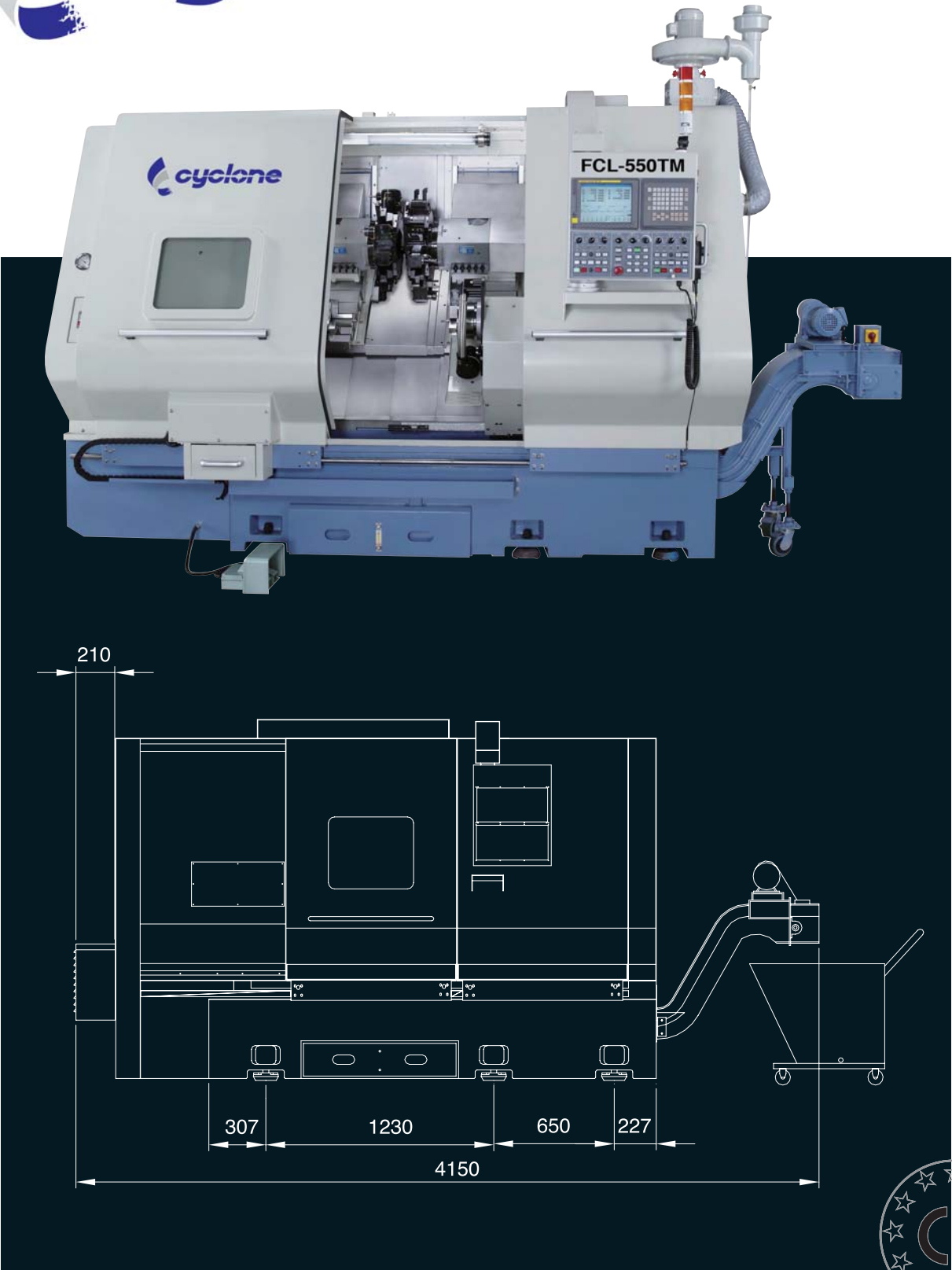


Multiple-Axes Turning Center



FCL series





FCL-450TM / 550TM / 580TM **FCL-450TMS / 550TMS / 580TMS**

To offer the most flexible choice of multiple axes to process up to 7 axes turning, the  FCL series provide the best possible results for CNC turning center operation. The sturdy 45 degree slant bed construction features efficient chip removal and firm support.

The rigid mechanical configurations yield a very high level of reliability and easy access to machine operation and maintenance. The FCL series are very fine integration of high quality and affordable prices.



