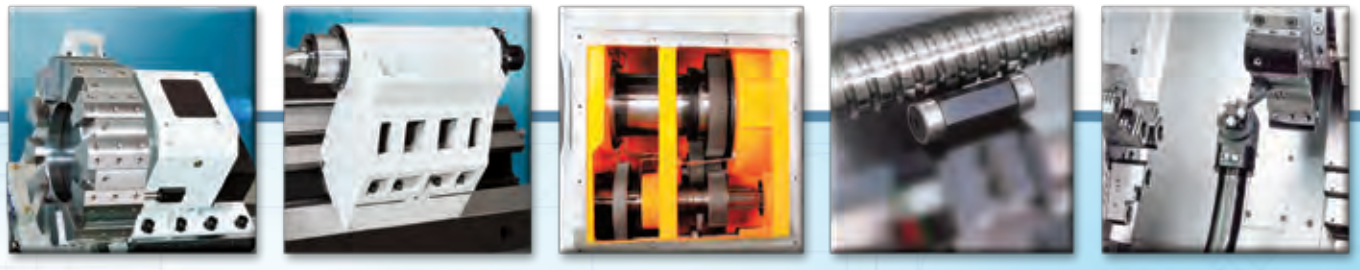
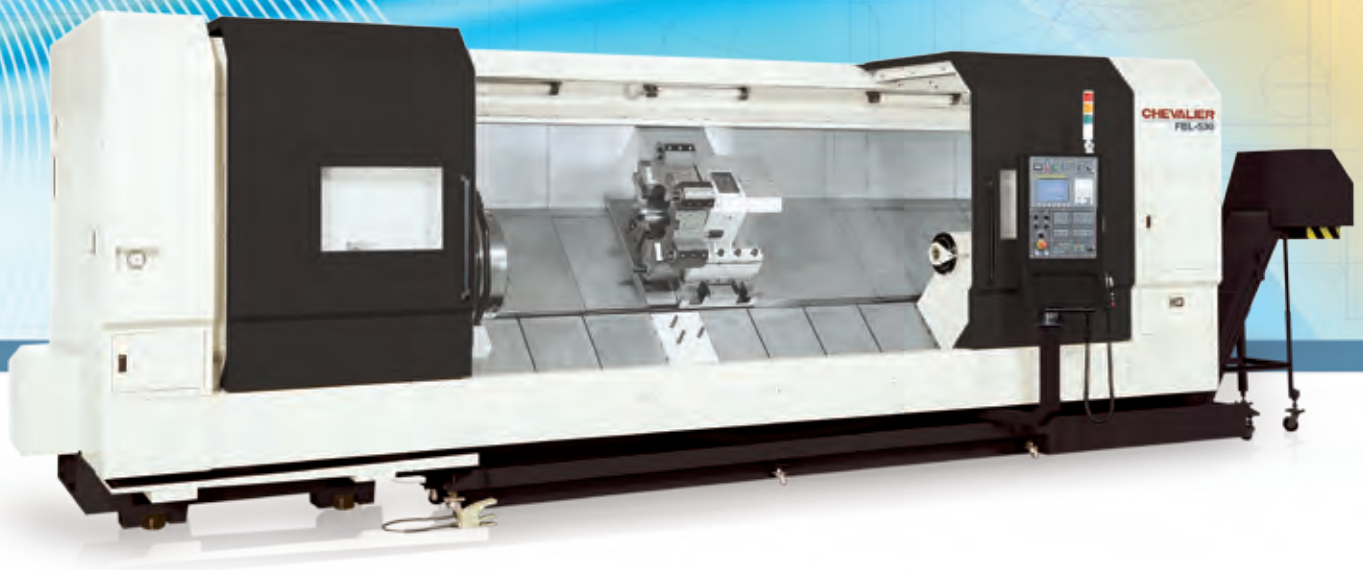
CHEVALIER®

Grinding / Turning / Milling

We shape your ideas.





FBL-500 Series

Heavy-Duty Horizontal Turning Lathes

FBL-510 • 520 • 530 • 540

We shape your ideas.

Chevalier Machinery is a leading manufacturer of grinding, turning and milling machines. Our machines are assembled in our own 9001-certified facilities that include departments for R&D, machining, sheet metal production and electronics. Chevalier USA has an impressive showroom, main parts, warehousing, distribution and training/tech-support center, which gives our worldwide customers superior support and a value-added experience.

Customer satisfaction is always the highest priority at Chevalier. Our knowledgeable service engineers, technicians and sales representatives travel around the world to provide assistance to our dealers and end-users. Chevalier's expert network of dealers in more than 80 countries is thoroughly trained to adhere to Chevalier's superior customer service standards. Our modern warehouse facility maintains a comprehensive inventory of parts for all machines. A well-educated staff also conducts thorough service training programs for our dealers and end-users.

Chevalier continually offers state-of-the-art craftsmanship and every machine is assembled to guarantee superior running accuracy.

FBL-500 Series

Heavy-Duty Slant-Bed CNC Lathe

Chevalier's FBL-500 Series is an incredibly versatile machine that is helping manufacturers with a wide range of needs.

Comparing to lathes with horizontal beds, the 45-degree slant bed design of the Series offers unique advantages to the end users. The user-friendly design of the slant bed shortens the distance between the operator and the work piece. The proximity of the chuck, turret, and tailstock to the front of the machine enables the operator to load and unload work pieces with ease. The slant angle also ensures a swift flow of chips and coolant into the chip pan when the machine is in operation. Furthermore, the slant-bed lathes take up less floor area than horizontal-bed lathes.

The bed of the FBL-500 Series is a single-piece Meehanite® casting with a wide-span and ribbed torque tube design, which prevents thermal deformation and twisting. There are four oversized box ways that are 130-mm (5.1") wide and 80-mm (3.1") high. The surfaces of the box ways are heat treated to Rockwell 55 degrees and stress relieved to ensure stability and support during operation.

In addition, we applied Turcite B, an anti-friction material to the machines to ensure smooth operation. This material dramatically reduces friction and virtually eliminates guideway wears; at the same time, it also dampens and absorbs vibration for better surface finishes of the work piece.

