QUASER
we cut faster

MV154 SERIES


QUASER
MV154P
12,000 min

MV154 SERIES

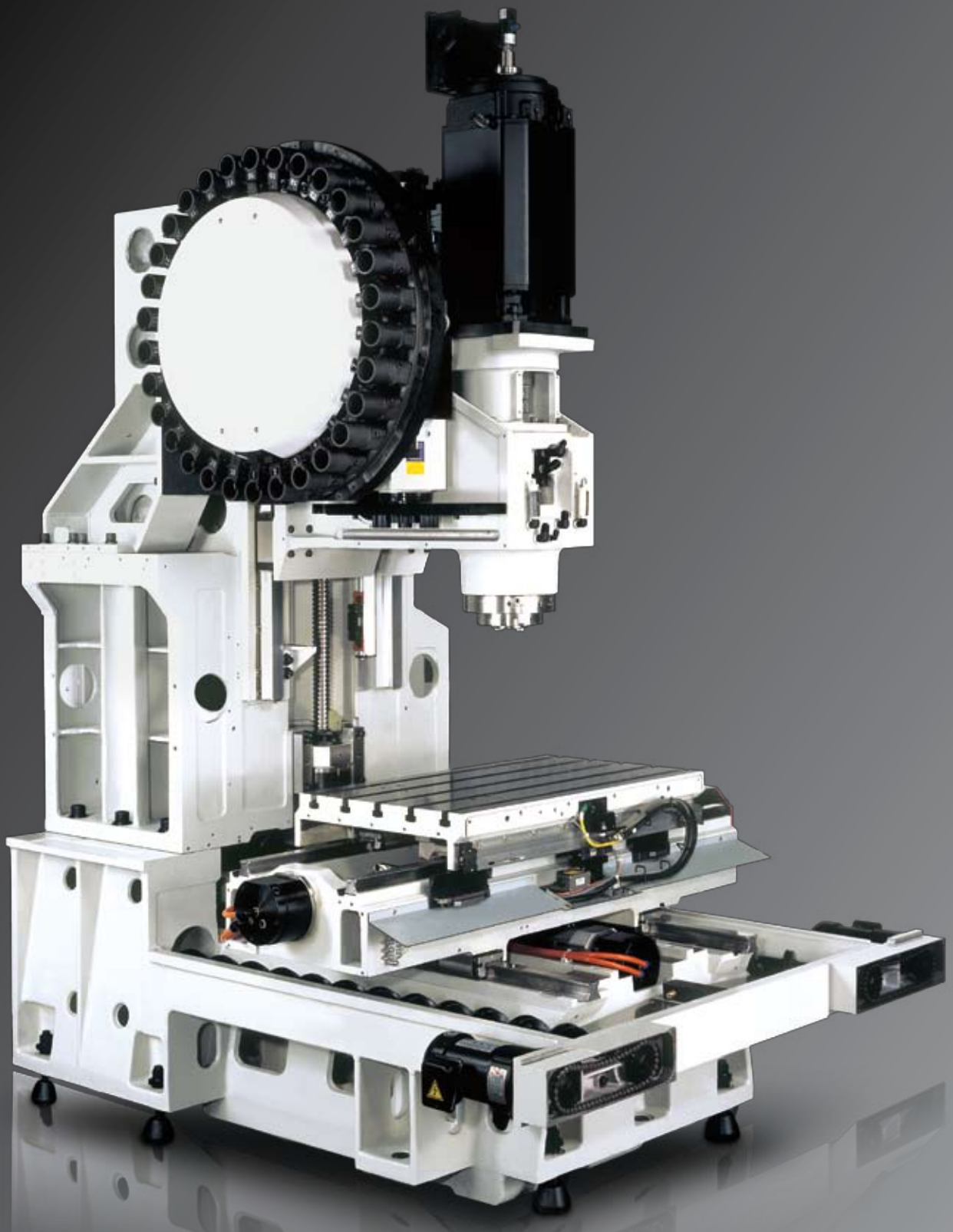
MV154 series (Version 1) is our most popular VMC - more than 1,500 units installed all over the world during 2004-2007.

Now, we come out version 2 with the new features while still keep all the virtues of version 1.

Highest rigidity frame in this class:

Static rigidity > 50 N/µm

(Competitors at 20 – 30 N/µm)



Economic: MV154E & MV154EL

Performance: MV154P & MV154PL

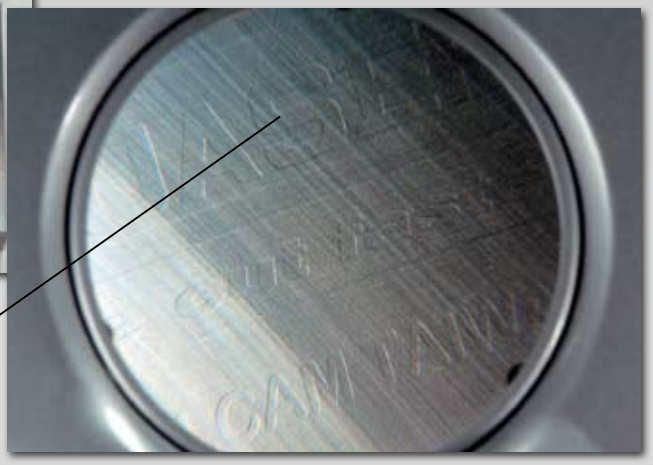
Mold & Die High Speed Cutting:

MV154M & MV154LM

We calibrate the ball screws alignment within 1 μm

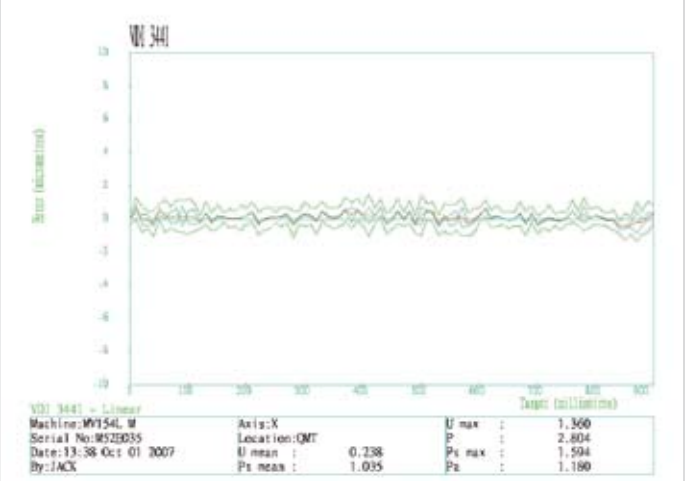
We hand scrape the linear way contact surfaces to achieve the highest mounting accuracies

