BIG DAISHOWA

NEW!

INDEXABLE FACE MILLS

Uniquely Designed High Performance Indexable Face Mill Types

ø50mm, ø63mm, ø80mm,
ø100mm, ø125mm & ø160mm

A PRODUCT OF:

BIG KAISER®

PRECISION TOOLING INC.

Higher Performance. Guaranteed.

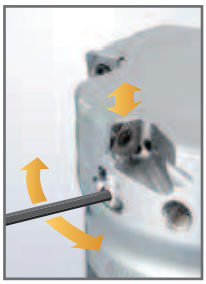
SPEED FINISHER

High Speed Cutter for Aluminum and Cast Iron

Each cutting edge height is adjustable to within 1µm of each other.

Quick Adjustment of Cutting Edge Height

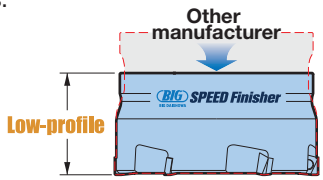
After clamping the insert, the lifting screw lifts up the insert directly by revolving the lifting nut from the side. Simple construction aids in easy adjustment and the fine pitch thread of the lift screw ensures precise adjustment.



Exclusive PL Presetter shortens the setup time further (up to 15 sec/insert) while avoiding chipping of the cutting edge.

Light Weight & High Rigidity

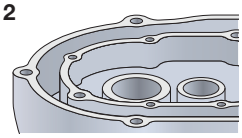
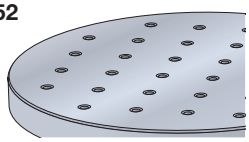
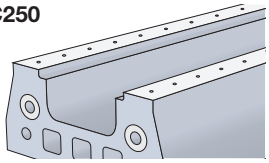
The low-profile cutter body enhances rigidity, minimizes vibration and distortion, which leads to the minimized height difference of the machined surface. Lighter weight resulting from reduced mass aids performance on small machine tools such as BT30 spindles.

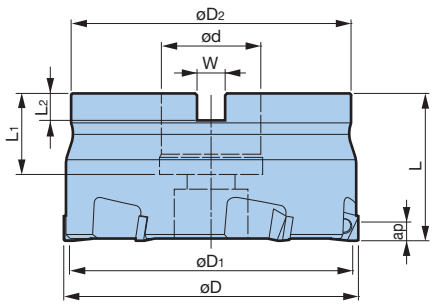


Secure Coolant Supply to the Cutting Edges

Coolant is supplied to the cutting edge directly when used in combination with the Face Mill Arbor Type FMH. This is especially effective in avoiding built-up edges when cutting aluminum and possible re-cutting of the swarf.

Application Examples (Cutter Diameter: ø80mm)

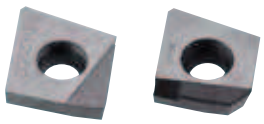
Workpiece	Conditions	Surface Roughness	Height Difference	No. of Workpieces	Result
Crank case **ADC12** 	Cutting Speed: 13,123 SFM Spindle Speed: 15,900 RPM Feed Rate: 376 IPM D.O.C.: .098"	Ra=.08µm Rz=.55µm	Within 1µm	24,000	Rough & finish processes are combined in a single operation
Parts of semiconductor manufacturing equipment **A5052** 	Cutting Speed: 13,123 SFM Spindle Speed: 15,900 RPM Feed Rate: 376 IPM D.O.C.: .079"	Ra=.07µm Rz=.32µm	Within 1µm	320	Mirror finish is achieved
Machine tool bed **FC250** 	Cutting Speed: 4,921 SFM Spindle Speed: 6,000 RPM Feed Rate: 142 IPM D.O.C.: .020"	Ra=.12µm Rz=.67µm	Within 2µm	20	1-2µm flatness is obtained



Speed Finisher

Catalog Number	øD	øD1		øD2	ød	L	L1	L2	W	No. of inserts	Max RPM	Weight (lbs.)
		DA2200	CBN									
FM22-PLS505-35	50	46.9	44.9	47	22	35	19	6	10.4	5	20,000	.88
FM22-PLS636-35	63	59.9	57.9	60	22	35	19	6	10.4	6		1.54
FM27-PLS806-40	80	76.9	74.9	76	27	40	22	7	12.4		16,000	2.65
FM32-PLS1006-42	100	96.9	94.9	96	32	42	24	8	14.4	6	12,800	4.40
FM40-PLS1258-50	125	121.9	119.9	96	40	50	28	10	16.4	8	10,000	5.50
FM40-PLS16010-50	160	156.9	154.9	96	40	50	28	10	16.4	10	8,000	7.10

