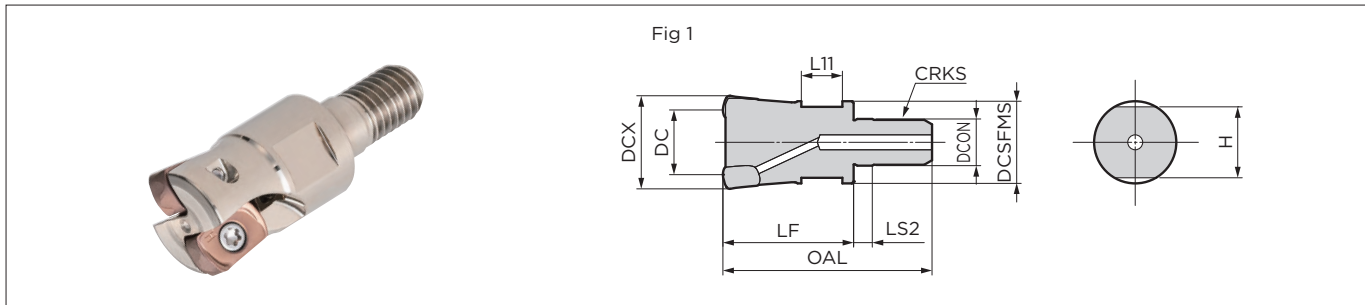


■ Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed vc (m/min)		Feed Rate fz (mm/t)		Grades
			Min.	Optimum - Max.	Min.	Optimum - Max.	
P	General Steel	Below 280HB	100	160 - 250	1.0	1.5 - 2.0	ACU2500/ACP2000/ACP3000
	Alloy Steel	Below 280HB	100	160 - 200	1.0	1.5 - 1.8	
	Alloy Steel	Below 42HRC	100	150 - 180	0.8	1.0 - 1.2	
M	Stainless Steel	—	80	120 - 150	0.8	1.0 - 1.2	ACU2500/ACS2500/ACS3000
K	Cast Iron	—	100	160 - 250	1.0	1.5 - 1.8	ACU2500/ACK2000/ACK3000
S	Heat-Resistant Alloy	—	20	30 - 40	0.3	0.5 - 0.7	ACU2500/ACS2500/ACS3000
	Ti Alloy	—	30	50 - 70	0.4	0.6 - 0.8	
H	Hardened Steel	Below 52HRC	80	100 - 120	0.3	0.5 - 0.7	ACU2500/ACP3000

Note : The above figures are guidelines for use with BT50 machine tools at depth of cut (ap) of 0.75mm.
 · The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.

Rake Angle	Radial	-12.5° to -16.5°	1.5mm	17°
	Axial	-8°		



Head

Dimensions (mm)

Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Flat L11	Width H	Number of Teeth	Weight (kg)	Fig
DMSL 06016M08Z2	●	16	8.4	14.5	8.5	M8	42	25	5	8	13	2	0.03	1
06018M08Z2	●	18	10.4	14.5	8.5	M8	42	25	5	8	13	2	0.03	1
06020M10Z3	●	20	12.4	18	10.5	M10	49	30	5	10	15	3	0.05	1
06020M10Z4	●	20	12.4	18	10.5	M10	49	30	5	10	15	4	0.05	1
06022M10Z3	●	22	14.3	18	10.5	M10	49	30	5	10	15	3	0.06	1
06022M10Z4	●	22	14.3	18	10.5	M10	49	30	5	10	15	4	0.06	1
06025M12Z4	●	25	17.3	22	12.5	M12	56	35	5	11	19	4	0.10	1
06025M12Z5	●	25	17.3	22	12.5	M12	56	35	5	11	19	5	0.10	1
06026M12Z4	●	26	18.3	22	12.5	M12	56	35	5	11	19	4	0.10	1
06028M12Z4	●	28	20.3	22	12.5	M12	56	35	5	11	19	4	0.11	1
06028M12Z5	●	28	20.3	22	12.5	M12	56	35	5	11	19	5	0.11	1
06030M16Z5	●	30	22.3	28.5	17	M16	63	40	5	12	24	5	0.18	1
06032M16Z5	●	32	24.3	28.5	17	M16	63	40	5	12	24	5	0.20	1
06032M16Z6	●	32	24.3	28.5	17	M16	63	40	5	12	24	6	0.20	1
06035M16Z5	●	35	27.3	28.5	17	M16	63	40	5	12	24	5	0.21	1
06040M16Z6	●	40	32.3	28.5	17	M16	63	40	5	12	24	6	0.25	1
06042M16Z6	●	42	34.3	28.5	17	M16	63	40	5	12	24	6	0.26	1

Inserts are sold separately.

Identification Code

DMSL 06 025 M12 Z4

Series Code Insert Size Max. Dia. Mounting Screw Size Number of Teeth

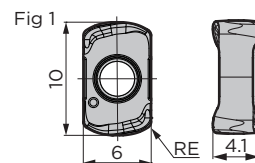
Parts

Flat Insert Screw	Integrated Wrench	Anti-seize Cream
BFTX02507IP	2.0 TRDR08IP	SUMI-P

Insert

Dimensions (mm)

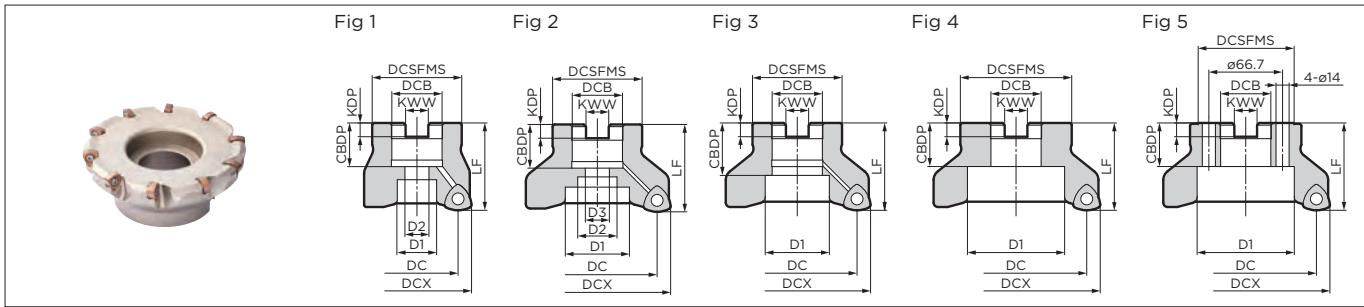
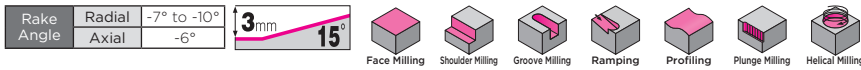
Grade Classification		Coated Carbide								Corner Radius RE	Fig	
Process	High-speed/Light Cutting		P	P	K	M	M	M				
	General-purpose	K M S	P M S	P	P	K	K	M S	M S	M S		
	Roughing	K M S		P		K		M S	M S			
Cat. No.		ACU2500	XCU2500	ACP2000	ACP3000	ACK2000	ACK3000	XCS2000	ACS2500	ACS3000		
L	LNMU 06T3ZNER-L <i>New</i>	●		●	●			●	●	●	1.0	1
G	LNMU 06T3ZNER-G <i>New</i>	●	●	●	●	●	●	●	●	●	1.0	1
H	LNMU 06T3ZNER-H <i>New</i>	●		●	●			●	●	●	1.0	1



Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed vc (m/min) Min. - Optimum - Max.	Feed Rate fz (mm/t) Min. - Optimum - Max.	Grades
P	General Steel	Below 280HB	100 - 160 - 250	1.0 - 1.5 - 2.0	ACU2500/ACP2000/ACP3000
	Alloy Steel	Below 280HB	100 - 160 - 200	1.0 - 1.5 - 1.8	
	Alloy Steel	Below 42HRC	100 - 150 - 180	0.8 - 1.0 - 1.2	
M	Stainless Steel	—	80 - 120 - 150	0.8 - 1.0 - 1.2	ACU2500/ACS2500/ACS3000
K	Cast Iron	—	100 - 160 - 250	1.0 - 1.5 - 1.8	ACU2500/ACK2000/ACK3000
S	Heat-Resistant Alloy	—	20 - 30 - 40	0.3 - 0.5 - 0.7	ACU2500/ACS2500/ACS3000
	Ti Alloy	—	30 - 50 - 70	0.4 - 0.6 - 0.8	
H	Hardened Steel	Below 52HRC	80 - 100 - 120	0.3 - 0.5 - 0.7	ACU2500/ACP3000

Note : The above figures are guidelines for use with BT50 machine tools at depth of cut (ap) of 0.75mm.
 · The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.



Body (Shell type)

Dimensions (mm)

Cat. No.	Stock	Dimensions (mm)													
		Max. Dia. DCX	Dia. DC	DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Bolt D3	Number of Teeth	Weight (kg)	Fig
DMSW 08050RS04	●	50	33.4	41	40	22	10.4	6.3	20	16.7	11	—	4	0.25	1
08050RS05	●	50	33.4	41	40	22	10.4	6.3	20	16.7	11	—	5	0.24	1
08052RS04		52	35.4	41	40	22	10.4	6.3	20	16.7	11	—	4	0.27	1
08052RS05		52	35.4	41	40	22	10.4	6.3	20	16.7	11	—	5	0.25	1
08063RS04	●	63	46.4	50	40	22	10.4	6.3	20	18	11	—	4	0.46	1
08063RS05	●	63	46.4	50	40	22	10.4	6.3	20	18	11	—	5	0.46	1
08063RS06	●	63	46.4	50	40	22	10.4	6.3	20	18	11	—	6	0.44	1
08063RS05-27	●	63	46.4	50	50	27	12.4	7	22	20	14	—	5	0.55	1
08063RS06-27	●	63	46.4	50	50	27	12.4	7	22	20	14	—	6	0.53	1
08066RS05-27		66	49.4	50	50	27	12.4	7	22	20	14	—	5	0.60	1
08066RS06-27		66	49.4	50	50	27	12.4	7	22	20	14	—	6	0.58	1
08080RS06	●	*80	63.3	55	50	27	12.4	7	22	20	14	—	6	0.88	1
08080RS08	●	*80	63.3	55	50	27	12.4	7	22	20	14	—	8	0.84	1
08085RS06		*85	68.3	55	50	27	12.4	7	22	20	14	—	6	1.01	1
08085RS08		*85	68.3	55	50	27	12.4	7	22	20	14	—	8	0.99	1
08100RS06	●	100	83.3	70	50	32	14.4	8	32	46	—	—	6	1.29	3
08125RS08	●	125	108.3	80	63	40	16.4	9	29	52	29	—	8	2.41	1
08160RS10	●	160	143.3	100	63	40	16.4	9	29	90	—	—	10	4.73	5
DMSW 08050R04	●	50	33.4	41	40	22.225	8.4	5	20	16.7	11	—	4	0.25	1
08050R05	●	50	33.4	41	40	22.225	8.4	5	20	16.7	11	—	5	0.24	1
08063R04	●	63	46.4	50	40	22.225	8.4	5	20	18	11	—	4	0.46	1
08063R05	●	63	46.4	50	40	22.225	8.4	5	20	18	11	—	5	0.46	1
08063R06	●	63	46.4	50	40	22.225	8.4	5	20	18	11	—	6	0.44	1
08080R06	●	*80	63.3	70	63	31.75	12.7	8	32	27	18	—	6	1.32	1
08080R08	●	*80	63.3	70	63	31.75	12.7	8	32	27	18	—	8	1.28	1
08100R06	●	*100	83.3	70	63	31.75	12.7	8	32	46	27	18	6	1.75	2
08125R08	●	125	108.3	80	63	38.1	15.9	10	35.5	55	30	—	8	2.55	1
08160R10	●	160	143.3	100	63	50.8	19.1	11	38	72	—	—	10	4.18	4

Take note of the cutter mounting size (DCB) when selecting a cutter. Inserts are sold separately.

For mounting the cutters marked with * to an arbor, use a JIS B1176 hexagonal socket bolt (metric specification: M12 x 30 to 35mm, inch specification: M16 x 40 to 45mm).

Note: The values in red have been changed from Tooling News No. 535 "SEC-Sumi Dual Mill DMSW Type Rev. 2."

