QUASER
we cut faster

MV154 & MV184 SERIES

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Generation III MV154 C / E / P / M
MV184 C / E / P / M

Generation II MV154 & MV154L

Generation I MV154 & MV154L

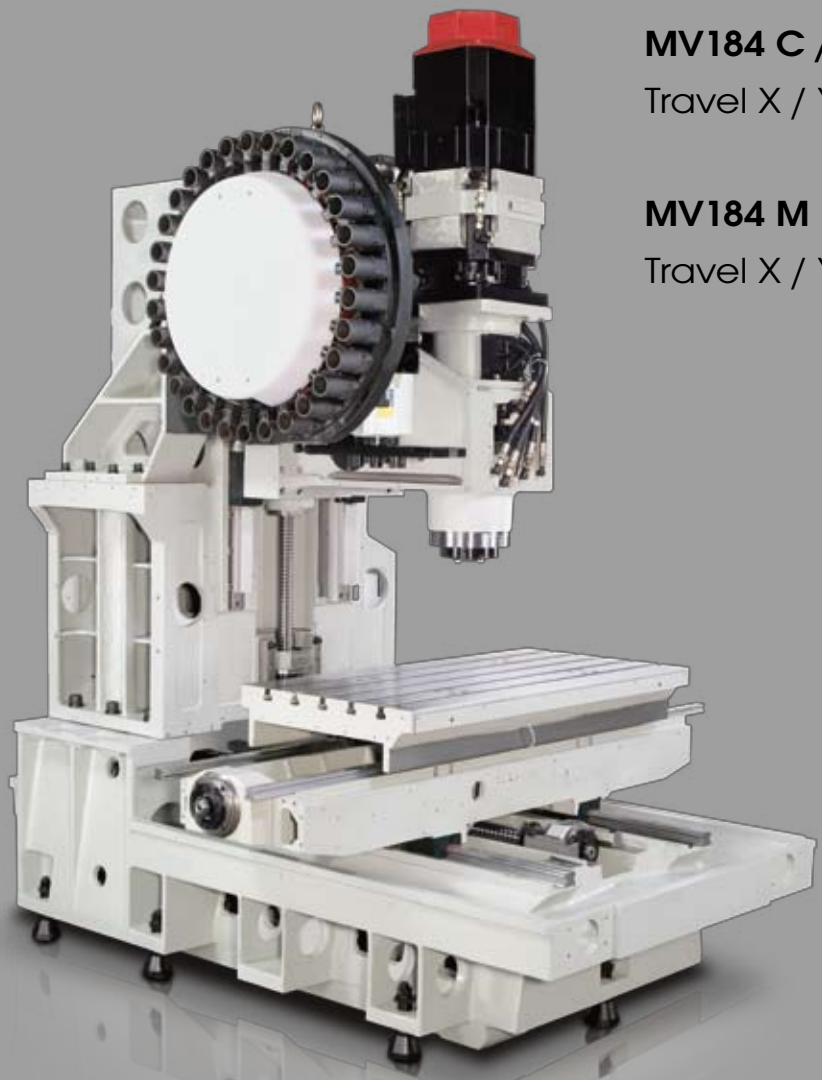
MV154 & MV184 SERIES

MV154 C / E / P

Travel X / Y / Z: 700 / 530 / 560(mm)

MV154 M

Travel X / Y / Z: 700 / 530 / 560(mm)



MV184 C / E / P

Travel X / Y / Z: 1,020 / 610 / 610(mm)

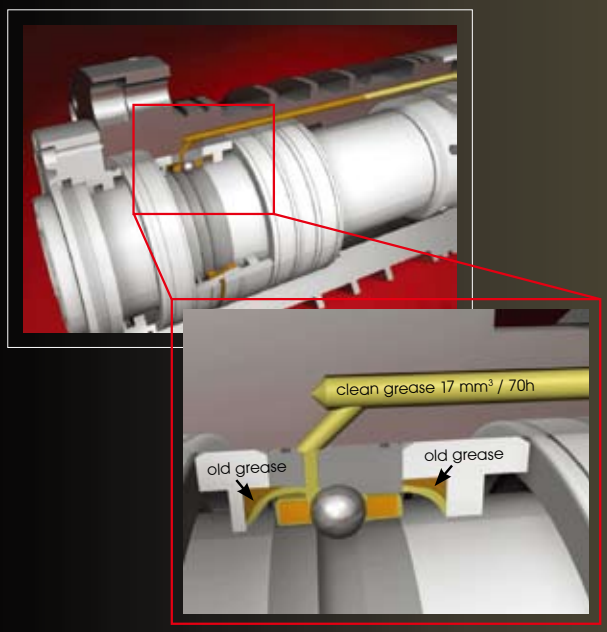
MV184 M

Travel X / Y / Z: 900 / 610 / 610(mm)

Unique spindle technology

Re-grease system

- Use car industry re-greasing principle to supply "clean grease" at 70 hr interval by 17 mm^3 / shoot.



- The grease chamber volume at 7.5 cm^3 can support 28,840 hr.
- This LUBCON unit service life at 3 years as minimum is guaranteed.

Spindle code: BN15R (P/M)

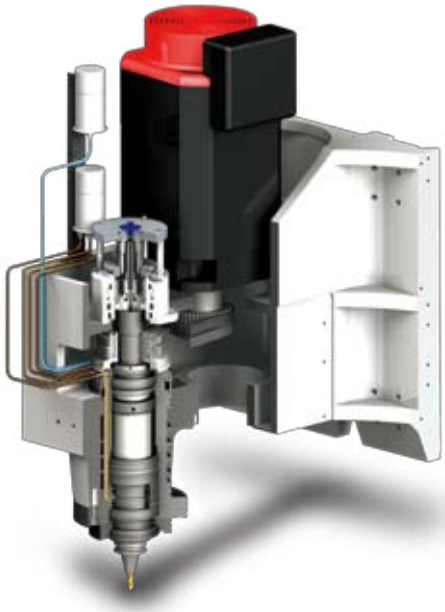
- Transmission: Motor spindle
- Lubrication: Re-grease system
- 15,000 min^{-1}, 42 kw, 201 Nm
  Vibration displacement 0.7μm.

