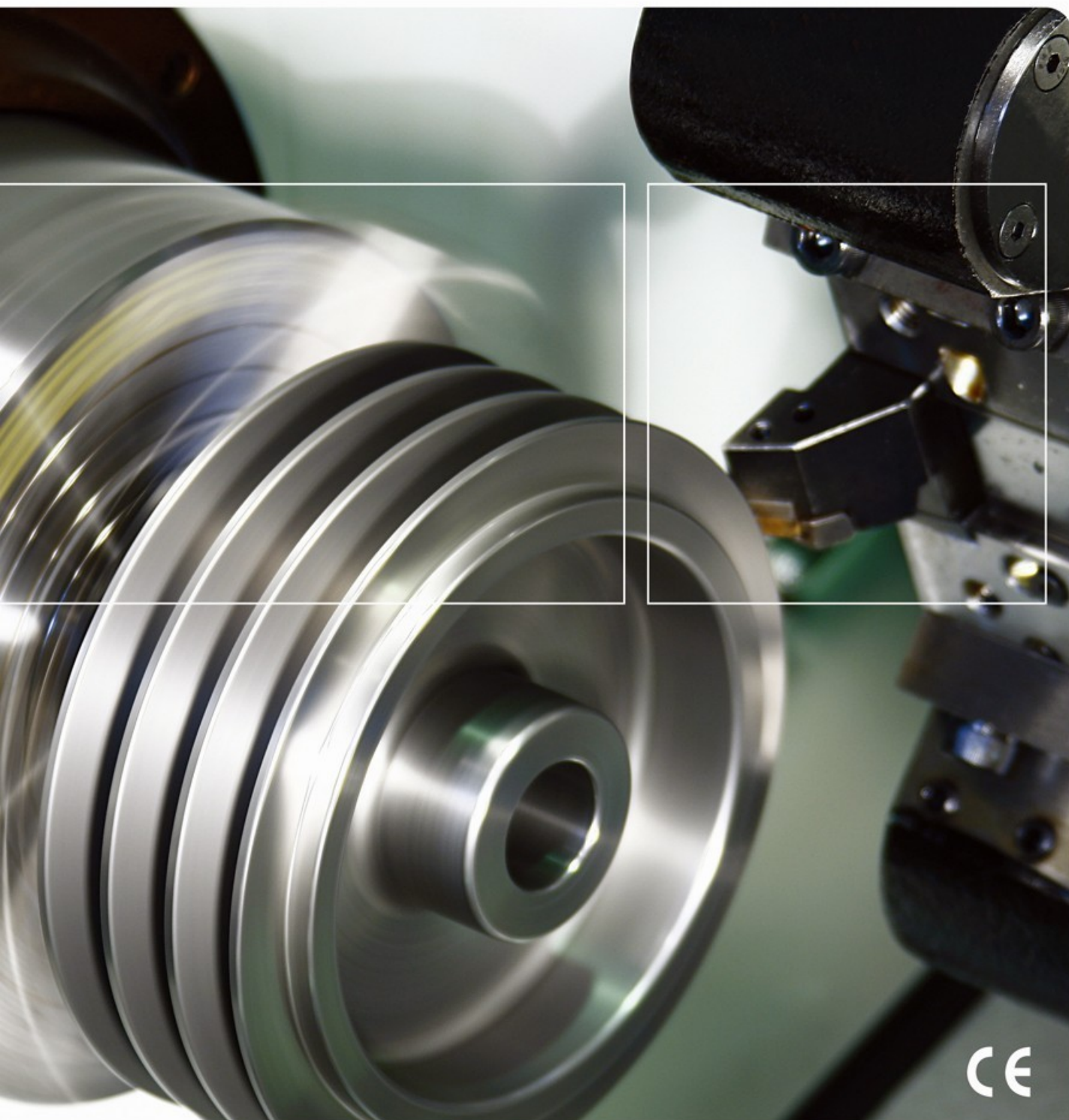
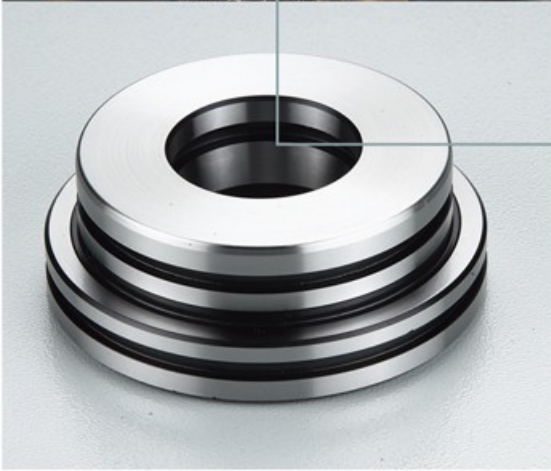
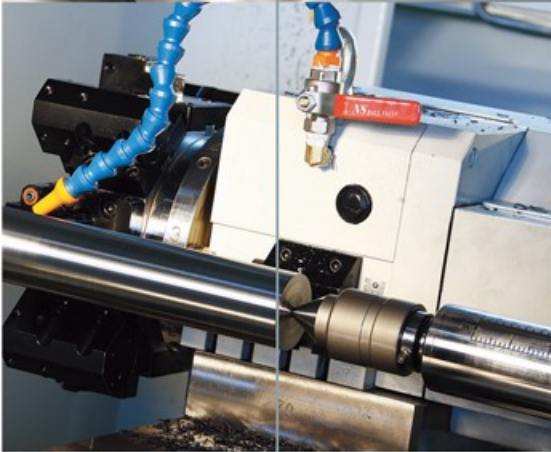
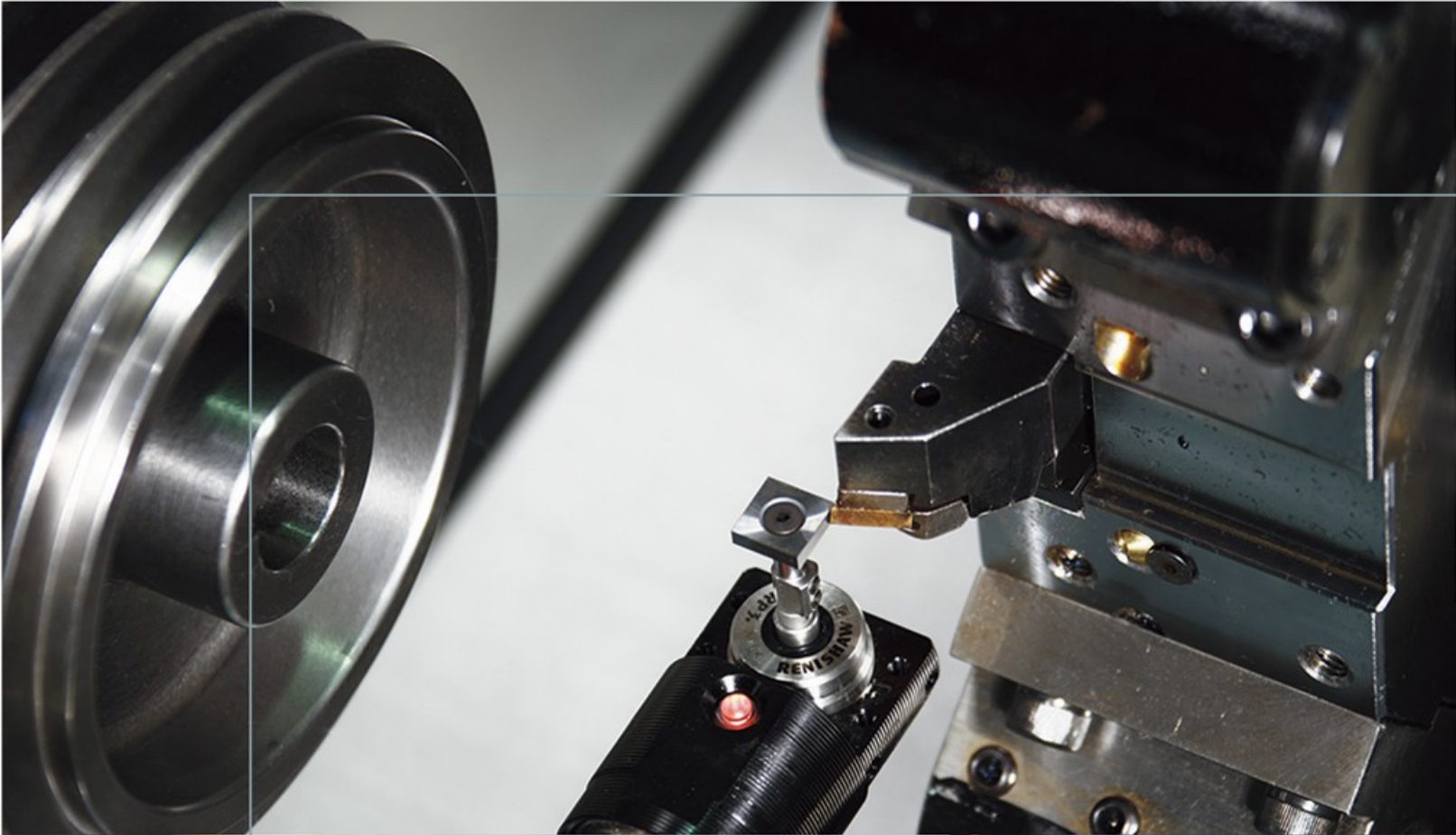
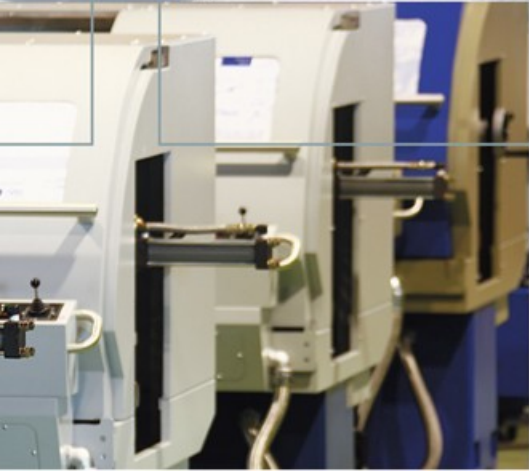
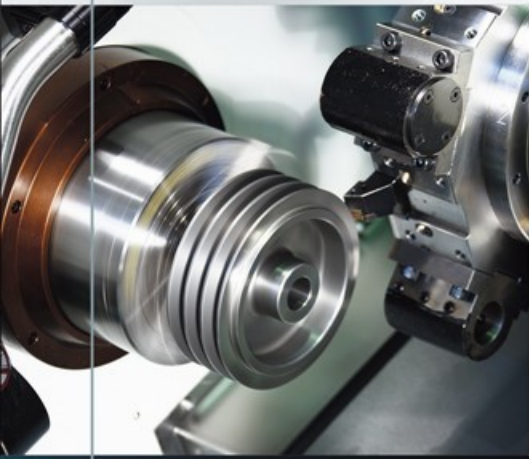


