



CARBIDE - CBN - DIAMOND

High-Productivity High-Feed Cutters for Rough Milling

DMSL / DMSW

VT Valley Tool

ULTRA-HIGH FEED RATES!



READY TO CREATE NEW STANDARDS

DMSL / DMSW SERIES



General Features and Benefits

- DMSW & DMSL inserts provide a compound arc-shape cutting edge which allows for feed rates up to 0.138" IPT.
- Cutting forces are reduced due to a large lead angle which promotes stable machining in long projection applications.
- Introducing the DMSL series for smaller diameters starting at 0.625".

Milling Cutter Product Range (mm)

Type	Product Code	Diameters Available (mm)																
		ø16	ø18	ø20	ø22	ø25	ø26	ø28	ø30	ø32	ø35	ø40	ø42	ø50	ø52	ø63	ø66	ø80
Shell Mill	DMSL06000RS											5 6		5 8	8	8	8	9
	DMSL06000R													5 8		8		
	DMSW08000RS													4 5	4 5	4 5 6*	5 6	6 8
	DMSW08000R													4 5		4 5 6	6 8	6 8
Endmill	DMSL06000E	2	2	3	3	4		4	5	5	5	6						
	DMSL06000EL	2	2	3	3	4		4	5	5	5	6						
	DMSW08000E										2	3		3		4		
	DMSW08000EL										2	3		3		4		
Modular	DMSL06000M	2	2	3	3	4	4	4	5	5	5	6	6					
	DMSW08000M										2	3	3					

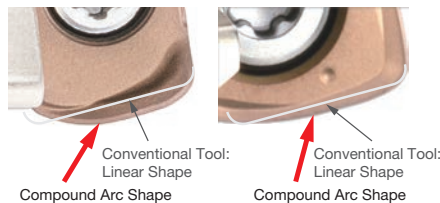
Inch Arbor • Numbers inside are number of teeth * Different pilot diameters available

Milling Cutter Product Range (Inch)

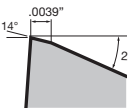
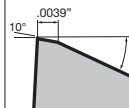
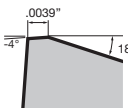
Type	Product Code	Diameters Available (Inch)								
		ø.625	ø0.75	ø1.0	ø1.25	ø1.5	ø2.0	ø2.5	ø3.0	ø4.0
Shell Mill	DMSL20000R					5 6	5 8	8		
	DMSW30000R						4	4 6	6 7	8
Endmill	DMSL20000EW	2	3	4	5	6				
	DMSL20000ELC	2	3	4	5	6				
	DMSW30000EW					3	3			
	DMSW30000ELC					3				
Modular	DMSL20000M	2	3	4	5	6				
	DMSW30000M					3				

Insert Features

- The Compound arc-shape cutting edge is capable of a high feed up to 0.138" IPT at low axial depth of cuts.

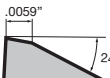
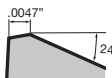
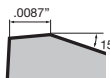


Chipbreaker (DMSL)

Work Material	P M K S		P M K H
Applications	Low-rigidity Milling	General-purpose	Heavy Interrupted, High-Hardness
Features	Low Cutting Force	General-purpose	High Strength
Chipbreaker	L	G	H
Cutting Edge Cross Section	 4-cornered	 4-cornered	 4-cornered



Chipbreaker (DMSW)

Work Material	P M K S		P M K H
Applications	Low-rigidity Milling	General-purpose	Heavy Interrupted, High-Hardness
Features	Low Cutting Force	General-purpose	High Strength
Chipbreaker	L	G	H
Cutting Edge Cross Section	 6-cornered	 6-cornered	 6-cornered



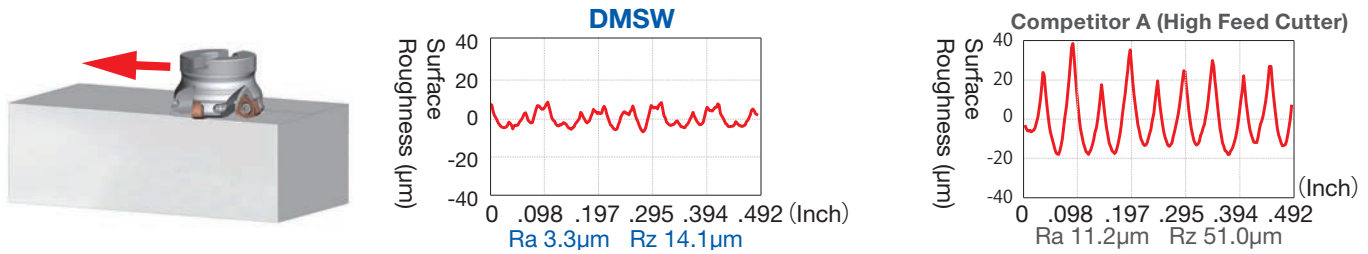
Grade Application Range

Work Material	Finishing to Light Cutting	Medium Cutting	Rough to Heavy Cutting
P Steel	ACU2500	ACP2000	ACP3000
M Stainless Steel	ACU2500	ACS2500	ACS3000
S Exotic Alloy			
K Cast Iron	ACU2500	ACK2000	ACK3000

The letters "C" and "P" at the end of each grade indicate the coating type. ▽: CVD ▲: PVD

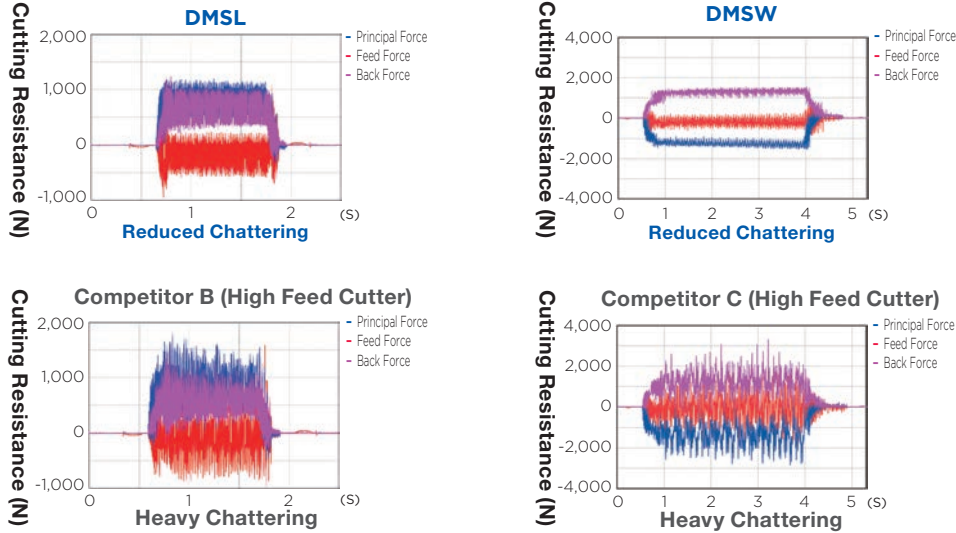
DMSL / DMSW SERIES

- Compared to conventional high feed mill cutter inert, DMSL and DMSW inserts provide improved surface finish due to the arc-shaped edge



