

FX-800

TWIN TURRET TWIN SPINDLE **CNC Turning Center**

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

Pingchen /
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

/// **TAKISAWA Tech Corp**

U.S.A /
15271 Fairfield Ranch Rd., Unit 130,
Chino Hills, CA 91709, U.S.A
TEL: +1-866-606-6143 / +1-909-308-0903
E-mail: joshua.huang@takisawatechcorp.com

/// **TAKISAWA Tech Asia Co.,Ltd.**

Thailand /
18/31 M.7, Bangchalong, Bangphi,
Samutprakan, 10540. Thailand
TEL: +66-20465900 FAX: +66-20465901
E-mail: nuttapong@takisawa.com

/// **www.takisawa.com.tw**



FX-800

Twin turrets turning center for process integration and high productivity.

FX-800 is a multi-purpose, high-productivity, twin spindles, twin turrets turning center. The upper and lower turrets are T16 powered turret, and the upper turret is equipped with Y axis, which can perform complex turning and milling and greatly improve production efficiency.



Both spindle equipped with built-in motor, The bed features highly rigid structure and excellent thermal displacement performance, which can meet the processing requirements of heavy duty and high precision machining.

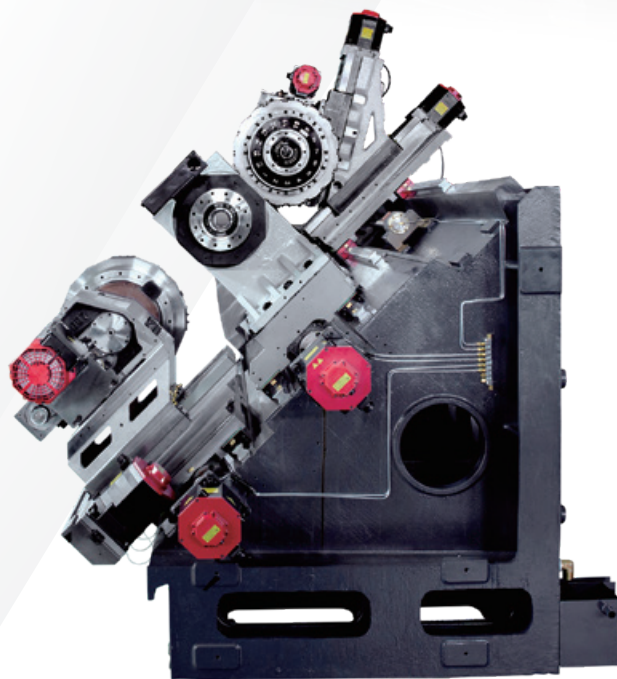
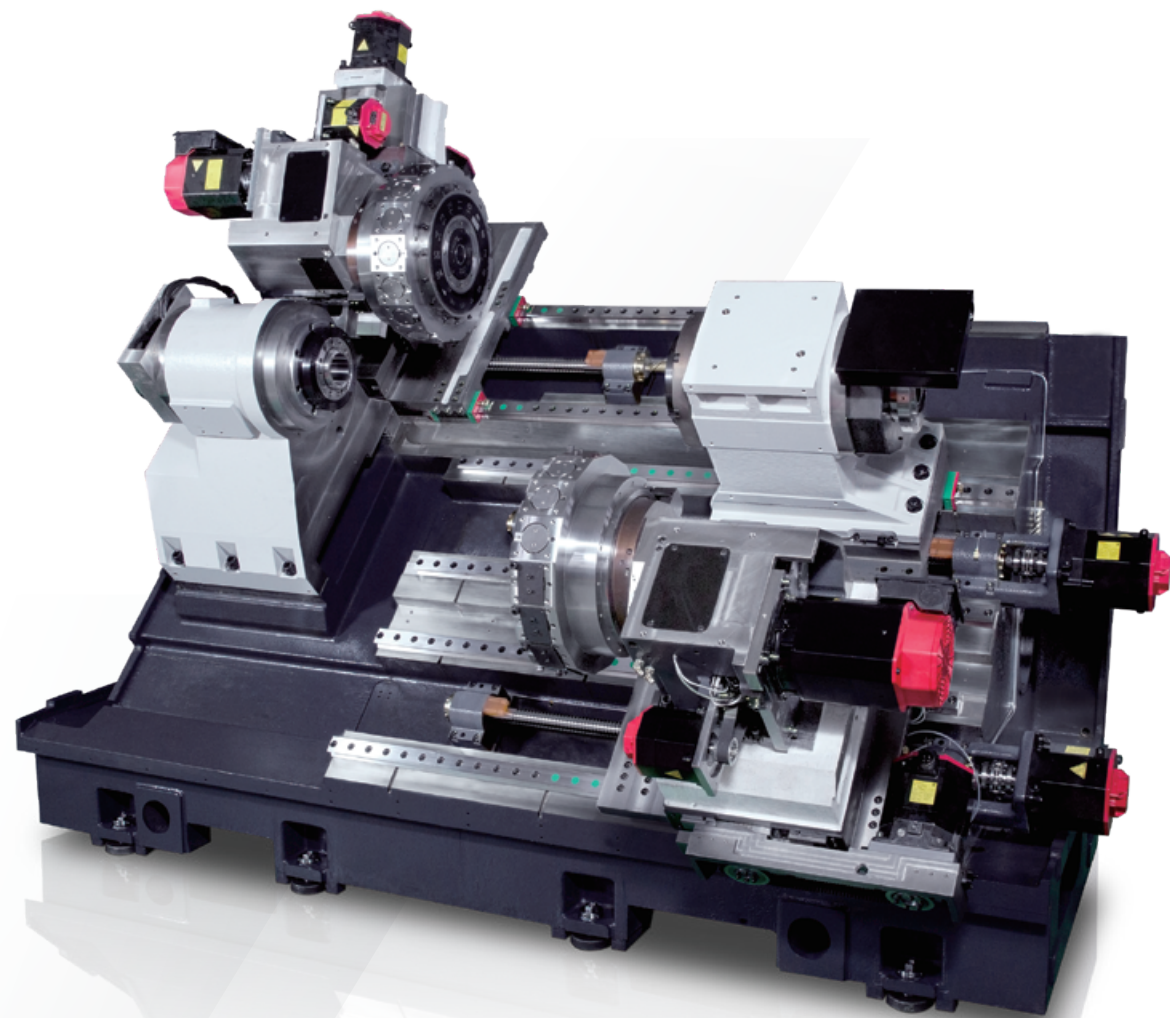
The new generation of FX-800 increases the working range and the speed of feed axes according to the feedback of customers' experience. The evolved interior covers make daily maintenance easier.

01 Workpiece Size

	FX-800	
Max. Turning Diameter	310	mm
Max. Turning Length	657	mm
Max. Bar Work Capacity Diameter	65 / 52	mm

Both turret can mill or drill on one spindle at the same time, which means users can flexibly use the tool configuration of the upper and lower turrets, to reduce non-processing time and improve production efficiency.

