SUMITOMO
CARBIDE - CBN - DIAMOND

Sumi Dual Mill DMSW Series

High-Productivity High-Feed Cutter for Rough Milling

6-cornered Inserts
Double-sided Inserts

P M K N S H

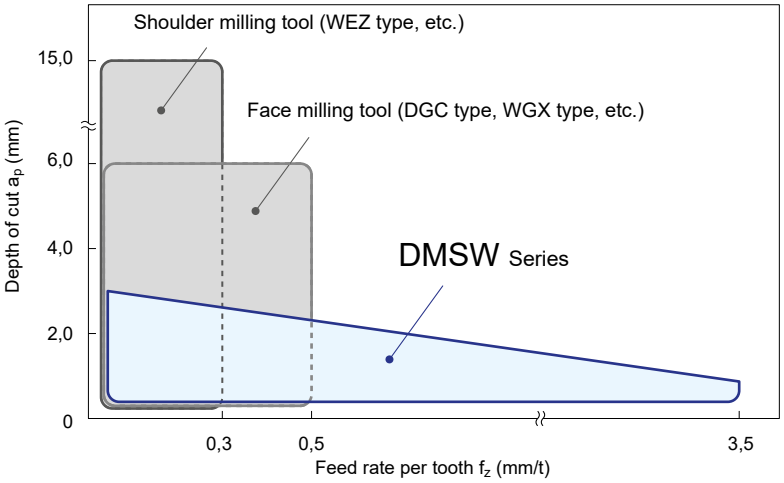
SUMITOMO ELECTRIC GROUP

DMSW Series

General Features

- High productivity thanks to an ultra-high metal removal rate as well as high economic efficiency, due to the stable six-edged insert.
- The arc-shaped cutting edge reduces the cutting force to a minimum. High-efficiency machining at maximum feed rate per tooth of 3,5 mm/t is possible.

Application Range



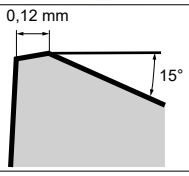
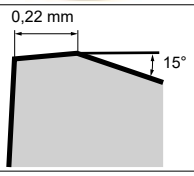
- Cutting depths up to 3 mm can be achieved. Feed rate per tooth up to 3,5 mm/t.
- Increases productivity.

Product Range

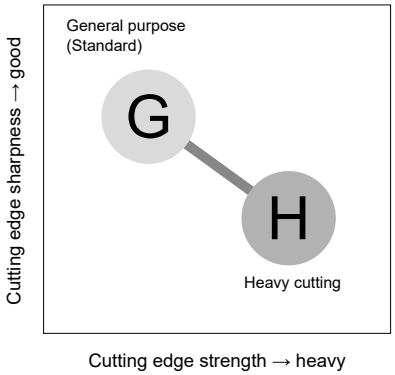
Type	Cat. No.	Diameter range (mm) / No of teeth												Shape
		Ø35	Ø40	Ø42	Ø50	Ø52	Ø63	Ø66	Ø80	Ø85	Ø100	Ø125	Ø160	
Shell	DMSW 08000RS				4 5	4 5	4 5* 6*	5 6	6 8	6 8	6	8	10	
	DMSW 08000R (Pouce)				4 5		4 5 6		6 8		6	8	10	
Shank	DMSW 08000E	2	3		3		4							
	DMSW 08000EL	2	3		3		4							
Modular	DMSW 08000M	2	3	3										

* Different shank diameters in stock

Chipbreaker

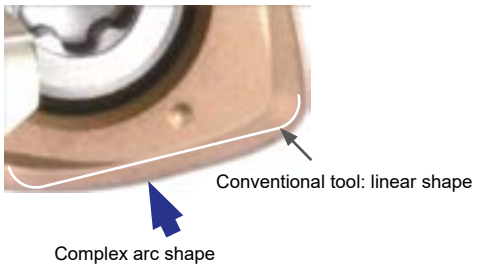
Work Material	P Steel M Stainless steel K Cast iron	P Steel M Stainless steel K Cast iron
Applications	Main chipbreaker general-purpose to interrupted milling	Roughing, heavy interrupted cutting and hardened steel milling
	General purpose	High strength
Chip breaker	**G** type	**H** type
		
Cutting edge cross section		

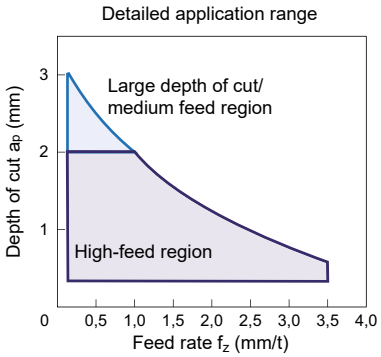
Chipbreaker Selection Guide



Features

- A small chip cross-section due to a small cutting angle enables high feed rates per tooth.

