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**Compact** : Including chip conveyor & through spindle coolant  
**Powerful** : 17 kW-18.5 kW spindle  
**Fast** : 40 m/min rapid & 7 m/s<sup>2</sup> acc. (X & Y)  
**Precise** : DBB < 5 μm

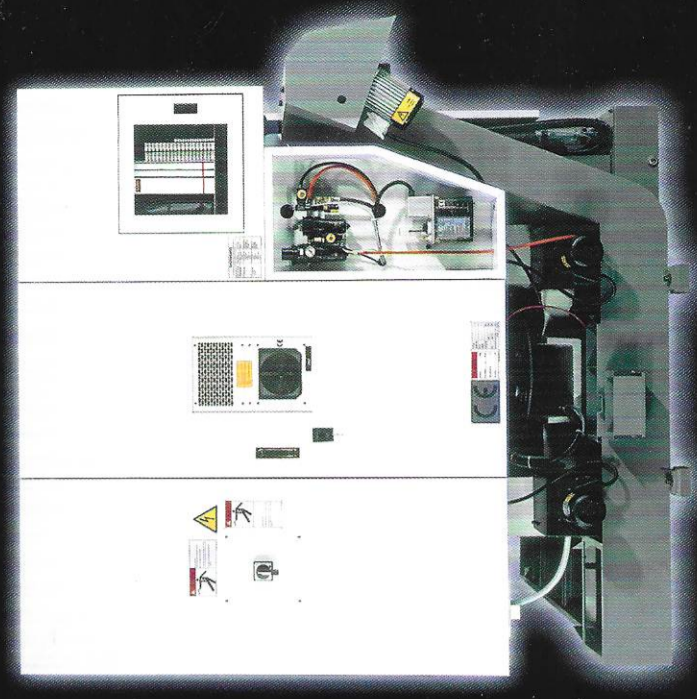
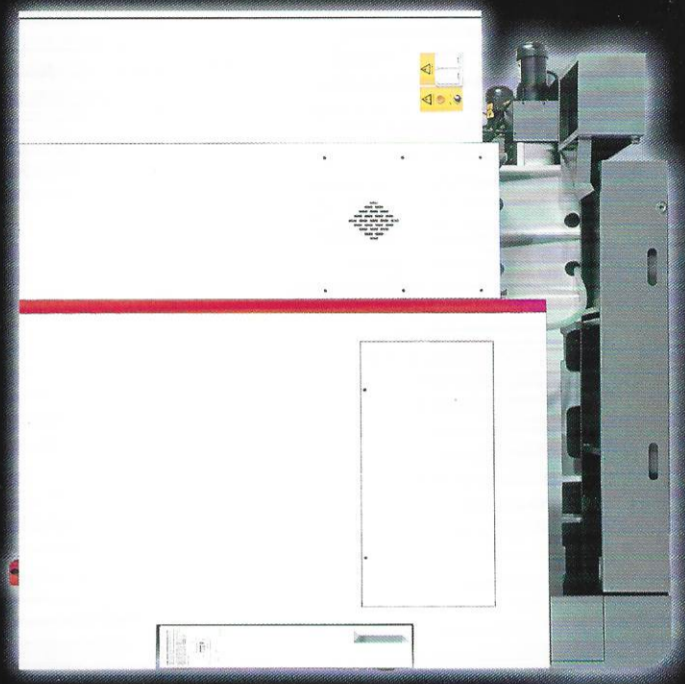
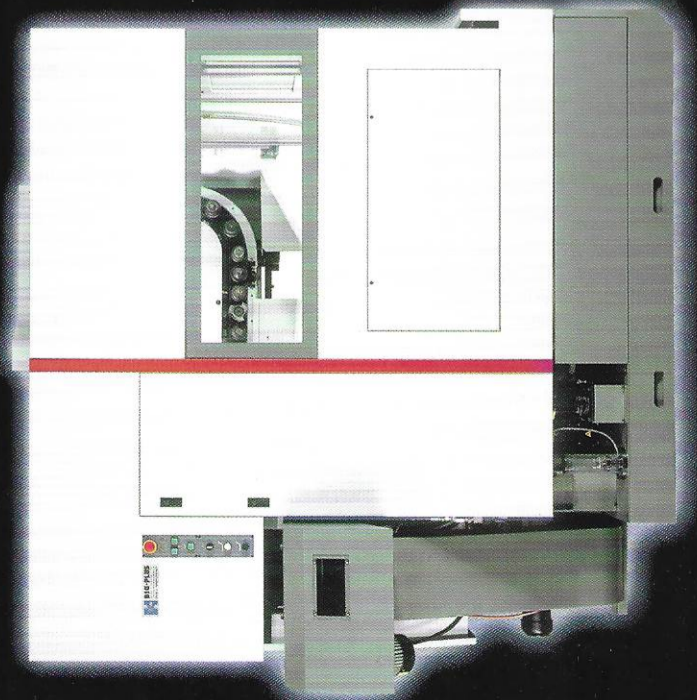
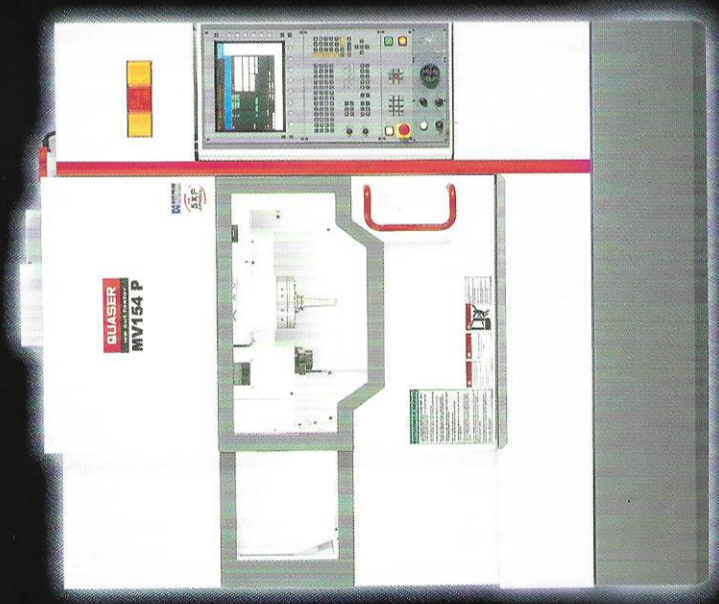
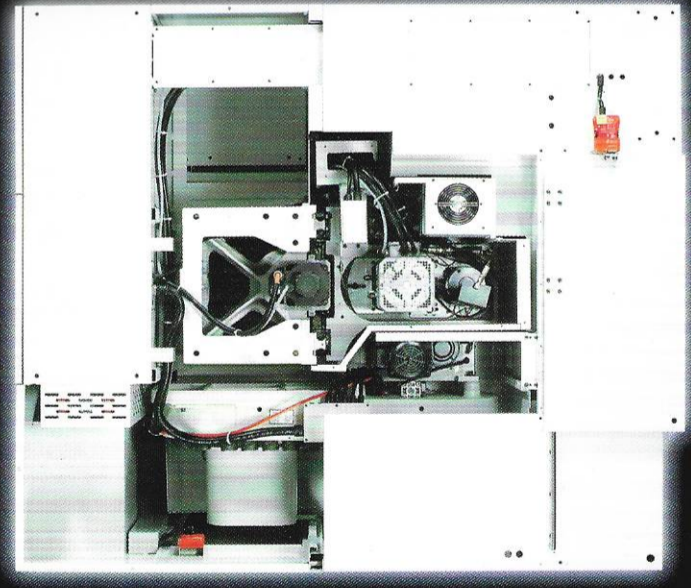
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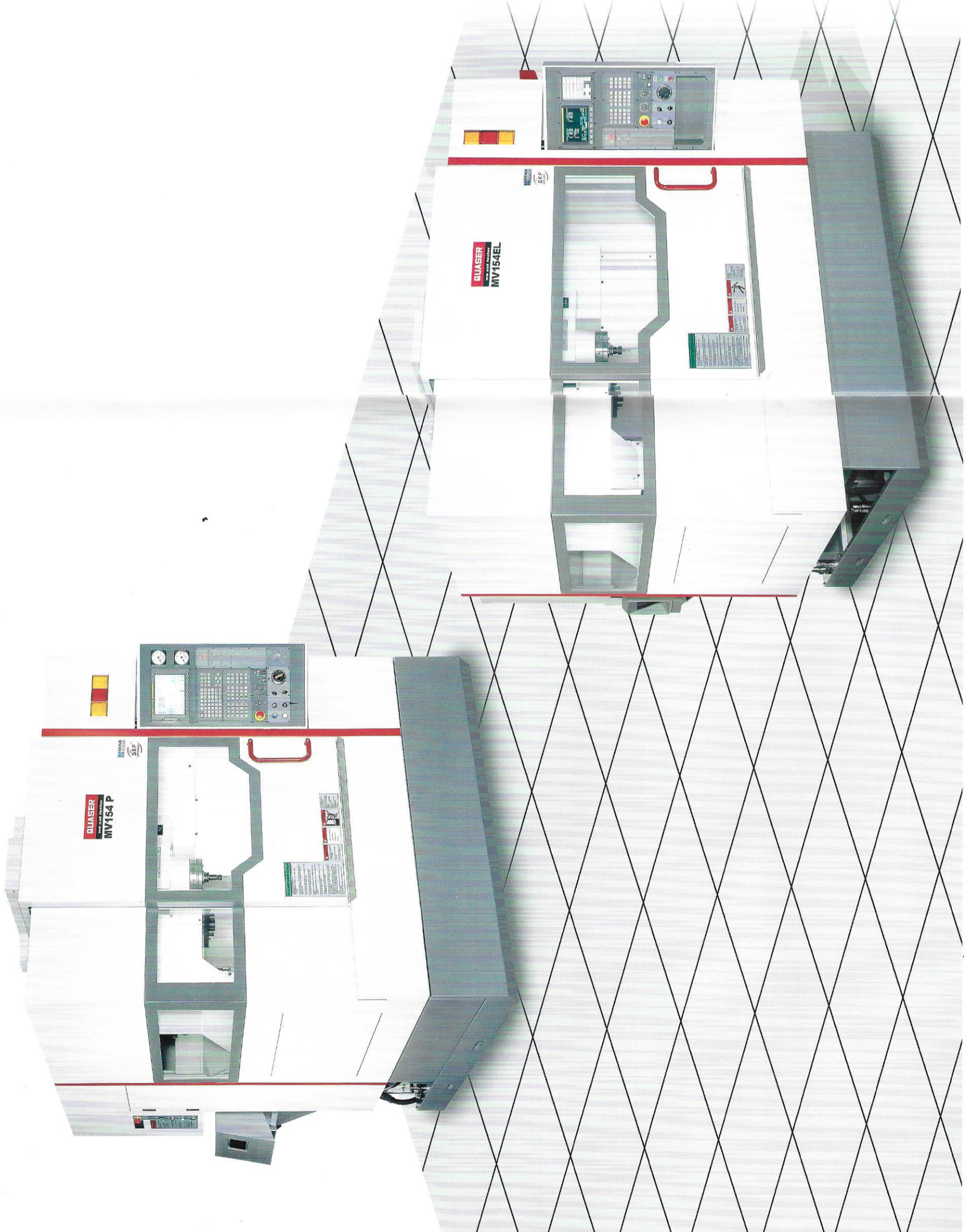
**MV154 series**  
Compact Vertical Machining Center  
From: October 2004

