

QUASER

we cut faster

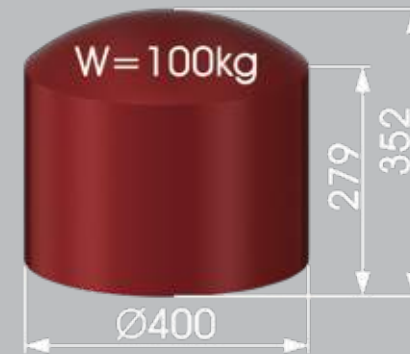
MF SERIES

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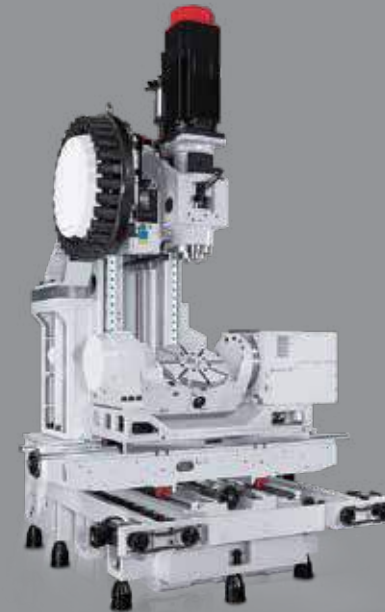
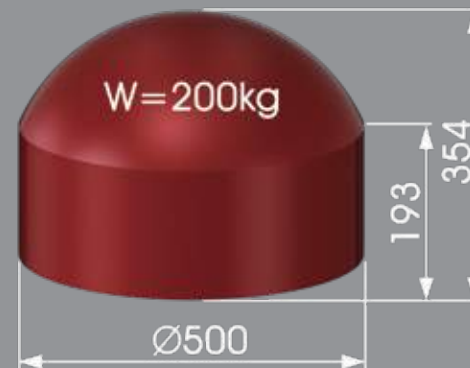
Workpiece size & Machine structure

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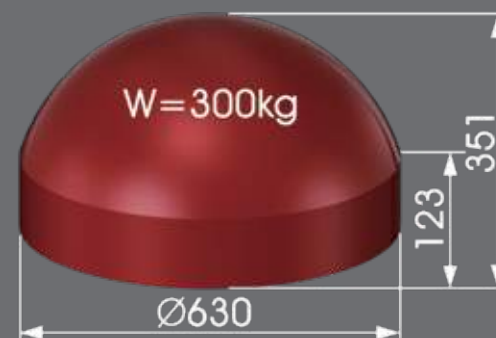
MF400



MF500



MF630



**C type: 5 axes positioning/
4 axes simultaneously**

- QUASER mill i
- SIEMENS 828D
- MITSUBISHI M830

U type: 5 axes simultaneously

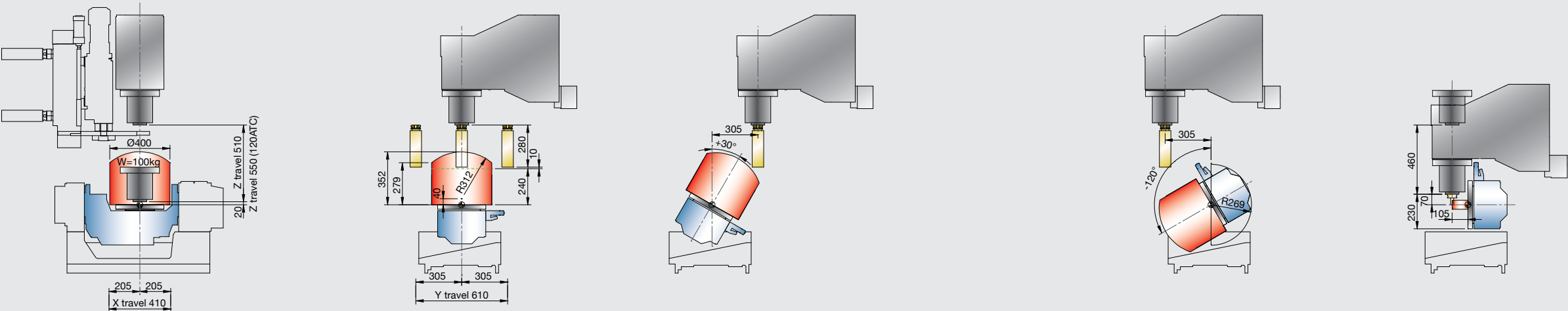
- FANUC 31iB5*
- SIEMENS 840D
- HEIDENHAIN TNC640

Note: * The applying process of 5-axis controller is complicated and the lead time is longer than 6 months.

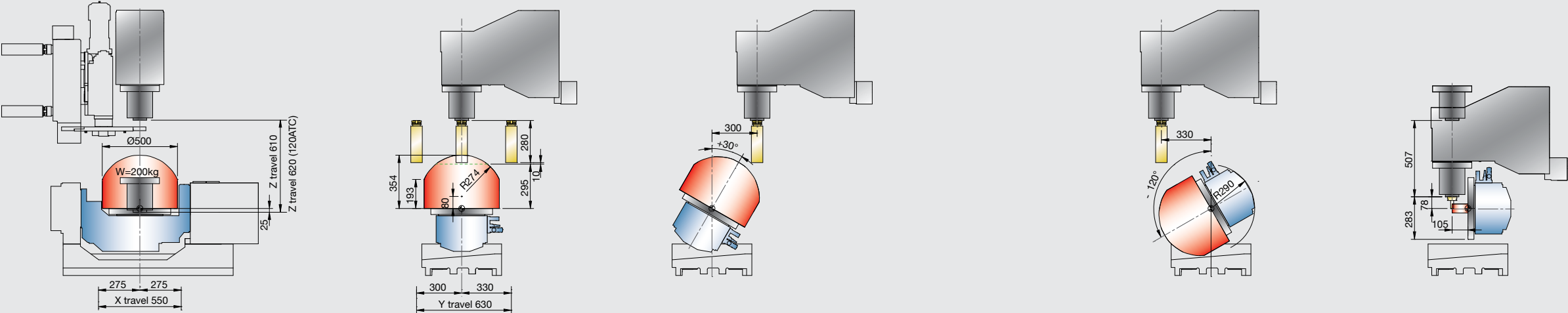
- The object might be different from the photos of catalogue if there is any specification update.

