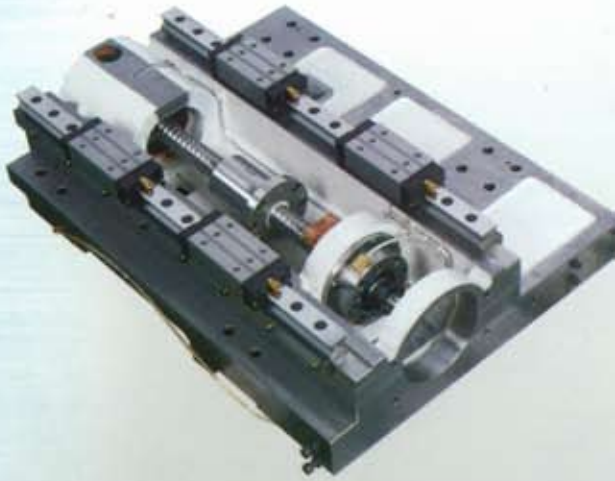
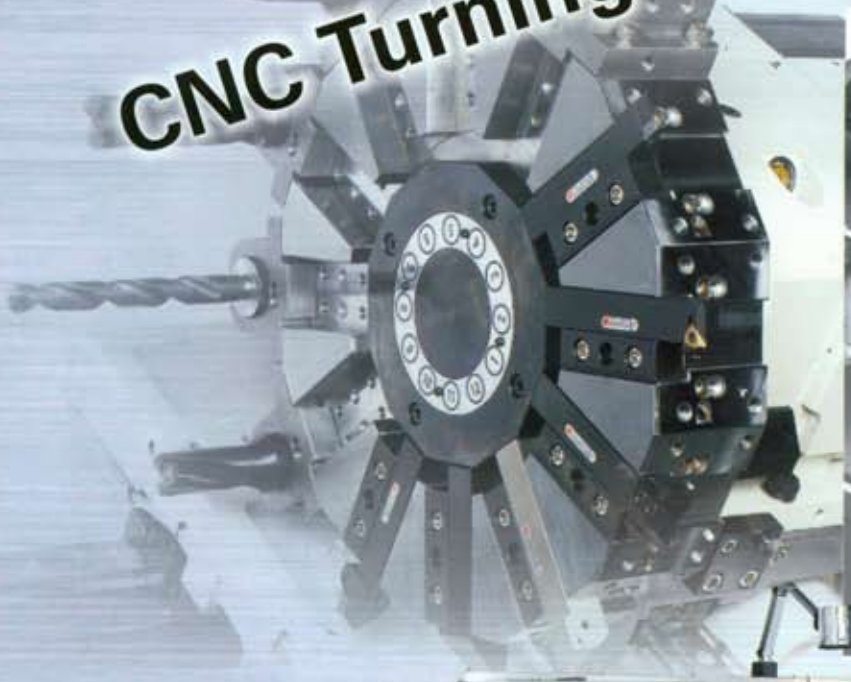
LITZ®

ISO 14001 ISO 9001 CE



LT series
CNC Turning Lathe



LITZ HITECH CORPORATION

High Performance CNC Lathe

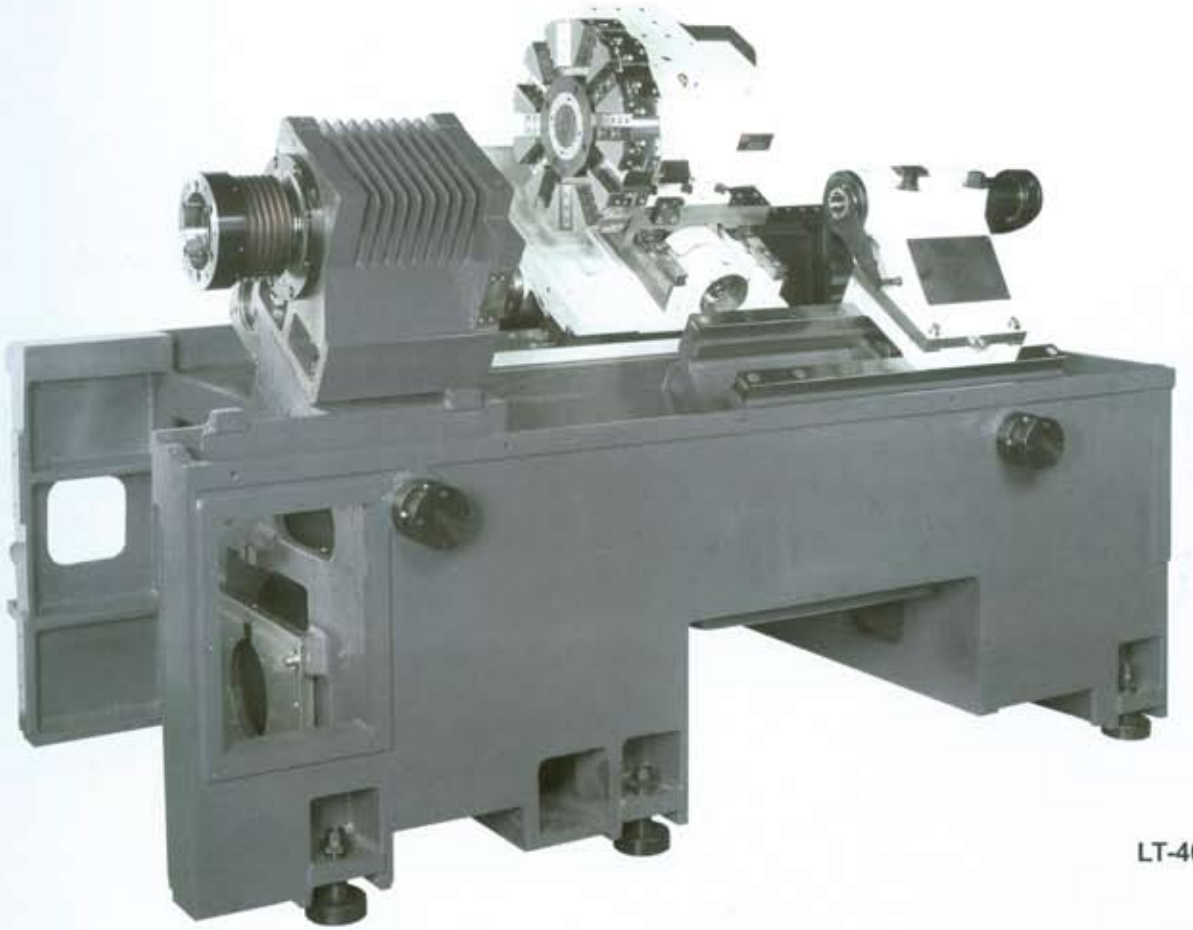
- High rigidity, high precision linear guide ways prolong the machine service life.
- Fast travel speed increases the cutting efficiency.
- The servo driven turret with super rigidity, heavy duty capability.