ACRA®



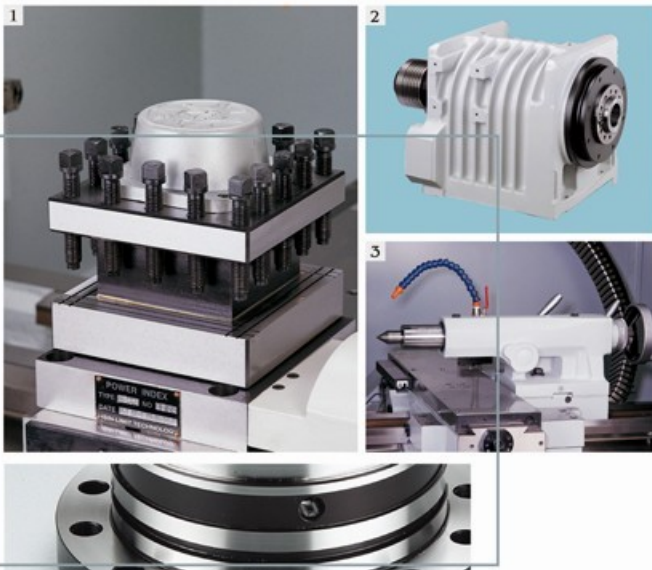
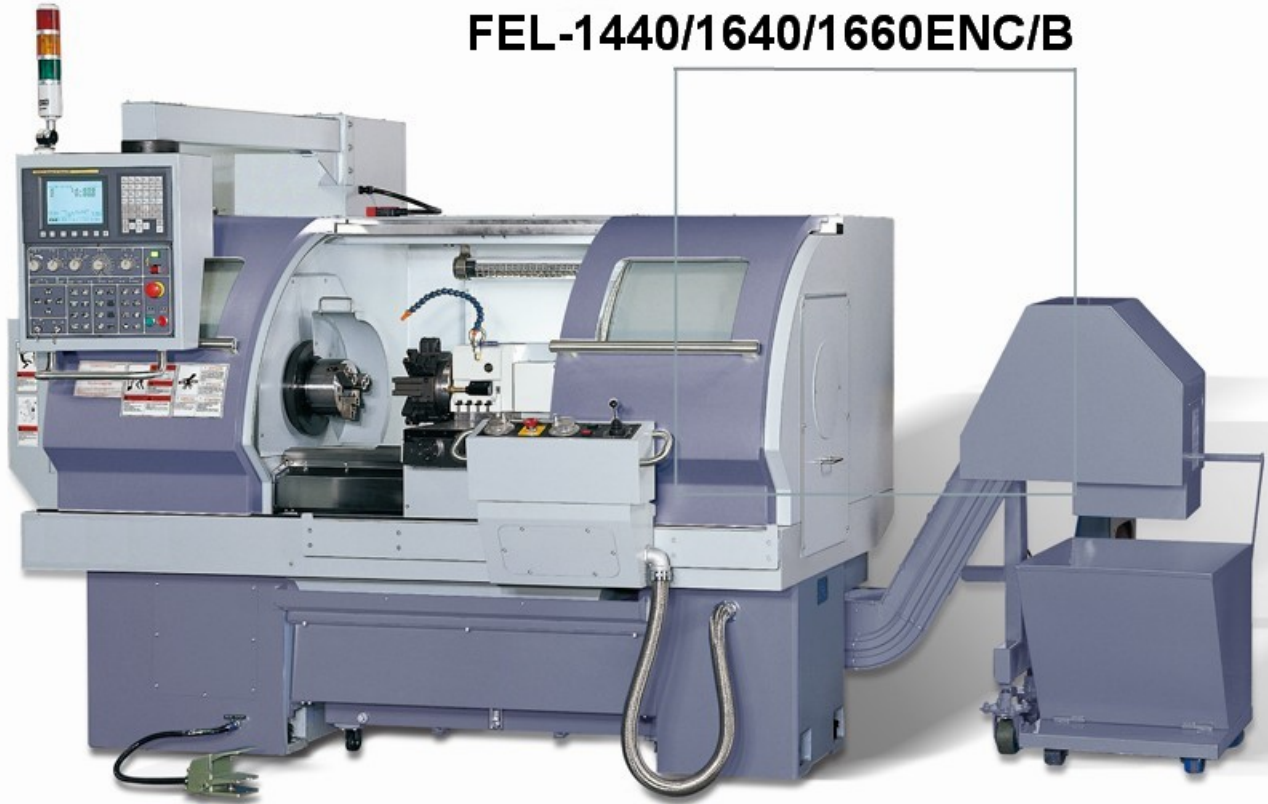
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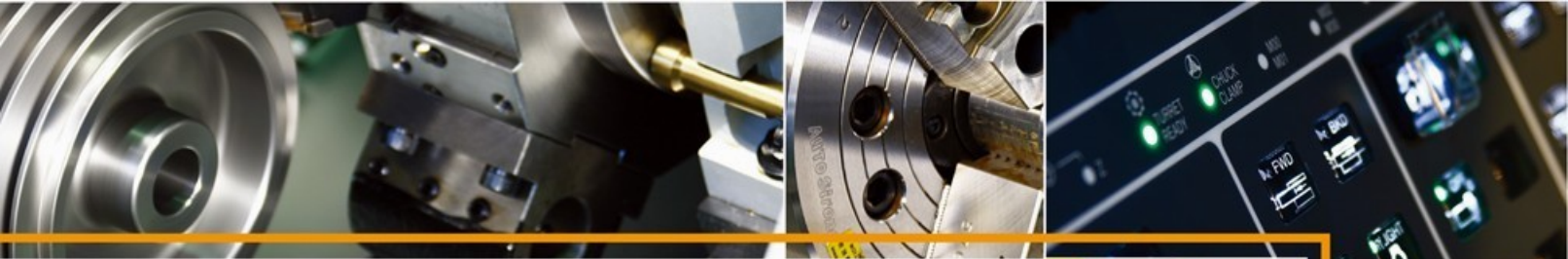
FEL-1440/1640/1660ENC/B



