

Greatly improves the surface finish in ultra-high-speed machining!

● Speedy cutting edge height adjustment within  $1 \mu\text{m}$ ! Superb surface finish!

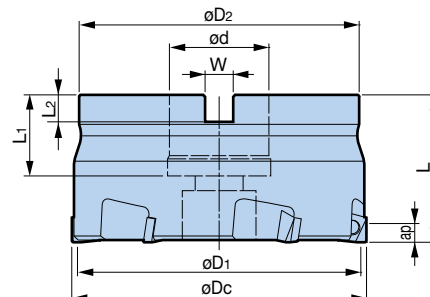


We recommend the **BIG** FACE MILL ARBOR TYPE FMH for holders.

● Model Description

**FM 22-PLS 50 5-35**

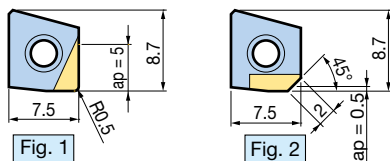
- L dimension
- Number of inserts
- Cutter diameter  $\phi D_c$
- Abbreviation of SPEED FINISHER
- Mounting part bore
- FACE MILL ARBOR



Model	Cutter diameter $\phi D_c$	$\phi D_1$		$\phi d$	$\phi D_2$	L	L <sub>1</sub>	L <sub>2</sub>	W	Number of inserts	Max. $\text{min}^{-1}$	Clamping Screw	Weight (kg)
		DA2200	CBN										
<b>FM22-PLS 505-35</b>	50	46.9	44.9	22	47	35	19	6	10.4	5	20,000	M10 cap bolt	0.4
<b>-PLS 636-35</b>	63	59.9	57.9	22	60	35	19	6	10.4				0.7
<b>FM27-PLS 806-40</b>	80	76.9	74.9	27	76	40	22	7	12.4	6	16,000	M12 cap bolt	1.2
<b>-PLS 1006-35 ●</b>	100	96.9	94.9	27	60	35	24	7	12.4		12,800	MBA-M12 ※	1.3
<b>-PLS 1256-35 ●</b>	125	121.9	119.9	27	60	35	24	7	12.4		10,200	MBA-M12 ※	1.9
<b>FM32-PLS 1006-42</b>	100	96.9	94.9	32	96	42	24	8	14.4		12,800	MBA-M16 ※	2.0
<b>FM40-PLS 1258-50</b>	125	121.9	119.9	40	100	50	28	9	16.4	8	10,200	MBA-M20	3.3
<b>-PLS16010-50</b>	160	156.9	154.9	40	100	50	28	9	16.4				10

1. A wrench and screws are included. Inserts must be ordered separately.
2. For use at spindle speeds of  $12,000 \text{min}^{-1}$  and higher, contact us for balance adjustment with the cutter mounted on the arbor.
3. Effective cutting edge length  $a_p$  differs depending on the insert used. Refer to the Insert table for details.
4. Cutting edge height adjustment amount is 0.1mm. Note when using reground inserts.
5. The ● mark indicates lightweight design exclusive for BT30.
6. The clamping screw marked ※ is included.

<Insert>



Insert Model	Material	Fig.	Insert grade	Effective cutting edge length
<b>PL0705 DA2200</b>	Aluminum/Non-ferrous	1	Diamond	5.0
<b>PL0705 CBN</b>	Cast Iron	2	CBN	0.5

Insert Grade Description

DA2200	CBN
Ultra-precise sintering of ultra-fine diamond particles creates a diamond sintered body with high strength and wear resistance comparable to carbide alloy.	CBN sintered body with greatly increased CBN content and optimized sintered body structure, improving material strength and thermal conductivity.