Spindle code: BN25R (P/M)

- Transmission: Motor spindle
- Lubrication: Re-grease system
- 25,000 min^{-1}, 61 kw, 97 Nm
  with popular HSK A63
  Vibration displacement 1.0μm.

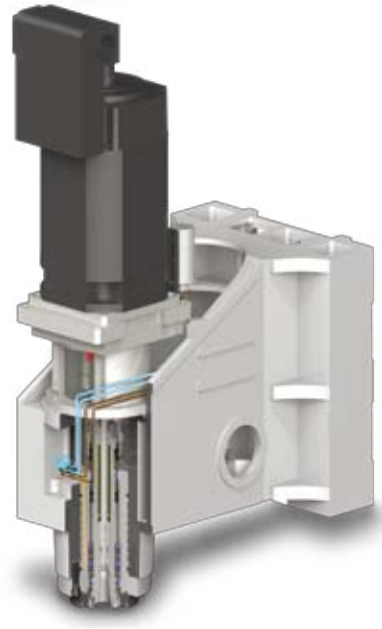
Spindle code: WB40R (E/P)

- Transmission: Belt driving
- Lubrication: Re-grease system
- 15,000 min^{-1}, vibration 1.5μm with low noise level plus very low maintenance cost.
- 4 hybrid angular bearing plus one roller bearing in rear.



Spindle code: NC40R (P/M)

- Transmission: Coupling
- Lubrication: Re-grease system
- Highest rigidity 15,000 min^{-1} spindle.
- Roller bearing in the front & rear.



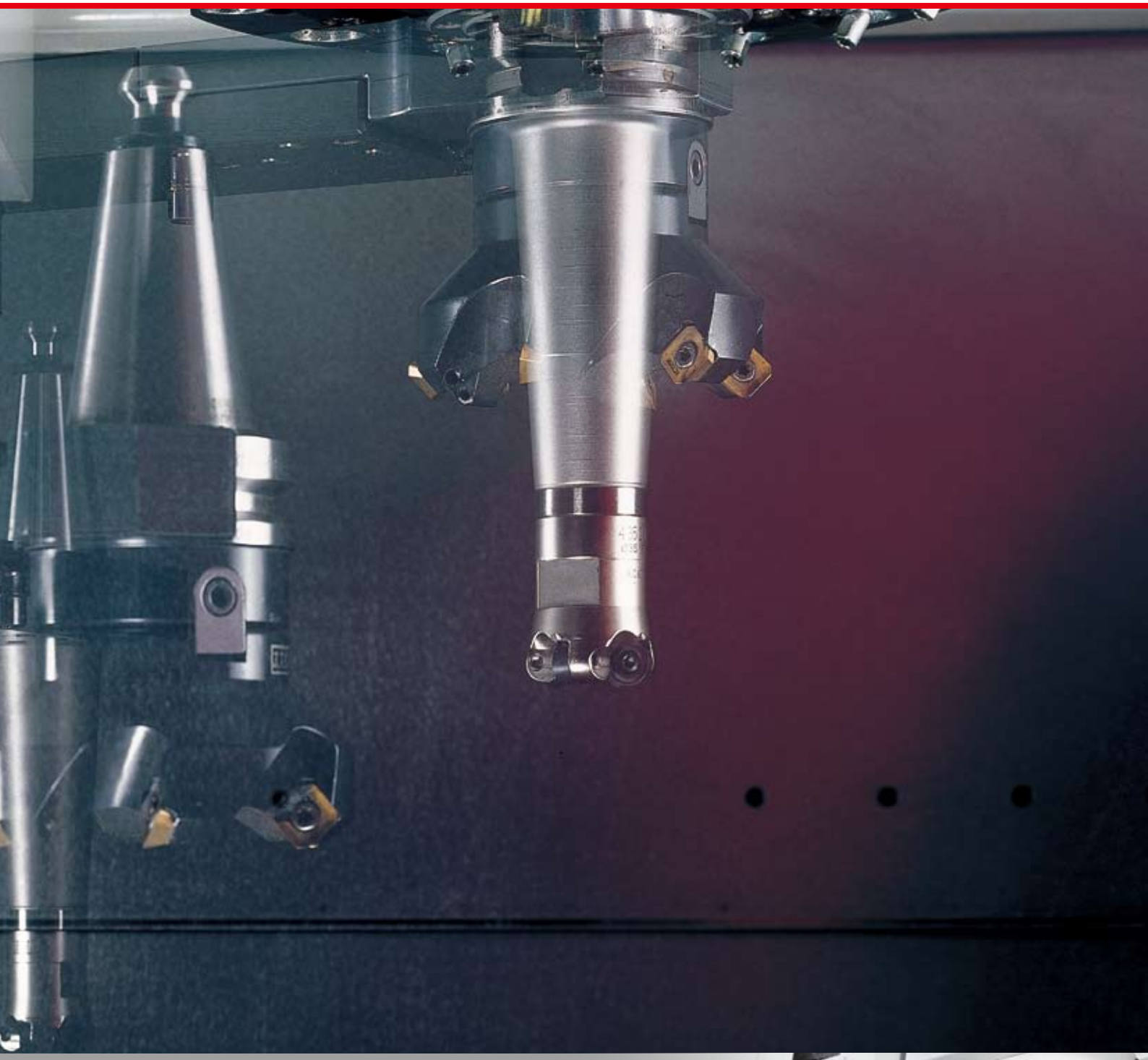
Spindle code: NC40 (C)

- Transmission: Coupling
- Lubrication: Grease packed system
- 8,000 min^{-1} spindle.
- 10,000 min^{-1} spindle(opt.)

ATC system

30 ATC (std.)

48 ATC (opt.)



60 ATC (opt.)

ATC auto door (opt.)