**QUASER**

we cut faster

MV154  
simply the finest compact VMC



**MODELS**

## ■ Economic M/C :

MV154E } FANUC 0 i M-C  
 MV154EL }

## ■ Performance M/C :

MV154P } FANUC 18 i M-B  
 MV154PL } HEIDENHAIN i TNC 530

**MAIN SPECIFICATIONS**

■ Travels X/Y/Z : 700 / 500 / 500 mm  
 1020 / 500 / 500 mm (L series)

■ Spindle : SKF made

Belt spindle [ 9,000 min<sup>-1</sup> (E & P)  
 12,000 min<sup>-1</sup> ]

Coupling spindle [ 15,000 min<sup>-1</sup> (P)  
 Split spindle ]

■ RAPID : MV154P, PL - X-Y : 40 m/min,  
 Z : 32 m/min

■ ATC : Arm type

MV154E } 24 positions (option : 32)  
 MV154EL }  
 MV154P, PL }

## ■ Coolant system : (Standard)

- 400L tank
- Through spindle coolant
- Built-in chip conveyor
- Wash down

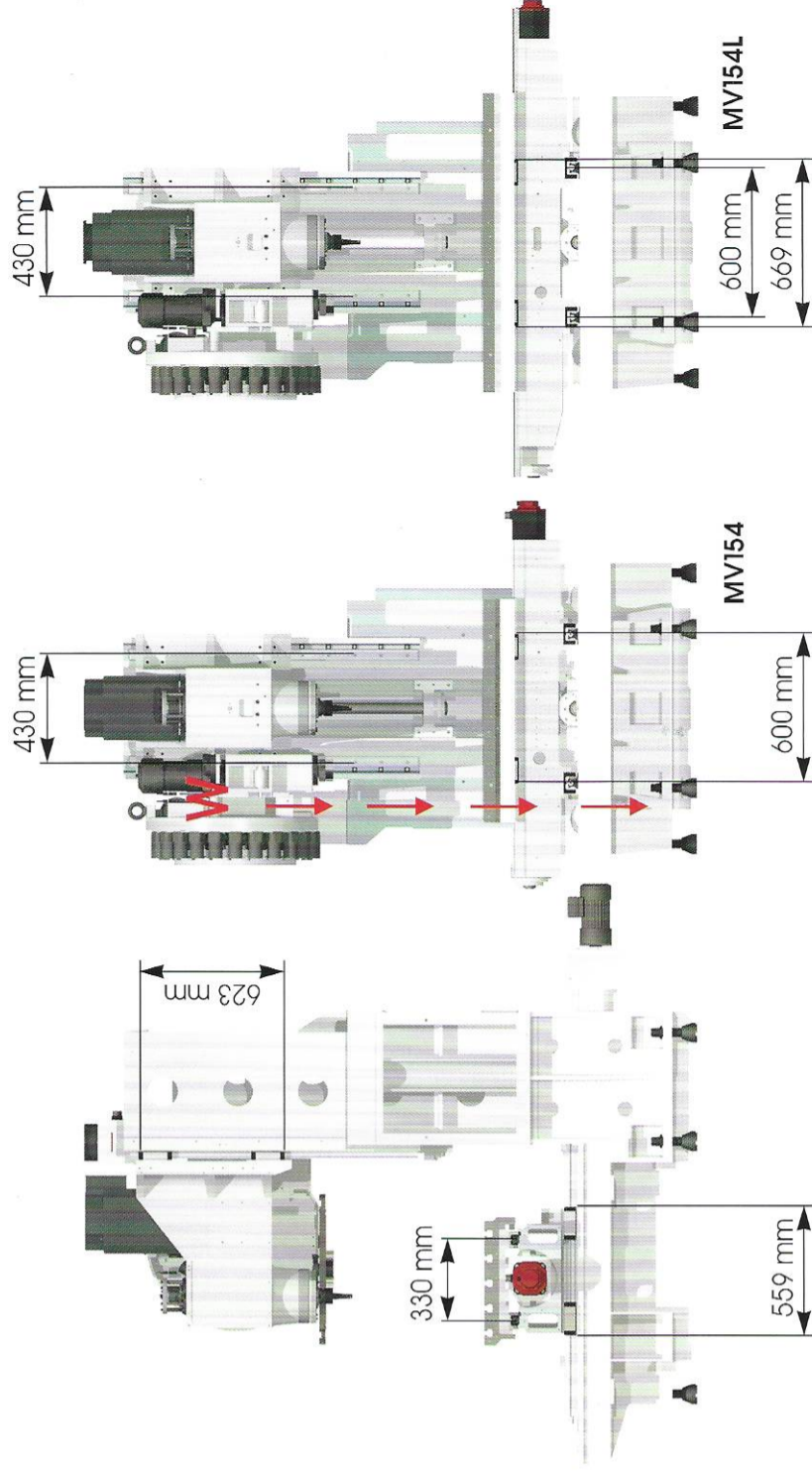
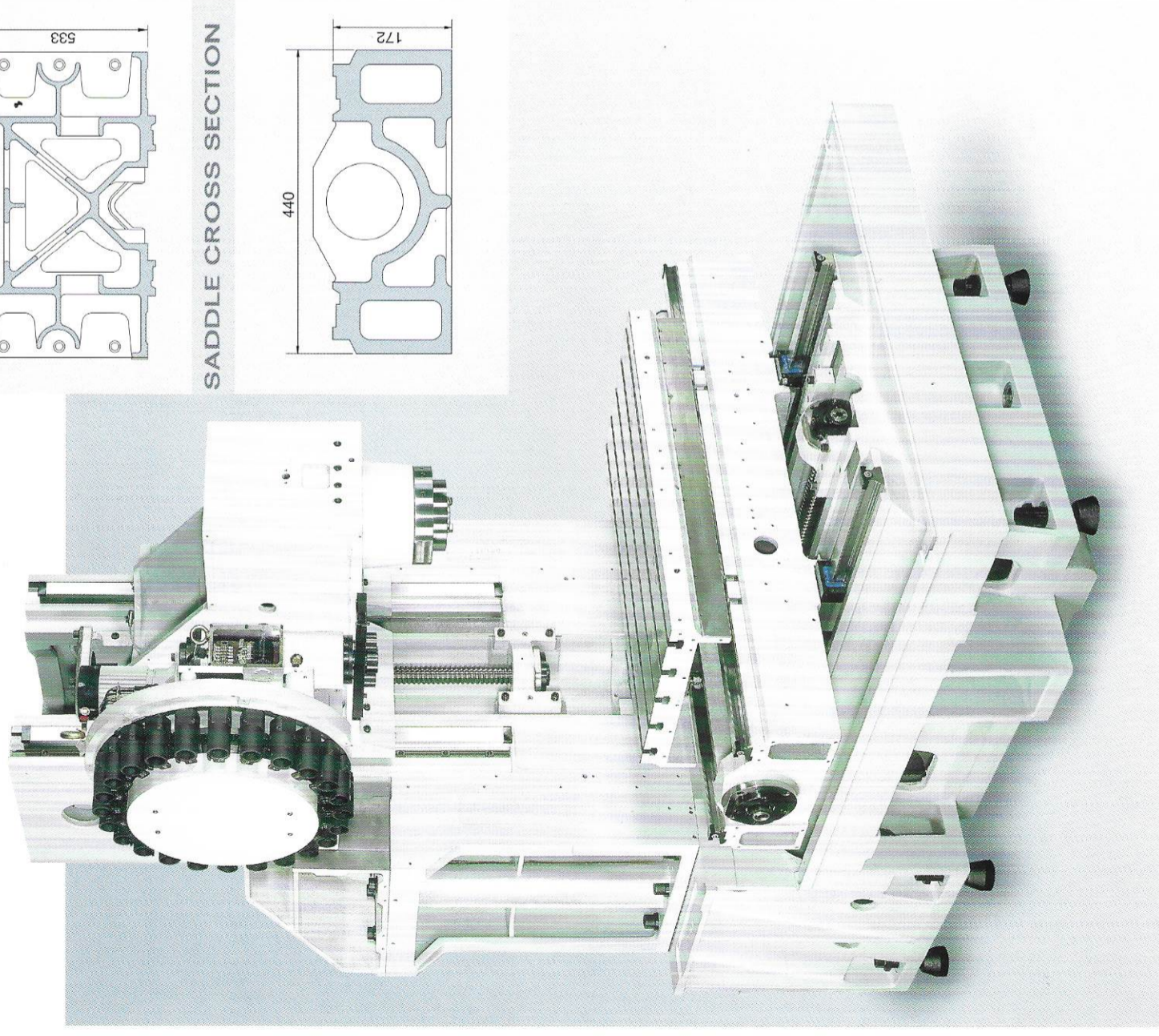
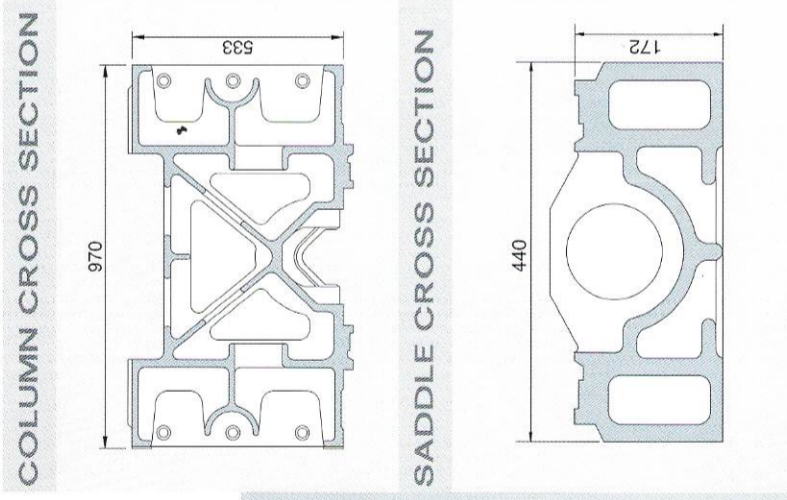
**Highest rigidity frame in this class:  
Static rigidity > 50 N/ $\mu$ m  
(Competitors at 20 - 30 N/ $\mu$ m)**