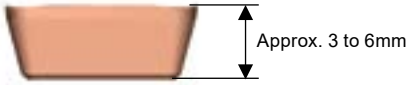




- Economical double-sided insert with 6-corner specification. Reassuring thick at 7 mm.

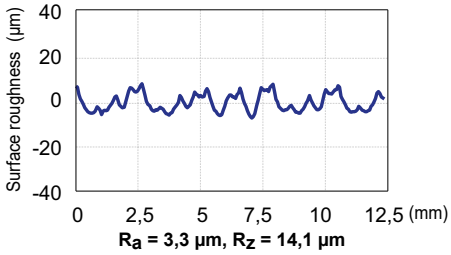
WNMU type

Conventional tool



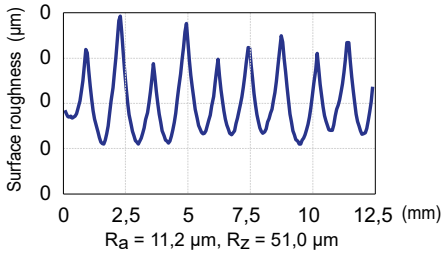
- Even at high feedrates of 2,0 mm/t or more, a reasonable surface finish can be attained.

DMSW type



Ra = 3,3 µm, Rz = 14,1 µm

Competitor's product A (high-feed tool)

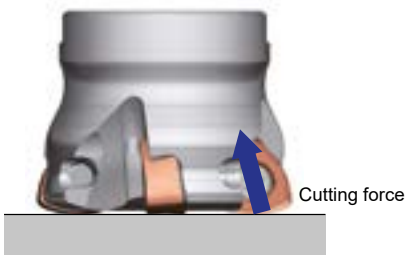


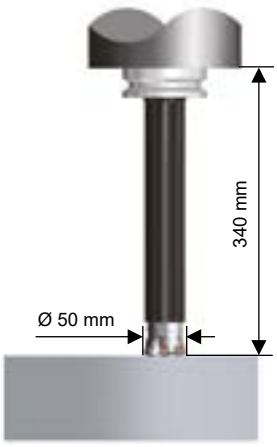
Ra = 11,2 µm, Rz = 51,0 µm

Machine:	Vertical machining centre BT50, Work material: C50	Insert:	WNMU 0807ZNER-G (ACU2500)
Tool:	DMSW 08063RS04	Cutting data:	v_c = 150 m/min, f_z = 2,5 mm/t, a_p = 0,5 mm, a_e = 40 mm, dry

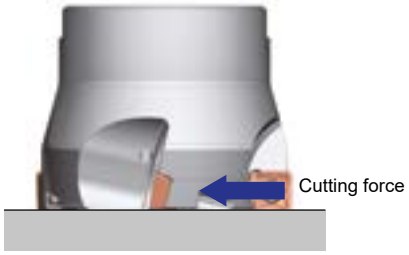
- Small cutting angle (15°) controls cutting force toward the back force direction.
  Suppresses chatter in long tool overhang machining, increasing efficiency.

DMSW type

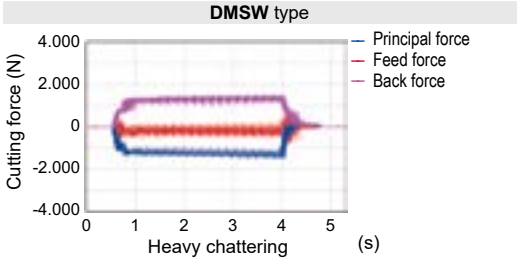




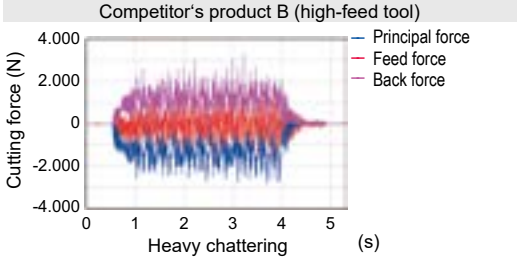
(Reference) Shoulder milling tool



DMSW type



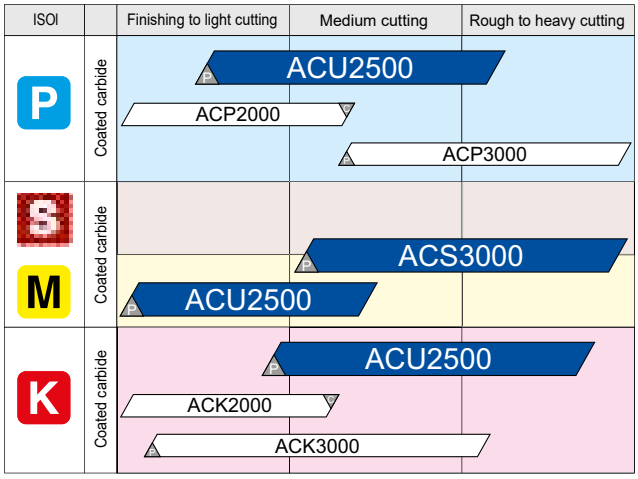
Competitor's product B (high-feed tool)