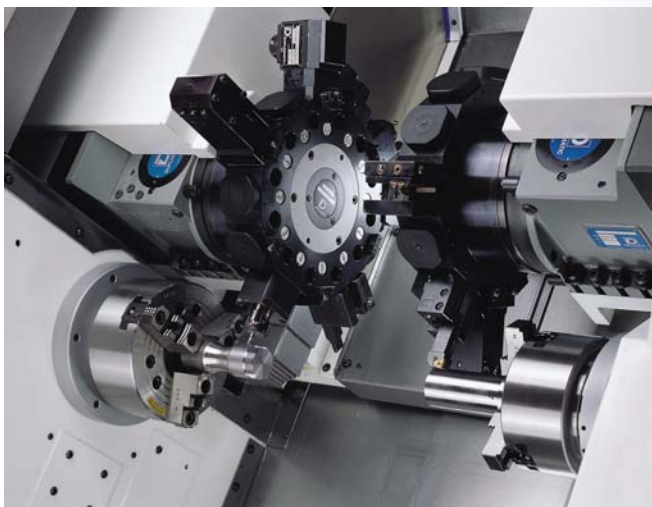
◀ **FAST TURRET INDEXING**

- The 12-position turret features bi-directional random tool selection.
- Fast indexing time of 0.6 seconds.
- The turret accommodates 20x20mm. O.D. tooling and 32 mm. I.D. tooling.



FANUC i Series CNC is standard



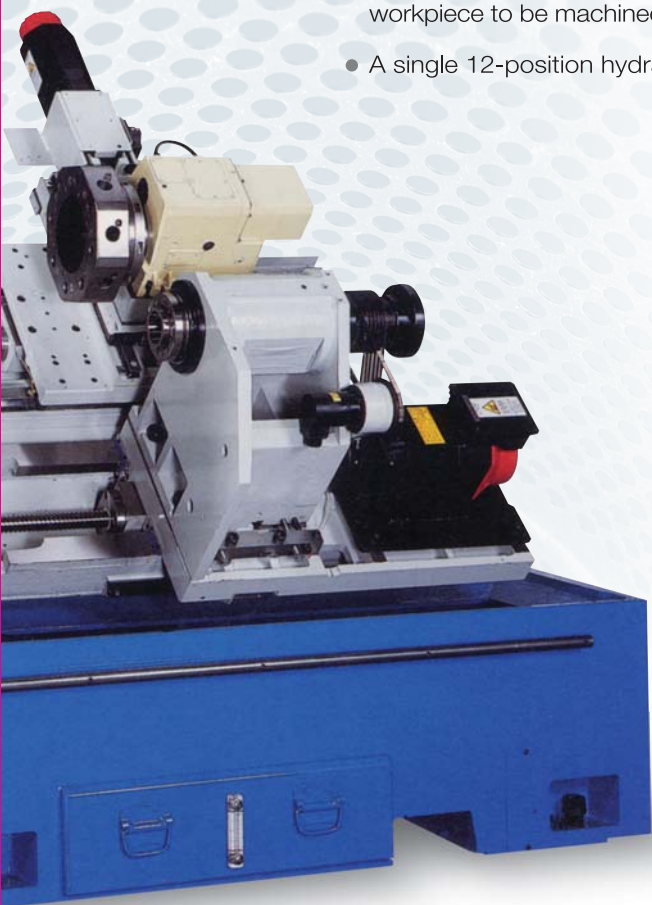
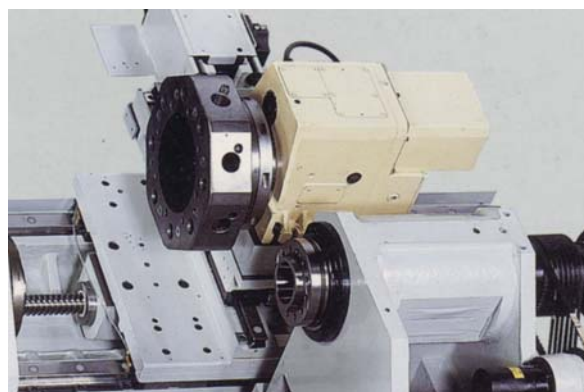


◀ TWIN SPINDLE TWIN TURRET

- The combination of the main spindle enables the entire workpiece to be machined at one time.
- Twin turrets consists of two 12-position servo turrets. (SM-16)

TWIN SPINDLE ▶ SINGLE TURRET

- The combination of the main spindle and sub-spindle enable the entire workpiece to be machined at one time.
- A single 12-position hydraulic turret.