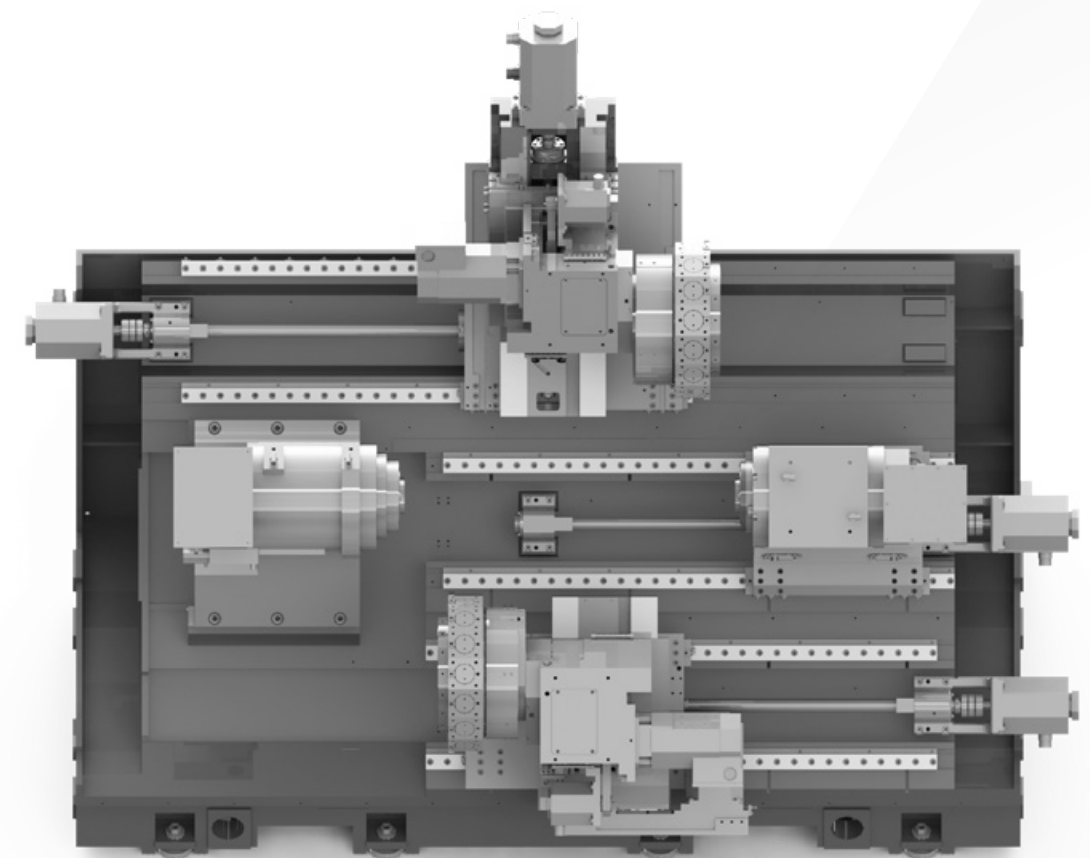




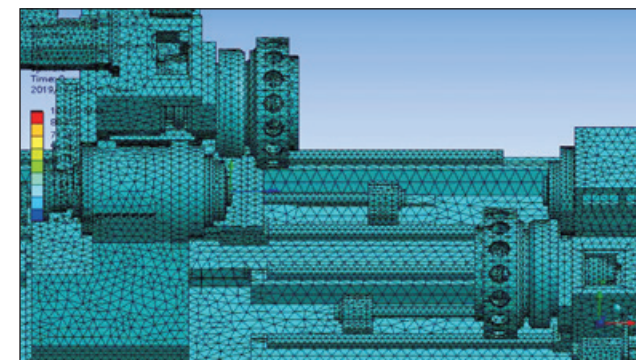
02 Travel & Rapid Traverse

FX-800		
X1/X2-Axis Travel	215 / 215	mm
X1/X2-Axis Rapid Traverse	20 / 20	m / min
Z1/Z2-Axis Travel	750 / 745	mm
Z1/Z2-Axis Rapid Traverse	20 / 20	m / min
Y-Axis Travel	± 50	mm
Y-Axis Rapid Traverse	10	m / min
B-Axis Travel	730	mm
B-Axis Rapid Traverse	20	m / min

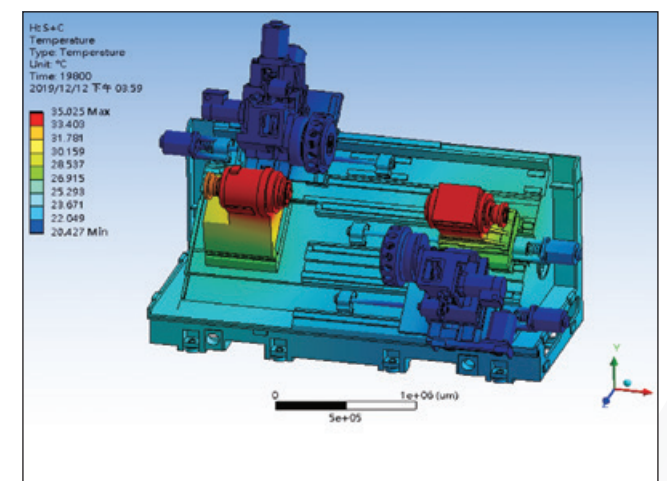
- The guideways introduce the concept of hybrid design. The X-axes and Y-axis with box ways which provide good vibration attenuation and dynamic rigidity. The Z-axes and B-axis with roller linear guides to achieve high precision, high rigidity and high speed.



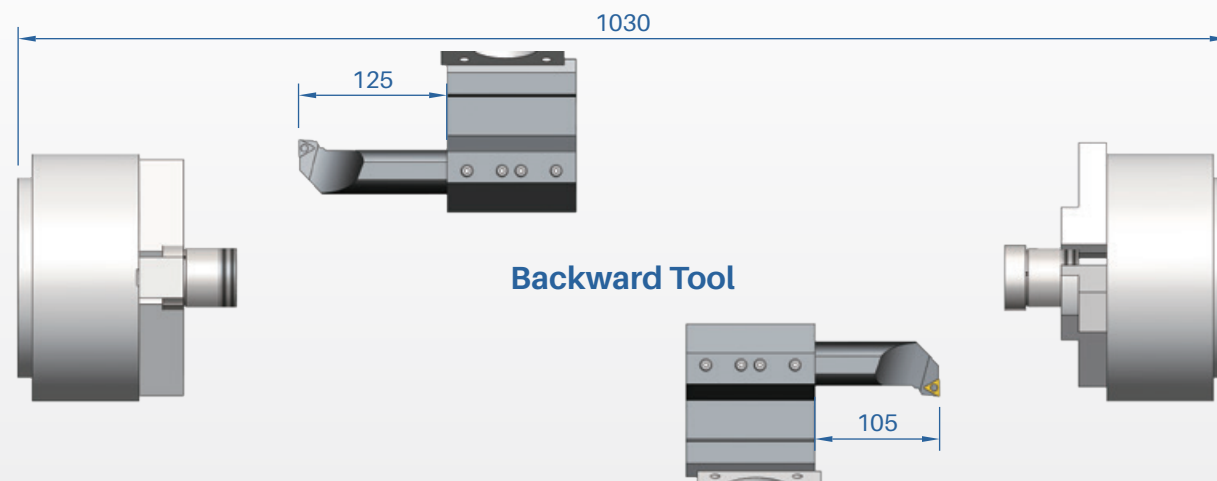
- The upper turret, lower turret and right spindle adopt independent linear slide rails. Since the lower turret and the right spindle are not in the same pair of railway, the rigidity of the right spindle can be improved. In addition, both turret can cut on the left spindle and right spindle, which greatly improves the flexibility and efficiency of use.