1| Efficient, Accurate Power Turret (Optional) • The electric H4 turret is driven by a worm gear/worm wheel mechanism for convenient tool change. It is powered by a 375 W. motor with great clamping force up to 1 ton. • Specially designed post body prevents coolant and chips getting into post. Body will not move up and down during indexing. • P8 hydraulic turret and quick change tool post are also available upon request.

2| Unique Design Spindle • The spindle is supported by a single cylinder bearing housing equipped with SP level precision angular contact thrust bearings and lubricated with HI-class grease. The front spindle is designed with a labyrinthine collar and protector cover to prevent the entering of coolant or chips. • Encased in a well-ribbed headstock for maximum heat dissipation. Prevents any thermal distortion after long periods of turning thereby ensuring accurate cutting.

3| Tailstock • Rigid construction and increased throat depth on tailstock with MT#4 interior taper quill. When applying manual 4-way tool post, electric H4 turret or hydraulic P8 turret, it allows free cutting of long workpieces. When performing manual drilling, the quill can be set to zero for drill depth measurement. Can be optionally equipped with a hydraulic quill to automatically forward and reverse.



STANDARD ACCESSORIES:

- | | |
|--|--|
| <ul style="list-style-type: none"> 1 CNC controller:FANUC Oi Mate - TD 2 Hydraulic chuck 6" with rotary cylinder 3 Rotating center MT.4 4 Level pads --- 10pcs | <ul style="list-style-type: none"> 5 Tool set & box 6 Machine light 7 Operation manual and parts list |
|--|--|



OPTIONAL ACCESSORIES:

- | | |
|--|---|
| <ul style="list-style-type: none"> 1 Electric H4 turret 2 Hydraulic P8 turret with boring bar holder Ø20 mm.....2 sets boring bar holder Ø25 mm.....1 set O.D / facing tool holder.....4 sets I.D / facing tool holder.....1 set 3 Boring socket Ø6 x Ø20 ~ Ø16 x Ø20 | <ul style="list-style-type: none"> 4 Drilling socket MT.1 x Ø20 5 Steady rest w / ball bearing 6 High pressure coolant pump 3bar 750W 7 Quick change tool post 8 Hydraulic tailstock quill 9 Chip conveyor & chip bucket cart |
|--|---|



		MODEL	FEL-1440ENC/B	FEL-1440ENC/B	FEL-1440ENC/B	
Capacity	No. of control axis			2 AXIS		
	Swing over bed		Ø360 mm (14.17")	Ø410 mm (16.14")	Ø410 mm (16.14")	
	Distance between centers(Manual tailstock)		910 mm (35.82")	910 mm (35.82")	1420 mm (55.9")	
	Max. working length	4 way tool post Hyd. P8 turret	700 mm (27.55") 680 mm (26.77")	700 mm (27.55") 680 mm (26.77")	1210 mm (47.63") 1190 mm (46.85")	
Max. working dia.	4 way tool post		Ø170 mm (6.7")		Ø220 mm (8.66")	
	Hyd. P8 turret		Ø160 mm (6.29")		Ø210 mm (8.27")	
Width of bed				260 mm (10.236")		
Headstock and Main Spindle	Spindle nose, internal taper		ASA A2-5 , Ø52mm Taper 1/19.18			
	Spindle bore / Bar capacity		Ø46mm (1.811") / Ø36mm (1.417")			
	Range of spindle speed		40~5000 R.P.M.			
	No. of spindle speed		Infinitely variable			
Cross Slide (X-axis) and Carriage (Z-axis)	X-axis travel	4 way tool post	205 mm (8.07")	205 mm (8.07")		
		Hyd. P8 turret	167 mm (6.57")	178 mm (7")		
	Z-axis travel	4 way tool post	865 mm (34")	865 mm (34")	1375 mm (54")	
		Hyd.P8 turret	710 mm (27.95")	710 mm (27.95")	1220 mm (48.03")	
	AC servo motor (X-axis)			0.75kW 3.5N.m ~ FANUC β 4 / 4000is		
	AC servo motor (Z-axis)			1.2kW 7.0N.m ~ FANUC β 8 / 3000is		
Dia. of ball screw (X-axis)			Ø20 mm (0.787") P5 C5			
Dia. of ball screw (Z-axis)			Ø32 mm (1.259") P10 C5			
Rapid traverse speed (X-axis)			7.5 m/min (295.3 ipm)			
Rapid traverse speed (Z-axis)			10 m/min (393.7 ipm)			
Turret	Tool station		STD. Manual 4 way tool post	OPT. Electric H4	or Hydraulic P8	
	Size of external turning tool		□20 mm	□20 mm	□20 mm	
	Boring bar diameter				Ø20 mm (0.787")	
Tailstock	Manual style	Quill diameter	Ø58 mm (2.283")			
		Quill travel	140 mm (5.5")			
	Taper of center		MT.No.4			
Motor	Main spindle motor		STD.5.5kW / 7.5kW (30min, rated) OPT. 7.5kW / 11kW (30min. rated)			
	Hydraulic oil pump		STD. 0.75kW (1 HP) OPT. 1.5 kW (2 HP)			
	Coolant pump		1 / 6 HP			
Tank Capacity	Hydraulic tank		40 Liter (8.8 gal)			
	Coolant tank		50 L (11 gal)	70 L (15.4 gal)		
Measurements	Weight (Net / Gross) Approx.		2,100 kgs / 2,600 kgs	2,150 kgs / 2,650 kgs	2,250 kgs / 2,750 kgs	
	Packing sizes	Length	2,680 mm (105.51")		3190 mm (125.6")	
Width x Height		Width 2030 mm (79.92") x Height 2200 mm (86.61")				

Specifications subject to change without notice.



