

FCL-TS SERIES

FCL-15TS

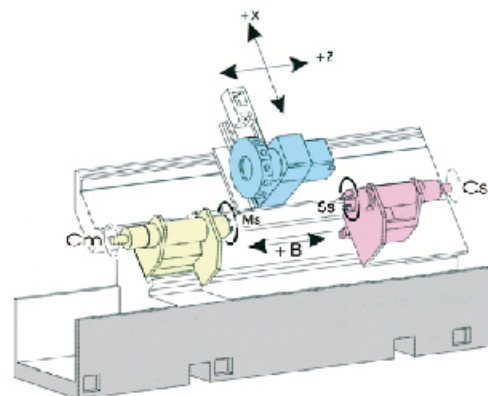
- Swing over bed ϕ 600 mm.
- Max. turning diameter ϕ 250 mm.
- Working length 260 mm.

FCL-20TS

- Swing over bed ϕ 630 mm.
- Max. turning diameter ϕ 490 mm.
- Working length 500 mm.

FCL-30TS

- Swing over bed ϕ 650 mm.
- Max. turning diameter ϕ 470 mm.
- Working length 470 mm.



TWIN SPINDLE SINGLE TURRET

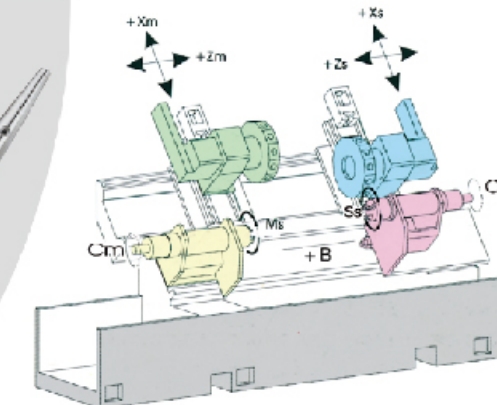
Ms : Main Spindle
Ss : Sub-spindle
Cm : C axis / Main spindle
Cs : C axis / Sub spindle

FCL-TT SERIES



TWIN SPINDLE TWIN TURRET

Ms : Main Spindle
Ss : Sub-spindle
Cm : C axis / Main spindle
Cs : C axis / Sub spindle



FCL-15TT

- Swing over bed ϕ 620 mm.
- Max. turning diameter ϕ 440 mm.
- Working length 310 mm.