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.

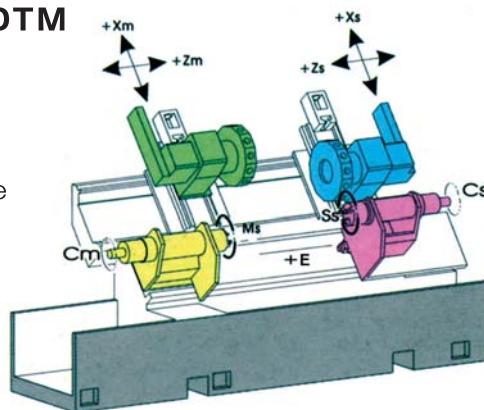
TWIN SPINDLE / TWIN TURRET



TWIN SPINDLE
TWIN TURRET

MODELS : FCL-450TM
FCL-550TM
FCL-580TM

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



FCL-450TM

- Swing over bed $\phi 620\text{mm}$.
- Max. turning diameter $\phi 440\text{mm}$.
- Working length 310mm.

FCL-550TM

- Swing over bed $\phi 620\text{mm}$.
- Max. turning diameter $\phi 440\text{mm}$.
- Working length 290mm.

FCL-580TM

- Swing over bed $\phi 620\text{mm}$.
- Max. turning diameter $\phi 440\text{mm}$.
- Working length 270mm.



TWIN SPINDLE / SINGLE TURRET



FCL-450TMS

- Swing over bed $\varnothing 600\text{mm}$.
- Max. turning diameter $\varnothing 245\text{mm}$.
- Working length 260mm.

FCL-580TMS

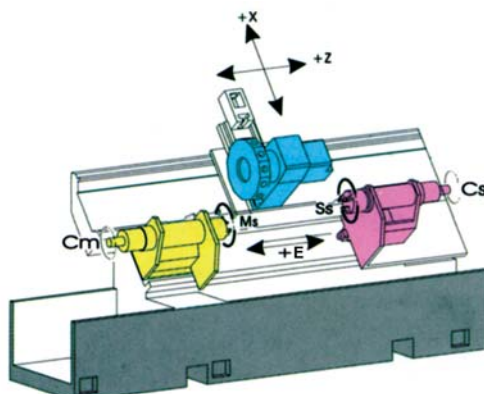
- Swing over bed $\varnothing 650\text{mm}$.
- Max. turning diameter $\varnothing 470\text{mm}$.
- Working length 470mm.

FCL-550TMS

- Swing over bed $\varnothing 650\text{mm}$.
- Max. turning diameter $\varnothing 490\text{mm}$.
- Working length 500mm.