Spindle bore diameter ranges in size up to 12.5". Maximum swing diameter is 40.5"; cutting diameter is 37". Three sizes are offered: 80", 120" and 160" and a special Z-axis, ball screw support maintains high precision and stability. Dual-chuck and easy access design provides convenience of loading and unloading longer parts.

Powerful 60HP spindle motor that features a four-stage gearbox and generates 7,118 NM torque would satisfy most cutting condition of large-diameter work pieces or tough material applications. Massive, 200-mm-thick disk and hydraulic clamping of its curvic-coupling design ensure cutting stability during rough turning environments.

FBL-500 Series

Dual Chucks Capability
Swing Over Bed: up to 40.55"
Spindle Motor: up to 60HP
Bar Capacity: up to 12.5"
Turning Length: up to 160"
Transmission: 3-4-speed Gearbox
Live Tooling, C-Axis Available

METER/COUNTER
POWER
OFF
ON
FANUC Series 0i-TD
AUTO
MANUAL

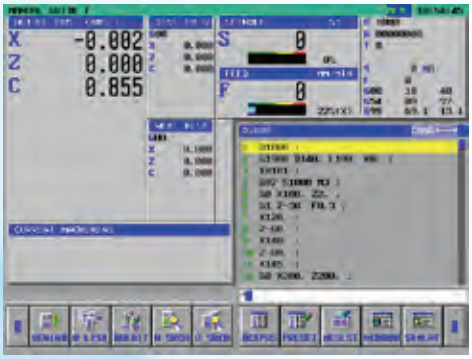
FBL-500 Series

Construction and Features

The FBL-500 Series has a FANUC 0i-TD control with FANUC digital servo drive and motor that are standard features. The standard FANUC 0i TD control and LCD screen generates high-resolution graphics and functions to achieve best possible operation environment. The high-rigidity box way with scrapped slide way and precision oil network is designed for superb transmission efficiency.

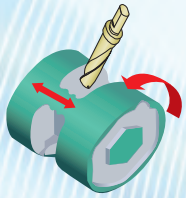
The Series is designed with its 45-degree slant bed machine body structure with a low center of gravity for enhanced machining accuracy.

Manual Guide i

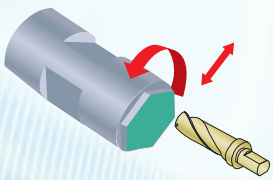


Graphic simulation

Cylindrical Interpolation



Polar Coordinate



Thread repair function

FANUC 0i-TD Control Features

- Simultaneously controllable axes: 4
- Minimum programmable increment: 0.001mm (0.0001")
- Program storage length: 1280m (512k)
- Registerable programs: 400
- Backlash compensation
- Pitch error compensation
- Constant surface speed control

Programming Features

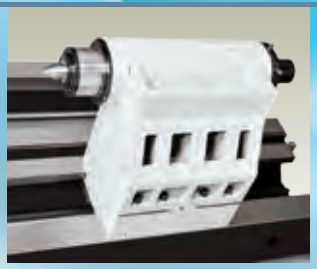
- Tool nose radius compensation
- Combined use of absolute/incremental command
- Inch/metric programming
- Multiple repetitive cycles
- Canned cycles for drilling
- Decimal point programming
- Reference point return
- 10.4" color LCD
- Absolute/incremental programming
- 64 pairs of tool offsets
- Run hour and part count display
- Automatic operation (memory)
- Data protection key
- Program number search
- Rapid traverse override
- Spindle speed override
- Sequence number search
- Manual reference position return
- Manual hand feed rate

FBL-530

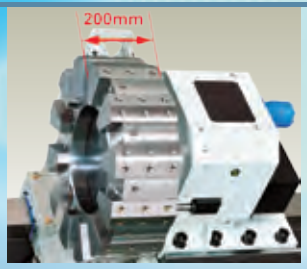
FBL-510

Components

FBL-530/540 Support
The powerful heavy-duty spindle is supported by cylindrical bearings, which provide a large contact surface that enhances the rigidity of the machine for heavy loads and high surface finishes.



Tailstock (programmable)
Driven by hydraulic motors, the programmable tailstock enables the machine to clamp work pieces of various size and length.

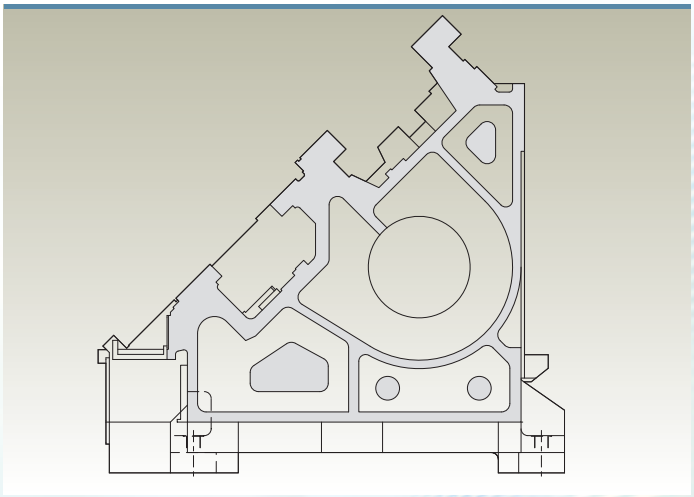


Massive Thick Turret
Curved teeth clutch ensures tool turret clamping accuracy and stability. 200mm thick turret disc delivers stable support and reduced vibration. Optional ø80mm bring bar holder available.

Optional BMT85
Optional power tool turret available for remarkably improved rigidity and comes with 11Kw (15HP) milling motor.

FBL-500 Series

Construction and Features



Powerful Gear Box

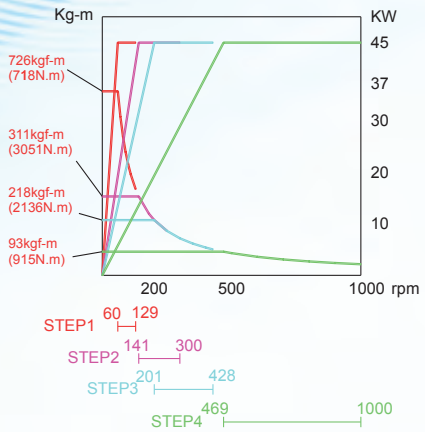
Three to four speed for machines with different spindle hole diameters. Four-speed gearbox is 7.7" and three-speed gearbox is 12.5".