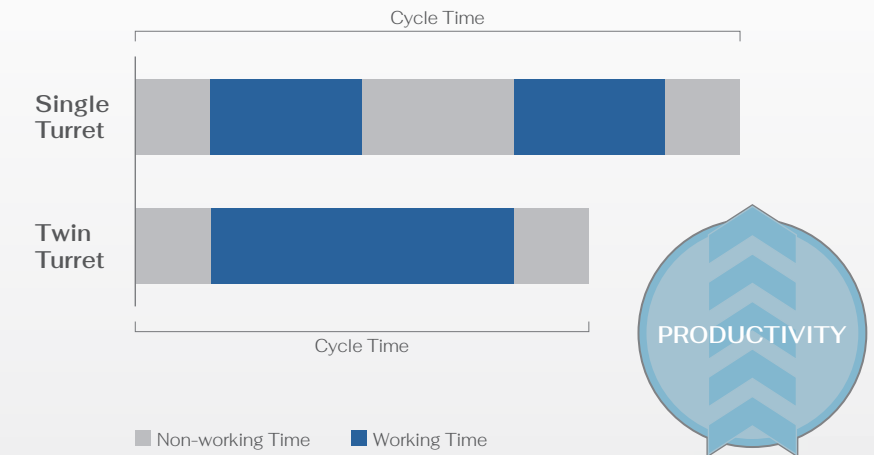
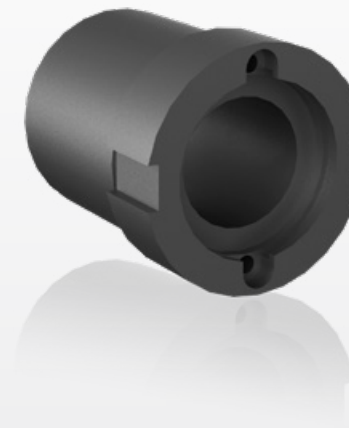
- TAIWAN TAKISAWA is committed to the basic research of machinery, through the finite element method (FEM) analysis to achieve higher machine rigidity and excellent thermal deformation performance.



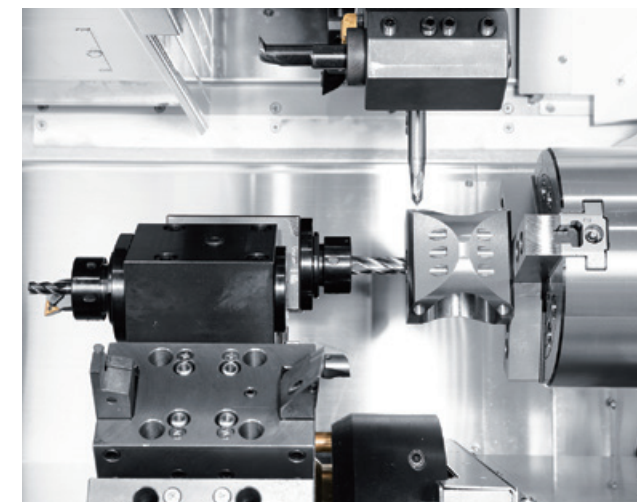
03 Working Area



Sample Workpiece
(S45C Ø56 x L63)



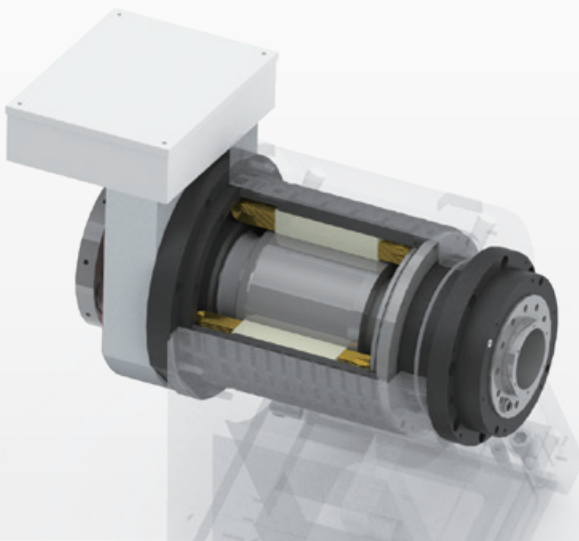
04 Simultaneous Turning and Milling with Upper and Lower Turret



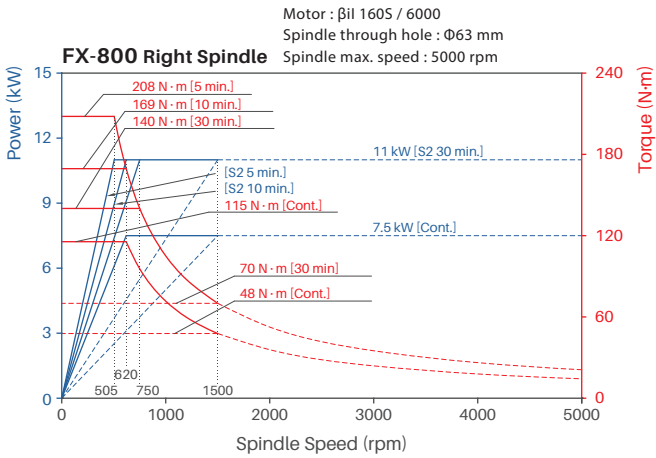
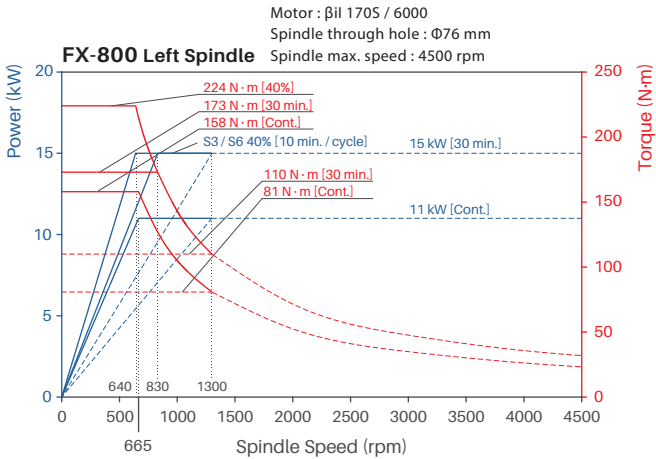
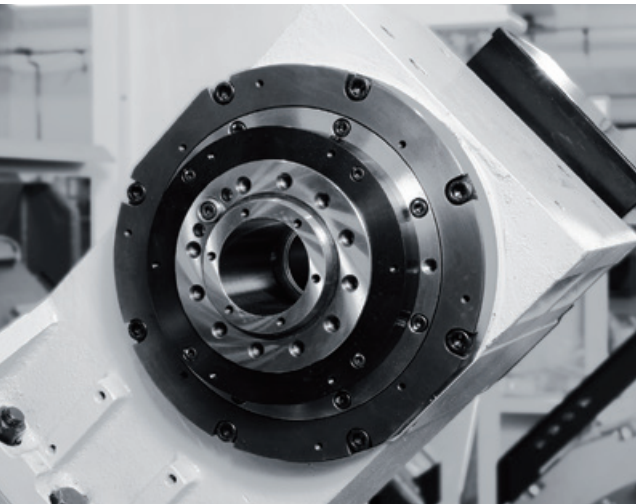
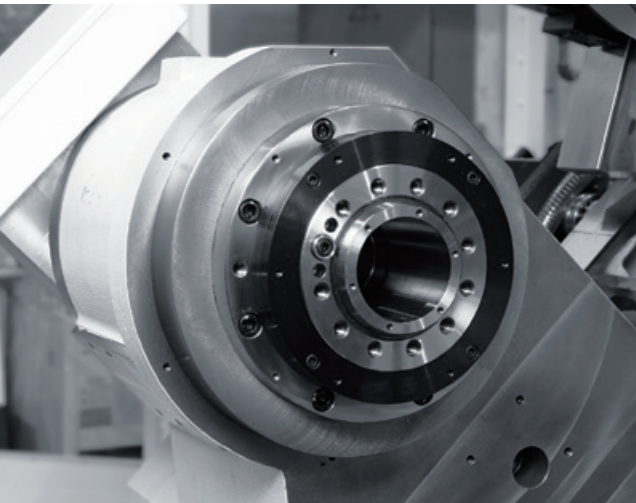
Spindle

The left and right spindles are equipped with built-in motors for high precision, low vibration and low noise, which provide better surface roughness of the workpiece.