FCL-20TT

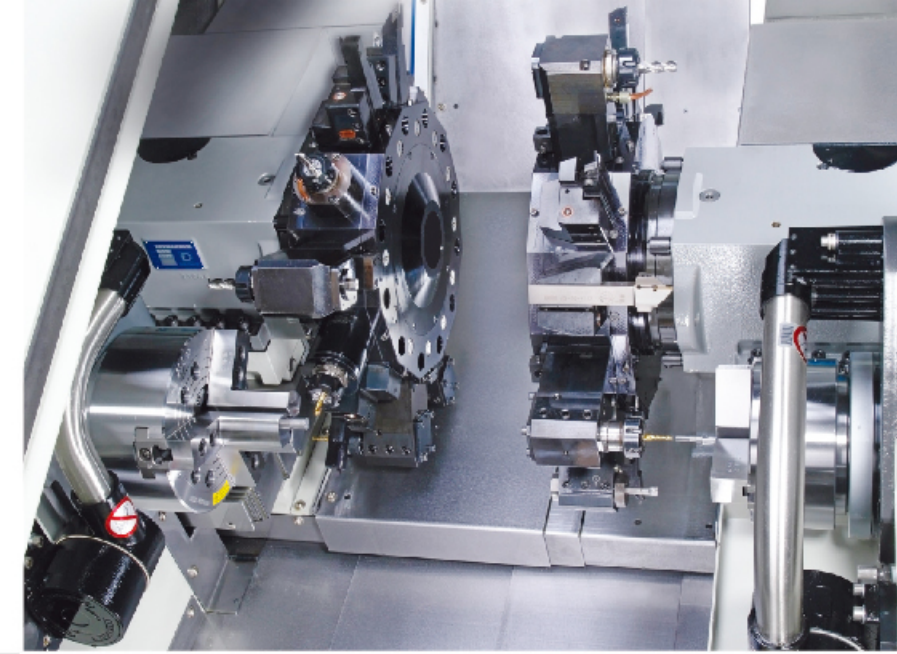
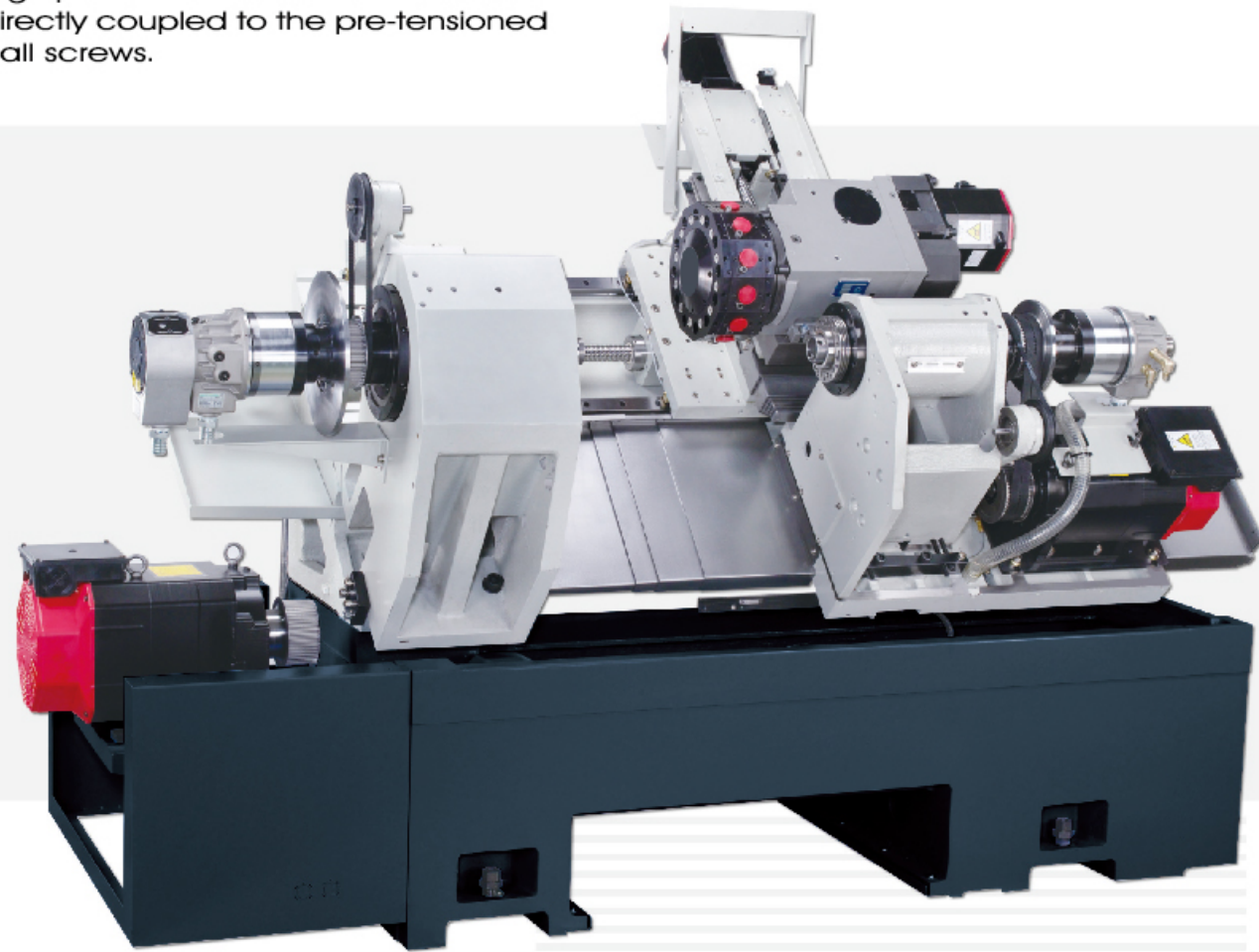
- Swing over bed ϕ 620 mm.
- Max. turning diameter ϕ 440 mm.
- Working length 290 mm.

FCL-25TT

- Swing over bed ϕ 620 mm.
- Max. turning diameter ϕ 440 mm.
- Working length 270 mm.

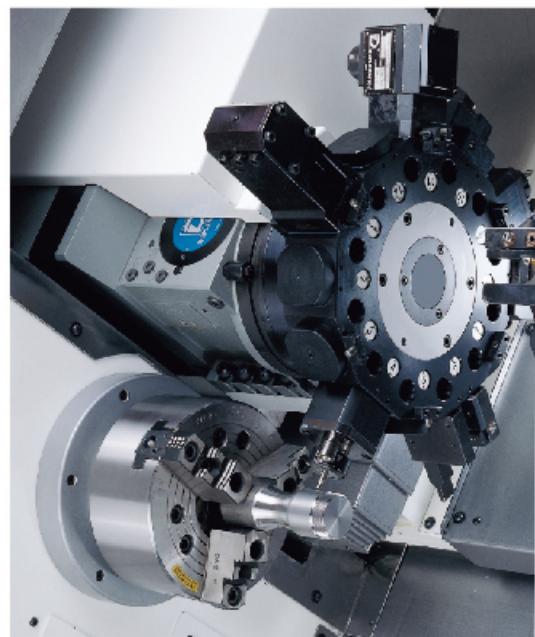
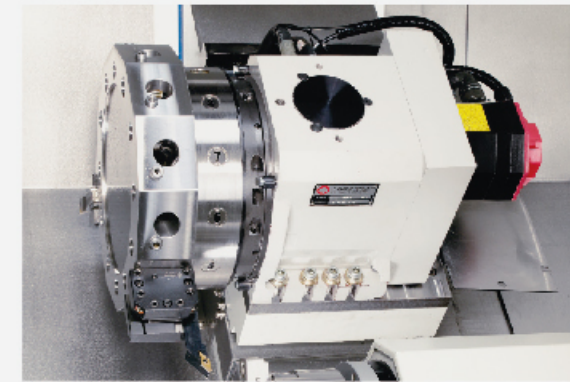
RUGGEDLY AND PRECISELY CONSTRUCTED THROUGHOUT