Results

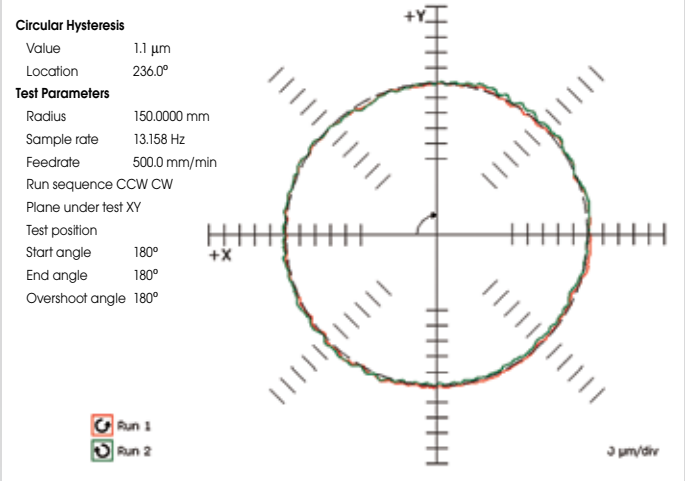


Text island, height 2 μm

Positioning accuracy=1.180 μm VDI 3441



Feed rate: 500 mm / min, Value: 1.1μm

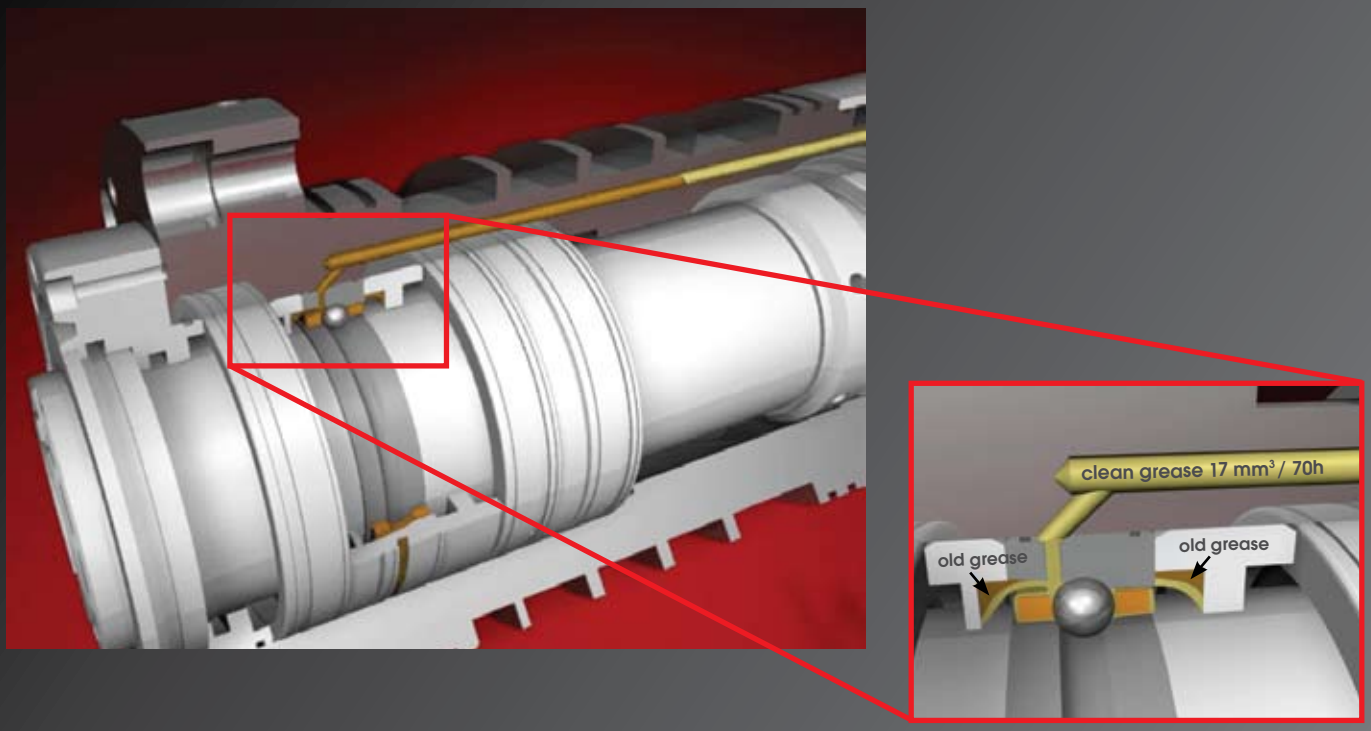


Note: The measuring results indicated in this catalog are provided as an example by random selection.

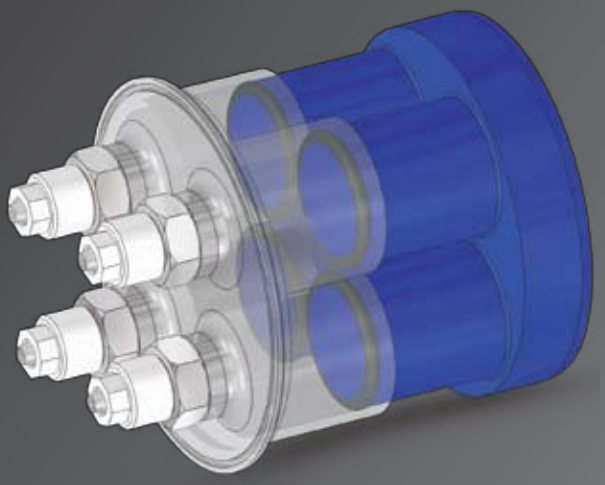
Unique spindle technology

Key principle

Use car industry re-greasing principle
to supply “clean grease” at 70 hr interval by 17mm³ / shoot.