■ Heavy duty linear ways with wide spacing, Y & Z - size 45, X - size 35, grease lubricated for 2,500 Km.

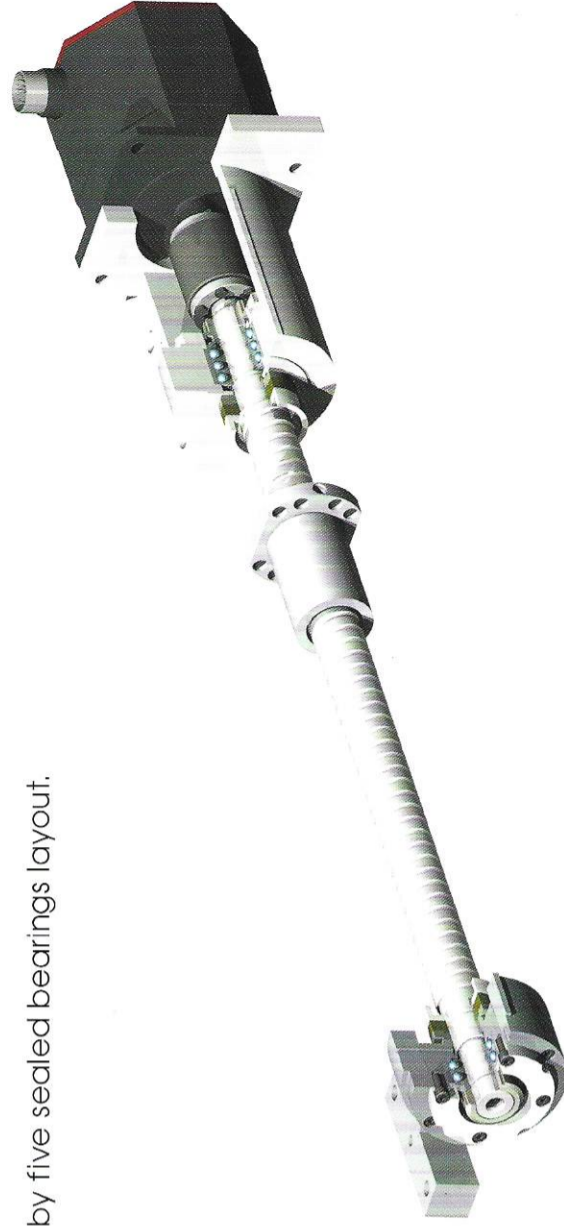
■ ATC unit mounted in the middle of column, weight is directly transferred to the base ;

- Minimizing the bending moment & vibration effect to maintain Z-axis accuracy
- Superior dynamic stability.

