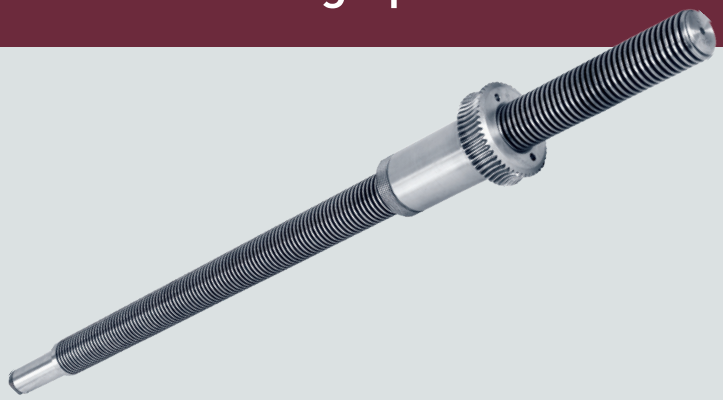


FCL-18 / 21 / 25 / 30 / 32 / 40 Series

Multifunctional CNC Lathes

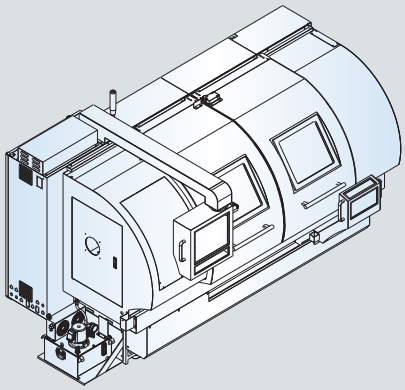
Flexible manual, teaching and CNC machining operations



CHEVALIER®

We shape your ideas.™

Flexible Manual, Teaching and CNC Machining Operations



Chevalier's FCL Series of high-precision, multi-function CNC lathes offer enhanced efficiency by utilizing manual or teach modes or combining them to machine simple and complex parts.

The series is equipped with a standard, four-station tool post, providing turning for large workpiece applications. A fully automatic lubrication system is a standard accessory. A power turret and a C-axis brake (optional accessories) can be used for turning, milling, drilling and other compound machining functions. The control has a full, simple operation interface, enabling the operator to easily learn machine operations.

The machine structure is made of high-quality, Meehanite cast iron that is heat treated and stress relieved. Guideways are high-frequency hardened and precision ground, providing rigid and excellent dampening capabilities for strong metal removal during rough turning and excellent surface finish during fine turning.

This series is especially suitable for single-part or small-batch production, training CNC lathe operators and long-part turning in the petroleum, shipbuilding and metallurgical equipment industries.



The FCL-1840 is shown with optional accessories.



The FCL Series provides maximum operational flexibility for various turning operations

Key Features and Benefits

Multifunctional

This series is a multifunctional CNC lathe, on which the X/Z axis adopts the ball screw with a servo feed system.

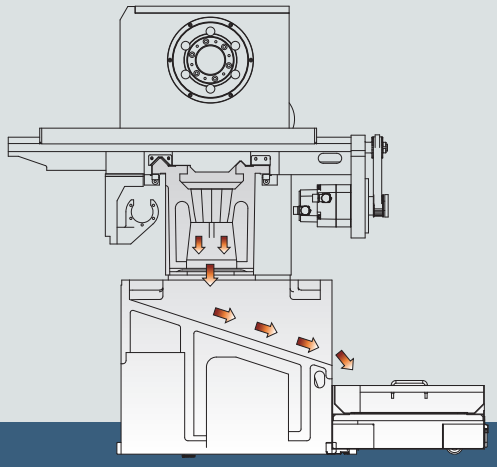


Guideways

All mechanical rails have been hardened and ground, adhere to wear-resistant sheets and are precision hand-scraped, which provides stable motion and excellent wear resistance.

Chip removal design

The chip removal design on the base of the machine can be easily removed for easy cleaning.



Perfect HMI control allows users to easily input machine conditions

HMI

The series adopts the interactive, graphical conversational function of the HMI, allowing users to easily input machining conditions. Operator can manually operate to complete first piece. Then, control will memorize the turning path for automatic turning of the next pieces.



Electronic handwheel

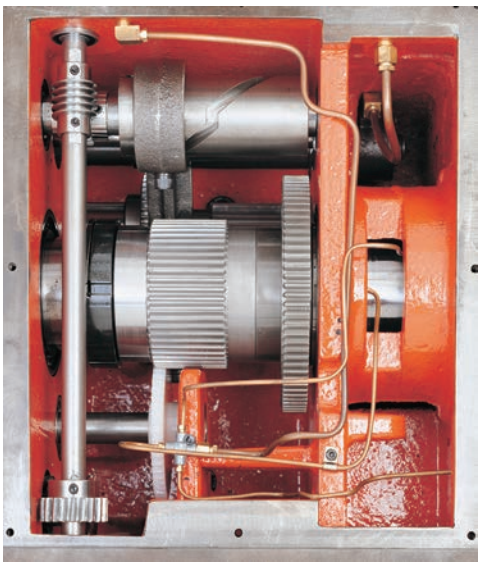
This series is equipped with a movable electronic handwheel for convenient operation and program-free processing.



Machine Construction

High precision spindle

The spindle has chromium-molybdenum alloy steel gears that are hardened and precisely ground for long service life and low noise. With precision angular roller bearing support, it has high-duty capacity and greater torque. When turning large-diameter workpieces, according to different machining conditions, the selected spindle speed automatically changes headstock gears, resulting in high-quality parts and better tool life.