FEL-1440/1460/1660ENC



1| Efficient, Accurate Power Turret (Optional) • The electric H4 turret is driven by a worm gear/worm wheel mechanism for convenient tool change. It is powered by a 375 W. motor with great clamping force up to 1 ton. • Specially designed post body prevents coolant and chips getting into post. Body will not move up and down during indexing.
• P8 hydraulic turret and quick change tool post are also available upon request.

2| Headstock • Rugged headstock and gears are hardened by MAAG or REISHAUER. Ground for smooth, quiet and vibration-free running.
• Pressurized cyclic lubrication from separate electric pump and oil reservoir provides a constant flow to all gears and bearings which maintains excellent thermal stability. Hot oil does not stay in the headstock thus reducing thermal expansion and workpiece intolerance.
• The 4 parallel V-belt assures drive in extremely stable, smooth running with minimum vibration.

3| Convenient Manual Control • Providing convenient manual control for X, Z axis. Moveable operation control box is also equipped with two electronic handwheels. • Comprehensive, waterproof function keys and push buttons enhance operational convenience.



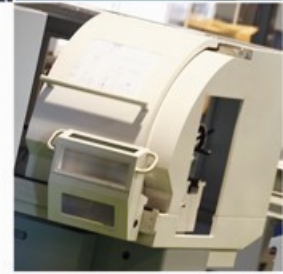
STANDARD ACCESSORIES:

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|---|--|
| <ul style="list-style-type: none"> 1 CNC controller 2 Rotating center MT.4 3 Level pads - 8pcs | <ul style="list-style-type: none"> 4 Tool set and box 5 Machine light 6 Operation manual and parts list |
|---|--|



OPTIONAL ACCESSORIES:

- | | |
|--|--|
| <ul style="list-style-type: none"> 1 3-Jaws scroll 8" chuck 2 4-Jaws independent 10" chuck 3 Electric H4 turret 4 Hydraulic P8 turret with boring bar holder Ø20 mm.....2 sets 5 Boring bar holder Ø25 mm.....1 set 6 Drilling socket MT.1 x Ø20 | <ul style="list-style-type: none"> 7 Steady rest w / ball bearing 8 High pressure coolant pump 3bar 750W 9 Quick change tool post 10 Hydraulic tailstock quill 11 Chip conveyor & chip bucket cart 12 Hydraulic hollow chuck 8" with rotary cylinder / bar capacity Ø40 for A1-6 spindle only (Working length increased more 25mm) |
|--|--|



MODEL		FEL-1440ENC	FEL-1640ENC	FEL-1660ENC
Capacity	No. of control axis		2 AXIS	
	Swing over bed	Ø360 mm (14.17")	Ø410 mm (16.14")	Ø410 mm (16.14")
	STD. D1-6 distance between centers	890 mm (35")	890 mm (35")	1400 mm (55")
	STD. D1-6 max. 4 way tool post working length	750 mm (29.52")	750 mm (29.52")	1260 mm (49.61")
	Max. working dia.	Hyd. P8 turret Ø170 mm (6.7")	630 mm (24.80")	Hyd. P8 turret Ø220 mm (8.66")
	Width of bed		Ø210 mm (8.27")	
			260 mm (10.236")	
Headstock and Main Spindle	Spindle nose, internal taper		STD. D1-6, MT. No.6	OPT. A1-6, MT. No.6
	Spindle bore		STD. Ø52.5 mm (2.066")	OPT. Ø51 mm (2")
	Spindle speed: / Range	Gear steps	Pneumatic change 2 steps/	L 25~480 R.P.M. H 481~3000 R.P.M.
Cross Slide (X-axis) and Carriage (Z-axis)	Cross slide travel (X-axis) STD.	205 mm (8.07")	205 mm (8.07")	205 mm (8.07")
	Longitudinal travel (Z-axis) STD.	815 mm (32.08")	815 mm (32.08")	1325 mm (52.16")
	AC servo motor (X-axis)		0.75 kW 3.5 N.m ~ FANUC β 4 / 4000is	
	AC servo motor (Z-axis)		1.20 kW 7.0 N.m ~ FANUC β 8 / 3000is	
	Dia. of ball screw (X-axis)		Ø20 mm (0.787") P5 C5	
	Dia. of ball screw (Z-axis)		Ø32 mm (1.259") P10 C5	
	Rapid traverse speed (X-axis)		7.5 m/min (295.3 ipm)	
Rapid traverse speed (Z-axis)		10 m/min (393.7 ipm)		
Turret	Tool station	STD. Manual 4 way tool post	OPT. Electric H4 turret or	Hydraulic P8 turret
	Size of external turning tool	□20 mm	□20 mm	□20 mm
	Boring bar diameter			Ø20 mm (0.787")
Tailstock	Quill diameter		Ø58 mm (2.283")	
	Quill travel		140 mm (5.5")	
	Taper of center		MT.No.4	
Motor	Main spindle		5.5kW/7.5kW (30min, rated)	
	Hydraulic oil pump		OPT. 0.75 kW (1 HP)	OPT. 1.5 kW (2 HP)
	Forced lubrication for headstock		1/4 HP	
	Coolant pump		1/6 HP	
Tank Capacity	Hydraulic tank		OPT. 40 Litre (8.8 gal.)	
	Coolant tank	50 L (11 gal.)		70 L (15.4 gal.)
Measurements	Weight (Net / Gross) Approx.	2,100 kgs / 2,600 kgs	2,150 kgs / 2650 kgs	2,250 kgs / 2,750 kgs
	Packing sizes	Length	2470 mm (97.24")	
		Width x Height	Width 2030 mm (79.92") x Height 2200 mm (86.61")	

Specifications subject to change without notice.



FEL-1740/1760ENC



111 Headstock (Gears and Bearings) • Headstock bearings and gears are supplied with oil delivered by a pump attached to take on the rear plinth. • A distributor within the headstock supplies oil to the drive bearings and gears.

121 Rear Hydraulic Turret P8 Station (Opt.)





STANDARD ACCESSORIES:

- 1 CNC Controller
- 2 Rotating center MT.4
- 3 Level pads - 6 pcs

- 4 Tool set and box
- 5 Machine light
- 6 Operation manual & parts list

OPTIONAL ACCESSORIES:

- 1 3-Jaw scroll 8" chuck
- 2 4-Jaw independent 10" chuck
- 3 Electric H4 turret
- 4 Hydraulic P8 turret with boring bar holder Ø20 mm.....2 sets boring bar holder Ø25 mm.....1 set O.D / facing tool holder.....4 sets I.D / facing tool holder.....1 set
- 5 Boring socket Ø6 x Ø20 ~ Ø16 x Ø20

- 6 Drilling socket MT.1 x Ø20
- 7 Steady rest w / ball bearing
- 8 High pressure coolant pump 3bar 750W
- 9 Quick change tool post
- 10 Hydraulic tailstock quill
- 11 Chip conveyor & chip bucket cart
- 12 Hydraulic hollow chuck 8" with rotary cylinder / bar capacity Ø40 for A1-6 spindle only (Working length increased more 25mm)