- The major machine parts, such as the base, saddle, headstock, slide and sub spindle are made of Meehanite cast iron and tempered to relieve stress thereby ensuring lifetime accuracy.
- High performance servo motors are directly coupled to the pre-tensioned ball screws.
- Box guideways on the B axis. Linear guideways on the X and Z axes.
- 45 degrees slant bed construction features efficient chip removal and firm support.



TWIN SPINDLE / SINGLE TURRET

- The combination of the main spindle and sub-spindle enable the entire workpiece to be machined at one time.
- 12-position hydraulic turret. (LS-240)



C-AXIS (OPTIONAL)

- Employs, VDI30, VDI40, 12 station power turret with Fanuc servo motor. (Rotating tool holder and tools not included.)
- High indexing resolution of 0.001 for precision contour / index control.
- Hydraulic disk brake locking provides maximum stability during milling and contouring.



TD AXIS WITH TURRET

- TD-axis & turret with a servo motor turret. The unit allows front and back machining with fast tool change.
- The turret disk and TD axis are driven by a motor.



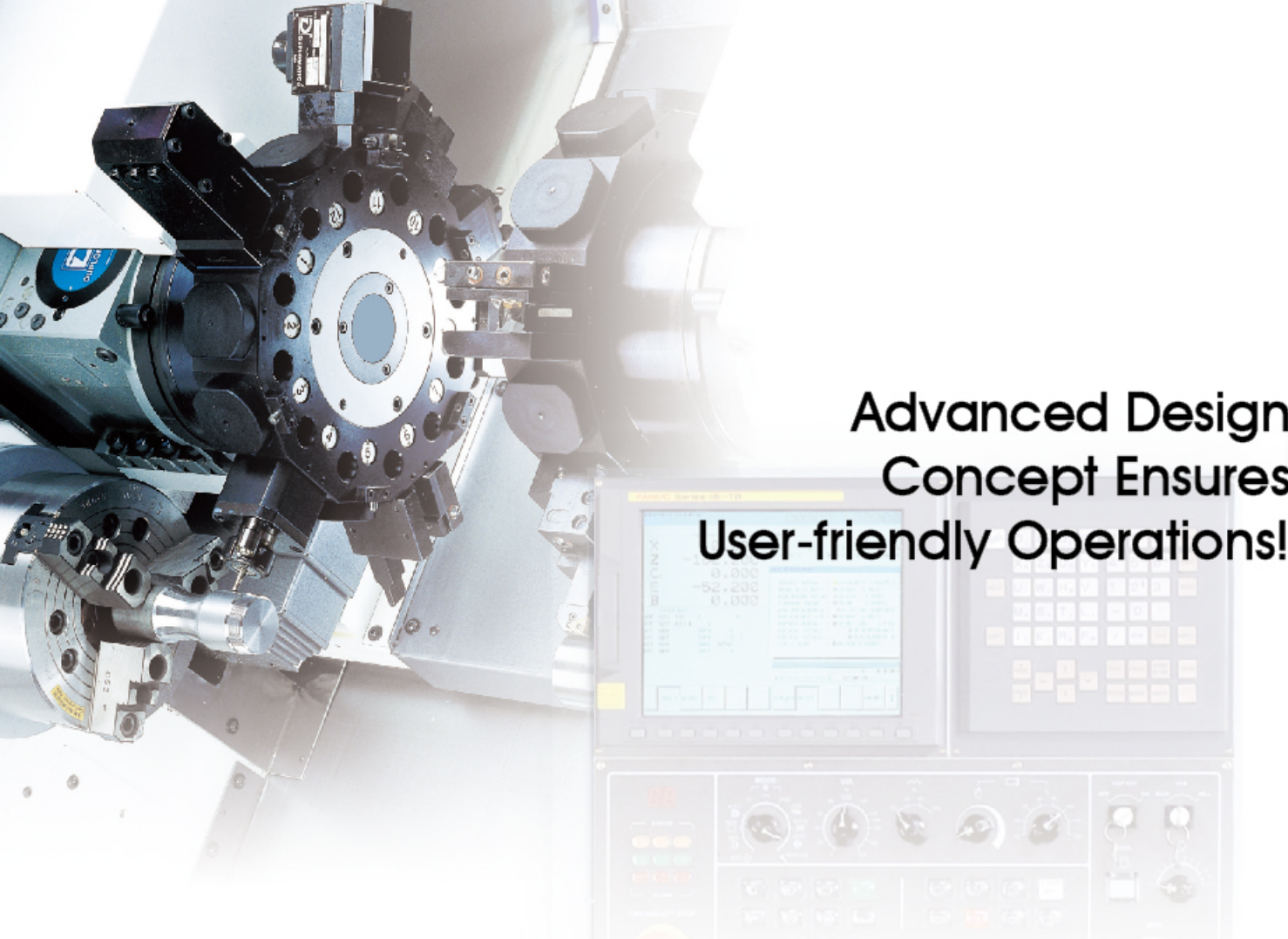
FAST TURRET INDEXING

- The 12-position turret features bi-directional random tool selection.
- Fast indexing time of 0.6 seconds.
- The turret accommodates 20 x 20 mm. O.D. tooling and 32 mm. I.D. tooling.