Machine bed

The one-piece design of the machine bed is made of high-quality and high-density Meehanite cast iron through annealing to relieve internal stress and achieve rigidity and overall stability. The rail design is V-shaped. The rail surface is treated with high-frequency heat and precision hand-scraped to achieve low friction, ensure a stable feed and maintain machining straightness.



Tailstock

The manual (standard) or hydraulic (optional) tailstock features a hardened and ground quill, providing easy movement for precision cutting and drilling while maintaining high rigidity for part support.

Ø75 mm (3.0") quill diameter for FCL-18/21/25 Series
Ø80 mm (3.1") quill diameter for FCL-30 Series
Ø150 mm (5.9") quill diameter for FCL-32/40 Series



Movable operation panel

The operation panel can be moved together with the safety door to improve ease of operation (optional).

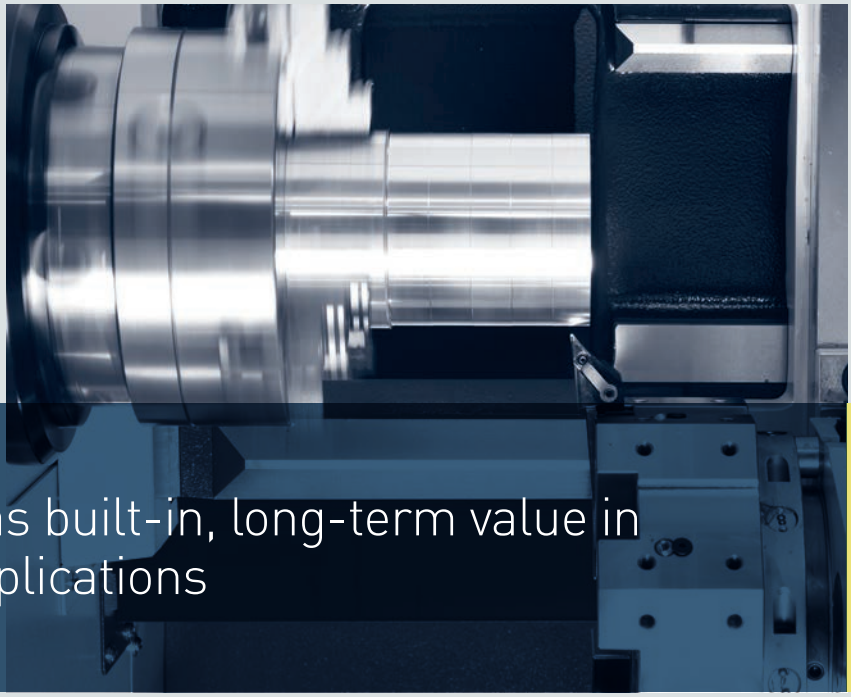


Applications





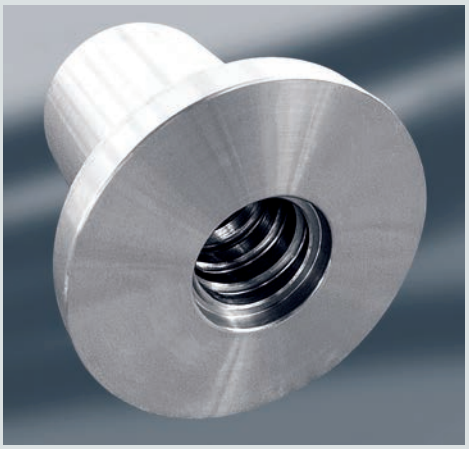




The FCL Series has built-in, long-term value in process-based applications



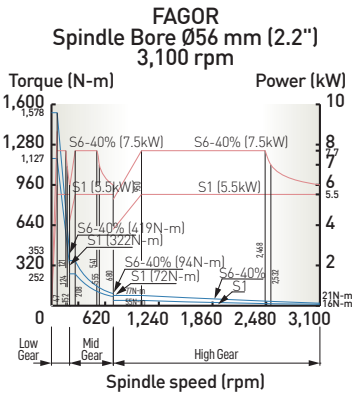




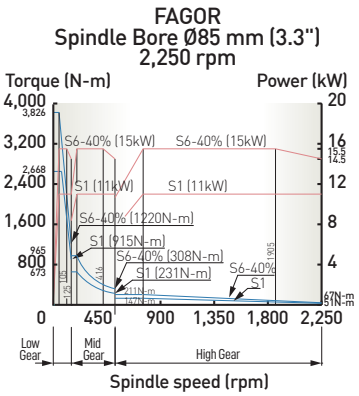


Spindle Power Torque Diagram

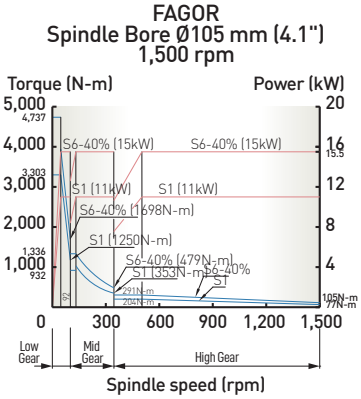
FCL-18



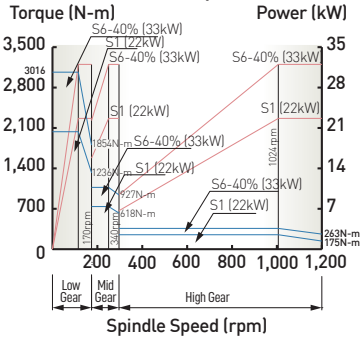
FCL-21/25



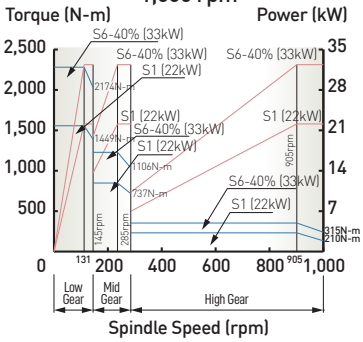