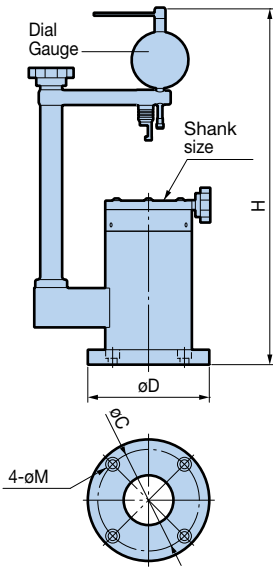
1. Inserts are available in packets of 1 pcs. Example: PL0705 DA2200...5 pcs
2. Although the insert can be reground once (regrinding allowance 0.2mm), severe wear or chipping on the cutting edge make regrinding impossible. We therefore recommend carrying out early regrinding.

<Spare Parts>

Insert clamping screws and tightening wrench are consumables. Order periodically for replacement or spares.

● Lifting Screw Set	● Insert Clamping Screw Set	● Driver-Type Wrench
<p>Lifting screw (1 pc) Lifting nut (1 pc)</p>	<p>Screw x 10 pcs Wrench x 1 pce.</p>	
Set Model	Set Model	Driver Model
<b>LSN35</b>	<b>S2506DS</b>	<b>DA-T8</b>

## PL Presetter



Essential for cutting edge presetting

- Presetter that allows quick adjustment in micron increments.
- Cutting edge height adjustment can be set within just 15 seconds per insert!



Model	Shank Model	H	øD	øC	øM	Max. tool diameter	※ Max. tool length	Weight (kg)
<b>PLP-BBT30</b>	BBT30	>417	122	102	9 (for M8)	ø160	150	7.5
<b>-BBT40</b>	BBT40							7.6
<b>-BBT50</b>	BBT50	>502	172	149	11 (for M10)	ø315	160	17.5
<b>-HSK63</b>	HSK-A63	>417	122	102	9 (for M8)	ø160	150	7.7

1. Dial Gauge and stabilizer (with 2 AAA dry cells) are included.
2. Included Dial Gauge min. scale is 0.001mm
3. BT shank holders cannot be used.
4. ※ The max. tool length in the table is the dimension from the arbor gauge line to the cutting edge.

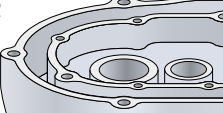
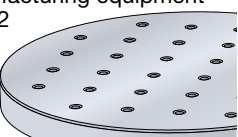
## Cutting Conditions

Workpiece material		Insert grade	Cutting speed Vc (m/min)	Feed fz (mm/t)	Coolant
Aluminum alloy	Si content ≤13%	DA2200	2,000 - 4,000	0.05 - 0.2	Wet
	Si content >13%		400 - 800		
Copper alloy		DA2200	500 - 2,500	0.05 - 0.2	Wet
Gray cast iron		CBN	800 - 2,000	0.1 - 0.3	Dry

This table is a guideline for selecting cutting parameters. Select the optimum, considering the cutting width as well, as conditions differ depending on the machine tool or workpiece rigidity.

## APPLICATION EXAMPLES

Cutter diameter: ø80

Workpiece	Cutting conditions	Finishing surface roughness	Height difference	No. of workpieces	Result
Crankcase ADC12 	Cutting speed Vc: 4,000m/min Spindle speed n: 15,900min <sup>-1</sup> Feed Vf: 9,550mm/min Cutting depth ap: 2.5mm	Ra = <b>0.08 μm</b> Rz = <b>0.55 μm</b>	Within 1 μm	24,000 pcs	Roughing and finishing are combined in a single operation.
Part of semiconductor manufacturing equipment A5052 	Cutting speed Vc: 4,000m/min Spindle speed n: 15,900min <sup>-1</sup> Feed Vf: 9,550mm/min Cutting depth ap: 2.0mm	Ra = <b>0.07 μm</b> Rz = <b>0.32 μm</b>	Within 1 μm	320 pcs	Mirror surface finish was achieved.
Machine tool bed FC250 	Cutting speed Vc: 1,500m/min Spindle speed n: 6,000min <sup>-1</sup> Feed Vf: 3,600mm/min Cutting depth ap: 0.5mm	Ra = <b>0.12 μm</b> Rz = <b>0.67 μm</b>	Within 2 μm	20 pcs	A finishing surface with flatness 1 - 2 μm was achieved.