Cutting data

FACE MILLING

MV154P (FANUC)

Workpiece material	ST60	ALMGSI1
Tool used	80 mm dia. Face mill	80 mm dia. Face mill
Spindle speed	1,000 min^{-1}	10,000 min^{-1}
Feedrate	1,800 mm / min	13,600 mm / min
Depth / width of cut	4 / 60 mm	2.5 / 60 mm
Metal removal rate	432 cm^3/ min	2,040 cm^3/ min

END MILLING

Tool used	45 mm dia. End mill	45 mm dia. End mill
Spindle speed	240 min^{-1}	640 min^{-1}
Feedrate	84 mm / min	384 mm / min
Metal removal rate	101 cm^3/ min	614 cm^3/ min

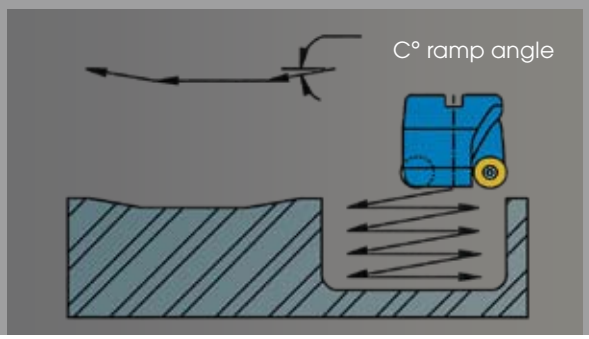
DRILLING (with 20 bar through spindle coolant)

Tool used	40 mm dia. Insert drill	40 mm dia. Insert drill
Spindle speed	880 min^{-1}	2,000 min^{-1}
Feedrate	88 mm / min	200 mm / min

TAPPING

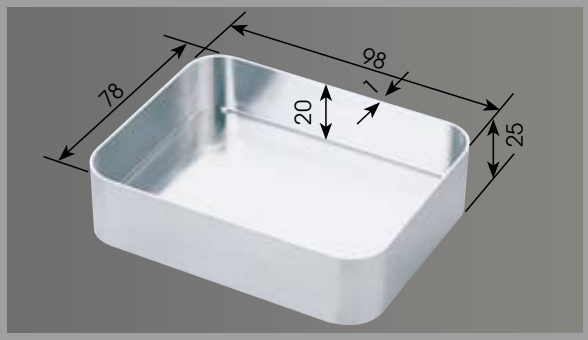
Tool used	M30xP3.0 tap	M4xP0.7
Spindle speed	212 min^{-1}	3,000 min^{-1}
Feedrate	636 mm / min	2,100 mm / min

HEAVY DUTY ON STEEL CUTTING



Tool used	80 mm dia. 5 teeth Plunge miller
Spindle speed	765 min^{-1}
Feedrate	638 mm / min
Cuter speed	192 m / mm
Cutting depth	4 mm
Path	3D paths

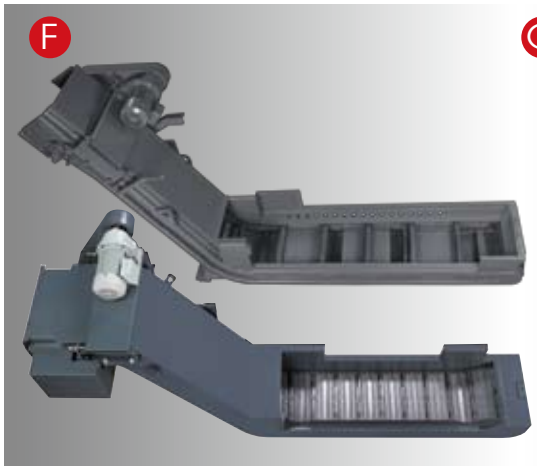
HIGHT SPEED ON AL CUTTING

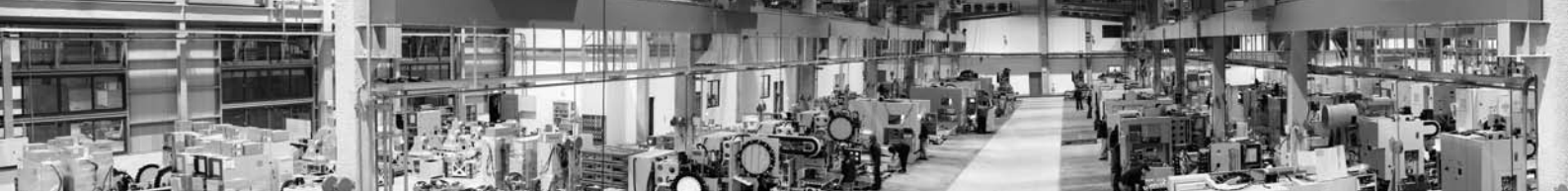


Tool used	16 mm dia. 2 flute end mill
Spindle speed	15,000 min^{-1}
Feedrate	6,000 mm / min
Time	54 seconds

Coolant system & Chip management

			MV154C MV184C	MV154E MV184E	MV154P MV184P	MV154M MV184M
A	Coolant tank		300 Liter			
B	Coolant through spindle		-	8 bar		20 bar
C	Nozzle coolant		3.5 bar			
D	Wash gun		Std.			
E	Chip augers		Std.			
F	Chip conveyor	Scraper type	Opt.	Std.		
		Hinge type	Opt.			
G	Filtration unit		-	Opt.		
H	Wash down		3.5 bar			