LT-400

- The full enclosure design escapes the chips and coolant from splashing. The safety and clean working environment can be kept.
- The auto oil lubrication system provides rails, ballscrews and key units the precise but adjustable oil volume control.

High Rigidity, High Accuracy Construction Design

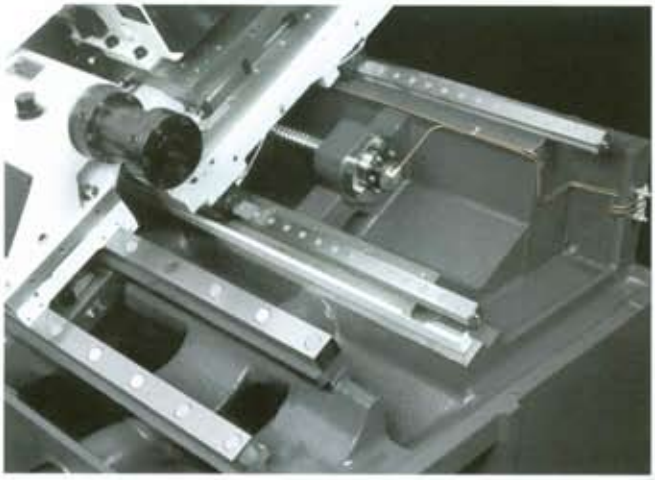
- The main body is a one-piece in construction. The 30 degrees slant bed provides the spindle head, turret, and the tail stock an excellent supporting base, with low gravity.
- The enhanced ribs in major construction parts provide the super rigidity for heavy duty cutting or high speed cutting. The service life of the cutting tool is prolonged due to the machine's excellent rigidity.
- The major construction parts are based on the FC30 Meehanite cast iron. They are stable and precision-proved in structure.



LT-400

- The X and Z axes are driven by absolute AC servo motors. The powerful motor provides fast acceleration and deceleration movement and tremendous thrust force. The absolute encode technology eliminates the usage of limit switch. The home position operation is no more need when the machine is powered on.

High Accuracy Transmission System



- The servo motor and high precision ballscrew are directly coupled in X/Z axes.
- The ballscrew is pretended to increase its rigidity, to lower its thermal deformation.
- At the X/Z ballscrew fix/supporting bracket, the lubrication system is applied to offer best lubrication on the bearings. It is the most suitable for the high precision application.
- The extreme big ballscrews with C3 grade are adopted for its high rigidity and high precision.

Collision Protection Device

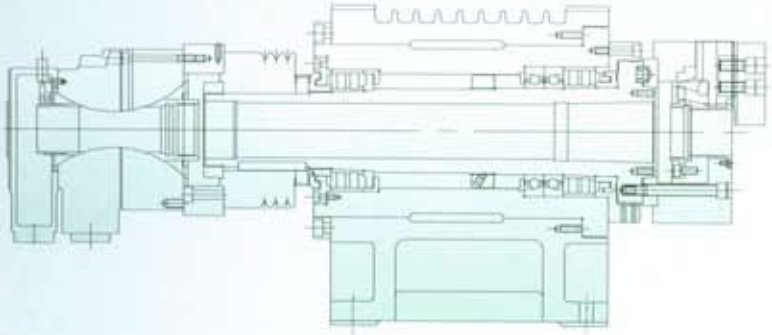
- The machine is equipped with an axis collision protection device which can absorb and reduce the collision force. The machine accuracy is still maintained when any axis malfunction happens.
- The X/Z axes adopt heady duty linear guide ways. It ensures the characteristics of high rigidity, low noise and low friction. The high speed federate and contour cutting accuracy are achieved.
- Feedrate is 20 m/min in X axis; 24 m/min in Z axis.