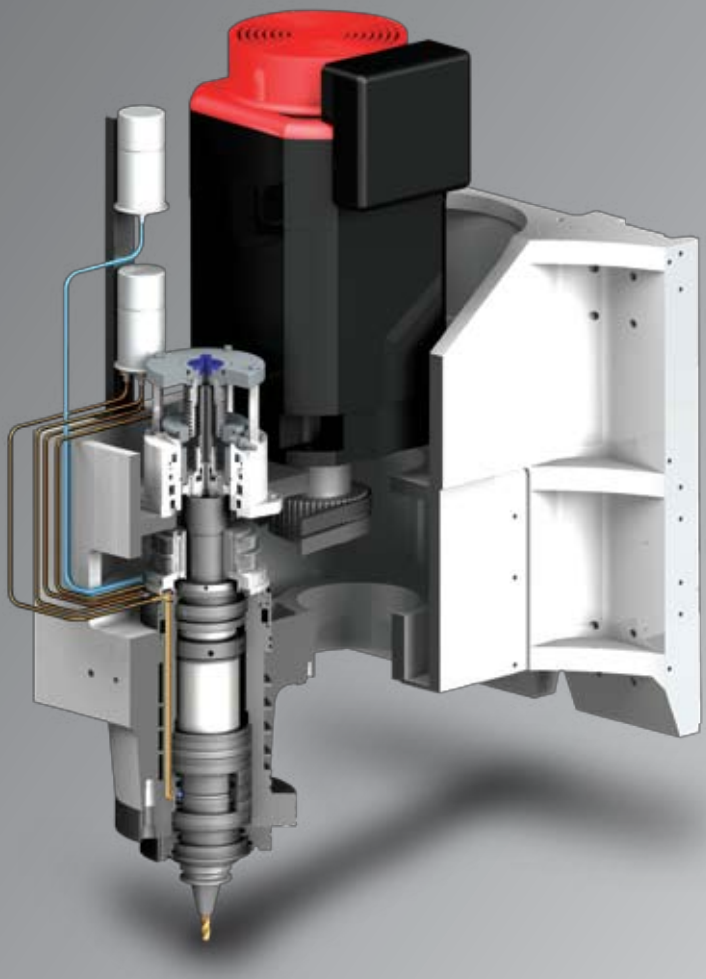
The grease chamber volume at 7.5 cm³ can support 28,840 hr.
This LUBCON unit service life at 3 years as minimum is guaranteed.



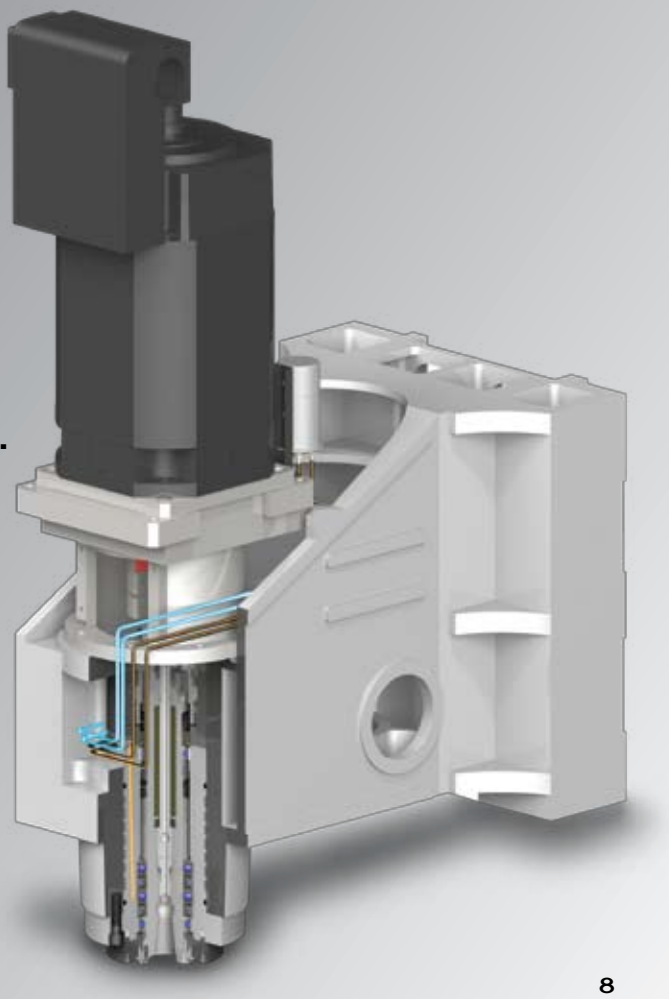
Wide range selections

40 Taper

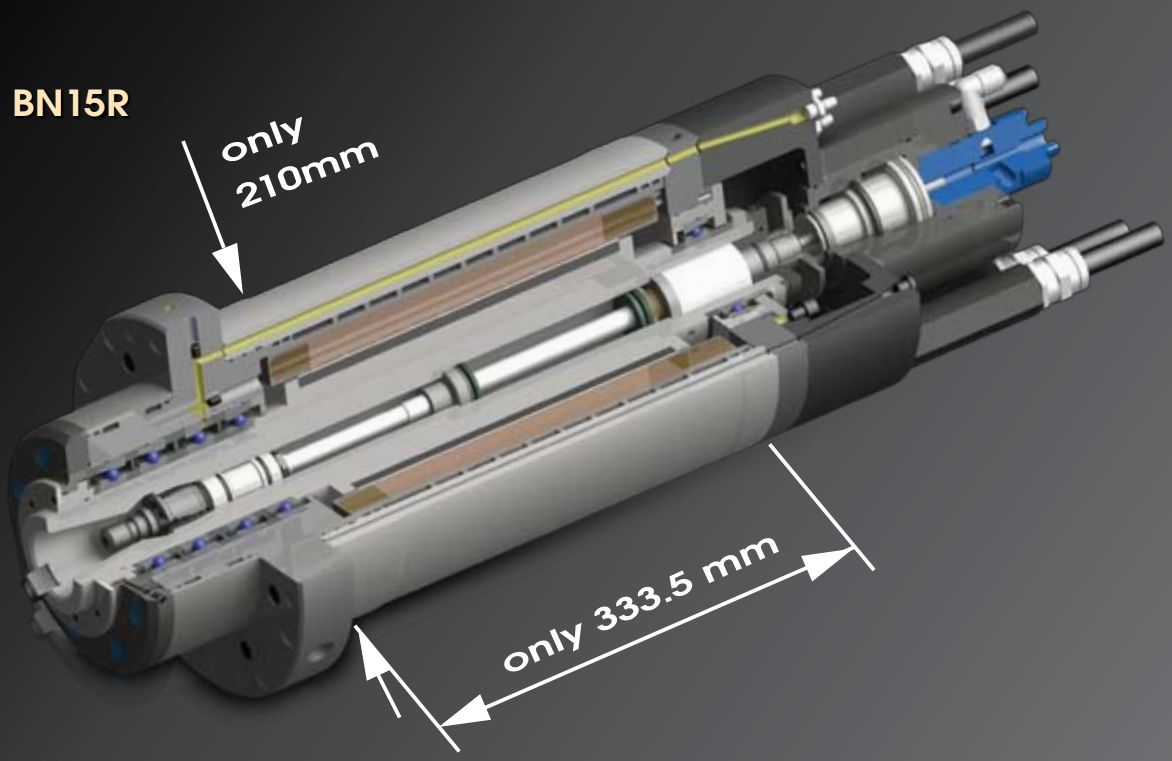
1) Reliable belt driving spindle
   Type WB40R
   – the best (may be also the first) in the world.
   – 15,000 min^{-1}, vibration $\leqq$ 1.5 μm with low noise level plus very low maintenance cost.
   – 4 Hybrid angular bearing plus one roller bearing in rear.