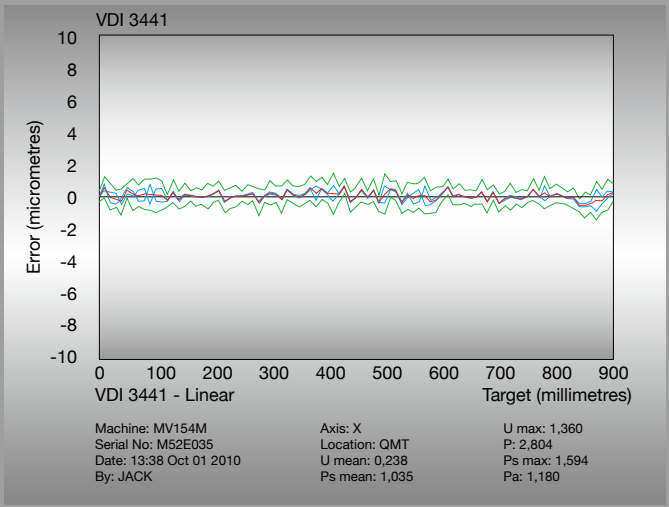

H

Easy operation

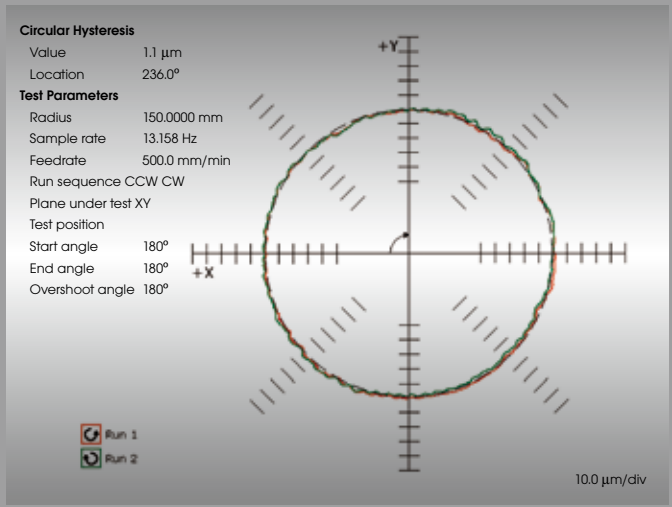
- a Swiveling operator panel.
- b Single door design open at
  - MV154: 900 (mm)
  - MV184: 1,150 (mm)
- c Spindle to front at a convenient
  - MV154: 753 (mm)
  - MV184: 870 (mm)
- d Table to front-easy access
  - MV154: 168 (mm)
  - MV184: 265 (mm)

Precision accuracy

Positioning accuracy=1.180 μm VDI 3441



Feed rate: 500 mm / min, Value: 1.1μm



ISO 10791-1 / ISO 10791-4.2		ISO STANDARD	QUASER STANDARD (MV154/C & /E & /P) (MV184/C & /E & /P)	QUASER STANDARD (MV154M/MV184M)
Straightness	X	0.015 / Full Stroke	0.010 / Full Stroke	0.005 / 0.008
	Y	0.010 / Full Stroke	0.010 / Full Stroke	0.005 / 0.005
	Z	0.010 / Full Stroke	0.010 / Full Stroke	0.005 / 0.005
Perpendicularity	X-Y	0.02 / 500	0.01 / 500	0.006 / 0.006
	Y-Z	0.02 / 500	0.01 / 500	0.006 / 0.006
	Z-X	0.02 / 500	0.01 / 500	0.006 / 0.006
Positioning accuracy	X	0.02 / Full Stroke	0.01 / Full Stroke	0.003 / 0.005
	Y	0.016 / Full Stroke	0.008 / Full Stroke	0.003 / 0.003
	Z	0.016 / Full Stroke	0.008 / Full Stroke	0.003 / 0.003
Positioning repeatability	X	0.008	0.004	0.002 / 0.003
	Y	0.006	0.004	0.002 / 0.002
	Z	0.006	0.004	0.002 / 0.002
Spindle run-out on table surface (for 300 mm distance)		0.02 / 300	0.01 / 300	0.005 / 0.005
Spindle run-out (with a test bar mounted)	At base	0.01	0.004	0.003 / 0.003
	At 300 mm	0.02	0.008	0.006 / 0.006
Circularity (Ø300 mm, F5000)	CW	N.A	0.010	(0.003 / 0.003)*
	CCW	N.A	0.010	(0.003 / 0.003)*

Note: * Ø300 mm, F500 Unit: mm

The measuring results indicated in this catalog are provided as an example by random selection.