	Left Spindle	Right Spindle	
Spindle Nose	A2-6	A2-6	
Spindle Speed	4500	5000	rpm
Through Hole Diameter	76	63	mm
Bearing Inside Diameter	110	100	mm
Motor Output	15 / 11	11 / 7.5	kW
Max. Torque	224	208	N·m
Standard Chuck Size	8	8	inch

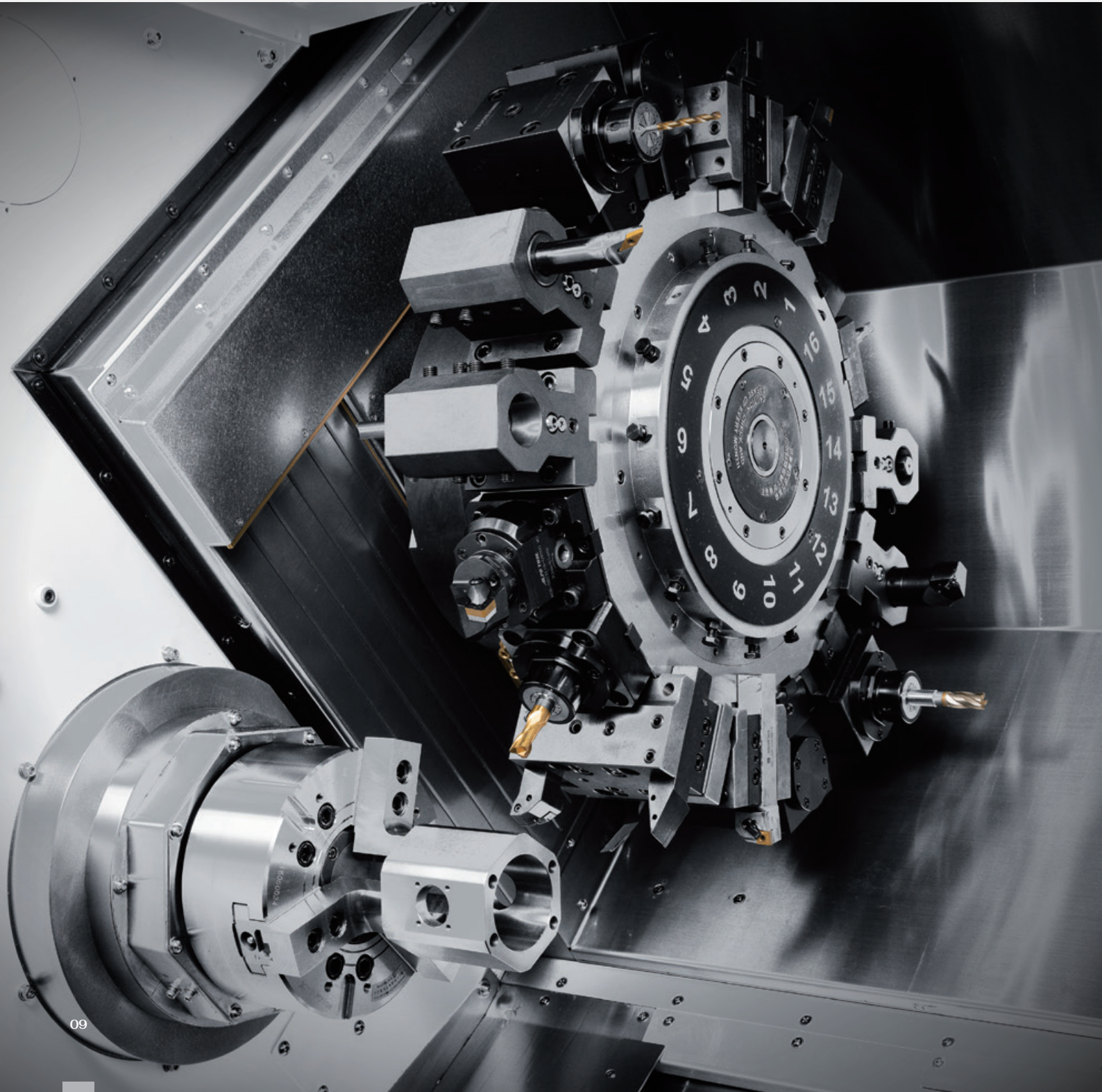


Spindle Output Diagram



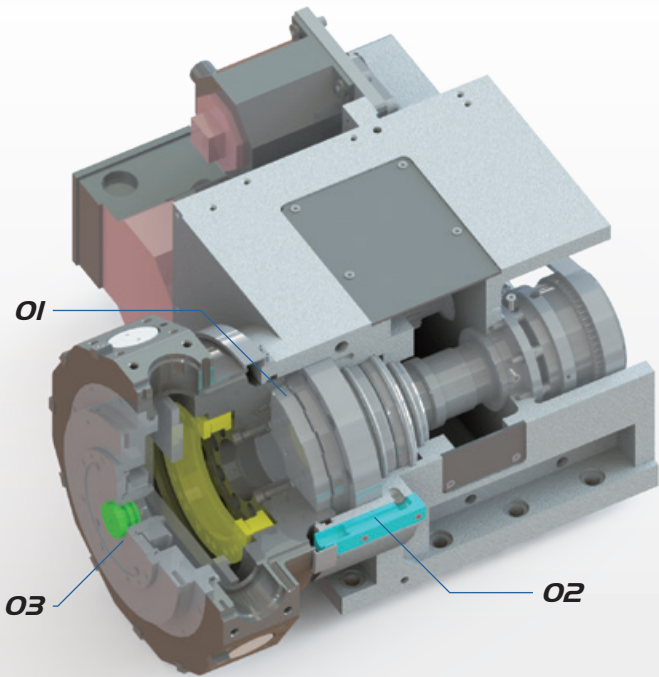
Turret

Equipped with 16 stations power turrets, which can handle combined machining such as milling, drilling and tapping. Inside the turret, the large diameter of coupling gear set with curvic tooth profile provides high rigidity and high accuracy.