Identification Code

DMSW 08 063 R S 05 - 27

Series Code Insert Size Max. Dia. Feed Direction Metric Bore Number of Teeth Mounting Size

Parts

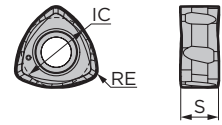
Applicable Cutter	Flat Insert Screw		Integrated Wrench	Detachable Wrench		Anti-seizure Cream
				Handle Grip	Bit	
DMSW08160R(S)10						
Other than above	BFTX0513IP	5.0	—	HPL2025	TRB20IP	SUMI-P

■ Insert

Dimensions (mm)

Grade Classification		Coated Carbide												
Process	High-speed/Light Cutting			P		K		M						
	General-purpose	K	M	P	P	K	K	M	S	M	S			
	Roughing	K	M		P		K			M	S	M	S	
Cat. No.		ACU2500	XCU2500	ACP2000	ACP3000	ACK2000	ACK3000	XCS2000	ACS2500	ACS3000	Inscribed Circle IC	Thickness S	Corner Radius RE	Fig
WNUM 0807ZNER-L <i>NEW</i>		●		●	●			●	●	●	13	7	1.6	1
WNUM 0807ZNER-G		●	●	●	●	●	●	●	●	●	13	7	1.6	1
WNUM 0807ZNER-H		●		●	●			●	●	●	13	7	1.6	1

Fig 1

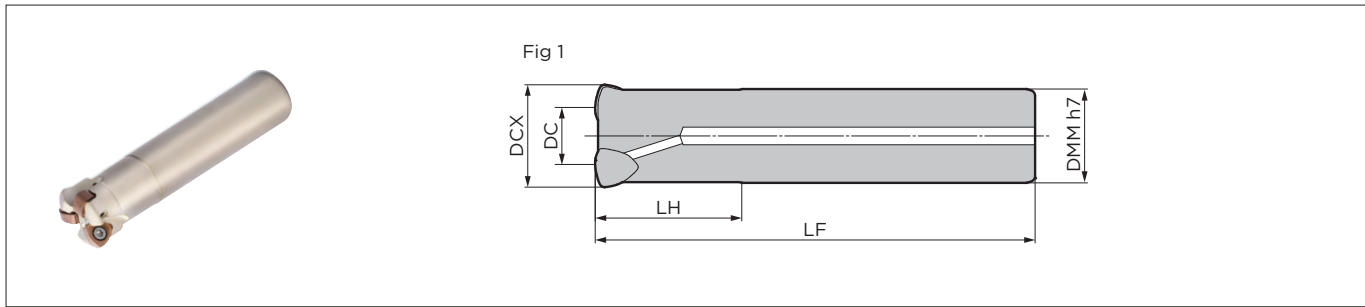


■ Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed vc (m/min)		Feed Rate fz (mm/t)		Grades
			Min.	Optimum - Max.	Min.	Optimum - Max.	
P	General Steel	Below 280HB	100 -	160 - 250	1.0 -	1.5 - 2.0	ACU2500/ACP2000/ACP3000
	Alloy Steel	Below 280HB	100 -	160 - 200	1.0 -	1.5 - 1.8	
	Alloy Steel	Below 42HRC	100 -	150 - 180	0.8 -	1.0 - 1.2	
M	Stainless Steel	—	80 -	120 - 150	0.8 -	1.0 - 1.2	ACU2500/ACS2500/ACS3000
K	Cast Iron	—	100 -	160 - 250	1.0 -	1.5 - 1.8	ACU2500/ACK2000/ACK3000
S	Heat-Resistant Alloy	—	20 -	30 - 40	0.3 -	0.5 - 0.7	ACU2500/ACS2500/ACS3000
	Ti Alloy	—	30 -	50 - 70	0.4 -	0.6 - 0.8	
H	Hardened Steel	Below 52HRC	80 -	100 - 120	0.3 -	0.5 - 0.7	ACU2500/ACP3000

Note : The above figures are guidelines for use with BT50 machine tools at depth of cut (ap) of 1.5mm.
 · The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.

Rake Angle	Radial	-10° to -13°	3mm	15°
	Axial	-6°		



■ Body (Shank type)

Dimensions (mm)

Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Weight (kg)	Fig
DMSW 08035E02	●	35	18.6	32	50	150	2	0.85	1
DMSW 08040E03	●	40	23.5	32	50	150	3	0.86	1
DMSW 08050E03-42	●	50	33.4	42	50	150	3	1.51	1
DMSW 08063E04-42	●	63	46.4	42	50	150	4	1.66	1

Inserts are sold separately.

■ Body (Long Shank type)

Dimensions (mm)

Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Weight (kg)	Fig
DMSW 08035EL02	●	35	18.6	32	60	210	2	1.21	1
DMSW 08040EL03	●	40	23.5	32	60	210	3	1.22	1
DMSW 08050EL03-42	●	50	33.4	42	50	250	3	2.54	1
DMSW 08063EL04-42	●	63	46.4	42	50	250	4	2.68	1

Inserts are sold separately.

■ Identification Code

DMSW 08 050 E L 03 - 42

Series Code Insert Size Max. Dia. Shank type Long Shank Number of Teeth Shank Dia.

■ Parts

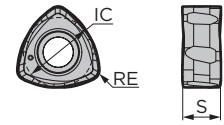
Flat Insert Screw	Integrated Wrench	Anti-seizure Cream
BFTX0513IP	5.0 TRDR20IP	SUMI-P

■ Insert

Dimensions (mm)

Grade Classification		Coated Carbide												
Process	High-speed/Light Cutting			P	P	K	M	S						
	General-purpose	K	M	P	P	K	K	M	S	M	S			
	Roughing	K	M		P		K		M	S	M	S		
Cat. No.		ACU2500	XCU2500	ACP2000	ACP3000	ACK2000	ACK3000	XCS2000	ACS2500	ACS3000	Inscribed Circle IC	Thickness S	Corner Radius RE	Fig
WNUM 0807ZNER-L <i>NEW</i>		●		●	●			●	●	●	13	7	1.6	1
WNUM 0807ZNER-G		●	●	●	●	●	●	●	●	●	13	7	1.6	1
WNUM 0807ZNER-H		●		●	●			●	●	●	13	7	1.6	1