FCL-21/25/30



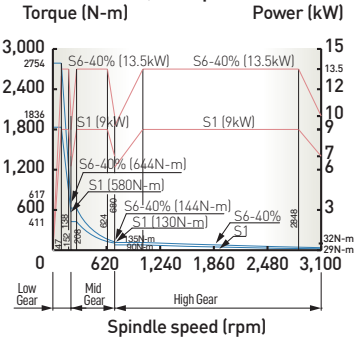
FCL-32/40



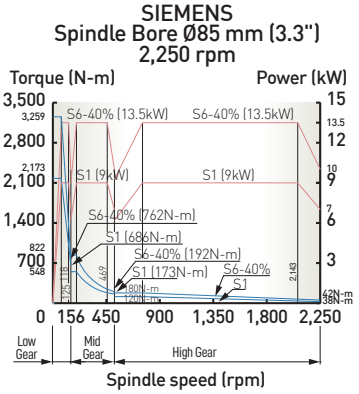
FCL-32/40



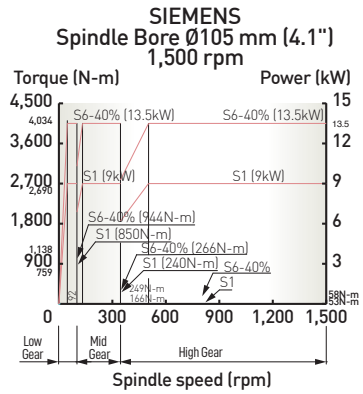
FCL-18



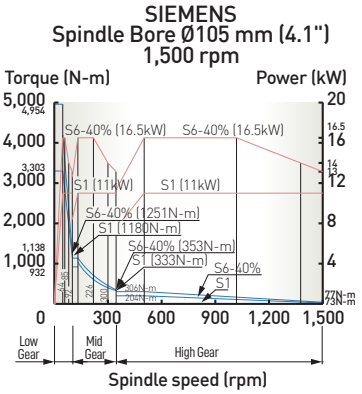
FCL-21/25



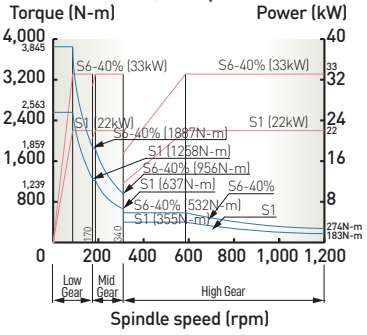
FCL-21/25



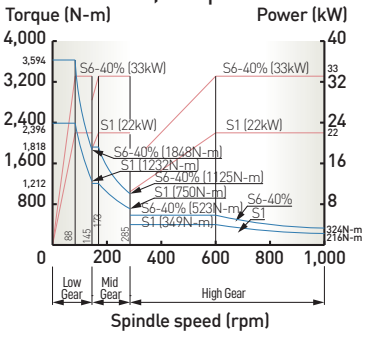
FCL-30



FCL-32/40

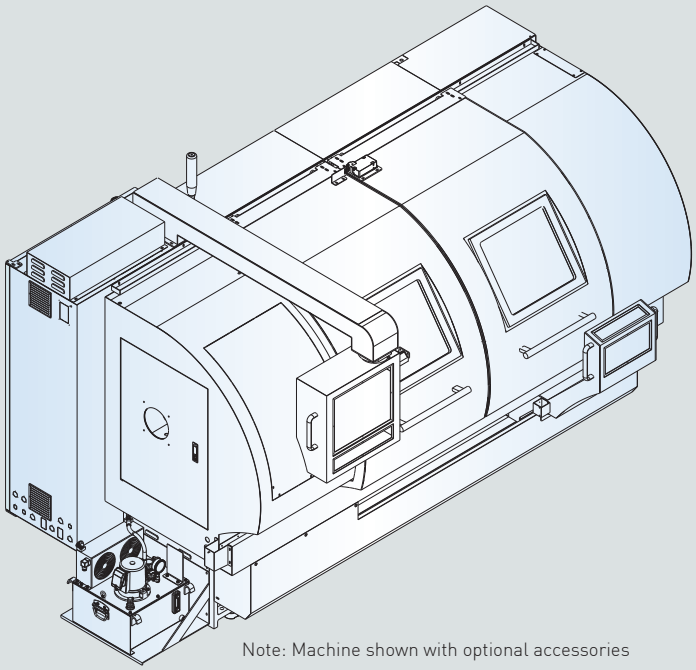


FCL-32/40

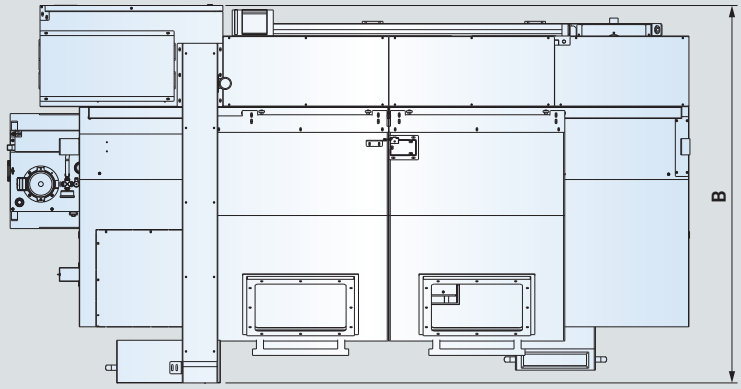


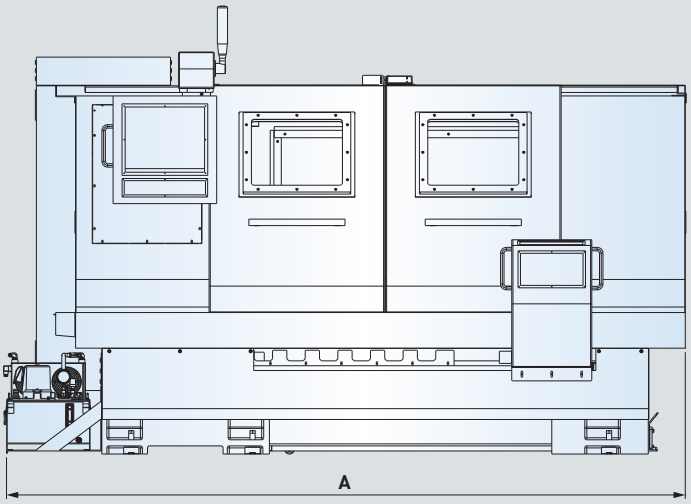
Machine Dimensions

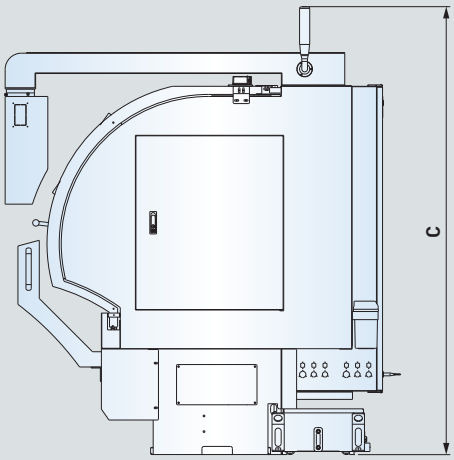
FCL-18 / 21 / 25 / 30



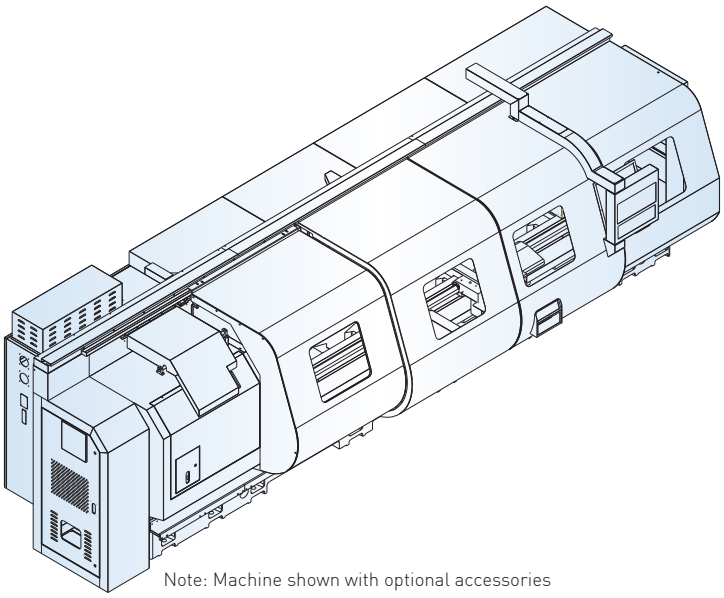
Note: Machine shown with optional accessories



