SPECIAL PURPOSE LARGE CNC LATHE

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LARGE CNC LATHE

- Large CNC Facing Lathe
- High Hardness Roller Turning CNC Lathe

LFS & LFM Series

L&L

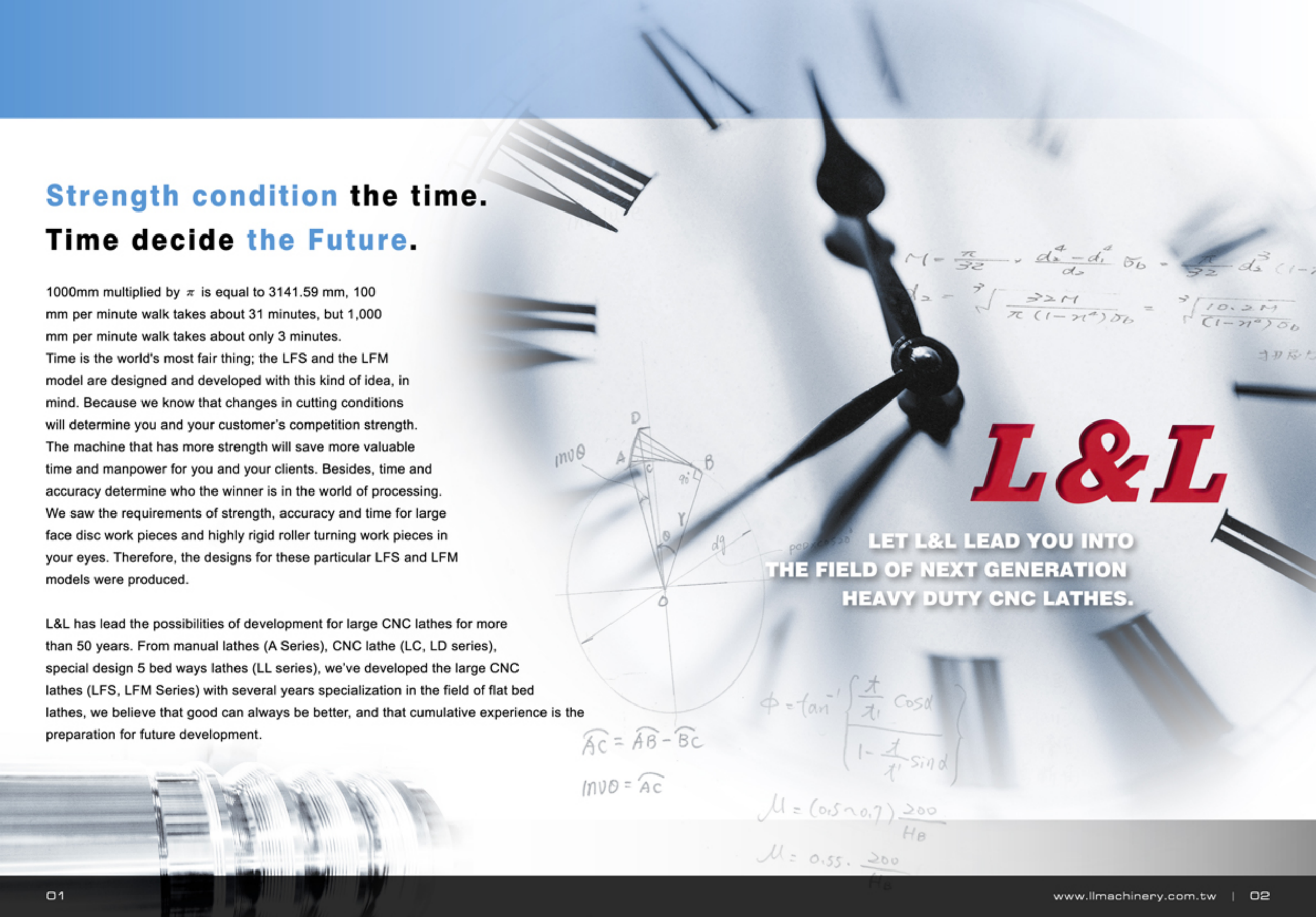
L&L Machinery Industry Co., Ltd.

Strength condition the time.

Time decide the Future.

1000mm multiplied by π is equal to 3141.59 mm, 100 mm per minute walk takes about 31 minutes, but 1,000 mm per minute walk takes about only 3 minutes.
Time is the world's most fair thing; the LFS and the LFM model are designed and developed with this kind of idea, in mind. Because we know that changes in cutting conditions will determine you and your customer's competition strength. The machine that has more strength will save more valuable time and manpower for you and your clients. Besides, time and accuracy determine who the winner is in the world of processing. We saw the requirements of strength, accuracy and time for large face disc work pieces and highly rigid roller turning work pieces in your eyes. Therefore, the designs for these particular LFS and LFM models were produced.

L&L has lead the possibilities of development for large CNC lathes for more than 50 years. From manual lathes (A Series), CNC lathe (LC, LD series), special design 5 bed ways lathes (LL series), we've developed the large CNC lathes (LFS, LFM Series) with several years specialization in the field of flat bed lathes, we believe that good can always be better, and that cumulative experience is the preparation for future development.



Special Purpose Large CNC Lathe

Let L&L's outstanding experience work for you

LFS SERIES

Large CNC Facing Lathe

Our LFS series lathes are specially developed for large-diameter and short giant plate workpieces. This model is the most suitable machine for these sorts of workpieces and the advantages of high efficiency and economy.

- Maximum Swing Over Bed: 1800mm
- Bed Width: 1160mm
- Spindle Bore: 200mm
- Between center: 2000mm