Machine:	Vertical machining centre BT50, Work material: C50		
Tool:	DMSW 08050RS04		
Insert:	WNMU 0807ZNER-G (ACU2500)		
Cutting data:	v_c = 160 m/min, f_z = 0,65 mm/t, a_p = 0,80 mm, a_e = 45 mm, dry		

Grade Application Range

In addition to **ACU2500** (capable of being used with various work materials), steel milling grades **ACP2000/ ACP3000,** cast iron milling grades **ACK2000/ACK3000** and **ACS3000** for titanium alloys, heat-resistant alloys and stainless steel have now been added to the lineup.

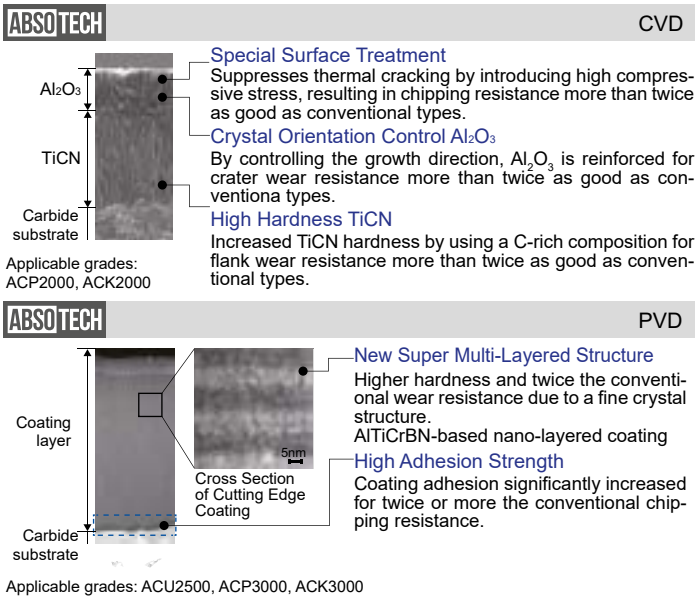


The letters „C" and „P" at the end of each grade indicate the coating type.

▽: CVD △: PVD

Grade Features

New coating technology that realises absolute stability
ABSOTECH ™ (absolute technology)



Grade Characteristic Values

CVD

Work material	Grade	Hardness (HRA)	TRS (GPa)	Coating type	Coating thickness (µm)	Features	Old grade
P	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.	ACP100
K	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.	ACK100 ACK200

PVD

Work material	Grade	Hardness (HRA)	TRS (GPa)	Coating type	Coating thickness (µm)	Features	Old grade
P	ACU2500	91,6	3,8	ABSOTECH	3	General purpose grade supporting 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.	–
P	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.	ACP200 ACP300
S M	ACS3000	89,8	3,4	ABSOTECH	3	High toughness carbide substrate and coating with excellent chipping resistance provide outstanding stability when machining titanium alloys, heat-resistant alloys or stainless steel	ACM300
K	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, realisiing stable long tool life over a wide range of cast iron machining operations.	ACK300

Precautions for Corner Finishing

Actual machined corners will have uncut and overcut portions due to the shape of the inserts.

Fig. 1

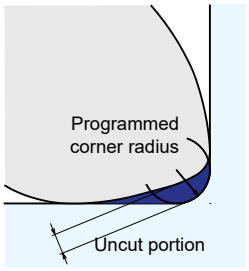
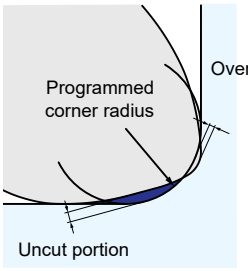


Fig. 2

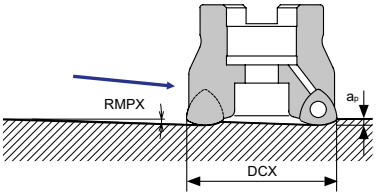


Programmed corner radius	Uncut portion	Overcut portion	Fig.
2,0	1,22	0	1
2,5	1,08	0	1
3,0	0,95	0	1
3,5	0,83	0,04	2

(mm)

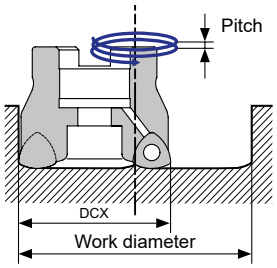
Ramping/Helical Milling Upper Limit

Ramping



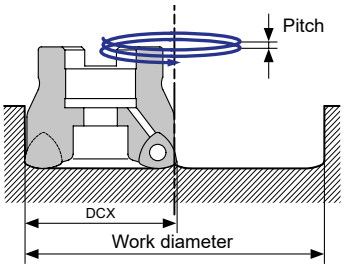
Helical Milling

≤ Min. diameter



Below the min. machining diameter:
Centre uncut portion cannot be removed by traverse cutting with the same cutter.