MODEL

FEL-1740ENC

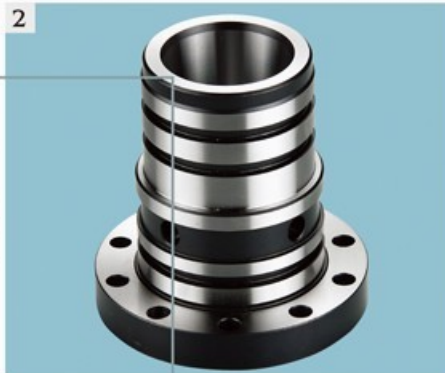
FEL-1760ENC

Capacity	No. of control axis	2 AXIS	
	Swing over bed	Ø432 mm (17")	
	STD. D1-6 distance between centers	950 mm (37.40")	1450 mm (57.08")
	STD. D1-6 max. working length	4 way tool post Hyd. P8 turret 650 mm (25.59")	1300 mm (51.18") 1150 mm (45.27")
Headstock and Main Spindle	Max. working diameter	4 way tool post Hyd. P8 turret 230 mm (9.0") 220 mm (8.66")	305 mm (12")
	Width of bed	305 mm (12")	
	Spindle nose, internal taper	STD. D1-6, MT. No.6	OPT. A1-6, MT. No.6
	Spindle bore	STD. Ø52.5 mm (2.066")	OPT. Ø51 mm (2")
Cross Slide (X-axis) and Carriage (Z-axis)	Gear steps	Pneumatic change 2 steps / Infinitely variable	
	Spindle speed: / Range	L 30~450 R.P.M. H 451~2800 R.P.M.	
	Cross slide travel (X-axis) STD.	230 mm (9.05")	
Turret	Longitudinal travel (Z-axis) STD.	900 mm (35.43")	1400 mm (55.11")
	AC servo motor (X-axis)	1.2kW 7.0N.m ~ FANUC ß 8 / 3000is	
	AC servo motor (Z-axis)	1.2kW 7.0N.m ~ FANUC ß 8 / 3000is	
	Dia. of ball screw (X-axis)	Ø20 mm (0.787") P5 C5	
	Dia. of ball screw (Z-axis)	Ø40 mm (1.57") P10 C5	
	Rapid traverse speed (X-axis)	5 m/min (196.8 ipm)	
	Rapid traverse speed (Z-axis)	7.5 m/min (295.3 ipm)	
Tailstock	Tool station	STD. Manual 4 way tool post	OPT. Elec H4 or Hydraulic P8
	Size of external turning tool	□ 20 mm	□ 20 mm
	Boring bar diameter		Ø20 mm (0.787")
Motor	Quill diameter	Ø68 mm (2.677")	
	Quill travel	153 mm (6")	
	Taper of center	MT.No.4	
Tank Capacity	Main spindle	continuous rated	STD. AC7.5 kW (10 HP)
	Hydraulic oil pump	30min. rated	STD. AC11 kW (15 HP)
	Forced lubrication for headstock		OPT. 0.75kW (1HP) OPT. 1.5kW (2HP)
	Coolant pump		1/4 HP 1/6 HP
Measurements	Hydraulic tank	OPT. 25 Liter (5.5 gal.)	OPT. 40 Liter (8.8 gal.)
	Coolant tank	60 L (13.2 gal.)	85 L (18.7 gal.)
Measurements	Weight (Net / Gross) Approx.	2,150 kgs / 2650kgs	2,400 kgs / 2,900 kgs
	Packing sizes	Length	2660 mm (104.72")
		Width x Height	3160 mm (124.4") Width 2015 mm (79.33") x Height 2240 mm (88.2")

Specifications subject to change without notice.



FEL-1840/1860ENC/B



1|1| Advanced User-Friendly CNC Control Interface

1|2| Well-Machined Parts



STANDARD ACCESSORIES:

- | | |
|--|--|
| <ul style="list-style-type: none"> 1 CNC Controller 2 Rotating center MT.4 3 Level pads6pcs | <ul style="list-style-type: none"> 4 Tool set & box 5 Machine light 6 Operation manual & parts list |
|--|--|



OPTIONAL ACCESSORIES:

- | | |
|--|--|
| <ul style="list-style-type: none"> 1 3-Jaws scroll 8" chuck 2 4-Jaws independent 10" chuck 3 Electric H4 turret 4 Hydraulic P8 turret with boring bar holder Ø20 mm.....2 sets boring bar holder Ø25 mm.....1 set O.D / facing tool holder.....4 sets I.D / facing tool holder.....1 set 5 Boring socket Ø6 x Ø20~Ø16 x Ø20 | <ul style="list-style-type: none"> 6 Drilling socket M.T.1 x Ø20 7 Steady rest w / ball bearing 8 High pressure coolant pump 3bar 750W 9 Quick change tool post 10 Hydraulic tailstock quill 11 Chip conveyor & chip bucket cart 12 Hydraulic hollow chuck 8" with rotary cylinder / bar capacity Ø52 |
|--|--|



MODEL		FEL-1840ENC/B	FEL-1860ENC/B
Capacity	No. of control axis	2 AXIS	
	Swing over bed	Ø460 mm (18.11")	
	STD. D1-6 distance between centers	900 mm (35.43")	1400 mm (55.11")
	STD. D1-6 max. working length	750 mm (29.52")	1250 mm (49.21")
	Max. working diameter	600 mm (23.62")	1100 mm (43.3")
	Width of bed	260 mm (10.2")	
Headstock and Main Spindle	Spindle nose, internal taper	STD. A2-6, Ø69 mm Taper 1/20	OPT. D1-6, MT.No.6
	Spindle bore	STD. Ø65 mm (2.56") OPT. Ø60 mm (2.36")	
	Gear steps	Pneumatic change 2 steps / Infinitely variable	
	Spindle speed: / Range	L 27~830 R.P.M. H 831~2500 R.P.M.	
Cross Slide (X-axis) and Carriage (Z-axis)	Cross slide travel (X-axis) STD.	230 mm (9.05")	
	Longitudinal travel (Z-axis) STD.	850 mm (33.46")	1350 mm (53.15")
	AC servo motor (X-axis)	1.2 kW 7.0N.m ~ FANUC β 8 / 3000is	
	AC servo motor (Z-axis)	1.2 kW 7.0N.m ~ FANUC β 8 / 3000is	
	Dia. of ball screw (X-axis)	Ø20 mm (0.787") P5 C5	
	Dia. of ball screw (Z-axis)	Ø40 mm (1.57") P10 C5	
	Rapid traverse speed (X-axis)	7.5 m/min (295.3 ipm)	
Rapid traverse speed (Z-axis)	10 m/min (393.7 ipm)		
Turret	Tool station	STD. Manual 4 way tool post	OPT. Electric H4 or Hydraulic P8
	Size of external turning tool	□ 25 mm	□ 20 mm
	Boring bar diameter	Ø20 mm (0.787")	
Tailstock	Quill diameter	Ø68 mm (2.677")	
	Quill travel	153 mm (6")	
	Taper of center	MT. No.4	
Motor	Main spindle	continuous rated STD. AC7.5 kW (10 HP) 30min. rated STD. AC11 kW (15 HP)	
	Hydraulic oil pump	OPT. 0.75kw (1HP)	OPT. 1.5kw (2HP)
	Forced lubrication for headstock	1/4 HP	
	Coolant pump	1/6 HP	
Tank Capacity	Hydraulic tank	OPT. 25 Liter (5.5 gal.)	OPT. 40 Liter (8.8 gal.)
	Coolant tank	60 L (13.2 gal.)	85 L (19.7 gal.)
Measurements	Weight (Net / Gross) Approx.	2,350 kgs/ /2,850 kgs	2,600 kgs/ /3,100 kgs
	Packing sizes	Length 2860 mm (112.6")	3360 mm (132.3")
	Width x Height	Width 2115 mm (83.3") x Height 2240 mm (88.2")	

Specifications subject to change without notice.