45-Degree Slant Bed One Piece Casting

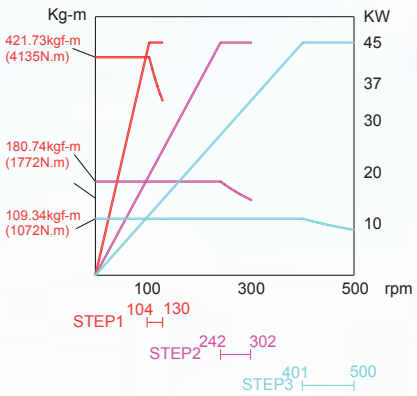
- High rigidity bed design, swing 1030mm, 1160mm width. Box guide way 130mm W x 80mm H, high-performance for manimum workpiece 940mm in diameter.
- Slant bed structure with low center of gravity, easy access and workpiece changeovers. Improved chip removal helps prevent thermal deformation.
- High torque 7118NM at low speeds.

Torque Diagram

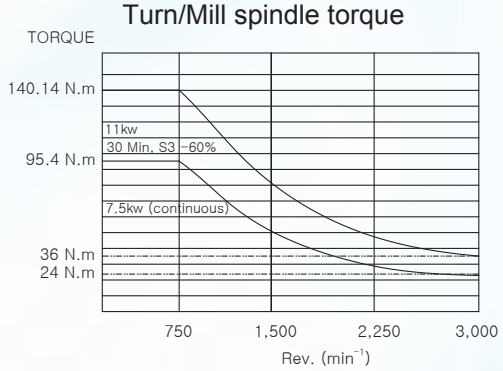
196mm capacity



320mm capacity



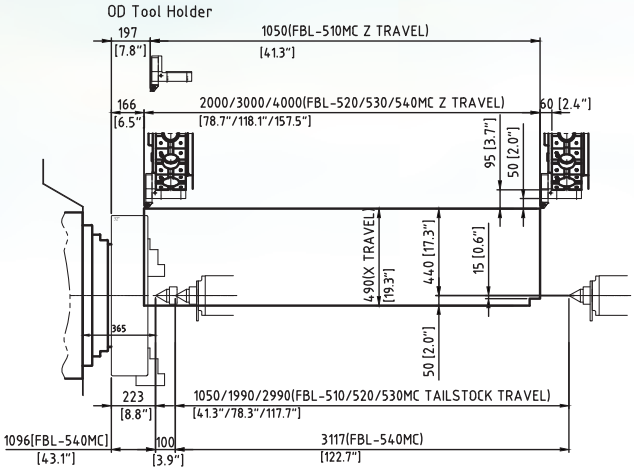
Turn/Mill spindle torque



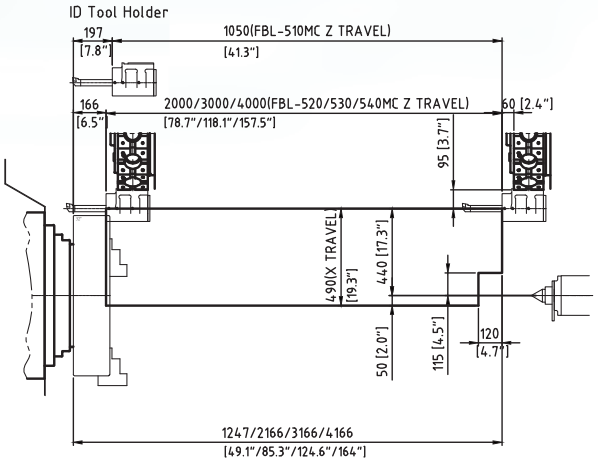
FBL-500 Working Range

FBL-510MC/520MC/530MC/540MC

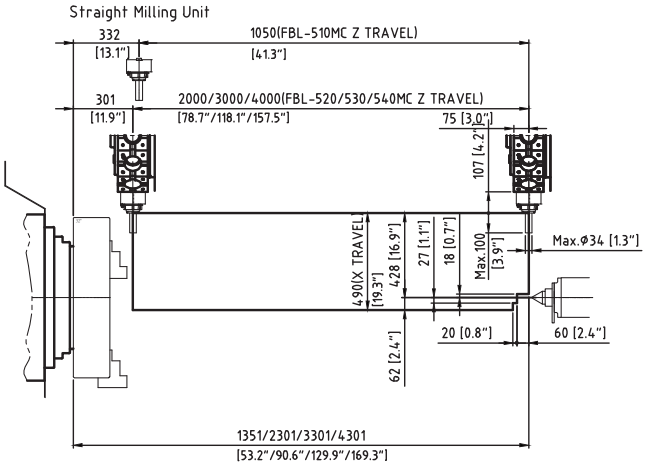
OD Tool Holder



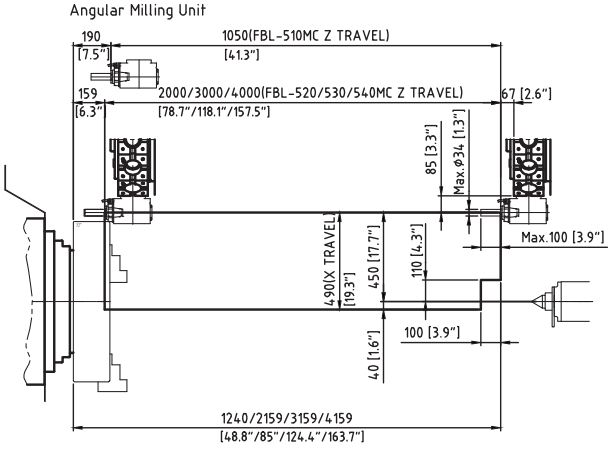
ID Tool Holder



Straight Milling Unit

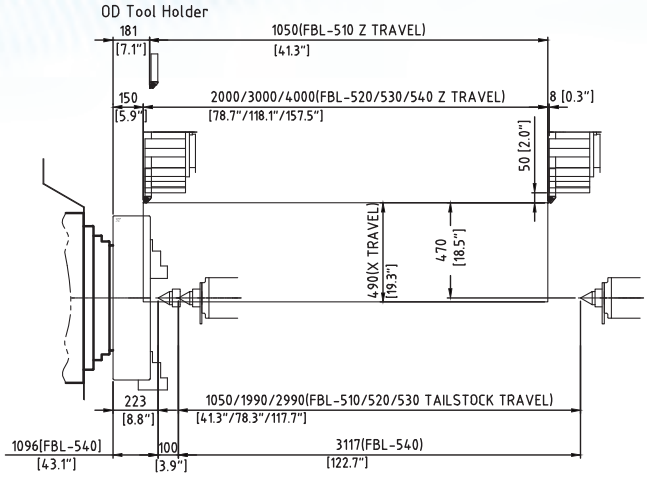


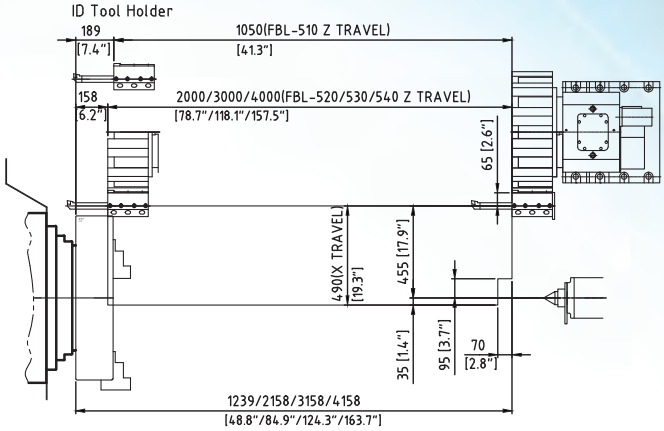
Angular Milling Unit



FBL-500 Working Range