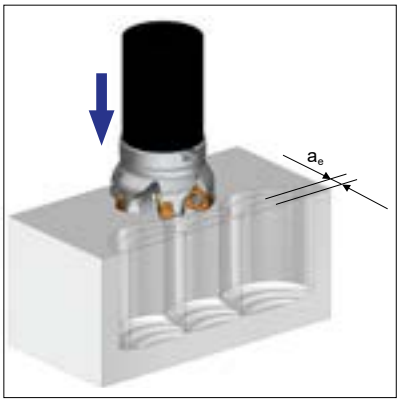
≥ Max. diameter



Above the max. machining diameter:
Centre uncut portion can be removed by traverse cutting with the same cutter.

Max. dia. DCX (mm)	Ramping	Helical milling					
	Max. ramping angle RPMX (°)	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	069,3	1,3	53,5	0,5	052,0	0,5
40	0,8	079,3	2,0	63,4	1,0	060,2	0,5
42	0,8	083,3	2,0	67,4	1,0	063,9	0,5
50	1,4	099,3	2,0	83,3	2,0	079,1	1,0
52	1,4	103,3	2,0	87,3	2,0	082,8	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	Not recommended						

Plunge Cutting Upper Limit



Max. a_e (mm)	Max. f_z (mm/t)
10	0,2

DMSW 08000 R(S) Type

Rake angle		
	Radial	-7° to -10°
	Axial	-6°

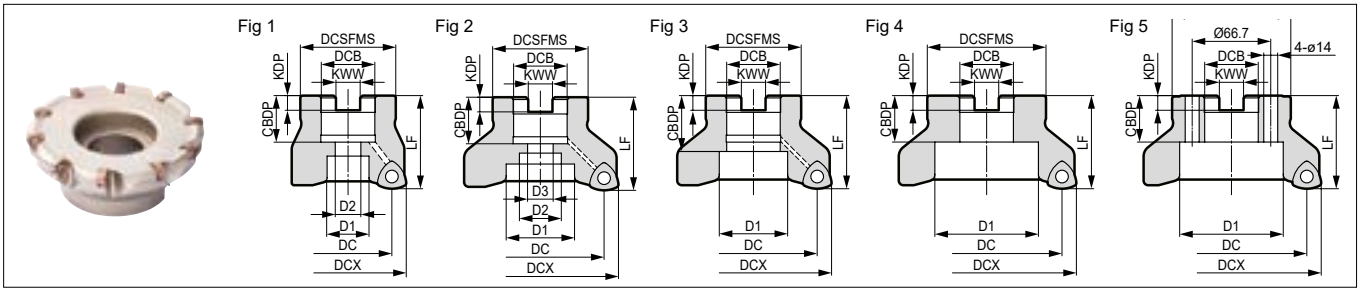


Fig 1

Fig 2

Fig 3

Fig 4

Fig 5

Body (Shell Type)

Dimensions (mm)

	Cat. No.	Stock	DCX	DC	DCSFMS	LF	DCB	KWW	KDP	CBDP	D1	D2	D3	Number of teeth	Weight (kg)	Fig.
Metric	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	17	11	–	4	0,27	1
	08052RS05	●	52	35,4	41	40	22	10,4	6,3	20	17	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
	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	130	63	40	16,4	9	29	90	–	–	10	4,73	5
Inch	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 seperately.

For mounting the Ø 80 mm, Ø 85 mm and Ø 100 mm sized cutters marked with * to an arbor, use a JIS B1176 hexagonal socket bolt (metric specification : M12x30 to 35 mm, inch specification: M16x40 to 45 mm).