Fig 1

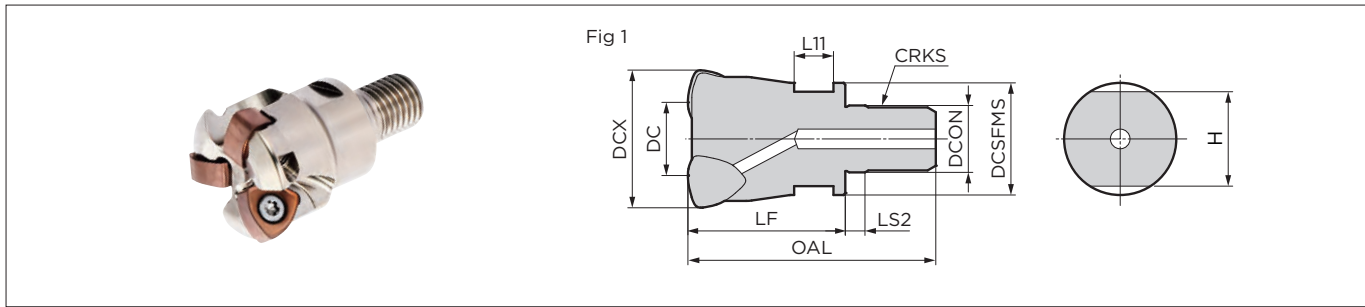


■ Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed vc (m/min)		Feed Rate fz (mm/t)		Grades		
			Min.	Optimum	Max.	Min.		Optimum	Max.
P	General Steel	Below 280HB	100	160	-250	1.0	1.5	-2.0	ACU2500/ACP2000/ACP3000
	Alloy Steel	Below 280HB	100	160	-200	1.0	1.5	-1.8	
	Alloy Steel	Below 42HRC	100	150	-180	0.8	1.0	-1.2	
M	Stainless Steel	—	80	120	-150	0.8	1.0	-1.2	ACU2500/ACS2500/ACS3000
K	Cast Iron	—	100	160	-250	1.0	1.5	-1.8	ACU2500/ACK2000/ACK3000
S	Heat-Resistant Alloy	—	20	30	-40	0.3	0.5	-0.7	ACU2500/ACS2500/ACS3000
	Ti Alloy	—	30	50	-70	0.4	0.6	-0.8	
H	Hardened Steel	Below 52HRC	80	100	-120	0.3	0.5	-0.7	ACU2500/ACP3000

Note : The above figures are guidelines for use with BT50 machine tools at depth of cut (ap) of 1.5mm.
 · The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.

Rake Angle	Radial	-11° to -13°	3mm	15°
	Axial	-6°		



Head

Dimensions (mm)

Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Flat L11	Width H	Number of Teeth	Weight (kg)	Fig
DMSW 08035M16Z2	●	35	18.6	28.5	17	M16	63	40	5	10	24	2	0.19	1
08040M16Z3	●	40	23.5	28.5	17	M16	63	40	5	10	24	3	0.21	1
08042M16Z3		42	25.5	28.5	17	M16	63	40	5	10	24	3	0.23	1

Inserts are sold separately.

Identification Code

DMSW 08 040 M16 Z3

Series Code Insert Size Max. Dia. Mounting Screw Size Number of Teeth

Parts

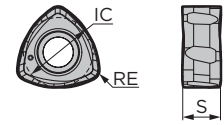
Flat Insert Screw	Integrated Wrench	Anti-seize Cream
BFTX0513IP	5.0 TRDR20IP	SUMI-P

Insert

Dimensions (mm)

Grade Classification		Coated Carbide												
Process	High-speed/Light Cutting			P		K		M						
	General-purpose	K	M	P	P	K	K	M	S	M	S			
	Roughing	K	M		P		K			M	S	M	S	
Cat. No.		ACU2500	XCU2500	ACP2000	ACP3000	ACK2000	ACK3000	XCS2000	ACS2500	ACS3000	Inscribed Circle IC	Thickness S	Corner Radius RE	Fig
WNUM 0807ZNER-L <small>NEW</small>		●		●	●			●	●	●	13	7	1.6	1
WNUM 0807ZNER-G		●	●	●	●	●	●	●	●	●	13	7	1.6	1
WNUM 0807ZNER-H		●		●	●			●	●	●	13	7	1.6	1

Fig 1



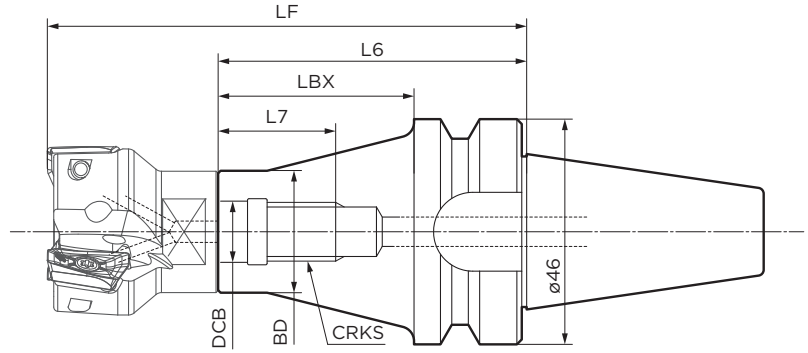
Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed vc (m/min)		Feed Rate fz (mm/t)		Grades
			Min.	Optimum - Max.	Min.	Optimum - Max.	
P	General Steel	Below 280HB	100 -	160 - 250	1.0 -	1.5 - 2.0	ACU2500/ACP2000/ACP3000
	Alloy Steel	Below 280HB	100 -	160 - 200	1.0 -	1.5 - 1.8	
	Alloy Steel	Below 42HRC	100 -	150 - 180	0.8 -	1.0 - 1.2	
M	Stainless Steel	—	80 -	120 - 150	0.8 -	1.0 - 1.2	ACU2500/ACS2500/ACS3000
K	Cast Iron	—	100 -	160 - 250	1.0 -	1.5 - 1.8	ACU2500/ACK2000/ACK3000
S	Heat-Resistant Alloy	—	20 -	30 - 40	0.3 -	0.5 - 0.7	ACU2500/ACS2500/ACS3000
	Ti Alloy	—	30 -	50 - 70	0.4 -	0.6 - 0.8	
H	Hardened Steel	Below 52HRC	80 -	100 - 120	0.3 -	0.5 - 0.7	ACU2500/ACP3000

Note : The above figures are guidelines for use with BT50 machine tools at depth of cut (ap) of 1.5mm.
 · The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.