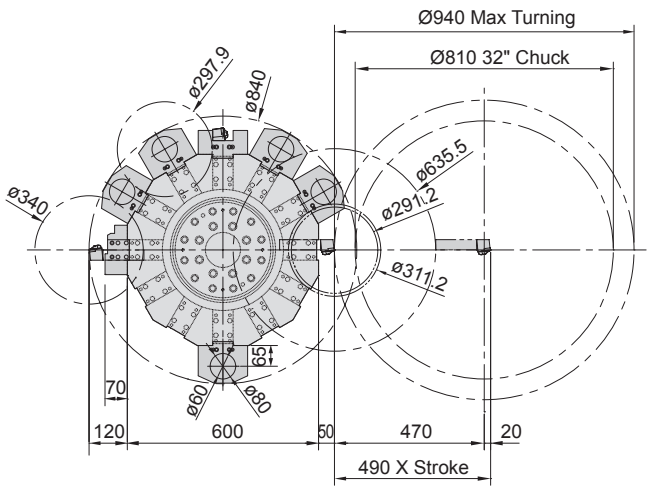
FBL-510/520/530



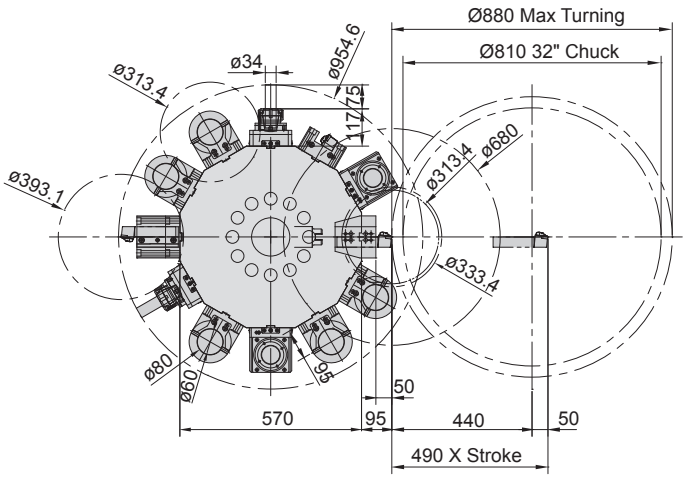


Unit: mm

FBL-510/520/530/540 Tool Interference

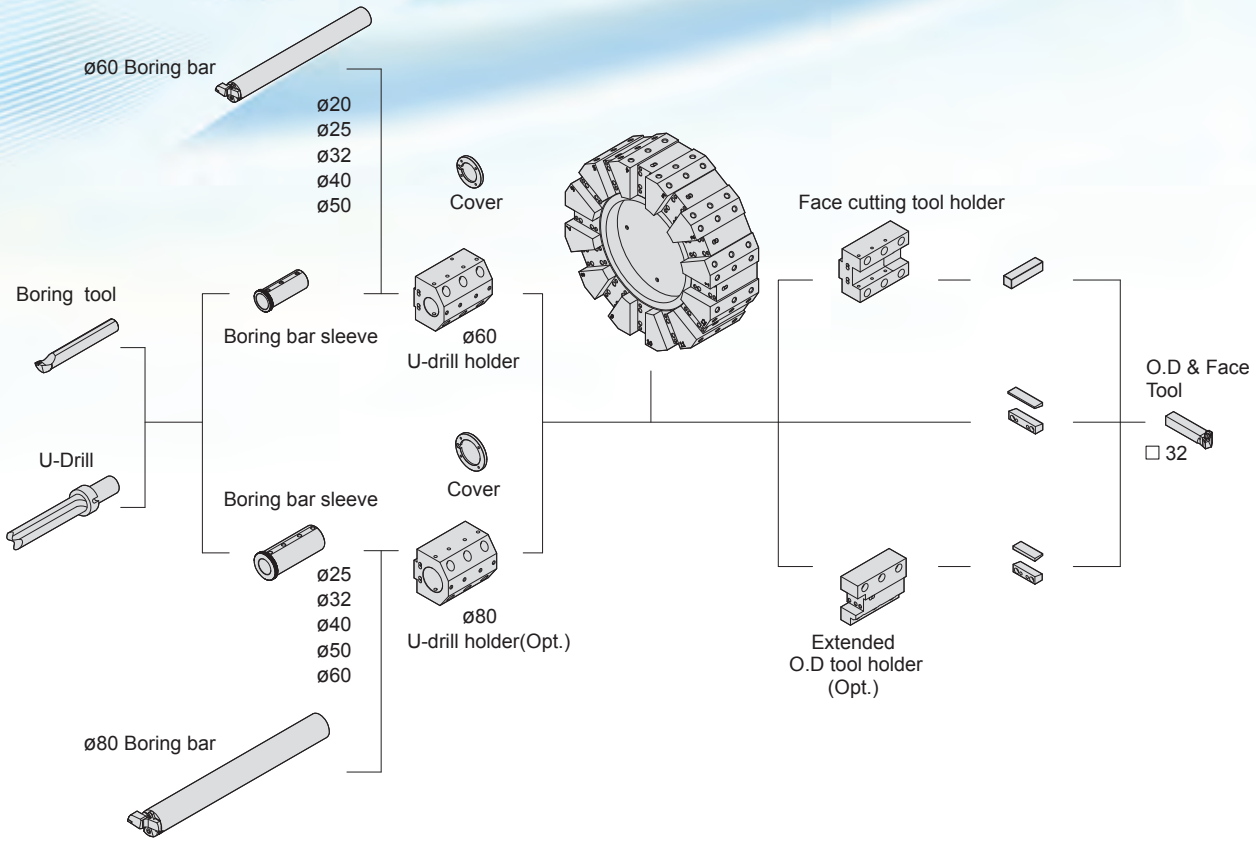


FBL-510/520/530/540MC Tool Interference

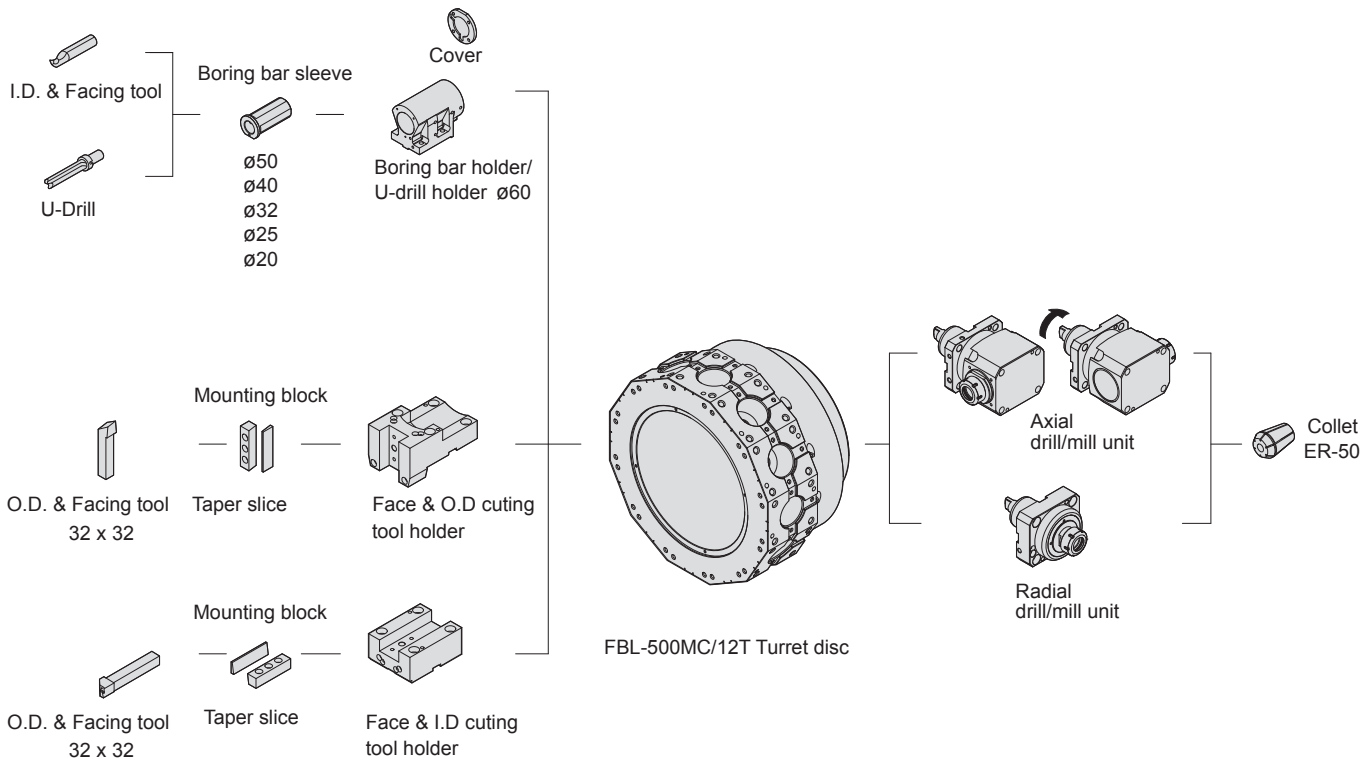


FBL-500 System Diagram

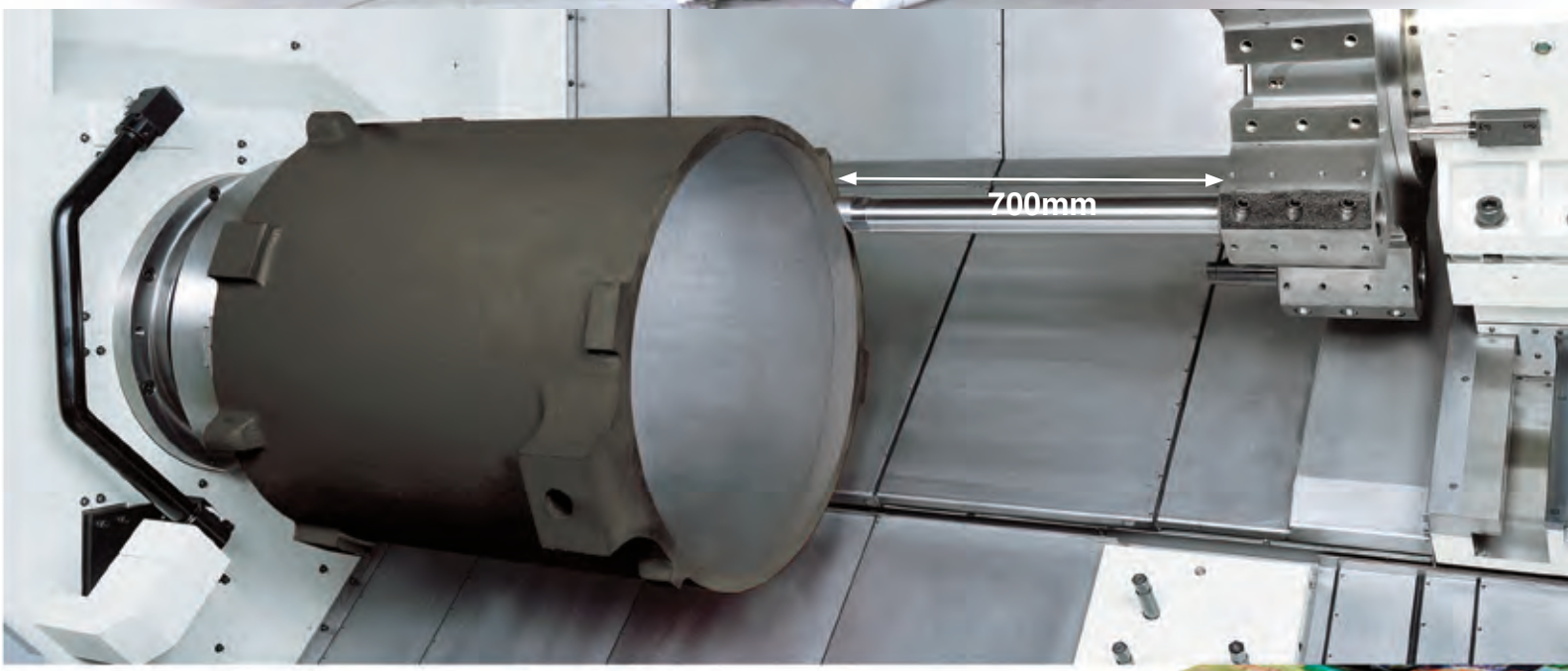
FBL-510/520/530/540 Tooling System



FBL-510/520/530/540MC Tooling System



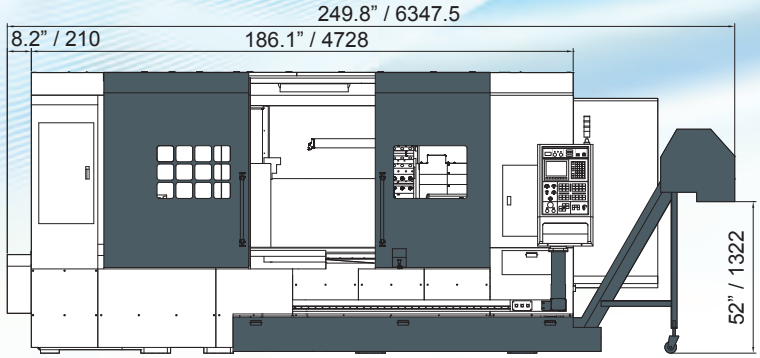
FBL-500 Series Workpieces



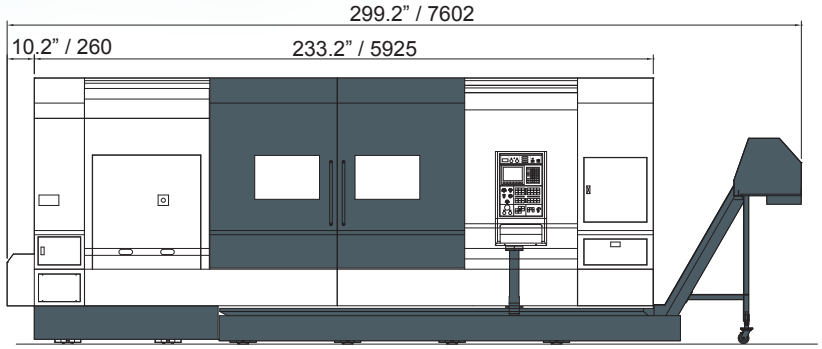
FBL-500 Series Dimensions

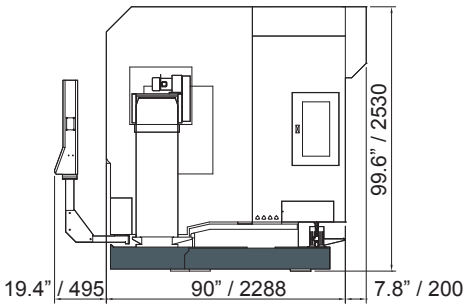
FBL-510

Unit: inch / mm



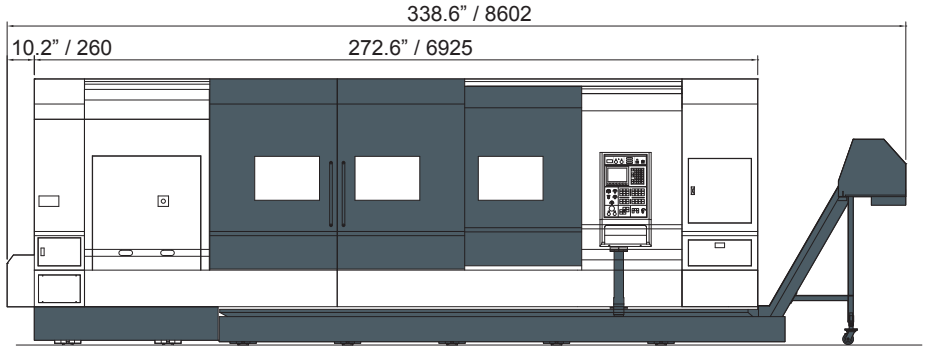
FBL-520



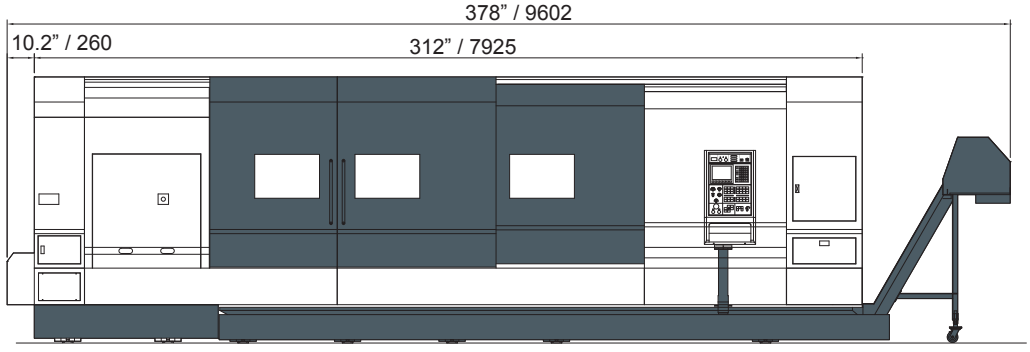


The side dimensions of the machine apply to all models.

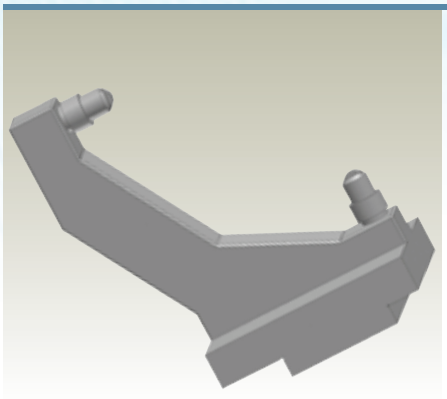
FBL-530



FBL-540

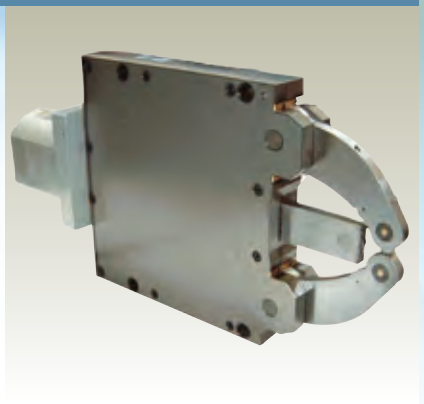


FBL Series Standard and Optional Accessories