Cutting area and interference

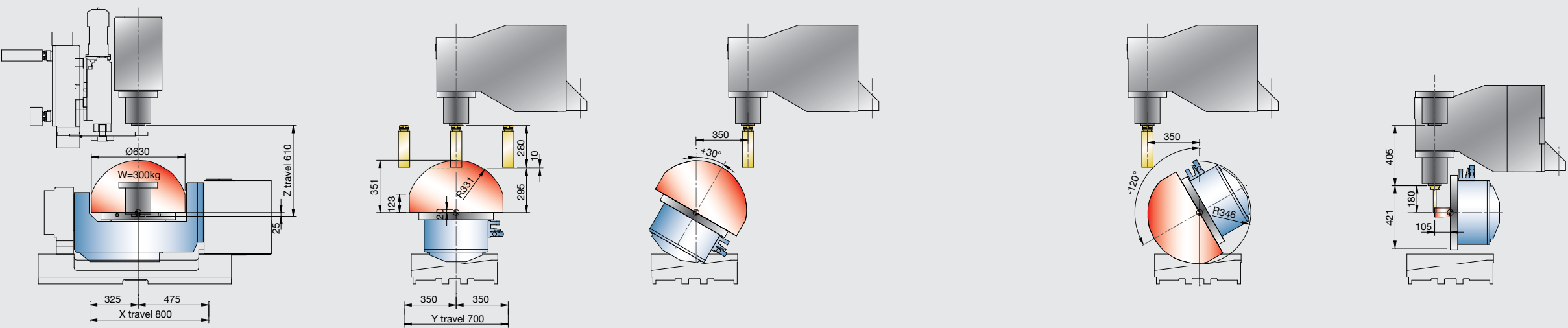
MF400



MF500



MF630



Application sample



FANUC = F SIEMENS = S MITSUBISHI = M

Motor power	MF400C			MF500C			MF630C		
	SC-4.2	MC-4.1R	MC-4.0R	SC-4.2	MC-4.1R	MC-4.0 R	SC-4.2	MC-4.1R	MC-4.0R
X / Y / Z (kW)	F	18 / 18 / 25	3 / 3 / 4	18 / 3 / 25	3 / 3 / 4		4 / 4 / 4		
	S	27 / 27 / 31	-	27 / 49 / 31	-		43 / 49 / 43	-	
	M	2.2 / 3 / 3	-	2.2 / 3 / 3	-		3.5 / 3.5 / 3.5	-	
A / C (kW)	F	1.8 / 1.2		2.5 / 1.8			2.5 / 1.8		
	S	23 / 15	-	31 / 23	-		31 / 23	-	
	M	2.2 / 1.5	-	2 / 1.5	-		2.2 / 2.2	-	

FANUC = F HEIDENHAIN = H SIEMENS = S

Motor power	MF400U			MF500U			MF630U		
	SC-4.2	MC-4.1R	MC-4.0R	SC-4.2	MC-4.1R	MC-4.0R	SC-4.2	MC-4.1R	MC-4.0R
X / Y / Z (kW)	F	3 / 3 / 4		3 / 4 / 4			4 / 4 / 4		
	S	2.7 / 2.7 / 3.1	-	2.7 / 4.9 / 3.1	-		4.3 / 4.9 / 4.3	-	
	H	4.5 / 5.1 / 5.1	-	4.5 / 5.1 / 5.1	-		5.1 / 5.1 / 8.6	-	
A / C (kW)	F	2.7 / 2.5		4.5 / 2.7			4.5 / 2.7		
	S	2.3 / 1.5	-	3.1 / 2.3	-		3.1 / 2.3	-	
	H	2.4 / 1.7	-	4.5 / 2.4	-		4.5 / 2.4	-	



Unique spindle technology



Spindle code: SC-4.2
Transmission: Coupling
- Speed range:
10,000 & 12,000 min⁻¹
- Lubrication:
Grease packed system
- 4 ball bearing



MC-4.1R
Coupling

15,000 min⁻¹

Re-grease system
2 Angular contact ceramic
bearing, 1 Cylindrical roller
steel bearing

MC-4.0R
Coupling

20,000 min⁻¹

Re-grease system
2 Angular contact ceramic
bearing, 1 Cylindrical roller
ceramic bearing