Parts

Applicable cutters	Insert screw		Wrench	Handle grip	Wrench bit
		 N·m			
DMSW 08160R(S)10	BFTX0513IP	5,0	TRDR20IP	–	–
Other than above			–	HPL2025	TPB20IP

Identification Details

DMSW	08	063	R	S	05	-	27
Cutter series	Insert size	Cutter diameter	Feed direction	Metric	Number of teeth		Mounting size

Recommended Cutting Conditions

→ P. 7

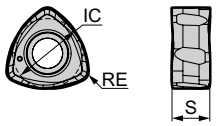
Inserts

Dimensions (mm)

Application	Coated carbide					
High speed / Light cut		P		K		
General purpose	M S	P	P	K	K	M
Roughing	M S		P		K	M

Cat. No.	ACU2500	ACP2000	ACP3000	ACK2000	ACK3000	ACS3000	IC	S	RE	Fig.
WNMU 0807ZNER-G	●	●	●	●	●	●	13	7	1,6	1
WNMU 0807ZNER-H	●	●	●		●		13	7	1,6	1

Fig 1



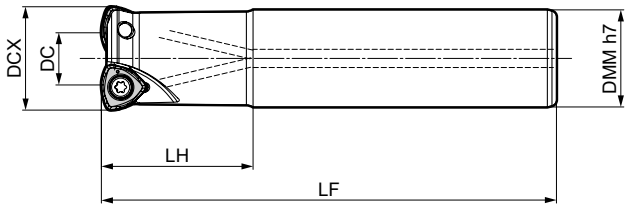
● = Euro stock ❍ = Japan stock

DMSW 08000 E(L) Type

Rake angle	Radial	-7° to -10°
	Axial	-6°

3 mm, 15°

Fig 1



Body (Shank Type)

Dimensions (mm)

Cat. No.	Stock	DCX	DC	DMM	LH	LF	Number of teeth	Weight (kg)	Fig.
DMSW 08035E02	●	35	18,6	32	50	150	2	0,85	1
08040E03	●	40	23,5	32	50	150	3	0,86	1
08050E03-42	●	50	33,4	42	50	150	3	1,51	1

Inserts are sold seperately.

Body (Long Shank Type)

Dimensions (mm)

Cat. No.	Stock	DCX	DC	DMM	LH	LF	Number of teeth	Weight (kg)	Fig.
DMSW 08035EL02	●	35	18,6	32	60	210	2	1,21	1
08040EL03	●	40	23,5	32	60	210	3	1,22	1
08050EL03-42	●	50	33,4	42	50	250	3	2,54	1

Inserts are sold seperately.

Parts

Insert screw		Wrench
		
BFTX0513IP	5,0	TRDR20IP

Identification Details

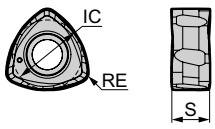
DMSW	08	050	E	L	03	-	42
Cutter series	Insert size	Cutter diameter	Shank	Long shank type	Number of teeth		Shank diameter

Inserts

Dimensions (mm)

Application	Coated carbide									
High speed / light cut		P		K						
General purpose	K P S	P	P	K	K	M				
Roughing	K P S		P		K	M				
Cat. No.	ACU2500	ACP2000	ACP3000	ACK2000	ACK3000	ACS3000	IC	S	RE	Fig.
WNMU 0807ZNER-G	●	●	●	●	●	●	13	7	1,6	1
WNMU 0807ZNER-H	●	●	●		●		13	7	1,6	1

Fig 1



Recommended Cutting Conditions

min.–**optimum**–max.

ISO	Work material	Hardness	Cutting speed v_c (m/min)	Feed rate f_z (mm/t)	Grade
P	General steel	< 280 HB	100–**160**–250	1,0–**1,5**–2,0	ACU2500/ACP2000/ ACP3000
P	Alloy steel	< 280 HB	100–**160**–200	1,0–**1,5**–1,8	ACU2500/ACP2000/ ACP3000
P	Alloy steel	< 42 HRC	100–**150**–180	0,8–**1,0**–1,2	ACU2500/ACP2000/ ACP3000
M	Stainless steel	–	80–**120**–150	0,8–**1,0**–1,2	ACU2500/ 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/ ACS3000
S	Titanium Alloy	–	30–**50**–70	0,4–**0,6**–0,8	ACU2500/ ACS3000
H	Hardened steel	< 52 HRC	80–**100**–120	0,3–**0,5**–0,7	ACU2500/ ACP3000

The above figures are guidelines for use with BT50 machine tools at depth of cut (a_e) of 1,5 mm.
The above recommended cutting conditions may require adjustment depending on machine rigidity and workpiece rigidity.

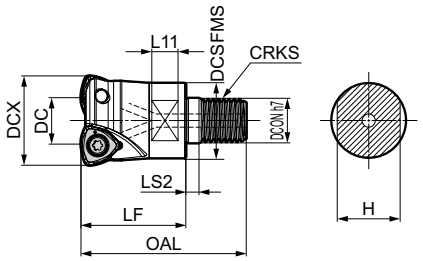
● = Euro stock

DMSW 08000 M Type

Modular Type

Rake angle		
	Radial	-11° to -13°
	Axial	-6°

Fig 1



Head

Dimensions (mm)

Cat. No.	Stock	DCX	DC	DCSFMS	DCON	CRKS	OAL	LF	LS2	L11	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

Inserts are sold seperately.