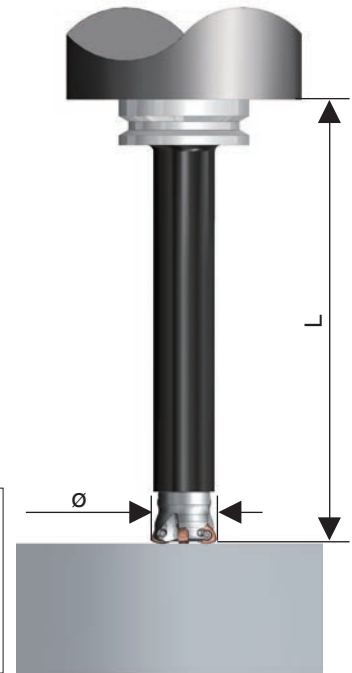
Machine: Vertical Machining Center BT50, **Part Material:** 1050 Carbon Steel, **Insert:** WNMU0807ZNER-G-ACU2500
Milling Cutter: DMSW08063RS04 ($\phi 63$ 4 teeth), **Cutting Conditions:** $v_c = 500$ SFM, $f_z = .0984$ IPT, $a_p = .0197$ ", $a_e = 1.5748$ ", Dry

Cutting Force Comparison



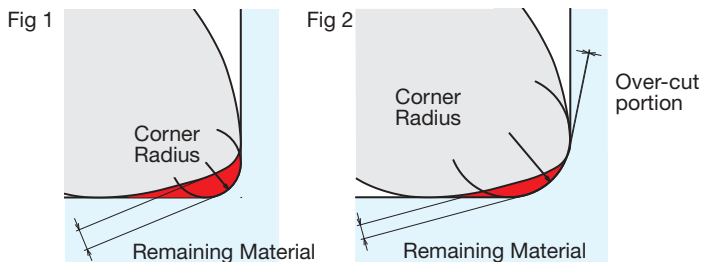
Machine: Vertical Machining Center BT50,
Part Material: 1050 Medium Carbon Steel,
Milling Cutter: DMSL06020E03 ($\phi 20$ 3 teeth)
Insert: LNMU06T3ZNER-G-ACU2500
Cutting Conditions: $v_c = 525$ SFM, $f_z = .0236$ IPT,
 $a_p = .0315$ ", $a_e = 0.787$ ", $L = 3.937$ ", Dry

Machine: Vertical Machining Center BT50,
Part Material: 1050 Medium Carbon Steel,
Milling Cutter: DMSW08050RS04 ($\phi 50$ 4 teeth)
Insert: WNMU0807ZNER-G-ACU2500
Cutting Conditions: $v_c = 525$ SFM, $f_z = .0256$ IPT,
 $a_p = .0315$ ", $a_e = 1.772$ ", $L = 13.4$ ", Dry



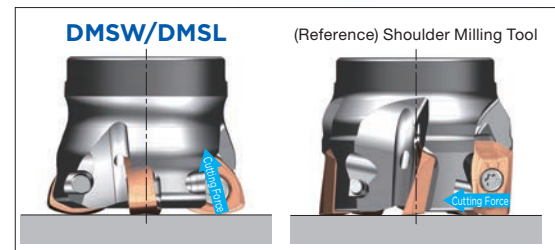
Precautions for Corner Finishing

* Corners will have over-cut or under-cut material relative to the corner profile.

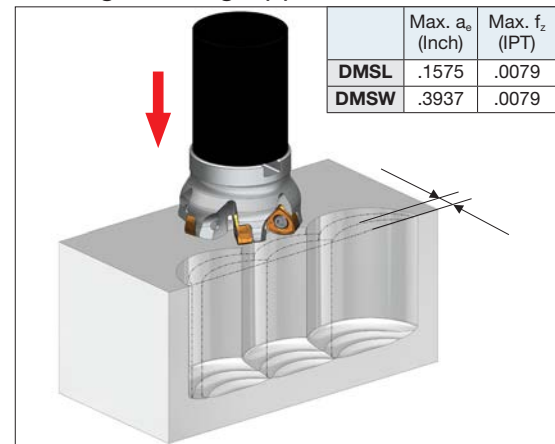


DMSL (*Programmable Radius)			
Corner Radius (Inch)	Unmachined Surface	Over-Cut	Fig.
.0197	.0346	0	1
.0394	.0272	0	1
.0591*	.0213	0	1
.0787	.0161	.0008	2

DMSW (*Programmable Radius)			
Corner Radius (Inch)	Unmachined Surface	Over-Cut	Fig.
.0789	.0480	0	1
.0984	.0425	0	1
.1181*	.0374	0	1
.1378	.0327	.0016	2

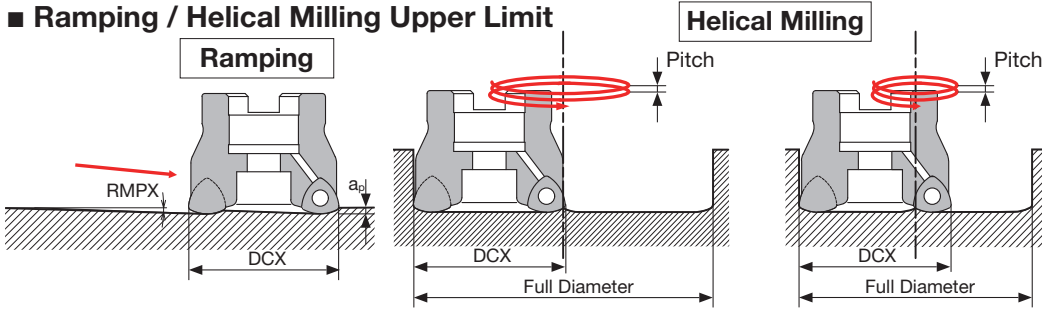


Plunge Cutting Upper Limit



DMSL / DMSW SERIES

■ Ramping / Helical Milling Upper Limit



Precautions for Helical Milling

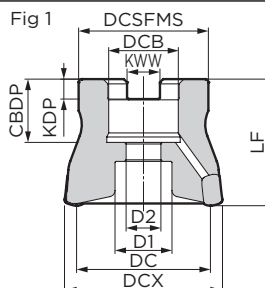
- Above the max. machining diameter, the center uncut portion can be removed by traverse cutting with the same cutter.
- Below the min. machining diameter, the center uncut portion cannot be removed with the same cutter.