High Speed and High Accuracy Linear Guide Way

- The Linear guide way with zero backlash ensures the consistent cutting surface on curve or slope cutting.
- Suitable for high travel speed and the power consumption is minimized.
- By rolling contact instead of sliding contact, linear guide way reduces friction loss but increases positioning accuracy.
- The loading capacity is excellent on multiple directions. Cutting rigidity can be ensured.
- The linear guide way is interchangeable in specification, easy for lubrication and maintenance.
- Long service life is guaranteed by its highest durability.

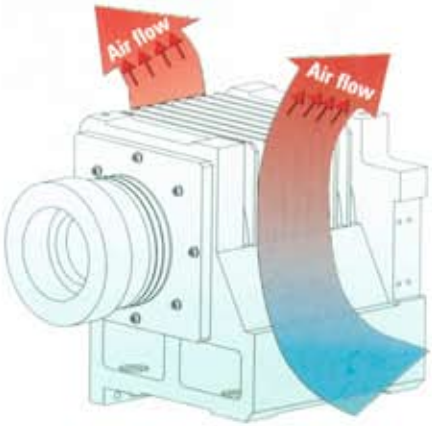
Spindle Head and Spindle System

Spindle System



- The super precision P4 grade is adopted for the spindle bearings. The optimal span of the bearings arrangement is designed for its optimal capability. The super cutting accuracy and long cutting time can be ensured.
- Spindle bearing arrangement: double row roller bearing x 1 and angular ball bearing x 2 at the front side; double row roller bearing x 1 at the rear side.

The Heat Emission System



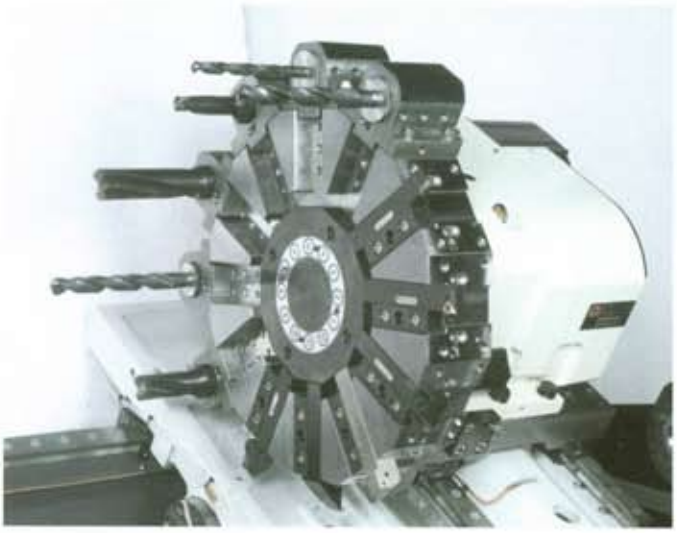
- The thermal fin design is standard on the spindle head. The generated heat can be taken away efficiently by the air circulation.

Spindle Power Transmission System

- The high performance V type belt is adopted for the power transmission. The belt maintenance is easy and the heat generated by the belt is reduced. By the gear ratio on the pulleys, the maximum spindle torque can be obtained and the maximum cutting capacity is achieved.
- The rigid tapping capability is standard on the machine. The thread operation setting is easy and the accuracy is high. The maximum product output rate can be achieved.
- The spindle can be orientated and stopped at multiple positions. It is handy for particular angle operation and for manual workpiece loading/unloading process.

