

LX-2500 Series

LX-2500 / LX-2500M / LX-2500Y **CNC Turning Center**

/// **Taiwan TAKISAWA Technology Co., Ltd.**

Pinchen /
No. 505, Sec 3, Yenping Rd., Pingchen Dist.,
Taoyuan City 324, Taiwan
TEL: +886-3-4643166 FAX: +886-3-4642614

Yangmei /
No. 89, Sec. 1, Meishi Rd., Yangmei Dist.,
Taoyuan City 326, Taiwan
TEL.: +886-3-4813119 FAX: +886-3-4813185
E-mail: callcenter@takisawa.com.tw

/// **Shanghai TAKISAWA Mechatronics Ltd.**

Shanghai /
No. 1568, Yuanguo Road, Anting Town,
Jiading District, Shanghai
TEL: +86-21-59562955 FAX: +86-21-59562956

/// www.takisawa.com.tw



LX-2500 series

The LX-2500 series is a new generation high precision turning center developed for highly precise machining through its extremely strong and rigid structure and a design to counter the impact of thermal shock.

The range is available in a variety of spindle, turret and tailstock configurations with high precision peripheral options.



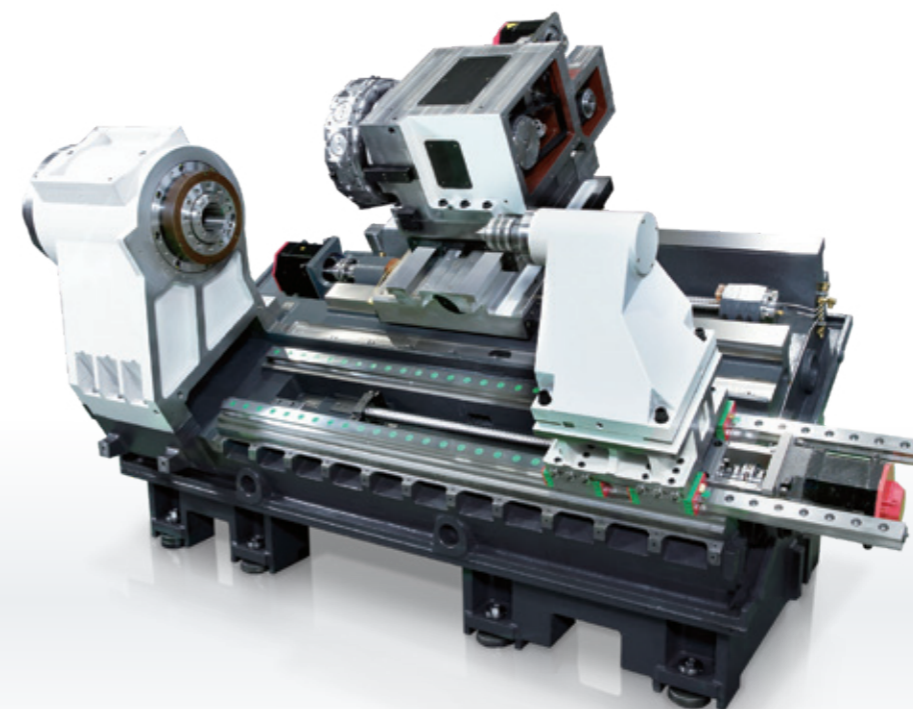
01 Specification Options

	LX-2500	LX-2500M	LX-2500Y
Built-In Motor Spindle	●	●	●
GearBox Spindle	○	○	○
P Motor Spindle	○	○	○
T10 Turning Turret	○	-	-
T12 Turning Turret	●	-	-
T12 Milling Turret	-	●	●
Y-Axis	-	-	●
Servo Tailstock	●	●	●
Hydraulic Tailstock	○	○	○

● Standard ○ Optional - Nope

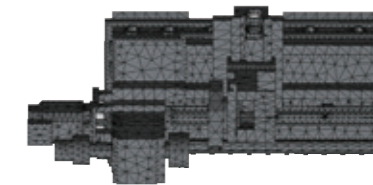
02 Workpiece Size

	LX-2500	LX-2500M	LX-2500Y	
Max. Turning Diameter	450	420	420	mm
Max. Turning Length	732	698	698	mm
Max. Bar Work Capacity Diameter	81	81	81	mm

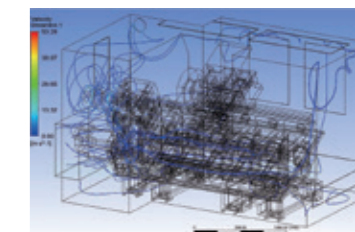


03 Travel & Rapid Traverse

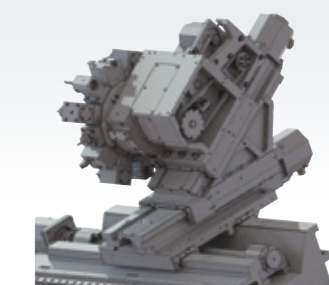
	LX-2500	LX-2500M	LX-2500Y	
X-Axis Travel	275	275	275	mm
X-Axis Rapid Traverse	24	24	24	m/min
Z-Axis Travel	815	815	815	mm
Z-Axis Rapid Traverse	30	30	30	m/min
Y-Axis Travel	-	-	± 50	mm
Y-Axis Rapid Traverse	-	-	10	m/min
B-Axis Travel	730	730	730	mm
B-Axis Rapid Traverse	20	20	20	m/min



Structural design and thermal displacement analysis to enhance static stiffness and limit thermal displacement improves rigidity by more than 30% over previous designs.



Structural design based on thermal flow field analysis maintains the highest precision at different ambient temperatures.

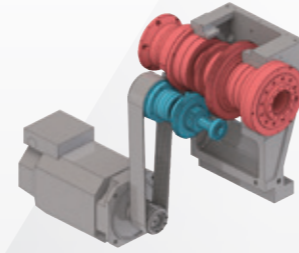


The X / Y / Z - Axis Box Ways design ensures dynamic rigidity and absorbs vibration to maintain accuracy with heavy cutting.

Spindle

The spindle is made in house to ensure highest quality and reliability. There are three types: Built-in spindle motor; Gear Box headstock and P motor headstock. These alternatives allow choices for precision, torque or cost effectiveness.

Motors, through-hole size, spindle speed ratios, nose etc can be amended when possible following a customised needs assessment.



The LX series uses the traditional TAIKISAWA Gear Box spindle design which has been proven through many generations of highly reliable products.



01 Built-In Motor

With minimal vibration and fast response throughout the whole speed range the Built-In motor is the best choice for the highest precision.

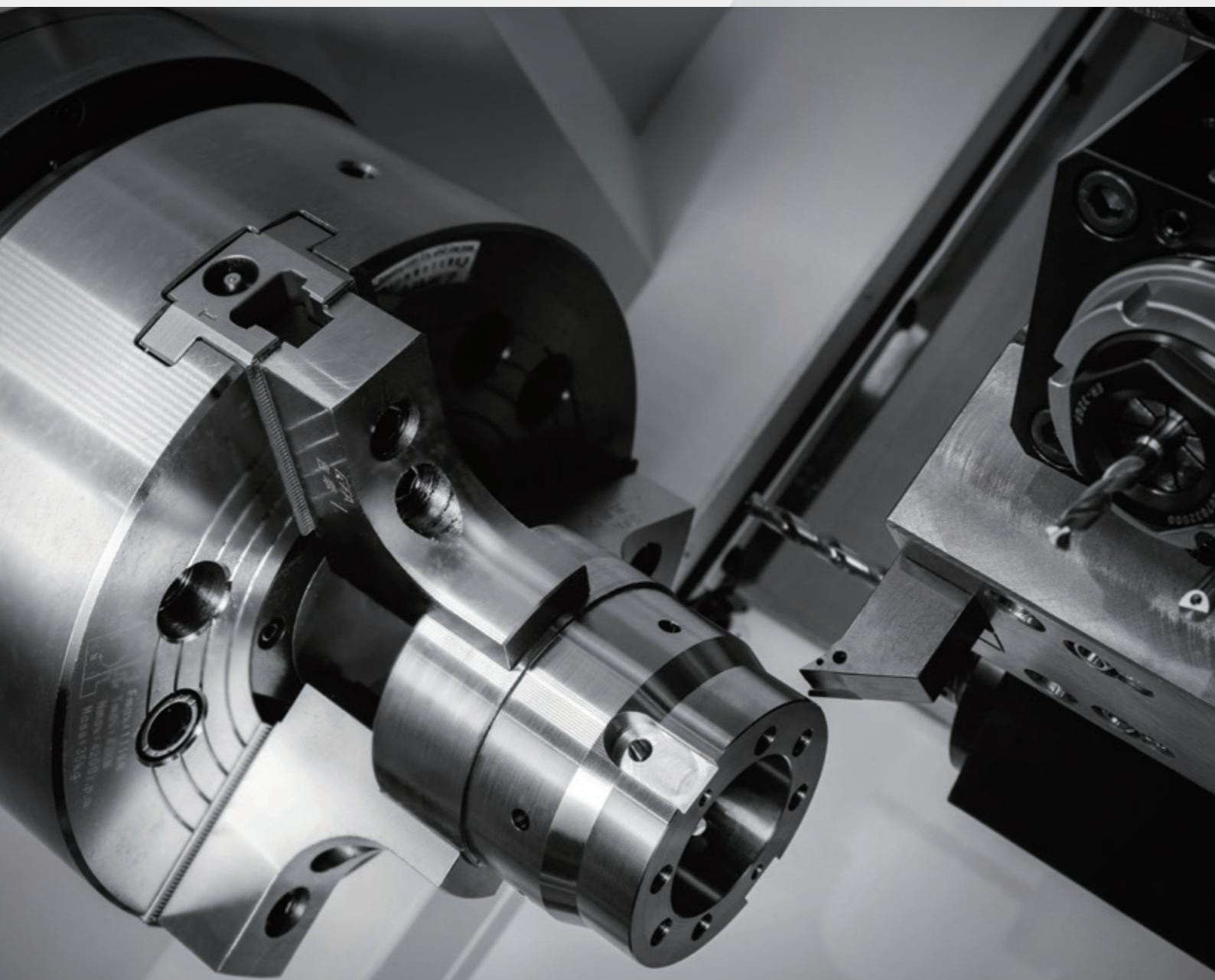
02 Gear Box

Switching between low and high speed settings allows large depth of cut and high torque.