- All dimensions shown in millimeters
- Wrench and screws are included
- Inserts must be ordered separately
- When using at 12,000 RPM or higher, contact BIG Kaiser agent for balancing of the cutter and arbor assembly
- Effective cutting edge length ap varies depending on insert models—refer to the table for insert shown below
- Adjusting amount of cutting edge is .004"—note this when using reground insert



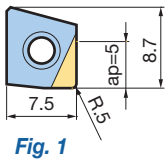


Fig. 1

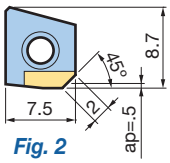


Fig. 2

Inserts

Insert Model	Workpiece	Fig.	Material	Cutting Edge Length (ap)
PL0705 DA2200	Aluminum & Nonferrous	1	Diamond	5.0
PL0705 CBN	Cast Iron	2	CBN	0.5

- All dimensions shown in millimeters
- Each insert is packed in a case (order example: PL0705 DA2200 5 pcs.)
- Regrinding of the insert is possible only once (grinding amount .2mm)
- Early regrinding is recommended, since regrinding becomes unavailable after excessive wear or once chipping occurs

Insert Grade

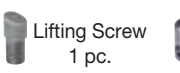
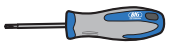
DA2200	CBN
High density sintered material made of ultra-micro diamond particles. Superior wear resistance and hardness comparable to carbide alloy.	Newly designed CBN sintered body with high content rate of CBN improves toughness and thermal conductivity.

Recommended Cutting Conditions

Workpiece Material		Insert Material	Cutting Speed (SFM)	Feed Rate (IPT)	Coolant
Aluminum Alloy	Si content 13%≥	DA2200	6,562-13,123	.002-.008	Wet
	Si content 13%<		1,312-2,625		
Copper Alloy		DA2200	1,640-8,202	.002-.008	Wet
Gray Cast Iron		CBN	2,625-6,562	.004-.012	Dry

- The table is a reference to determine cutting conditions and it should be adjusted according to cutting width and conditions of the machine tool and workpiece

Spare Parts

Lifting Screw Set	*Insert Clamping Screws*	*Wrench*	*Anti-Seizure Lubricant*
 Lifting Screw 1 pc. Lifting Nut 1 pc.	Screw 10 pcs. Wrench 1 pc. 		 5g included
Catalog Number	Catalog Number	Catalog Number	Catalog Number
LSN35	**S2506DS**	**DA-T8**	**BN-5**

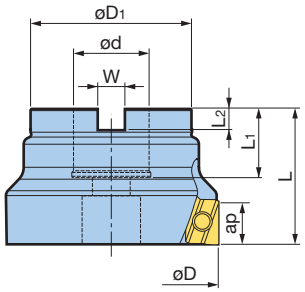
- Insert clamping screws and wrenches are consumables, therefore regular replacement and extra stock are recommended

FULLCUT MILL FCM

CUTTER DIAMETER: ø50mm, ø63mm, ø80mm & ø100mm

Arbor Type for Square Shoulder & Face Milling

Conforms to Form FMH of the new standard face milling adaptors.

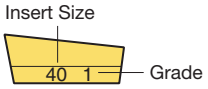


Arbor Type Form FMH / FMC

Cutter Dia. øD	Catalog Number	ap	ød	øD1	L	L1	L2	W	No. of Inserts	Insert Size	Weight (lbs.)
50	**FMH22-FCM50115-40**	11	22	47	40	20	6	10.4	5	ARG40	.5
63	**-FCM63116-40**		22	47	40	20	6	10.4	6	ARG63	.7
80	**FMH27-FCM80116-50**	11	27	60	50	22	7	12.4	6	ARG80	1.2
100	**-FCM100116-50**		27	76	50	22	7	12.4	6	ARG80	2.8

- All dimensions shown in millimeters
- Wrench and screws are included
- Inserts must be ordered separately