DMSL

	Max. Dia. DCX (inch / mm)	Ramping	Helical Ramping					
		Max. Ramping Angle RMPX (°)	Max. Machining Dia. (Inch / mm)	Max Pitch	Standard Diameter (Inch)	Max Pitch	Min. Machining Dia. (Inch / mm)	Max Pitch
Inch	0.625	0.6	1.224	0.024	0.949	0.019	0.929	0.010
	0.750	1.0	1.472	0.039	1.197	0.024	1.134	0.019
	1.000	0.9	1.972	0.039	1.693	0.035	1.602	0.019
	1.250	0.7	2.472	0.039	2.193	0.035	2.091	0.019
	1.500	0.6	2.972	0.039	2.693	0.039	2.575	0.019
	2.000		Not recommended					
	2.500		Not recommended					
Metric	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		Not recommended					
	63		Not recommended					
	66		Not recommended					
	80		Not recommended					

DMSW

	Max. Dia. DCX (inch / mm)	Ramping	Helical Ramping					
		Max. Ramping Angle RMPX (°)	Max. Machining Dia. (Inch / mm)	Max Pitch	Standard Diameter (Inch)	Max Pitch	Min. Machining Dia. (Inch / mm)	Max Pitch
Inch	1.500	0.8	2.972	0.063	2.346	0.031	2.252	0.020
	2.000	1.4	3.972	0.079	3.343	0.079	3.185	0.039
	2.500	1.2	4.972	0.079	4.343	0.079	4.118	0.039
	3.000	1.2	5.972	0.079	5.339	0.079	4.976	0.039
	4.000	0.8	7.972	0.079	7.339	0.079	6.976	0.039
Metric	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		Not recommended					

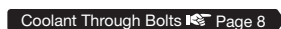


Dimensions (inch / mm)

Cat. No.		Stock	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (lb / kg)	Fig
Inch	DMSL21500R05	●	1.5000	1.1965	1.4409	1.5000	0.5000	0.2520	0.1575	0.6220	0.4213	0.2811	5	0.44	1
	DMSL21500R06	●	1.5000	1.1965	1.4409	1.5000	0.5000	0.2520	0.1575	0.6220	0.4213	0.2811	6	0.44	1
	DMSL22000R05	●	2.0000	1.6969	1.7520	1.7500	0.7500	0.3118	0.1902	0.7500	0.6091	0.4059	5	0.88	1
	DMSL22000R08	●	2.0000	1.6969	1.7520	1.7500	0.7500	0.3118	0.1902	0.7500	0.6091	0.4059	8	0.86	1
	DMSL22500R08	●	2.5000	2.1965	2.1890	1.7500	1.0000	0.3752	0.2201	0.7500	0.7969	0.5311	8	1.37	1
Metric	DMSL06040RS05	★	40	32.3	33	40	16	8.4	5.6	18	14	9	5	0.20	1
	DMSL06040RS06	★	40	32.3	33	40	16	8.4	5.6	18	14	9	6	0.20	1
	DMSL06050RS05	★	50	42.3	41	40	22	10.4	6.3	20	18	11	5	0.31	1
	DMSL06050RS08	★	50	42.3	41	40	22	10.4	6.3	20	18	11	8	0.30	1
M/In	DMSL06050R05	★	50	42.3	41	40	22.225	8.4	5	20	18	11	5	0.32	1
	DMSL06050R08	★	50	42.3	41	40	22.225	8.4	5	20	18	11	8	0.30	1

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

★: Worldwide Warehouse Item



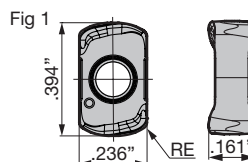
Flat Insert Screw		Integrated Wrench	Anti-seize Cream
BFTX02507IP	2.0	TRDR08IP	SUMI-P

DMSL **2** **2000** **R** **05**
Series Insert Series Cutter Dia. Feed Direction Number of Teeth

DMSL **06** **066** **R** **S** **08 - 27**
Series Insert Size Cutter Dia. Feed Direction Metric Bore Number of Teeth Mounting Size

Material Classification		Coated Carbide								
Process	High-speed/Light		P		K					
	General-purpose									
	Roughing									
Cat. No.		ACU2500	ACP2000	ACP3000	ACK2000	ACK3000	ACS2500	ACS3000	Corner Radius RE	Fig.
LNMU06T3ZNER-L		★	★	★			★	★	.039	1
LNMU06T3ZNER-G		●	●	●	●	●	●	●	.039	1
LNMU06T3ZNER-H		●	●	●			●	●	.039	1

Dimensions (Inch)



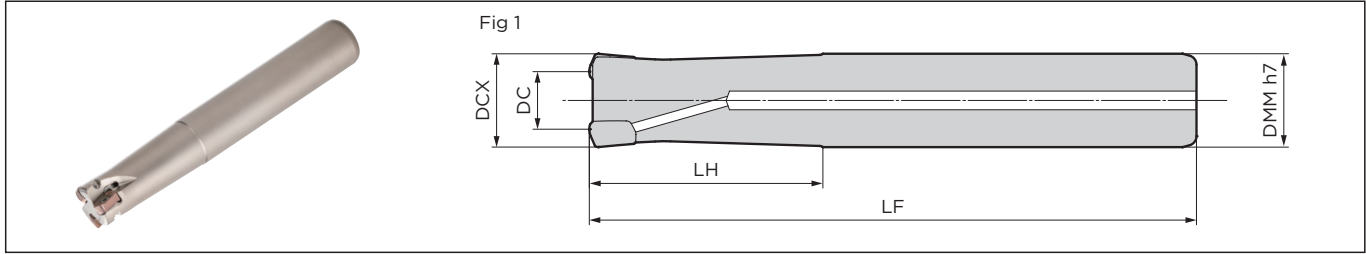
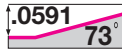
ISO	Material	Hardness	Cutting Speed v_c (SFM)	Feed Rate Fz (IPT)	Grade
P	General Steel	Up to 30HRC	350 - 900	0.039 - 0.138	ACU2500/ACP2000/ACP3000
	Alloy Steel	Up to 30HRC	350 - 725	0.039 - 0.070	ACU2500/ACP2000/ACP3000
	Alloy Steel	Up to 45HRC	350 - 650	0.031 - 0.047	ACU2500/ACP2000/ACP3000
M	Stainless Steel	—	265 - 550	0.031 - 0.047	ACU2500/ACS2500/ACS3000
K	Cast Iron	—	350 - 900	0.039 - 0.070	ACU2500/ACK2000/ACK3000
S	Heat Resistant Alloy	—	100 - 260	0.016 - 0.031	ACU2500/ACS2500/ACS3000
	Titanium Alloy	—	65 - 150	0.012 - 0.028	ACU2500/ACS2500/ACS3000
H	Hardened Steel	Up to 52HRC	265 - 430	0.012 - 0.028	ACU2500/ACP3000

- The recommended cutting conditions may require adjustment depending on machine rigidity, workpiece rigidity and projection.

Insert & Application Range Page 7

DMSL SERIES

Rake Angle	Radial	-12.5° to -16.5°
	Axial	-8°



■ Body (Weldon Shank Type)

Dimensions (inch /mm)

	Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Weight (lb / kg)	Fig
Inch	DMSL20625EW02	●	0.6250	0.3276	0.6250	1.2500	4.0000	2	0.29	1
	DMSL20750EW03	●	0.7500	0.4488	0.7500	2.0000	5.0000	3	0.52	1
	DMSL21000EW04	●	1.0000	0.6976	1.0000	2.5000	5.0000	4	0.93	1
	DMSL21000EW05	●	1.0000	0.6976	1.0000	2.5000	5.0000	5	0.93	1
	DMSL21250EW05	●	1.2500	0.9476	1.2500	3.0000	6.0000	5	1.74	1
	DMSL21250EW06	●	1.2500	0.9476	1.2500	3.0000	6.0000	6	1.74	1
Metric	DMSL06016E02	★	16	8.4	16	30	110	2	0.15	1
	DMSL06018E02	★	18	10.4	16	30	110	2	0.15	1
	DMSL06020E03	★	20	12.4	20	50	130	3	0.27	1
	DMSL06020E04	★	20	12.4	20	50	130	4	0.27	1
	DMSL06022E03	★	22	14.3	20	50	130	3	0.29	1
	DMSL06022E04	★	22	14.3	20	50	130	4	0.29	1
	DMSL06025E04	★	25	17.3	25	60	140	4	0.46	1
	DMSL06025E05	★	25	17.3	25	60	140	5	0.46	1
	DMSL06028E04	★	28	20.3	25	60	140	4	0.49	1
	DMSL06028E05	★	28	20.3	25	60	140	5	0.48	1
	DMSL06030E05	★	30	22.3	32	70	150	5	0.81	1
	DMSL06032E05	★	32	24.3	32	70	150	5	0.82	1
	DMSL06032E06	★	32	24.3	32	70	150	6	0.82	1
	DMSL06035E05	★	35	27.3	32	50	150	5	0.88	1

Inserts are sold separately.