PRECISION SPINDLE

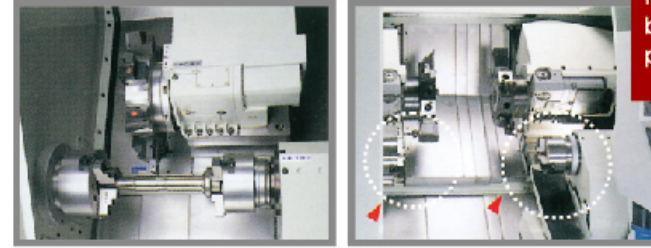
- The cartridge type is conveniently removed allowing for convenient servicing.
- The spindle runs on class P4 precision bearings providing high axial thrust capability and superior radial stability. This ensures high precision during heavy duty turning.



Advanced Design Concept Ensures User-friendly Operations!

SYNCHRONIZED MACHINING ON TWO SPINDLES

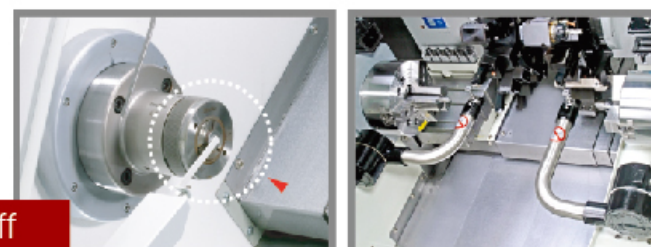
The main spindle and the sub-spindle run synchronizely permitting workpiece machining at one time.



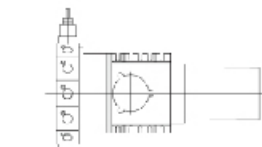
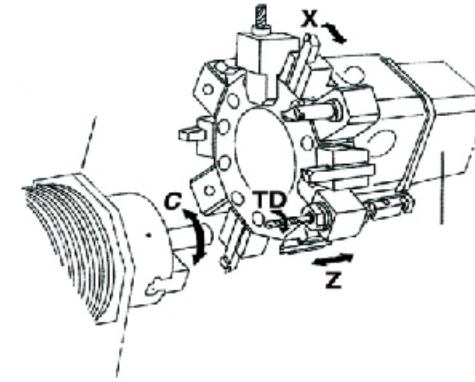
One cycle can finish front side & back machining / parts catcher

MAIN SPINDLE TOOL SETTER AND SUB-SPINDLE TOOL SETTER

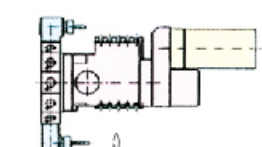
Designed for reducing tool set-up time, the tool setter automatically detects tool wear condition.



Parts Cut-off Detector



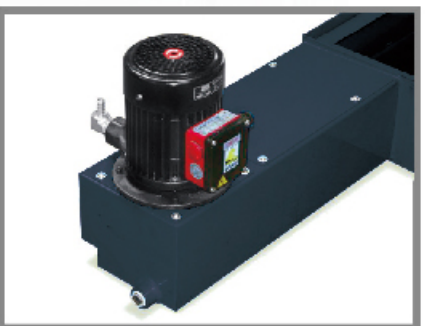
Radial VDI Turret Front and Back Machining (Hydraulic Turret for TS Series) (Servo Turret for TT Series)



Radial Driven Tool System Front and Back Machining (Opt. for TS,TT Series)

HYDRAULIC POWER UNIT

- The hydraulic power unit employs high quality components for long service life and stable motions.
- The unit delivers high pressure to the turret, CS Brake and 3-jaw chuck.