Modular Tools

■ BBT Integrated type - SEC-Modular Tools Special Arbors



■ BBT Integrated Arbor

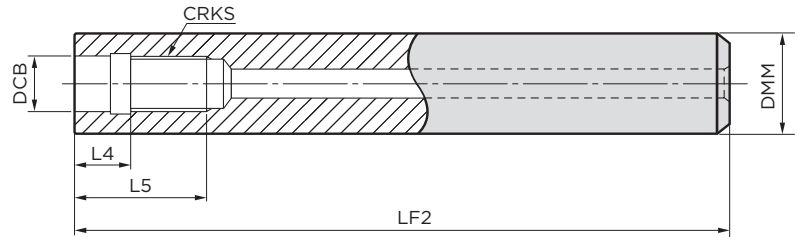
Dimensions (mm)

Cat. No.	Stock	Screw CRKS	Hole Dia. DCB	External Dia. BD	Body Overhang L6	Length LBX	Thread Depth L7	Overhang LF ¹	Coolant Hole
BBT30-M8-50	●	M8	8.5	15.9	72	50	18	97	Yes
BBT30-M10-45	●	M10	10.5	19.9	67	45	20	97	Yes
BBT30-M12-40	●	M12	12.5	24.9	62	40	22	97	Yes
BBT30-M16-35	●	M16	17	31.9	57	35	24	97	Yes

*1: Overhang length for LF is with head mounted. Can also be used with BT30 spindle machines.

Note: The values in red have been changed from Tooling News No. 535 "SEC-Sumi Dual Mill DMSW Type Rev. 2."

■ SEC-Modular Tools - Special Arbors (Carbide Arbor/Steel Arbor)



■ Carbide Arbor

Dimensions (mm)

Cat. No.	Stock	Screw CRKS	Hole Dia. DCB	Shank DMM	Overall Length LF2	Depth L4	Thread Depth L5	Overhang LF ²
MA15M08L120C	●	M8	8.5	15	120	10	18	145
MA15M08L160C	●	M8	8.5	15	160	10	18	185
MA16M08L120C	●	M8	8.5	16	120	10	18	145
MA16M08L160C	●	M8	8.5	16	160	10	18	185
MA18M10L150C	●	M10	10.5	18	150	10	20	180
MA18M10L200C	●	M10	10.5	18	200	10	20	230
MA20M10L150C	●	M10	10.5	20	150	10	20	180
MA20M10L200C	●	M10	10.5	20	200	10	20	230
MA23M12L200C	●	M12	12.5	23	200	10	22	235
MA23M12L250C	●	M12	12.5	23	250	10	22	285
MA25M12L200C	●	M12	12.5	25	200	10	22	235
MA25M12L250C	●	M12	12.5	25	250	10	22	285
MA28M16L200C	●	M16	17	28	200	10	24	240
MA28M16L300C	●	M16	17	28	300	10	24	340
MA32M16L200C	●	M16	17	32	200	10	24	240
MA32M16L300C	●	M16	17	32	300	10	24	340

■ Steel Arbor

Dimensions (mm)

Cat. No.	Stock	Screw CRKS	Hole Dia. DCB	Shank DMM	Overall Length LF2	Depth L4	Thread Depth L5	Overhang LF ²
MA16M08L120S	●	M8	8.5	16	120	10	18	145
MA20M10L150S	●	M10	10.5	20	150	10	20	180
MA25M12L200S	●	M12	12.5	25	200	10	22	235
MA32M16L200S	●	M16	17	32	200	10	24	240

■ Identification Code

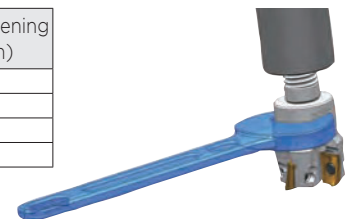
MA 15 M08 L120 C

Series Code Shank Dia. Mounting Screw Size Arbor Overall Length Arbor Materials
(C: Carbide S: Steel)

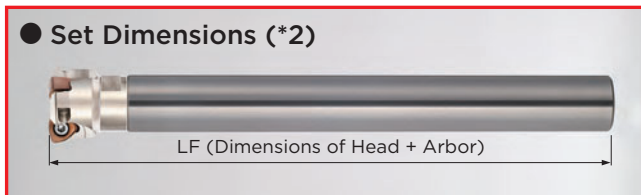
*Take care when tightening the head.

- When mounting the head to an arbor, follow the standard tightening torque in the table below.
- Check the mounting screw size for the head and arbor beforehand.

Screw Size	Regulated Tightening Torque (N·m)
M8	23
M10	46
M12	60
M16	80





● Set Dimensions (*2)

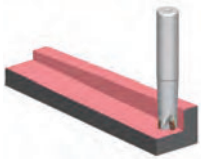



● mark: Standard stocked item

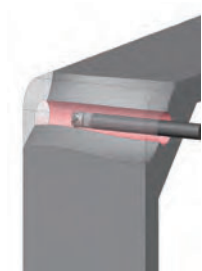
Application Examples (DMSL type)

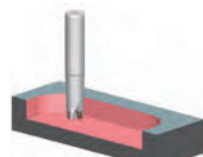
General Structural Steel SS400 Machine Component		Sumitomo	Competitor's Product
	Tool	DMSL06020M10Z3	Double-Sided, 6 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	20	50
	Number of Teeth	3	4
	vc (m/min)	94	130
	vf (mm/min)	4,000	2,500
	fz (mm/t)	0.89	0.6
	ap(mm)	1	0.5
	ae(mm)	20	35
Coolant	Wet	Wet	
Results	No chatter even when the feed rate is increased with an overhang amount of 120mm (carbide arbor), efficiency doubled		

Carbon Steel S40C Automotive Component		Sumitomo	Competitor's Product
	Tool	DMSL06020M10Z3	Double-Sided, 4 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	20	20
	Number of Teeth	3	3
	vc (m/min)	200	160
	vf (mm/min)	9,000	3,900
	fz (mm/t)	0.93	0.5
	ap(mm)	0.35	0.5
	ae(mm)	20	25
Coolant	Dry	Wet	
Results	Stable milling even with an overhang amount of 130mm (carbide arbor), efficiency 1.3x		


Prehardened Steel (40HRC) Mold Component		Sumitomo	Competitor's Product
	Tool	DMSL06025E04	Single-Sided, 4 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	25	32
	Number of Teeth	4	4
	vc (m/min)	190	150
	vf (mm/min)	9,600	5,970
	fz (mm/t)	1	1
	ap(mm)	0.4	0.4
	ae(mm)	18	25
Coolant	Dry	Wet	
Results	Tool life doubled by switching from wet to dry cut Stable milling without chatter even with smaller diameters		