Results

Text island height

Q = 3.0 µm

U = 2.5 µm

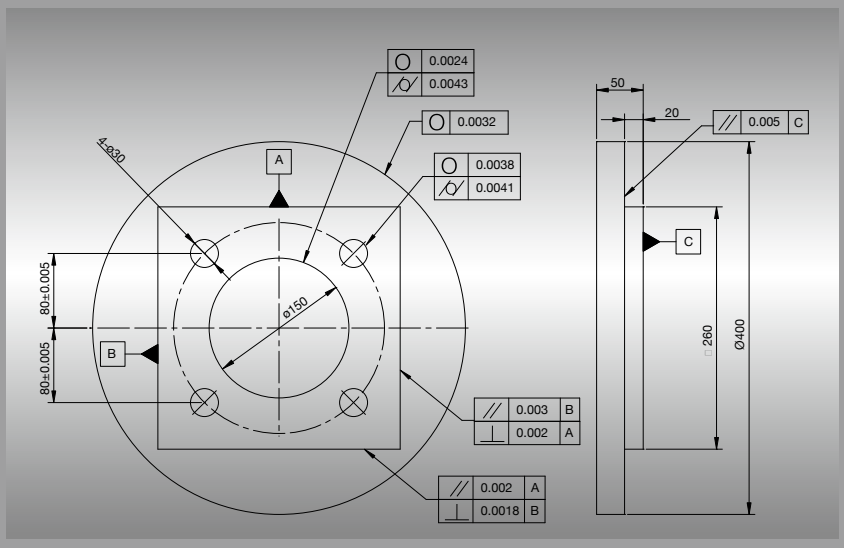
A = 2.0 µm

S = 1.5 µm

E = 1.0 µm

R = 0.5 µm

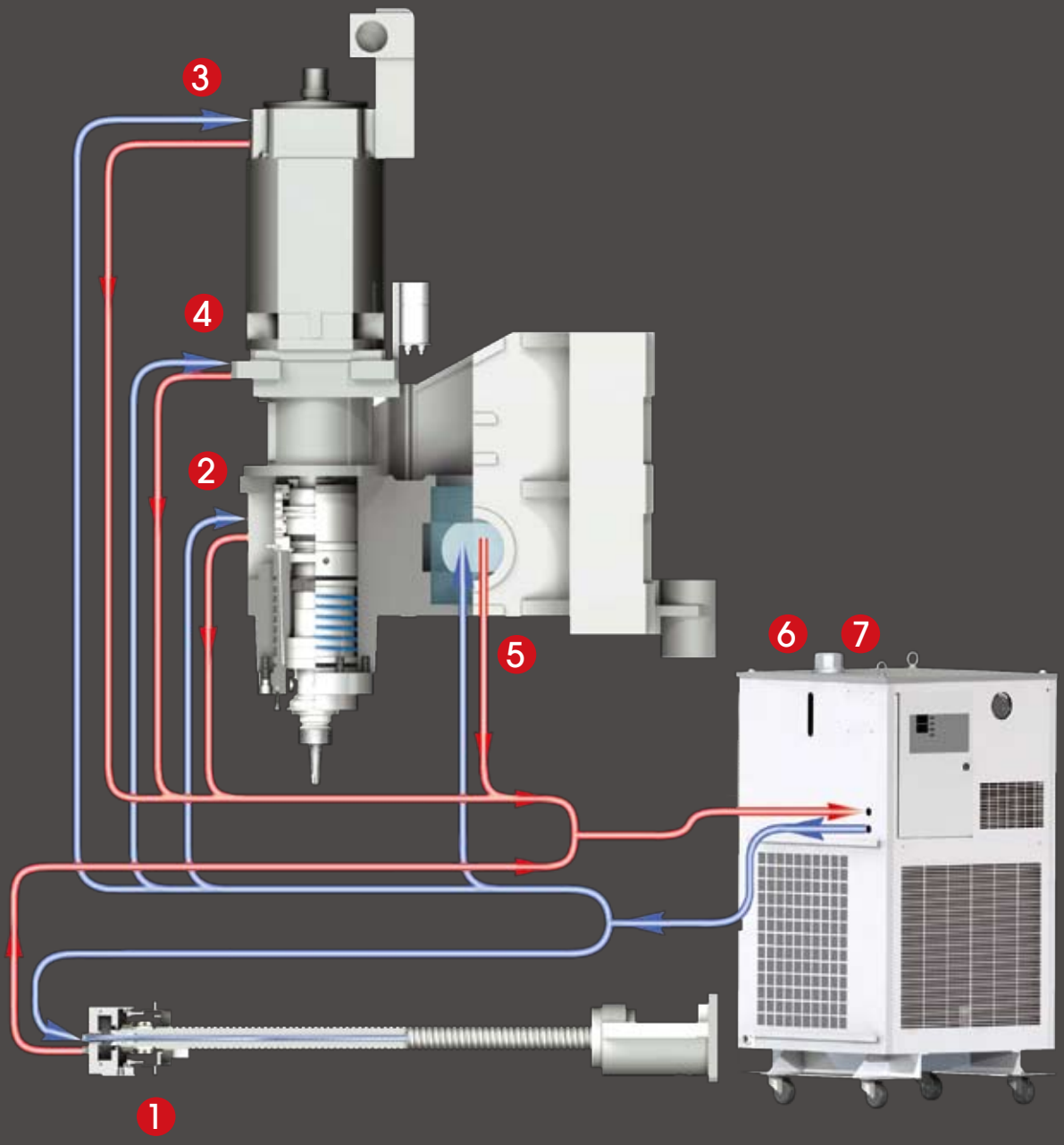
High accuracy machining part by M model, and measuring by (LEITZ) pmmc.



Precision accuracy

To meet more and more severe "WORKING ACCURACY" requirements, our "THERMAL MANAGEMENT":

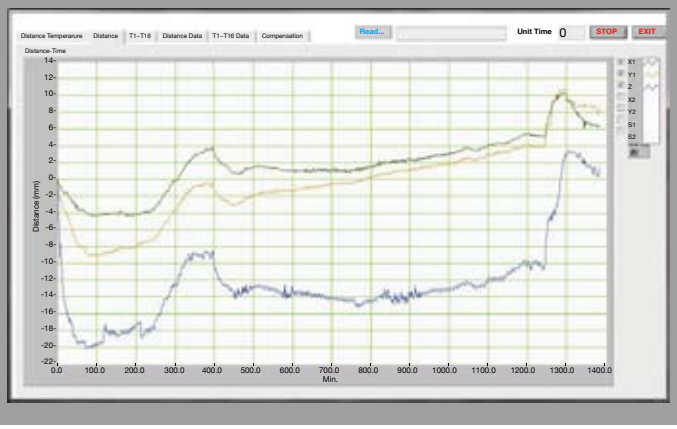
1. Coolant through ball screw.
2. Spindle cooling circuit.
3. Motor cooling circuit.
4. Motor mounting block cooling circuit.
5. Head stock cooling chamber.
6. Oil cooler.
7. ECO Cooler.



Heat generate from spindle and spindle motor are quick remove by cooling circuits on spindle housing, spindle motor, motor mounting plate and spindle head, the heat is exchange by large capacity oil chiller, plus thermal compensation function to reduce thermal impact to minimum.

Thermal compensatin on X, Y & Z

Before



After

Control: F = FANUC T = HEIDENHAIN M = MITSUBISHI

Technical Data		MV154 / MV184			
		C	E		
		8C	9B	12B	15B
Work range					
Table size (mm)		900 x 500 1,200 x 600			
Travel X / Y / Z (mm)		700** / 530 / 560 1,020 / 610 / 610			
Spindle nose to table surface (mm)		150 ~ 710 100 ~ 710			
Table load capacity (kg)		500			
Feed drive					
Feed force X (N)		5,760 (F) 6,807 (T) 6,283 (M)	4,712 (F) 6,807 (T)		
Y (N)		5,760 (F) 6,807 (T) 6,283 (M)	4,712 (F) 6,807 (T)		
Z (N)		10,472 (F) 13,902 (T) 17,671 (M)	11,519 (F) 13,902 (T)		
Rapid movement X / Y / Z (m/min)		32 / 32 / 24	40 / 40 / 36 (F) 32 / 32 / 24 (T)		
Acceleration X / Y / Z (m/s^2)	F	4 / 4 / 3	7 / 6 / 5		
	T	3 / 3 / 3	3 / 3 / 3		
	M	3/ 3 / 3	-		
Dia. & pitch of the ball screw		Ø45 / P = 12 / 12 / 12 (F) Ø45 / P = 12 / 12 / 8 (T / M)	Ø45 / P = 16 / 16 / 12 (F) Ø45 / P = 12 / 12 / 8 (T)		
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 model		40 Taper			
Max. spindle speed		8,000*	9,000	12,000	15,000
Spindle base speed	F/M	1,500	938 / -	1,250 / -	1,563 / -
	T	1,500	1,125	1,500	1,875
Spindle output KW (S6-40%)	F/M	15(1) / 15(3)	15(1) / -		
	T	17(2)	17(2)		
Spindle torque Nm (S6-40%)	F/M	106(1) / 96(3)	153(1) / -	115(1) / -	92(1) / -
	T	108(2)	144(2)	108(2)	87(2)
Spindle transmission		Coupling	Belt		
Spindle diameter (mm)		Ø70			
Tool changer					
Tool selection		Random			
Magazine positions		30	30 (std.) 48 / 60 (opt.)		
Max. tool diameter (mm)		76.2			
Max. tool dia. Due to neighbor pots are empty		125			
Max. tool length (mm)		280			
Max. tool weight (kg)		7			
CTC time-ISO 10791-9 (sec.)-60Hz		5	4 (F) / 5 (T)		
Coolant system					
Coolant tank capacity (Liter)		300			
Pump capacity					
-Nozzle coolant		60 L / min., 3.5 bar			
-Through spindle coolant		-	25 L / min., 8 bar		
-Wash down		60 L / min., 3.5 bar			
Machine size					
Height (mm)		3,000 / 2,860	2,930 / 2,860		
Floor space W x D (mm)	30 ATC	2,100 x 2,600 2,515 x 2,820	2,540 x 2,600 / 2,920 x 2,820		
	48 / 60ATC	-	2,540 x 2,625 / 2,540 x 3,005 2,920 x 2,830 / 2,920 x 3,210		
Weight (kg)		6,300 / 7,290	6,400 / 7,390		
Connections					
Main power		200V / 60Hz or 400V / 50Hz			
Power consumption (KVA)		16 (F) 19 (T) 17.5 (M)	20 (F) 21 (T)		