Turret Structure

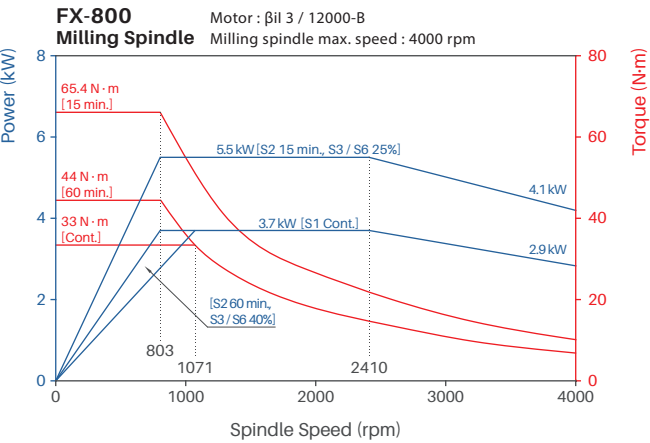
- 01 Curvic Coupling O.D. 280 mm performs high rigidity and accuracy
- 02 Ready for 70 bar hi-pressure coolant
- 03 Easy to grease up



T16 Turret

Number of Tools	16	
OD Tool Shank Dimension	25	mm
ID Tool Shank Diameter	40	mm
Milling Shank Diameter	20	mm
Milling Spindle Speed	4000	rpm
Motor Output	5.5 / 3.7	Kw
Max. Torque	65.4	N·m

Spindle Output Diagram

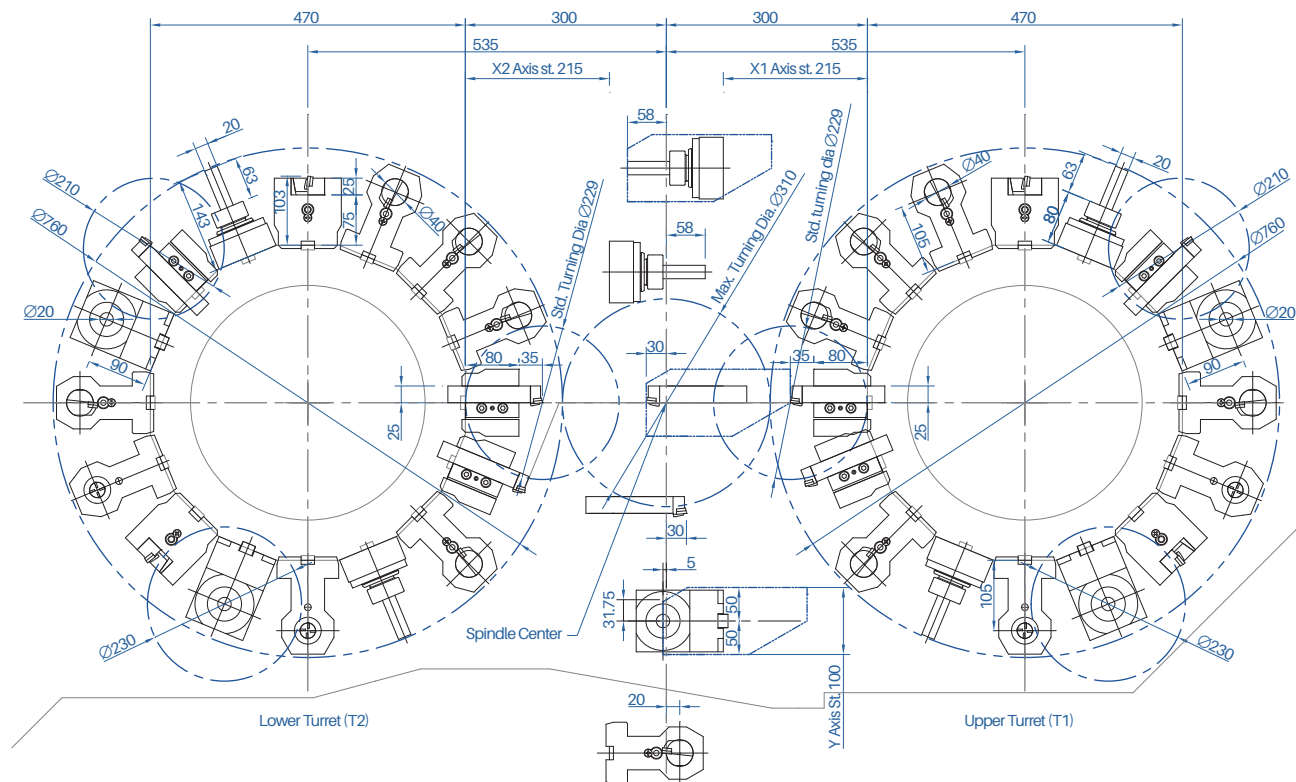


Special Tool Holders

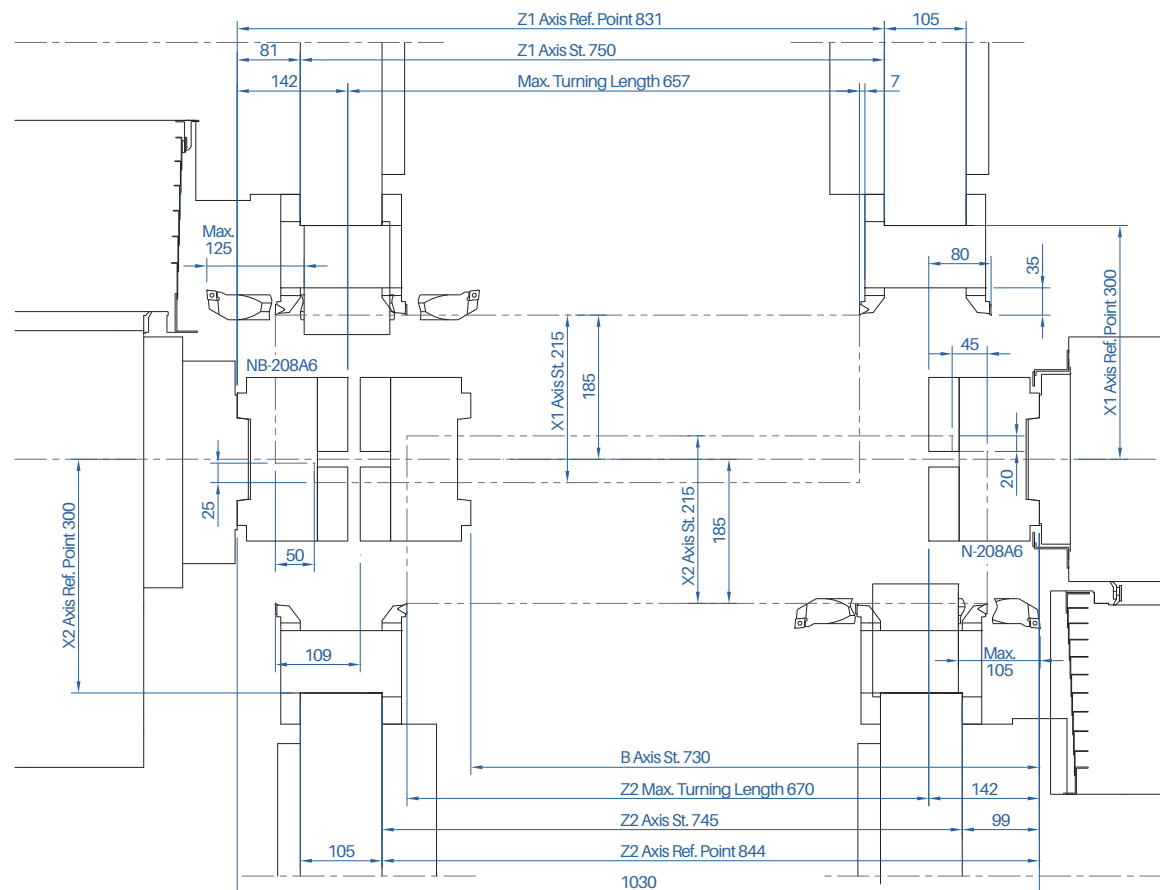


- 01 Gear Hobbing
- 02 Broaching
- 03 Power Skiving
- 04 Adjustable Angle Milling

