

Sumi Dual Mill DGC Type



General Features

Sumi Dual Mill DGC type utilizes double-sided inserts for excellent economy. This is a general-purpose cutter featuring high cutting edge strength for high efficiency milling and low-burr chipbreaker design that provides high quality machined surface.

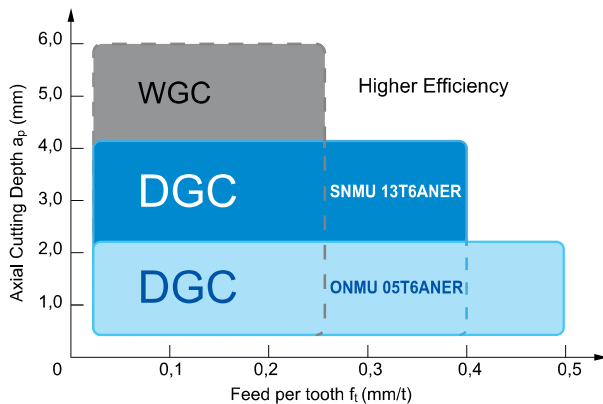
The DGC type insert lineup includes double-sided SNMU and ONMU types. Up to 16 corners can be used for improved economy.



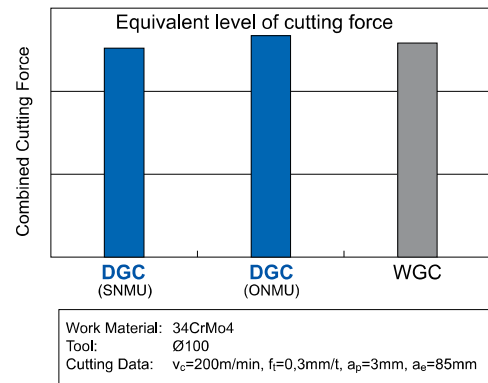
Characteristics

- Same cutting performance as single-sided inserts plus superior economy.
- Achieves level of cutting edge sharpness and machined surface quality equivalent to single-sided cutter at a maximum cutting depth of $a_p \leq 3\text{mm}$.

Recommended Cutting Conditions for General Steel Milling




Cutting Force Comparison




Dual-Purpose Body

Two types of inserts can be used with a single body depending on milling application to help reduce costs. Stronger than single-sided cutters.

SNMU




+



shim to protect cutter body

+

ONMU




– first recommendation


– economical double-sided design offers 8 cutting edges with SNMU inserts

– maximum depth of cut: $a_p = 6\text{mm}$

Use two types of inserts for different applications.



max. $a_p = 6\text{mm}$
8 corners use



max. $a_p = 3\text{mm}$
16 corners use

– double-sided design with 16 corners for improved economy

– maximum depth of cut: $a_p = 3\text{mm}$

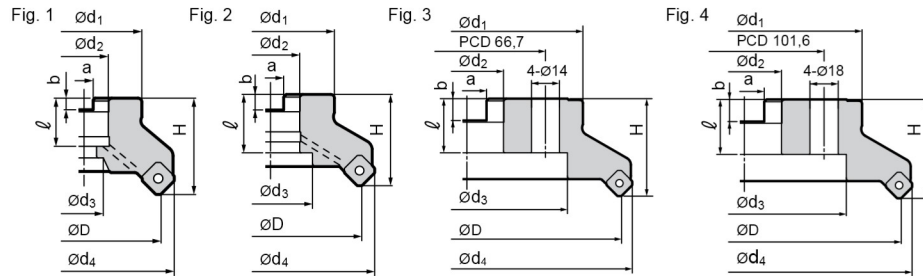
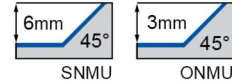
Sumi Dual Mill DGC(M/F) 13000RS Type