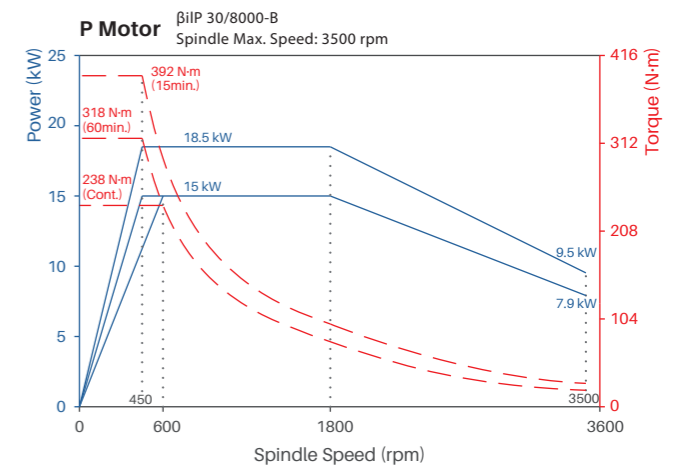
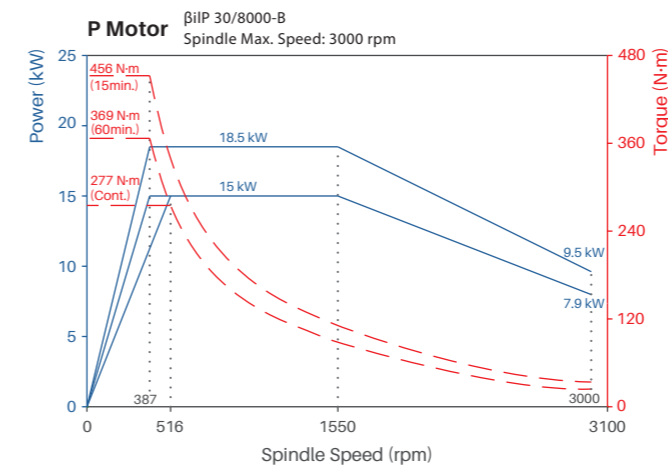
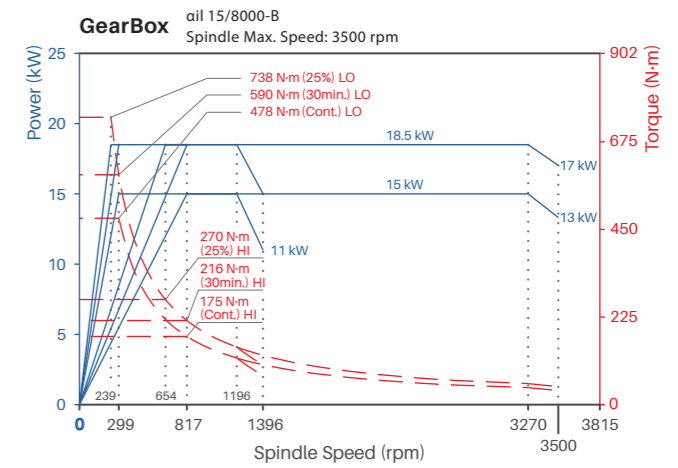
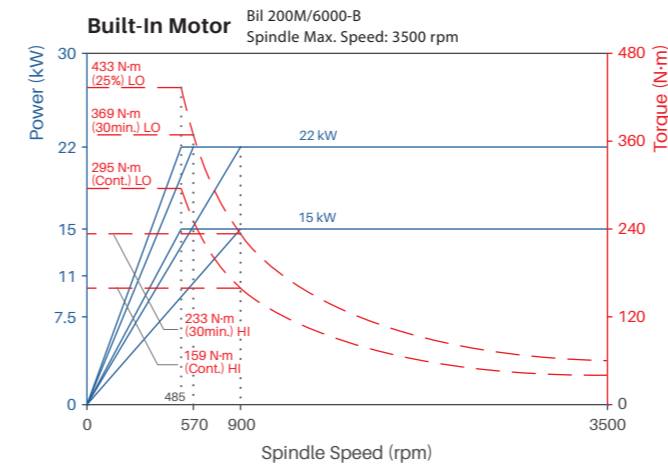
03 P Motor

This is the most economical and highly reliable spindle option.

	Built-In Motor	GearBox	P Motor
Spindle Nose	A2-8	A2-8	A2-8
Spindle Speed	3500	3500	3500 (3000) rpm
Through Hole Diameter	91	86	91 mm
Bearing Inside Diameter	120	120	120 mm
Motor Output	22 / 15	18.5 / 15	18.5 / 15 kW
Max. Torque	433	738	392 (456) N-m



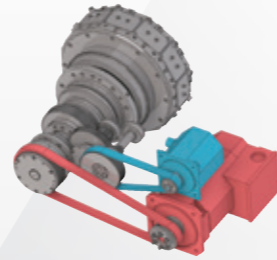
Spindle Output Diagram



Turret

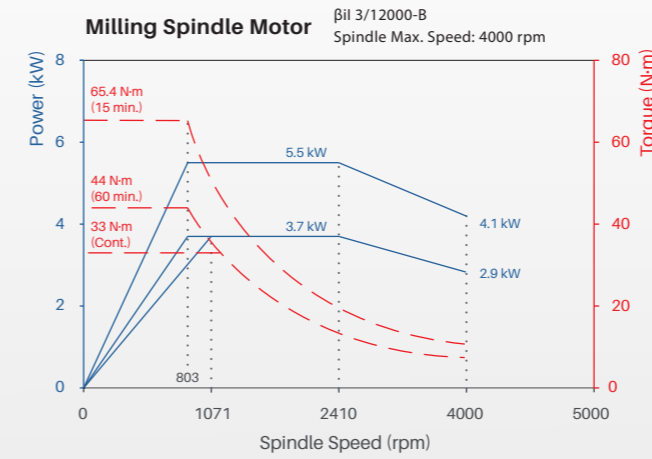
The T12 Milling Turret is a tested in house design that enables combined machining such as milling, drilling and tapping in addition to conventional turning. This allows complex and highly accurate machining in a single cycle for mass production of parts.

We can provide a customised needs assessment for special needs regarding numbers of tools, tool holders, milling cutters etc.

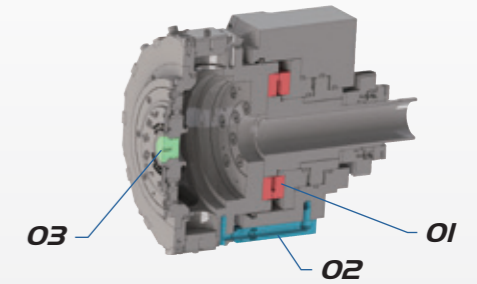


The milling motor is driven by a spindle motor and the tool changer is driven by a servo motor.