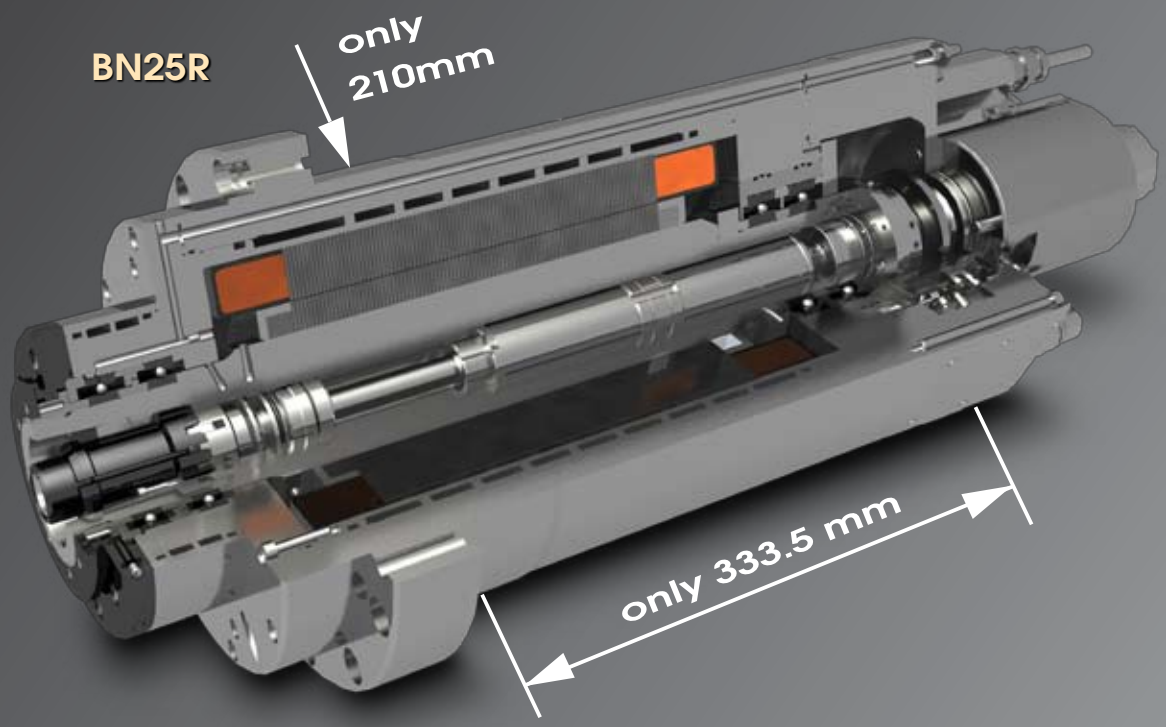


2) Performance coupling spindle
   Type NC40R
   – highest rigidity 15,000 min^{-1} spindle.
   – Roller bearing in the front & rear.



3) State-of-art motor spindles



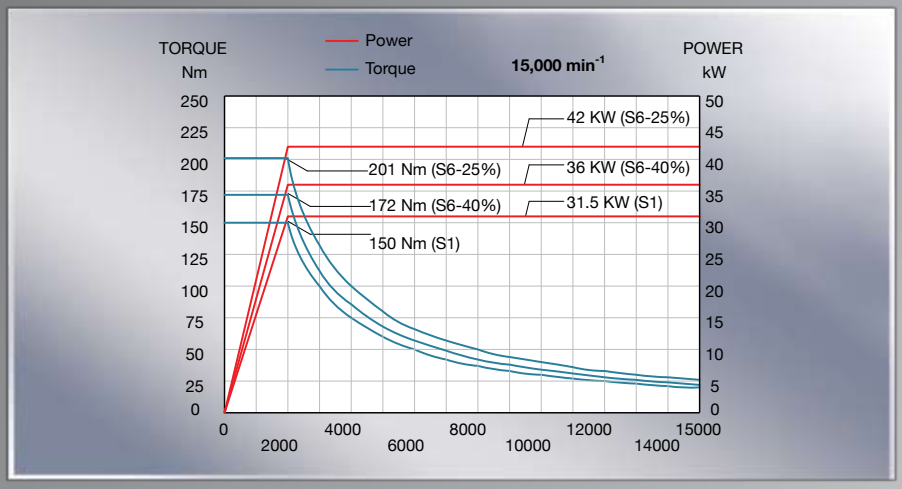


Type BN15R – THE BEST MOTOR SPINDLE IN THIS CLASS.
15,000 min^{-1}, 42 kw, 201 Nm
Vibration displacement ≦ 0.7 μm

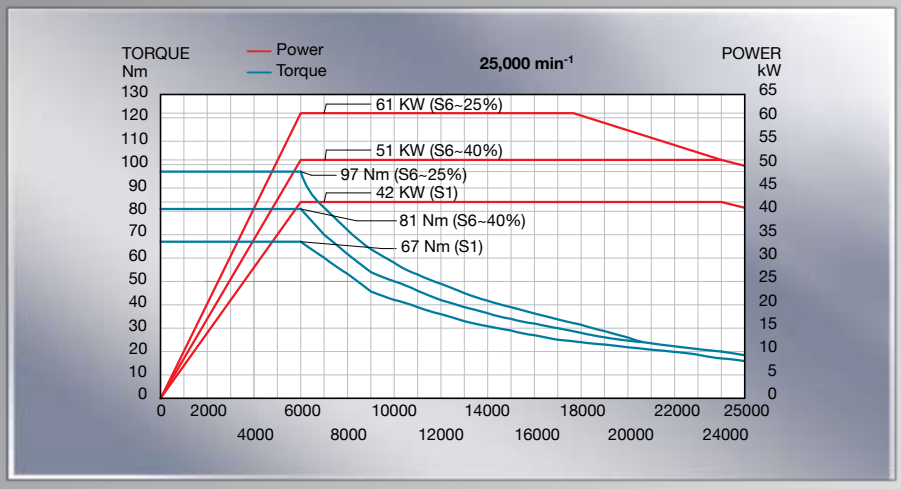
a) Use most advanced synchronous motor technology
- **30% higher torque & power to the same size asynchronous motor.**
- **Very high first natural frequency, supplying excellent kinematics and achieve ≦ 0.7 μm vibration displacement at high speed.**

b) Four Ø70 mm angular contact hybrid ball bearings under fixed preload:
- **Higher rigidity.**
- **Less thermal expansion.**

Compared with competitors spring preload spindles.



Type BN25R – THE BEST MOTOR SPINDLE IN THIS CLASS.
25,000 min^{-1}, 61 kw, 97 Nm with popular HSK A63.
Vibration displacement ≦ 1.0 μm.