Marking Description



1: ACZ310
2: DS20
P2: ACP200
P3: ACP300
5S: ACZ350S

Indexable Inserts

Cutter Dia. øD	Insert Model	ap	Nose R	P		M	K	N
				ACP200	ACP300	ACZ350S	ACZ310	DS20
50	**ARG401102**	11	.2		○	○	○	○
	ARG401104	11	.4	○	○	○	○	○
63	**ARG631108**	11	.8	○	○	○	○	○
80, 100	**ARG801108**	11	.8	○	○	○	○	○

- Inserts are available in packages of 10 pcs.
- Please clarify the insert type and model when ordering (For example, use ordering code: ARG401104ACP300)

CAUTION ⚠

It is important to use the correct insert for the specific diameter of Fullcut Mill. Failure to use the correct insert will result in incorrect cutting conditions and poor results.

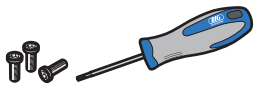
Insert Classifications

ISO Material	Grade	Material	Coating
P20	**ACP200**	Prehardened Steel	TiAlN/AlCrN
P30	**ACP300**	General Steel	
M30	**ACZ350S**	Stainless Steel	TiAlN/TiCN
K10	**ACZ310**	Cast Iron	
N20	**DS20**	Aluminum	DLC

Selection Between ACP200 & ACP300 for Steel

ACP200 is superior in anti-wear resistance, while ACP300 is superior in its anti-chipping property. ACP300 is the first recommendation for cutting steel.
Choose ACP200 over ACP300 in cases where further speed or wear-resistance is needed. ACP200 is not, however, recommended for either heavily-interrupted or heavy-duty cutting.

Spare Parts

		Insert Clamping Screw Set  10 screws & 1 wrench	*Wrench* 	*Anti-seize Lubricant*  A tube contains 5g
Cutter Dia.	Insert Model	Catalog Number	Catalog Number	Catalog Number
50	ARG4011□□	**S3508DS**	**DA-T15**	**BN-5**
63	ARG631108			
80, 100	ARG801108			

- It is recommended to regularly replace clamping screws and wrench to ensure the correct clamping force is maintained
- All dimensions shown in millimeters

Finish-Light Cutting

Cutter Dia.	Work Material	Carbon Steel Alloy Steel	Unalloyed Steel	Prehardened Steel <HRC40	Stainless Steel	Cast Iron	Aluminum
	Insert Grade	ACP300		ACP200	ACZ350S	ACZ310	DS20
	Cutting Fluid	Dry			Dry/Wet	Dry	Dry/Wet
ø50 ø63 ø80 ø100	Speed (SFM)	330-725	500-800	250-400	400-600	330-650	650-5000
	Feed (IPT)	.004-.010	.004-.009	.003-.006	.005-.008	.004-.010	.004-.014

CAUTION

Fullcut Mill FCM Arbor Type cannot be used for feeding Z-axis such as ramping, plunging and boring.

Medium-Heavy Cutting

Cutter Dia.	Work Material	Carbon Steel Alloy Steel	Unalloyed Steel	Stainless Steel	Cast Iron	Aluminum
	Insert Grade	ACP300		ACZ350S	ACZ310	DS20
	Cutting Fluid	Dry		Dry/Wet	Dry	Dry/Wet
ø50 ø63 ø80 ø100	Speed (SFM)	330-725	500-800	400-600	330-650	650-5000
	Feed (IPT)	.003-.007	.003-.006	.005-.006	.004-.008	.004-.012

CAUTION

This table is a general guideline for cutting data. Please adjust according to machine and workpiece conditions, as well as width of cutting.
Dry cutting (including air blow) is recommended when cutting steel, except for finishing.
Dry cutting is recommened for stainless steel. However, use soluble oil in a case where severe built-up edge occurs.

Indexable Insert Face Mill Achieving Excellent Squareness and Fine Surface Finish

Machined by Fullcut Mill Model: FMH22-FCM63116-40
Arbor Model: BBT40-FMH22-27-45

Squareness

Cutting Speed (SFM)	500
Feed Rate (IPT)	.004"
Axial DOC (Ad)	.20"
Radial DOC (Rd)	.004"

BIG DAISHOWA	.0004"
Other manufacturer	.0016"