Note: (1) (S3-25%) (2) (S6-25%) (3) (S3-40%)

Main spindle: (B) Belt Spindle (C) Coupling Spindle (M) Motor Spindle

MV154 / MV184								
P						M		
9B	12B	15B	15C	15M	25M	15C	15M	25M
900 x 500 1,200 x 600								
700** / 530 / 560 1,020 / 610 / 610						700 / 530 / 560 900 / 610 / 610		
150 ~ 710 100 ~ 710								
500								
4,712 (F) 6,951 (T)				6,951 (T)		17,279 (F) 16,965 (T)	16,965 (T)	
4,712 (F) 6,951 (T)				6,951 (T)		17,279 (F) 20,499 (T)	20,499 (T)	
11,519 (F) 11,310 (T)			11,519 (F) 13,666 (T)	13,666 (T)		23,562 (F) 20,499 (T)	20,499 (T)	
40 / 40 / 36						24		
7 / 6 / 5				-		10 / 10 / 8.5	-	
6 / 5 / 5						10 / 10 / 8.5		
-								
Ø45 / P = 16 / 16 / 12						Ø45 / P = 8 / 8 / 8		
0.008 / 0.004								
±0.003 / ±0.002								
0.008 / 0.004								
40 Taper								
9,000	12,000	15,000	15,000	15,000	25,000	15,000	15,000	25,000
1,125 / -	1,500 / -	1,875 / -	1,400 / -	-	-	1,400 / -	-	-
1,125	1,500	1,875	1,500	2,000	5,880	1,500	2,000	5,880
22[1] / -			22 / -	-	-	22 / -	-	-
25			25	36 / 42	51 / 61[2]	25	36 / 42	51 / 61[2]
187[1] / -	140[1] / -	112[1] / -	150 / -	-	-	150 / -	-	-
212	159	127	159	172 / 201	81 / 97[2]	159	172 / 201	81 / 97[2]
Belt			Coupling	Motor spindle		Coupling	Motor spindle	
Ø70					Ø65	Ø70		Ø65
Random								
30 (std.) 48 & 60 (opt.)								
76.2					-	76.2		-
125					75	125		75
280					200	280		200
7					4.5	7		4.5
4					8	4		8
300								
60 L / min., 3.5 bar						60 L / min., 3.5 bar		
25 L / min., 8 bar						25 L / min., 20 bar		
60 L / min., 3.5 bar						60 L / min., 3.5 bar		
2,930 / 2,860			3,030/3,060(F) 3,000/2,860(T)	3,000 3,060		3,030/3,060(F) 3,000/2,860(T)	3,000 3,060	
2,540 x 2,600 2,920 x 2,820								
2,540 x 2,625 / 2,540 x 3,005 2,920 x 2,830 / 2,.920 x 3,210								
6,400 7,390								
200V / 60Hz or 400V / 50Hz								
25 (F / T)			30 (F / T)	45	55	30 (F / T)	45	55

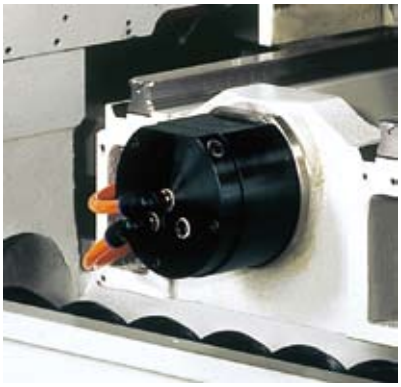
Note: *10,000 Coupling also available on model C **MV154 with X travel 762 mm (30") also available

●=Standard　O=Option　×=N/A

Standard / Option accessories	MV154 / MV184			
	C	E		
	8C	9B	12B	15B
QUASER mill i	●	●	●	●
FANUC 18iMB	×	×	×	×
FANUC 31i	×	×	×	×
FANUC 3 “O” package (RISC, data servo, AI、NANO HPCC)	×	×	×	×
HEIDENHAIN iTNC530	×	×	×	×
HEIDENHAIN TNC620	●	●	●	●
HEIDENHAIN Option2	×	×	×	×
MITSUBISHI M70 (package A)	●	×	×	×
MITSUBISHI M720	○	×	×	×
Tooling – BT40	●	●	●	●
– ISO40 & DIN	○	○	○	○
– HSK A63	×	×	×	×
Spindle re-greasing system	×	●	●	●
BBT spindle attachment	×	●	●	●
Spindle ECO cooler	○	●	●	×
Spindle oil chiller	○	○	○	●
30 position tool magazine	●	●	●	●
48 position tool magazine	×	○	○	○
60 position tool magazine	×	○	○	○
ATC auto door	×	○	○	○
4th axis preparation	×	●	●	●
Ø255mm rotary table & tail stock	×	○	○	○
Linear encoder	×	○	○	○
Coolant through ball screw	×	×	×	×
Spindle nose thermal compensation package (Z direction < 15μm)	×	×	×	×
Work probe	×	○	○	○
Tool length / breakage measurement	○	○	○	○
Coolant wash down & wash gun	●	●	●	●
20 bar through spindle coolant	×	○	○	○
50 bar through spindle coolant	×	○	○	○
Stainless steel chip pan	●	●	●	●
Cutter air blast	●	●	●	●
Chip conveyor Scrape type	○	●	●	●
Hinge type	○	○	○	○
Mist collector	○	○	○	○
Documentation	●	●	●	●
Foundation bolts & blocks	●	●	●	●
Work light	●	●	●	●
Machine status light	●	●	●	●
CE & EMC	×	●	●	●