Parts

Insert screw		Wrench
		
BFTX0513IP	5,0	TRDR20IP

Identification Details

DMSW	08	040	M16	Z3
Cutter series	Insert size	Cutter diameter	Mounting screw size	Number of teeth

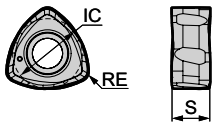
Inserts

Dimensions (mm)

Application	Coated carbide					
High speed / light cut		P		K		
General purpose	P K S	P	P	K	K	N
Roughing	P K S		P		K	N

Cat. No.	ACU2500	ACP2000	ACP3000	ACK2000	ACK3000	ACS3000	IC	S	RE	Fig.
WNMU 0807ZNER-G	●	●	●	●	●	●	13	7	1,6	1
WNMU 0807ZNER-H	●	●	●		●		13	7	1,6	1

Fig 1



Recommended Cutting Conditions

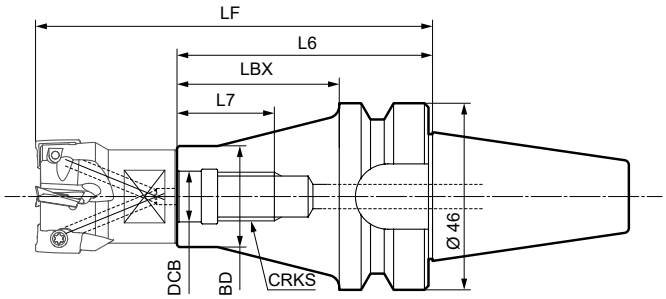
min.–optimum–max.

ISO	Work material	Hardness	Cutting speed v_c (m/min)	Feed rate f_z (mm/t)	Grade
P	General steel	< 280 HB	100–**160**–250	1,0–**1,5**–2,0	ACU2500/ACP2000/ ACP3000
P	Alloy steel	< 280 HB	100–**160**–200	1,0–**1,5**–1,8	ACU2500/ACP2000/ ACP3000
P	Alloy steel	< 42 HRC	100–**150**–180	0,8–**1,0**–1,2	ACU2500/ACP2000/ ACP3000
M	Stainless steel	–	80–**120**–150	0,8–**1,0**–1,2	ACU2500/ 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/ ACS3000
S	Titanium Alloy	–	30–**50**–70	0,4–**0,6**–0,8	ACU2500/ ACS3000
H	Hardened steel	< 52 HRC	80–**100**–120	0,3–**0,5**–0,7	ACU2500/ ACP3000

The above figures are guidelines for use with BT50 machine tools at depth of cut (a_p) of 1,5 mm.
The above recommended cutting conditions may require adjustment depending on machine rigidity and workpiece rigidity.

● = Euro stock

BBT Integrated Type - Modular Tools Special Arbors



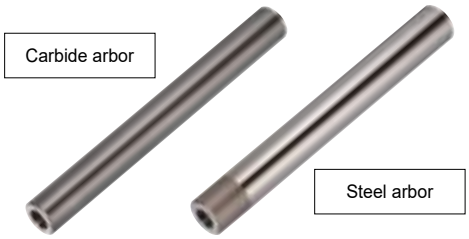
BBT Integrated Arbor

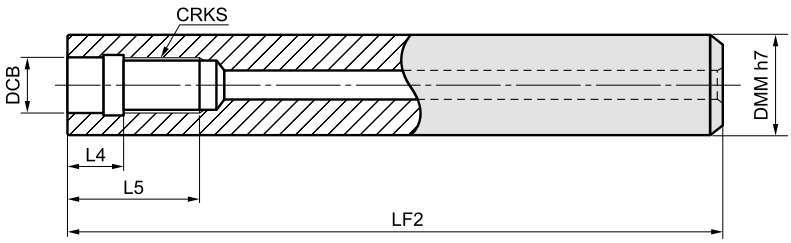
Dimensions (mm)

Cat. No.	Stock	CRKS	DCB	BD	L6	LBX	L7	LF*	Coolant hole
BBT30- M16-35	❍	M16	17	31,9	58	35	24	98	yes

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

Carbide and Steel Arbor





Carbide Arbor

Dimensions (mm)

Cat. No.	Stock	CRKS	DCB	DMM	LF2	L4	L5	LF*
MA 28 M16 L200C	●	M16	17,0	28	200	10	24	240
28 M16 L300C	●	M16	17,0	28	300	10	24	340
MA 32 M16 L200C	●	M16	17,0	32	200	10	24	240
32 M16 L300C	●	M16	17,0	32	300	10	24	340

Steel Arbor

Dimensions (mm)

Cat. No.	Stock	CRKS	DCB	DMM	LF2	L4	L5	LF*
MA 32 M16 L200S	●	M16	17,0	32	200	10	24	240

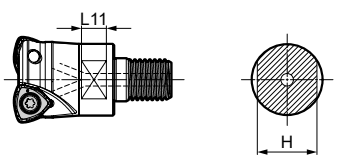
Identification Details

MA	15	M08	L120	C
Modular arbor	Shank diameter	Mounting screw	Arbor length	Material C: carbide S: steel

●* Modular Tool System

Recommended Tightening Torque

Notes about tightening the head:
When mounting the head to an arbor, follow the attached tightening torque in the table below.
Check the mounting screw diameter for the head and arbor beforehand.