Control: FANUC = ● SIEMENS = ● MITSUBISHI = ● HEIDENHAIN = ●

SPINDLE		SC-4.2				MC-4.1R	MC-4.0R
Max. spindle speed (min ⁻¹)		10,000	12,000			15,000	20,000
Spindle transmission		Coupling			Coupling	Coupling	
Spindle diameter (mm)		Ø70			Ø80 / Ø65	Ø70 / Ø60	
FANUC							
Spindle base speed		-	1,350	1,500		1,400	1,500
Spindle output power kW (S3-25%)		-	18.5	15		26	15
Spindle output torque Nm (S3-25%)		-	118	95.5		177	125
SIEMENS							
Spindle base speed		-	1,500	1,500		2,000	-
Spindle output power kW (S6-25%)		-	13.3	17.6 ⁽¹⁾	13.3	17.6 ⁽¹⁾	-
Spindle output torque Nm (S6-25%)		-	85	112 ⁽¹⁾	85	112 ⁽¹⁾	-
MITSUBISHI							
Spindle base speed		1,500	1,500	1,400	1,500	1,400	-
Spindle output power kW (30min.)		15	11	18.5	11	18.5	-
Spindle output torque Nm (30min.)		96	70	102	70	102	-
HEIDENHAIN							
Spindle base speed		-	1,500	1,500		2,000	-
Spindle output power kW (S6-25%)		-	17	32	17	32	-
Spindle output torque Nm (S6-25%)		-	108	204	108	204	-
CTS Available		X	X		○	○	○
Model							
MF400C		●	●●●	-	●●●	-	●
MF400U		-	●●●	-	●●●	-	●
MF500C		●	●●●	-	●●●	-	●
MF500U		-	●●●	-	●●●	-	●
MF630C		●	-	●●●	-	●●	●
MF630U		-	-	●●●	-	●●●	●

Note: The standard specification for MF series as 12C + Oil chiller but except MITSUBISHI control ⁽¹⁾ S6-40%

Two axes table (4/5 axis)

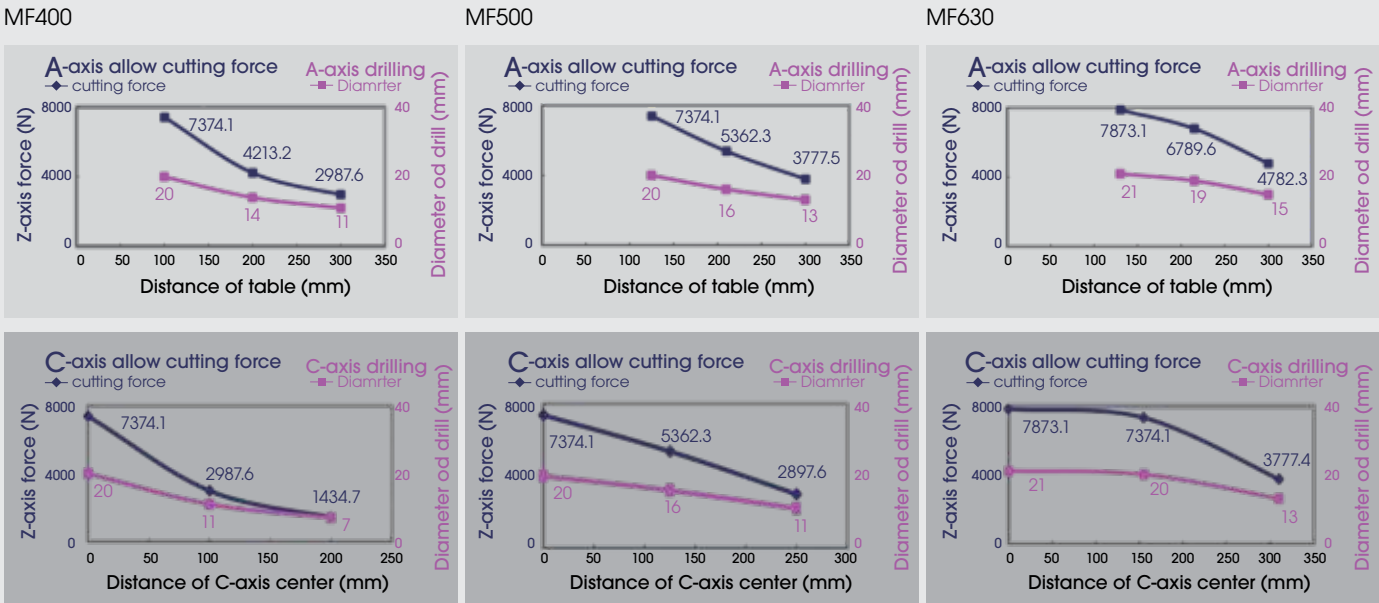
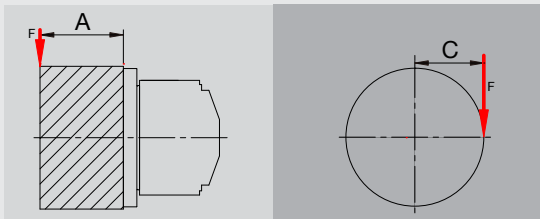
Combining alloy steel and
aluminum bronze greatly reduces
friction coefficient, effectively
transmitting motor torque.



Work envelope	MF400		MF500		MF630	
	Rotary Axis (C-axis)	Tilting Axis (A-axis)	Rotary Axis (C-axis)	Tilting Axis (A-axis)	Rotary Axis (C-axis)	Tilting Axis (A-axis)
Max. swing (mm)	Ø400		Ø500		Ø630	
Table load capacity (kg)	100 (110 Nm)		200 (200 Nm)		300 (300 Nm)	
Maximum R.P.M (min ⁻¹)	25	25	16.6	11.1	16.6	11.1
Indexing accuracy (sec.)	20 (12)	12	20 (12)	12	20 (12)	12
Repeatability (sec.)	10 (4)	5	10 (4)	5	12 (5)	8
Clamping torque (Nm)	750	1,500	1,600	2,000	2,500	3,000

Note: () with rotary encoder

Cutting force limitation



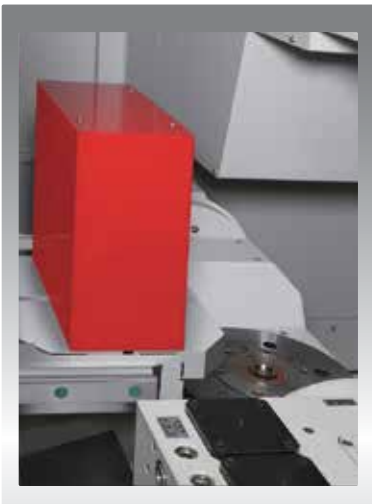
ATC system



MF400 Cell & MF500 Cell

MF400 : Pallet size: ☐ 265 (mm)
Travel X / Y / Z: 680 / 610 / 510 (mm)
Max. ATC capacity:120
Pallet capacity: 40