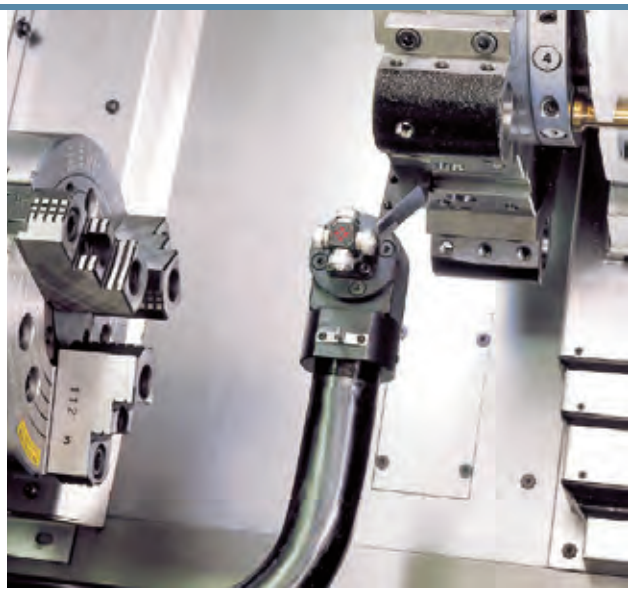
C Type Manual Steady Rest
Maximum range is 700mm (customized).

Manual Steady Rest
Cutting range is 40~400mm.



Hydraulic Steady Rest
ø30~245mm
ø45~310mm
ø85~350mm

- **18", 21", 24" Solid Hydraulic Chuck**
- **18", 20", 21", 24" Hollow Hydraulic Chuck**
  Capability ø115, ø165, ø205mm
- **24", 26", 28", 32" Independent 3 or 4 Jaw Chuck**



Manual Tool Setter

Oil Skimmer

Coolant Pump

Dual Chuck

FBL-500 Series Specifications

Item	Unit	FBL-510	FBL-520	FBL-530	FBL-540	FBL-510MC	FBL-520MC	FBL-530MC	FBL-540MC
Controller		FANUC Oi-TD α40/α30B/α30							
CAPACITY									
Swing Over Bed	in/mm	Ø44.7" / 1136	Ø39.4" / 1000			Ø44.7" / 1136	Ø39.4" / 1000		
Swing Over Cross Slide	in/mm	Ø32.1" / 816	Ø31.5" / 800			Ø32.1" / 816	Ø31.5" / 800		
Max. Turning Diameter	in/mm	Ø37" / 940	Ø37" / 940			Ø34.6" / 880	Ø34.6" / 880		