TWIN SPINDLE
SINGLE TURRET

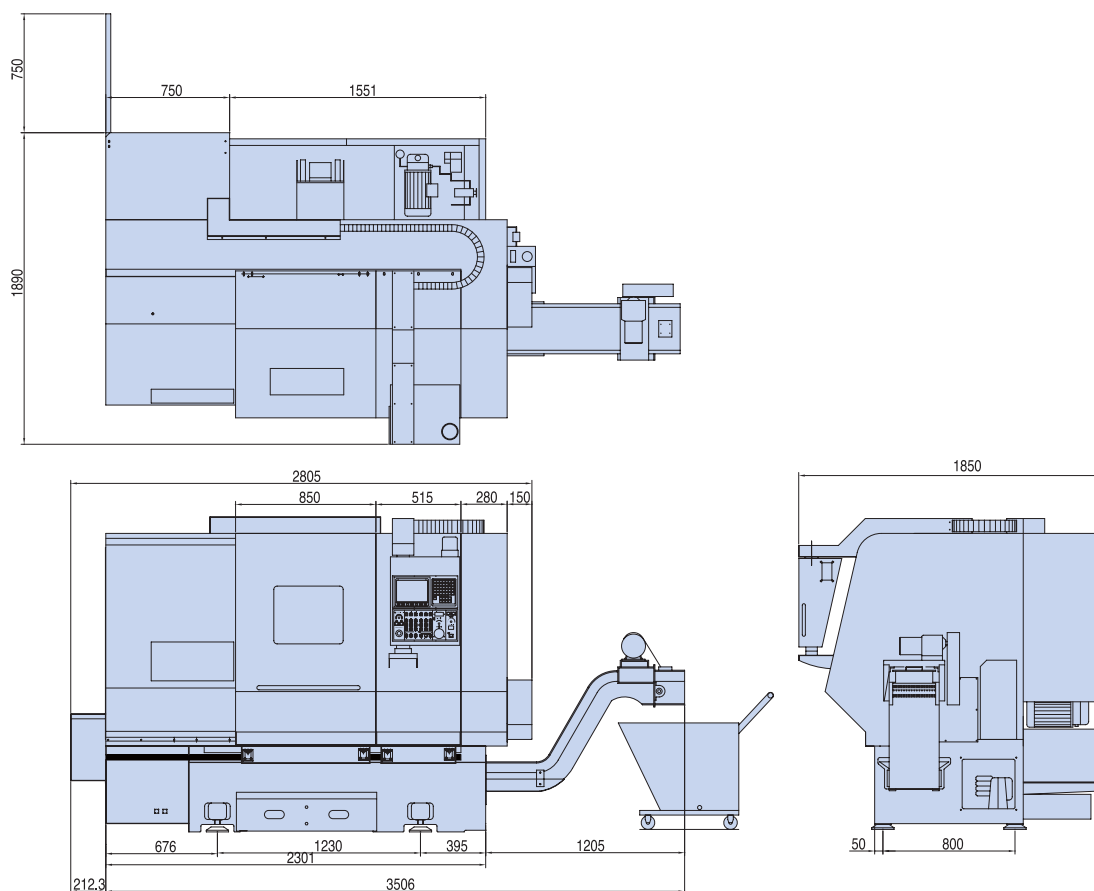


MODELS : FCL-450TMS
FCL-550TMS
FCL-580TMS

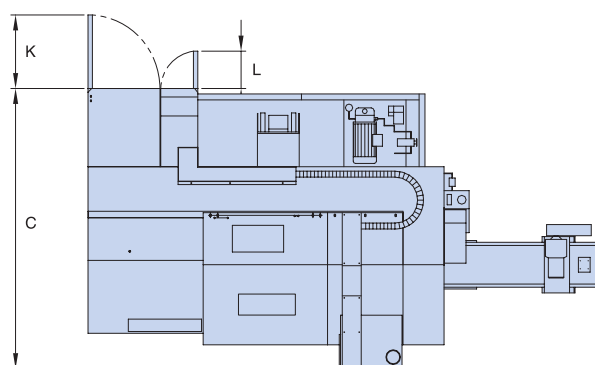
- Ms: Main spindle
- Ss: Sub-spindle
- Cm: C axis /Main spindle
- Cs: C axis /Sub spindle

TECHNICAL DATA

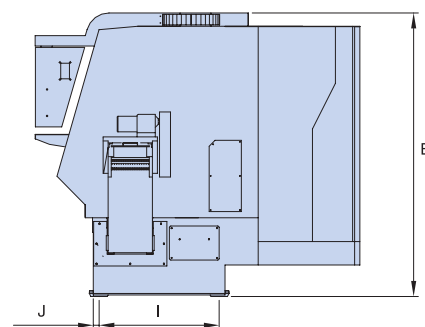
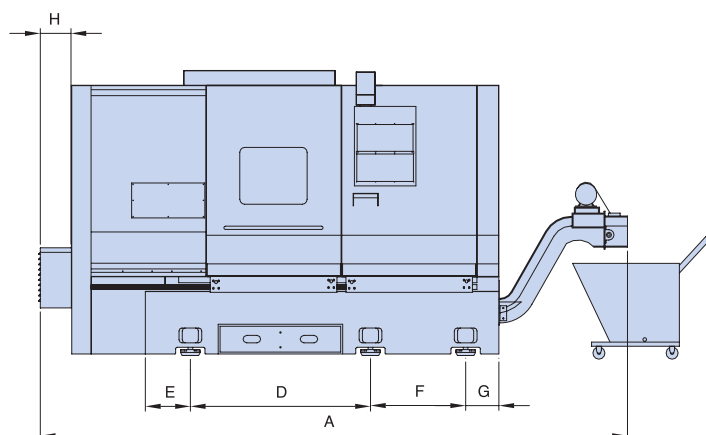
FCL-450TMS