MF500 : Pallet size: ☐ 350 (mm)
Travel X / Y / Z: 550 / 630 / 610 (mm)
Max. ATC capacity:120
Pallet capacity: 28



pallet clamping system



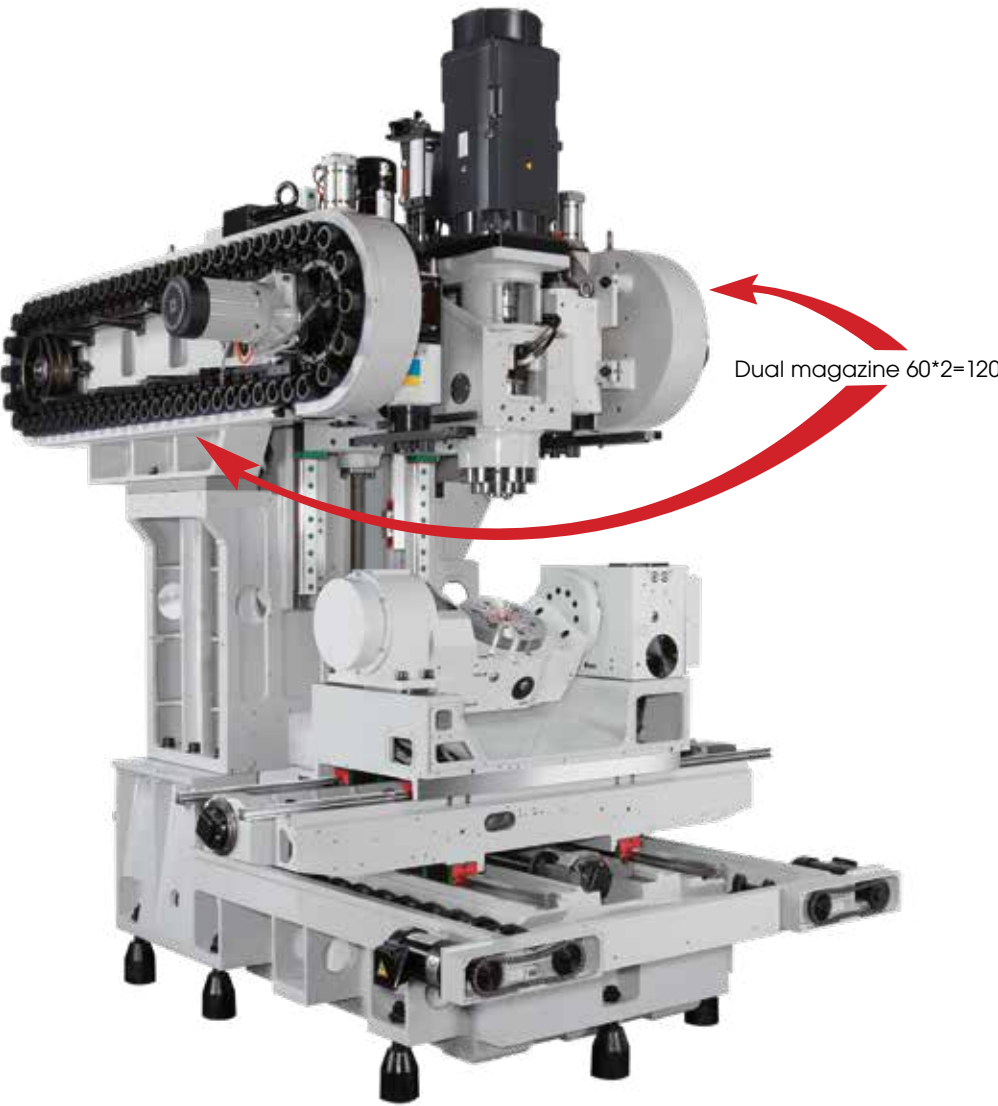
Pallet storage tower



Pallet loader



System controller



Note: Find details in MF M/C Cell.

Easy operation

a From center of table to operator door

- MF400: 605 mm
- MF500: 605 mm
- MF630: 540 mm

b Max. size when operator door open

- MF400: 870 mm
- MF500: 870 mm
- MF630: 1,400 mm

c Documentation & hand tool shelf

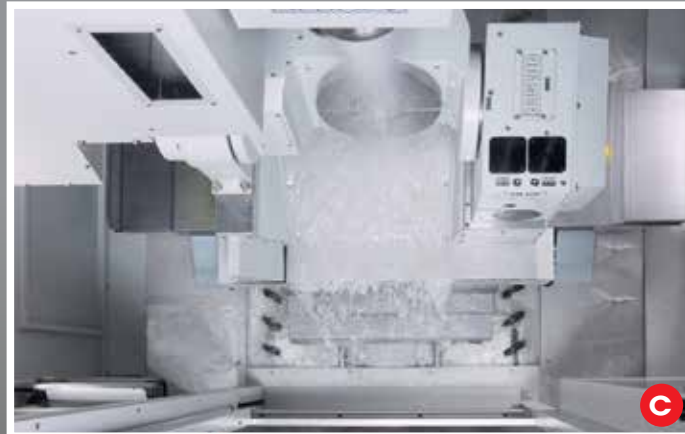
d Swivel type operation panel

e Hand held remote MPG



Coolant system & Chip management

- a** Coolant tank
 - MF400 / MF500 / MF630: 300 / 300 / 600 Liter
 - Nozzle coolant: 3~3.5 bar
 - Wash down: 3~4.5 bar
- b** External chip conveyor (opt.)
- c** Internal chip augers
- d** Wash gun