General Milling of Steel and Cast Iron

■ Body – Shell type



Rake Angle	Radial	-10°
	Axial	-5°



Cutter body $\phi D \geq 160$ mm: no inner coolant

■ Body – Dimensions

● Type: DGC, Standard Pitch

Cat. No.	Stock	Dimension (mm)				Mounting					No. of Teeth	Weight (kg)	Fig.
		ϕD	ϕd_4	ϕd_1	H	ϕd_2	ϕd_3	a	b	ℓ			
DGC 13040 RS	●	40 (42,90)	54	36	40 (38,44)	16	13,5	8,4	5,6	18	3	0,3	1
DGC 13050 RS	●	50 (52,90)	64	40	40 (38,44)	22	18,0	10,4	6,3	20	3	0,4	1
DGC 13063 RS	●	63 (65,90)	77	50	40 (38,44)	22	18,0	10,4	6,3	20	4	0,5	1
DGC 13080 RS	●	80 (82,90)	94	60	50 (48,44)	27	20,0	12,4	7,0	25	4	1,2	1
DGC 13100 RS	●	100 (102,90)	114	70	50 (48,44)	32	46,0	14,4	8,5	32	5	1,6	2
DGC 13125 RS	●	125 (127,90)	139	80	63 (61,44)	40	52,0	16,4	9,5	29	6	2,8	1
DGC 13160 RS	●	160 (162,90)	174	130	63 (61,44)	40	88,0	16,4	9,5	29	7	4,5	3
DGC 13200 RS	○	200 (202,90)	214	150	63 (61,44)	60	130,0	25,7	14,0	35	8	7,1	4
DGC 13250 RS	○	250 (252,90)	264	190	63 (61,44)	60	160,0	25,7	14,0	35	10	11,2	4

● Type: DGCM, Medium Pitch

Cat. No.	Stock	Dimension (mm)				Mounting					No. of Teeth	Weight (kg)	Fig.
		ϕD	ϕd_4	ϕd_1	H	ϕd_2	ϕd_3	a	b	ℓ			
DGCM 13050 RS	●	50 (52,90)	64	40	40 (38,44)	22	18	10,4	6,3	20	4	0,3	1
DGCM 13063 RS	●	63 (65,90)	77	50	40 (38,44)	22	18	10,4	6,3	20	5	0,5	1
DGCM 13080 RS	●	80 (82,90)	94	60	50 (48,44)	27	20	12,4	7,0	25	6	1,1	1
DGCM 13100 RS	●	100 (102,90)	114	70	50 (48,44)	32	46	14,4	8,5	32	7	1,5	2
DGCM 13125 RS	●	125 (127,90)	139	80	63 (61,44)	40	52	16,4	9,5	29	8	2,8	1
DGCM 13160 RS	●	160 (162,90)	174	130	63 (61,44)	40	88	16,4	9,5	29	10	4,6	3
DGCM 13200 RS	○	200 (202,90)	214	150	63 (61,44)	60	130	25,7	14,0	35	12	7,0	4
DGCM 13250 RS	○	250 (252,90)	264	190	63 (61,44)	60	160	25,7	14,0	35	14	11,1	4

● Type: DGCF, Fine Pitch

Cat. No.	Stock	Dimension (mm)				Mounting					No. of Teeth	Weight (kg)	Fig.
		ϕD	ϕd_4	ϕd_1	H	ϕd_2	ϕd_3	a	b	ℓ			
DGCF 13050 RS	●	50 (52,90)	64	40	40 (38,44)	22	18	10,4	6,3	20	5	0,3	1
DGCF 13063 RS	●	63 (65,90)	77	50	40 (38,44)	22	18	10,4	6,3	20	6	0,5	1
DGCF 13080 RS	●	80 (82,90)	94	60	50 (48,44)	27	20	12,4	7,0	25	8	1,1	1
DGCF 13100 RS	●	100 (102,90)	114	70	50 (48,44)	32	46	14,4	8,5	32	10	1,4	2
DGCF 13125 RS	●	125 (127,90)	139	80	63 (61,44)	40	52	16,4	9,5	29	12	2,7	1
DGCF 13160 RS	●	160 (162,90)	174	130	63 (61,44)	40	88	16,4	9,5	29	14	4,4	3
DGCF 13200 RS	○	200 (202,90)	214	150	63 (61,44)	60	130	25,7	14,0	35	16	6,9	4
DGCF 13250 RS	○	250 (252,90)	264	190	63 (61,44)	60	160	25,7	14,0	35	18	11,0	4

○ Japan stock

● Euro stock

() Figures in brackets indicate values for ONMU inserts.