Precipitation Hardened Stainless Steel SUS630 (H900) Aerospace Component		Sumitomo	Competitor's Product
	Tool	DMSL06025E05	Double-Sided, 4 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	25	25
	Number of Teeth	5	4
	vc (m/min)	145	145
	vf (mm/min)	3,000	2,400
	fz (mm/t)	0.33	0.33
	ap(mm)	0.8	0.8
	ae(mm)	2.5	2.5
Coolant	Wet	Dry	
Results	2x tool life (4 units/corner) realised		

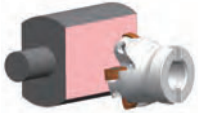
Ductile Cast Iron FCD450 Machine Component		Sumitomo	Competitor's Product
	Tool	DMSL06032M16Z5	—
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	32	—
	Number of Teeth	5	—
	vc (m/min)	100	—
	vf (mm/min)	4,970	—
	fz (mm/t)	1	—
	ap(mm)	0.4	—
	ae(mm)	3	—
Coolant	Wet	—	
Results	Stable milling even with long overhangs when combined with carbide integrated arbor Much higher efficiency achieved compared to using boring bars		


Titanium Alloy Ti-6Al-4V Aerospace Component		Sumitomo	Competitor's Product
	Tool	DMSL06025E04	Double-Sided, 4 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	25	25
	Number of Teeth	4	4
	vc (m/min)	50	60
	vf (mm/min)	2,000	1,200
	fz (mm/t)	0.8	0.4
	ap(mm)	0.7	0.7
	ae(mm)	15	15
Coolant	Wet	Wet	
Results	Vibration reduced and stable milling made possible, tool life 1.5x (3 units/corner) Feed rate also increased for 1.7x efficiency		


Application Examples (DMSW type)


Tool Steel SKD61 (45HRC) Mold		Sumitomo	Competitor's Product
Vertical Machining Centre BT50 	Tool	DMSW08050RS05	Double-Sided, 6 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	50	50
	Number of Teeth	5	4
	vc (m/min)	130	130
	vf (mm/min)	2,500	2,500
	fz (mm/t)	0.75	0.6
	ap(mm)	0.5	0.5
	ae(mm)	35	35
	Coolant	Dry	Dry
	Results	Minimal damage to insert even after 50 minutes of machining, stable chip shape	

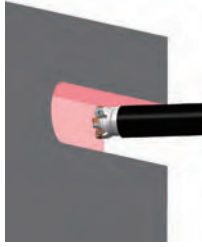
Prehardened Steel (40HRC) Test Piece		Sumitomo	Competitor's Product
Boring Machine BT50 	Tool	DMSW08100R06	Double-Sided, 6 Corners
	Grade	ACP3000	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	100	100
	Number of Teeth	6	6
	vc (m/min)	180	120
	vf (mm/min)	5,160	3,440
	fz (mm/t)	1.5	1.5
	ap(mm)	1	1
	ae(mm)	65	65
	Coolant	Dry	Dry
	Results	No chatter even when the cutting speed is increased with an overhang amount of 380mm (steel arbor), efficiency increased 1.5x	

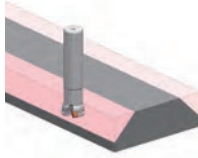
Tempered Steel SCM440 (40HRC) Machine Component		Sumitomo	Competitor's Product
Horizontal Machining Centre: BT50 	Tool	DMSW08050RS04	Single-Sided, 3 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	50	50
	Number of Teeth	4	4
	vc (m/min)	210	210
	vf (mm/min)	5,825	5,825
	fz (mm/t)	1.1	1.1
	ap(mm)	1.5	1.5
	ae(mm)	25	25
	Coolant	Dry	Dry
	Results	Stable machining without chipping is possible even with heat-treated work material	

Alloy Steel SCM430 Large Oil Drilling Tool		Sumitomo	Competitor's Product
	Tool	DMSW08080R08	—
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	80	—
	Number of Teeth	8	—
	vc (m/min)	180	—
	vf (mm/min)	3,400	—
	fz (mm/t)	0.6	—
	ap(mm)	1.9	—
	ae(mm)	57	—
	Coolant	Dry	—
	Results	Machining of large workpiece (nearly 300 minutes) can be completed with one insert corner, long tool life	


Manganese Steel Construction Machine Component		Sumitomo	Competitor's Product
Horizontal Machining Centre: BT50 	Tool	DMSW08080RS06	Single-Sided, 2 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	80	80
	Number of Teeth	6	5
	vc (m/min)	80	80
	vf (mm/min)	900	900
	fz (mm/t)	0.47	0.56
	ap(mm)	1	1
	ae(mm)	60	60
	Coolant	Wet	Wet
	Results	Machining without chatter even for castings with low clamp rigidity. Stable machining with no sudden fractures even on mill-scale work, resulting in a longer tool life (1.3x)	

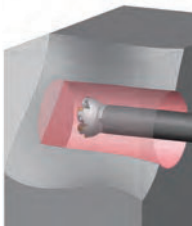
Alloy Steel SCM415 Machine Component		Sumitomo	Competitor's Product
Horizontal Machining Centre BT40 	Tool	DMSW08125RS08	Double-Sided, 10 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	125	125
	Number of Teeth	8	13
	vc (m/min)	280	200
	vf (mm/min)	4,280	2,185
	fz (mm/t)	0.75	0.33
	ap(mm)	1.5	2.0
	ae(mm)	100	100
	Coolant	Dry	Wet
	Results	Efficiency improved 1.5x, no sudden fractures, improved tool life and increased stability	


Carbon Steel S45C Large Mold Part		Sumitomo	Competitor's Product
Boring Machine BT50 	Tool	DMSW08050RS05	Single-Sided, 4 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	50	50
	Number of Teeth	5	5
	vc (m/min)	189	189
	vf (mm/min)	5,000	5,000
	fz (mm/t)	0.83	0.83
	ap(mm)	1	1
	ae(mm)	50	50
	Coolant	Dry	Dry
	Results	No chatter even when using a 200mm long steel arbor. Achieves roughing (240 minutes) of large workpieces without indexing the inserts	