Model MF500U

Control: (F) FANUC (S) SIEMENS (M) MITSUBISHI (T) HEIDENHAIN

Technical Data		MF400C MF400U			
Spindle code		10C	12C	15C	20C*
Work range					
Table size (mm)		Ø320			
Travel	X / Y / Z (mm)	410 / 610 / 510 ⁽¹⁾			
	A (degree)	+30° ~ -120°			
	C (degree)	360° (Continuous)			
Max. swing (mm)		Ø400			
Table surface to spindle nose (mm)		20 ~ 530			
Spindle nose to tilting center (mm)		20 ~ 530			
Max. work piece size (mm)		Ø400 x 300			
Table load capacity (kg)		100 (110 Nm)			
Feed drive					
Feed force	X / Y / Z (N)	6,283 / 11,781 / 11,781 (M)	5,760 / 5,760 / 10,472 (F)	6,283 / 6,283 / 11,519 (F)	
			6,283 / 6,283 /10,472 (S)	6,283 / 6,283 / 10,472 (S)	
			6,283 / 11,781 / 11,781 (M)		
			6,283 / 6,283 / 11,519 (F)	6,283 / 6,283 / 11,519 (F)	
			6,283 / 6,283 / 10,472 (S)	6,283 / 6,283 / 10,472 (S)	
			9,267 / 11,310 / 11,310 (T)	9,267 / 11,310 / 11,310 (T)	
Rapid movement	X / Y / Z (m/min.)	36 / 36 / 24			
	A / C (min ⁻¹)	A=25 / C=25			
Acceleration	X / Y / Z (m/s ²)	3 / 3 / 2 (M)	3 / 3 / 2 (F; M; T) 3 / 2 / 2 (S)		
Accuracy Positioning / Repeatability					
ISO 230-2		0.008 / 0.004			
JIS 6338 (300 mm)		± 0.003 / ± 0.002			
VDI3441		0.008 / 0.004			
Main spindle					
Spindle taper		BBT40			
Tool changer					
Tool selection		Random			
Magazine positions		30 (std.) 48 / 60 / 120 (opt.)			
Max. tool diameter (mm)		76.2			
w/o adjacent tool (mm)		125			
Max. tool length (mm)		280			
Max. tool weight (kg)		7			
CTC time – ISO 10791-9 (sec.)		4.2 (M)	4.2 (F; M; T) 4.4 (S)		
Coolant system					
Coolant tank capacity (Liter)		300			
Pump capacity					
- Nozzle coolant		75L / min., 3 bar			
- Wash down		75L / min., 3 bar			
Machine size					
Height (mm)		3,070		3,140	
Floor space W x D (mm)	30 / 48ATC	2,020 x 2,820			
	60ATC	2,020 x 3,160			
Weight (kg)		7,300 (30ATC) 7,600 (48ATC) 7,800 (60ATC) 8,670 (120ATC)			
Connections					
Main power		220V or 380V or 400V or 415V / 50Hz or 60Hz			
Power consumption (KVA)		26 (M)	24 (F) 21 (S; M) 28 (F; T) 21 (S)	32.5 (F) 31 (S) 34 (F) 21 (S) 34 (T)	31 (F) 32 (F)

Note: ⁽¹⁾ Option 120 ATC Z axis travel 550 ⁽²⁾ Option 120 ATC Z axis travel 620 * Only for FANUC control

MF500C MF500U				MF630C MF630U			
10C	12C	15C	20C*	10C	12C	15C	20C*
Ø410				Ø500			
550 / 630 / 610 ⁽²⁾				800 / 700 / 610			
+30° ~ -120°				+30° ~ -120°			
360° (Continuous)				360° (Continuous)			
Ø500				Ø630			
-25 ~ 585				-25 ~ 585			
-25 ~ 585				-25 ~ 585			
Ø500 x 300				Ø630 x 300			
200 (200 Nm)				300 (300 Nm)			
6,283 / 11,781 / 11,781 ^(M)	5,760 / 10,472 / 10,472 (F)	6,283 / 6,283 / 11,519 (F)		11,781 / 11,781 / 17,671 ^(M)	11,51 / 11,519 / 11,519 (F)	11,519 / 11,519 / 11,519 (F)	
	6,283 / 14,137 / 10,472 ^(S)	6,283 / 14,137 / 10,472 ^(S)			14,137 / 14,137 / 14,137 ^(S)	14,137 / 14,137 / 14,137 ^(S)	
	6,283 / 11,781 / 11,781 ^(M)				11,781 / 11,781 / 11,781 ^(M)		
	6,283 / 11,519 / 11,519 (F)	6,283 / 11,519 / 11,519 (F)			11,519 / 11,519 / 11,519 (F)	11,519 / 11,519 / 11,519 (F)	
	6,283 / 14,137 / 10,472 ^(S)	6,283 / 14,137 / 10,472 ^(S)			14,137 / 14,137 / 14,137 ^(S)	14,137 / 14,137 / 14,137 ^(S)	
	9,267 / 11,310 / 11,310 ^(T)	9,267 / 11,310 / 11,310 ^(T)			11,310 / 11,310 / 19,897 ^(T)	11,310 / 11,310 / 19,897 ^(T)	
36 / 36 / 24				32 / 32 / 16			
A=11.1 / C=16.6				A=11.1 / C=16.6			
3 / 3 / 2				3 / 3 / 2			
0.008 / 0.004							
± 0.003 / ± 0.002							
0.008 / 0.004							
BBT40							
Random							
30 (std.) 48 / 60 / 120 (opt.)				30 (std.) 48 / 60 (opt.)			
76.2				76.2			
125				125			
280				280			
7				7			
4.2 ^(M)	4.2 (F) 4.4 ^(S) 4.2 (T)			6.2			
300				600			
75L / min., 3 bar				60L / min., 3.5 bar			
75L / min., 3 bar				60L / min., 4.5 bar			
3,105		3,175		3,230		3,380	
2,280 x 3,225				3,705 x 2,530 (30ATC) 3,705 x 2,870 (48ATC)			
2,280 x 3,610				3,705 x 3,250			
7,480 (30ATC) 7,780 (48ATC) 7,980 (60ATC) 8,850 (120ATC)				8,750 (30ATC) 9,050 (48ATC) 9,250 (60ATC)			
				220V or 380V or 400V or 415V / 50Hz or 60Hz			
26 ^(M)	26 (F) 25 ^(S) 21 ^(M) 29 (F; T) 25 ^(S)	33 (F) 32 ^(S) 36 (F) 32 ^(S) 34 ^(T)	31 (F) 33 (F)	28 ^(M)	28 (F) 35 ^(S) 32 ^(M) 31 (F) 35 ^(S) 36 ^(T)	34.7 (F) 35 ^(S) 38 (F) 35 ^(S) 36 ^(T)	32 (F) 36 (F)