Max. Turning Length	in/mm	41.3" / 1050	78.7" / 2000	118.1" / 3000	157.5" / 4000	41.3" / 1050	78.7" / 2000	118.1" / 3000	157.5" / 4000
Standard Turning Diameter	in/mm	Ø2.5" / 60=Ø12.2" / 311 (Ø3" / 80=11.5" / 291 opt.)				Ø2.5" / 60=Ø13.1" / 333 (Ø3" / 80=12.3" / 313(opt.)			
Distance Between Centers	in/mm		78.7" / 2000	118.1" / 3000	157.5" / 4000	41.3" / 1050	78.7" / 2000	118.1" / 3000	157.5" / 4000
Bar work Capacity	in/mm	Ø6" / 165							
Headstock									
Spindle Nose		A2-15: Ø7.5" / 196				A2-20: (Ø12.5" / 320 opt.)			
Chuck Diameter & Type	inch	18"~24"							
Through- Spindle Hole Diamete	in/mm	Ø7.5" / 196 (Ø12.5" / 320 opt.)							
Number of Speed Ranges	Step	4 step Ø7.5" / 196				3step (Ø12.5" / 320 opt.)			
Spindle Speed Range	rpm	Ø7.5" / 196 1000rpm				Ø12.5" / 320 500rpm			
Spindle Drive Motor(Cont./30min.)	kw	37/45(α40/6000)							
Maximum CF Axis speed	rpm	N/A				33			
Turret									
Turret Tool station	Tools	12							
Shank height of square tool	in/mm	1 1/4" x 1 1/4"				32x32			