Special Purpose Large CNC Lathe

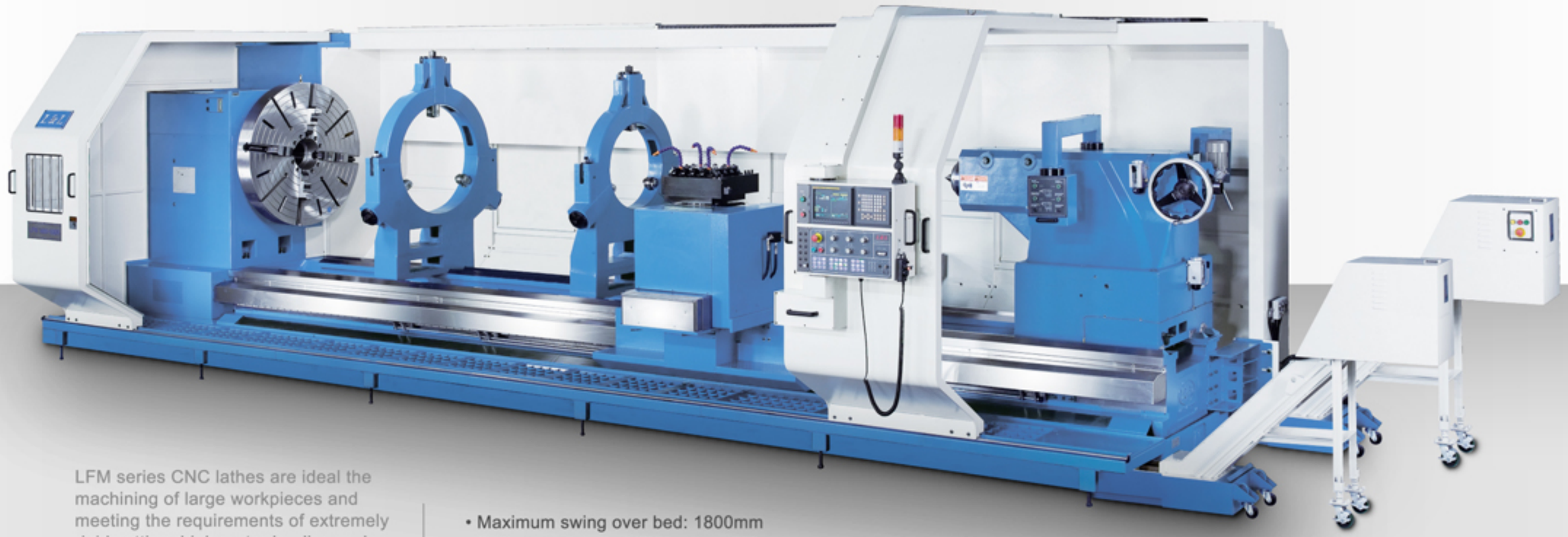
Let L&L's outstanding experience work for you

LFM SERIES

High Rigidity
Roller Turning CNC Lathe

LFM SERIES

High Rigidity
Roller Turning CNC Lathe



LFM series CNC lathes are ideal the machining of large workpieces and meeting the requirements of extremely rigid cutting, high motor loading and harsh machining.

- Maximum swing over bed: 1800mm
- Between centers: 3000mm - 10000mm
- Bed width: 1160mm
- Spindle bore: 200mm

Special Purpose *Large CNC Lathe*

Let L&L's outstanding experience work for you

Bed ►

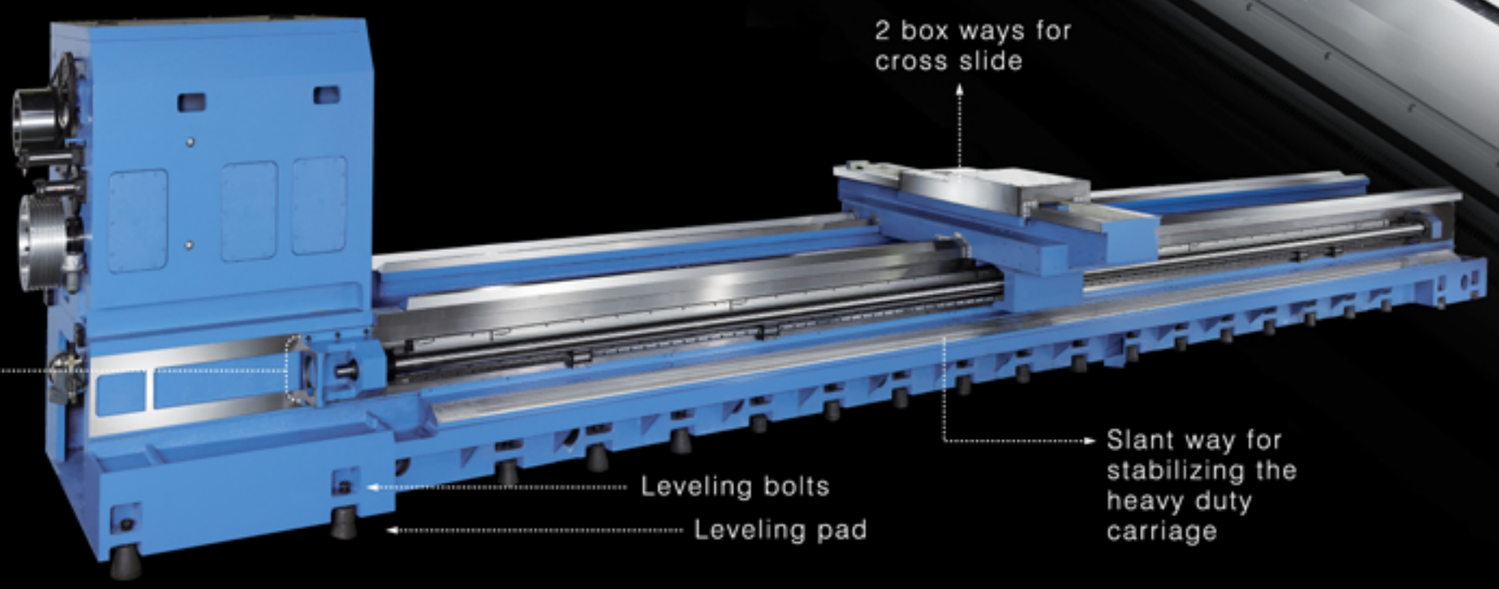
One piece Meehanite bed,
rigid with high accuracy