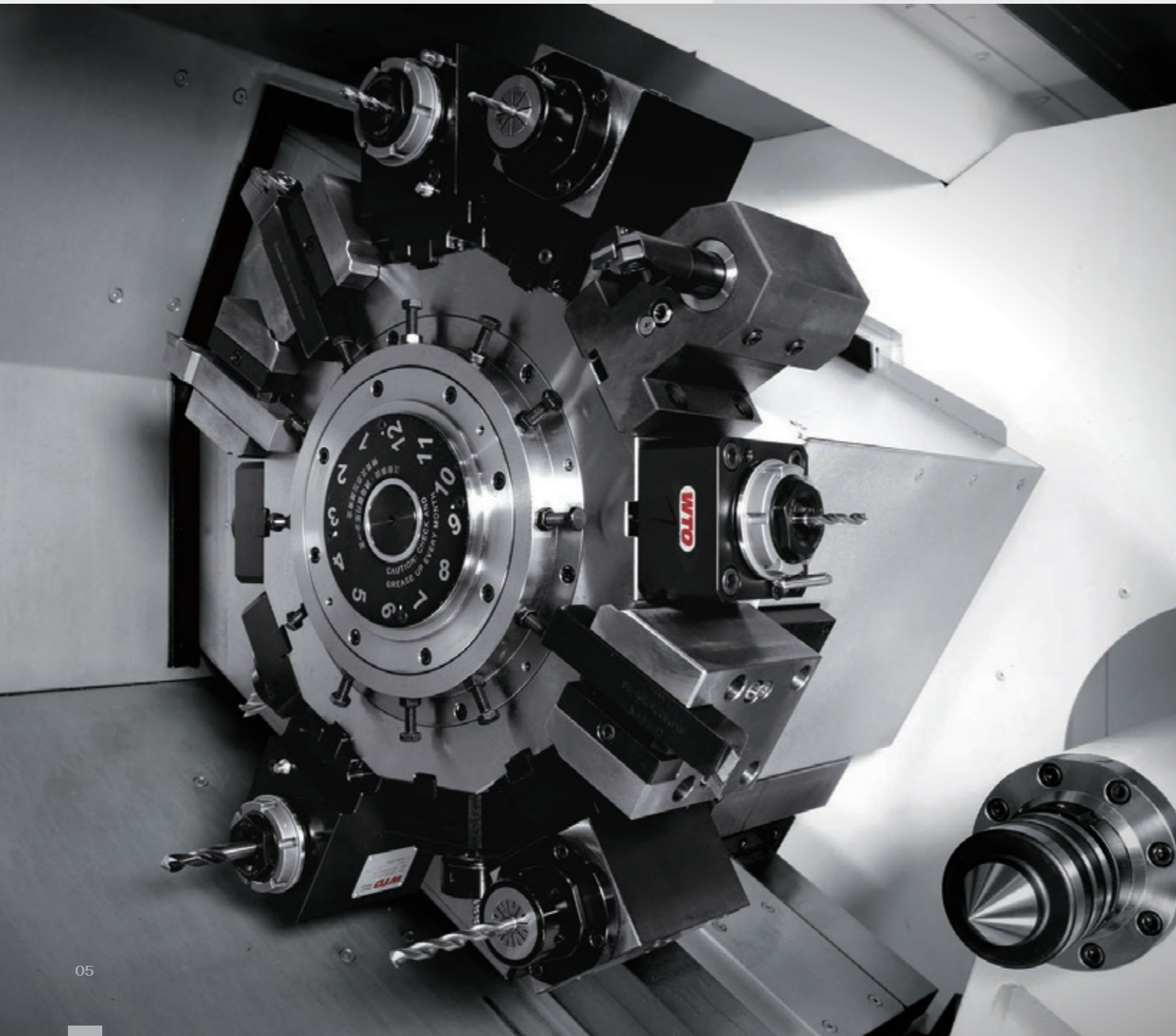
Spindle Output Diagram



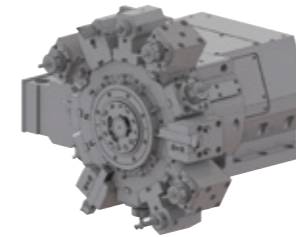
Turret Structure



- 01** Curvic coupling O.D 210 mm performs high rigidity and accuracy.
- 02** Ready for 70 bar hi-pressure coolant.
- 03** Easy to grease up.



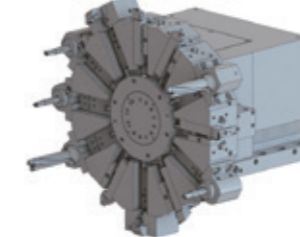
01



01 T12 Milling Turret

Number of Tools	12	
OD Tool Shank Dimension	25	mm
ID Tool Shank Diameter	40	mm
Milling Shank Diameter	20	mm
Spindle Speed	4000	rpm
Motor Output	5.5 / 3.7	kw
Torque	65.4	N-m

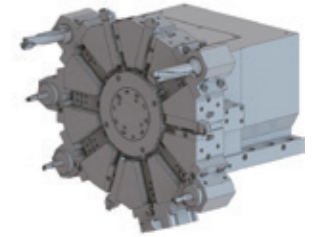
02



02 T12 Turning Turret (Standard)

Number of Tools	12	
OD Tool Shank Dimension	25	mm
ID Tool Shank Diameter	40	mm

03



03 T10 Turning Turret (Option)

Number of Tools	10	
OD Tool Shank Dimension	25	mm
ID Tool Shank Diameter	50	mm

Special Tool Holders

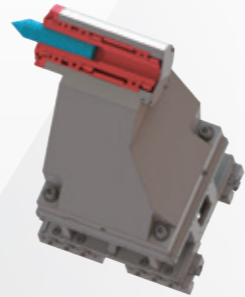
- 01** Gear Hobbing
- 02** Broaching
- 03** Power Skiving
- 04** Adjustable Angle Milling



Tailstock

The tailstock is a highly rigid design driven by a servo motor. Automation of the tailstock position and drilling synchronously during turning with a drill bit installed allows greatly reduced cycle times. The mandrel is available in fixed and rotary versions and the tailstock is pushed by oil pressure.

Special needs such as thrust size or mandrel form etc. can be assessed if customization is required.



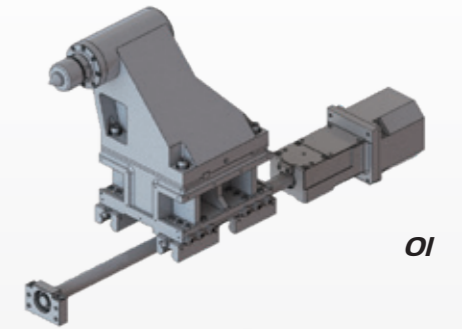
— Tailstock with Rolling Center has a larger load capacity than a fixed mandrel for large workpieces.

01 Servo Tailstock (Standard)

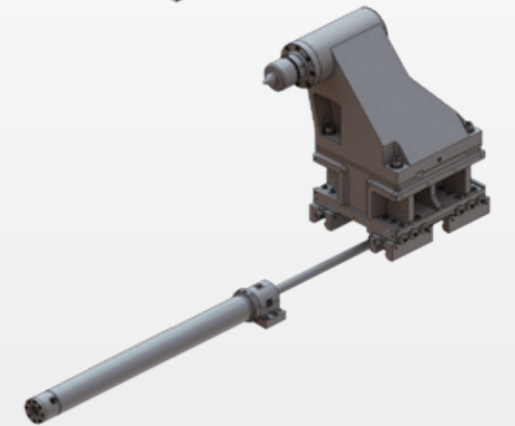
Tapered Bore Type	MT.5	
Tailstock Thrust	1 ~ 10	kN
Travel	730	mm
Rapid Traverse	20	m/mm
Approach	7	m/mm
Retract	20	m/mm

02 Hydraulic Tailstock (Option)

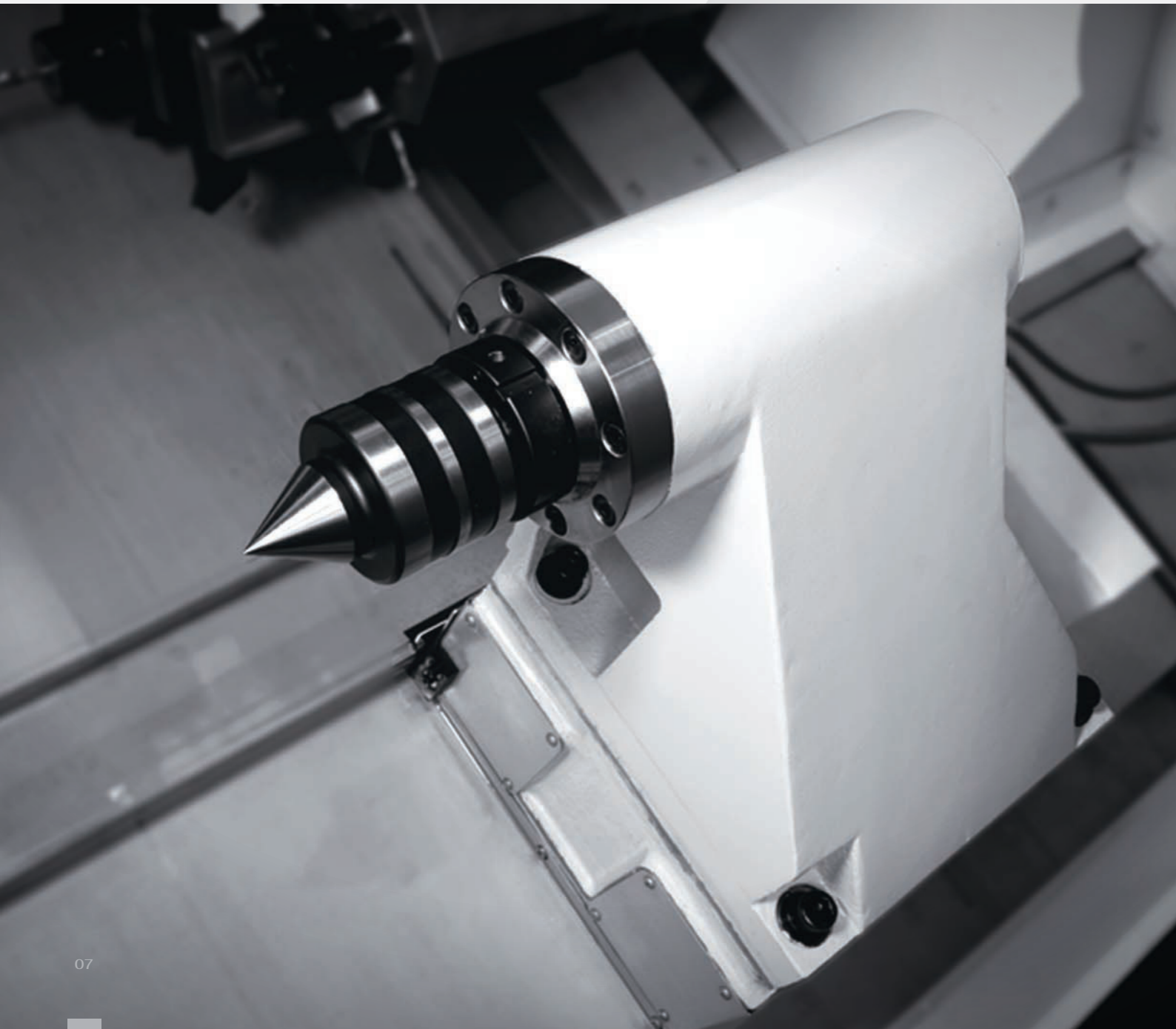
Tapered Bore Type	MT.5	
Tailstock Thrust	1 ~ 10	kN
Tailstock Travel	730	mm