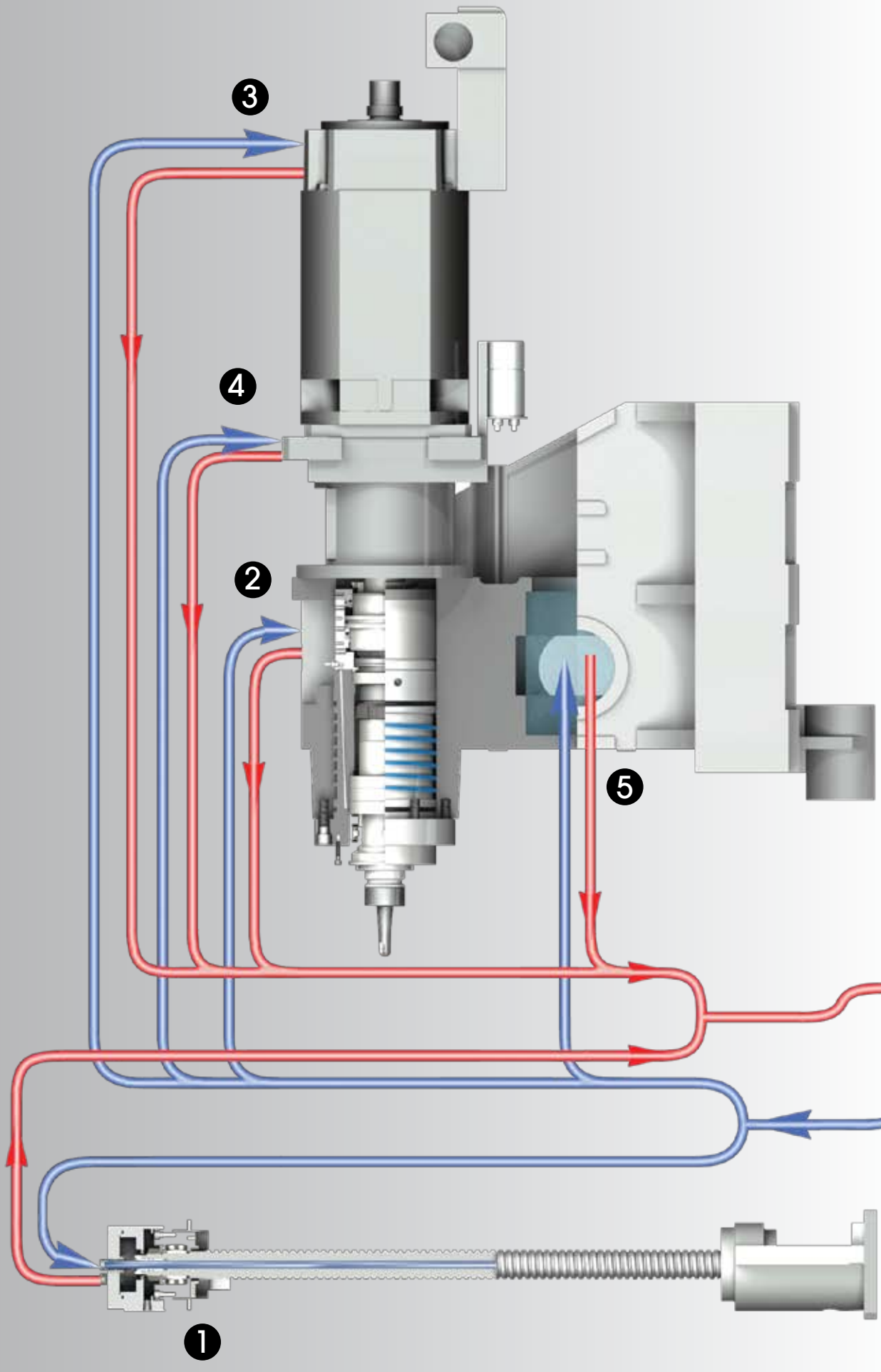
MODEL MV154M

Heavy duty

Plunge milling: Ø35 mm
Workpiece: S45C
S= 1,400 min^{-1}
F= 700 mm/min
t= 1 mm

High speed

Fine drilling: Ø0.3 mm
Workpiece: S45C
S= 15,000 min^{-1}
F= 50 mm/min
depth= 2 mm


3
4
2
5
1

Thermal management

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

❶ **Coolant through ball screw (CTB) to keep**
a) Under ± 10 μm repeatability on X, Y & Z
b) Stable rigidity on ball screw system

❷ **Spindle cooling circuit**

❸ **Motor cooling circuit (for coupling spindle)**

❹ **Motor housing cooling circuit (for coupling spindle)**

❺ **Head stock cooling chamber (for coupling spindle & motor spindle)**

❻ **Large capacity oil cooler**

❻

● = Standard ○ = Option × = N / A

	Belt spindle			Coupling	Motor spindle	
	9	12	15	15	15	25
❶	○	○	○	○	○	○
❷	●	●	●	●	●	●
❸	×	×	×	●	●	●
❹	×	×	×	●	×	×
❺	×	×	×	●	●	●
❻	○	○	●	●	●	●

60ATC

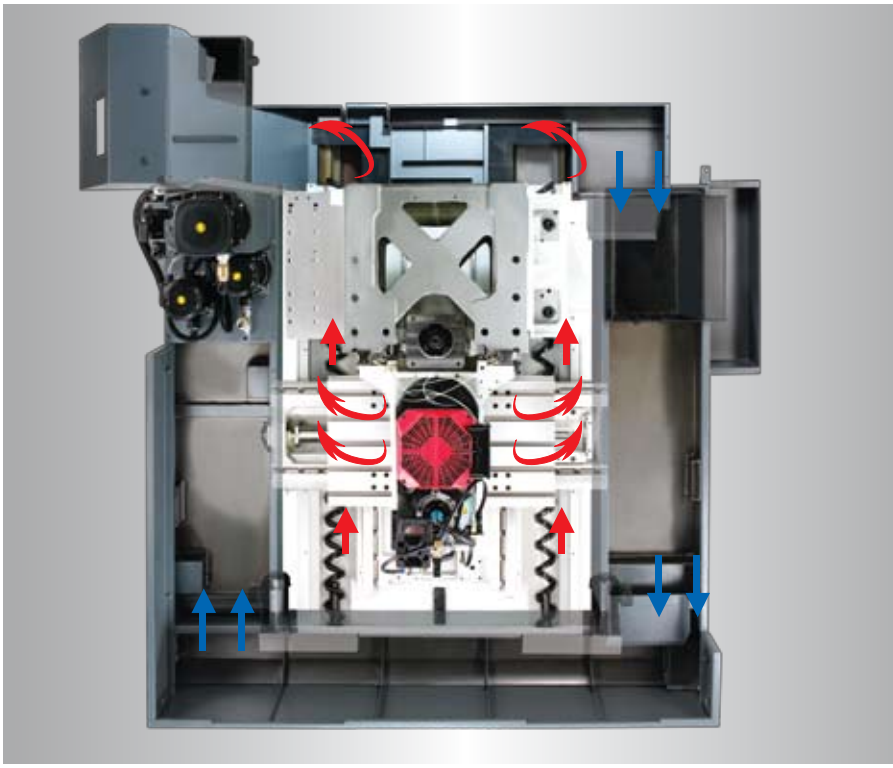
48ATC

30ATC

Chip to chip time: 4 sec

Better chip flow by augers direct to the rear

Scraper or hinge type chip conveyor



Large volume wash down coolant


BIG-PLUS
mit
WEISS
SPINDEL
WARNING
WARNING
B


A Swiveling operator panel
B Single door design open at 900 mm (1,200 mm on L)
C Spindle to front at a convenient 755 mm (805 mm on L)
D Table to front-easy access 170 mm (220 mm on L)
15,000 min-1
version 2
A
C
D
version 2
15,000