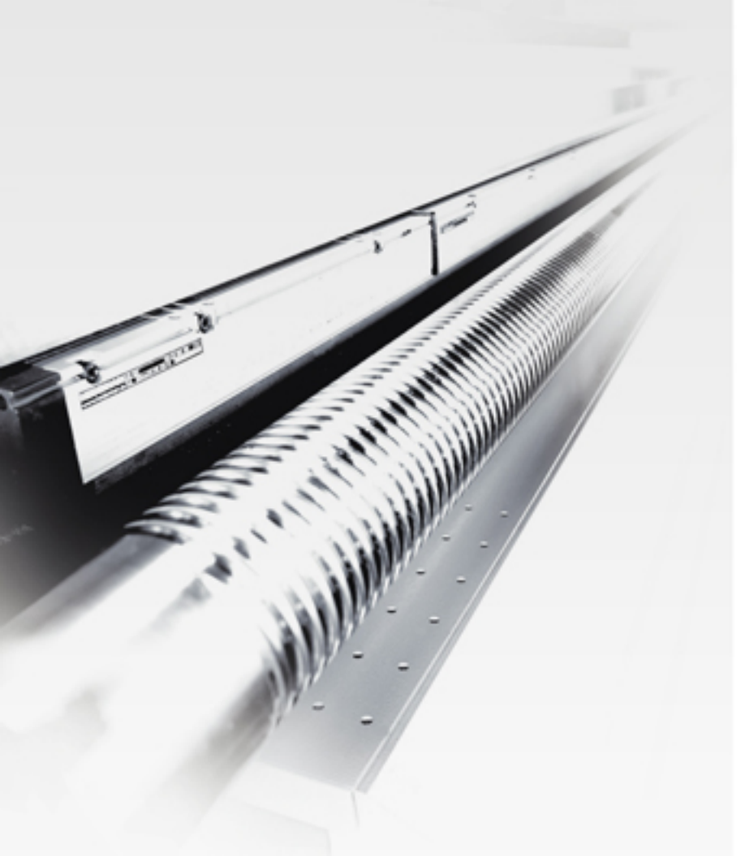
1160mm bed wide

3 V ways and
1 flat way for
carriage and
tailstock

◄

- Focuses on the machining features of large workpieces the bed uses the 30 and 60 degree corner design which is able to bear heavy loads, as well as keep axis straight.
- Uses Meehanite GB300, which is electric-melted, annealing treated, completely stress relieved and is one-piece constructed to ensure the best stability. Bed is of special hardened ribbed construction. Each ribbed flat is made by apertures and interlaced, making a strong cage construction. Suitable for use in long beds, eliminating distortion in casting and reducing the vibration during cutting.
- The bed has gone through CNC precise machining, bed way through annealing treatment and proper stress relief. After induction heating treatment and precisely ground to HRC50-55, laser inspection is performed to maintain linearity.



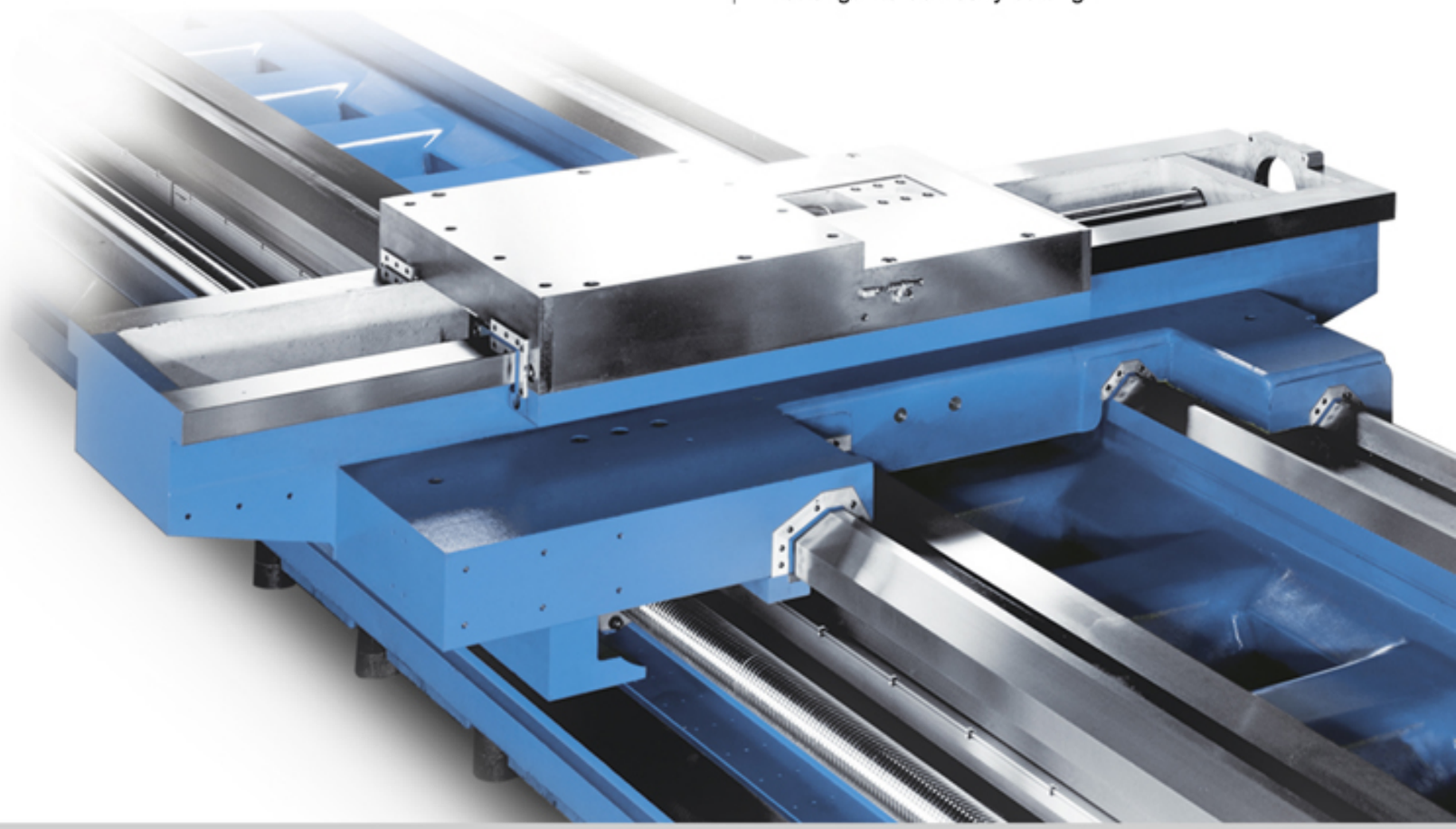


Carriage ▼

- The material of the carriage is the same as the bed adopting Meehanite cast-iron, GB300, and has been electric-smelted and stress relieved. Extra wide box way type cross slide and larger contact faces can distribute cutting completely and will avoid tool shaking effectively during high hardness cutting.
- The contact face with the bed is attached with extra-durable Turcite B wipers which reduce friction and prolong the durability of the bed.

Cross slide

The box type way for cross slide is given more strength to do heavy cutting.



▲ X and Z axis transmitting system

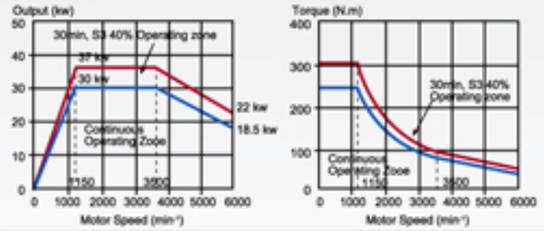
X axis and Z axis all use servo motors and transmit to the ballscrew through precision coupling to minimize backlash and make for excellent positioning accuracy.

the shape of power

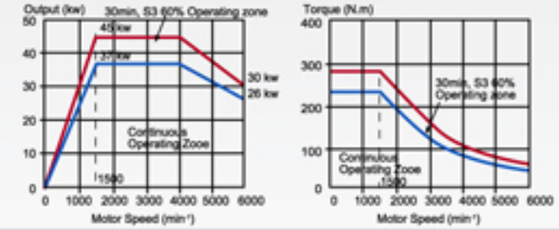
Spindle Motor Power Curves & Torque Charts