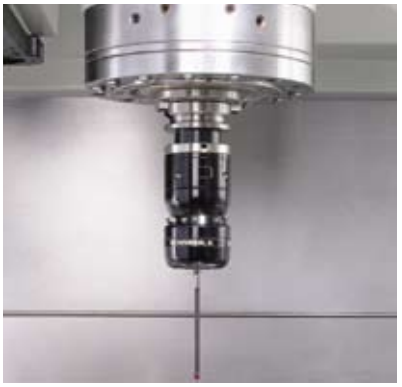
Linear encoder

Coolant through ball screw



Laser tool measurement

Work probe



MV154 / MV184								
P						M		
9B	12B	15B	15C	15M	25M	15C	15M	25M
×	×	×	×	×	×	×	×	×
●	●	●	●	×	×	×	×	×
×	×	×	×	×	×	●	×	×
○	○	○	○	×	×	●	×	×
●	●	●	●	●	●	●	●	●
×	×	×	×	×	×	×	×	×
○	○	○	○	○	○	●	●	●
×	×	×	×	×	×	×	×	×
×	×	×	×	×	×	×	×	×
●	●	●	●	●	×	●	●	×
○	○	○	○	○	×	○	○	×
×	×	×	○	×	●	○	×	●
●	●	●	●	●	●	●	●	●
●	●	●	●	●	×	●	●	×
●	●	×	×	×	×	×	×	×
○	○	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○	○
●	●	●	●	●	●	●	●	●
○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	●	●	●
○	○	○	○	○	○	●	●	●
○	○	○	○	○	○	●	●	●
○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○	○
●	●	●	●	●	●	●	●	●
○	○	○	○	○	○	●	●	●
○	○	○	○	○	○	○	○	○
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
○	○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○	○
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●

Mist collector

4th axis

Paper filter

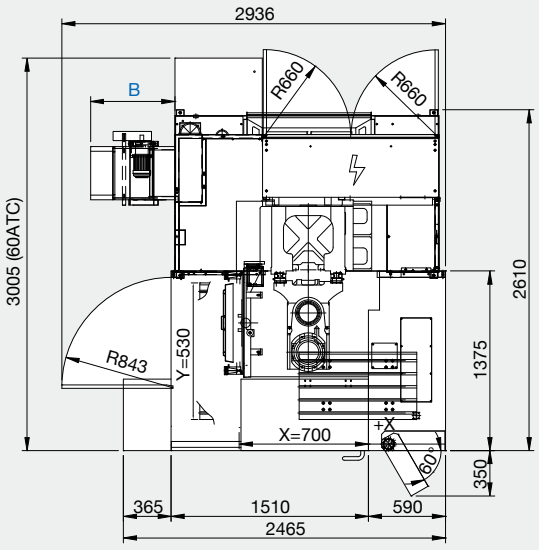
Oil chiller

Layout

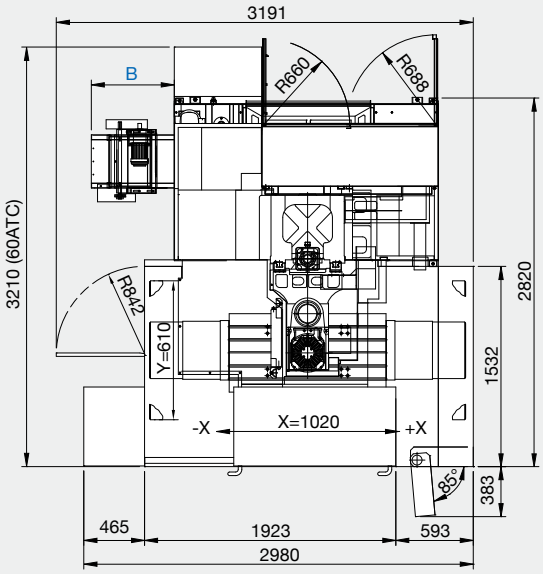
Installation dimension

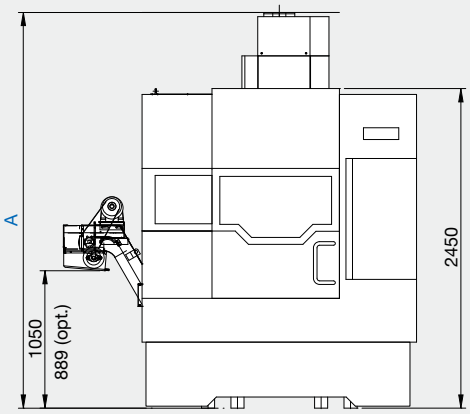
	MV154 C / E / P / M				MV184 C / E / P / M			
A	8C	9B/12B/15B	15C	15M / 25M	8C	9B/12B/15B	15C	15M / 25M
	3,000	2,930	3,030	3,000	2,860		3,060	2,860
B	465				465			