Technical data

Technical Data			MV154E / MV154EL Economic			MV154P / MV154PL Performance						MV154M / MV154LM Mold & Die		
			/9B	/12B	/15B	/9B	/12B	/15B	15C	/15M	25M	15C	/15M	25M
Work range														
Table size (mm)			900 x 500 / 1,200 x 500									900 x 500 / 1,200 x 500		
Travel	X (mm)		700 / 1,020									700 / 900		
	Y (mm)		530									500		
	Z (mm)		560									560		
Table load capacity (kg)			500									500		
Feed drive														
Feed force	X (N)		4,712			4,712 (F) / 6,951 (T)						17,279 (F) / 16,965 (T)		
	Y (N)		4,712			4,712 (F) / 6,951 (T)						17,279 (F) / 20,499 (T)		
	Z (N)		11,519			11,519 (F) / 11,310 (T)						23,562 (F) / 20,499 (T)		
Rapid movement X/Y/Z (m/min.)			40 / 40 / 36			40 / 40 / 36						24		
Acceleration X/Y/Z (m/s^2)		F	7 / 6 / 5			7 / 6 / 5						10 / 10 / 8.5		
		T	-			6 / 5 / 5								
Dia. & pitch of the ball screw			Ø45 / P =16 / 16 / 12									Ø45 / P =8 / 8 / 8		
Position accuracy												0.003 / 0.002		
ISO 230-2 / JIS in X/Y/Z (mm)			0.015[1] / 0.008									0.005 / 0.003		
			0.008[1] / 0.004 (Linear encoder)									(Linear encoder)		
Main spindle														
Spindle model			40 Taper											
Spindle taper			BBT40						BBT40 HSK A63	BBT40	HSK A63	BBT40 HSK A63	BBT40	HSK A63
Max. spindle speed			9,000	12,000	15,000	9,000	12,000	15,000	15,000	15,000	25,000	15,000	15,000	25,000
Spindle base speed		F	938[2]	1,250[2]	1,563[2]	1,125	1,500	1,875	1,400	-	-	1,400	-	-
		T	-						1,500	2,000	5,880	1,500	2,000	5,880
Spindle output KW (S6-40%)		F	15			22[2]			22	-	-	22	-	-
		T	-			25			25	36/42[3]	51/61[3]	25	36/42[3]	51/61[3]
Spindle output torque Nm (S6-40%)		F	153[2]	115[2]	92[2]	187[2]	140[2]	112[2]	150	-	-	150	-	-
		T	-			212	159	127	159	172/201[3]	81/97[3]	159	172/201[3]	81/97[3]
Spindle transmission		F	Belt			Belt			Coupling	-		Coupling	-	
		T	-							Motor spindle			Motor spindle	
Spindle diameter (mm)			Ø70								Ø65	Ø70		Ø65
Tool changer														
Tool selection			Random											
Magazine positions			30											
			48 / 60											
Max. tool diameter (mm)			76.2											
Max. tool dia. due to neighbor pots are empty			125								75	125		75
Max. tool length (mm)			280								200	280		200
Max. tool weight (kg)			7								4.5	7		4.5
CTC time-ISO 10791-9 (sec.) - 60Hz			5			4					8	4		8

Note: [1] Feed at 3 m/min
[2] (S3-25%)
[3] (S6-25%)

Main spindle

Belt spindle	- 9,000 min^{-1} & 12,000 min^{-1} & 15,000 min^{-1}
Coupling spindle	- 15,000 min^{-1}
Motor spindle	- 15,000 min^{-1} & 25,000 min^{-1}

Control

(F) : FANUC	- QUASER mill i	(For E type)
	- 18iM-B	(For P type)
	- 31iA	(For M type)
(T) : HEIDENHAIN	- iTNC530	(For P & M type)

Technical Data	MV154E / MV154EL Economic			MV154P / MV154PL Performance						MV154M / MV154LM Mold & Die		
	/9B	/12B	/15B	/9B	/12B	/15B	15C	/15M	/25M	15C	/15M	/25M
Coolant system												
Coolant tank capacity (Liter)	400											
Pump capacity												
- Nozzle coolant	60 L / min., 2 bar											
- Through spindle coolant	25 L / min., 8 bar									25 L/min., 20 bar		
- Wash down	60 L / min., 2 bar											
Machine size												
Height (mm)	2,880						2,985	2,955		2,985	2,955	
Floor space W x D (mm)	2,235 x 2,420 / 2,515 x 2,470											
Weight (kg)	6,400 / 6,850											
Connections												
Main power	200V / 60Hz, 400V / 50Hz											
Power consumption (KVA)	20			25			30	45	55	30	45	55