■ Meticulous in main casting design



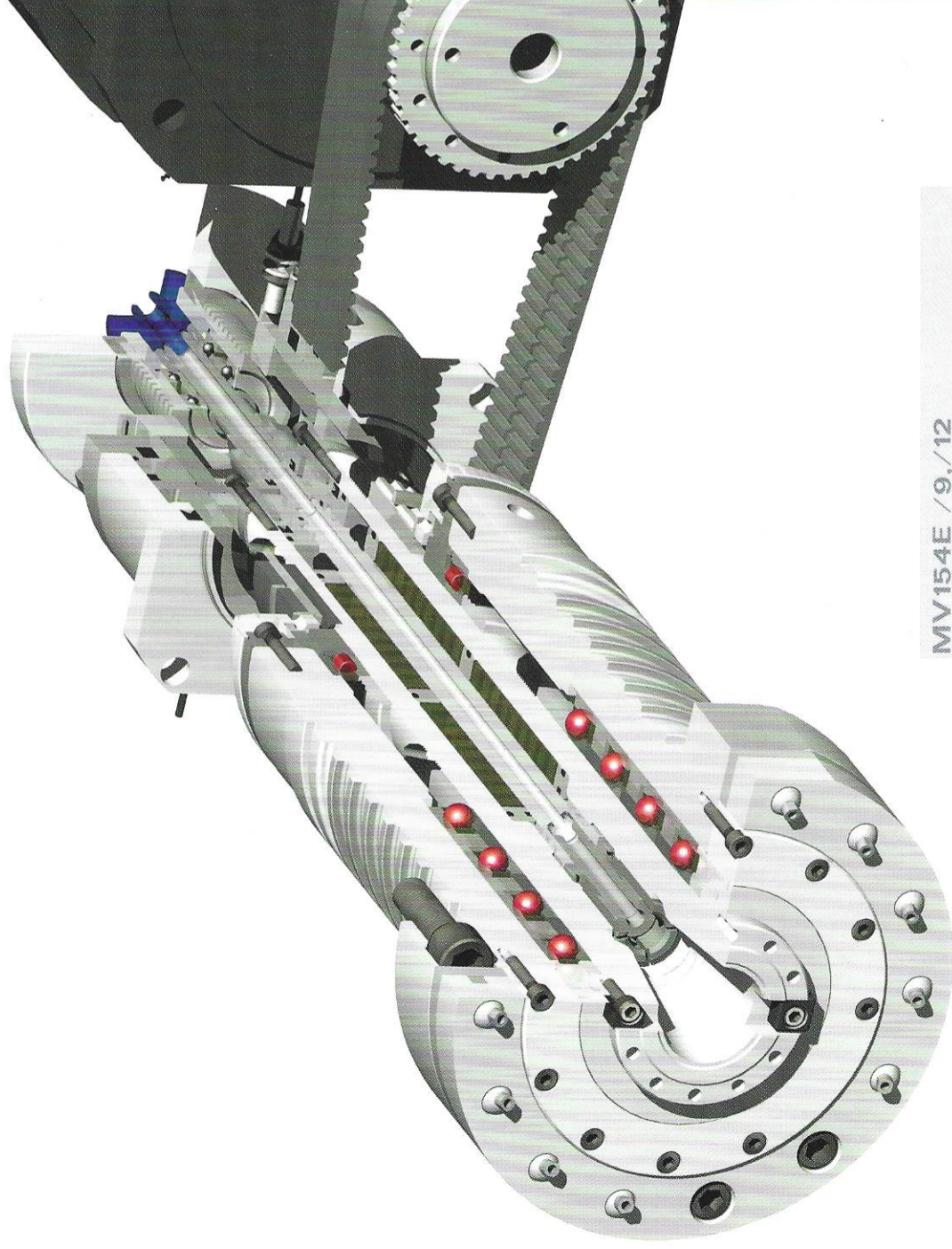
■  $\varnothing 45$  oversized ball screws & direct driving on all 3 axes, ball screws are pretensioned by five sealed bearings layout.



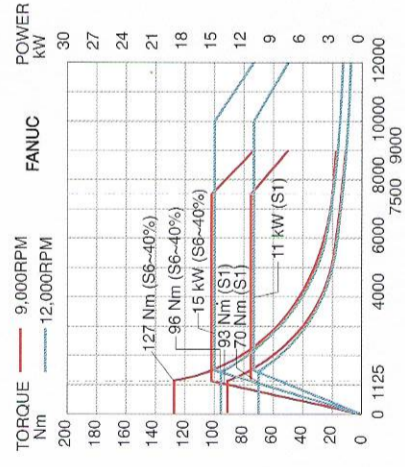
Various spindle systems to meet your requirements,  
Joint developed by quaser & SKF

**SKF made belt spindle**

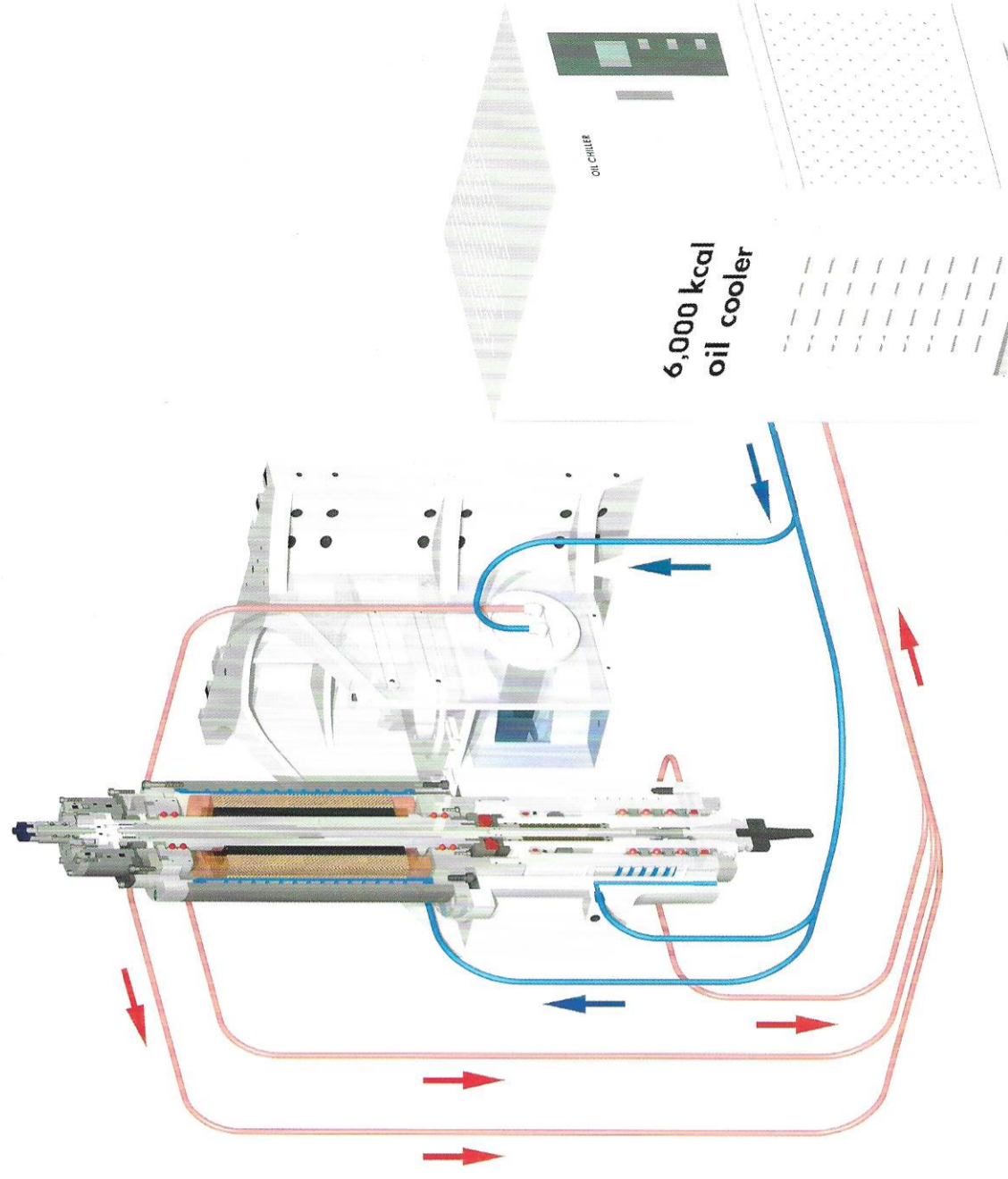
9,000 min<sup>-1</sup> & 12,000 min<sup>-1</sup>



MV154E / 9./12

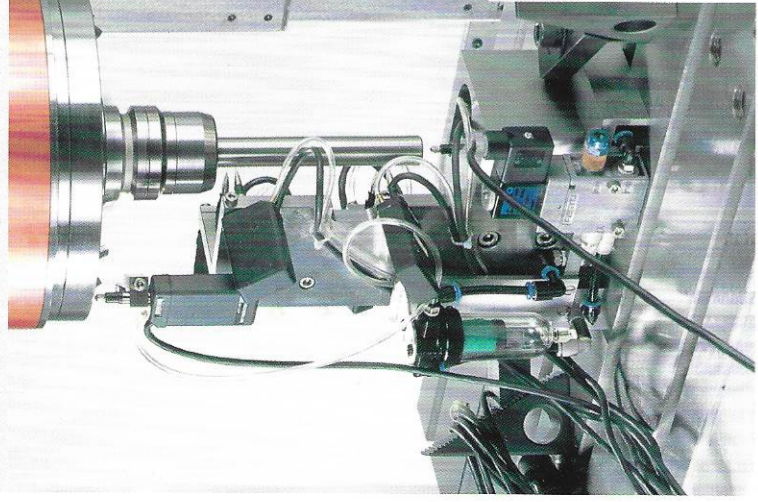


■ Triple cooling circuit (For 15,000 min<sup>-1</sup>) together with optional sensor stripe compensation & 3 axes linear scales — can achieve spindle thermal expansion within 15 μm.