High Performance Accessories

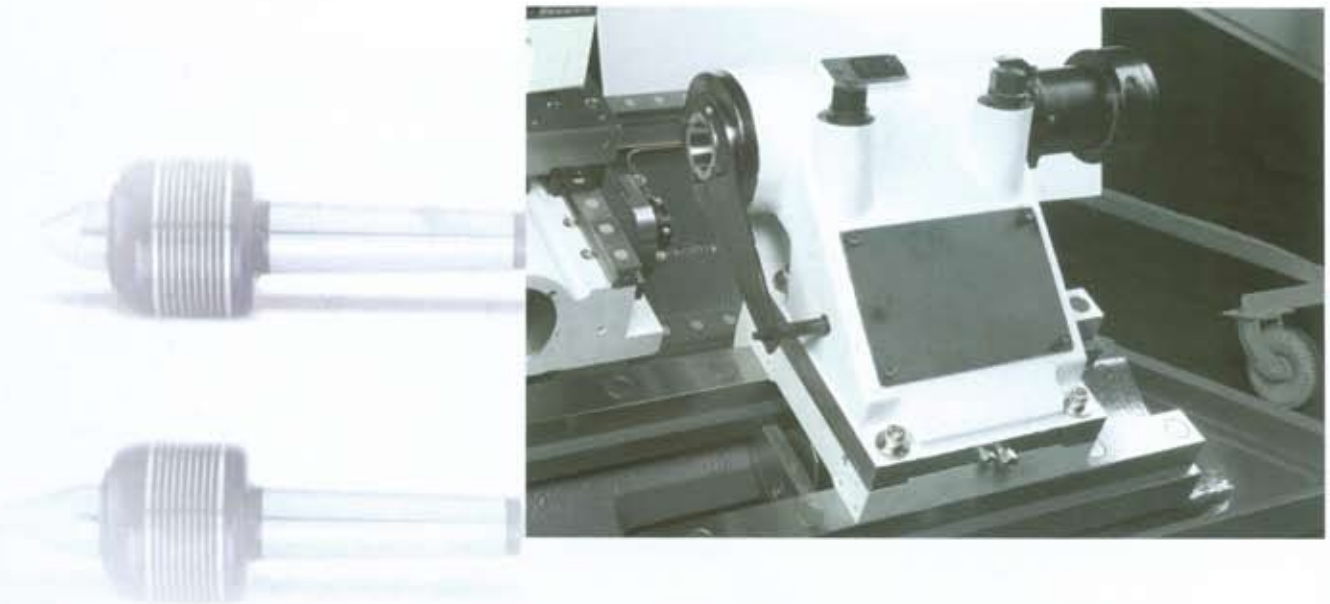
Servo Turret



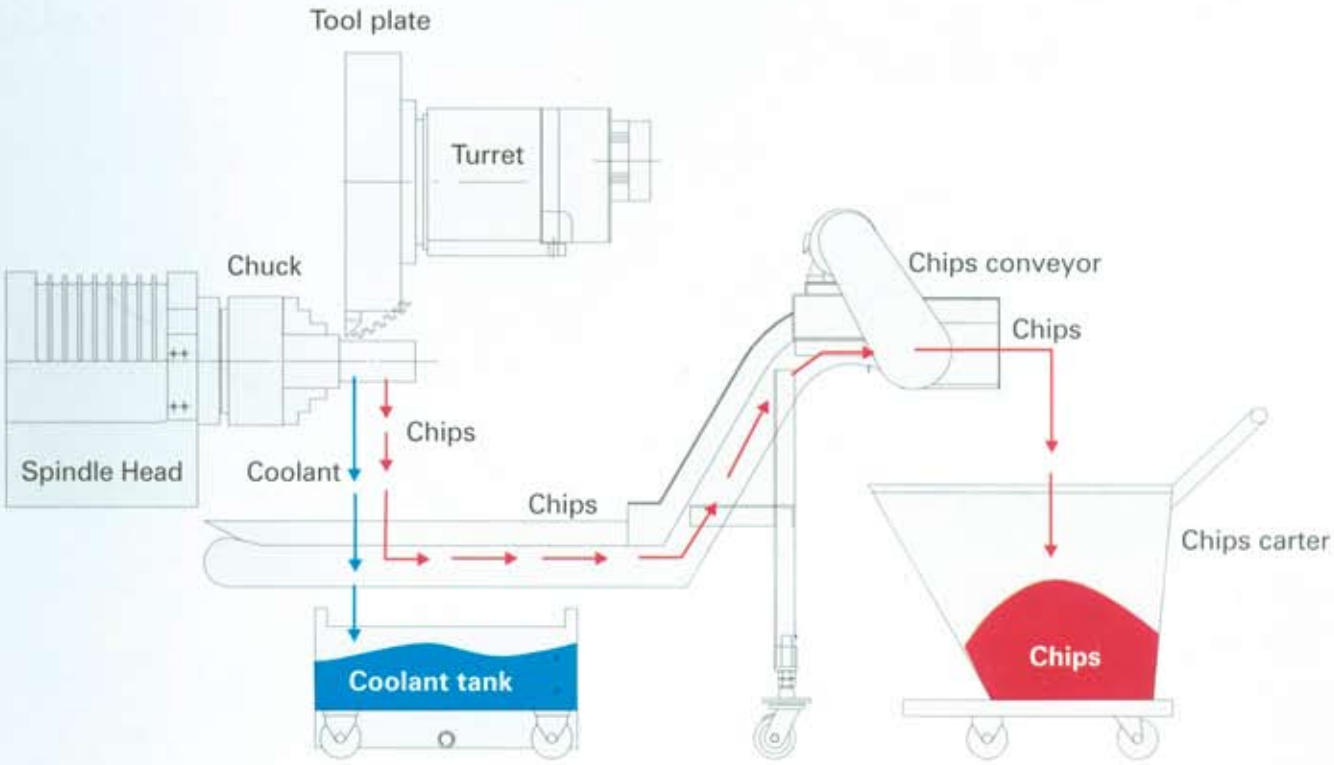
- The robust turret is driven by servo motor. The adjacent tool to tool time is 0.2 seconds; the opposite tool change time is 0.5 seconds.
- The large turret shaft is adopted for its high rigidity and high positioning accuracy. The turret rigidity ensures cutting capability for all kind of applications.
- There is no interference between the maximum inner tool and the chuck or workpiece while the tools are fully loaded.