● Standard ○ = Option ✕ = N/A

Standard / Option accessories	MF400C / MF400U				MF500C / MF500U				MF630C / MF630U			
Spindle code	10C	12C	15C	20C	10C	12C	15C	20C	10C	12C	15C	20C
■ SIEMENS 828D (5 Faces)	✕	○/✕	○/✕	✕	✕	○/✕	○/✕	✕	✕	○/✕	○/✕	✕
■ QUASER mill i (5 Faces)	✕	●/✕	○/✕	○/✕	✕	●/✕	○/✕	○/✕	✕	●/✕	○/✕	○/✕
■ MITSUBISHI M830 (5 Faces)	●/✕	○/✕	✕	✕	●/✕	○/✕	✕	✕	●/✕	○/✕	✕	✕
■ FANUC 31iB5 (5 Axes) ⁽¹⁾	✕	✕/○	✕/○	✕/○	✕	✕/○	✕/○	✕/○	✕	✕/○	✕/○	✕/○
■ SIEMENS 840D (5 Axes)	✕	✕/○	✕/○	✕	✕	✕/○	✕/○	✕	✕	✕/○	✕/○	✕
■ HEIDENHAIN TNC640 (5 Axes)	✕	✕/●	✕/○	✕	✕	✕/●	✕/○	✕	✕	✕/●	✕/○	✕
■ Oil chiller	●	●	●	●	●	●	●	●	●	●	●	●
■ 10,000 min ⁻¹ SC-4.2 coupling spindle	●/✕	✕	✕	✕	●/✕	✕	✕	✕	●/✕	✕	✕	✕
■ 12,000 min ⁻¹ SC-4.2 coupling spindle	✕	●/●	✕	✕	✕	●/●	✕	✕	✕	●/●	✕	✕
■ 15,000 min ⁻¹ MC-4.1R coupling spindle	✕	✕	●/●	✕	✕	✕	●/●	✕	✕	✕	●/●	✕
■ 20,000 min ⁻¹ MC-4.0R coupling spindle (FANUC only)	✕	✕	✕	●/●	✕	✕	✕	●/●	✕	✕	✕	●/●
■ 30 position tool magazine	●	●	●	●	●	●	●	●	●	●	●	●
■ 48 / 60 position tool magazine	○	○	○	○	○	○	○	○	○	○	○	○
■ 120 position tool magazine	○	○	○	○	○	○	○	○	✕	✕	✕	✕
■ Pull stud for BT tooling system	○	○	○	○	○	○	○	○	○	○	○	○
■ Balance tooling for spindle warm up	○	○	●	●	○	○	●	●	○	○	●	●
■ ATC auto door	○	○	○	○	○	○	○	○	○	○	○	○
■ Work probe receiver OMI-2T	●	●	●	●	●	●	●	●	●	●	●	●
■ Work probe OMP-40	○	○	○	○	○	○	○	○	○	○	○	○
■ Reference rod (for thermal comp with probe)	●	●	●	●	●	●	●	●	●	●	●	●
■ Tool length / breakage measurement	○	○	○	○	○	○	○	○	○	○	○	○
■ Hydraulic through pallet (2 ports)*	○	○	○	○	○	○	○	○	○	○	○	○
■ Air pressure detector for pallet clamping	○	○	○	○	○	○	○	○	○	○	○	○
■ X / Y / Z linear scale & C rotary encoder	○	○	○	○	○	○	○	○	○	○	○	○
■ Rotary encoder on A axes	○	○	○	○	○	○	○	○	○	○	○	○
■ Transformer	○	○	○	○	○	○	○	○	○	○	○	○
■ Coolant system	●	●	●	●	●	●	●	●	●	●	●	●
■ Coolant through spindle	F	✕	○	○	✕	○	○	○	✕	✕	○	○
	S	✕	○	✕	✕	○	✕	✕	✕	○	✕	✕
	M	✕	○	✕	✕	○	✕	✕	✕	○	✕	✕
	T	✕	○	○	✕	○	○	✕	✕	○	○	✕
■ Coolant wash gun	●	●	●	●	●	●	●	●	●	●	●	●
■ Coolant wash down	●	●	●	●	●	●	●	●	●	●	●	●
■ External chip conveyor	○	○	○	○	○	○	○	○	○	○	○	○
■ Internal chip augers	●	●	●	●	●	●	●	●	●	●	●	●
■ Cutter air blast	●	●	●	●	●	●	●	●	●	●	●	●
■ Oil-mist collector	○	○	○	○	○	○	○	○	○	○	○	○
■ Bag filtration	○	○	○	○	○	○	○	○	○	○	○	○
■ Filtration unit	○	○	○	○	○	○	○	○	○	○	○	○
■ Documentation (CD-ROM) ⁽²⁾	●	●	●	●	●	●	●	●	●	●	●	●
■ Work light	●	●	●	●	●	●	●	●	●	●	●	●
■ Machine status light	●	●	●	●	●	●	●	●	●	●	●	●
■ CE & EMC / GB	○	○	○	○	○	○	○	○	○	○	○	○

Note: ⁽¹⁾ The application process of 5-axis controller is complicated and the lead time is longer than 6 months.