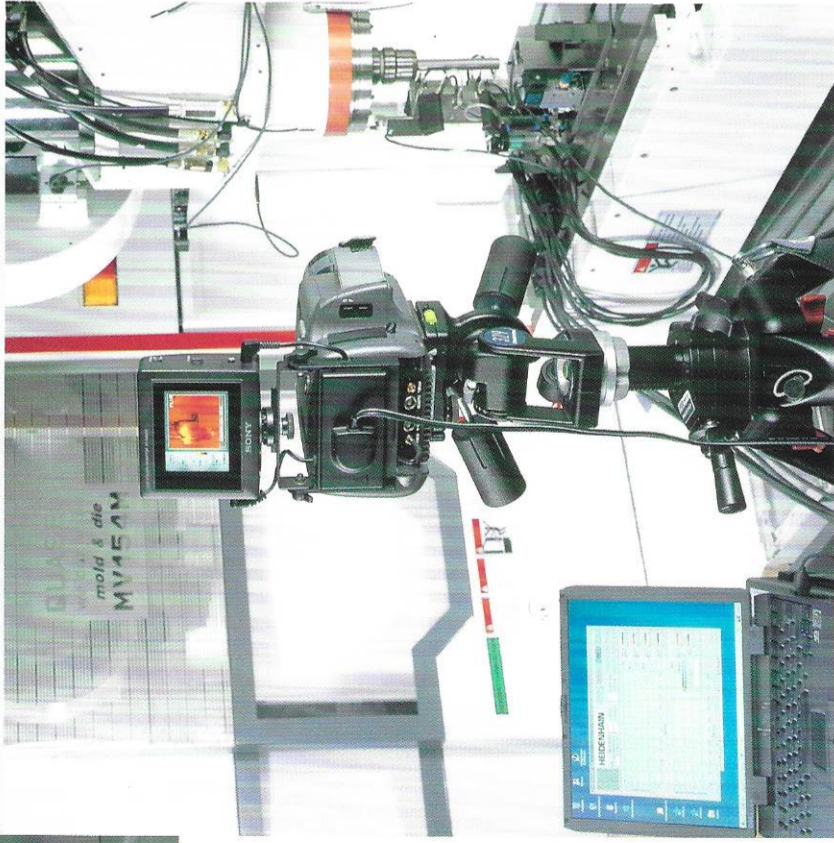


- Thermal compensation by sensor / stripe feed back (option)

We had made ISO 230-3 test.

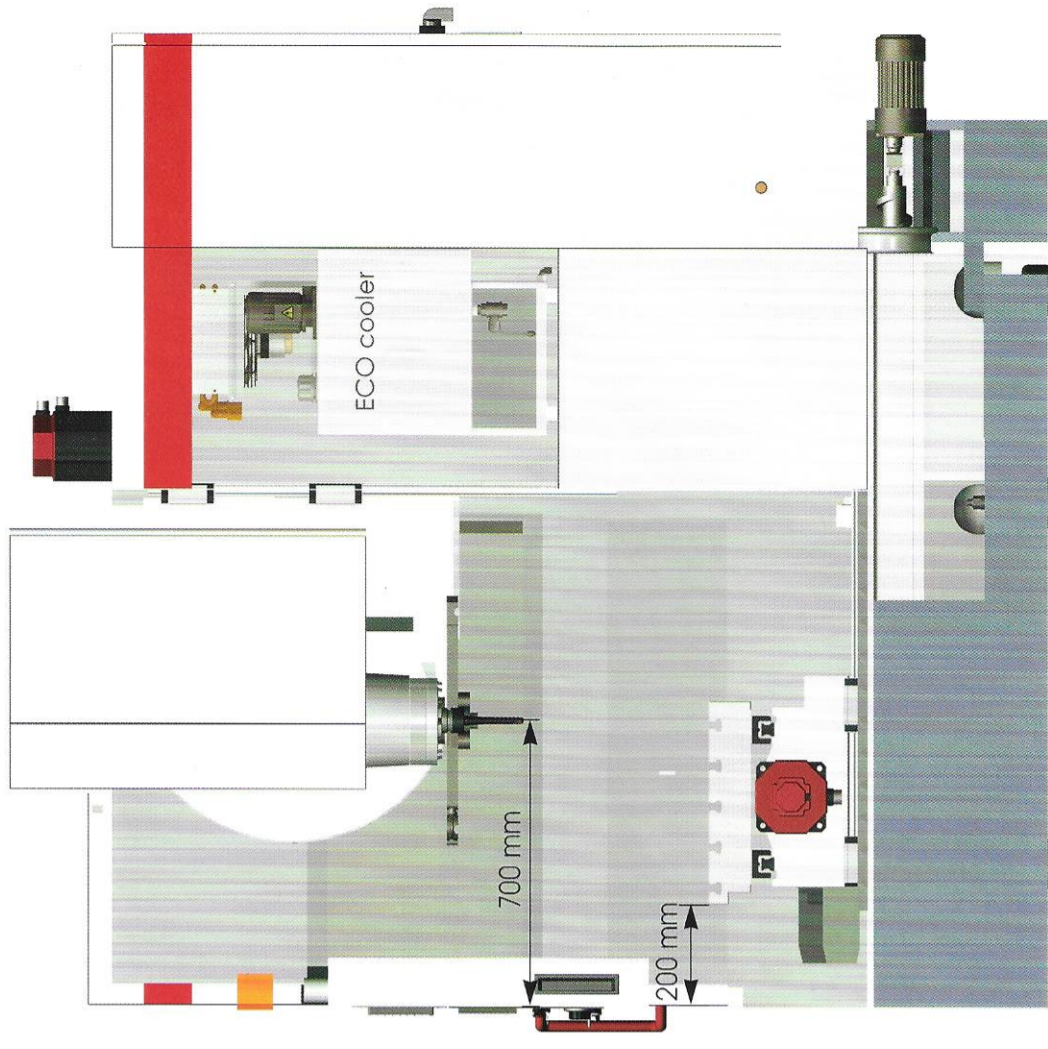


We had used thermal camera to analysis the temperature distributions.



**Built from operator's view, we care for small things :**

- Full view window
- Swiveling operator panel
- Single door design open at 900 mm (1,200mm on L series)
- Spindle to front at a convenient 700 mm (800 mm on L series)
- Table to front - easy access 200 mm (300 mm on L series)