Tail Stock Unit

- The high accuracy tail stock provides highest rigidity and the highest loading durability. The movement of the quill of the tail stock is programmable. The thrust force is adjustable by the pressure of the oil pump.



High Efficient Chips Removal System



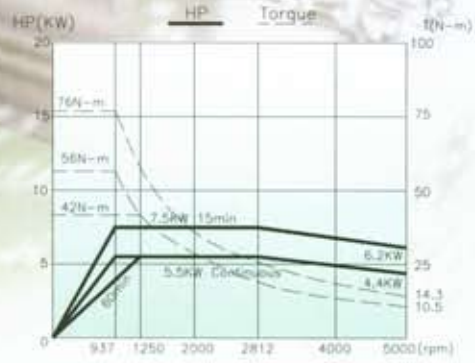
■ The chips conveyor system is located under the front side of the machine. This system can easily convey the large volume of chips generated by the turning process.

Separated Coolant Tank System

■ The isolated coolant tank is easy for maintenance. The high pressure pump and the large coolant flow capacity can take away the generated heat efficiently.

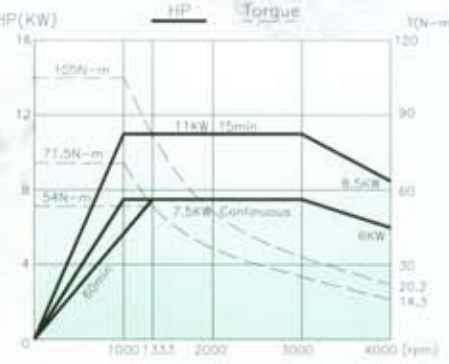
Spindle Torque Output Chart

LT-350



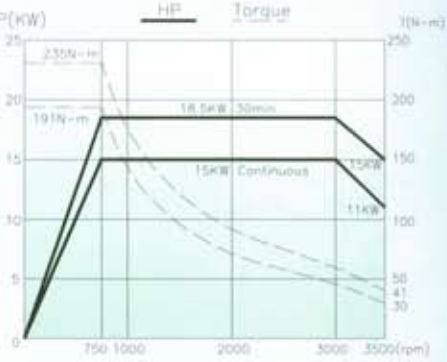
Spindle motor: 5.5/7.5 kw

LT-400



Spindle motor: 7.5/11 kw

LT-500



Spindle motor:15/18.5 kw

■ The main spindle motor has the characteristics of both high torque at low speed and high speed capability. The optional Alpha (α) spindle motor can offer similar powerful output as the gear box but with better features such as easy maintenance, short high/low gear switch time, low noise.....

Cutting Capacity

Outer Turning Process

Cutting condition

Model	OD before turning (mm)	OD after turning (mm)	Spindle speed (rpm)	Federate (mm/rev)	Cutting depth (mm)	Spindle load	Chips removal rate (cc/min)
LT-350	90	85.6	1000	0.39	2.2	105 %	236
LT-400	62	52.4	1000	0.39	4.8	133 %	336
LT-500	92	80	1000	0.39	6	125 %	680

Inner Turning Process

Cutting condition

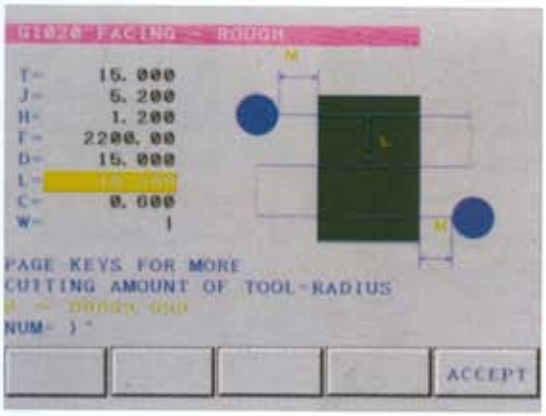
Model	ID before turning (mm)	ID after turning (mm)	Spindle speed (rpm)	Federate (mm/rev)	Cutting depth (mm)	Spindle load	Chips removal rate (cc/min)
LT-350	70	76	682	0.24	3	115 %	117
LT-400	74	80	646	0.33	3	110 %	154
LT-500	78	86	816	0.36	4	105 %	301

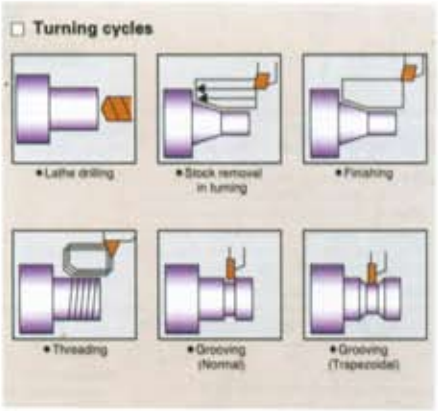
Operation System

Controller

- The user friendly operation panel offers the most useful function keys for the operators. This is a big advantage to avoid many page up/down operation to select the function. The membrane keys are durable at the bad environment such as oil, dust and high humidity.
- Standard 7.2" LCD screen is adopted. Small full key, graphic display and program storage 320M.
- Equipped with program memory and super fast processor (as 18i-T). Rigid tapping, canned cycle operation, customer oriented Macro B.... are standard.