01



02



01 Steady Rest

A steady rest driven by independent motor can synchronise with tool movement to maintain optimal machining accuracy. Z-axis motor traction is also possible.

02 Chip Conveyor

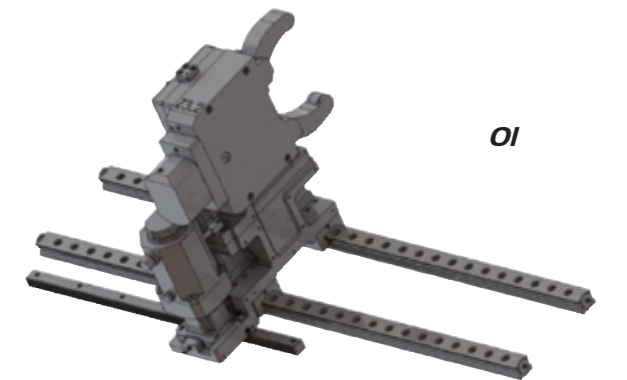
To assist with factory layout right and rear side chip conveyors are available.

Hinge Type
Chip Conveyor

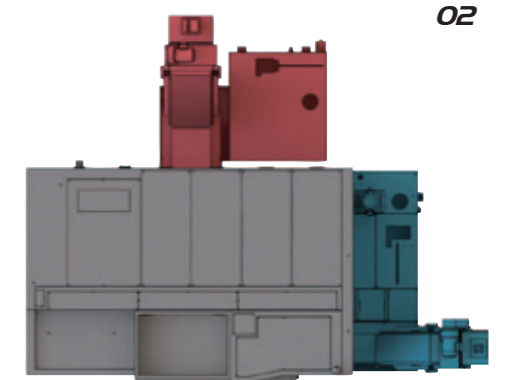
Scraper Type
Chip Conveyor



Chip Type	Curly Metallic Chip Steel/Aluminum	Power Metallic Chip Foundry/Aluminum/Brass	Non-Metallic
Hinge Type	○	×	○
Scraper Type	×	○	×