Screw size	Tightening torque (N-m)	Tool dimensions	
		L11	H
M16	80	10	24

● = Euro stock ❍ = Japan stock

Application Examples

Tool steel X40CrVMo5-1 (45 HRC), mold		Sumitomo	Competitor
Vertical machining centre BT50	Tool	DMSW08050RS05	Double sided, 6 corners
	Grade	ACU2500	–
	Chipbreaker	G	–
	Cutter diam. (mm)	50	50
	Number of teeth	5	4
	v_c (m/min)	130	130
	v_f (mm/min)	2.500	2.500
	f_z (mm/t)	0,75	0,6
	a_p (mm)	0,5	0,5
	a_e (mm)	35	35
	Coolant	dry	dry
	Results	Minimal damage to insert even after 50 minutes of machining. Stable chip shape.	

Prehardened steel (40 HRC), test piece		Sumitomo	Competitor
Boring machine BT50	Tool	DMSW08100R06	Double sided, 6 corners
	Grade	ACP3000	–
	Chipbreaker	G	–
	Cutter diam. (mm)	100	100
	Number of teeth	6	6
	v_c (m/min)	180	120
	v_f (mm/min)	5.160	3.440
	f_z (mm/t)	1,5	1,5
	a_p (mm)	1	1
	a_e (mm)	65	65
	Coolant	dry	dry
	Results	No chatter even when the cutting speed is increased at an overhang amount of 380 mm (steel arbor). Efficiency increased 1,5x.	

Tempered steel 42CrMo4 (40 HRC), machine comp.		Sumitomo	Competitor
Horizontal machining centre BT50	Tool	DMSW08050RS04	Single sided, 3 corners
	Grade	ACU2500	–
	Chipbreaker	G	–
	Cutter diam. (mm)	50	50
	Number of teeth	4	4
	v_c (m/min)	210	210
	v_f (mm/min)	5.825	5.825
	f_z (mm/t)	1,1	1,1
	a_p (mm)	1,5	1,5
	a_e (mm)	25	25
	Coolant	dry	dry
	Results	Stable machining without chipping is possible even with heat-treated work material.	

Alloy steel 25CrMo4, large oil drilling tool		Sumitomo	Competitor
	Tool	DMSW08080R08	–
	Grade	ACU2500	–
	Chipbreaker	G	–
	Cutter diam. (mm)	80	–
	Number of teeth	8	–
	v_c (m/min)	180	–
	v_f (mm/min)	3.400	–
	f_z (mm/t)	0,6	–
	a_p (mm)	1,9	–
	a_e (mm)	57	–
	Coolant	dry	–
	Results	Capable of machining single corner of large work piece (nearly 300 minutes). Long tool life.	

Manganese steel construction machine component		Sumitomo	Competitor
Horizontal machining centre BT50	Tool	DMSW08080RS06	Single sided, 2 corners
	Grade	ACU2500	–
	Chipbreaker	G	–
	Cutter diam. (mm)	80	80
	Number of teeth	6	5
	v_c (m/min)	80	80
	v_f (mm/min)	900	900
	f_z (mm/t)	0,47	0,56
	a_p (mm)	1	1
	a_e (mm)	60	60
	Coolant	wet	wet
	Results	Machining without chatter even for castings with low clamp rigidity. Stability with no sudden fractures even in mill-scale work, for a longer tool life (1,3x)	

Alloy steel 15CrMo5, machine component		Sumitomo	Competitor
Horizontal machining centre BT40	Tool	DMSW08125RS08	Double sided, 10 corners
	Grade	ACU2500	–
	Chipbreaker	G	–
	Cutter diam. (mm)	125	125
	Number of teeth	8	13
	v_c (m/min)	280	200
	v_f (mm/min)	4.280	2.185
	f_z (mm/t)	0,75	0,33
	a_p (mm)	1,5	2,0
	a_e (mm)	100	100
	Coolant	wet	wet
	Results	Efficiency improved 1,5x. No sudden fracture. Improved tool life and increased stability.	