HIGH PRESSURE COOLANT PUMP



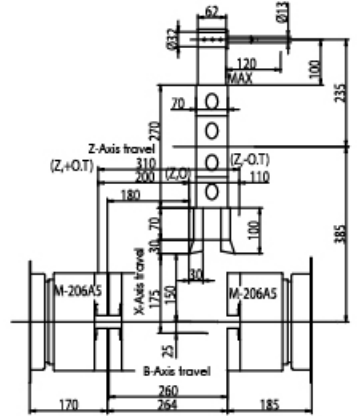
ELECTRICAL CABINET



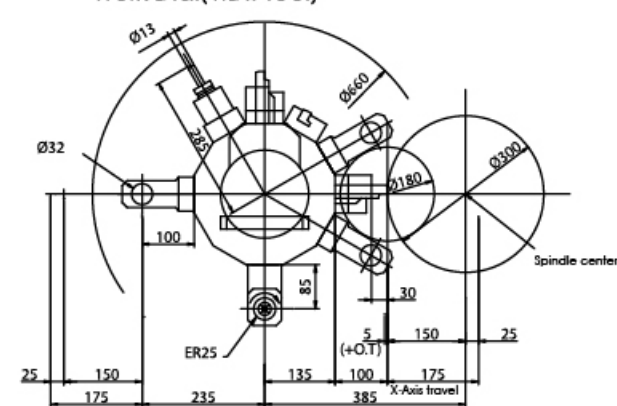
FANUC CNC

FCL-15TS

VDI Turret W/C-Axis Moving Range

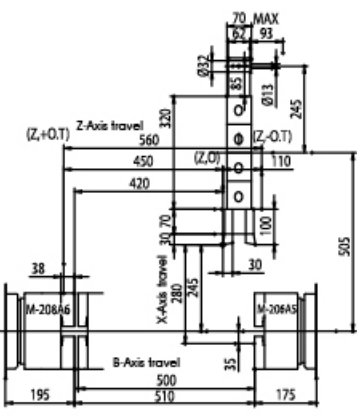


Relation Between Tool and Work Dia.(V.D.I Tool)

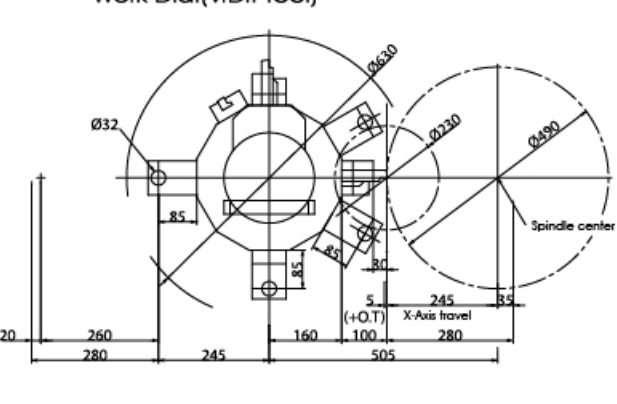


FCL-20TS

VDI Turret W/C-Axis Moving Range

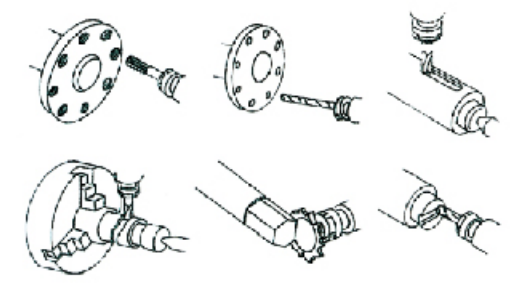


Relation Between Tool and Work Dia.(V.D.I Tool)

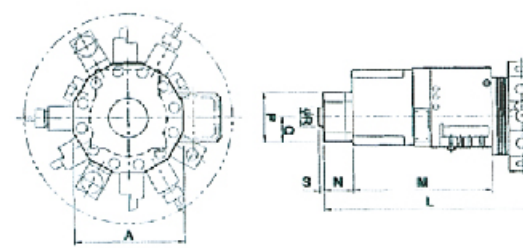


The above interference drawing only for reference. Please confirm correct details with the business service.

C-Axis Process Drawing



VDI for reference only



Specifications

MODEL	FCL-15TS/20TS	FCL-30TS
C-Axis Precision	0.001	
Power Turret	Type 16	Type 20
Max. Speed	4000 rpm	4000 rpm
Drilling	φ 1-13mm	φ 2.5-20mm
Milling	φ 1-13mm	φ 2.5-20mm
Taper	M1-M10	M3-M12
Tool Shank Size	φ 32mm	φ 40mm
Motor	AC 3.0 KW	AC 3.0 KW

Direct Mount

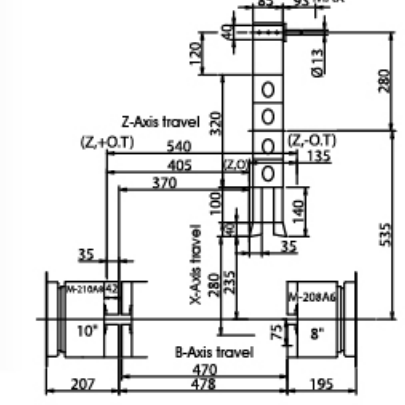
NO.	TOOL/MODEL	FCL-15TS/20TS	FCL-30TS
1	Bore	φ 8, φ 10, φ 12, φ 16, φ 20, φ 25, φ 32.	φ 8, φ 10, φ 12, φ 16, φ 20, φ 25, φ 32, φ 40.
2	Shank Dia.	□20(25 opt.)	□25
3	End	□20(25 opt.)	□25
4	Cut	25	25
5	Tap	φ 16	φ 20
6	Drill	MT#2,#3	MT#2,#3,#4