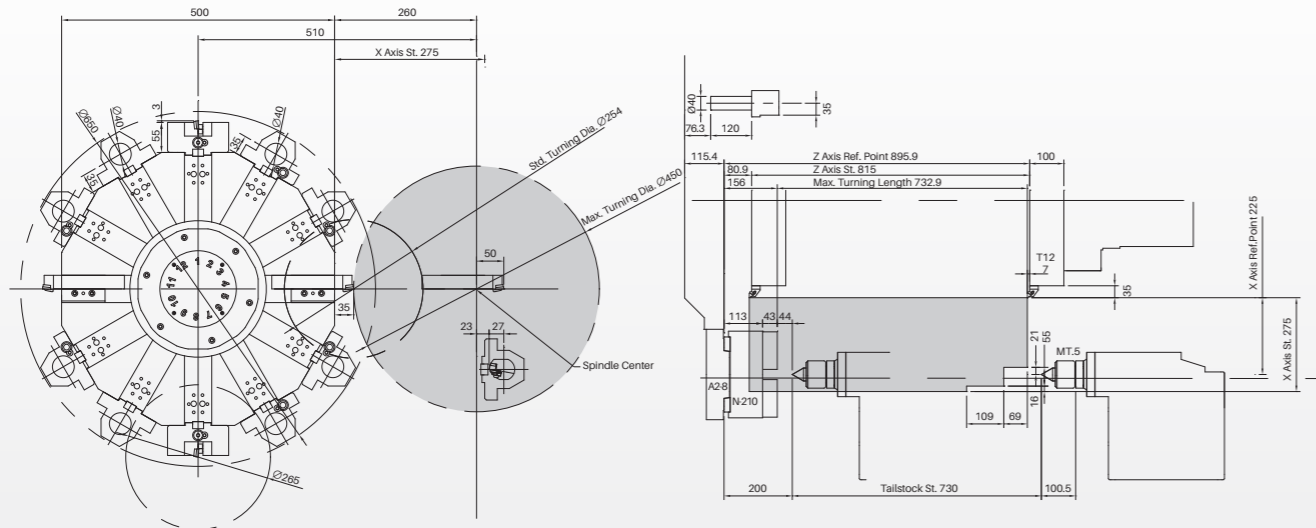
01



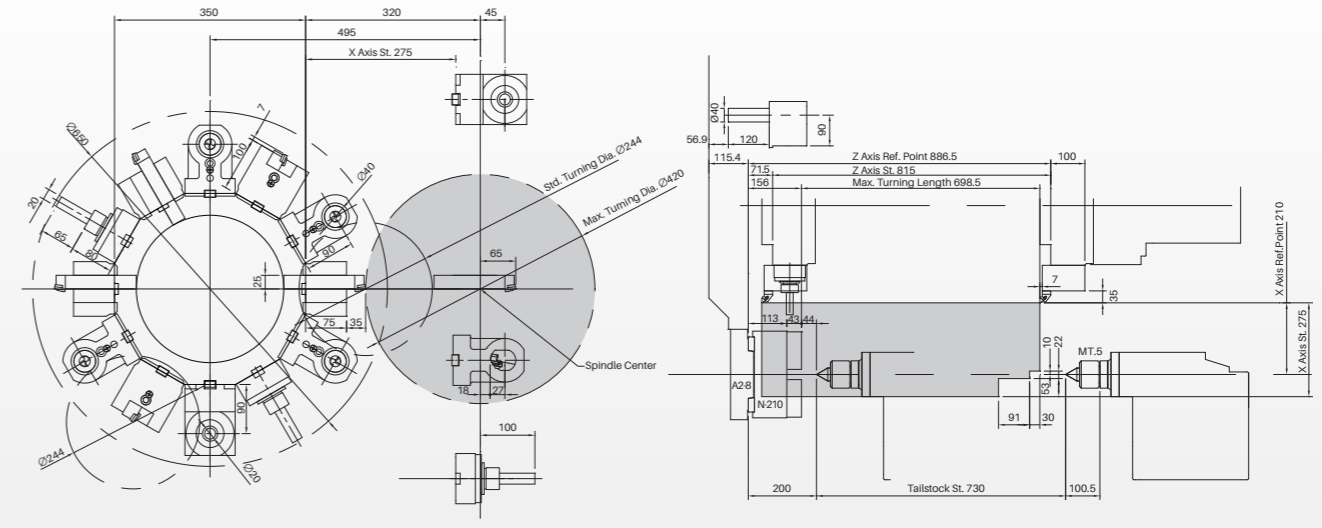
02

Interference & Travel Range

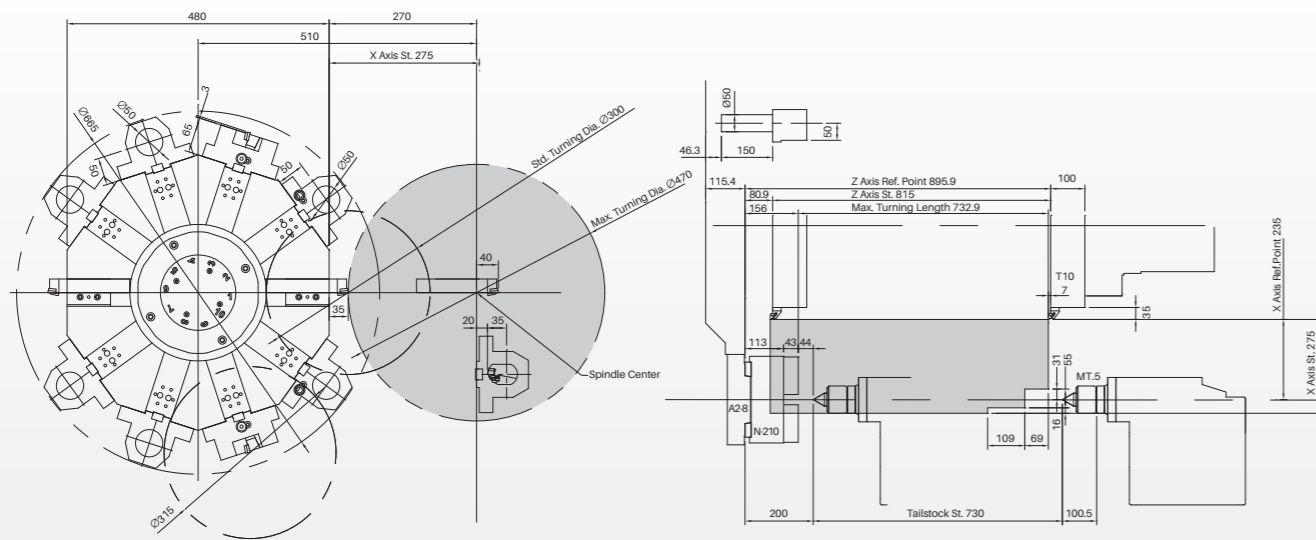
LX-2500 T12



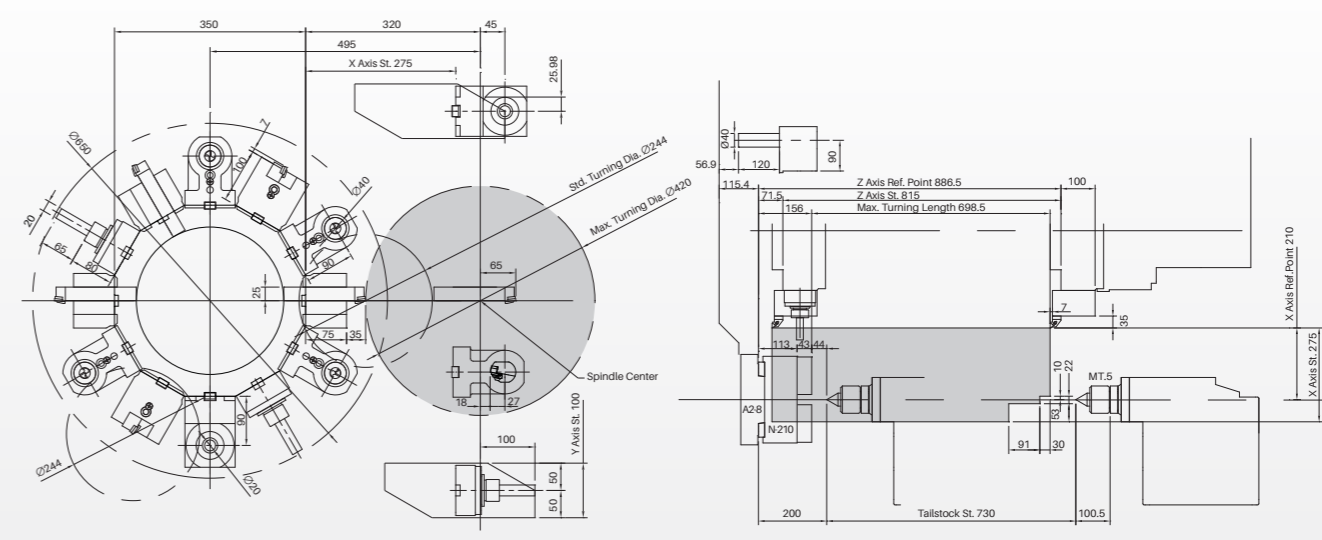
LX-2500M T12



LX-2500 T10

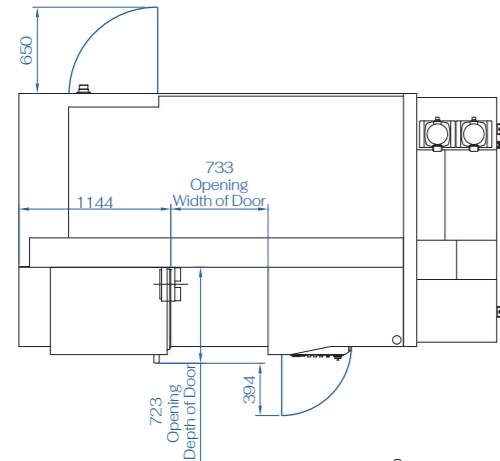


LX-2500Y T12



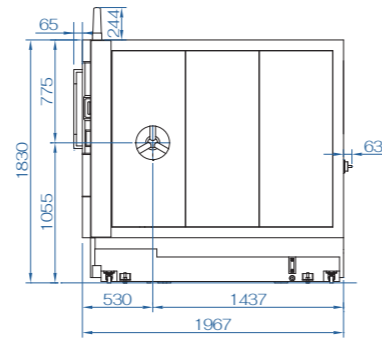
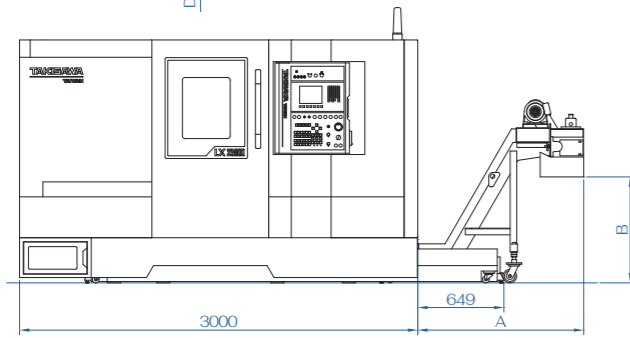
Machine Dimensions

LX-2500 / LX-2500M

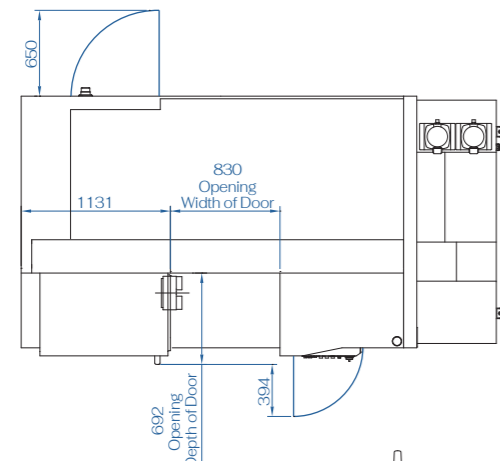


Chip Conveyor Dimension

	A	B
Standard	1256	907
CE	1256	782
Italy	1481	1021
Switzerland	1481	1171

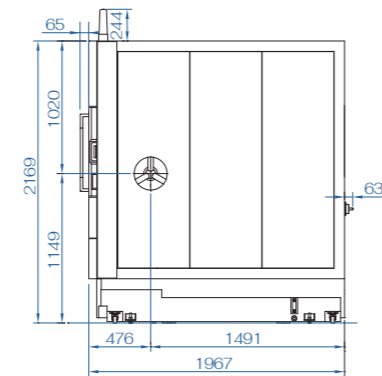
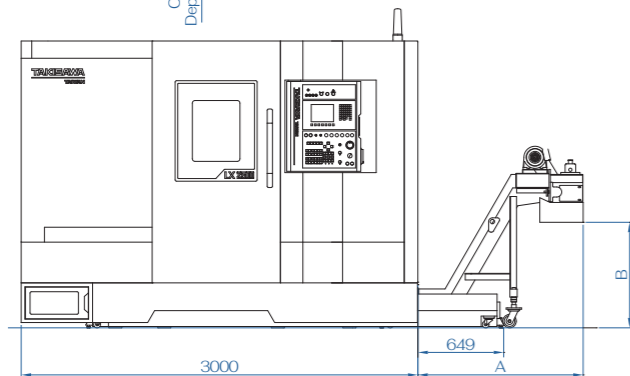