Shank diameter for boring bar	in/mm	Ø2.5" / 60 (Ø3" / 80 opt.)							
Travel									
X-Axis Travel	in/mm	19.3" / 490							
Z-Axis Travel	in/mm	41.3" / 1050	78.7" / 2000	118.1" / 3000	157.5" / 4000	41.3" / 1050	78.7" / 2000	118.1" / 3000	157.5" / 4000
Feed Motor X-Axis	kw	9							
Feed Motor Z-Axis	kw	9							
Rapid Traverse Rate X-Axis/Z-Axis	ipm/mm	X:393.70" / Z:472.44"				X:10 / Z:12			
Tailstock									
Tailstock Travel	in/mm	41.3" / 1050	78.7" / 2000	118.1" / 3000	157.5" / 4000	41.3" / 1050	78.7" / 2000	118.1" / 3000	157.5" / 4000
Tailstock Spindle Travel	in/mm	3.9" / 10							
Tailstock Spindle Diameter	in/mm	Ø7.9" / 200							
Taper Hole of Tailstock Spindle	Rotary	MT#6 rotary quill							
Slideway Slant Angle	Degree	45°							
Coolant pump									
Machine Weight	lb/kg	33000 / 15000	41800 / 19000	50600 / 23000	59400 / 27000	33000 / 15000	41800 / 19000	50600 / 23000	59400 / 27000