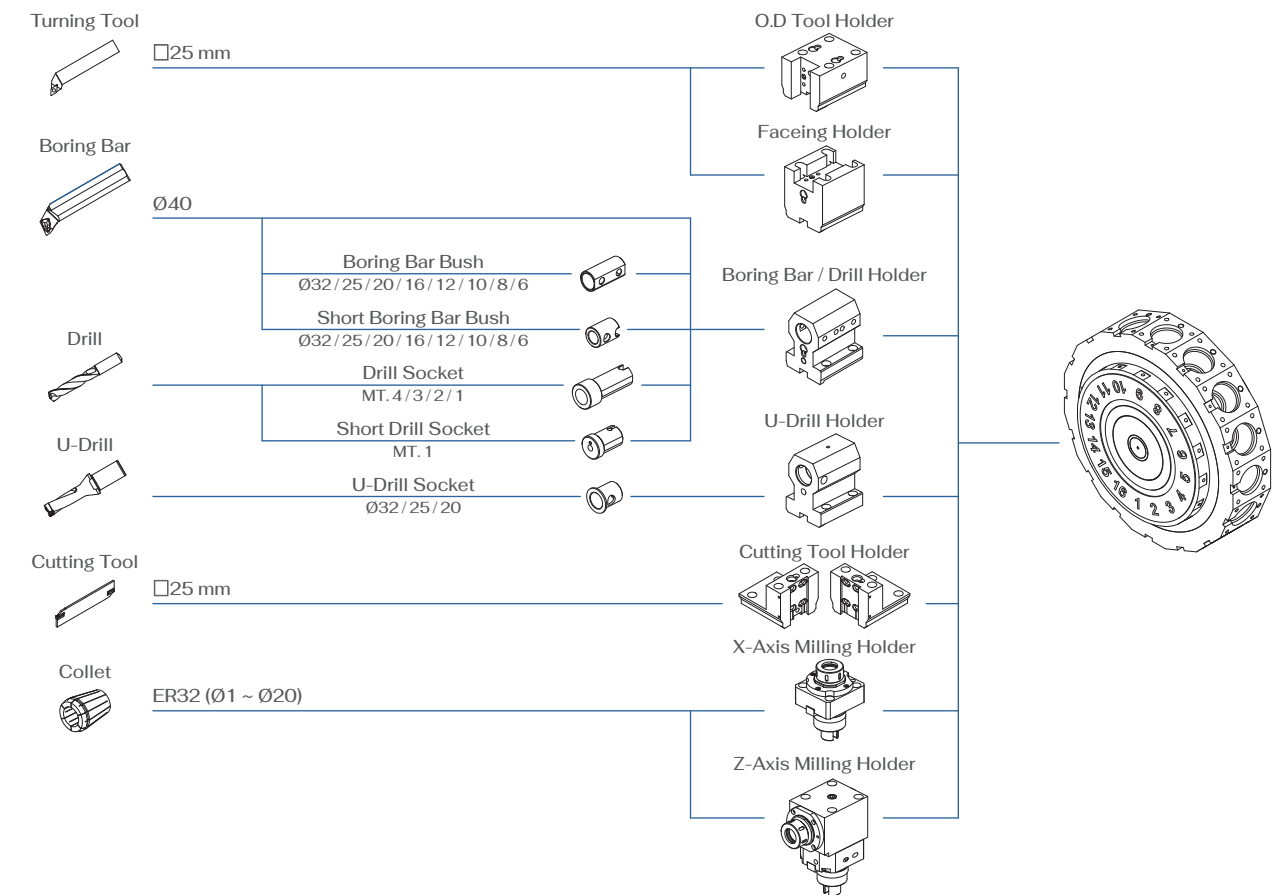
Interference



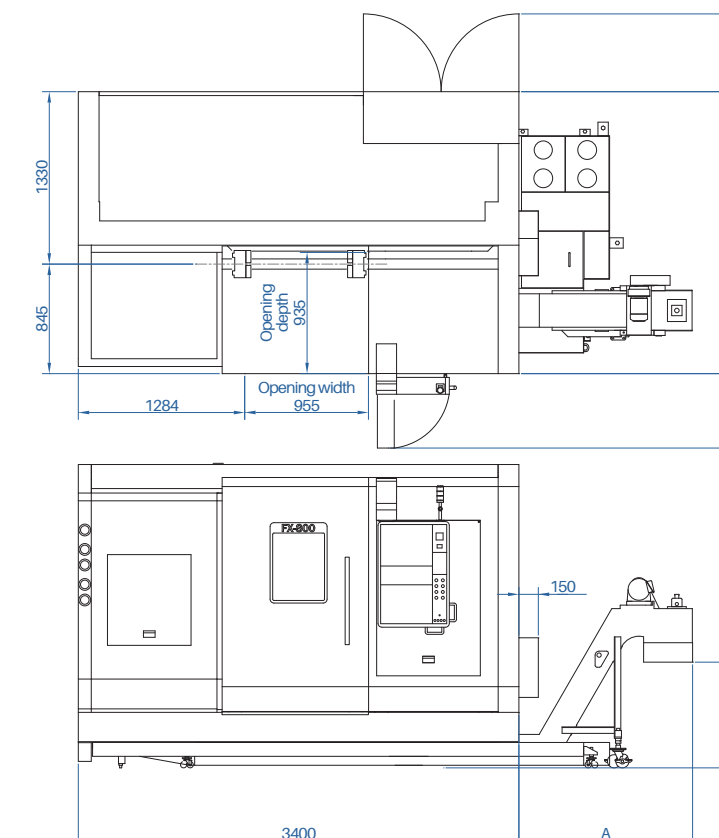
Travel Range



Tooling System

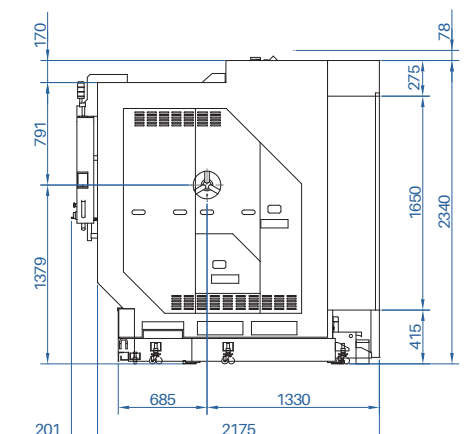


Machine Dimensions



Chip Conveyor Dimension

	A	B
Standard	1236	782
CE	1336	815
Italy	1540	1012
USA	1561	1205



Machine Specifications

Item		FX-800
Capacity	Max. Swing	mm 310
	Standard Turning Diameter	mm 229
	Max. Turning Diameter	mm 310
	Max. Turning Length	mm 657
	Max. Bar Work Capacity	mm 65 / 52
	Dist. Between Centers	mm 1030
Travel	X1/X2-Axis Travel	mm 215 / 215
	Z1/Z2-Axis Travel	mm 750 / 745
	Y-Axis Travel	mm ±50
	B-Axis Travel	mm 730
Left Spindle	Spindle Speed	rpm 4500
	Spindle Nose	A2-6
	Through Hole Diameter	mm 76
	Bearing Diameter	mm 110
Right Spindle	Spindle Speed	rpm 5000
	Spindle Nose	A2-6
	Through Hole Diameter	mm 63
	Bearing Diameter	mm 100
Turret	Number of Tools	T16 + T16
	OD Tool Shank Dimension	25
	ID Tool Shank Diameter	mm 40
	Milling Shank Diameter	mm 20
	Spindle Speed	4000
Feedrate	X1/X2-Axis Rapid Traverse	m/min 20 / 20
	Z1/Z2-Axis Rapid Traverse	m/min 20 / 20
	Y-Axis Rapid Traverse	m/min 10
	B-Axis Rapid Traverse	m/min 20
Motor	Left Spindle Motor	kW 15 / 11
	Right Spindle Motor	kW 11 / 7.5
	Milling Spindle Motor	kW 5.5 / 3.7
	Index Motor	kW 1.2
	X1/X2-Axis Servo Motor	kW 3.0 / 2.5
	Z1/Z2-Axis Servo Motor	kW 2.5 / 2.5
	Y-Axis Servo Motor	kW 2.5
	B-Axis Servo Motor	kW 2.5
Machine Size	Height	mm 2340
	Width	mm 3550
	Depth	mm 2334
	Weight	kg 11000

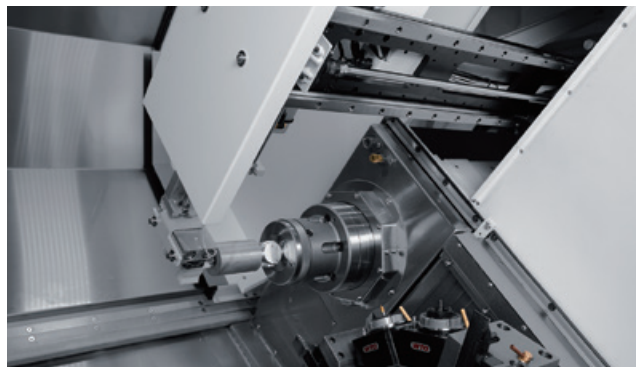
Standard and Optional Accessories

Accessories	FX-800
Built-In Motor Left Spindle	●