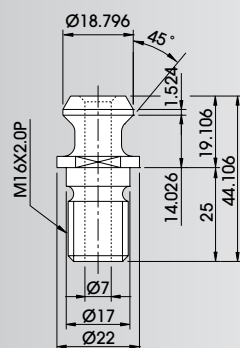
⁽²⁾ Paper documentation is option.

- Machine specification might be different from the catalogue if there is any specification update.

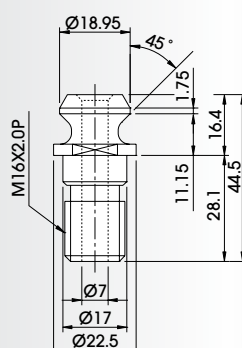
* Factory mounted only

Pull stud and applicable tools

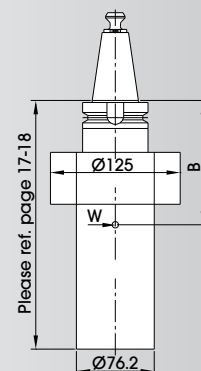
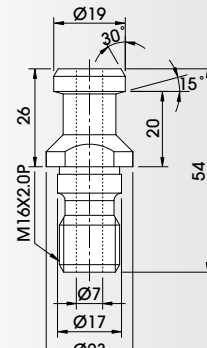
BT40



ISO (7388-B)



DIN (69872-A)

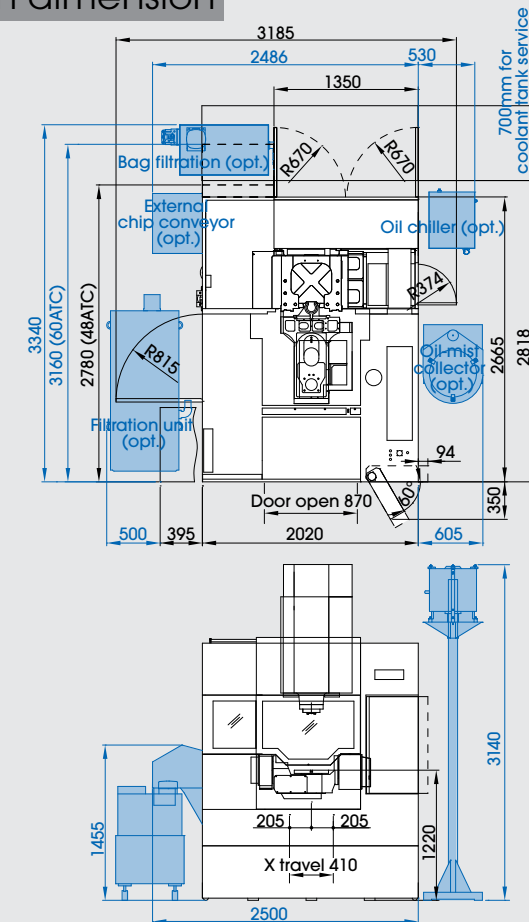


B	tool median point distance
W	tool weight
MOMENT=W*B(10.29N-m)	