■ Body (Long Shank Type)

Dimensions (inch /mm)

	Cat. No.	Stock	Max. Dia. DCX	Diameter DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Weight (lb / kg)	Fig
Inch	DMSL20625ELC02	●	0.6250	0.3276	0.6250	2.0000	8.0000	2	0.60	1
	DMSL20750ELC03	●	0.7500	0.4488	0.7500	3.0000	8.0000	3	0.84	1
	DMSL21000ELC04	●	1.0000	0.6976	1.0000	4.0000	10.0000	4	1.83	1
	DMSL21000ELC05	●	1.0000	0.6976	1.0000	4.0000	10.0000	5	1.83	1
	DMSL21250ELC05	●	1.2500	0.9476	1.2500	5.0000	10.0000	5	2.98	1
	DMSL21250ELC06	●	1.2500	0.9476	1.2500	5.0000	10.0000	6	2.98	1
Metric	DMSL06016EL02	★	16	8.4	16	70	150	2	0.19	1
	DMSL06018EL02	★	18	10.4	16	50	150	2	0.21	1
	DMSL06020EL03	★	20	12.4	20	80	160	3	0.33	1
	DMSL06022EL03	★	22	14.3	20	60	160	3	0.36	1
	DMSL06025EL04	★	25	17.3	25	100	170	4	0.54	1
	DMSL06028EL04	★	28	20.3	25	60	170	4	0.60	1
	DMSL06030EL05	★	30	22.3	32	120	200	5	1.01	1
	DMSL06032EL05	★	32	24.3	32	120	200	5	1.06	1
	DMSL06035EL05	★	35	27.3	32	60	210	5	1.21	1

Inserts are sold separately.

● : USA Stocked Item

★ : Worldwide Warehouse Item

■ Parts

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

Recommended Tightening Torque (N·m)

Recommended Cutting Conditions Page 5

Insert & Application Range Page 7

■ Identification Code - Inch

DMSL 2 1000 EW 05

Series Insert Series Cutter Dia. Shank Type "Weldon" Number of Teeth

■ Identification Code - Metric

DMSL 06 025 E L 04

Series Insert Size Max. Dia. Shank Type Long Type Number of Teeth

DMSL SERIES

Rake Angle	Radial	-12.5° to -16.5°
	Axial	-8°

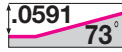
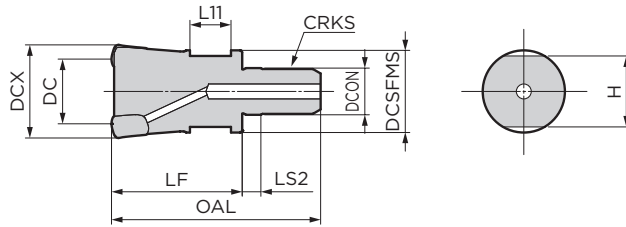


Fig 1



■ Modular Head

● : USA Stocked Item

★ : Worldwide Warehouse Item

Blank: Made-to-order item

Dimensions (inch / mm)

	Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Chamfer L11	Width H	Number of Teeth	Weight (lb / kg)	Fig
Inch	DMSL20625M08Z2	●	0.6250	0.3276	0.3346	M08	1.6535	0.9843	0.1969	0.3150	0.5118	2	0.07	1
	DMSL20750M10Z3	●	0.7500	0.4488	0.4134	M10	1.9291	1.1811	0.1969	0.3937	0.5906	3	0.11	1
	DMSL21000M12Z4	●	1.0000	0.6976	0.4921	M12	2.2047	1.3780	0.1969	0.4331	0.7480	4	0.22	1
	DMSL21000M12Z5	●	1.0000	0.6976	0.4921	M12	2.2047	1.3780	0.1969	0.4331	0.7480	5	0.22	1
	DMSL21250M16Z5	●	1.2500	0.9476	0.6693	M16	2.4803	1.5748	0.1969	0.4724	0.9449	5	0.42	1
	DMSL21250M16Z6	●	1.2500	0.9476	0.6693	M16	2.4803	1.5748	0.1969	0.4724	0.9449	6	0.42	1
Metric	DMSL06016M08Z2	★	16	8.4	8.5	M8	42	25	5	8	13	2	0.03	1
	DMSL06018M08Z2	★	18	10.4	8.5	M8	42	25	5	8	13	2	0.03	1
	DMSL06020M10Z3	★	20	12.4	10.5	M10	49	30	5	10	15	3	0.05	1
	DMSL06020M10Z4	★	20	12.4	10.5	M10	49	30	5	10	15	4	0.05	1
	DMSL06022M10Z3	★	22	14.3	10.5	M10	49	30	5	10	15	3	0.06	1
	DMSL06022M10Z4	★	22	14.3	10.5	M10	49	30	5	10	15	4	0.06	1
	DMSL06025M12Z4	★	25	17.3	12.5	M12	56	35	5	11	19	4	0.10	1
	DMSL06025M12Z5	★	25	17.3	12.5	M12	56	35	5	11	19	5	0.10	1
	DMSL06026M12Z4	★	26	18.3	12.5	M12	56	35	5	11	19	4	0.10	1
	DMSL06028M12Z4	★	28	20.3	12.5	M12	56	35	5	11	19	4	0.11	1
	DMSL06028M12Z5	★	28	20.3	12.5	M12	56	35	5	11	19	5	0.11	1
	DMSL06030M16Z5	★	30	22.3	17	M16	63	40	5	12	24	5	0.18	1
	DMSL06032M16Z5	★	32	24.3	17	M16	63	40	5	12	24	5	0.20	1
	DMSL06032M16Z6	★	32	24.3	17	M16	63	40	5	12	24	6	0.20	1
	DMSL06035M16Z5	★	35	27.3	17	M16	63	40	5	12	24	5	0.21	1

Inserts are sold separately.