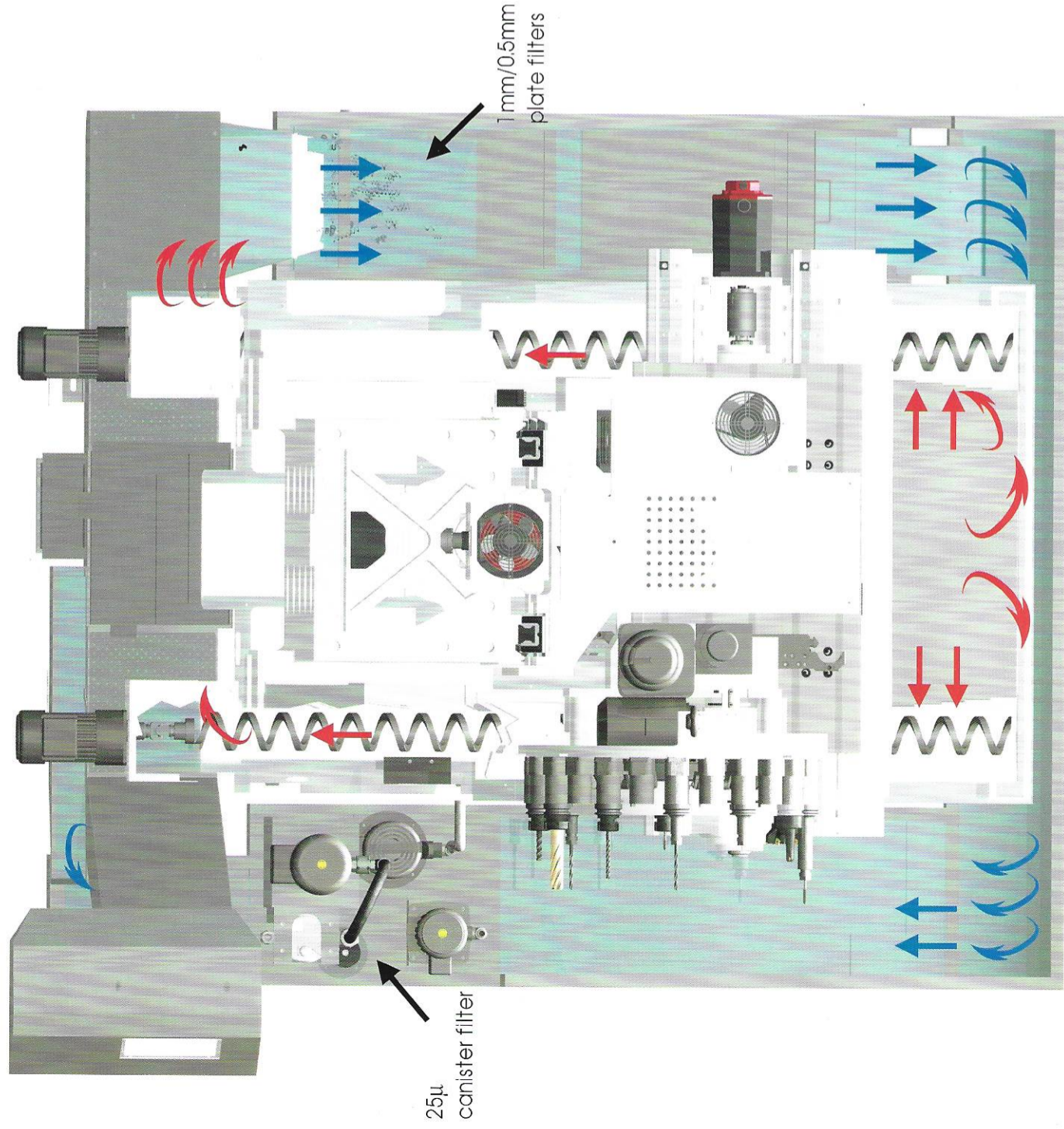
Documentation & hand tools shelf



Built-in powerful wash gun

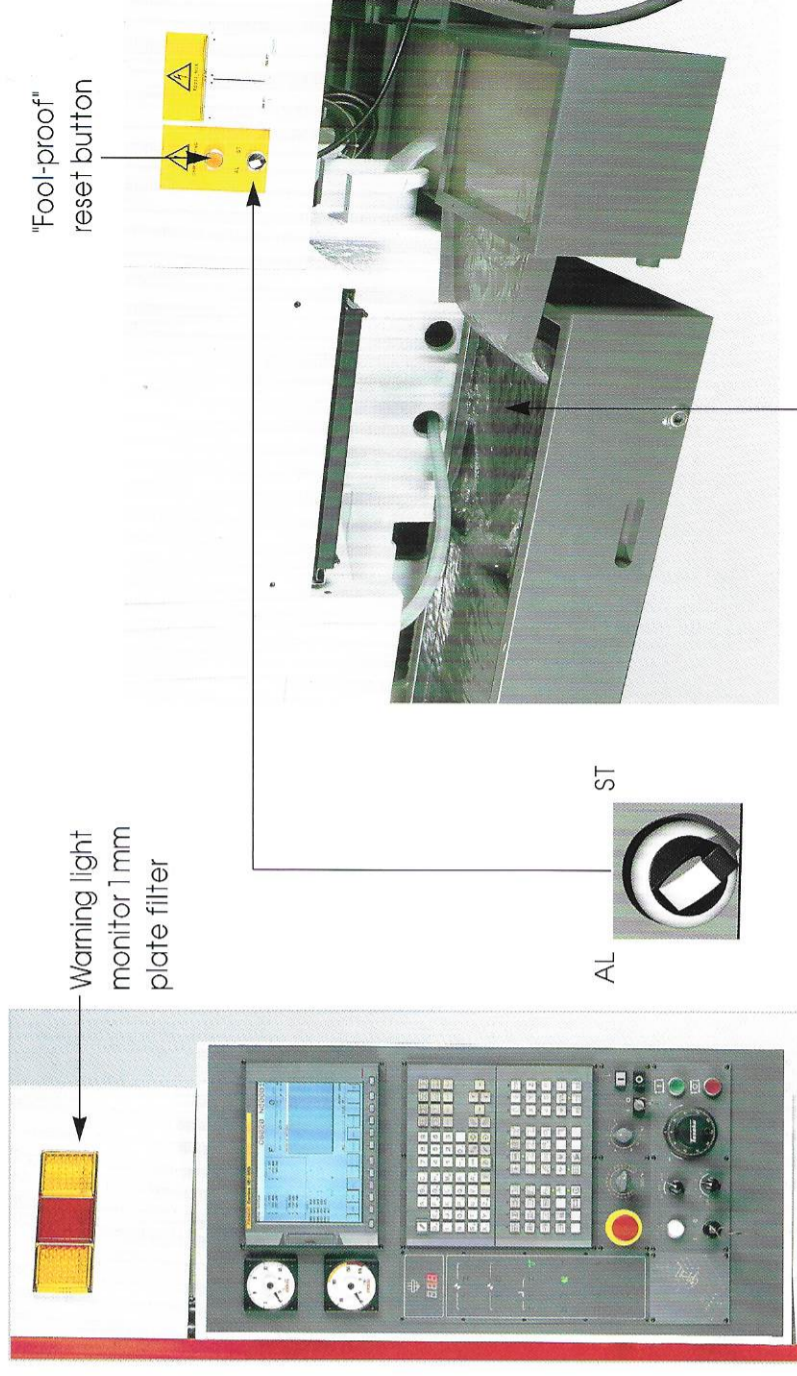


We have developed one of the best coolant & chip management systems as standard on MV154 to maximize customer productivity.



- Coolant tanks at 400 L, largest in this class if takes consideration how compact MV154 floor space requirement; large volume of coolant also helps to reduce M/C thermal deformations.
- Chips flow through 1 mm plate filter first, then 0.5 mm plate filter before passing to nozzle coolant and/or through spindle coolant canister 25 µm filter.
- Especially powerful for aluminum chips due to the requirement of "traveling" approx. 7 meters from outlet to the pumps. 95% of the chips are removed by the built-in scraper-type conveyor before starting the "traveling".

**Innovative - Economic**  
- **plate filters monitoring system (PATENT PENDING)**

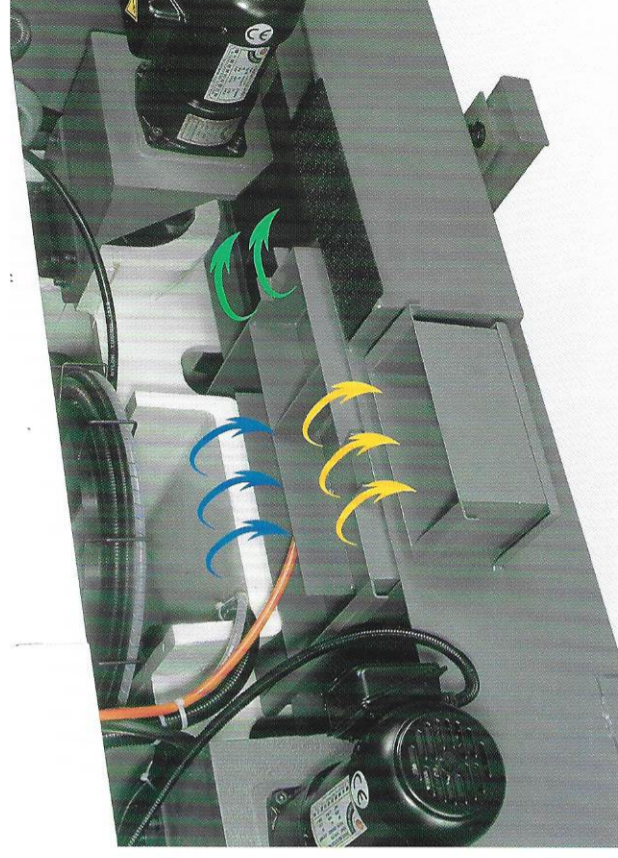


The operator needs to select "AL" or "ST" when setting the work piece.

- "AL" alarm count on daily basis
- "ST" alarm count on weekly basis based upon 8 hrs daily operation.

The 0.5 mm / 1 mm dual plates filter allow the operator to clean plate filter without stopping the M/C.

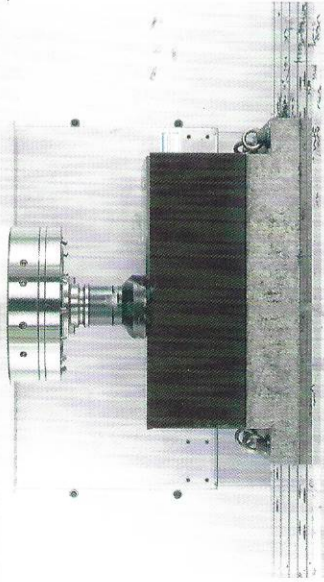
**A Green machine**



- Linear ways are grease lubricated for 2,500 Km.
- Low consumption lubrication oil for all three axes ball screws.
- All waste oil flow to a tank though oil / water separation.