Manual Guide 0i Program Interactive Function





- The standard Manual Guide 0i program interactive function makes it easy for the program edit. The operator can learn the operation processes easily and quickly.

Friendly Machine-operator Interface

- The control panel meets the safety requirement and it rotates easily for the operation.
- The automatic diagnosis function displays the malfunction information on the screen for quick trouble shooting.
- The touch switch, diagram and text on screen make the programming very convenient.

Advanced Quality Control

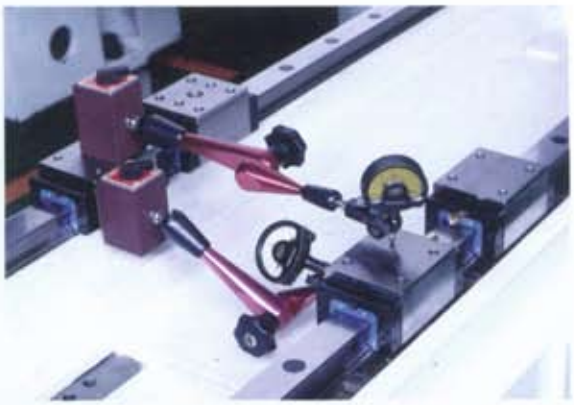
Laser Inspection

- All the machines are manufactured under the control of ISO9001 quality management system.
- The full stroke is inspected and compensated by the laser measurement instrument.
- The 100 hours run-in test is done in the standard process for every machine.

Standard Workpiece Test

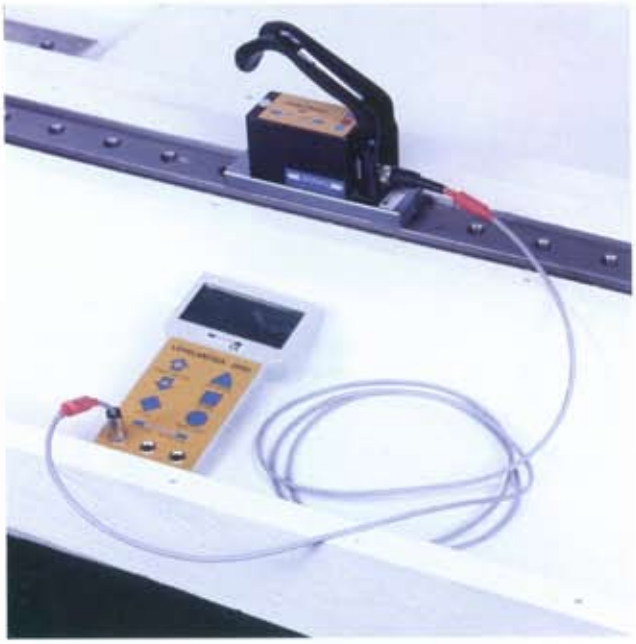
- The standard workpiece test is executed to ensure the turning accuracy.

Rail Parallelism Inspection



- The linear guide ways are calibrated to ensure the parallelism in the installation.

Rail Straightness Measurement



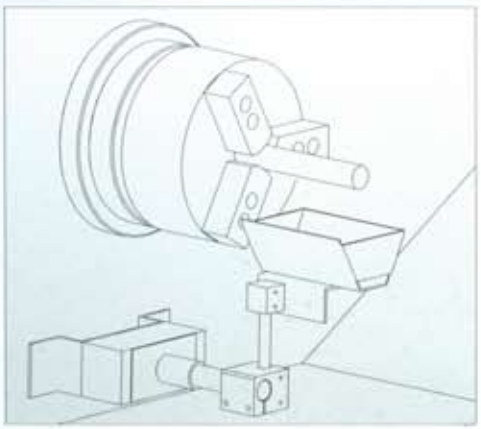
- Every rail is inspected by the electrical level gauge.
- To ensure the linear guide way accuracy before installation.

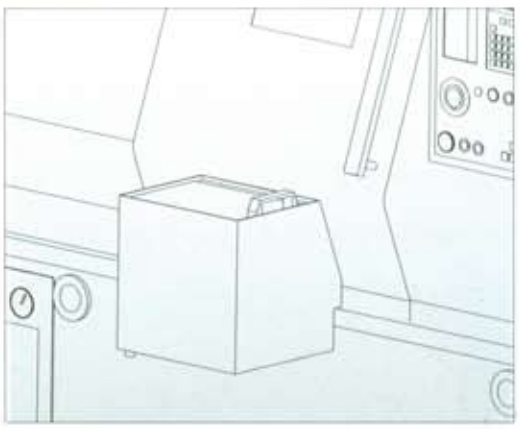
Automation Capability

Tool Setter OP

■ The Renishaw HPMA automatic tool setter is chosen as an optional function. The tool measurement process is fully automatic.
The system can measure the tool automatically while the pre-set workpiece quantity is reached.
The performance and accuracy of the production are enhanced.