● : USA Stocked Item

★ : Worldwide Warehouse Item

■ Parts

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

 Recommended Tightening Torque (N·m)

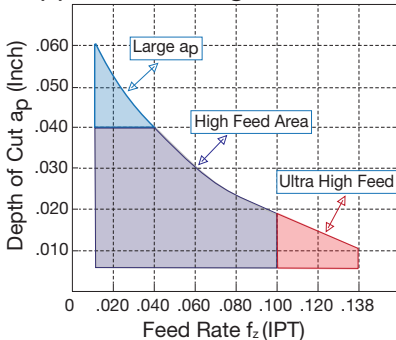
■ Identification Code - Inch

DMSL 2 1000 M12 Z4
 Series Insert Series Cutter Dia. Mounting Screw Size Number of Teeth

■ Identification Code - Metric

DMSL 06 025 M12 Z4
 Series Insert Size Max. Dia. Mounting Screw Size Number of Teeth

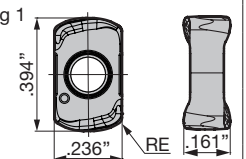
■ Application Range & Feed Rates



■ Insert

Material Classification		Coated Carbide						Dimensions (Inch)	
Process	High-speed/Light	P	P	K	K	MS	MS	Corner Radius RE	Fig
	General-purpose	P	PH	K	K	MS	MS		
	Roughing	P	PH	K	K	MS	MS		
Cat. No.		ACU2500	ACP2000	ACP3000	ACK2000	ACK3000	ACS2500	ACS3000	
LNMU06T3ZNER-L		★	★	★			★	★	.039 1
LNMU06T3ZNER-G		●	●	●	●	●	●	●	.039 1
LNMU06T3ZNER-H		●	●	●			●	●	.039 1

Fig 1



Precaution:

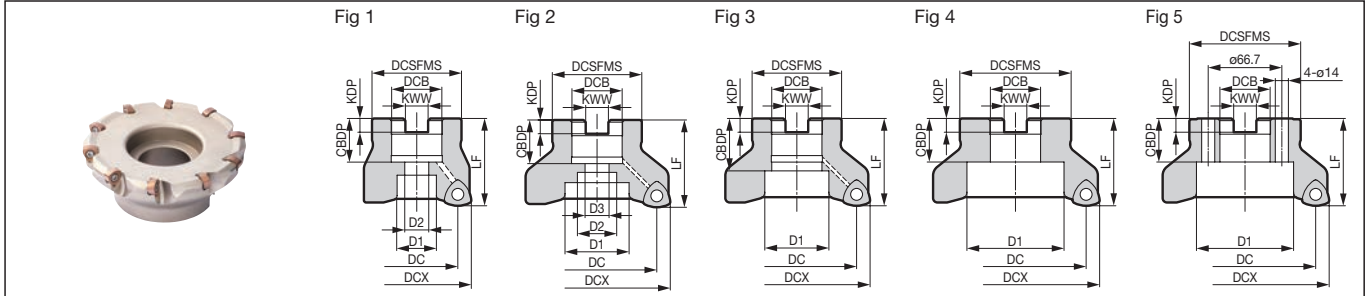
- Please adjust axial depth of cut (ap) based on the feed rate (IPT).
- Do not exceed the recommended depth of cut based on the feed rate (IPT).

Recommended Cutting Conditions  Page 5

Modular Arbors  Page 11

DMSW SERIES

Rake Angle	Radial	-7° to -10°	.1181	75°	3mm	75°
	Axial	-6°				



■ Body (Shell Type)

Dimensions (inch / mm)

Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CDDP	Bolt D1	Bolt D2	Bolt D3	Number of Teeth	Weight (lb / kg)	Fig
Inch															
DMSW32000R04	●	2.000	1.346	1.500	1.750	0.750	0.312	0.190	0.750	0.609	0.406	—	4	0.640	1
DMSW32500R04	●	2.500	1.846	1.750	1.750	1.000	0.375	0.220	0.750	0.797	0.531	—	4	0.992	1
DMSW32500R06	●	2.500	1.846	1.750	1.750	1.000	0.375	0.220	0.750	0.797	0.531	—	6	0.948	1
DMSW33000R06	●	3.000	2.342	2.250	1.750	1.000	0.375	0.220	0.750	0.797	0.531	—	6	1.650	1
DMSW33000R07	●	3.000	2.342	2.250	1.750	1.000	0.375	0.220	0.750	0.797	0.531	—	7	1.630	1
DMSW34000R08	●	4.000	3.342	3.543	2.500	1.500	0.625	0.380	1.000	2.000	1.181	0.781	8	4.894	2
Metric															
DMSW08050RS04	★	50	33.4	41	40	22	10.4	6.3	20	16.7	11	—	4	0.25	1
DMSW08050RS05	★	50	33.4	41	40	22	10.4	6.3	20	16.7	11	—	5	0.24	1
DMSW08063RS04	★	63	46.4	50	40	22	10.4	6.3	20	18	11	—	4	0.46	1
DMSW08063RS05	★	63	46.4	50	40	22	10.4	6.3	20	18	11	—	5	0.46	1
DMSW08063RS06	★	63	46.4	50	40	22	10.4	6.3	20	18	11	—	6	0.44	1
DMSW08063RS05-27	★	63	46.4	50	50	27	12.4	7	22	20	14	—	5	0.55	1
DMSW08063RS06-27	★	63	46.4	50	50	27	12.4	7	22	20	14	—	6	0.53	1
DMSW08080RS06	★	* 80	63.3	55	50	27	12.4	7	22	20	14	—	6	0.88	1
DMSW08080RS08	★	* 80	63.3	55	50	27	12.4	7	22	20	14	—	8	0.84	1
DMSW08100RS06	★	100	83.3	70	50	32	14.4	8	32	46	—	—	6	1.29	3
DMSW08125RS08	★	125	108.3	x80	63	40	16.4	9	29	52	29	—	8	2.41	1
DMSW08160RS10	★	160	143.3	100	63	40	16.4	9	29	90	—	—	10	4.73	5
Metric - Inch Arbor															
DMSW08050R04	★	50	33.4	41	40	22.225	8.4	5	20	16.7	11	—	4	0.25	1
DMSW08050R05	★	50	33.4	41	40	22.225	8.4	5	20	16.7	11	—	5	0.24	1
DMSW08063R04	★	63	46.4	50	40	22.225	8.4	5	20	18	11	—	4	0.46	1
DMSW08063R05	★	63	46.4	50	40	22.225	8.4	5	20	18	11	—	5	0.46	1
DMSW08063R06	★	63	46.4	50	40	22.225	8.4	5	20	18	11	—	6	0.44	1
DMSW08080R06	★	* 80	63.3	70	63	31.75	12.7	8	32	27	18	—	6	1.32	1
DMSW08080R08	★	* 80	63.3	70	63	31.75	12.7	8	32	27	18	—	8	1.28	1
DMSW08100R06	★	* 100	83.3	70	63	31.75	12.7	8	32	46	27	18	6	1.75	2
DMSW08125R08	★	125	108.3	80	63	38.1	15.9	10	35.5	55	30	—	8	2.55	1
DMSW08160R10	★	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 ø80, ø85, and ø100mm sized cutters marked with * to an arbor, use a JIS B1176 hex socket bolt (metric specification: M12 x 30 to 35mm, inch specification: M16 x 40 to 45mm).