Low Carbon Steel SS400 Machine Component		Sumitomo	Competitor's Product
Vertical Machining Centre BT40 	Tool	DMSW08040E03	Double-Sided, 4 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	40	32
	Number of Teeth	3	6
	vc (m/min)	150	120
	vf (mm/min)	3,800	3,800
	fz (mm/t)	1.0	0.5
	ap(mm)	0.5	0.5
	ae(mm)	30	30
	Coolant	Dry	Dry
	Results	2x tool life	


Application Examples (DMSW type)


Stainless Steel SUS304 Machine Component		Sumitomo	Competitor's Product
Vertical 5-axis Machining Centre BT50 	Tool	DMSW08080R08	Single-Sided, 2 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	80	80
	Number of Teeth	8	7
	vc (m/min)	120	176
	vf (mm/min)	2,675	490
	fz (mm/t)	0.7	0.1
	ap(mm)	1	2
	ae(mm)	40	40
	Coolant	Dry	Dry
	Results	Efficiency increased 2.7x, tool life increased more than 6x	

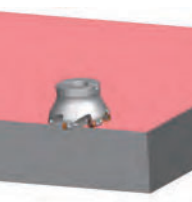
Stainless Steel SUS304 Machine Component		Sumitomo	Competitor's Product
Horizontal Machining Centre BT50 	Tool	DMSW08080RS06	Single-Sided, 5 Corners
	Grade	ACS3000	—
	Chipbreaker	H	—
	Cutter Dia. (mm)	80	80
	Number of Teeth	6	6
	vc (m/min)	160	180
	vf (mm/min)	4,960	6,500
	fz (mm/t)	1.3	1.5
	ap(mm)	0.75	0.75
	ae(mm)	36	36
	Coolant	Wet	Wet
	Results	Large chip pockets improve chip evacuation by 1.67x (5 holes/corner) in helical hole expansion milling	


Gray Cast Iron FC250 Mold		Sumitomo	Competitor's Product
Vertical Machining Centre BT50 	Tool	DMSW08100R06	Single-Sided, 4 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	100	100
	Number of Teeth	6	6
	vc (m/min)	100	100
	vf (mm/min)	1,910	1,910
	fz (mm/t)	1	1
	ap(mm)	1.5	1.5
	ae(mm)	50	50
	Coolant	Wet	Wet
	Results	Sudden fractures during mill-scale cutting eliminated, tool life increased	

Gray Cast Iron FC250 Machine Component		Sumitomo	Competitor's Product
Vertical Machining Centre BT50 	Tool	DMSW08063R05	Single-Sided, 3 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	63	63
	Number of Teeth	5	4
	vc (m/min)	158	158
	vf (mm/min)	4,000	1,500
	fz (mm/t)	1.0	0.47
	ap(mm)	2	1
	ae(mm)	50	50
	Coolant	Dry	Dry
	Results	Number of teeth, feed rate and depth of cut can all be increased, resulting in 5x higher efficiency	

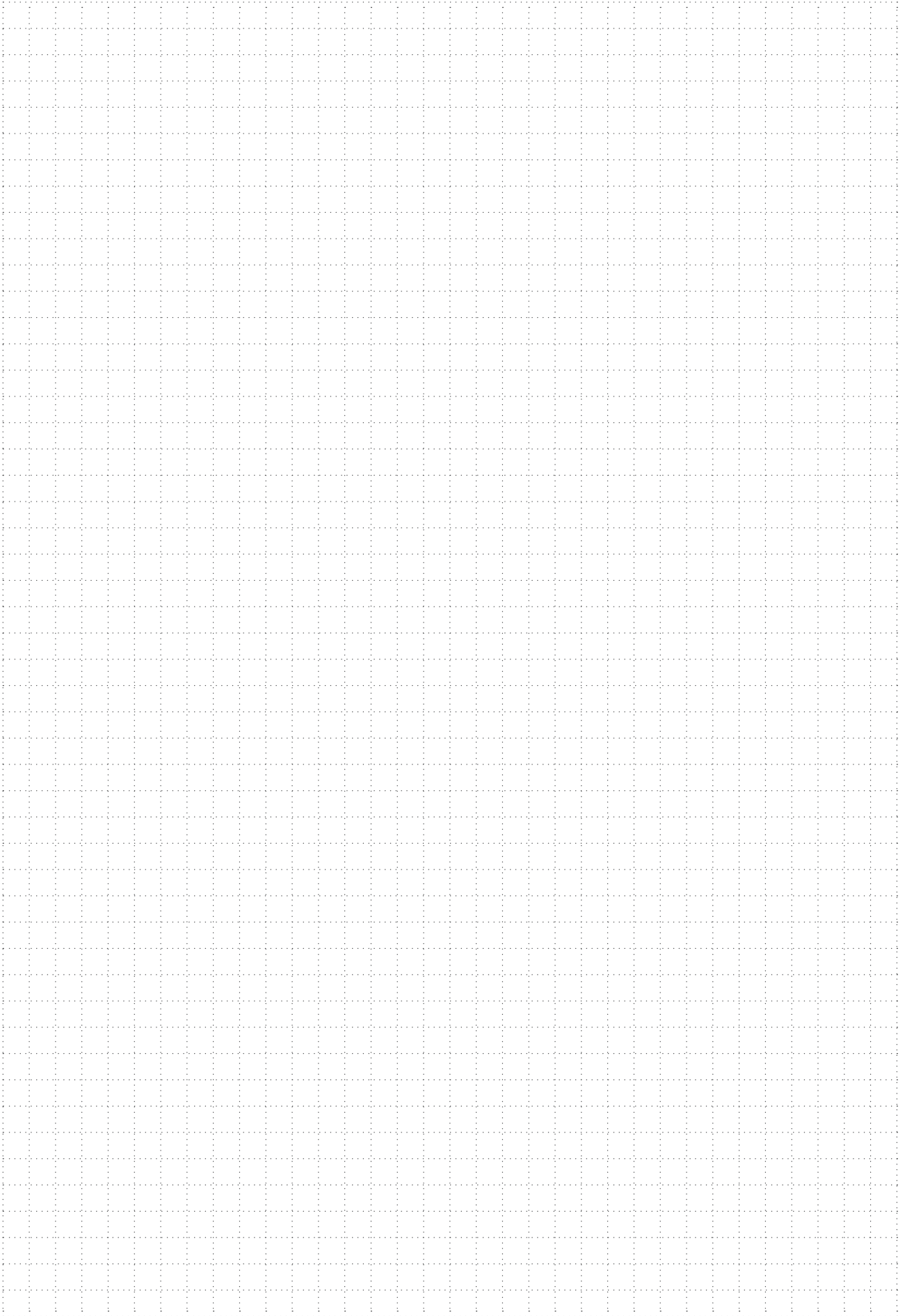
Ductile Cast Iron FCD540 Large Mold Part		Sumitomo	Competitor's Product
Horizontal Machining Centre BT50 	Tool	DMSW08050RS04	Double-Sided, 4 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	50	50
	Number of Teeth	4	4
	vc (m/min)	125	125
	vf (mm/min)	3,000	3,000
	fz (mm/t)	1	1
	ap(mm)	1.5	1.5
	ae(mm)	25	25
	Coolant	Dry	Dry
	Results	Minimal damage to insert even after 300 minutes of machining	