Part Catcher Mechanism OP





Part catcher

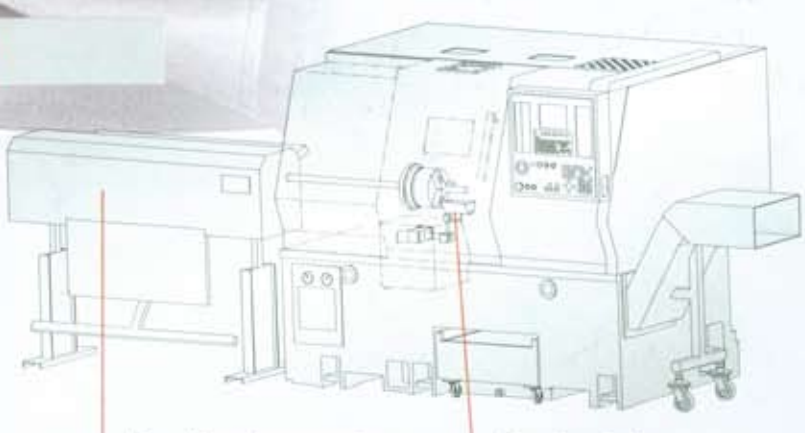
■ Max. workpiece dia. : ∅50 mm
■ Max. workpiece length: 130 mm
■ Max. workpiece weight: 2kg

Workpiece buckle

■ The workpiece buckle is large in size, convenient for the automation mode.

Bar Feeder System OP

■ The bar feeder is very useful for the mass production application. The Bar feeder system can be integrated with the part catcher for full automation.



Machine Specification

		LT-350	LT-400	LT-500
Travel				
X-axis	mm	140	180	220
Z-axis	mm	350	530	710
Spindle				
Spindle speed	RPM	40-5000	30-4000	30-3500
Spindle nose		A2-5	A2-6	A2-8
Front bearing inner dia.	mm	80	100	120
Thru-hole dia.	mm	56	63	86
Capacity				
Chuck size		6"	8"	10"
Swing over bed	mm	350	400	495
Swing over slide	mm	280	320	400
Center distance	mm	455	645	845
Standard turning dia.	mm	190	216	287
Max turning dia.	mm	240	320	400
Max turning length	mm	350	530	710
Bar capacity	mm	43	52	75
Turret				
No. of station		12-STATION	12-STATION	10-STATION
Size of holder (sq)	mm	20	25	25
Boring holder dia.	mm	32	40	50
Tailstock				
Travel	mm	290	435	580
Quill stroke	mm	100	100	150
Size of taper		MT4	MT5	MT5
Quill I.D.	mm	75	90	110
Feedrate				
X-rapid	M/min	24	20	16
Z-rapid	M/min	30	24	20

Machine Specification

Motor				
Spindle motor	kw	5.5 / 7.5	7.5 / 11	15 / 18.5
X-servo motor	kw	1.2	1.2	1.8
Z-servo motor	kw	2.5	2.5	2.5
Turret-servo motor	kw	0.81	0.81	0.81
Controller				
Fanuc		0i-TC	0i-TC	0i-TC
Machine size				
Weight	kg	3500	4300	5000
Width	mm	1950	2250	2800
Height	mm	1720	1170	1800
Depth	mm	1450	1670	1700
Miscellaneous				
Power requirement	KVA	15	15	20
Air source	kg/cm^2	6	6	6
Coolant capacity	L	160	200	230
Controller capacity				
PMC		SA1:5u sec/step; SB7: 0.033u sec/step		
Display		7.2" LCD		
Graphic		yes		
Full key		44		
Max program storage length		320m		
Max program no.		200		
No. of tool compensation		64		
Servo HRV control		HRV2(3)		
Interactive program		Manual Guide 0i		
Servo motor		βis		
Spindle motor		βi		
Running time & worpiece counter		yes		
Auto power off		yes		
Macro B		yes		
RS-232 port		yes		
Memory card I/O interface		yes		