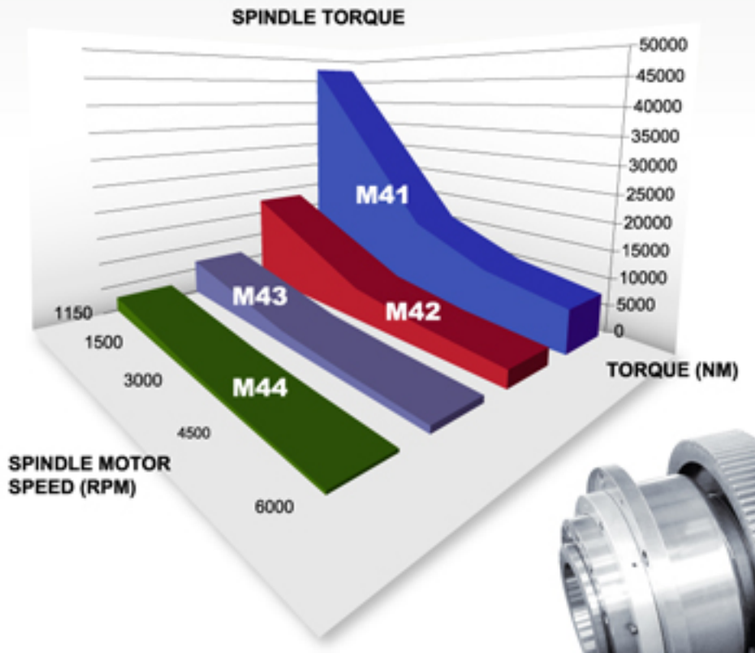
FANUC Spindle Motor

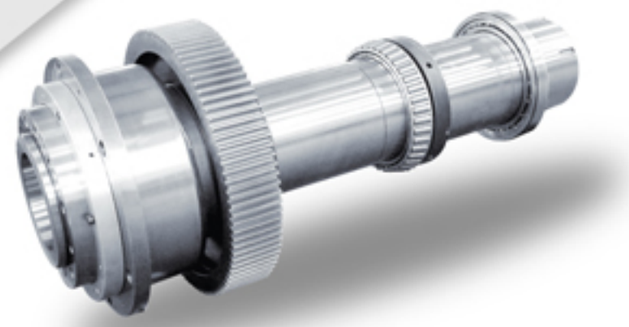
Model ?30/6000i



Model ?40/6000i



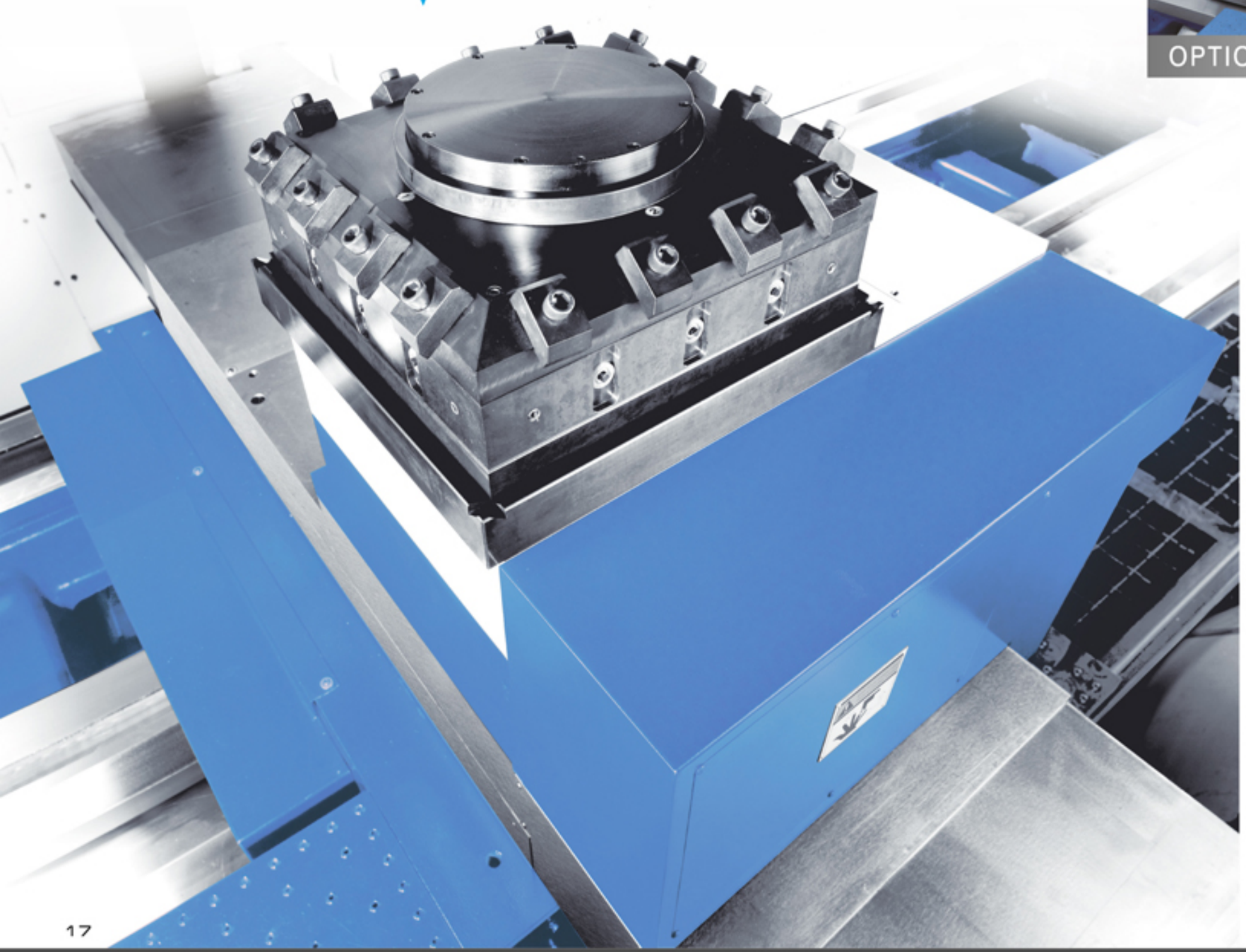




Headstock

- Especially ideal for heavy loading and heavy workpiece machining. Uses extra-long shaped headstock design, which increases the spindle strength. Equipped with a large 30/37 kW motor and extra-large gear transmission, provides excellent spindle performance and high torque output.
- Headstock is a strong cage structure, uses Meehanite cast-iron and is heated and annealing treated to ensure spindle concentricity and parallelism of bearings.
- Uses double taper roller bearings in the front, heavy loading taper bearing in the middle and big roller bearing in the rear, which are durable for heavy workpieces and are able to maintain high accuracy.
- Spindle disc brake shortens the time to stop heavy workpieces and increases efficiency and security.