FBL Series Standard and Optional Accessories

• Standard ◊ Optional

MODEL	FBL-510	FBL-520	FBL-530	FBL-540	FBL-510MC	FBL-520MC	FBL530MC	FBL-540MC
Hydraulic Turret	•	•	•	•	–	–	–	–
Servo Turret	◊	◊	◊	◊	–	–	–	–
BMT85 Power Turret	–	–	–	–	•	•	•	•
Boring Bar Holder	4	4	4	4	4	4	4	4
Face Holder	1	1	1	1	1	1	1	1
Tool Sleeve (Set)	1	1	1	1	1	1	1	1
O.D. Tool Holder					1	1	1	1
Radial Power Tooling Holder	–	–	–	–	◊	◊	◊	◊
Axial Power Tooling Holder	–	–	–	–	◊	◊	◊	◊
Coolant System	•	•	•	•	•	•	•	•
Moveable Coolant Tank	•	•	•	•	•	•	•	•
One Set Leveling Bolts & Pads	•	•	•	•	•	•	•	•
Centralized Lubrication System	•	•	•	•	•	•	•	•
Work Lamp	•	•	•	•	•	•	•	•
Foot Pedal For Hydraulic Chuck	•	•	•	•	•	•	•	•
Tool Kit	•	•	•	•	•	•	•	•
Manual	•	•	•	•	•	•	•	•
Chip Conveyor and Bucket	•	•	•	•	•	•	•	•
MT 6 Rotate Center	•	•	•	•	•	•	•	•
Programmable Tailstock	•	•	•	•	•	•	•	•
Three Color Warning Light	•	•	•	•	•	•	•	•
Manual Guide 0i	•	•	•	•	•	•	•	•
Manual Tool Setting Probe	◊	◊	◊	◊	◊	◊	◊	◊
Auto. Tool Setting Probe	◊	◊	◊	◊	◊	◊	◊	◊
Oil Skimmer	◊	◊	◊	◊	◊	◊	◊	◊
Oil Mist Collector	◊	◊	◊	◊	◊	◊	◊	◊
Transformer	◊	◊	◊	◊	◊	◊	◊	◊
CE Safety Accessories	◊	◊	◊	◊	◊	◊	◊	◊
Pedal Switch For Tailstock	◊	◊	◊	◊	◊	◊	◊	◊
Work Blower	◊	◊	◊	◊	◊	◊	◊	◊
High Pressure Cooler	◊	◊	◊	◊	◊	◊	◊	◊
Hydraulic Steady Rest	◊	◊	◊	◊	◊	◊	◊	◊
Manual Steady Rest	◊	◊	◊	◊	◊	◊	◊	◊
Manual Steady Rest C Type	◊	◊	◊	◊	◊	◊	◊	◊
Pneumatic Chuck	◊	◊	◊	◊	◊	◊	◊	◊
Solid Chuck+Rotary Cylinder	◊	◊	◊	◊	◊	◊	◊	◊
Hollow Chuck+Rotary Cylinder	◊	◊	◊	◊	◊	◊	◊	◊
Independent Chuck	◊	◊	◊	◊	◊	◊	◊	◊
Soft/Hard Jaw	◊	◊	◊	◊	◊	◊	◊	◊
Steady Rest Base	◊	◊	◊	◊	◊	◊	◊	◊
ø80mm Boring Bar Holder	◊	◊	◊	◊	◊	◊	◊	◊
O.D. Tool Holder(extended)	◊	◊	◊	◊	◊	◊	◊	◊

© 2012 CHEVALIER® All Rights Reserved, 101208

Bridge Grinder | SMART Grinder | Vertical Lathe | Bridge Mill

FALCON MACHINE TOOLS CO., LTD.
No. 34, Hsing Kong Road, Shang Kang, Chang Hua
TAIWAN 509
Tel: +886 4 799 1126 Fax: +886 4 798 0011
www.chevalier.com.tw
overseas@chevalier.com.tw
TA-YA Factory Tel: +886 4 2567 3266

U.S.A. Headquarters
CHEVALIER MACHINERY INC.
9925 Tabor Place, Santa Fe Springs, CA 90670 U.S.A.
Tel: (562) 903-1929 Fax: (562) 903-3959
www.chevalierusa.com
info@chevalierusa.com

ISO 9001 | ISO 9001 BSMI REGISTERED | IT'S VERY WELL MADE IN TAIWAN | CE

All content is for reference only and may be subject to change without notice or obligation.

CAT:0216-00028C00 / 201211 / 1000 P1