● : USA Stocked Item

★ : Worldwide Warehouse Item

■ Parts

Recommended Tightening Torque (N·m)

Applicable Cutter	Flat Insert Screw	Integrated Wrench	Detachable Wrench		Anti-seize Cream
			Handle Grip	Bit	
DMSW08160R(S)10	BFTX0513IP	5.0	TRDR20IP	—	SUMI-P
Other than above	—	—	HPL2025	TRB20IP	—

■ Identification Code - Inch

DMSW 3 2000 R S 05
 Series Insert Series Cutter Dia. Feed Direction Metric Bore Number of Teeth

■ Identification Code - Metric

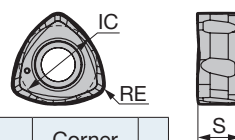
DMSW 08 063 R S 05 - 27
 Series Insert Size Cutter Dia. Feed Direction Metric Bore Number of Teeth Mounting Size

■ Insert

Grade Classification	Coated Carbide	Fig. 1	Inscribed Circle IC	Thickness S	Corner Radius RE	Fig
High-speed / Light	P K					
General-purpose	PH KS					
Roughing	PH K					
Cat. No.	ACU2500 ACP2000 ACP3000 ACK2000 ACK3000 ACS2500 ACS3000					
WNMU0807ZNER-L	★ ★ ★					
WNMU0807ZNER-G	● ● ●					
WNMU0807ZNER-H	● ● ●					

Dimensions (Inch)

Fig. 1



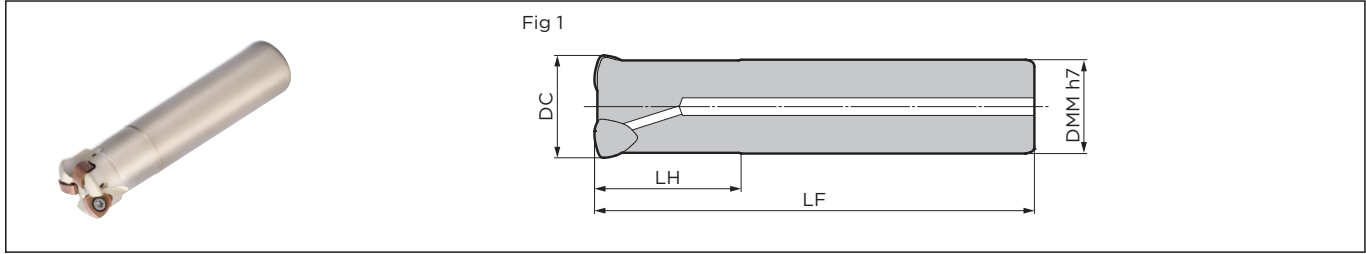
Catalog Number	Cutter Diameter	Applicable Pilot Dia.
BFXH3/8 X 1	1.5", 2.00"	0.75"
BFXH1/2 X 1 1/4	2.50", 3.00"	1.00"
BFXH5/8 X 1 1/4	4.00"	1.25"
BFXH3/4 X 2	4.00"	1.50"
BFXH3/4 X 1 1/2	5.00"	1.50"
BFXH3/4 X 2	5.00"	1.50"

Recommended Cutting Conditions Page 9

Application Range Page 10

DMSW SERIES

Rake Angle	Radial	-10° to -13°	1181	75°	3mm	75°
	Axial	-6°				



■ Body (Weldon Shank Type)

Dimensions (inch / mm)

	Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Weight (lb / kg)	Fig
Inch	DMSW31500EW03	●	1.500	0.852	1.250	2.498	4.780	3	1.433	1
	DMSW32000EW03	●	2.000	1.346	1.250	2.498	4.780	3	1.676	1
Metric	DMSW08035E02	★	35	18.6	32	50	150	2	0.85	1
	DMSW08040E03	★	40	23.5	32	50	150	3	0.86	1
	DMSW08050E03-42	★	50	33.4	42	50	150	3	1.51	1

Inserts are sold separately.

■ Body (Long Shank Type)

Dimensions (inch / mm)

	Cat. No.	Stock	Max. Dia. DCX	Diameter DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Weight (lb / kg)	Fig
Inch	DMSW31500ELC03	●	1.500	0.852	1.250	2.498	10.000	3	3.197	1
Metric	DMSW08035EL02	★	35	18.6	32	60	210	2	1.21	1
	DMSW08040EL03	★	40	23.5	32	60	210	3	1.22	1
	DMSW08050EL03-42	★	50	33.4	42	50	250	3	2.54	1

Inserts are sold separately.

● : USA Stocked Item

★ : Worldwide Warehouse Item

■ Parts

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

 Recommended Tightening Torque (N·m)

■ Identification Code - Inch

DMSW 3 2000 EW 03

Series Insert Series Cutter Dia. Shank Type "Weldon" Number of Teeth

■ Identification Code - Metric

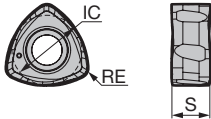
DMSW 08 050 E L 03 - 42

Series Insert Size Max. Dia. Shank Type Long Type Number of Teeth Shank Dia.

■ Insert

Grade Classification		Coated Carbide						Dimensions (Inch)				
Process	High-speed / Light		P		K			Inscribed Circle IC	Thickness S	Corner Radius RE	Fig	
	General-purpose											
	Roughing											
Cat. No.		ACU2500	ACP2000	ACP3000	ACK2000	ACK3000	ACS2500	ACS3000				
WNMU0807ZNER-L		★	★	★			★	★	.512	.2756	.063	1
WNMU0807ZNER-G		●	●	●	●	●	●	●				
WNMU0807ZNER-H		●	●	●			●	●				

Fig 1



■ Recommended Cutting Conditions (DMSW)

ISO	Material	Hardness	Cutting Speed v _c (SFM)	Feed Rate Fz (IPT)	Grade
P	General Steel	Below 280HB	365 - 900	0.025 - 0.138	ACU2500/ACP2000/ACP3000
	Alloy Steel	Below 280HB	365 - 720	0.025 - 0.090	ACU2500/ACP2000/ACP3000
	Alloy Steel	Below 42HRC	365 - 650	0.025 - 0.050	ACU2500/ACP2000/ACP3000
M	Stainless Steel	—	330 - 550	0.025 - 0.050	ACU2500/ACS2500/ACS3000
K	Cast Iron	—	365 - 900	0.025 - 0.080	ACU2500/ACK2000/ACK3000
S	Heat Resistant Alloy	—	80 - 150	0.012 - 0.035	ACU2500/ACS2500/ACS3000
	Titanium Alloy	—	110 - 250	0.016 - 0.035	ACU2500/ACS2500/ACS3000
H	Hardened Steel	Below 52HRC	330 - 430	0.012 - 0.030	ACU2500/ACP3000

Application Range  Page 10

Precaution:

- Please adjust axial depth of cut (ap) based on the feed rate (IPT).
- Do not exceed the recommended depth of cut based on the feed rate (IPT).

Note

- The above figures are guidelines for use with CAT50, BT50, and HSK100A machine tools at depth of cut (a_p) of .060".

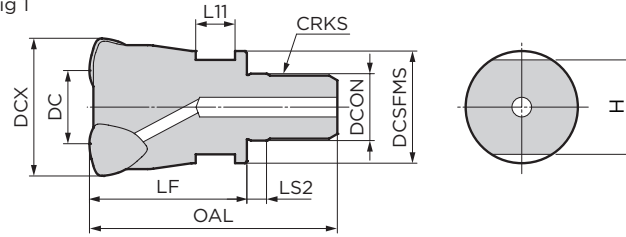
- The above recommended cutting conditions may require adjustment depending on machine rigidity, workpiece rigidity and projection.