Unbeatable cutting power



OPTION

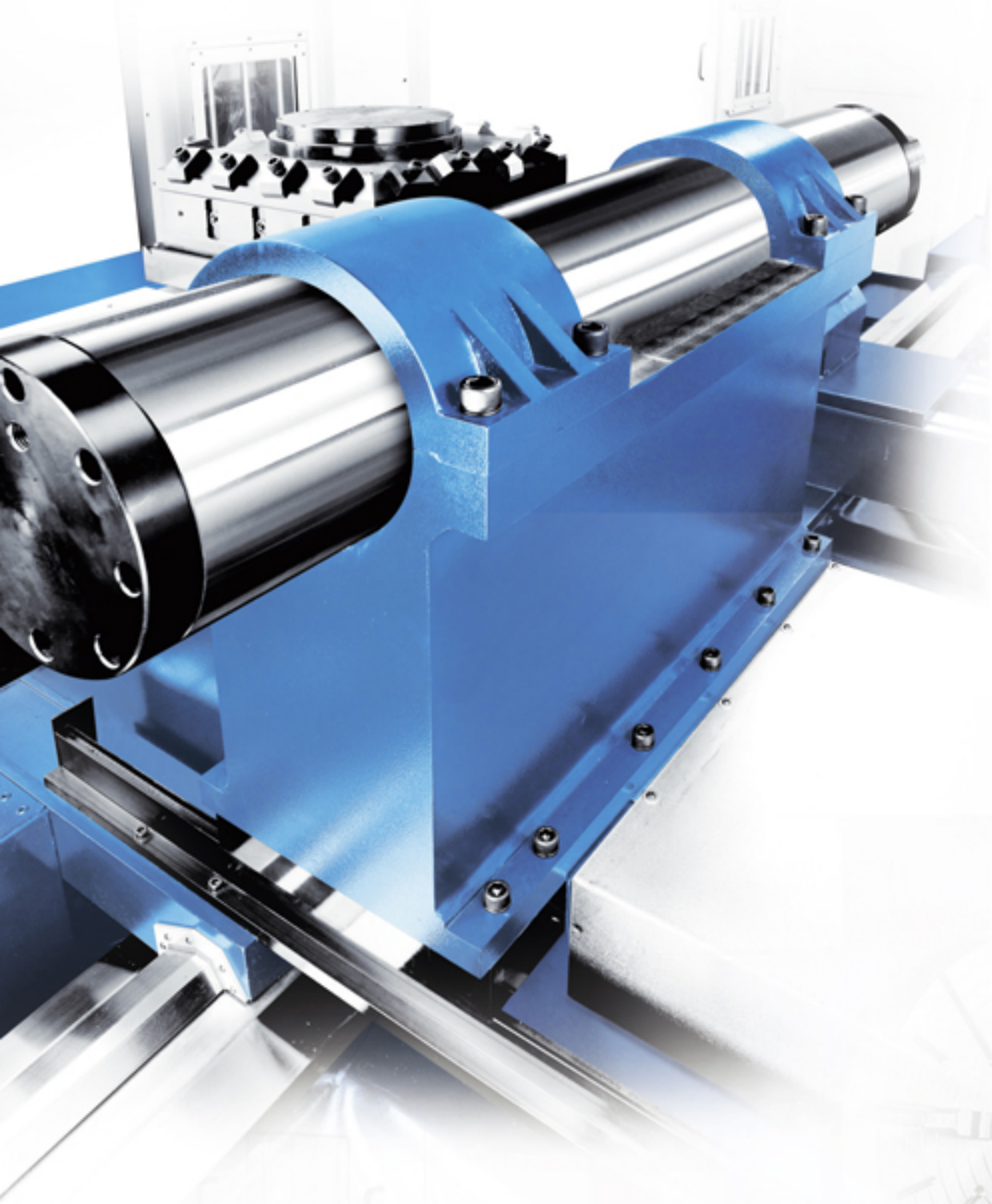
Turret

Equipped with horizontal 4 way auto-change H4-450 VDI servo turret and H4-450 servo turret for option. Large tools and clamping face is large as well, especially for heavy cutting. As for facing and internal cutting, it can be equipped with auxiliary tool holders to increase efficiency. High pressure and 4 coolant tubes to cool the tools and remove the chips rapidly. Tool changes are close, saving time.

Extraordinary support

Tailstock ◄

- Uses extra-rigid tailstock body and 250 mm. diameter giant quill. Provides excellent support and prevents tool vibration during heaving cutting.
- The quill is rotary in front of the inner quill, and the rear part uses taper roller bearings. The lubrication is forced to ensure grease enters the bearings.
- Equipped with a standard MT#6 center which moves with the workpiece and is suitable for high hardness cutting. Suitable for the steel industry, the aerospace and shipping industries.
- The tailstock quill uses SNCM445 materials has been micro-alloyed and high frequency heat treated to ensure the hardness and the strength of the quill.
- Equipped with loading sensor system to know exactly the support from the tailstock quill to the workpiece. The operator will be able to know the clamping force changes during machining from the oil gauge.
- Tailstock quill movement is driven by an electric gear reducer. When it is getting close to the workpiece, a leveler can be switched to the manual mode, moving the quill by hand wheel. Tailstock body movement is by electric gear reducer as well.
- Movable control panel. The position of the control panel can be moved based on the operator's needs.