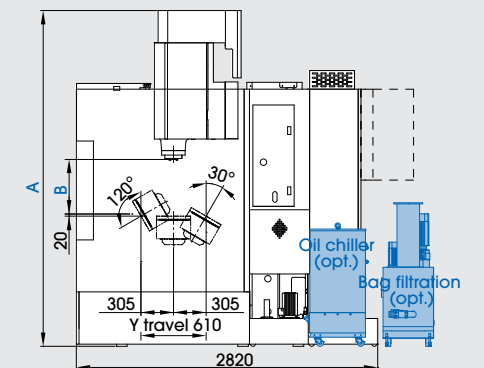
Layout

Installation dimension

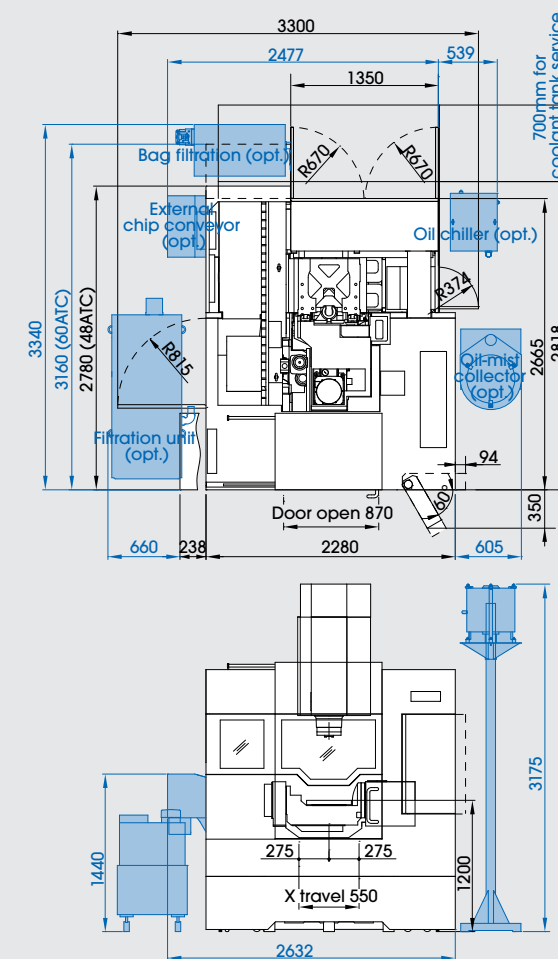
MF400



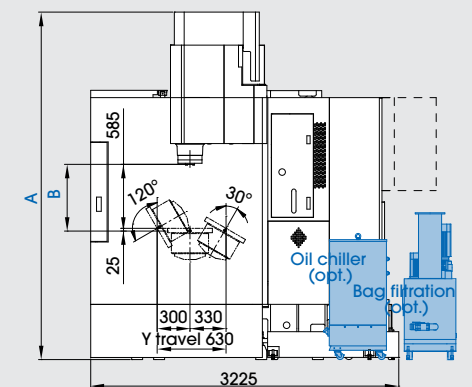
ATC	A	B
30 ~ 60	3140	510
120	3180	550



MF500



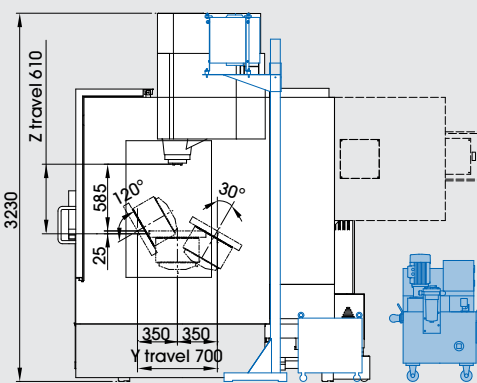
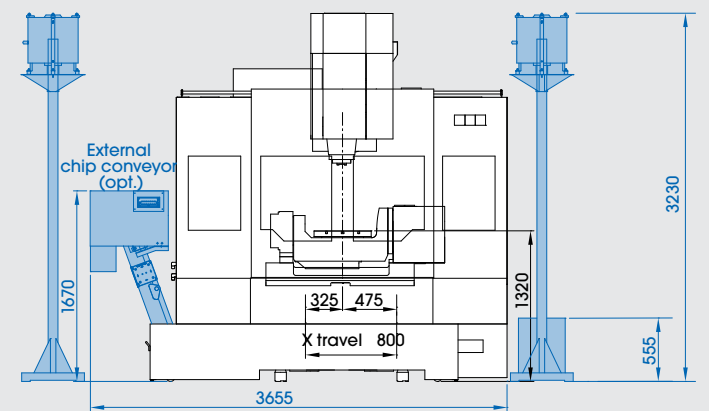
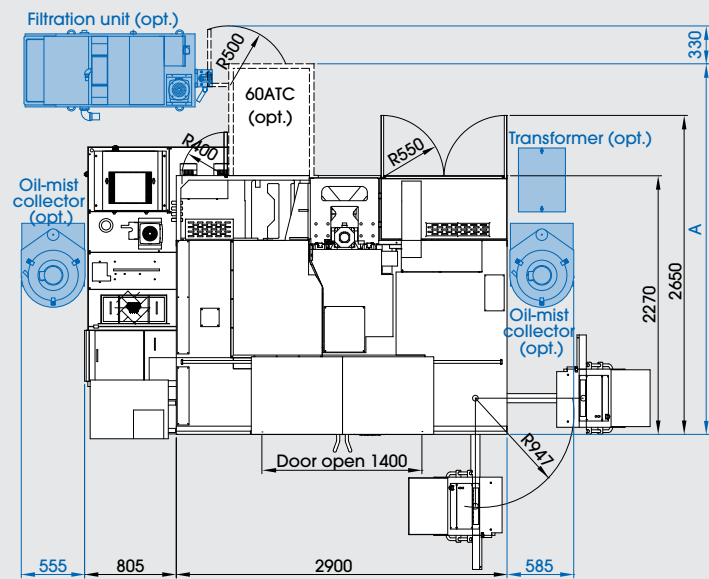
ATC	A	B
30 ~ 60	3175	610
120	3185	620



Layout

Installation dimension

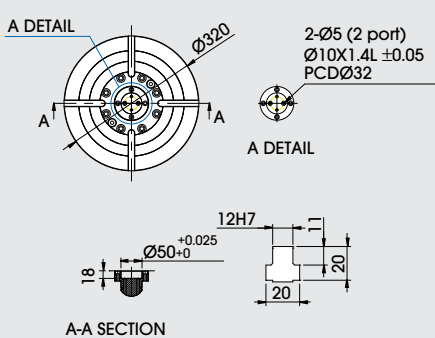
MF630



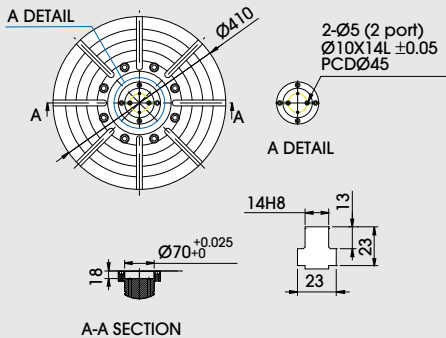
40Taper		
A	30ATC	2,530
	48ATC	2,870
	60ATC	3,250

Table dimension

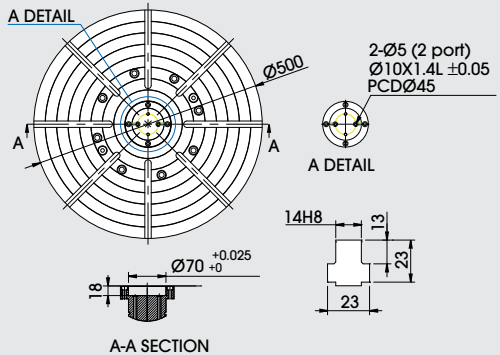
MF400



MF500



MF630



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Fax: 0512-82627138
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