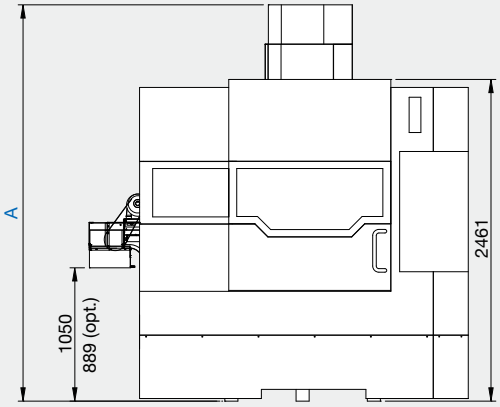
MV154



MV184

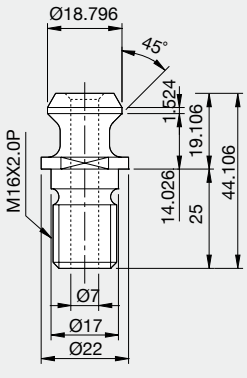




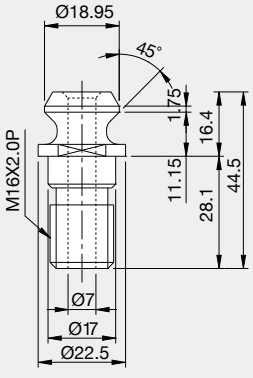


Pull stud and applicable tools

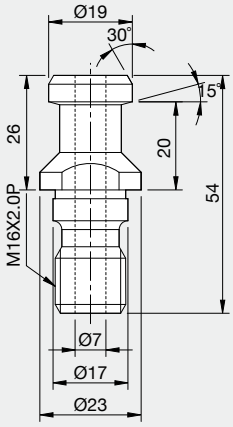
BT 40 (QUASER SUPPLY)



ISO (7388-8)



DIN (69872-A)



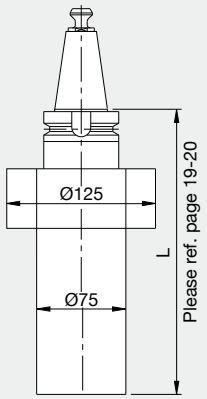
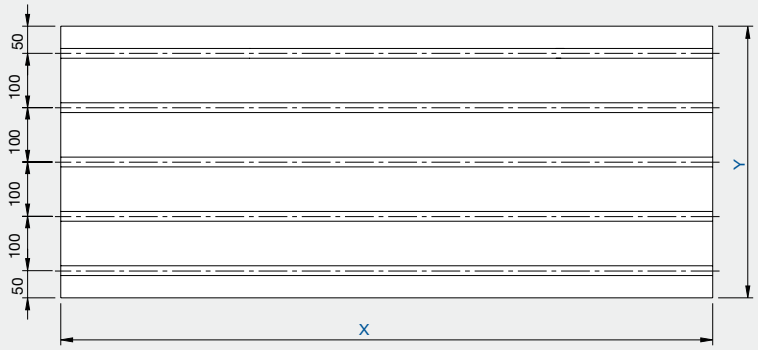
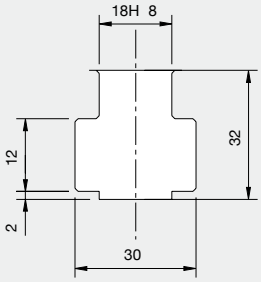


Table dimension

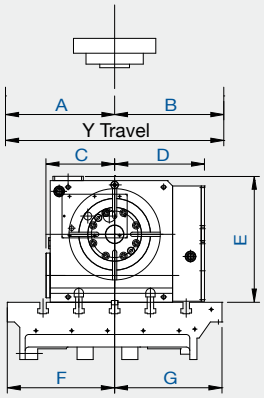
	MV154	MV184
X	900	1200
Y	500	600

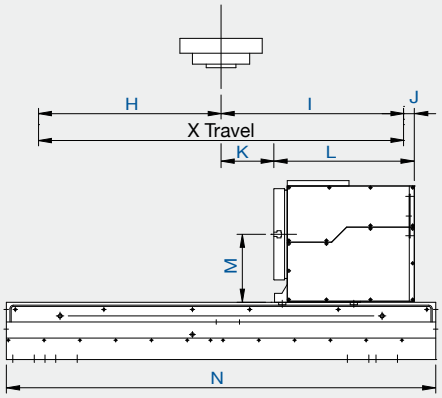




4th axes

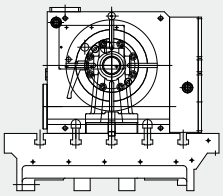
GV255HB

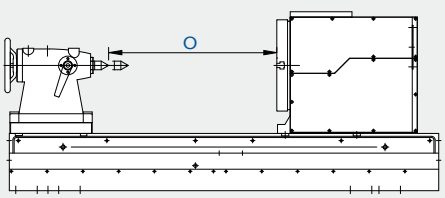




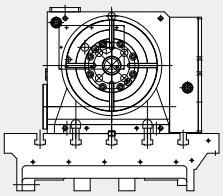
	MV154	MV184
A	265	305
B	265	305
C	192	192
D	251	251
E	352	352
F	265	300
G	250	300
H	350	510
I	350	510
J	98	30
K	55.5	147.5
L	392.5	392.5
M	190	190
N	900	1200
O	230	470
P	300	515

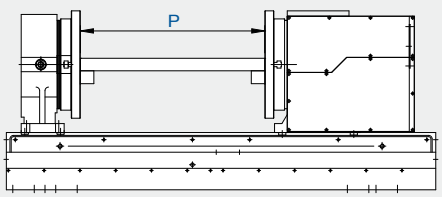
GV255HB+ST255





GV255HB+Fixture 2





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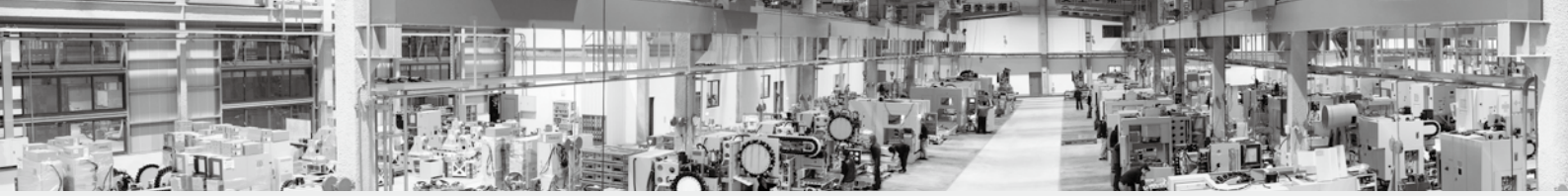

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