Inserts are not included.

Note: Please use screw according to JIS B1176 for securing $\phi 80/\phi 100$ cutter to the arbor ($\phi 80 \Rightarrow M12 \times 30$ to 35mm, $\phi 100 \Rightarrow M16 \times 40$ to 45mm)

■ Identification Details

DGC **M** **13** **050** **R** **S**
 Cutter M: Medium Insert Cutter Direction Metric
 Series F: Fine Size Diameter

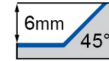
Sumi Dual Mill DGC 13000EW Type

General Milling for Steel and Cast Iron

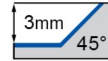
■ Body – Shank Type



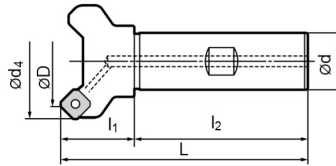
Rake Angle	Radial	-10°
	Axial	-5°



SNMU



ONMU



■ Body – Dimensions

Cat. No.	Stock	Dimension (mm)						No. of Teeth	Weight (kg)
		ϕD	ϕd_4	ϕd	l_1	l_2	L		
DGC 13040 EW	●	40 (42,90)	54	32	40 (38,44)	85	125	3	0,7
DGC 13050 EW	●	50 (52,90)	65	32	40 (38,44)	85	125	3	0,9
DGC 13063 EW	●	63 (65,90)	77	32	40 (38,44)	85	125	4	1,1

● Euro stock

() Figures in brackets indicate values for inserts of type ONMU

■ Identification Details

DGC	13	040	EW
Cutter Series	Insert Size	Cutter Diameter	Endmill Type Weldon

■ Inserts + Grades

Application	Coated Carbide					Fig.
High Speed/Light cut	P			K		
General Purpose		P _M	M		K	
Roughing		P _M	P _M		K	
Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	
SNMU 13T6ANER L		●	●	●		1
SNMU 13T6ANER G	●	●	●	●	●	1
SNMU 13T6ANER H	●	●	●	●	●	1
ONMU 05T6ANER L		●	●	●		2
ONMU 05T6ANER G	●	●	●	●	●	2

Fig. 1

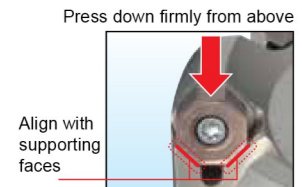
Fig. 2

● Euro stock



Attaching Octagonal Inserts

Firmly align insert with supporting face, press down in the direction of the arrow and tighten the screw to fix the insert.



■ Spare Parts

Shim	Shim Screw	L Type Wrench	Insert Srew	Spanner
DGCS13R	BW0609F	LH040	BFTX0412IP	TRDR15IP

Optional

Insert Srew (*)
BFTX0418IP

*Corners can be changed simply by loosening the screw. (Only suitable for DGC / DGCM types with body size $\geq \phi 80$).

■ SNMU – Recommended Cutting Conditions

ISO	Work Material	Fit-ness	Cutting Speed v_c (m/min)	Feed Rate f_t (min/t)	Depth of Cut (mm)	Grade
P	General Steel	⊙	150-200-250	0,10-0,25-0,40	<4	ACP200 ACP300
	Alloyed Steel	⊙	180-250-350	0,10-0,30-0,45	<4	ACP200 ACP300
	Die Steel	⊙	100-150-200	0,15-0,25-0,35	<4	ACP200 ACP300
M	Stainless Steel	⊙	160-200-250	0,15-0,23-0,30	<3	ACP300
K	GG+GGG	⊙	100-200-250	0,10-0,25-0,40	<5	ACK200 ACK300

Min. – Optimum – Max.