Wiper Cutting Edge

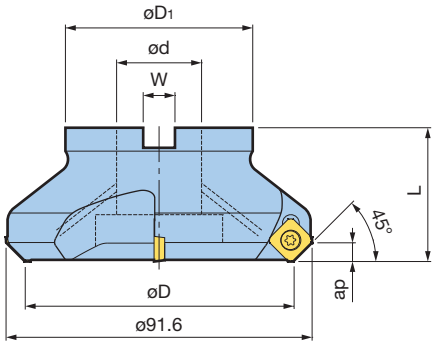
Cutting Speed (SFM)	825
Feed Rate (IPT)	.008"
Axial DOC (Ad)	.004"
Radial DOC (Rd)	2"

BIG DAISHOWA	Ra=.51µm
Other manufacturer	Ra=1.56µm

SURFACE MILL

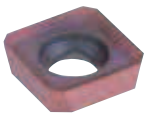
CUTTER DIAMETER: ø80mm

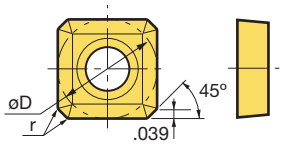
45° Approach Face Milling Cutter

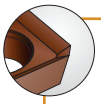


Cutter Dia. øD	Catalog Number	ap	ød	øD1	L	W	No. of Inserts	Insert Size	Weight (lbs.)
80mm	**FM25.4-SFM804-40**	.200	1.000	2.205	1.575	.375	4	CM10	1.98

- Wrench and screws are included
- Inserts must be ordered separately







NEW!

Newly introduced SE (Sharp Edge) type!
Sharp edge prevents burrs. Recommended for stainless steel & mild steel.

Indexable Inserts

Insert Model	øD	Nose Radius	Insert Grade			Insert Clamping Screw Set	Anti-seize Lubricant
			ACP200	ACP300	DS20		
CM10C1	.394	.008	○	—	○	**S4S-T15**	**BN-5**
CM10C1SE			○	—	—		

- Inserts are available in packages of 10 pcs.
- Please clarify the insert model and grade when ordering (ex: CM10C1ACP200)
- 10 screws and 1 wrench are included with Insert Clamping Screw Set
- It is recommended to regularly replace clamping screws and wrench to ensure the correct clamping force is maintained
- **SE** in the Insert Model means Sharp Edge Type

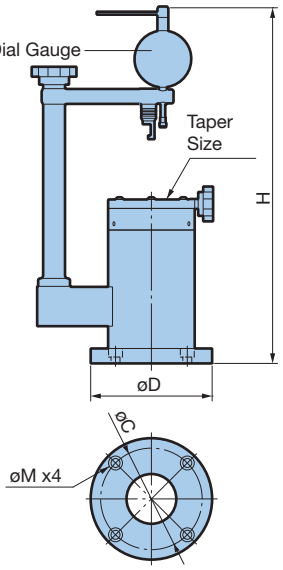
Insert Classifications

ACP200/ACP300	DS20
For all steel & stainless steel materials.	For aluminum & non-ferrous materials.
Multi-layer PVD coating on carbide base with nanoscale TiAlN & AlCrN. Excellent performance and wear resistance.	DLC coating on carbide base with very smooth surface for a low coefficient of friction. Excellent performance against built-up edge.

Exclusive Speed Finisher Presetter

Necessary for Cutting Edge Presetting

For quick adjustment in micron increments. Each cutting edge height is adjustable within 15 seconds.



PL Presetter

Catalog Number	Taper Size	H	øD	øC	øM	Max Tool Length	Weight (lbs.)
PLP-BBT30	BBT30	≥16.417	4.803	4.016	.354 (for M8)	5.906	16.53
-BBT40	BBT40						16.76
-BBT50	BBT50	≥19.764	6.772	5.866	.433 (for M10)	6.299	38.58
-HSK63	HSK-A63	≥16.417	4.803	4.016	.354 (for M8)	5.906	16.98

- Dail gauge and indicator stabilizer are standard accessories (2 pcs. AAA batteries included)
- Min. leading of the accessory dial gauge is .001mm
- BT shank cannot be used
- Max tool length indicated in the table is the dimension from the gauge line of the arbor to the cutting edge
- Max cutter diameter is ø160mm