FEL-2040/2060/2080ENC



111 Extra Rigid Solid Construction Bracket, for Ball Screw and Motor (Z-axis)



121 8-Station Hydraulic Turret (Optional)





STANDARD ACCESSORIES:

- | | |
|--|--|
| <ul style="list-style-type: none"> 1 CNC Controller 2 Rotating center MT.5 3 Level pads (2040/2060/2080).....8pcs | <ul style="list-style-type: none"> 4 Tool set & box 5 Machine light 6 Operation manual & parts list |
|--|--|



OPTIONAL ACCESSORIES:

- | | |
|---|--|
| <ul style="list-style-type: none"> 1 3-Jaw scroll 12" chuck 2 4-Jaw independent 14" chuck 3 Elec.H4 turret 4 Hydraulic P8 turret with boring bar holder Ø20 mm.....2 sets 5 Boring socket Ø6 x Ø20~Ø16 x Ø20 6 Drilling socket MT.1 x Ø20 7 Steady rest w / ball bearing | <ul style="list-style-type: none"> 8 High pressure coolant pump 3bar 750W 9 Quick change tool post 10 Manual quill feed 1/1 & 1/4 11 Hydraulic tailstock quill 12 Automatic gears shift by M code 13 Hydraulic hollow chuck 10" with rotary cylinder / bar capacity Ø68 for A2-8 spindle only (Working length increased more 70mm) |
|---|--|

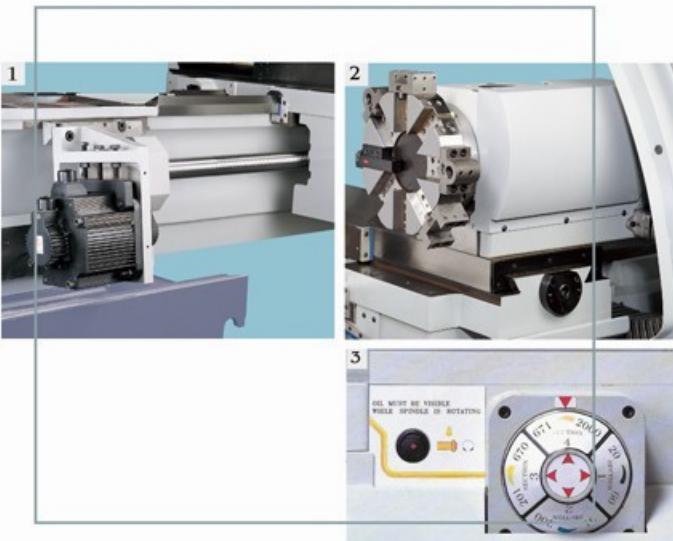


MODEL		FEL-2040ENC	FEL-2060ENC	FEL-2080ENC	
Capacity	No. of control axis		2 AXIS		
	Swing over bed		Ø533 mm (20.98")		
	STD. D1-8 distance between centers	845 mm (33.27")	1345 mm (52.95")	1845 mm (72.64")	
	STD. D1-8 max. 4 way tool post working length	620 mm (24.41")	1120 mm (44.09")	1620 mm (63.78")	
	Hyd. P8 turret	530 mm (20.87")	1030 mm (40.55")	1530 mm (60.24")	
	Max. working diameter		Ø305 mm (12")		
Headstock and Main Spindle	Width of bed		345 mm (13.58")		
	Spindle nose, internal taper		STD. D1-8 OPT. A2-8, Ø85 mm Taper 1/19.18		
	Spindle bore		Ø80 mm (3.149")		
	Spindle speed: Gear steps / Range	Manual change 4 steps / Infinitely variable	STEP 1 20~60 R.P.M STEP 2 61~200 R.P.M STEP 3 201~670 R.P.M STEP 4 671~2000 R.P.M		
Cross Slide (X-axis) and Carriage (Z-axis)	Cross slide travel (X-axis)		300 mm (11.8")		
	Longitudinal travel (Z-axis) STD.	720 mm (28.3")	1220 mm (48.0")	1720 mm (67.7")	
	AC servo motor (X-axis)		1.8kW 11N.m ~ FANUC β 12 / 3000is		
	AC servo motor (Z-axis)		2.5kW 20N.m ~ FANUC β 22 / 2000is		
	Dia. of ball screw (X-axis)		Ø25 mm (0.98") P5 C5		
	Dia. of ball screw (Z-axis)		Ø50 mm (1.97") P10 C5		
	Rapid traverse speed (X-axis) Rapid traverse speed (Z-axis)		5 m/min (196.8 ipm) 7.5 m/min (295.3 ipm)		
Turret	Tool station	STD. Manual 4 way tool post	OPT. Hydraulic P8		
	Size of external turning tool	□25 mm	□20 mm		
	Boring bar diameter		Ø20 mm (0.787")		
Tailstock	Quill diameter		Ø85 mm (3.346")		
	Quill travel		178 mm (7")		
	Taper of center		MT.No.5		
Motor	Main spindle	Inverter Motor AC 7.5 kW (10 HP), Yaskawa Inverter (15 HP)			
	Hydraulic oil pump	OPT. 0.75 kW (1HP)	OPT. 1.75 kW (2HP)		
	Forced lubrication for headstock		1/4 HP		
	Automatic gear shift		OPT. 60 W		
	Coolant pump		1/6 HP		
Tank Capacity	Hydraulic tank		OPT. 25 Liter (5.5 gal.)	OPT. 40 Liter (8.8 gal.)	
	Coolant tank	60 L (13.2 gal.)	120 L (26.4 gal.)	180 L (39.6 gal.)	
Measurements	Weight (Net / Gross) Approx.	3,100 kgs / 3,500 kgs	3,500 kgs / 3,900 kgs	3,900 kgs / 4,300 kgs	
	Packing sizes	Length	2950 mm (116.1")	3450 mm (135.8")	3950 mm (155.5")
		Width x Height	Width 2200 mm (86.6") x Height 2240 mm (88.2")		

Specifications subject to change without notice.



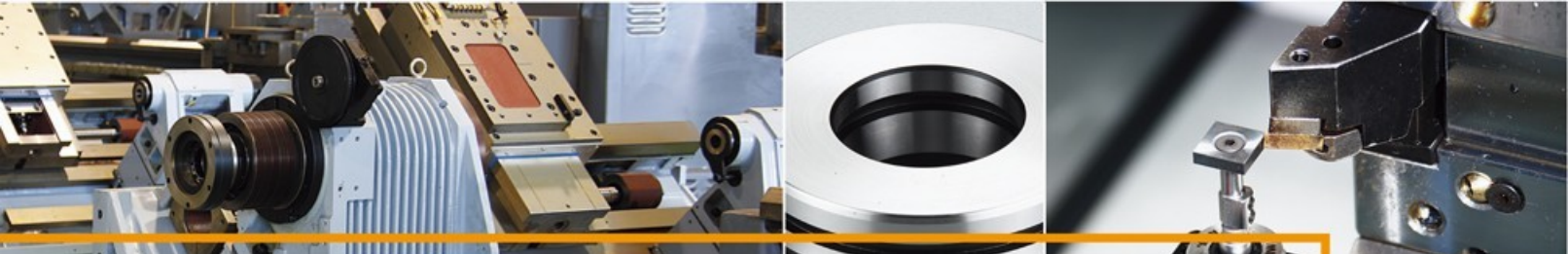
FEL-2140/2160/2180/21120ENC



111 Extra Rigid Solid Construction Bracket for Ball Screw and Motor (Z-axis)

121 8-Station Hydraulic Turret (Optional)

131 **Headstock** • Four gear range of spindle speeds driven by built-in AC motor. The operator can input the required spindle speed by M code, and the spindle will automatically reach the required speed. • The headstock has forced oil lubrication, with lubricant pumped from a large tank to maintain constant temperature. • The 3 ultra-precision bearing spindle support maintains stability in heavy cuts. Ø80 mm (Ø3.15") spindle bore through diameter shafts. • ASA A2-8 short taper for power chuck or Cam-Lock D1-8 spindle nose for quick and accurate chuck mounting.