**MV154P FANUC**

**FACE MILLING**



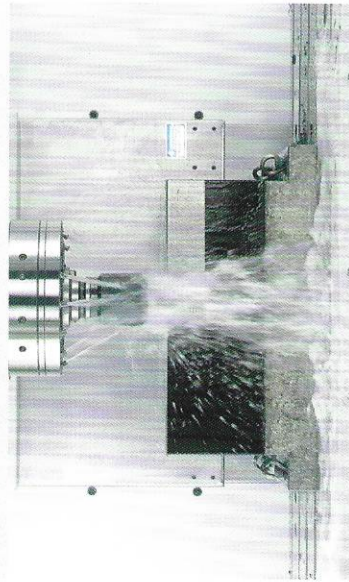
**ST60**  
(9,000 min<sup>-1</sup> spindle)

**ALMGSI1**  
(12,000 min<sup>-1</sup> spindle)

**Tool : Ø30 x 6 teeth**

S = 1,000 min<sup>-1</sup>      S = 10,000 min<sup>-1</sup>  
 F = 1,800 mm/min      F = 13,600 mm/min  
 Q = 432 c.c./min      Q = 2,040 c.c./min  
 W = 60 mm, D = 4 mm      W = 60 mm, D = 2.5 mm

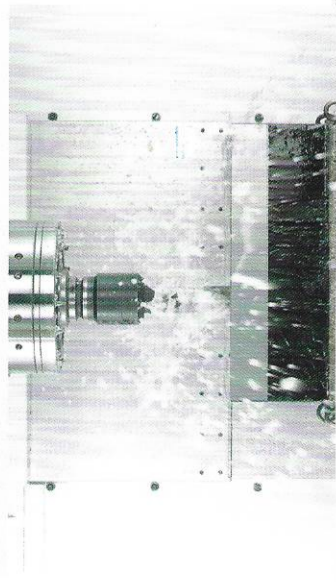
**END MILLING**



**Tool : Ø45 x 5 flutes**

S = 240 min<sup>-1</sup>      S = 640 min<sup>-1</sup>  
 F = 84 mm/min      F = 384 mm/min  
 Q = 101 c.c./min      Q = 614 c.c./min

**DRILLING**

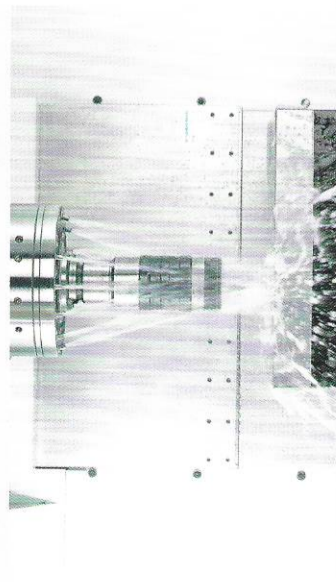


**Tool : Ø40**

(with 20 bar through spindle coolant)

S = 880 min<sup>-1</sup>      S = 2,000 min<sup>-1</sup>  
 F = 88 mm/min      F = 200 mm/min

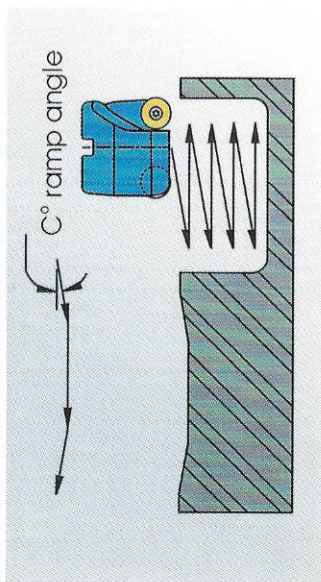
**TAPPING**



**Tool : M30 x P3.0**      **M4 x P0.7**

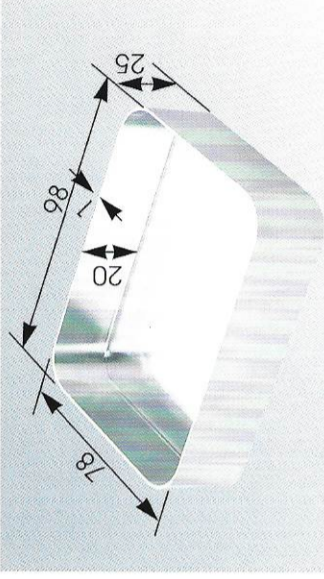
S = 212 min<sup>-1</sup>      S = 3,000 min<sup>-1</sup>  
 F = 636 mm/min      F = 2,100 mm/min

**HEAVY DUTY ON STEEL CUTTING**



**MV154P (HEIDENHAN/SNE)**

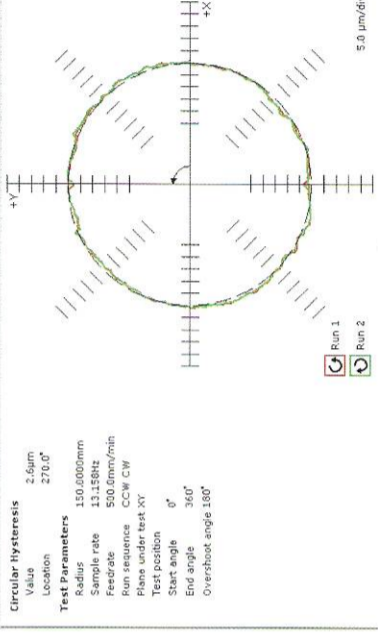
**HIGHT SPEED ON AL CUTTING**



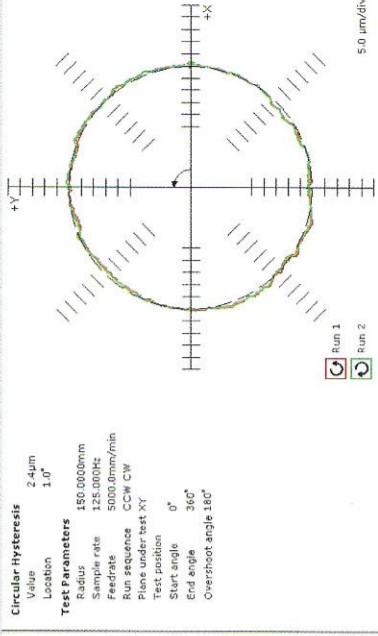
**Tool : Ø16mm 2 flute end mill**

S = 15,000 min<sup>-1</sup>  
 F = 6,000 mm/min  
 Time : 54 seconds

**Feedrate:500 mm/min**  
**Value:2.6µm**



**Feedrate:5000 mm/min**  
**Value:2.4µm**



\*Note : The measuring results indicated in this catalog are provided as an example by random selected.

**ISO 10791-1 / ISO 10791-4.2**

	ISO STANDARD	QUASER STANDARD (E & P)
<b>Straightness</b>	X-Y	0.015 / Full Stroke
	Y-Z	0.010 / Full Stroke
	Z-X	0.010 / Full Stroke
<b>Perpendicularity</b>	X-Y	0.01 / 500
	Y-Z	0.01 / 500
	Z-X	0.01 / 500
<b>Positioning accuracy</b>	X	0.01 / Full Stroke
	Y	0.016 / Full Stroke
	Z	0.016 / Full Stroke
<b>Positioning repeatability</b>	X	0.008
	Y	0.006
	Z	0.006
<b>Spindle run-out on table surface</b> (for 300 mm distance)		0.02 / 300
	<b>Spindle run-out</b> (with a test bar mounted)	0.01
<b>Circularity</b> (Ø300 mm, F5000)	CW	0.010
	CCW	0.010

Unit : mm



## MV154 series

### Technical data

#### Models

MV154 / MV154L			
Economic		Performance	
MV154E / 9	MV154E / 12	MV154P / 9	MV154P / 12
MV154EL / 9	MV154EL / 12	MV154PL / 9	MV154PL / 12
		MV154P / 15	MV154PL / 15