■ ONMU – Recommended Cutting Conditions

ISO	Work Material	Fit-ness	Cutting Speed v_c (m/min)	Feed Rate f_t (min/t)	Depth of Cut (mm)	Grade
P	General Steel	⊙	150-200-250	0,10-0,30-0,50	<2	ACP200 ACP300
	Alloyed Steel	⊙	180-250-350	0,10-0,50-0,50	<2	ACP200 ACP300
	Die Steel	⊙	100-150-200	0,15-0,25-0,30	<2	ACP200 ACP300
M	Stainless Steel	⊙	160-200-250	0,15-0,23-0,30	<2	ACP300
K	GG+GGG	⊙	100-200-250	0,10-0,30-0,50	<2	ACK200 ACK300

⊙ Preferred choice

⊙ Suitable

Sumi Dual Mill DGC Type

Line-up

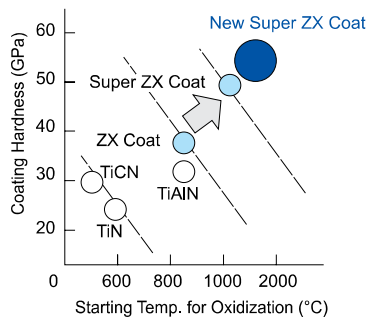
Choose a tool that fits your application from a comprehensive line-up

Cat. No	DGC 13000 RS	DGCM 13000 RS	DGCF 13000 RS	DGC 13000 EW
Type	Standard pitch	Medium pitch	Fine pitch	Endmill type
Cutter Diameter	Ø40mm ~ Ø250mm	Ø50mm ~ Ø250mm	Ø50mm ~ Ø250mm	Ø40mm ~ Ø63mm
Cutting Edges	3 ~ 10	4 ~ 14	5 ~ 18	3 ~ 4
Shape				

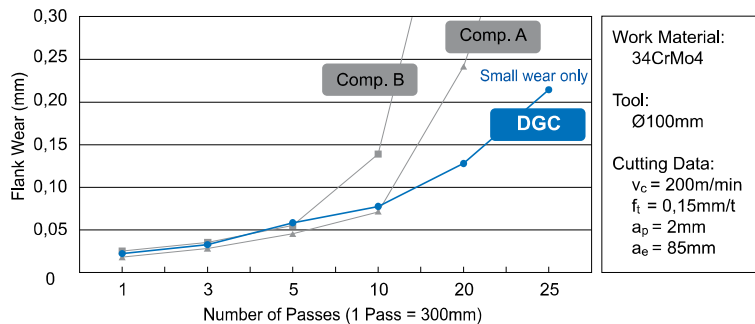
High Reliability

Employs **New Super ZX Coating**, a multi-layer PVD coating grade and CVD coating grade with enhanced coating strength provided by newly developed stress control technology. Improved run-out precision reduces tool life deviation to achieve highly reliable tool life.

Multi-layer PVD Coating



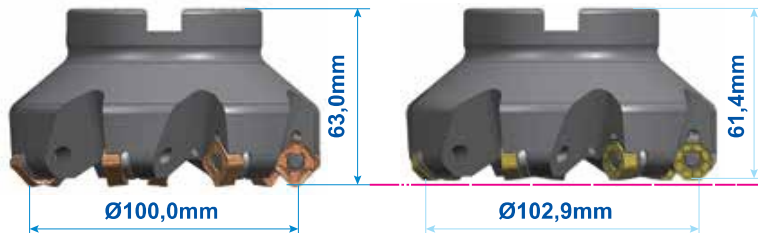
Wear Resistance





Cutter Diameter and Cutter Body Height

Insert: SNMU 13T6ANER (square)

Insert: ONMU 05T6ANER (octagonal)



Example: D _c = 100mm	Number of Cutting Edges	Tool Diameter (mm)	Cutter Height (mm)	Max. Depth of Cut (mm)
SNMU 	8	100,0	63,0	6,0
ONMU 	16	102,9	61,4	3,0

Square inserts (SNMU) and octagonal inserts (ONMU) can be used interchangeably on the same body. Using these inserts the cutter will have different cutter diameter and cutter body height.