LX-2500Y



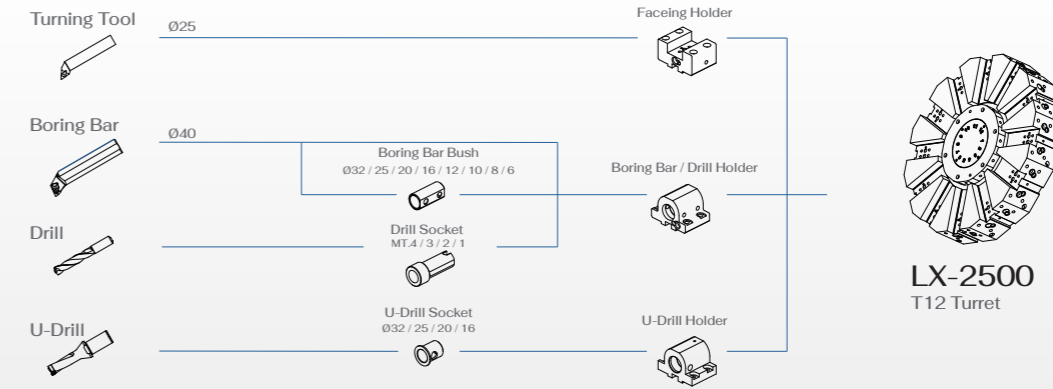
Chip Conveyor Dimension

	A	B
Standard	1256	907
CE	1256	782
Italy	1481	1021
Switzerland	1481	1171

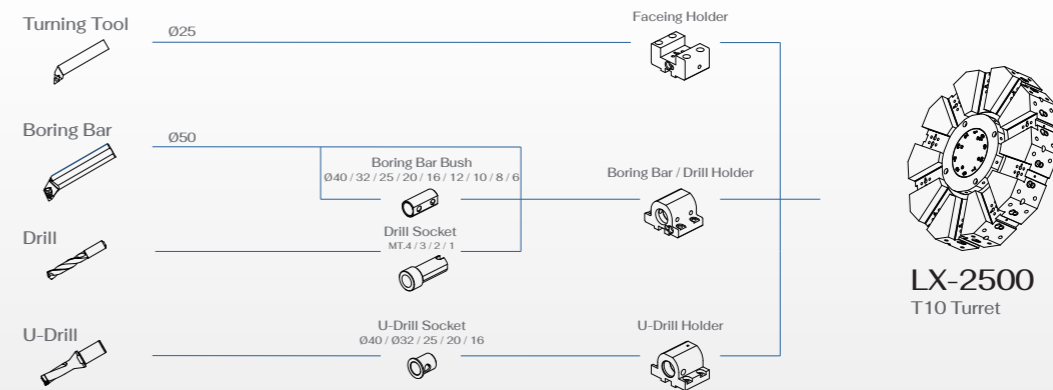


Tooling System

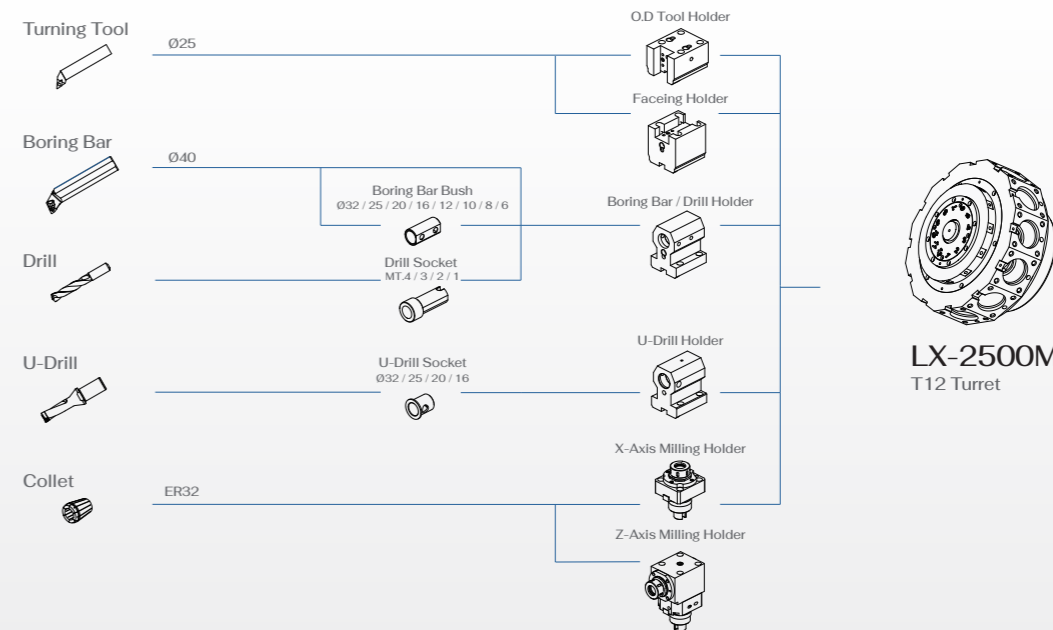
LX-2500 T12 Turret



LX-2500 T10 Turret



LX-2500M T12 Turret



Machine Specifications

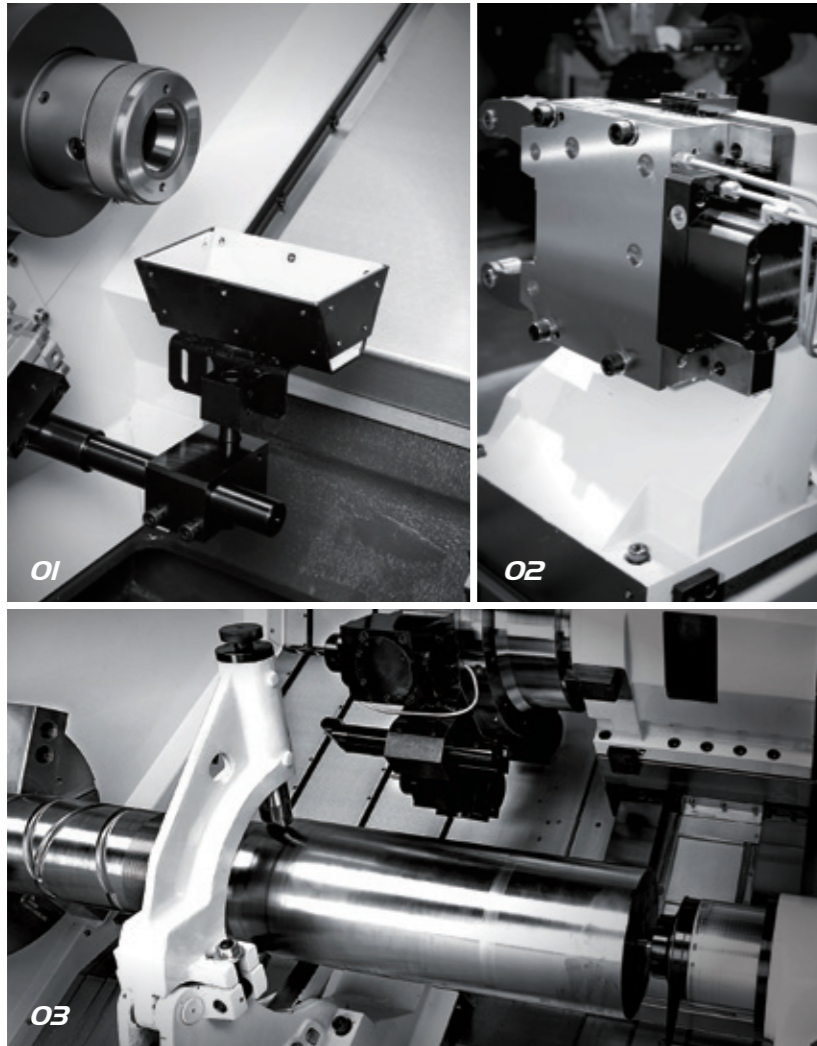
Item		LX-2500	LX-2500M	LX-2500Y
Capacity	Max. Swing	mm 625	625	730
	Standard Turning Diameter	mm 254	244	244
		mm 300		
	Max. Turning Diameter	mm 450	420	420
		mm 470		
	Max. Turning Length	mm 732	698	698
	Max. Bar Work Capacity	mm 81	81	81
mm 75		75	75	
Travel	X-Axis Travel	mm 275	275	275
	Z-Axis Travel	mm 815	815	815
	Y-Axis Travel	mm -	-	± 50
	B-Axis Travel	mm 730	730	730
Spindle	Spindle Speed	rpm 3500	3500	3500
		rpm 3000	3000	3000
	Spindle Nose	A2-8	A2-8	A2-8
	Through Hole Diameter	mm 91	91	91
		mm 86	86	86
Bearing Inside Diameter	mm 120	120	120	
Turret	Number of Tools	T12	T12	T12
		T10		
	OD Tool Shank Dimension	mm 25	25	25
	ID Tool Shank Diameter	mm 40	40	40
		mm 50		
Milling Shank Diameter	mm -	20	20	
Milling Spindle Speed	rpm -	4000	4000	
Tailstock	Tailstock Type	Live Center	Live Center	Live Center
		Built-In Center	Built-In Center	Built-In Center
Tapered Bore Type	MT.5	MT.5	MT.5	
Feedrate	X-Axis Rapid Traverse	m/min 24	24	24
	Z-Axis Rapid Traverse	m/min 30	30	30
	Y-Axis Rapid Traverse	m/min -	-	10
	B-Axis Rapid Traverse	m/min 20	20	20
Motor	Spindle Motor	kw 22 / 15	22 / 15	22 / 15
		kw 18.5 / 15	18.5 / 15	18.5 / 15
	Milling Tool Spindle	kw -	5.5 / 3.7	5.5 / 3.7
	Index Motor	kw 1.2	1.2	1.2
	X-Axis Servo Motor	kw 1.8	1.8	2.5
	Z-Axis Servo Motor	kw 2.5	2.5	2.5
	Y-Axis Servo Motor	kw -	-	2.5
B-Axis Servo Motor	kw 2.5	2.5	2.5	
Machine Size	Height	mm 1830	1830	2169
	Width	mm 3000	3000	3000
	Depth	mm 1967	1967	1967
	Weight	kg 6150	6250	6600