Technical Data	MV 154 E / MV 154 EL				MV 154 P / MV 154 PL				Standard / Option					
	Economic		Performance		Economic		Performance		E		P			
	9	12	9	12	9	12	9	12	9	12	9	12	9	12
<b>Work range</b> Table size (mm)	900 x 500 / 1,200 x 500													
	700 / 1,020													
	500													
Travel X (mm) Y (mm) Z (mm)	500													
	500													
	500													
Table load capacity (kg)	500													
	500													
	500													
<b>Feed drive</b> Feed force X (N) Y (N) Z (N)	4,189													
	4,189													
	6,283													
Rapid movement X/Y/Z (mm/min.)	32													
	5 / 5 / 3													
	7 / 6 / 5													
Acceleration X/Y/Z (m/s <sup>2</sup> )	-													
	6 / 5 / 5													
	ø45 / P=12 / 12 / 12													
Dia. & pitch of the ball screw	ø45 / P=12 / 12 / 12													
	ø45 / P=16 / 16 / 12													
	ø45 / P=16 / 16 / 12													
<b>Position accuracy</b> ISO 230-2 / JIS in X/Y/Z (mm)	0.015 <sup>(1)</sup> / 0.008													
	0.008 <sup>(1)</sup> / 0.004 (Linear encoder)													
	0.008 <sup>(1)</sup> / 0.004 (Linear encoder)													
<b>Main spindle</b> Spindle model Spindle taper	40 Taper													
	ISO 40 or BT 40													
	ISO 40 or BT 40													
Max. spindle speed	9,000													
	12,000													
	15,000													
Spindle base speed	9,000													
	1,125													
	1,500													
Spindle output KW (S6-40%)	15													
	18.5													
	17 <sup>(2)</sup>													
Spindle output torque Nm (S6-40%)	127													
	96													
	144 <sup>(2)</sup>													
Spindle transmission	Coupling													
	Belt													
	Split													
Spindle diameter (mm)	ø70													
	ø70													
	ø70													
<b>Tool changer</b> Tool selection Magazine positions	Random													
	24													
	32													
Max. tool diameter (mm)	80 / (75)													
	125													
	280													
<w/o adjacent tool (mm)	7													
	7													
	7													
Max. tool length (mm)	4 (60Hz)													
	4 (60Hz)													
	4 (60Hz)													
Max. tool weight (kg)	4 (60Hz)													
	4 (60Hz)													
	4 (60Hz)													
CTC time - ISO 10791-9 (sec.)	4 (60Hz)													
	4 (60Hz)													
	4 (60Hz)													

#### Main spindle (SKF made)

Belt spindle - 9,000 min<sup>-1</sup> & 12,000 min<sup>-1</sup>  
 Split spindle - 15,000 min<sup>-1</sup> (HEIDENHAIN only)  
 Coupling spindle - 15,000 min<sup>-1</sup> (FANUC only)

(F) : FANUC - 01 M-C (For E type)  
 - 18i M-B (For P type)  
 (T) : HEIDENHAIN - iTNC 530 (For P type)

#### Control

● = Standard ○ = Option × = N / A ⊙ = Option but recommended

Technical Data	MV 154 E / MV 154 EL				MV 154 P / MV 154 PL				Standard / Option					
	Economic		Performance		Economic		Performance		E		P			
	9	12	9	12	9	12	9	12	9	12	9	12	9	12
<b>Coolant system</b> Coolant tank capacity (Liter)	400													
	60 L / min., 2 bar													
	25 L / min., 8 bar													
Pump capacity - Nozzle coolant - Through spindle coolant - Wash down	60 L / min., 2 bar													
	2,935 (F)													
	2,830 (T)													
<b>Machine size</b> Height (mm) Floor space W x D (mm) Weight (kg)	2,750													
	2,200 x 2,360 / 2,535 x 2,465													
	6,400 / 6,850													
<b>Connections</b> Main power Power consumption (KVA)	400V / 50 HZ													
	20													
	25													

#### Standard / Option accessories:

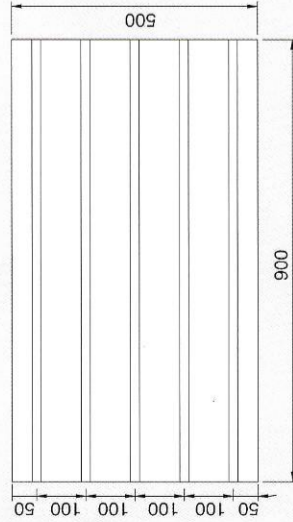
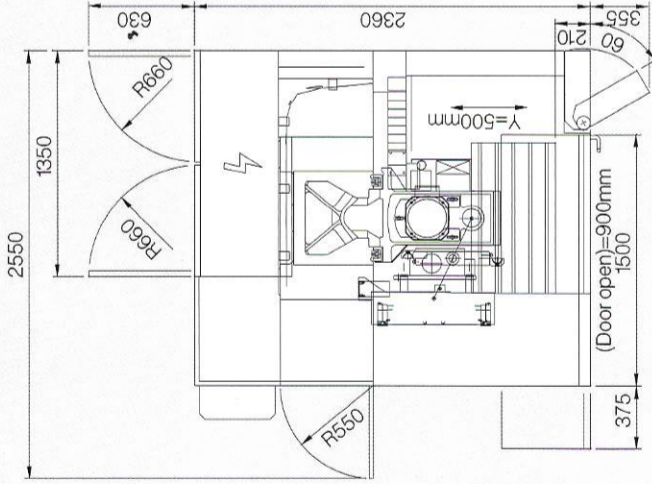
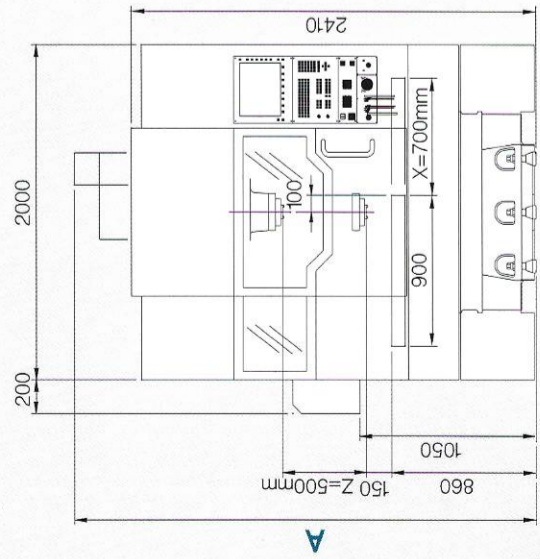
- FANUC 01M-C
- FANUC 18iM-B
- FANUC 3 "O" package (RISC, Data Servo, AI nano HPCC)
- HEIDENHAIN iTNC530
- HEIDENHAIN Option2

Standard / Option	MV 154 / MV 154 L			
	E		P	
	9	12	9	12
ECO cooling system	●	●	●	●
Spindle oil chiller (6,000 Kcal)	○	○	○	○
24 position tool magazine	○	○	○	○
32 position tool magazine	○	○	○	○
HSK 63A tooling system	○	○	○	○
4 <sup>th</sup> axis preparation	○	○	○	○
ø200 mm rotary table & tail stock	○	○	○	○
Linear encoder absolute 0.1 µm	○	○	○	○
Spindle nose thermal compensation package (Z direction < 15 µm) <sup>(3)</sup>	○	○	○	○
Tool length / breakage measurement	○	○	○	○
Coolant system	●	●	●	●
8 bar through spindle coolant	●	●	●	●
20 bar through spindle coolant	○	○	○	○
Coolant wash down & wash gun	○	○	○	○
Chip conveyor	○	○	○	○
Stainless steel chip pan	○	○	○	○
Mist collector	○	○	○	○
Dual work light	○	○	○	○
Machine status light	○	○	○	○
CE & EMC	○	○	○	○

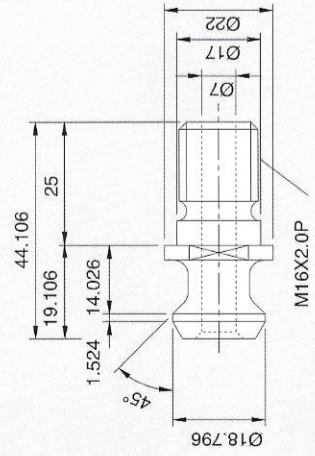
Note: (1) : Feed at 3m/min.  
 (2) : AT S6-25%  
 (3) : Package cover following items : Spindle oil chiller, Z axis linear scale & QUASER's software.

MV154E & MV154P

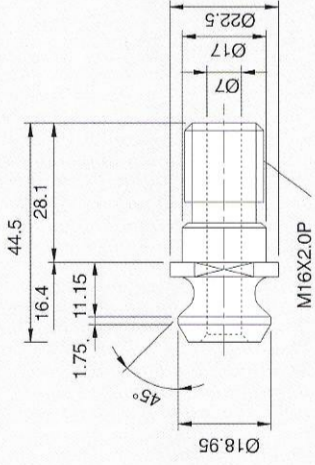
A	9 / 12	2,750
	15 (F)	2,935
	15 (T)	2,830



BT 40 (QUASER SUPPLY)



ISO 40



MV154EL & MV154PL

A	9 / 12	2,750
	15 (F)	2,935
	15 (T)	2,830