STANDARD ACCESSORIES:

- 1 CNC Controller
- 2 Rotating center MT.5
- 3 Level pads (2140/2160/2180) 8pcs
Level pads (21120) 10pcs

- 4 Tool set and box
- 5 Machine light
- 6 Operation manual & parts list

OPTIONAL ACCESSORIES:

- 1 3-Jaw scroll 12" chuck
- 2 4-Jaw independent 14" chuck
- 3 Hyd. VDI 40 disc V8 w/o tool holder
- 4 Hydraulic P8 turret with boring bar holder Ø32 mm.....2 sets facing tool holder □25 mm.....2 sets
- 5 Boring socket Ø8 x Ø32~Ø25 x Ø32
- 6 Drilling socket MT.1 x Ø32, MT.2 x Ø32, MT.3 x Ø32
- 7 Steady rest w / ball bearing

- 8 High pressure coolant pump 3bar 750W
- 9 Quick change tool post
- 10 Manual quill feed 1/1 & 1/4
- 11 Hydraulic tailstock quill
- 12 Chip conveyor & chip bucket cart
- 13 Hydraulic hollow chuck 10" with rotary cylinder / bar capacity Ø68 for A2-8 spindle only (Working length increased more 70mm)



MODEL

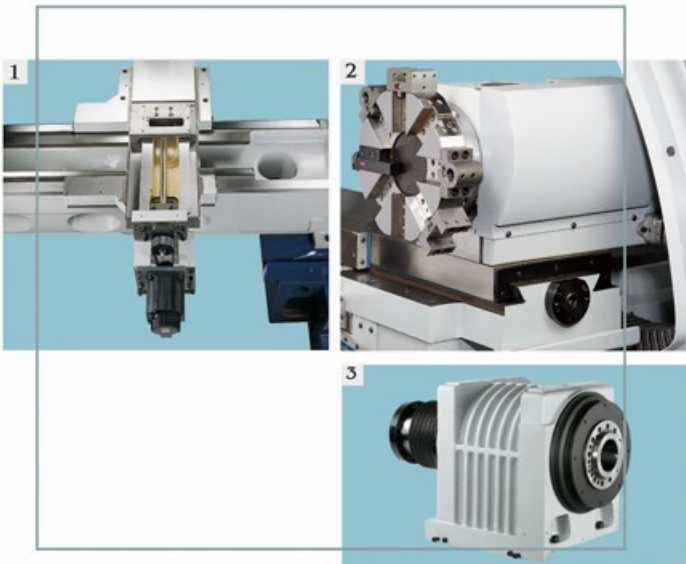
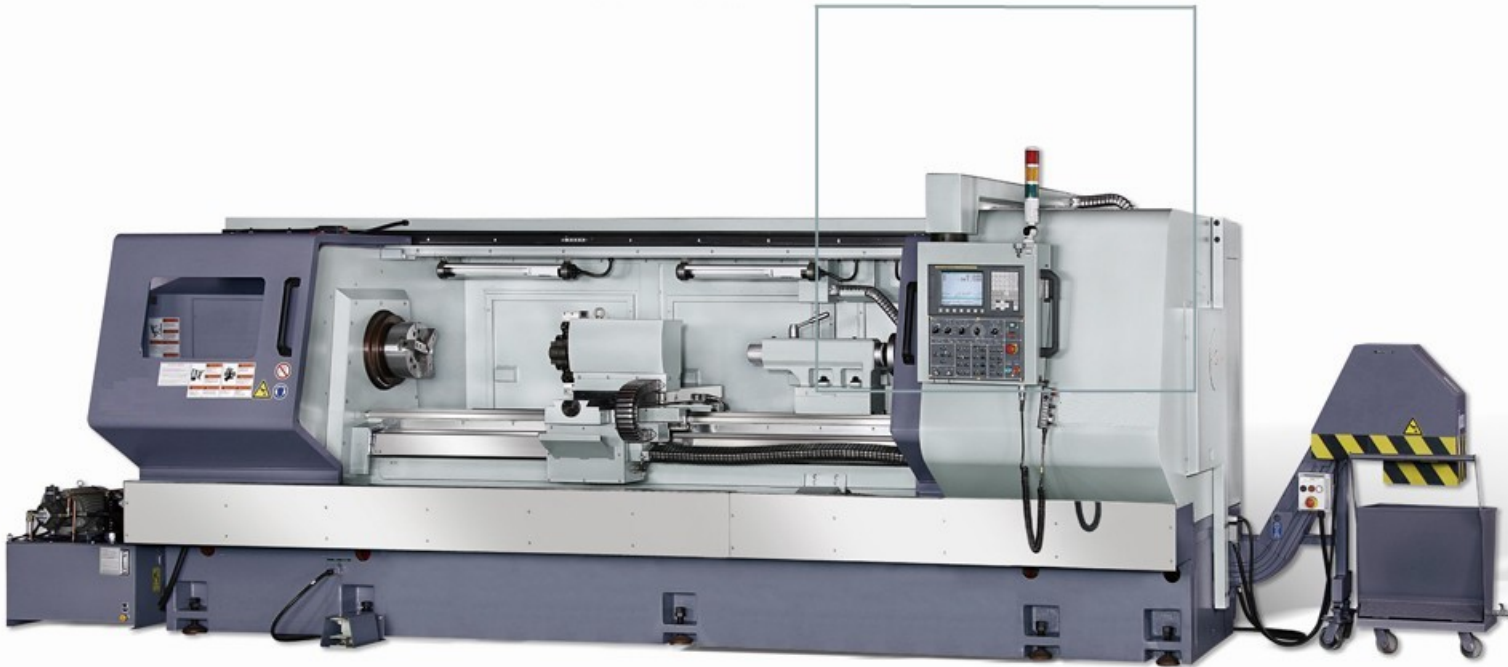
FEL-2140ENC FEL-2140ENC FEL-2140ENC FEL-2140ENC