Built-In Motor Right Spindle	●
O.D Tool Holder (2 PCS)	●
Face Tool Holder (2 PCS)	●
U-Drill Tool Holder (2 PCS)	●
Boring Bar Tool Holder (8 PCS)	●
Boring Bar Bush (Ø6, Ø8, Ø10, Ø12)	●
Boring Bar Bush (Ø16, Ø20, Ø25, Ø32)	●
U-Drill Bush (Ø16, Ø20, Ø25, Ø32)	●
Short Boring Bar Bush (Ø6, Ø8, Ø10, Ø12)	●
Short Boring Bar Bush (Ø16, Ø20, Ø25, Ø32)	●
Drill Bush (MT.1, MT.2, MT.3, MT.4)	◎
Short Drill Bush (MT.1)	◎
X-Axis Milling Holder (2 PCS)	●
Z-Axis Milling Holder (2 PCS)	●
Automatic Tool Setter	◎
Manual Tool Setter	◎
Linear Scales	◎
Coolant Pump (450W)	●
Coolant Pump (715W, 750W, 900W, 1400W)	◎
Coolant Chiller	◎
Nut Cooling Ball Screw	◎
Hydraulic System	●
Hydraulic Oil Cooling	◎
Hydraulic Pressure Sensor	●
Lubrication System	●
Hydraulic Chuck	●
Collet Chuck	◎
Foot Switch	●
LED Interior Light	●
LED Signal Tower	●
Chip Cart	●
Right Side Chip Conveyor	●
Parts Catcher	◎
Automatic Bar Feeder and Interface	◎
Auto Door	◎
Safety Door Switch	◎
Safety Light Curtain	◎
Air Blow	◎
Oil Skimmer	◎
Oil Mist Collector	◎
Parts Counter	◎
Automatic Power-Off	◎

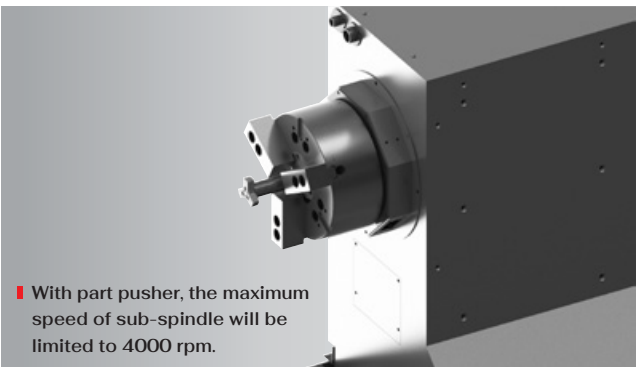
● Standard ◎ Optional - Nope

Special Specification Example

Parts Catcher

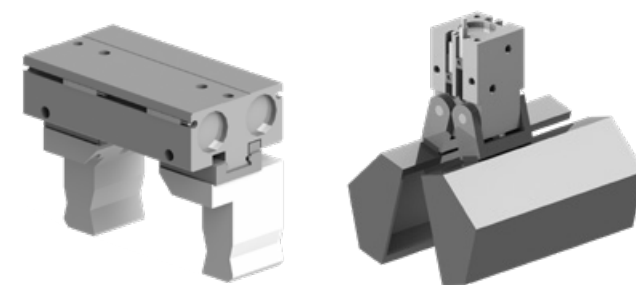


Parts Pusher



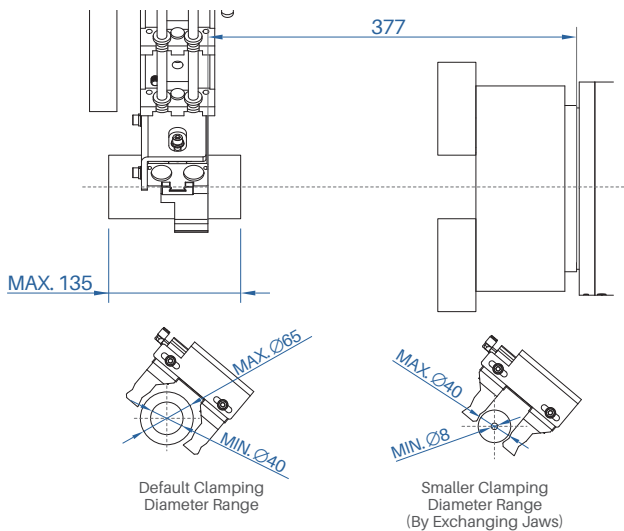
Part Catcher Specifications

Max. Parts Dia.	65	mm
Max. Parts Length	135	mm
Max. Parts Weight	3.5	kg



Option to use jaws or boxes

Part Catcher Working Range



Highly Accurate Optional Equipment

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

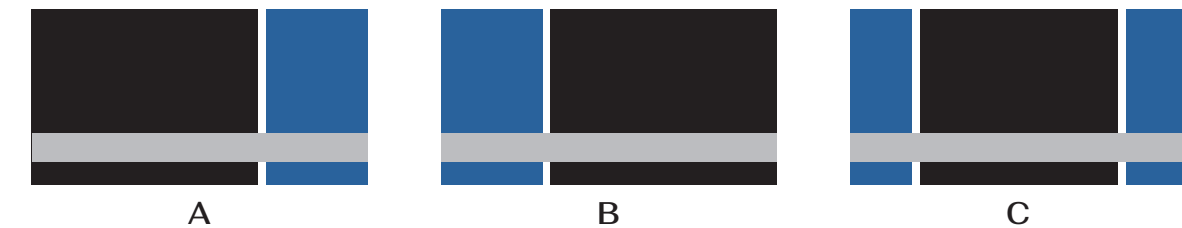
Please contact us for advice on these options.