Carbon steel C45, large mold part		Sumitomo	Competitor
Boring machine BT50	Tool	DMSW08050RS05	Single sided, 4 corners
	Grade	ACU2500	–
	Chipbreaker	G	–
	Cutter diam. (mm)	50	50
	Number of teeth	5	5
	v_c (m/min)	189	189
	v_f (mm/min)	5.000	5.000
	f_z (mm/t)	0,83	0,83
	a_p (mm)	1	1
	a_e (mm)	50	50
	Coolant	wet	wet
	Results	Effective without chatter even when using a 200 mm long steel arbor. Achieves roughing (240 min.) of large workpieces without indexing the inserts.	

Low carbon steel SS400, machine component		Sumitomo	Competitor
Vertical machining centre BT40	Tool	DMSW08040E03	Double sided, 4 corners
	Grade	ACU2500	–
	Chipbreaker	G	–
	Cutter diam. (mm)	40	32
	Number of teeth	3	6
	v_c (m/min)	150	120
	v_f (mm/min)	3.800	3.800
	f_z (mm/t)	1,0	0,5
	a_p (mm)	0,5	0,5
	a_e (mm)	30	30
	Coolant	wet	wet
	Results	2 x tool life.	

Application Examples

Stainless steel X5CrNiS18 10, machine component		Sumitomo	Competitor
Vertical 5-axis machining centre BT50	Tool	DMSW08080R08	Single sided, 2 corners
	Grade	ACU2500	–
	Chipbreaker	G	–
	Cutter diam. (mm)	80	80
	Number of teeth	8	7
	v_c (m/min)	120	126
	v_f (mm/min)	2.675	490
	f_z (mm/t)	0,7	0,1
	a_p (mm)	1	2
	a_e (mm)	40	40
	Coolant	dry	dry
	Results	Efficiency increased 2,7x. Tool life increased 6x or more.	

Gray cast iron GG-25, mold		Sumitomo	Competitor
Vertical machining centre BT50	Tool	DMSW08100R06	Single sided, 4 corners
	Grade	ACP3000	–
	Chipbreaker	G	–
	Cutter diam. (mm)	100	100
	Number of teeth	6	6
	v_c (m/min)	100	100
	v_f (mm/min)	1.910	1.910
	f_z (mm/t)	1	1
	a_p (mm)	1,5	1,5
	a_e (mm)	50	50
	Coolant	wet	wet
	Results	Sudden fracture during mill-scale work eliminated. Tool life increased.	

Gray cast iron GG-25, machine component		Sumitomo	Competitor
Vertical machining centre BT50	Tool	DMSW08063R05	Single sided, 3 corners
	Grade	ACU2500	–
	Chipbreaker	G	–
	Cutter diam. (mm)	63	63
	Number of teeth	5	4
	v_c (m/min)	158	158
	v_f (mm/min)	4.000	1.500
	f_z (mm/t)	1,0	0,47
	a_p (mm)	2	1
	a_e (mm)	50	50
	Coolant	dry	dry
	Results	Capable of increasing the number of teeth, feed rate and depth of cut. Efficiency increased 5x or more.	

Ductile cast iron FCD540, large mold part		Sumitomo	Competitor
Horizontal machining centre BT50	Tool	DMSW08050RS04	Double sided, 4 corners
	Grade	ACU2500	–
	Chipbreaker	G	–
	Cutter diam. (mm)	50	50
	Number of teeth	4	4
	v_c (m/min)	125	125
	v_f (mm/min)	3.000	3.000
	f_z (mm/t)	1	1
	a_p (mm)	1,5	1,5
	a_e (mm)	25	25
	Coolant	dry	dry
	Results	Minimal damage to insert even after 300 minutes of machining.	

Ductile cast iron, machine component		Sumitomo	Competitor
Vertical 5-axis machining centre BT40	Tool	DMSW08050RS05	–
	Grade	ACU2500	–
	Chipbreaker	G	–
	Cutter diam. (mm)	50	–
	Number of teeth	5	–
	v_c (m/min)	210	–
	v_f (mm/min)	5.350	–
	f_z (mm/t)	0,8	–
	a_p (mm)	1	–
	a_e (mm)	30	–
	Coolant	dry	–
	Results	Smooth and stable machining even with low-rigidity equipment. Minimal insert damage even after 220 minutes of machining.	

Tool steel X40CrVMo5-1 (48 HRC), forge mold		Sumitomo	Competitor
Vertical machining centre BT40	Tool	DMSW08050RS05	Single sided, 2 corners
	Grade	ACU2500	–
	Chipbreaker	G	–
	Cutter diam. (mm)	50	30
	Number of teeth	5	7
	v_c (m/min)	120	70
	v_f (mm/min)	7.000	3.110
	f_z (mm/t)	1,83	0,6
	a_p (mm)	0,5	0,15
	a_e (mm)	36	22
	Coolant	wet	wet
	Results	Larger diameter for increased tool rigidity. Capable of machining at a large single tooth feed rate. Machining time reduced to 1/6.	

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