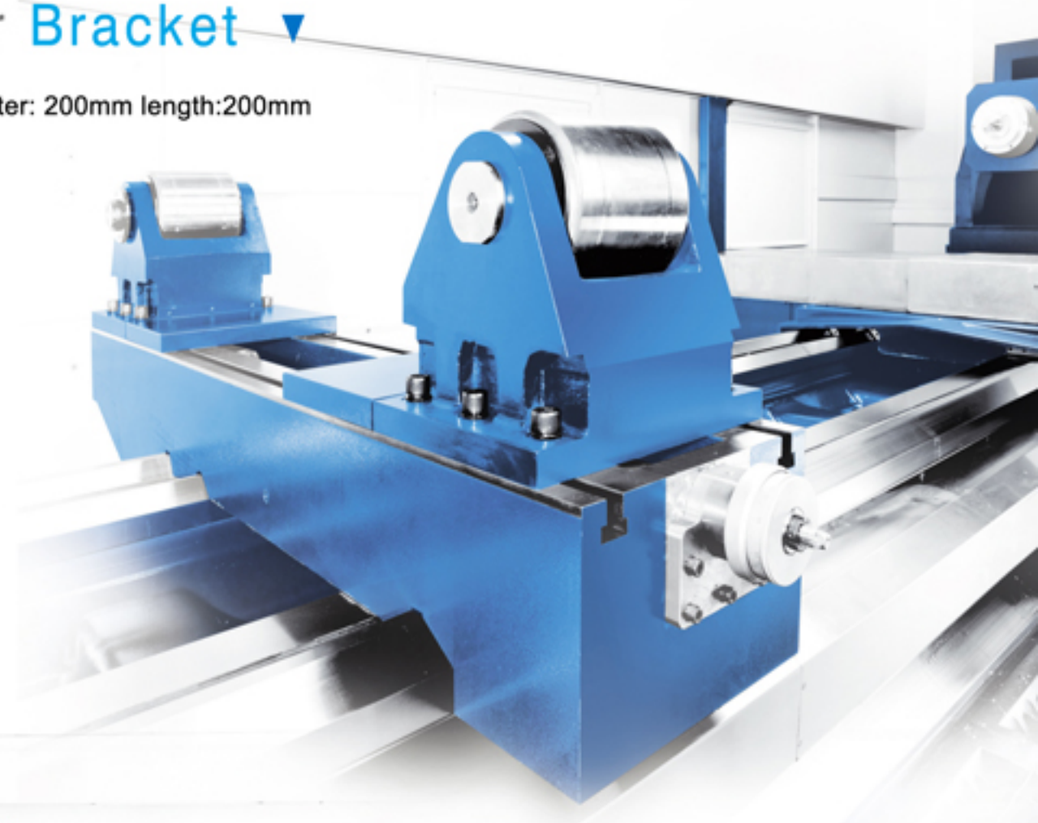


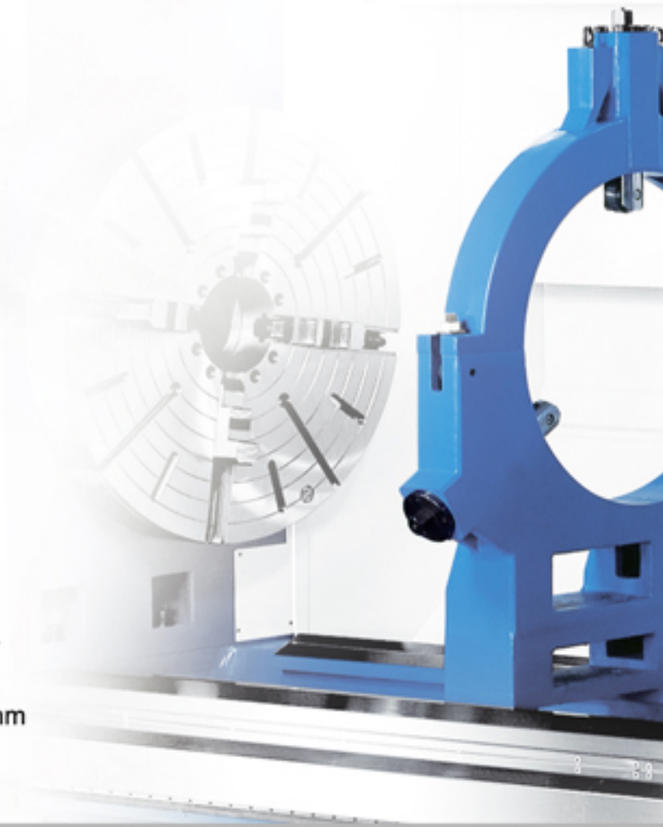
Heavy Duty Boring Attachment

- Including Boring bar support and diameter 153mm boring bar.
- Depending on client applications, 80-110mm is available as an option.

Roller Bracket

Roller diameter: 200mm length:200mm





Steady Rest

- Clamping capacity 300-550mm, 550-850mm and 850-1000mm.
- 105mm quill diameter with heavy loaded bearing.

Full line of high quality CNC lathes
to meet your turning challenges.

► Control

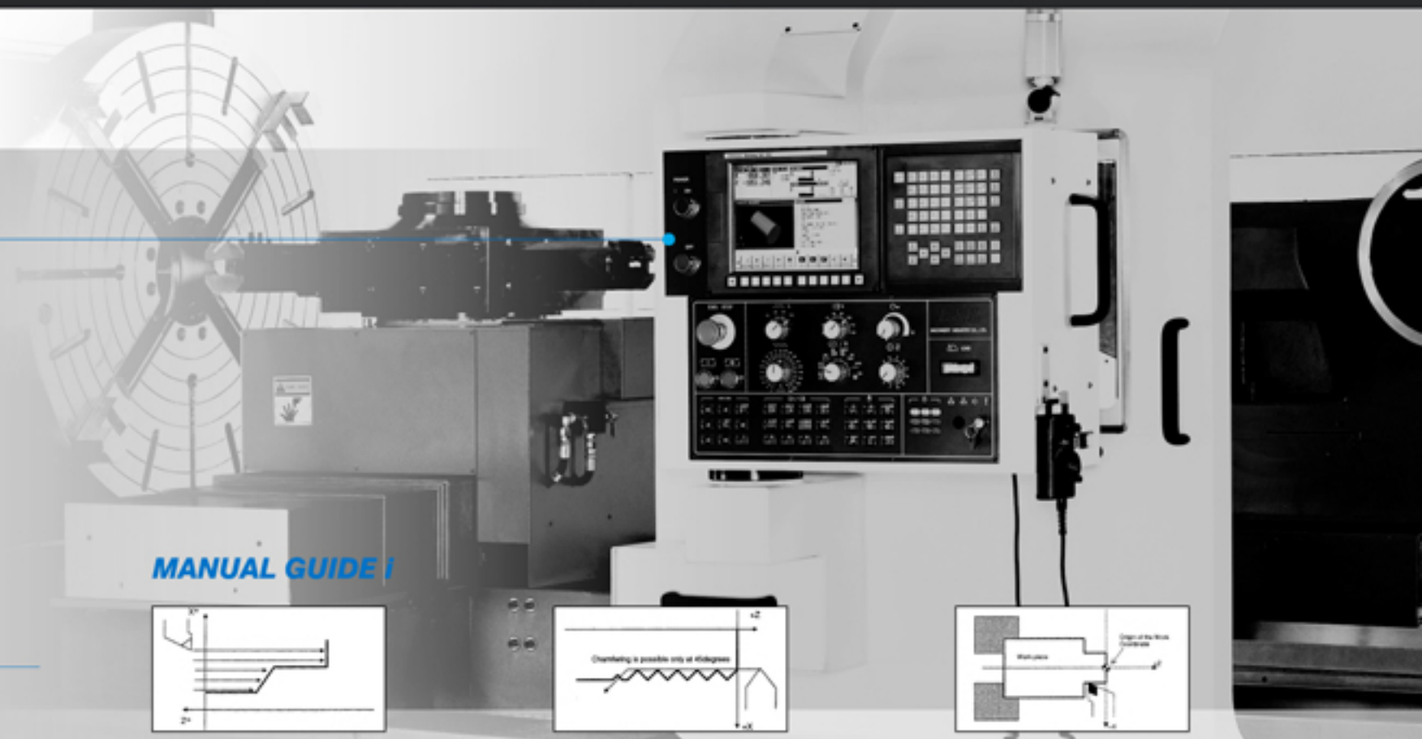
FANUC 0i-TD is the standard controller with a user-friendly panel. The controller is designed on the movable door which allows it to rotate 120 degrees and get closed to the work piece. It is very convenient for checking the tooling and observing the machining operations.