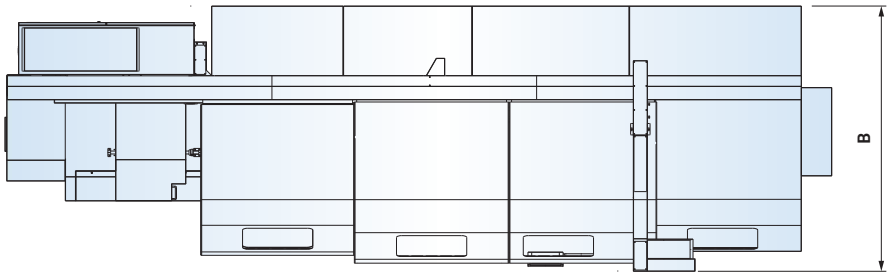


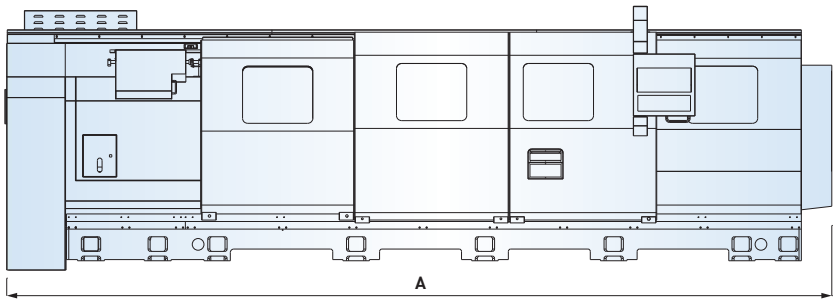


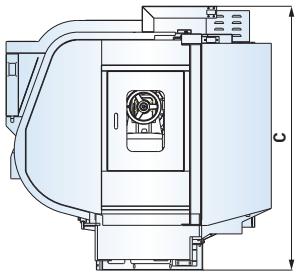
FCL-32 / 40



Note: Machine shown with optional accessories





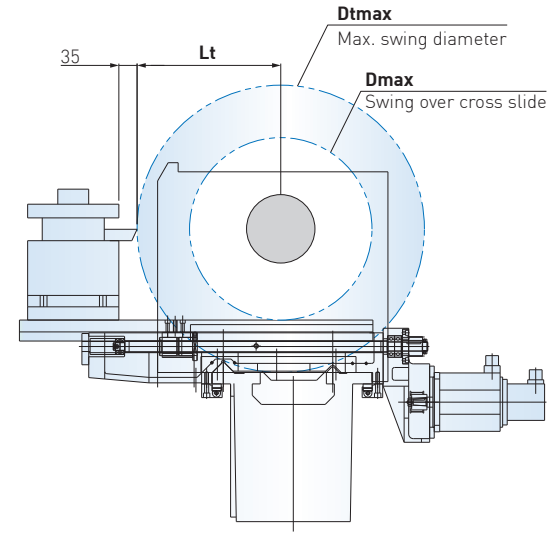


Unit: mm (")

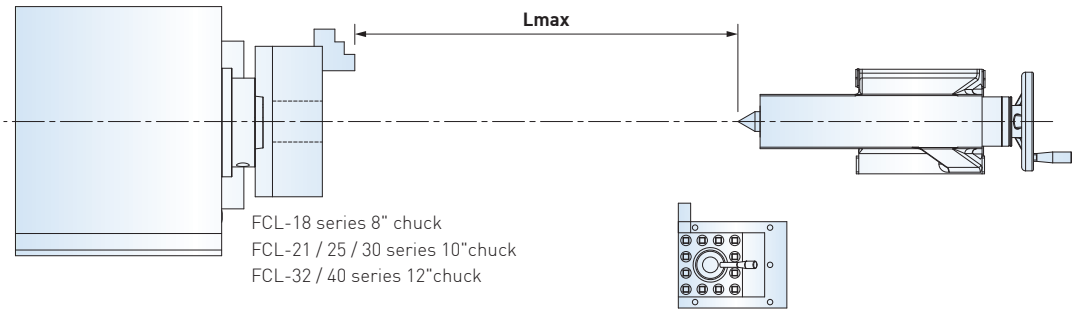
Item	A	B	C
FCL-1840 / 2140 / 2540	2,840 (111.8)	1,905 (75.0)	2,235 (88.0)
FCL-1860 / 2160 / 2560	3,340 (131.5)	1,905 (75.0)	2,235 (88.0)
FCL-2180 / 2580	3,840 (151.2)	1,905 (75.0)	2,235 (88.0)
FCL-3060	3,815 (150.2)	2,134 (84.0)	2,275 (89.6)
FCL-3080	4,300 (169.3)	2,134 (84.0)	2,275 (89.6)
FCL-30120	5,300 (208.7)	2,134 (84.0)	2,275 (89.6)
FCL-3280 / 4080	5,050 (198.8)	2,450 (96.5)	2,300 (90.6)
FCL-32120 / 40120	6,500 (255.9)	2,450 (96.5)	2,300 (90.6)
FCL-32160 / 40160	7,050 (277.6)	2,450 (96.5)	2,300 (90.6)

Max. Working Space

H4 electronic turret



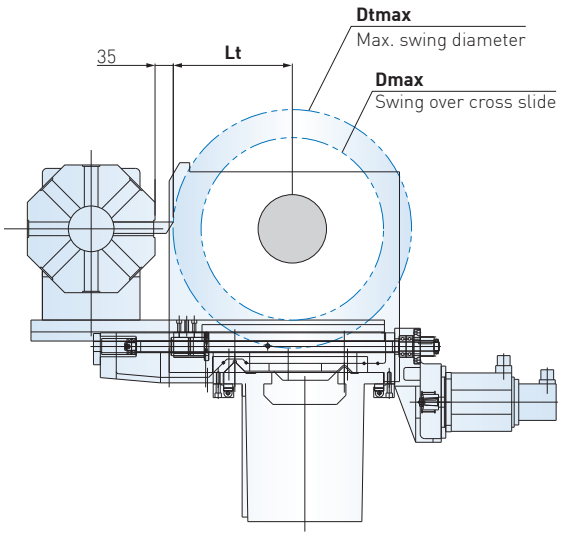


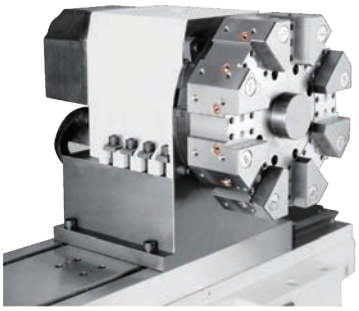


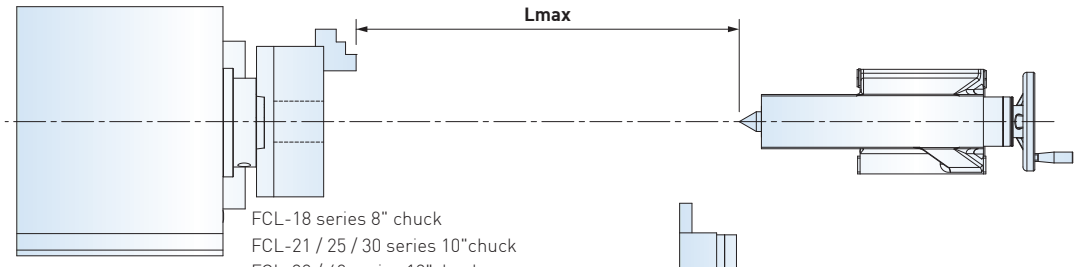
Unit: mm (")