DMSW SERIES

Rake Angle	Radial	-11° to -13°	.1181	75°	3mm	75°
	Axial	-6°				



Fig 1



■ Modular Head

● : USA Stocked Item ★ : Worldwide Warehouse Item

Blank: Made-to-order item

Dimensions (inch / mm)

Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Chamfer L11	Width H	Number of Teeth	Weight (lb / kg)	Fig
DMSW31500M16Z3	●	1.500	0.852	0.669	M16	2.480	1.575	0.197	0.472	0.945	3	0.441	1
DMSW08035M16Z2	★	35	18.6	17	M16	63	40	5	10	24	2	0.19	1
DMSW08040M16Z3	★	40	23.5	17	M16	63	40	5	10	24	3	0.21	1

Inserts are sold separately.

■ Parts

⌚ Recommended Tightening Torque (N·m)

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

■ Identification Code - Inch

DMSW 3 1500 M16 Z3

Series Insert Series Cutter Dia. Mounting Screw Size Number of Teeth

■ Identification Code - Metric

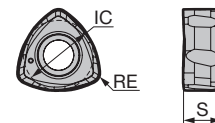
DMSW 08 040 M16 Z3

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

■ Insert

Grade Classification		Coated Carbide						Dimensions (Inch)			
Process	High-speed / Light	P	K					Inscribed Circle IC	Thickness S	Corner Radius RE	Fig
	General-purpose	P	P	K	M	S					
	Roughing	P	P	K	M	S					
Cat. No.		ACU2500	ACP2000	ACP3000	ACK2000	ACK3000	ACS2500				
WNMU0807ZNER-L		★	★	★			★				
WNMU0807ZNER-G		●	●	●	●	●	●	.512	.2756	.063	1
WNMU0807ZNER-H		●	●	●			●				

Fig 1



■ Recommended Cutting Conditions (DMSW)

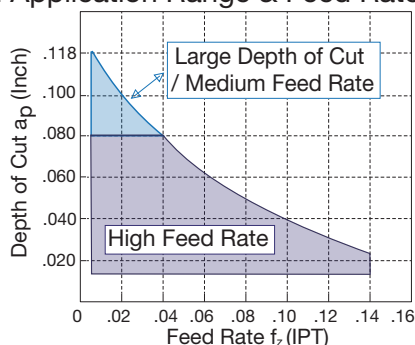
ISO	Material	Hardness	Cutting Speed v_c (SFM)	Feed Rate F_z (IPT)	Grade
P	General Steel	Below 280HB	365 - 900	0.025 - 0.138	ACU2500/ACP2000/ACP3000
	Alloy Steel	Below 280HB	365 - 720	0.025 - 0.090	ACU2500/ACP2000/ACP3000
	Alloy Steel	Below 42HRC	365 - 650	0.025 - 0.050	ACU2500/ACP2000/ACP3000
M	Stainless Steel	—	330 - 550	0.025 - 0.050	ACU2500/ACS2500/ACS3000
K	Cast Iron	—	365 - 900	0.025 - 0.080	ACU2500/ACK2000/ACK3000
S	Heat Resistant Alloy	—	80 - 150	0.012 - 0.035	ACU2500/ACS2500/ACS3000
	Titanium Alloy	—	110 - 250	0.016 - 0.035	ACU2500/ACS2500/ACS3000
H	Hardened Steel	Below 52HRC	330 - 430	0.012 - 0.030	ACU2500/ACP3000

Note

- The conditions are guidelines for use with CAT50, BT50, and HSK100A machine tools at depth of cut (a_p) of .060".
- The recommended cutting conditions may require adjustment depending on machine rigidity, workpiece rigidity and projection.

Modular Arbors Page 11

■ Application Range & Feed Rates

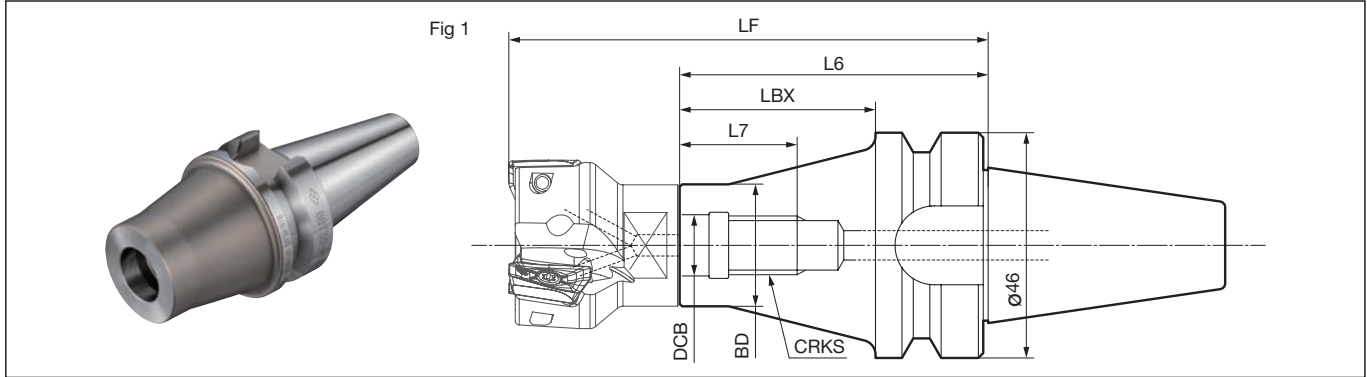


Precaution:

- Please adjust axial depth of cut (a_p) based on the feed rate (IPT).
- Do not exceed the recommended depth of cut based on the feed rate (IPT).

DMSW SERIES

Modular Tools Special Arbor (BBT Integrated Type)



■ BBT Integrated Arbor

Dimensions (mm)

Cat. No.	Stock	Screws CRKS	Bore Dia. DCB	External BD	Body Overhang L6	Length LBX	Thread Depth L7	Overhang LF ¹	Coolant Hole	Fig
BBT30-M8-50	★	M8	8.5	15.9	73	50	18	98	Yes	1
BBT30-M10-45	★	M10	10.5	19.9	68	45	20	98	Yes	1
BBT30-M12-40	★	M12	12.5	24.9	63	40	22	98	Yes	1
BBT30-M16-35	★	M16	17	31.9	58	35	24	98	Yes	1

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

Modular Tools - Special Arbors (Carbide Arbors / Steel Arbors)

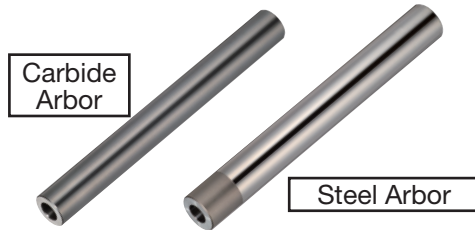
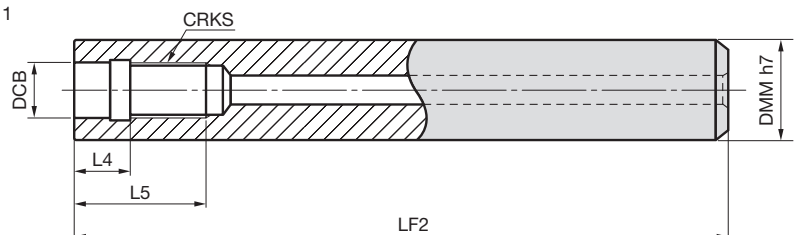


Fig 1



Carbide Arbor

Dimensions (mm)