Standard and Optional Accessories

Accessories	LX-2500	LX-2500M	LX-2500Y
Built-In Motor Spindle	●	●	●
GearBox Spindle	○	○	○
P Motor Spindle	○	○	○
Servo Tailstock with Live Center	●	●	●
Servo Tailstock with Built-In Center	○	○	○
Hydraulic Tailstock with Live Center	○	○	○
Hydraulic Tailstock with Built-In Center	○	○	○
T10 Turning Turret	○	-	-
T12 Turning Turret	●	-	-
T12 Milling Turret	-	●	●
O.D Tool Holder	-	●	●
Face Tool Holder	●	●	●
U-Drill Tool Holder	●	●	●
Boring Bar Tool Holder	●	●	●
Boring Bar Bush (Ø6, Ø8, Ø10, Ø12)	●	●	●
Boring Bar Bush (Ø16, Ø20, Ø25, Ø32)	●	●	●
Boring Bar Bush (Ø40) T10 Only	●	-	-
U-Drill Bush (Ø16, Ø20, Ø25, Ø32)	●	●	●
U-Drill Bush (Ø40) T10 Only	●	●	●
Drill Bush (MT.1, MT.2, MT.3, MT.4)	○	○	○
X-Axis Milling Holder	-	●	●
Z-Axis Milling Holder	-	●	●
Automatic Tool Setter	○	○	○
Manual Tool Setter	○	○	○
Linear Scales	○	○	○
Coolant Pump (450W)	●	●	●
Coolant Pump (715W, 750W, 900W, 1400W)	○	○	○
Cutting Fluid Cooling	○	○	○
Hydraulic System	●	●	●
Nut Cooling Ball Screw	○	○	○
High Pressure Coolant	○	○	○
Hydraulic Oil Cooling	○	○	○
Hydraulic Pressure Sensor	●	●	●
Lubrication System	●	●	●
Lubricating Oil Recycling Box	●	●	●
Hydraulic Chuck	●	●	●
Collet Chuck	○	○	○
Foot Switch	●	●	●
LED Interior Light	●	●	●
LED TAKISAWA Light	●	●	●
LED Signal Tower	●	●	●
Hydraulic Steady Rest	○	○	○
Manual Steady Rest	○	○	○
Right Side Chip Conveyor	○	○	○
Rear Side Chip Conveyor	○	○	○
Chip Cart	●	●	●
Parts Catcher	○	○	○
Parts Conveyor	○	○	○
Automatic Bar Feeder and Interface	○	○	○
Electrical Auto Door	○	○	○
Pneumatic Auto Door	○	○	○
Safety Door Switch	○	○	○
Safety Light Curtain	○	○	○
Air Blow	○	○	○
Oil Skimmer	○	○	○
Oil Mist Collector	○	○	○
Parts Counter	○	○	○
Automatic Power-Off	○	○	○

● Standard ○ Optional - Nope

Special Specification Example



For any special needs such as changes in the specification of the work piece catcher and the centre frame please contact us for a customised needs assessment.

01 Parts Catcher

Max. Catching Diameter	90	mm
Max. Catching Length	210	mm
Max. Catching Weight	3	kg

02 Hydraulic Steady Rest

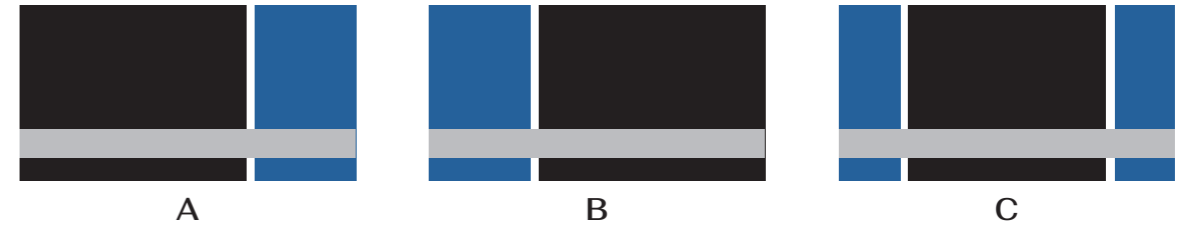
SMW SLU-Z-1	Ø4 ~ Ø64	mm
SMW SLU-Z-2	Ø8 ~ Ø101	mm
SMW SLU-Z-3	Ø12 ~ Ø152	mm
SMW SLU-Z-3.1	Ø20 ~ Ø165	mm
SMW SLU-Z-3.2	Ø50 ~ Ø200	mm

03 Manual Steady Rest

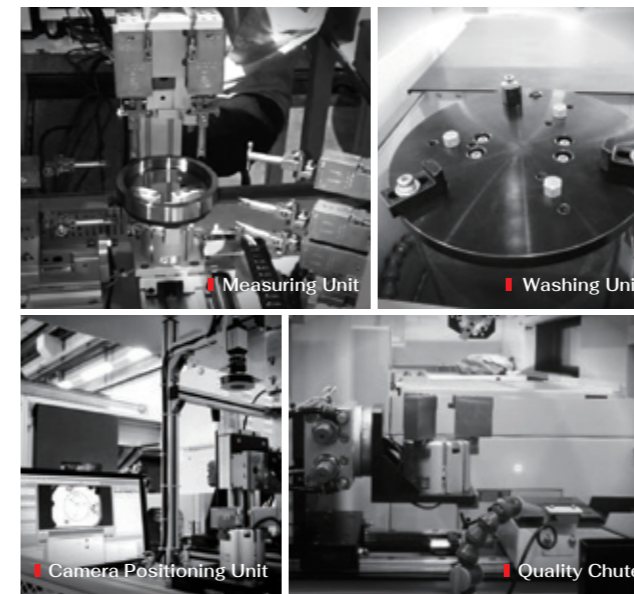
T006	Ø50 ~ Ø155	mm
T009	Ø100 ~ Ø240	mm
T011	Ø8 ~ Ø80	mm
T012	Ø20 ~ Ø200	mm

Gantry Loader

High Speed Gantry Loader



Peripheral Equipment



Gantry Loader Specifications

Gantry Loader Feedrate		
X-Axis	180	m/min
Z-Axis	150	m/min
Working Size		
O.D	160	mm
Length	100	mm
Weight	3 (x2)	kg

Work Feeder Specifications

Pallet	16	pcs
Loading Weight	40	kg
Max. Height	450	mm
Worker Feeder Width	610	mm

Highly Accurate Optional Equipment

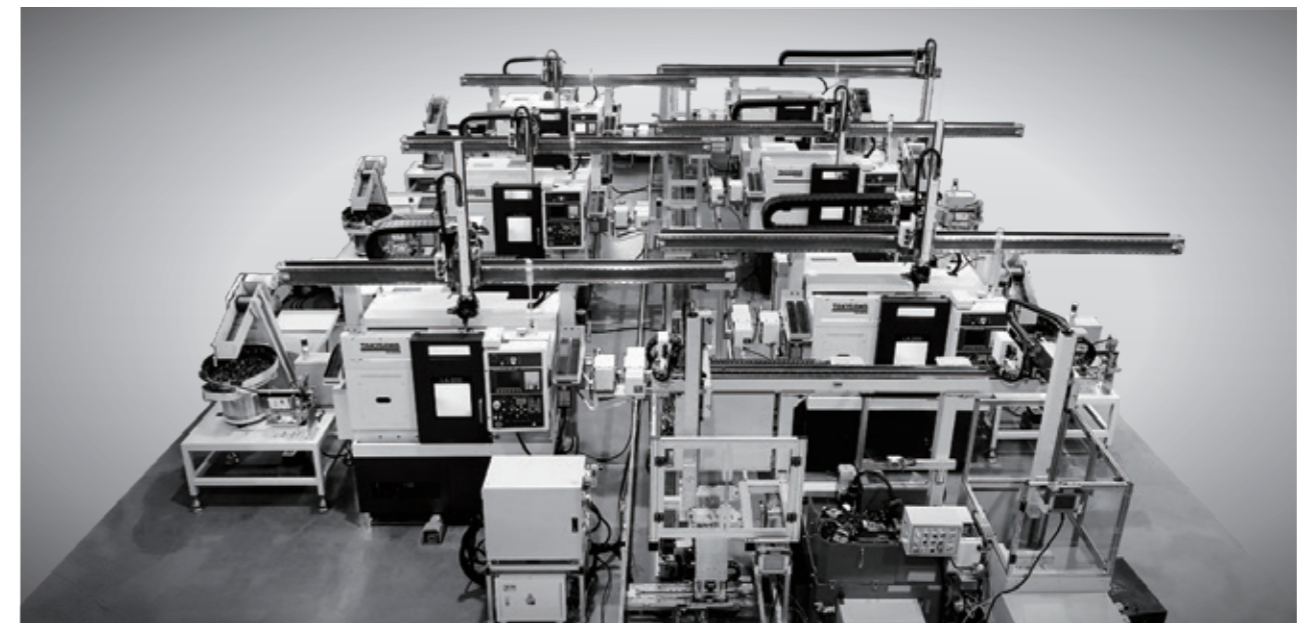
There are special requirements for precise machining accuracy and it is necessary to use approved high-precision optional equipment.

Please contact us for advice on these options.