Item	Dmax.	Dtmax.	Lt	Lmax
FCL-1840	Ø230 (Ø9.1)	Ø460 (Ø18.1)	230 (9.1)	780 (30.7)
FCL-1860				1,280 (50.4)
FCL-2140	Ø310 (Ø12.2)	Ø500 (Ø19.7)	250 (9.8)	780 (30.7)
FCL-2160				1,280 (50.4)
FCL-2180				1,780 (70.1)
FCL-2540	Ø400 (Ø15.7)	Ø500 (Ø19.7)	250 (9.8)	780 (30.7)
FCL-2560				1,280 (50.4)
FCL-2580				1,780 (70.1)
FCL-3060	Ø500 (Ø19.7)	Ø716 (Ø28.2)	358 (14.1)	1,360 (53.5)
FCL-3080				1,860 (73.2)
FCL-30120				2,860 (112.6)
FCL-3280	Ø470 (Ø18.5)	Ø810 (Ø31.9)	405 (15.9)	2,000 (78.7)
FCL-32120				3,000 (118.1)
FCL-32160				4,000 (157.5)
FCL-4080	Ø690 (Ø27.2)	Ø842 (Ø33.1)	421 (16.6)	2,000 (78.7)
FCL-40120				3,000 (118.1)
FCL-40160				4,000 (157.5)

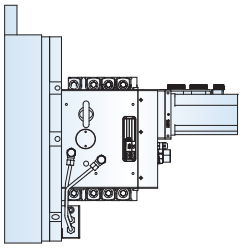
V8 vertical turret







FCL-18 series 8" chuck
FCL-21 / 25 / 30 series 10"chuck
FCL-32 / 40 series 12"chuck



Unit: mm (")

Item	Dmax.	Dtmax.	Lt	Lmax
FCL-1840	Ø230 (Ø9.1)	Ø430 (Ø16.9)	215 (8.5)	670 (26.4)
FCL-1860				1,170 (46.1)
FCL-2140	Ø310 (Ø12.2)	Ø509 (Ø20.0)	254.5 (10.0)	670 (26.4)
FCL-2160				1,170 (46.1)
FCL-2180				1,650 (65.0)
FCL-2540	Ø400 (Ø15.7)	Ø509 (Ø20.0)	254.5 (10.0)	670 (26.4)
FCL-2560				1,170 (46.1)
FCL-2580				1,650 (65.0)
FCL-3060	Ø500 (Ø19.7)	Ø700 (Ø27.6)	350 (13.8)	1,250 (49.2)
FCL-3080				1,750 (68.9)
FCL-30120				2,750 (108.3)
FCL-3280	Ø470 (Ø18.5)	Ø636 (Ø25.0)	318 (12.5)	1,880 (74.0)
FCL-32120				2,880 (113.4)
FCL-32160				3,880 (152.8)
FCL-4080	Ø690 (Ø27.2)	Ø636 (Ø25.0)	318 (12.5)	1,880 (74.0)
FCL-40120				2,880 (113.4)
FCL-40160				3,880 (152.8)



Controls

Easy to operate

- Operations defined by symbols
- Interactive graphic data entry
- Semi- and fully automatic operation modes

Profitable

- Minimum preparation time
- Part-operation sequence storage
- Automatic part repetition for lot work

Versatile

- DRO when working manually
- Motion controller when performing semi-automatic operations
- CNC when carrying out automatic operations

iMachine Communications System™ (iMCS)

iMCS is a comprehensive remote monitoring system that integrates with IoT functions on Chevalier's CNC machines to perform 24/7 data collection, utilization monitoring, data analysis, alarm history, maintenance and overall equipment effectiveness (OEE), all which help to avoid downtime and increases productivity. Additional PC and software are required.

Fagor 8058elite control

- Interactive graphic interface
- 10.4" color LCD
- Profile editor
- Integrated PLC
- Graphic display
- DNC software
- Programmable spindle speed
- Constant surface speed (css) function
- Ethernet
- USB

Siemens 828D control

- 10.4" color LCD
- Part program storage size: 5 MB
- Linear interpolation
- Circular interpolation
- Helical interpolation
- Skip function
- Workpiece coordinate system
- Coordinate system rotation
- Rigid tapping
- Mirror image, scaling and rotation
- Turning cycle
- ShopTurn software