VDI

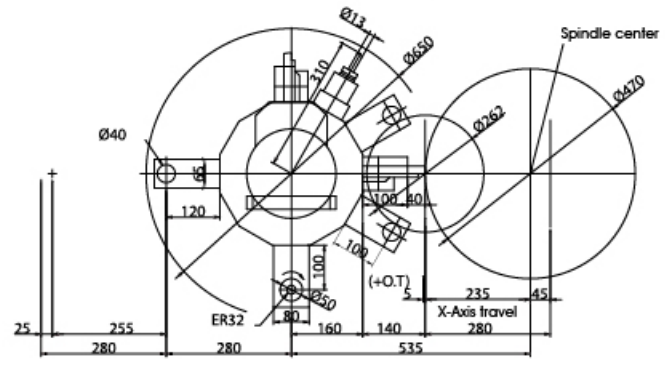
NO.	TOOL/MODEL	FCL-15TS/20TS	FCL-30TS
1	Bore	φ 8, φ 10, φ 12, φ 16, φ 20, φ 25, φ 32.	φ 8, φ 10, φ 12, φ 16, φ 20, φ 25, φ 32, φ 40.
2	Shank Dia.	□20(25 opt.)	□25
3	End	□20(25 opt.)	□25
4	Cut	20	25
5	Tap	M10	M16
6	Drill	MT#1,#2,#3	MT#2,#3,#4

FCL-30TS

V.D.I. Turret W/C-Axis Moving Range

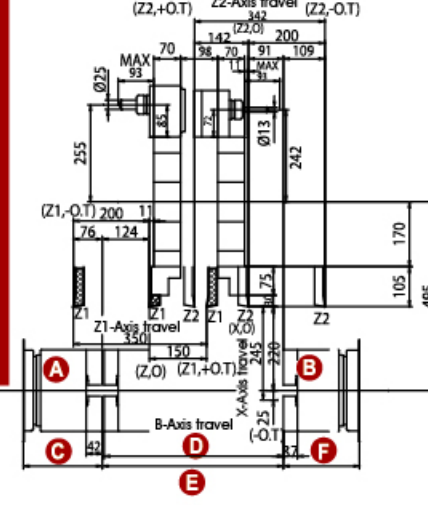


Relation Between Tool and Work Dia.(V.D.I Tool)



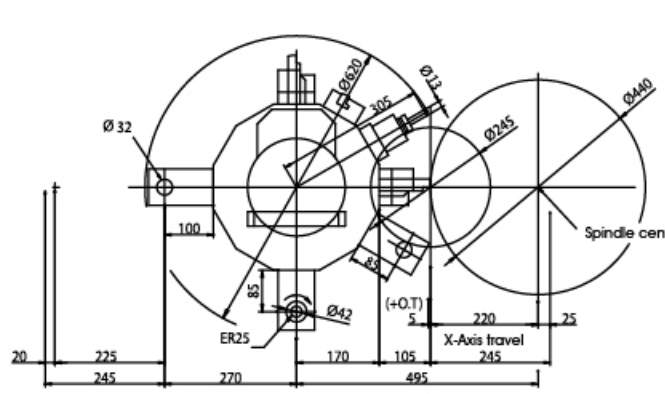
FCL-TT SERIES

V.D.I. Turret W/C-Axis Moving Range



MODEL	15TT	20TT	25TT
A	M-206A5	M-208A6	M-210A6
B	M-206A5	M-206A5	M-208A6
C	170	185	207
D	520	505	470
E	526	511	475
F	186	186	200

Relation Between Tool and Work Dia.(V.D.I Tool)



The above interference drawing only for reference. Please confirm correct details with the business service.

Specifications:

MODEL	FCL-15TT	FCL-20TT	FCL-25TT	
Capacity	No. of Axes Swing Over Bed Max. Turning Dia. Working Length	STD:5-Axis OPT:7-Axis (C-Axis) φ 620mm (24.41") φ 440mm (17.32") 310mm (12.20") OPT:560mm (22.04")	STD:5-Axis OPT:7-Axis (C-Axis) φ 620mm (24.41") φ 440mm (17.32") 290mm (11.41") OPT:540mm (21.25")	STD:5-Axis OPT:7-Axis (C-Axis) φ 620mm (24.41") φ 440mm (17.32") 270mm (10.62") OPT:520mm (20.47")
Main and Sub Spindle	Spindle Nose Bar Internal Taper Spindle Bore Bar Capacity Range of Spindle Speed Living Tools Speed No. of Spindle Speed	L: A2-5 R: A2-5 φ 56mm (2.2") φ 56mm (2.2") φ 45mm (1.7") φ 45mm (1.7") 10-6000rpm 10-6000rpm OPT:25-4000rpm Infinitely variable	L: A2-6 R: A2-5 φ 61mm (2.4") φ 56mm (2.2") φ 52mm (2") φ 45mm (1.7") 10-4200rpm 10-6000rpm OPT:25-4000rpm Infinitely variable	L: A2-6 R: A2-6 φ 77mm (3") φ 61mm (2.4") φ 65mm (2.5") φ 52mm (2") 10-3500rpm 10-4200rpm OPT:25-4000rpm Infinitely variable
Chuck	Hydraulic Chuck	φ 169mm (6") φ 169mm (6")	φ 210mm (8") φ 169mm (6")	φ 254mm (10") φ 210mm (8")
Turret (L/R)	Tool Station (Random) O.D. Tooling I.D. Tooling	Servo-VDI30-12T 20x20mm φ 32mm (1.26")	Servo-VDI30-12T 20x20mm φ 32mm (1.26")	Servo-VDI30-12T 20x20mm φ 32mm (1.26")
Cross Slide (X1,X2Axis) and Carriage (Z1,Z2Axis, B Axis)	X1, X2 Axis Travel Z1, Z2 Axis Travel B Axis Travel Rapid Traverse Speed (X1,X2Axis) Rapid Traverse Speed (Z1,Z2Axis) Rapid Traverse Speed (B Axis) Cutting Feed Rate (X and Z Axis)	245mm (9.64") 342mm (13.46") OPT:592mm (23.3") 520mm (20.47") 20m/min (787ipm) 20m/min (787ipm) 20m/min (787ipm) 0.001-500mm/rev.	245mm (9.64") 342mm (13.46") OPT:592mm (23.3") 500mm (19.68") 20m/min (787ipm) 20m/min (787ipm) 20m/min (787ipm) 0.001-500mm/rev.	245mm (9.64") 342mm (13.46") OPT:592mm (23.3") 470mm (18.5") 20m/min (787ipm) 20m/min (787ipm) 20m/min (787ipm) 0.001-500mm/rev.
Motor	Main Spindle (Continuous) Main Spindle (30 min.Rating) Sub Spindle (Continuous) Sub Spindle (30 min.Rating) X1, X2 Axis Z1, Z2 Axis B Axis	αP12I 5.5kw (7.5HP) 7.5kw (10HP) α6I 5.5kw (7.5HP) 7.5kw (10HP) α 8B/3000 1.6kw (2.15HP)x2 α 8/3000 1.6kw (2.15HP)x2 α 8/3000 1.6kw (2.15HP)	αP18I 9kw (12HP) 11kw (15HP) α6I 5.5kw (7.5HP) 7.5kw (10HP) α 8B/3000 1.6kw (2.15HP)x2 α 8/3000 1.6kw (2.15HP)x2 α 8/3000 1.6kw (2.15HP)	αP22I 11kw (15HP) 15kw (20HP) α8I 7.5kw (10HP) 11kw (15HP) α 12B/3000 3kw (4HP)x2 α 8/3000 1.6kw (2.15HP)x2 α 8/3000 1.6kw (2.15HP)
Tank Capacity	Hydraulic Pump Coolant Pump Hydraulic Tank Coolant Tank	1.5kw (2HP) 750w (1HP)x2 60 Liter 100 Liter	1.5kw (2HP) 750w (1HP)x2 60 Liter 100 Liter	1.5kw (2HP) 750w (1HP)x2 60 Liter 100 Liter
Measurements	Floor Space (L x W) Height Weight (Nw / GW)	4150 x 2100mm 2350mm 7160 kg / 7830 kg	4150 x 2100mm 2350mm 7300 / 8000 kgs	4150 x 2100mm 2350mm 7400 / 8100 kgs

Standard Accessories:

- High Pressure Cooling System (3 Bar)
- 100 Liter Capacity Cooling Tank
- Servo Turret 12-Position
- Auto Lubrication System
- Tool Kit
- Work Light
- Three color light
- Hydraulic Unit
- Heat Exchanger for Electric Cabinet
- Chip Conveyor and Bucket

Optional Accessories:

- C.E. Electric Control
- Auto Tool Setter Measurement
- Manual Tool Setter Measurement
- Cs axis Contour CapAbility
- Main Transformer
- Safety Door Interlocker
- Sub Spindel Parts Catcher and bouncing equipment
- Prevent Crash Install of Each Axis(Safety Equipment)
- Bar Feeder
- Parts Cut off Detector

Specifications:

MODEL	FCL-15TS	FCL-20TS	FCL-30TS	
Capacity	No. of Axes Swing Over Bed Max. Turning Dia. Working Length	STD:3-Axis OPT:5-Axis (C-Axis) φ 600mm (23.62") φ 250mm (9.84") 260mm (10.23") OPT:460mm (18.11")/960mm (37.7")	STD:3-Axis OPT:5-Axis (C-Axis) φ 630mm (24.8") φ 490mm (19.29") 500mm (19.6") OPT:1000mm (39.3")	STD:3-Axis OPT:5-Axis (C-Axis) φ 650mm (25.59") φ 470mm (18.5") 470mm (18.5") OPT:970mm (38.1")
Main and Sub Spindle	Spindle Nose Bar Internal Taper Spindle Bore Bar Capacity Range of Spindle Speed Living Tools Speed No. of Spindle Speed	L:ASA A2-5 R:ASA A2-5 φ 56mm (2.2") φ 56mm (2.2") φ 45mm (1.7") φ 45mm (1.7") 10-6000rpm 10-6000rpm OPT:25-4000rpm Infinitely variable	L:ASA A2-6 R:ASA A2-5 φ 61mm (2.4") φ 56mm (2.2") φ 52mm (2") φ 45mm (1.7") 10-4200rpm 10-6000rpm OPT:25-4000rpm Infinitely variable	L:ASA A2-8 R:ASA A2-6 φ 90mm (3.54") φ 61mm (2.4") φ 77mm (3") φ 52mm (2") 10-3500rpm 10-4200rpm OPT:25-4000rpm Infinitely variable
Chuck	Hydraulic Chuck	φ 169mm (6") φ 169mm (6")	φ 210mm (8") φ 169mm (6")	φ 254mm (10") φ 210mm (8")
Turret	Tool Station (Random) O.D. Tooling I.D. Tooling	STD:Hyd LS-200-12T OPT:Servo LS-200-12T 20x20mm φ 32mm (1.26")	STD:Hyd LS-240-12T OPT:Servo LS-240-12T 20x20mm φ 32mm (1.26")	STD:Hyd LS-240-12T OPT:Servo LS-240-12T 25x25mm φ 40mm (1.57")
Cross Slide (X Axis) and Carriage (Z Axis, B Axis)	X Axis Travel Z Axis Travel B Axis Travel Rapid Traverse Speed (X Axis) Rapid Traverse Speed (Z Axis) Rapid Traverse Speed (B Axis) Cutting Feed Rate (X and Z Axis)	165mm (6.5") 310mm (12.2") OPT:810mm (31.8") 260mm (10.23") 30m/min (1180ipm) 30m/min (1180ipm) 20m/min (787ipm) 0.001-500mm/rev.	280mm (11.02") 560mm (22.05") OPT:1060mm (41.7") 500mm (19.68") 30m/min (1180ipm) 30m/min (1180ipm) 20m/min (787ipm) 0.001-500mm/rev.	280mm (11.02") 540mm (21.26") OPT:1040mm (40.9") 470mm (18.5") 30m/min (1180ipm) 30m/min (1180ipm) 20m/min (787ipm) 0.001-500mm/rev.
Motor	Main Spindle (Continuous) Main Spindle (30 min.Rating) Sub Spindle (Continuous) Sub Spindle (30 min.Rating) X Axis Z Axis B Axis	αP12I 5.5kw (7.5HP) 7.5kw (10HP) α6I 5.5kw (7.5HP) 7.5kw (10HP) α 8B/3000 1.6kw (2.15HP) α 8/3000 1.6kw (2.15HP) α 8/3000 1.6kw (2.15HP)	αP18I 9kw (12HP) 11kw (15HP) α6I 5.5kw (7.5HP) 7.5kw (10HP) α 8B/3000 1.6kw (2.15HP) α 8/3000 1.6kw (2.15HP) α 8/3000 1.6kw (2.15HP)	αP22I 11kw (15HP) 15kw (20HP) α8I 7.5kw (10HP) 11kw (15HP) α 12B/3000 3.0kw (4HP) α 8/3000 1.6kw (2.15HP) α 8/3000 1.6kw (2.15HP)
Tank Capacity	Hydraulic Pump Coolant Pump Hydraulic Tank Coolant Tank	1.5kw (2HP) 750w (1HP) 60 Liter 100 Liter	1.5kw (2HP) 750w (1HP) 60 Liter 100 Liter	1.5kw (2HP) 750w (1HP) 60 Liter 100 Liter
Measurements	Floor Space (L x W) Height Weight (Nw / GW)	3750 x 2000mm 2000mm 5280 kg / 5830kg	4150 x 2100mm 2100mm 6440 kg / 7030kg	4150 x 2100mm 2100mm 6630 kg / 7280kg

Standard Accessories:

- High Pressure Cooling System (3 Bar)
- 100 Liter Capacity Cooling Tank
- Hydraulic Turret
- Auto Lubrication System
- Tool Kit
- Work Light
- Three color light
- Hydraulic Unit
- Heat Exchanger for Electric Cabinet
- Chip Conveyor and Bucket

Optional Accessories:

- C.E. Electric Control
- Auto Tool Setter Measurement
- Manual Tool Setter Measurement
- Cs axis Contour CapAbility
- Main Transformer
- Safety Door Interlocker
- Sub Spindel Parts Catcher and bouncing equipment
- Prevent Crash Install of Each Axis(Safety Equipment)
- Bar Feeder
- Parts Cut off Detector
- Servo Turret

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FORCE ONE



CNC LATHES

Twin Spindle / Twin Turret

FCL-15TT
FCL-20TT
FCL-25TT

Twin Spindle / Single Turret

FCL-15TS
FCL-20TS
FCL-30TS