STD: FANUC Oi-TD ◄

- TFT-LCD color screen
- "Manual guide i" conversational system is optional
- Powerful built-in PMC
- Variety of display units
- User friendly operation
  - 3D dynamic graphic display
  - Help function
  - Alarm history / operation history
- Simple operation programming support tool
- Thread repair function

SIEMENS 828D ◄

- High-performance panel-based CNC control
- Robust panel front made of magnesium die-cast
- 10.4" color TFT display
- Maintenance-free design (no buffer battery required)
- 4-axes simultaneous interpolation(X,Y,Z rotary axis)
- 100 settable work piece zero offsets
- Built-in ISO code interpreter
- Wide range of turning cycles for standard geometries
- Graphic CNC simulation plane display
- All-in-one tool and magazine data
- Extension of CNC memory by user CF-card on panel front

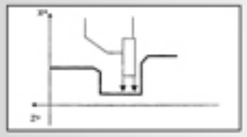


MANUAL GUIDE i

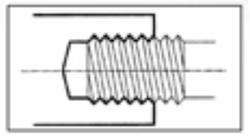
BAR MACHINING (ROUGHING):
Including general thread, metric thread, unified thread, PT thread and PE thread.

THREADING:
Including general thread, metric thread, unified thread, PT thread and PE thread.

X AREA CUTTING FUNCTION:
When the optional function "-X Area Cutting Function" is available, it is possible to select the cutting in +X area in the cycle motions excepting hole machining processes.



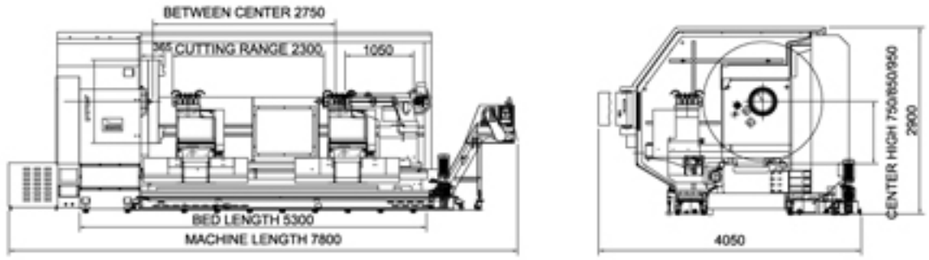
GROOVING:
Including outer, inner and face grooving.



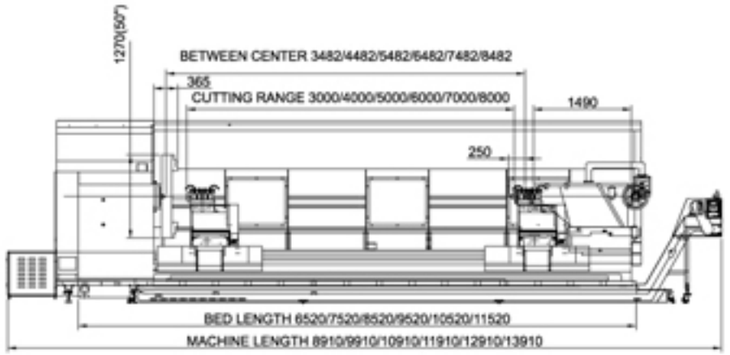
CANNED CYCLE FOR DRILLING:
Including center drilling, drilling, reaming, boring and tapping.

Dimensional Drawings

LFS series | LFS 1400 | LFS 1600 | LFS 1800



LFM series | LFM 1400 | LFM 1600 | LFM 1800



Machine Dimensions and Weight

LFM series		3000	4000	5000	6000
1400	LxWxH (in)	8910x4050x2900	9910x4050x2900	10910x4050x2900	11910x4050x2900
	N.W/G.W	23000/27000 kg	27000/31000 kg	31000/35000 kg	36000/41000 kg
1600	LxWxH (in)	8910x4050x2900	99100x4050x2900	10910x4050x2900	11910x4050x2900
	N.W/G.W	25000/28000 kg	29000/33000 kg	33000/38000 kg	39000/44000 kg
1800	LxWxH (in)	8910x4050x2900	9910x4050x2900	10910x4050x2900	11910x4050x2900
	N.W/G.W	27000/30000 kg	31000/37000 kg	35000/40000 kg	42000/47000 kg

LFS series		2000
1400	LxWxH	7800x4050x2900
	N.W/G.W	21000/24000 kg
1600	LxWxH	7800x4050x2900
	N.W/G.W	23000/26000 kg
1800	LxWxH	7800x4050x2900
	N.W/G.W	25000/28000 kg

LFM series		7000	8000	9000	10000
1400	LxWxH (in)	12910x4050x2900	13910x4050x2900	1491X4050X2900	1591X4050X2900
	N.W/G.W	39000/44000 kg	44000/48000 kg	49000/54000 kg	54000/59000 kg
1600	LxWxH (in)	12910x4050x2900	13910x4050x2900	14910X4050X2901	1591X4050X2901
	N.W/G.W	42000/47000 kg	46000/51000 kg	51000/56000 kg	56000/62000 kg
1800	LxWxH (in)	12910x4050x2900	13910x4050x2900	14910X4050X2901	1591X4050X2901
	N.W/G.W	45000/50000 kg	49000/54000 kg	53000/58000 kg	59000/64000 kg