Standard and Optional Accessories

●Standard Accessories
△Optional Accessories

Item	FCL-18	FCL-21	FCL-25	FCL-30	FCL-32	FCL-40
Manual tailstock	●	●	●	●	●	●
Sleeve	●	●	●	●	●	●
Operation manual and parts list	●	●	●	●	●	●
MPG handle wheel (X-, Y-axis)	●	●	●	●	●	●
Automatic lubrication system	●	●	●	●	●	●
Fully enclosed splash guard	●	●	●	●	△	△
Splash guard	–	–	–	–	●	●
Work light	●	●	●	●	●	●
Warning light	●	●	●	●	●	●
Coolant system	●	●	●	●	●	●
Coolant system preparation	●	●	●	●	●	●
Four-station toolpost	●	●	●	●	●	●
Toolbox	●	●	●	●	●	●
Steady rest	●/△	●/△	●/△	●/△	●/△	●/△
Soft jaw	△	△	△	△	△	△
Scroll chuck with 3-jaw	△	△	△	△	△	△
Scroll chuck with 4-jaw	△	△	△	△	△	△
Hydraulic chuck	△	△	△	△	△	△
Servo turret	△	△	△	△	△	△
Servo hydraulic turret	△	△	△	△	△	△
V8 Hydraulic vertical turret	△	△	△	△	△	△
V8 Electric turret	△	△	△	△	△	△
H4 Hydraulic vertical turret	△	△	△	△	△	△
H4 Electric turret	△	△	△	△	△	△
Cooling system for hydraulic tank	△	△	△	△	△	△
Hydraulic tailstock	△	△	△	△	△	△
Steel belt type chip conveyor	△	△	△	△	△	△
Rocking arm system	△	△	△	△	△	△
Automatic tool-length measurement	△	△	△	△	△	△
Portable MPG	△	△	△	△	△	△
Air-conditioned electric cabinet	△	△	△	△	△	△
Water gun (shared pump)	△	△	△	△	△	△
Transformer	△	△	△	△	△	△
Live center	△	△	△	△	△	△
C-axis disk brake	△	△	△	△	△	△
Cooling system for spindle	△	△	△	△	△	△
Heat exchanger for electric cabinet	△	△	△	△	△	△
Follow rest	△	△	△	△	△	△
Quick-change tool post	△	△	△	△	△	△

Specifications

Item	Description	FCL-1840	FCL-1860	FCL-2140	FCL-2160	FCL-2180	FCL-2540	FCL-2560	FCL-2580
Capacity	Swing over bed	Ø 460 mm (18.1")		Ø 540 mm (21.3")			Ø 630 mm (24.8")		
	Swing over cross slide	Ø 230 mm (9.1")		Ø 310 mm (12.2")			Ø 400 mm (15.7")		
	Max. cutting diameter	Ø 460 mm (18.1")		Ø 540 mm (21.3")			Ø 630 mm (24.8")		
	Distance between centers	1,000 mm (39.4")	1,500 mm (59.1")	1,000 mm (39.4")	1,500 mm (59.1")	2,000 mm (78.7")	1,000 mm (39.4")	1,500 mm (59.1")	2,000 mm (78.7")
Spindle	Spindle speed	33~3,100 rpm		27~2,250 rpm (D1-8), Opt. 80~1,500 rpm			37~2,250 rpm (D1-8), Opt. 80~1,500 rpm (A2-11) /10~800 rpm (A2-11)		
	Spindle nose type	D1-6		D1-8 (opt. A2-11)			D1-8 (opt. A2-11)		
	Spindle bore	Ø 56 mm (2.2")		Ø 85 mm (3.3") (D1-8), Opt. Ø 105 mm (4.1") (A2-11)			Ø 85 mm (3.3") (D1-8), Opt. Ø 105 mm (4.1") (A2-11)		
	Taper in spindle	1/20		1/20			1/16 , Opt. 1/20		
Travel	X-travel	280 mm (11.0")							
	Z-travel	900 mm (35.4")	1,400 mm (55.1")	850 mm (33.5")	1,350 mm (53.1")	1,850 mm (72.8")	850 mm (33.5")	1,350 mm (53.1")	1,850 mm (72.8")
Feed rates	Feed rates	5,000 mm/min (196 ipm)							
	X-axis rapid traverse	5,000 mm/min (196 ipm)							
	Z-axis rapid traverse	8,000 mm/min (314 ipm)							
	X-/Z-axis ball screw dia.	X: Ø 25 mm / 5 mm (Ø 0.98" / 0.19")							
		Z: Ø 40 mm / 10 mm (Ø 1.57" / 0.39")							
Turret	Turret type	Manual 4-station tool post							
	O.D. tool shank size	25 mm (0.98")							
Tailstock	Diameter	Ø 75 mm (Ø 3.0")							
	Travel	190 mm (7.5")							
	Taper	MT#5							
Motors	Spindle motor	7.5 kW(S6-40%)		15 kW(S6-40%)			15 kW(S6-40%)		
	Axis motors (X/Z)	X:1.4 kW, Z:1.4 kW							
Power and air requirement	Power requirement	15 kVA		20 kVA			20 kVA		
	Voltage	380 V							
	Total air consumption Pressure	6 kg/cm²							
	Flow	200 NL/min							
Machine dimensions	Floor space (W x D x H)	2,840 x 1,905 x 2,235 mm (111.8" x 75.0" x 88.0")	3,340 x 1,905 x 2,235 mm (131.5" x 75.0" x 88.0")	2,840 x 1,905 x 2,235 mm (111.8" x 75.0" x 88.0")	3,340 x 1,905 x 2,235 mm (131.5" x 75.0" x 88.0")	3,840 x 1,905 x 2,235 mm (151.2" x 75.0" x 88.0")	2,840 x 1,905 x 2,235 mm (111.8" x 75.0" x 88.0")	3,340 x 1,905 x 2,235 mm (131.5" x 75.0" x 88.0")	3,840 x 1,905 x 2,235 mm (151.2" x 75.0" x 88.0")
	Net weight	2,900 kg (6,380 lbs.)	3,400 kg (7,480 lbs.)	2,900 kg (6,380 lbs.)	3,400 kg (7,480 lbs.)	4,200 kg (9,240 lbs.)	3,350 kg (7,370 lbs.)	3,850 kg (8,470 lbs.)	4,200 kg (9,240 lbs.)
Accuracy	Positioning accuracy	0.02 mm (0.00078")		0.02 mm (0.00078")		X: 0.02 mm (0.00078") Z: 0.04 mm (0.00157")	0.02 mm (0.00078")		X: 0.02 mm (0.00078") Z: 0.04 mm (0.00157")
	Repeatability accuracy	0.01 mm (0.00039")	0.016 mm (0.00063")	0.01 mm (0.00039")	0.016 mm (0.00063")	X: 0.01 mm (0.00039") Z: 0.035 mm (0.00137")	0.01 mm (0.00039")	0.016 mm (0.00063")	X: 0.01 mm (0.00039") Z: 0.035 mm (0.00137")
	Accuracy standard	ISO3655							