Face Mill Tool Holders

Face Mill Type			BBT			BCV		HSK				BIG CAPTO		
Cutter ø	Pilot ø	Body ø	30	40	50	40	50	50	63	100	125	C5	C6	C8
50	22	47	•	•	•	•	•	•	•	•	•	•	•	•
63	22	60	•	•	•	•	•	•	•	•	•	•	•	•
80	1.000"	2.20"	•	•	•	•	•	•	•	•	•	•	•	•
80	27	76	•	•	•	•	•	•	•	•	○	•	•	•
100	32	76/96	X	•	•	•	•	X	X	•	•	X	X	•
125	40	96	X	X	•	X	○	X	X	•	○	X	X	X
160	40	96	X	X	•	X	○	X	X	•	○	X	X	X

• Stock Standard
X Not Available
○ Available upon request

SMART DAMPER
FACE MILL ARBOR TYPE FMH

Integrated Damping System
Maximizes potential of cutters for the highest productivity.
- For FMH22 & FMH27
- Modular design provides versatility

CENTER-THROUGH COOLANT

BIG-PLUS SPINDLE SYSTEM DUAL CONTACT

Face Milling of S55C (C55) with High Feed Cutter

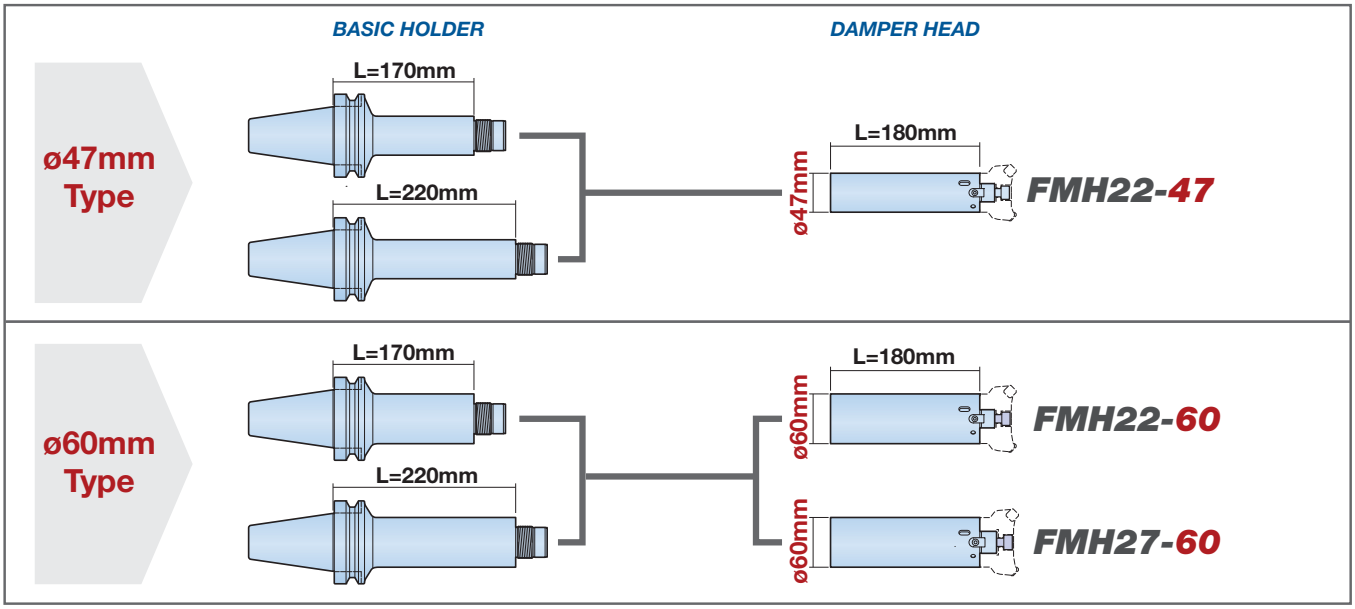
Holder	Radial depth of cut (inches)				Result
	.20	.40	.78	1.18	
Standard Holder (w/o damping system)	○	×	×		6X deeper depth of cut
Integrated Damping System **SMART DAMPER** BBT50-SDF36-47-170 + SDF36-FMH22DP-47-180	○	○	○		

× = Vibration ○ = Good

Cutting Conditions

Machine	Vertical Machining Center BBT50 (BIG-PLUS®)
Cutter	ø1.968" (4 inserts)
Speed	300 SFM
Feed	.040"/tooth
Depth	.08"
Overhang	13.67"

Combinations (Example of BBT50)
Select a suitable Basic Holder and Damper Head according to your application.



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