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



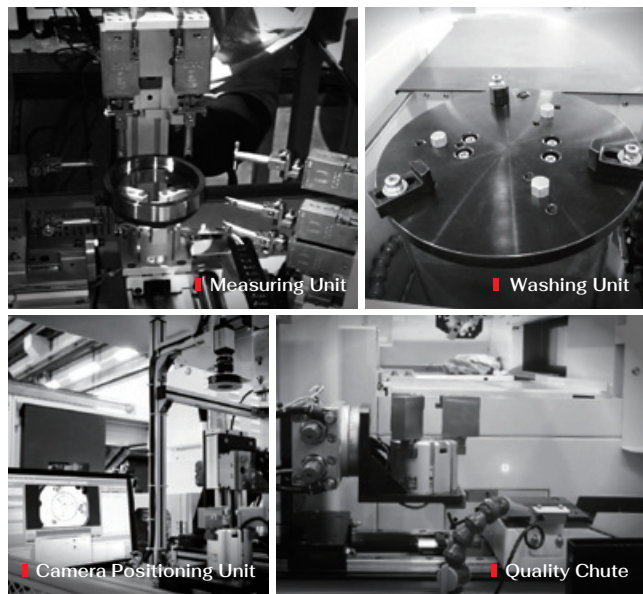
High Speed Gantry Loader System

Layout Variations



■ Lathe
■ Gantry Loader
■ Workpiece Feeder

Peripheral Equipment



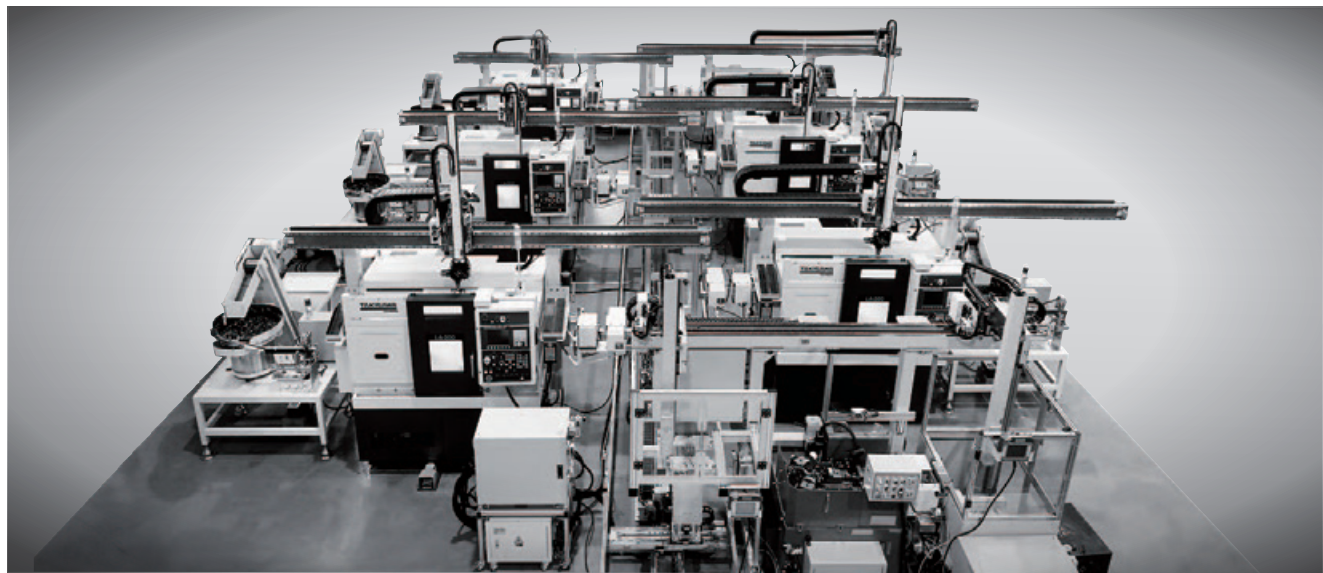
Gantry Loader Specifications

Feedrate		
X-Axis Rapid Traverse	180	m / min
Z-Axis Rapid Traverse	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

Turn-Key Solution



NC Unit Specifications

Specifications · Contents	FX-800
Controller	
Oi-TF	●
NC Unit	
8.4" Color LCD	-
10.4" Color LCD	-
15" 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	
Poitioning (G00)	●
Exact Stop Mode (G61)	●
Tapping Mode (G63)	●
Cutting Mode (G64)	●
Exact Stop (G09)	●
Linear Interpolation (G01)	●
Circular Interpolation (G02 / 03)	●
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	FX-800
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 N5 Digits	-
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	●

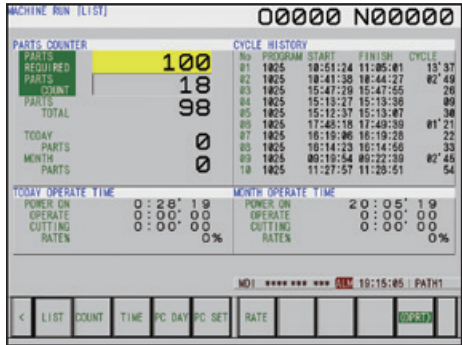
Specifications · Contents	FX-800
Tool Functions / Tool Offset Functions	
T Function (T2 + 2 Digits)	●
Tool Offsets, 32 Pieces	-
Tool Offsets, 64 Pieces	●
Tool Offsets, 99 Pieces	◎
Tool Offsets, 200 Pieces	◎
Tool Offsets, 400 Pieces	-
Tool Geometry Size Data, 100 Pieces	◎
Tool Position Offset	●
Tool Diameter / 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 128K byte (320 m)	-
Part Program Memory Capacity 320K byte (800 m)	-
Part Program Memory Capacity 512K byte (1280 m)	-
Part Program Memory Capacity 1M byte	●
Part Program Memory Capacity 2M byte	◎
Registrable Programs, 400 Programs	-
Registrable Programs, 800 Programs	●
Registrable Programs, 1000 Programs	◎
Program Editing	●
Program Protection	●
Extended Program Editing	●
Background Editing	●

Specifications · Contents	FX-800
Setting / Display	
Status Display	●
Clock Function	●
Current Position Display	●
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	●

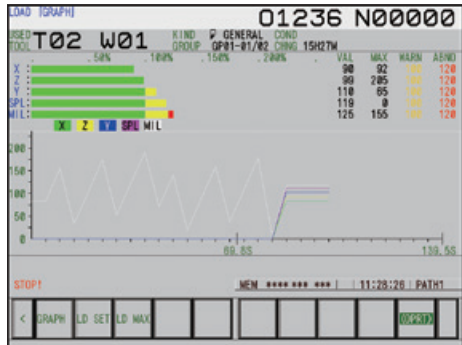
● Standard ◎ Optional ⊕ Special
▲ Parameter setting is required - Nope

Smart Work Manager (option)

01



02



It provides simple operation and convenient function.

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

03