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

FCL-3060	FCL-3080	FCL-30120	FCL-3280	FCL-32120	FCL-32160	FCL-4080	FCL-40120	FCL-40160
Ø 760 mm (29.9")			Ø 815 mm (32.1")			Ø 1,015 mm (40.0")		
Ø 500 mm (19.7")			Ø 470 mm (18.5")			Ø 690 mm (27.2")		
Ø 760 mm (29.9")			Ø 815 mm (32.1")			Ø 1,015 mm (40.0")		
1,500 mm (59.1")	2,000 mm (78.7")	3,000 mm (118.1")	2,000 mm (78.7")	3,000 mm (118.1")	4,000 mm (157.5")	2,000 mm (78.7")	3,000 mm (118.1")	4,000 mm (157.5")
80~1,500 rpm			0~1,200 rpm (D1-11) Ø134 mm (5.2"), Opt. 0~1,000 rpm Ø160 mm (6.2")			0~1,200 rpm (D1-11) Ø134 mm (5.2"), Opt. 0~1,000 rpm Ø160 mm (6.2")		
A2-11			D1-11 (Opt. A2-11)			D1-11 (Opt. A2-11)		
Ø 105 mm (4.1") (A2-11)			Ø 134 mm (5.2") (A2-11,D1-11), Opt. Ø 160 mm (6.2") (A2-11)			Ø 134 mm (5.2") (A2-11,D1-11), Opt. Ø 160 mm (6.2") (A2-11)		
1/20								
450 mm (17.7")			470 mm (18.5")			470 mm (18.5")		
1,480 mm (58.3")	1,980 mm (78.0")	2,980 mm (117.3")	1,904 mm (75.0")	2,920 mm (115.0")	3,936 mm (155.0")	1,904 mm (75.0")	2,920 mm (115.0")	3,936 mm (155.0")
5,000 mm/min (196 ipm)								
5,000 mm/min (196 ipm)								
8,000 mm/min (314 ipm)								
X: Ø 25 mm / 5 mm (Ø 0.98" / 0.19")			X : Ø32 mm /10 mm (1.25" / 0.39")			X : Ø32 mm /10 mm (1.25" / 0.39")		
Z: Ø 40 mm / 10 mm (Ø 1.57" / 0.39")			Z: Ø 50 mm / 10 mm (1.9" / 0.39")		Z: Ø 63 mm / 12 mm (2.4" / 0.47")	Z: Ø 50 mm / 10 mm (1.9" / 0.39")		Z: Ø 63 mm / 12 mm (2.4" / 0.47")
Manual 4-station tool post								
25 mm (0.98")			32 mm (1.26")			32 mm (1.26")		
Ø 80 mm (Ø 3.1") Opt. Ø 105 mm (Ø 4.1")			Ø 150 mm (5.9")			Ø 150 mm (5.9")		
220 mm (8.7")			Ø 250 mm (9.8")			Ø 250 mm (9.8")		
MT#5								
15 kW(S6-40%)			33 kW (S6-40%)			33 kW (S6-40%)		
X:1.4 kW, Z:1.4 kW			X:3.6 kW, Z:3.6 kW			X:3.6 kW, Z:3.6 kW		
20 kVA			35 kVA			35 kVA		
380 V								
6 kg/cm²								
200 NL/min								
3,815 x 2,134 x 2,275 mm (150.2" x 84.0" x 89.5")	4,300 x 2,134 x 2,275 mm (169.3" x 84.0" x 89.5")	5,300 x 2,134 x 2,275 mm (208.7"x 84.0" x 89.5")	5,050 x 2,450 x 2,300 mm (198.8" x 96.5" x 90.6")	6,500 x 2,450 x 2,300 mm (255.9" x 96.5" x 90.6")	7,050 x 2,450 x 2,300 mm (277.6" x 96.5" x 90.6")	5,050 x 2,450 x 2,300 mm (198.8" x 96.5" x 90.6")	6,500 x 2,450 x 2,300 mm (255.9" x 96.5" x 90.6")	7,050 x 2,450 x 2,300 mm (277.6" x 96.5" x 90.6")
4,400 kg (9,680 lbs.)	5,100 kg (11,200 lbs.)	5,600 kg (12,300 lbs.)	9,600 kg (21,120 lbs.)	10,500 kg (23,100 lbs.)	11,500 kg (25,300 lbs.)	9,600 kg (21,120 lbs.)	10,500 kg (23,100 lbs.)	11,500 kg (25,300 lbs.)
0.02 mm (0.00078")		X: 0.02 mm (0.00078") Z: 0.04 mm (0.00157")	0.02 mm (0.00078")		0.025 mm (0.00098")	0.02 mm (0.00078")		0.025 mm (0.00098")
0.01 mm (0.00039")	0.016 mm (0.00063")	X: 0.01 mm (0.00039") Z: 0.035 mm (0.00137")	0.01 mm (0.00039")		0.012 mm (0.00047")	0.01 mm (0.00039")		0.012 mm (0.00047")
ISO3655								

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