Standard and Optional Accessories

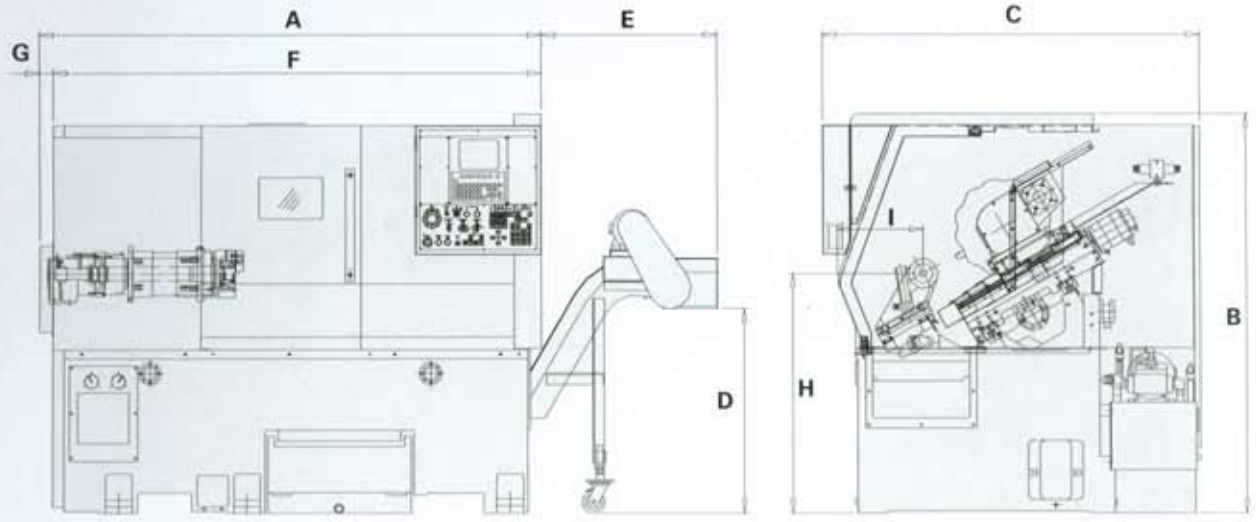
Standard Accessories

- Stepless spindle motor
- X&Z-axis servo motor
- 3-jaw thru-hole chuck
  (Soft/hard jaw, T block) 1 set each
- Hydraulic servo turret
- Boring bar bush
  (dia. 6, 8, 10, 12,16, 20, 25, 32) x 2 pcs each
- U drill bush (MT1, MT2, MT3) x 1 pc each
- Coolant pump: 400W
- Work light
- Boring bar tool holder x 5 pcs
- ID tool holder x 2 pcs
- U drill tool holder x 1 pc
- OD tool holder x 12 pcs
- Cycle finish light
- Tool box
- Operation manual
- Programmable hydraulic tailstock quill
- Programmable hydraulic chuck
- foot-step switch
- Auto power off system
- Air blow

Optional Accessories

- Chip conveyor (including chips carter)
- Parts catcher
- Bar feeder interface
- Bar feeder
- Workpiece counter
- Auto front door system
- Robot interface
- Tool setter
- Collet chuck
- Transformer (380V~415V)

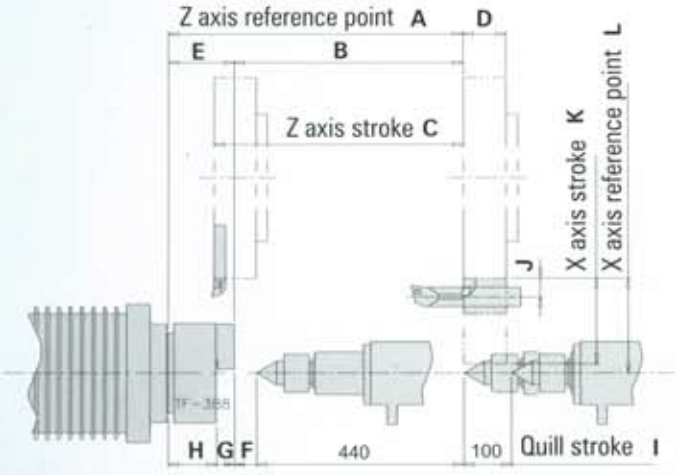
Machine Dimension



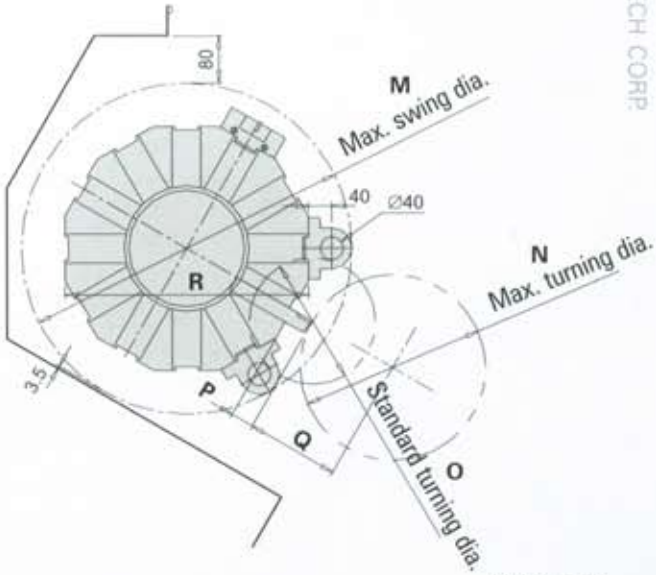
Unit: mm

Model	A	B	C	D	E	F	G	H	I
LT-350	1950	1720	1530	963	860	1880	200	1060	280
LT-400	2250	1770	1670	916	1069	2140	180	1060	300
LT-500	2830	1940	1755	1085	800	2600	230	1060	300

Work Range



Tool Interference



Unit: mm

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
LT-350	430	314	350	75	116	34	28	77	100	35	140	150	500	240	190	35	120	380
LT-400	630	488	530	90	142	48	38	104	100	40	180	200	570	320	218	40	160	420
LT-500	830	661	710	100	148	61	42	120	150	50	220	240	620	400	282	50	200	450

Manufacturer

LITZ® LITZ HITECH CORP.

NO.18 Yu 9 Rd., Yu Shin Ind. Park, Tachia Town, Taichung Hsien, Taiwan
Tel: +886-4-26815711 Fax: +886-4-26815108 • 26815712
http://www.litzhitech.com E-mail:sales@litzhitech.com

Agent

A Work Partner for Life. (2006 • Version A)