Ductile Cast Iron Machine Component		Sumitomo	—
Vertical 5-axis Machining Centre BT40 	Tool	DMSW08050RS05	—
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	50	—
	Number of Teeth	5	—
	vc (m/min)	210	—
	vf (mm/min)	5,350	—
	fz (mm/t)	0.8	—
	ap(mm)	1	—
	ae(mm)	30	—
	Coolant	Dry	—
	Results	Smooth and stable machining even with low-rigidity machine Minimal insert damage even after 220 minutes of machining	

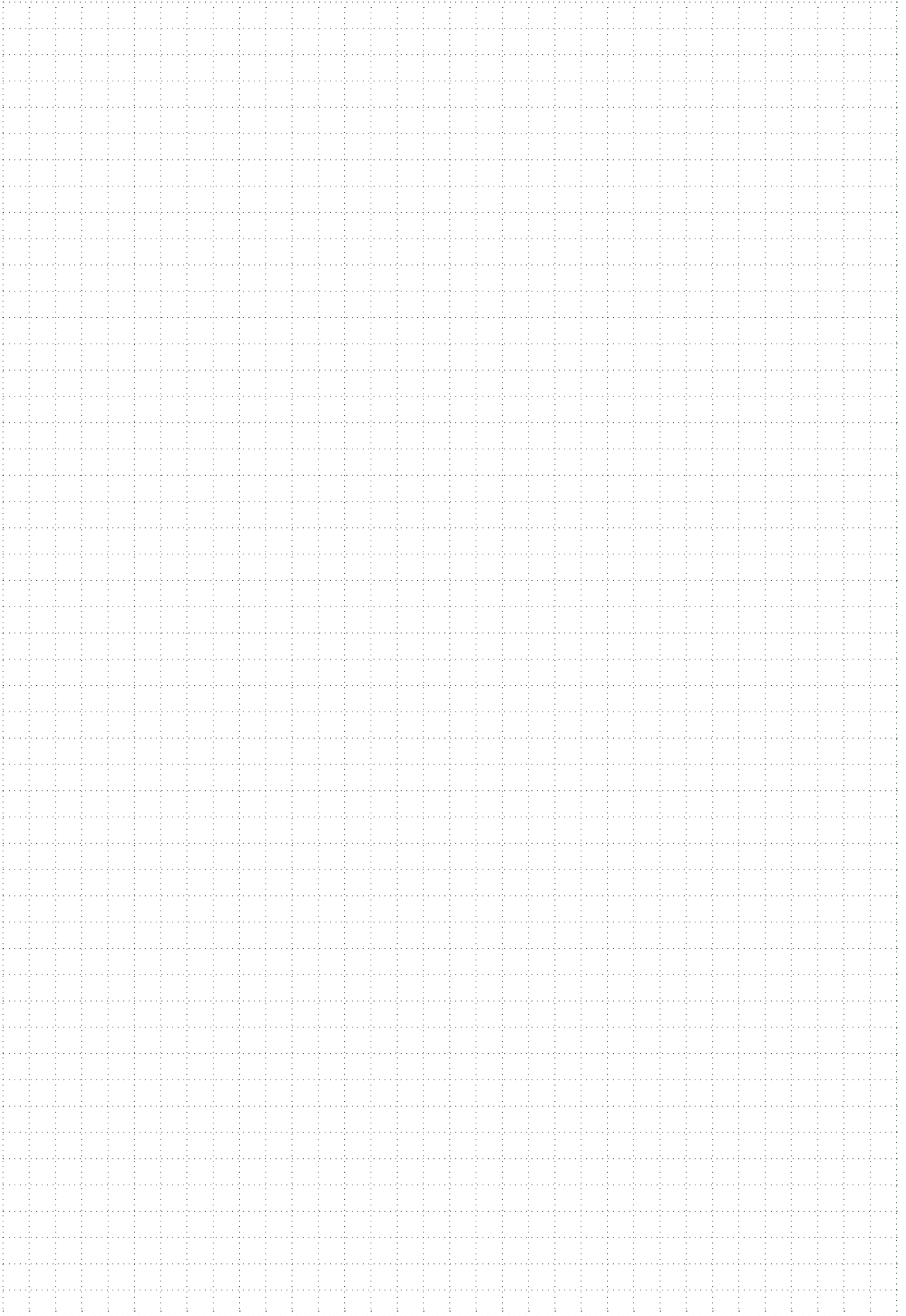
Heat Resistant Steel SUH660 Aerospace Component		Sumitomo	Competitor's Product
Double Column Machining Centre BT50 	Tool	DMSW08100R06	Double-Sided, 6 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	100	100
	Number of Teeth	6	6
	vc (m/min)	30	30
	vf (mm/min)	200	200
	fz (mm/t)	0.35	0.35
	ap(mm)	1	1
	ae(mm)	60	60
	Coolant	Wet	Wet
	Results	Decreased noise and vibration during milling, 1.5x tool life	

Tool Steel SKD61 (48HRC) Forge Mold		Sumitomo	Competitor's Product
Vertical Machining Centre BT40 	Tool	DMSW08050RS05	Single-Sided, 2 Corners
	Grade	ACU2500	—
	Chipbreaker	H	—
	Cutter Dia. (mm)	50	30
	Number of Teeth	5	7
	vc (m/min)	120	70
	vf (mm/min)	7,000	3,110
	fz (mm/t)	1.83	0.6
	ap(mm)	0.5	0.15
	ae(mm)	36	22
	Coolant	Wet	Wet
	Results	Larger diameter for increased tool rigidity, higher feed per tooth rate reduces machining time to 1/6	

MEMO



MEMO





- 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.

< SAFETY NOTES >

- 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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