Cat. No.	Stock	Screw CRKS	Bore Dia. DCB	Shank DMM	Overall Length LF2	Depth L4	Thread Depth L5	Overhang LF*	Fig
MA15M08L120C	★	M8	8.5	15	120	10	18	145	1
MA15M08L160C	★	M8	8.5	15	160	10	18	185	1
MA16M08L120C	★	M8	8.5	16	120	10	18	145	1
MA16M08L160C	★	M8	8.5	16	160	10	18	185	1
MA18M10L150C	★	M10	10.5	18	150	10	20	180	1
MA18M10L200C	★	M10	10.5	18	200	10	20	230	1
MA20M10L150C	★	M10	10.5	20	150	10	20	180	1
MA20M10L200C	★	M10	10.5	20	200	10	20	230	1
MA23M12L200C	★	M12	12.5	23	200	10	22	235	1
MA23M12L250C	★	M12	12.5	23	250	10	22	285	1
MA25M12L200C	★	M12	12.5	25	200	10	22	235	1
MA25M12L250C	★	M12	12.5	25	250	10	22	285	1
MA28M16L200C	★	M16	17.0	28	200	10	24	240	1
MA28M16L300C	★	M16	17.0	28	300	10	24	340	1
MA32M16L200C	★	M16	17.0	32	200	10	24	240	1
MA32M16L300C	★	M16	17.0	32	300	10	24	340	1

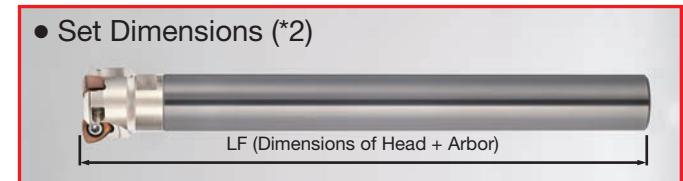
Steel Arbor

Dimensions (inch / mm)

	Cat. No.	Stock	Screw CRKS	Bore Dia. DCB	Shank DMM	Overall Length LF2	Depth L4	Thread Depth L5	Overhang LF*	Fig
Inch	MA0625M08L475S	●	M8	0.335	0.625	4.750	0.393	0.708	5.734	1
	MA0750M10L600S	●	M10	0.413	0.750	6.000	0.393	0.787	7.181	1
	MA1000M12L800S	●	M12	0.492	1.000	8.000	0.393	0.866	9.378	1
	MA1000M16L800S	●	M16	0.669	1.000	8.000	0.393	0.944	9.575	1
	MA1250M16L800S	●	M16	0.669	1.250	8.000	0.393	0.944	9.575	1
Metric	MA16M08L120S	★	M8	8.5	16	120	10	18	145	1
	MA20M10L150S	★	M10	10.5	20	150	10	20	180	1
	MA25M12L200S	★	M12	12.5	25	200	10	22	235	1
	MA32M16L200S	★	M16	17.0	32	200	10	24	240	1

● : USA Stocked Item ★ : Worldwide Warehouse Item

● Set Dimensions (*2)



Recommended Tightening Torque (N·m)

* Caution 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 k (N·m)	Tool Dimensions	
		L11	H
M8	23	8	13
M10	46	8	15
M12	80	10	19
M16	90	10	24



■ Identification Code

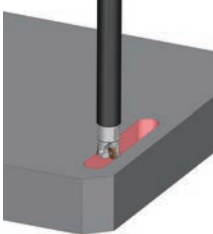
MA 32 M16 L200 C

Series Shank Dia. Mounting Screw Size Arbor Overall Length Arbor Materials
1.000" 8.000" C: Carbide S: Steel

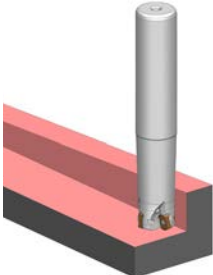
*For SK Modular Adapters, please refer to Sumitomo General Catalog.

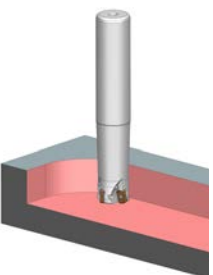
DMSL / DMSW SERIES

■ Application Examples (DMSL)

General Steel A36 Machine Component		Sumitomo	Competitor's Product
	Tool	DMSL06020M10Z3	Single-sided, 2 edges
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	20	20
	Number of Teeth	3	2
	v_c (SFM)	308	308
	v_f (IPM)	157	79
	f_z (IPT)	.035	.026
	a_p (Inch)	.039	.039
	a_e (inch)	.787	.787
	Coolant	Wet	Wet
	Results	Less chatter at an overhang amount of 4.72" (carbide arbor), efficiency 2x	

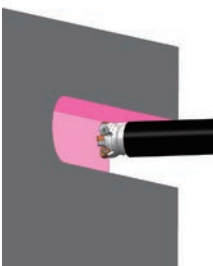
Carbon Steel Automotive Component		Sumitomo	Competitor's Product
	Tool	DMSL06020M10Z3	—
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	20	20
	Number of Teeth	3	3
	v_c (SFM)	656	525
	v_f (IPM)	354	154
	f_z (IPT)	.037	.020
	a_p (Inch)	.014	.020
	a_e (inch)	.787	.984
	Coolant	Dry	Wet
	Results	Stable milling at an overhang length of 5.12" (carbide arbor), efficiency 2x	

Heat Treated (40HRC) Die/Mold Component		Sumitomo	Competitor's Product
	Tool	DMSL06025E04	Single-sided, 4 edges
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	25	32
	Number of Teeth	4	4
	v_c (SFM)	623	492
	v_f (IPM)	378	235
	f_z (IPT)	.039	.039
	a_p (Inch)	.016	.016
	a_e (inch)	.709	.985
	Coolant	Dry	Wet
	Results	Suggested running DMSL dry. Tool life doubled and provided more stability.	

Titanium Alloy Ti-6Al-4V Aerospace Component		Sumitomo	Competitor's Product
	Tool	DMSL06025E04	Double-sided, 4 edges
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	25	25
	Number of Teeth	4	4
	v_c (SFM)	164	197
	v_f (IPM)	78.7	47.2
	f_z (IPT)	.031	.016
	a_p (Inch)	.028	.028
	a_e (inch)	.59	.59
	Coolant	Wet	Wet
	Results	DMSL provided lower vibration and improved stability. Over 40% efficiency increase.	

■ Application Examples (DMSW)

Cast Steel Machine Component		Sumitomo	Competitor's Product
	Tool	DMSW08080RS06	Single-Sided, 2 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	80	80
	Number of Teeth	6	5
	v_c (SFM)	262	262
	v_f (IPM)	35	35
	f_z (IPT)	.0185	.022
	a_p (Inch)	.039	.039
	a_e (inch)	2.36	2.36
	Coolant	Wet	Wet
	Results	Stable with no sudden fractures in mill-scale work, achieving 1.3x longer tool life.	

Carbon Steel S45C Machine Component		Sumitomo	Competitor's Product
	Tool	DMSW08050RS05	Single-Sided, 4 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (mm)	50	50
	Number of Teeth	5	5
	v_c (SFM)	620	620
	v_f (IPM)	197	197
	f_z (IPT)	.033	.033
	a_p (Inch)	.039	.039
	a_e (inch)	1.97	1.97
	Coolant	Dry	Dry
	Results	Achieved 240 min of cutting without indexing the inserts.	



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