	2 AXIS			
Capacity	No. of control axis	2 AXIS		
	Swing over bed	Ø533 mm (20.98")		
	STD. D1-8 distance between centers	845 mm (33.27")	1345 mm (52.95")	1845 mm (72.64") 2845 mm (112.0")
	STD. D1-8 max. working length	4 way tool post	620 mm (24.41")	1120 mm (44.09") 1620 mm (63.78") 2620 mm (103.1")
		Hyd. P8 turret	530 mm (20.87")	1030 mm (40.55") 1530 mm (60.24") 2530 mm (99.61")
	Hyd. VDI disc	490 mm (19.29")	990 mm (38.98") 1490 mm (58.66") 2490 mm (98.03")	
	Max. working diameter	Ø305 mm (12")		
	Width of bed	345 mm (13.58")		
Headstock and Main Spindle	Spindle nose, internal taper	STD. D1-8 OPT.A2-8, Ø 85 mm Taper 1/19.18		
	Spindle center sleeve	Ø85 mm Taper 1/19.18 x MT.No.5		
	Spindle bore	Ø80 mm (3.149")		
	Spindle speed: Gear steps / Range	M code automatic 4 steps /	M41 20~60 R.P.M. M42 61~200 R.P.M. M43 201~670 R.P.M. M44 671~2000 R.P.M.	Infinitely variable
Cross Slide (X-axis) and Carriage (Z-axis)	Cross slide travel (X-axis) STD.	300 mm (11.8")		
	Longitudinal travel (Z-axis) STD.	720 mm (28.3")	1220 mm (48.0") 1720 mm (67.7") 2720 mm (107.1")	
	AC servomotor (X-axis)	1.8kW	11N.m ~ FANUC β 12 / 3000is	
	AC servomotor (Z-axis)	2.5kW	20N.m ~ FANUC β 22 / 2000is	
	Dia. of ball screw (X-axis)	Ø25 mm (0.98") P5 C5		
	Dia. of ball screw (Z-axis)	Ø50 mm (1.97") P10 C5		Ø63 mm (2.48") P10 C5
	Rapid traverse speed (X-axis)	7.5 m/min (295 ipm)		
Rapid traverse speed (Z-axis)	10 m/min (394 ipm)			
Turret	Tool station	STD. Manual 4 way tool post	OPT. Hyd. VDI V8	or Hydraulic P8
	Size of external turning tool	□ 25 mm	□ 25 mm	□ 25 mm
	Boring bar diameter		Ø40 mm (1.575")	Ø32 mm (1.26")
Tailstock	Quill diameter	Ø85 mm (3.346")		
	Quill travel	178 mm (7")		
	Taper of center	MT.No.5		
Motor	Main spindle (continuous rated)	AC 9 kW (12 HP) Wide range heavy duty FANUC AC spindle motor		
	(30 min. rated)	AC 11 kW (15 HP) MODEL βIIp18/6000		
	Hydraulic oil pump	OPT. 0.75 kW (1HP)	OPT. 1.5 kW (2HP)	
	Forced lubrication for headstock	1/4 HP		
	Automatic gears shift	60 W		
Coolant pump	1/6 HP			
Tank Capacity	Hydraulic tank	OPT. 25 Litre (5.5 gal.)	OPT. 40 Litre (8.8 gal.)	
	Coolant tank	60 L (13.2 gal.)	120 L (26.4 gal.)	180 L (39.6 gal.) 240 L (52.8 gal.)
Measurements	Weight (Net / Gross) Approx.	4,050 kgs / 4,450 kgs	4,400 kgs / 4,900 kgs	4,800 kgs / 5,400 kgs 5,300 kgs / 6,000 kgs
	Packing sizes	Length 3200 mm (126")	3700 mm (145.7")	4200 mm (165.4") 5200 mm (204.7")
	Width x Height	Width 2300 mm (90.6") x Height 2240 mm (88.2")		

Specifications subject to change without notice.



FEL-2240/2260/2280/22120ENC



111 Enlarged Saddles and Fully Supported Cross Slide (X-axis) • Bed ways and cross slide are hardened and ground to min HS70. • Turcite "B" coating between the bed and carriage.

121 8-Station Hydraulic Turret (Optional)

131 Unique Design Spindle • The spindle is supported by a single cylinder bearing housing equipped with SP level precision double row cylindrical roller bearings angular contact thrust bearings and lubricated with HI-class grease. The front spindle is designed with a labyrinthian collar and protector cover to prevent the entering of coolant or chips. • Encased in a well-ribbed headstock for maximum heat dissipation. Prevents any thermal distortion after long periods of turning thereby ensuring accurate cutting.



STANDARD ACCESSORIES:

- | | |
|--|--|
| <ul style="list-style-type: none"> 1 CNC Controller: FANUC Oi Mate-TD 2 Hydraulic chuck 10" with rotary cylinder 3 Rotating center MT.5 4 Level pads (2240/2260/2280).....8pcs <li style="padding-left: 20px;">Level pads (22120).....10pcs | <ul style="list-style-type: none"> 5 Tool set and box 6 Machine light 7 Operation manual & parts list |
|--|--|



OPTIONAL ACCESSORIES:

- | | |
|--|---|
| <ul style="list-style-type: none"> 1 Hyd. VDI 40 disc V8 w/o tool holder 2 Hydraulic P8 turret with boring bar holder Ø32mm..... 2 sets <li style="padding-left: 20px;">facing tool holder □ 25mm..... 2 sets 3 Boring socket Ø8 x Ø32~Ø25 x Ø32 4 Drilling socket MT.1 x Ø32, MT.2 x Ø32, MT.3 x Ø32 | <ul style="list-style-type: none"> 5 Steady rest w / ball bearing 6 High pressure coolant pump 3bar 750W 7 Quick change tool post 8 Manual quill feed 1/1 & 1/4 9 Hydraulic tailstock quill 10 Chip conveyor & chip buck cart |
|--|---|



MODEL		FEL-2240	FEL-2260	FEL-2280	FEL-22120	
Capacity	No. of control axis	2 AXIS				
	Swing over bed	Ø550mm (21.653")				
	Distance between centers	870mm (34.25")	1370mm(53.93")	1870mm(73.62")	2870mm(113.0")	
	Max. working length	4 way tool post	680mm (26.77")	1180mm(46.45")	1680mm(66.14")	2680mm(105.5")
		Hyd. P8 turret	590mm (23.22")	1090mm(42.91")	1590mm(62.60")	2590mm(102.0")
		Hyd. VDI disc	550mm (21.65")	1050mm(41.33")	1550mm(61.02")	2550mm(100.4")
Max. working diameter	Ø325mm (12.8")					
Width of bed	345mm (13.58")					
Headstock and Main Spindle	Spindle nose , Internal taper	ASA A2-8, Ø 97mm Taper 1/20				
	Spindle bore / Bar capacity	Ø91 mm (3.582") / Ø78 mm (3.07")				
	Range of spindle speed	35 ~ 3500 R.P.M				
	No. of spindle speed	Infinitely variable				
Cross Slide (X-axis) and Carriage (Z-axis)	Cross slide travel (X-axis) STD.	300mm (11.8")				
	Longitudinal travel (Z-axis) STD.	780 mm (30.7")	1280 mm (50.4")	1780 mm (70.1")	2780 mm (109.4")	
	AC servo motor (X-axis)	1.8kW 11N.m ~ FANUC ß 12 / 3000is				
	AC servo motor (Z-axis)	2.5kW 20N.m ~ FANUC ß 22 / 2000is				
	Dia. of ball screw (X-axis)	Ø25mm (0.98") P5 C5				
	Dia. of ball screw (Z-axis)	Ø50 mm (1.97") P10 C5		Ø63 mm (2.48") P10 C5		
	Rapid traverse speed (X-axis)	7.5 m/min (295 ipm)				
	Rapid traverse speed (Z-axis)	10 m/min (394 ipm)				
Turret	Tool station	STD. Manual 4 way tool post			OPT. Hyd. VDI V8	
	Size of external turning tool	□ 25 mm		or	Hydraulic P8	
	Boring bar diameter	□ 25 mm		Ø25 mm	□ 25 mm	
Tailstock	Quill diameter	Ø85mm (3.346")				
	Quill travel	178mm (7")				
	Taper of center	MT. No.5				
Motor	Main spindle (continuous rated)	AC 9 kW (12 HP) Wide range heavy duty FANUC AC spindle motor				
	(30 min. rated)	AC 11 kW (15 HP) MODEL ßiP18/6000				
	Hydraulic oil pump	STD. 0.75kW (1 HP) OPT. 1.5 kW (2 HP)				
	Coolant pump	1/6 HP				
Tank Capacity	Hydraulic tank	STD. 25 Litre (5.5 gal.) OPT. 40 Litre (8.8 gal.)				
	Coolant tank	60 L (13.2 gal.)	120 L (26.4 gal.)	180 L (39.6 gal.)	240 L (52.8 gal.)	
Measurements	Weight (Net/Gross) Approx.	4,050 kgs / 4,450 kgs	4,400 kgs / 4,900 kgs	4,800 kgs / 5,400 kgs	5,300 kgs / 6,000 kgs	
	Packing sizes	Length	3200 mm (126")	3700 mm (145.7")	4200 mm (165.4")	5200 mm (204.7")
		Width x Height	Width 2300 mm (90.6") x Height 2230 mm (87.8")			

Specifications subject to change without notice.

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