- 01 Linear Scales
- 02 Automatic & Manual Tool Setter
- 03 Nut Cooling Ball Screw
- 04 Cutting Fluid Cooling
- 05 High Pressure Coolant
- 06 Hydraulic Oil Cooling



Turn-Key Solution



NC Unit Specifications

Specifications · Contents	LX-2500	LX-2500M	LX-2500Y
Controller			
0I-TF	●	●	●
NC Unit			
8.4" Color LCD	●	●	●
10.4" Color LCD	⊙	⊙	⊙
Safety Device			
Front Door Interlock	⊙	⊙	⊙
Front Door Locking Mechanism	⊙	⊙	⊙
Safety Relay	⊙	⊙	⊙
Control Panel Breaker with Tripper	⊙	⊙	⊙
Controlled Axes			
Least Input Increment	●	●	●
Maximum programmable Dimension (±999999.999)	●	●	●
Least Input Increment C	▲	▲	▲
Inch/Metric Selection	●	●	●
Interlock	●	●	●
Machine Lock	⊙	⊙	⊙
Emergency Stop	●	●	●
Stored Stroke Check 1	●	●	●
Stored Stroke Check 2, 3	●	●	●
Stroke Limit Check Before Movement	▲	▲	▲
Chuck Tailstock Barrie	▲	▲	▲
Mirror Image (Each Axis)	▲	▲	▲
Chamfering ON/OFF	●	●	●
Overload Detection	▲	▲	▲
Position Switch	●	●	●
Operation			
Auto Run (Memory)	●	●	●
MDI Run	●	●	●
DNC Run	●	●	●
DNC Run with Memory Card	●	●	●
Program Number Search	●	●	●
Sequence Number Search	●	●	●
Sequence Number Collation and Stop	●	●	●
Wrong Operation Preventive	▲	▲	▲
Buffer Register	●	●	●
Dry Run	●	●	●
Single Block	●	●	●
Jog Feed	●	●	●
Manual Reference Point Return	●	●	●
Dogless Reference Point Setting	●	●	●
Manual Handle Feed, 1 Unit	●	●	●
Interpolating Functions			
Positioning (G00)	●	●	●
Exact Stop Mode (G61)	●	●	●
Tapping Mode (G63)	●	●	●
Cutting Mode (G64)	●	●	●
Exact Stop (G09)	●	●	●
Linear Interpolation (G01)	●	●	●
Circular Interpolation (G02 / G03)	●	●	●
Dwell (G04)	●	●	●
Polar Coordinate Interpolation	-	●	●
Cylindrical Interpolation	-	●	●
Thread Cutting	●	●	●
Multiple Thread Cutting	●	●	●
Thread Cutting Cycle and Retraction	●	●	●
Continuous Thread Cutting	●	●	●
Variable Lead Thread Cutting	●	●	●
Reference Point Return (G28)	●	●	●
Reference Point Return Check (G27)	●	●	●
2nd Reference Point Return (G30)	●	●	●
3rd, 4th Reference Point Return	●	●	●

Specifications · Contents	LX-2500	LX-2500M	LX-2500Y
Feed Function			
Rapid Traverse Override (F0, 25%, 50%, 100%)	●	●	●
Feed Per Minute	●	●	●
Feed Per Revolution	●	●	●
Constant Tangential Speed Control	●	●	●
Cutting Feedrate Clamp	●	●	●
Automatic Acceleration / Deceleration	●	●	●
Rapid Traverse Bell-Shaped Accel / Decel	●	●	●
Linear Accel / Decel After Feedrate Interpolation	●	●	●
Feedrate Override (15 Steps)	●	●	●
Jog Override (15 Steps)	●	●	●
Override Cancel	●	●	●
Manual Feed Per Revolution	▲	▲	▲
Program Input			
Tape Code (EIA / ISO Auto Recognition)	●	●	●
Label Skip	●	●	●
Parity Check	●	●	●
Control In / Out	●	●	●
Optional Block Skip, 1 Piece	●	●	●
Optional Block Skip (2 to 9 Pieces)	⊙	⊙	⊙
Program Number 04 Digits	●	●	●
Program File Name 32 Characters	●	●	●
Sequence Number N8 Digits	●	●	●
Absolute/Incremental Command	●	●	●
Decimal Point Input / Pocket Calculator Type Decimal Point Input	●	●	●
Diameter / Radius Programming (X-Axis)	●	●	●
Coordinate System Setting (G50)	●	●	●
Auto coordinate System Setting	●	●	●
Drawing Dimension Direct Input	●	●	●
G-Code System A	●	●	●
G-Code System B / C	▲	▲	▲
Chamfering / Corner R Programming	●	●	●
Programmable Data Input	●	●	●
Sub Program Call (10 Levels)	●	●	●
Custom Macro	●	●	●
Additional Custom Macro Common Variables	●	●	●
Single Canned Cycle	●	●	●
Combined Canned Cycle	●	●	●
Combined Canned Cycle II	●	●	●
Drilling Canned Cycle	●	●	●
Arc Radius Programming	●	●	●
Macro Executor	⊙	⊙	⊙
Coordinate System Shift	●	●	●
Coordinate System Shift Direct Input	●	●	●
Miscellaneous Function / Spindle Functions			
M Function (M3 Digits)	●	●	●
Second Miscellaneous Function (B Function)	⊙	⊙	⊙
Spindle Functions (S4 Digits)	●	●	●
Constant Surface Speed Control	●	●	●
Spindle Orientation	●	●	●
Rigid Tap (Spindle Center)	●	●	●
Rigid Tap (Rotary Tool)	-	●	●
Data I/O			
RS-232C Interface for 1 ch	●	●	●
Fast Data Server	⊕	⊕	⊕
External Message	●	●	●
External Workpiece Number Search	⊙	⊙	⊙
Memory Card I/O	●	●	●

Specifications · Contents	LX-2500	LX-2500M	LX-2500Y
Tool Functions / Tool Offset Functions			
T Function (T2+2 Digits)	●	●	●
Tool Offsets, 99 Pieces	●	●	●
Tool Offsets, 200 Pieces	⊙	⊙	⊙
Tool Geometry Size Data, 100 Pieces	⊙	⊙	⊙
Tool Position Offset	●	●	●
Tool Diameter / Nose R Compensation	●	●	●
Tool Geometry / Wear Compensation	●	●	●
Tool Offset Counter Input	●	●	●
Tool Offset Measured Value Direct Input	●	●	●
Tool Offset Measured Value Direct Input B	⊙	⊙	⊙
Tool Life Management	▲	▲	▲
Accuracy Offset Functions			
Backlash Compensation	●	●	●
Backlash Compensation by Rapid Traverse / Feedrate	●	●	●
Editing			
Part Program Memory Capacity 512K byte (1280m)	●	●	●
Part Program Memory Capacity 2M byte	⊙	⊙	⊙
Registrable Programs, 400 Programs	●	●	●
Registrable Programs, 1000 Programs	⊙	⊙	⊙
Program Editing	●	●	●
Program Protection	●	●	●
Extended Program Editing	●	●	●
Background Editing	●	●	●
Setting / Display			
Status Display	●	●	●
Clock Function	●	●	●
Current Position Display	●	●	●

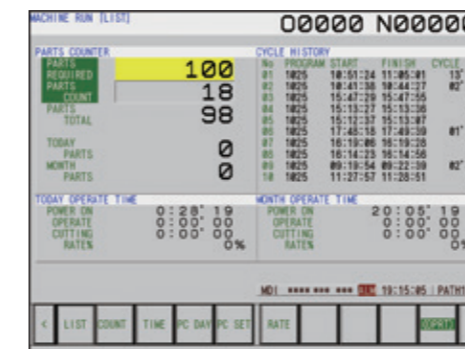
Specifications · Contents	LX-2500	LX-2500M	LX-2500Y
Program Comment Display (31 Characters)	●	●	●
Parameter Setting and Display	●	●	●
Alarm Display	●	●	●
Alarm Log Display	●	●	●
Operator Message Log Display	●	●	●
Operation Message Log Display	●	●	●
Run Hours and Parts Count Display	●	●	●
Actual Speed Display	●	●	●
Actual Spindle Speed and T Code Display	●	●	●
Floppy Cassette Directory Display	●	●	●
Grouped Directory Display and Punching	●	●	●
Servo Adjustment Screen	●	●	●
Maintenance Information Screen	●	●	●
Data Protection Key, 1 Kind	●	●	●
Help Function	●	●	●
Self Diagnostic Function	●	●	●
Scheduled Maintenance Screen	●	●	●
Hardware & Software System Configuration Display	●	●	●
Graphic Display	●	●	●
Dynamic Graphic Display	⊙	⊙	⊙
Display Languages			
English	●	●	●
Japanese (Kanji)	▲	▲	▲
Other Language	▲	▲	▲
Display Language Dynamic Switching	●	●	●

● Standard ⊙ Optional ⊕ Special
▲ Parameter setting is required - Nope

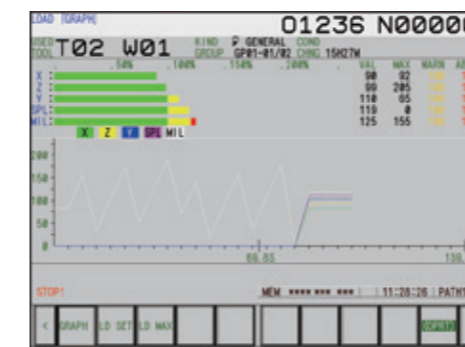
Smart Work Manager (Option)

It provides simple operation and convenient function.

01



02



01 Tool Life Manager

This function can set tool life and wear limit to manage all tools.

02 Load Monitor

Detecting max load to check tool status.

03 Parts and Machine Manager

It offers parts counter, program history, operate time for today or this month.

03