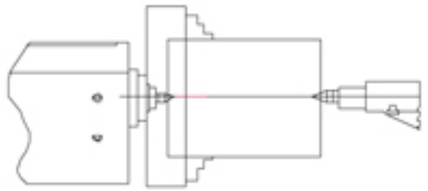
Specifications

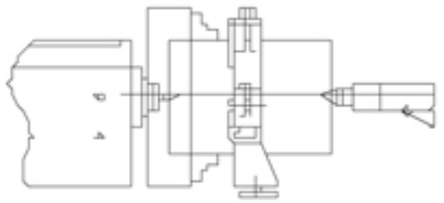
	LFS Series			LFM Series		
Model	**LFS 1400**	**LFS 1600**	**LFS 1800**	**LFM 1400**	**LFM 1600**	**LFM 1800**
Capacity						
Swing over bed (V shape carriage)	1420 mm	1620 mm	1820 mm	1420 mm	1620 mm	1820 mm
Swing over cross slide (box type carriage)	900 mm	1100 mm	1300 mm	900 mm	1100 mm	1300 mm
Center height	750 mm	850 mm	950 mm	750 mm	850 mm	950 mm
Distance between centers	2000 mm			3000 / 4000 / 5000 / 6000 / 7000 / 8000 / 9000 / 10000		
Width of carriage	1000 mm			1000 mm		
Width of cross slide	600 mm			600 mm		
Bed width	1160 mm			1160 mm		
Bed way	3-V way with 1 flat way and 1 slant way			3-V way with 1 flat way and 1 slant way		
Controller	FANUC 0i-TD (STD.)			FANUC 0i-TD (STD.)		
Spindle						
Spindle bore	200 mm			200 mm		
Spindle nose	ASA-A2-15			ASA-A2-15		
Spindle speed	4-400 RPM (4STEPS SPEED CHANGE)			4-400 RPM (4STEPS SPEED CHANGE)		
Spindle center	MT#6			MT#6		
Spindle motor	30/37 Kw (STD.) 37/45 Kw (OPT.)			37/45 Kw (STD.) 60/75 Kw (OPT.)		
Turret						
Turret model	H4-450-VDI Servo Turret (STD.)			H4-450-VDI Servo or V8-200 Hydraulic		
Tool size	40 mm			40 mm		
X and Z axis						
X axis travel	1000 mm			1000 mm		
Z axis travel	1800 mm			3000 / 4000 / 5000 / 6000 / 7000 / 8000 / 9000 / 10000 mm		
X axis rapid traverse	5000 mm/min			3M~5M: 5000 mm/min; 6M~10M: 4000 mm/min		
Z axis rapid traverse	5000 mm/min			3M-5M: 5000 mm/min; 6M~10M: 4000 mm/min		
X axis transmitting system	Ø40 mm*P5 (ballscrew)			Ø40 mm*P5 (ballscrew)		
Z axis transmitting system	Ø80 mm*P10 (ballscrew) Equipped with 1:4 precision gear reducer			3~6M Ø80 mm*P10 (ballscrew) Direct coupling with 1:4 precision gear reducer 7~10M Ø80 mm*P10 (ballscrew) Rotating nuts with 1:2 precision gear reducer		
X axis servo motor	4 Kw			4 Kw		
Z axis servo motor	7Kw through 1:4 plantary gear reducer			3-6M: 7Kw through 1:4 plantary gear reducer 7-10M: 7Kw through helical gear (Nut rotate transmission)		
Tailstock						
Tailstock quill diameter	165 mm rotating quill			250 mm rotating quill		
Tailstock movement	Elcetric / Manual			Elcetric / Manual		
Tailstock travel	250 mm			250 mm		
Tailstock boy movement	Transmitted by gear reducer			Transmitted by gear reducer		
Tailstock quill	MT#6			MT#6		
Standard accessories						
Chip removal	Front and rear chip conveyors			Front and rear chip conveyors		
Bed ways lubrication pump	25 W			25 W		
Spindle lubrication pump	1/2 HP			1/2 HP		
Coolant system	15 Bar high pressure			15 Bar high pressure		
Guard	Rear splash guard and front two doors (STD.) Full enclosed guarding (OPT.)			Rear splash guard and front two doors (STD.) Full enclosed guarding (OPT.)		
Hydraulic pump	2 HP			2 HP		

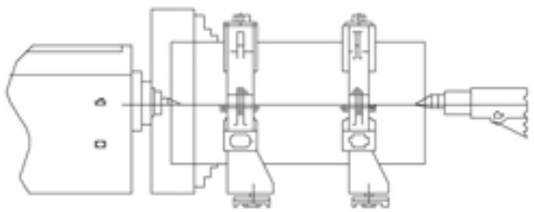
Note:
1. Machine equipped with different turrets will lead to differences on X and Z axis traverse.
2. Machine equipped with different motors will lead to differences in spindle speed.
3. Different tailstock types will affect Z axis travel.
4. Machine length does not include the length of chip conveyor.
5. Control: Fanuc 0i-TD (Standard), Siemens 810-D (Optional)
6. The above specification is only for reference; the actual specification is based on the contract signed between two parties.

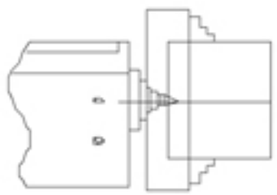
Loading Capacity

Model	LFS seies	LFM series
Spindle bore	200mm	200mm
Tailstock quill diameter	165mm	250mm
Max. load between center	8000kgs	16000kgs
Max. load between center plus 1 steady rest	10000kgs	18000kgs
Max. load between center plus 2 steady rest	12000 kgs	20000 kgs
Max. load with one chuck only	2200kgs	2300kgs



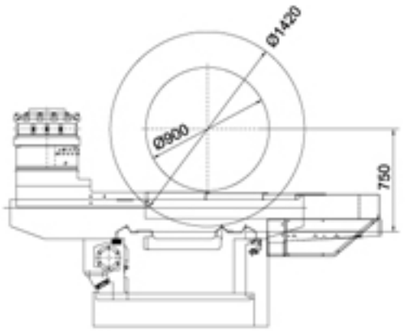


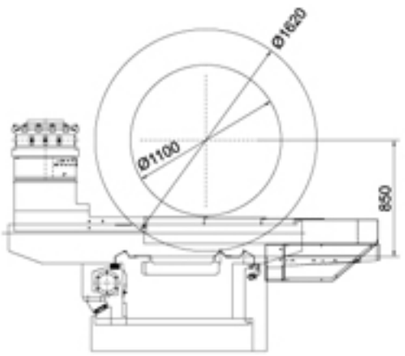


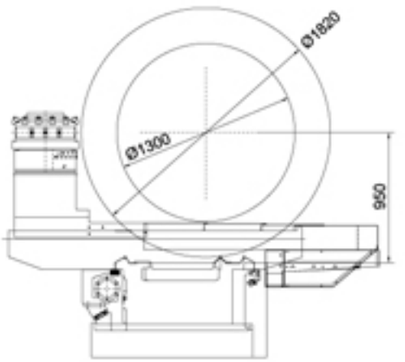
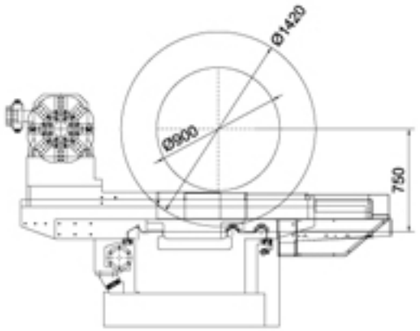
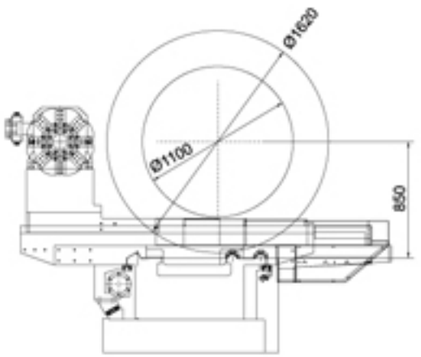
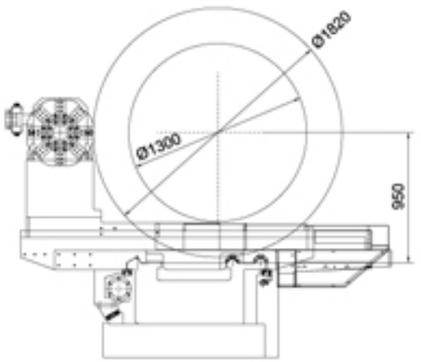


Side Version Interference

H4-450-VDI







V8-200