● = Standard ○ = Option ✕ = N / A

Standard / Option accessories:	MV154 / MV154L											
	E			P						M		
	/9B	/12B	/15B	/9B	/12B	/15B	15C	/15M	/25M	15C	/15M	/25M
■QUASER mill i	●	●	●	✕	✕	✕	✕	✕	✕	✕	✕	✕
■FANUC 18iM-B	✕	✕	✕	●	●	●	●	✕	✕	✕	✕	✕
■FANUC 31iA	✕	✕	✕	✕	✕	✕	✕	✕	✕	●	✕	✕
■FANUC 3 "O" package (RISC, Data Servo, AI nano HPCC)	✕	✕	✕	○	○	○	○	✕	✕	●	✕	✕
■HEIDENHAIN iTNC530	✕	✕	✕	●	●	●	●	●	●	●	●	●
■HEIDENHAIN Option2	✕	✕	✕	○	○	○	○	○	○	●	●	●
■Tooling - ISO40	○	○	○	○	○	○	○	○	✕	○	○	✕
- BT40	●	●	●	●	●	●	●	●	✕	●	●	✕
- DIN	○	○	○	○	○	○	○	○	✕	○	○	✕
- HSK A63	✕	✕	✕	✕	✕	✕	○	✕	●	○	✕	●
■ECO cooling system	●	●	✕	●	●	✕	✕	✕	✕	✕	✕	✕
■Spindle oil chiller	○	○	●	○	○	●	●	●	●	●	●	●
■30 position tool magazine	●	●	●	●	●	●	●	●	●	●	●	●
■48 / 60 position tool magazine	○	○	○	○	○	○	○	○	○	○	○	○
■4th axis preparation	●	●	●	●	●	●	●	●	●	●	●	●
■Ø250 mm rotary table & tail stock	○	○	○	○	○	○	○	○	○	○	○	○
■Linear encoder absolute 0.05 μm	○	○	○	○	○	○	○	○	○	●	●	●
■Spindle nose thermal compensation package (Z direction < 15 μm)*	✕	✕	✕	○	○	○	○	○	○	●	●	●
■Tool length / breakage measurement	○	○	○	○	○	○	○	○	○	○	○	○
■Coolant system	●	●	●	●	●	●	●	●	●	●	●	●
■8 bar through spindle coolant	●	●	●	●	●	●	●	●	●	✕	✕	✕
■20 bar through spindle coolant	○	○	○	○	○	○	○	○	○	●	●	●
■Coolant wash down & wash gun	●	●	●	●	●	●	●	●	●	●	●	●
■Chip conveyor Scrape type	●	●	●	●	●	●	●	●	●	●	●	●
■Chip conveyor Hinge type	○	○	○	○	○	○	○	○	○	○	○	○
■Stainless steel chip pan	●	●	●	●	●	●	●	●	●	●	●	●
■Mist collector	○	○	○	○	○	○	○	○	○	○	○	○
■Dual work light	●	●	●	●	●	●	●	●	●	●	●	●
■Machine status light	●	●	●	●	●	●	●	●	●	●	●	●
■CE & EMC	●	●	●	●	●	●	●	●	●	●	●	●

Note: * Package cover following items : spindle oil chiller, Z axis linear scale & QUASER's software.

MV154E & MV154P & MV154M

A	9B/12B/15B	2,880
	15C	2,985
	15M/25M	2,955
B	Scrape type	300
	Hinge type	587

Installation dimension

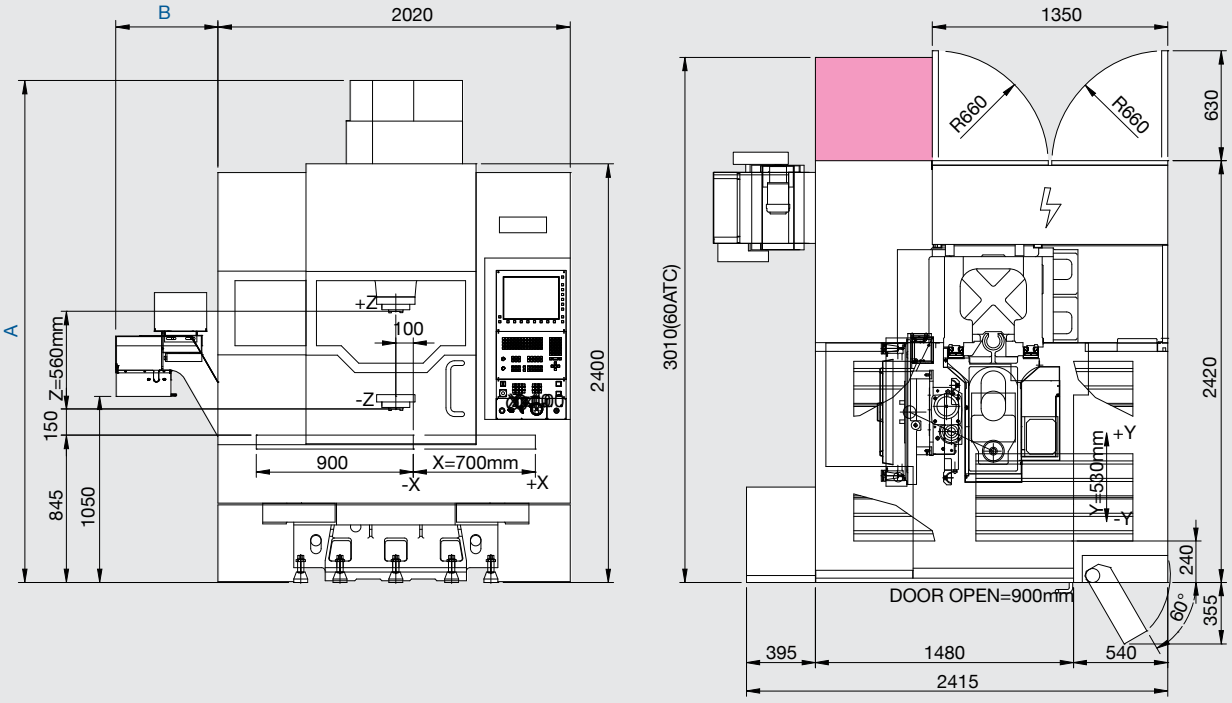
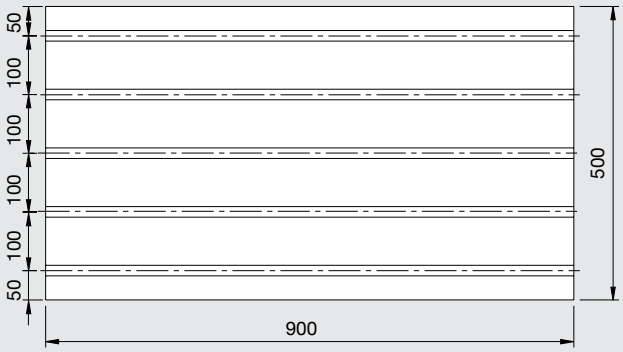
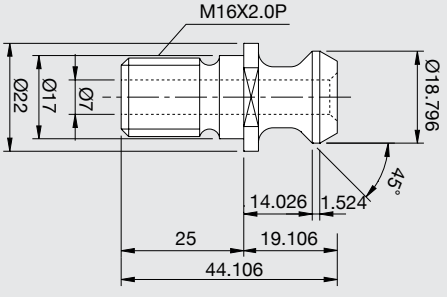


Table dimension

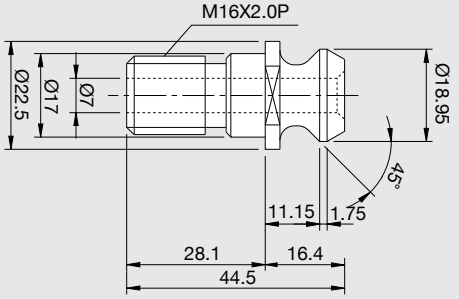


Pull stud and applicable tools

BT 40 (QUASER SUPPLY)

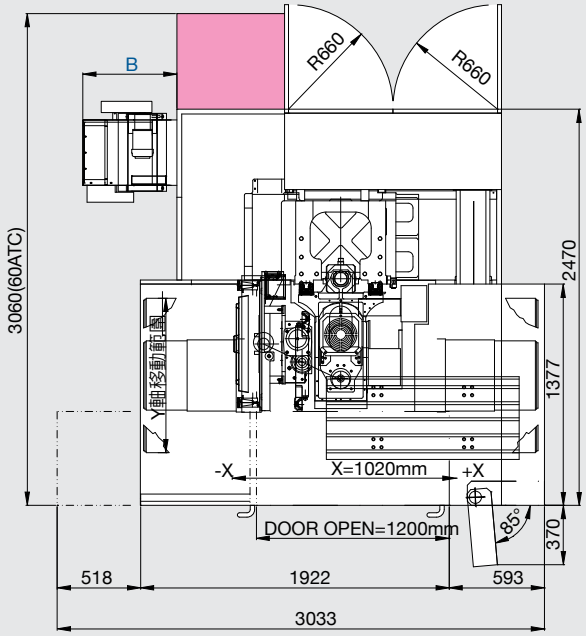


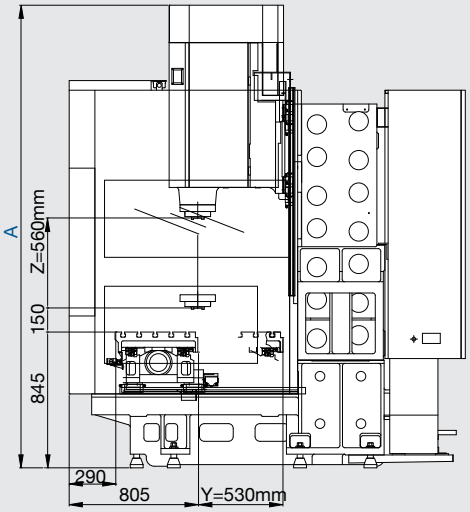
ISO (7388-B)

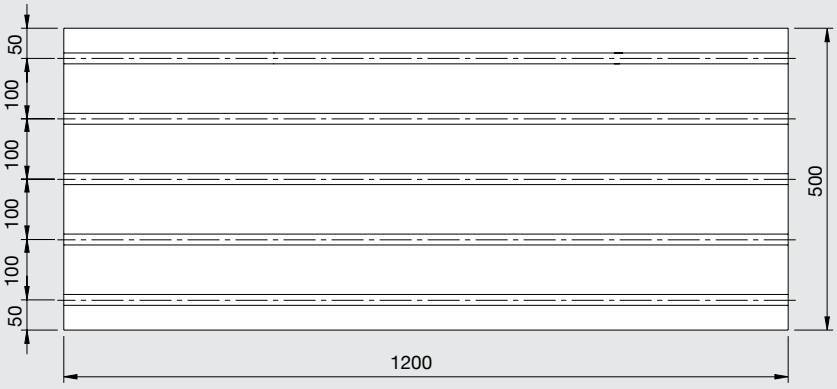


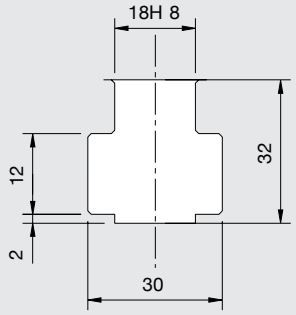
MV154EL & MV154PL & MV154LM

A	9B/12B/15B	2,880
	15C	2,985
	15M/25M	2,955
B	Scrape type	300
	Hinge type	587

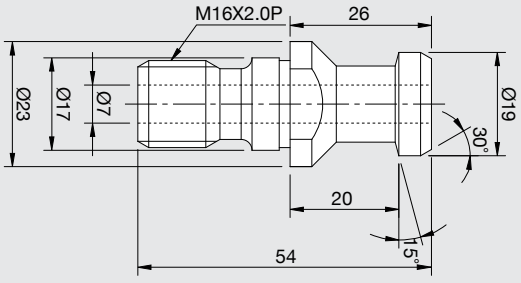


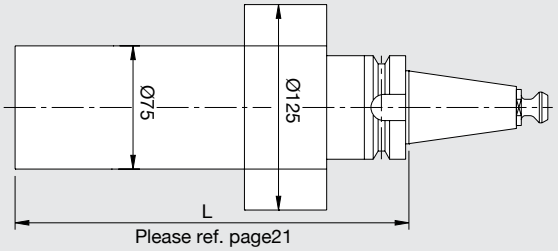






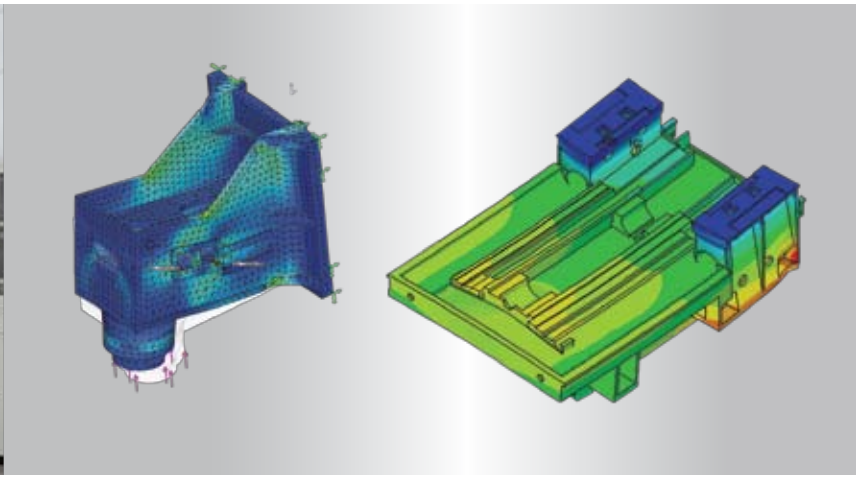
DIN (69872-A)

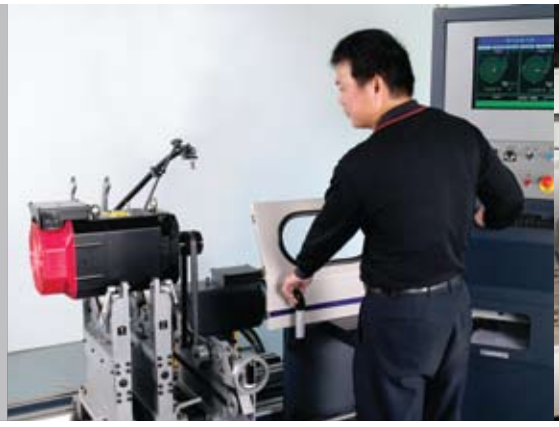




Please ref. page21

We build machines in a hybrid way -





very classic craftsmanship combined with most advanced modern equipments in a clean environment...

QUASER

we cut faster

www.quaser.com

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09081701/MaCiS, TEL: 04-24733326

MV154-08-2009