FCL-550TMS / 580TMS , FCL-450TM / 550TM / 580TM



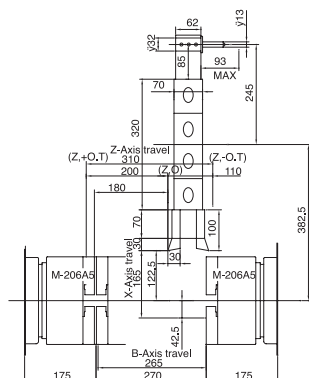
項目	尺	A	B	C	D	E	F	G	H	I	J	K	L
FCL-450TM		4150	2350	2100	1230	307	650	227	210	820	40	765	520
FCL-550TM		4150	2350	2100	1230	307	650	227	210	820	40	765	520
FCL-580TM		4150	2350	2100	1230	307	650	227	210	820	40	765	520
FCL-550TMS		3914	2100	2100	1230	307	650	227	232	820	40	750	
FCL-580TMS		3914	2100	2100	1230	307	650	227	232	820	40	750	



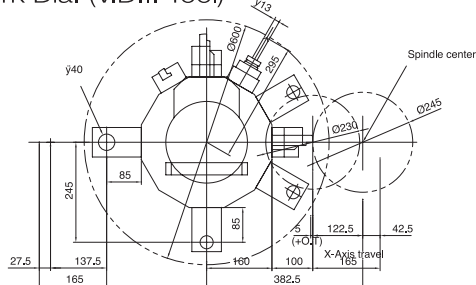
TECHNICAL DATA

FCL-450TMS

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

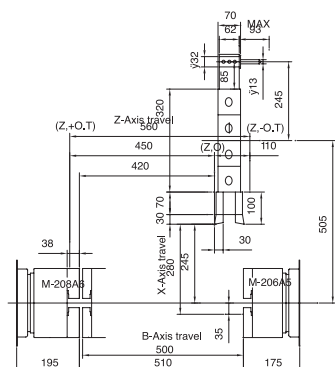


Relation Between Tool and Work Dia. (V.D.I. Tool)

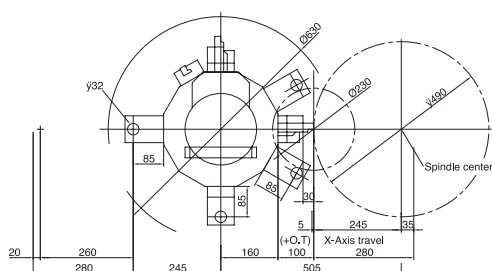


FCL-550TMS

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

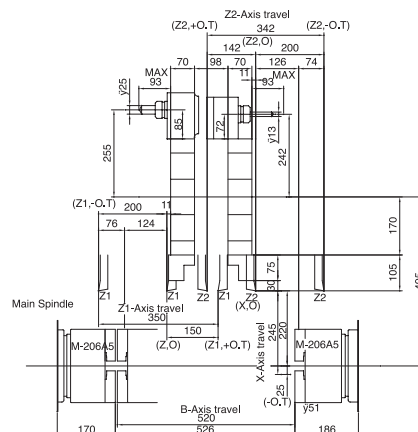


Relation Between Tool and Work Dia. (V.D.I. Tool)

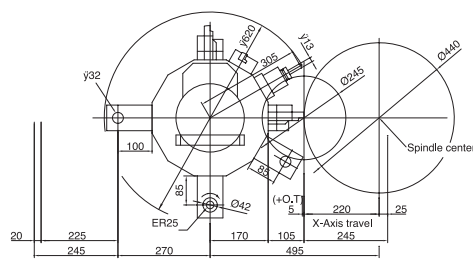


FCL-450TM / 550TM / 580TM

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

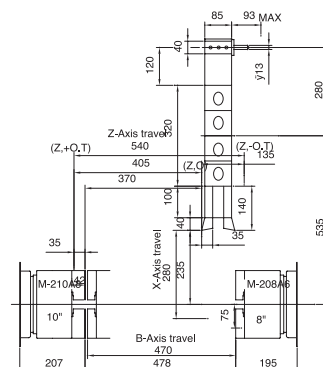


Relation Between Tool and Work Dia. (V.D.I. Tool)

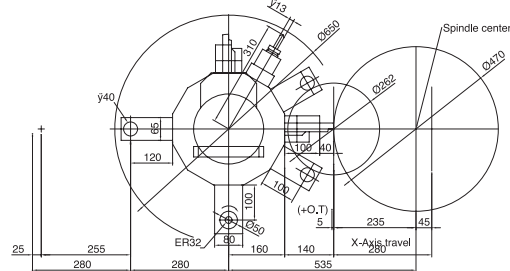


FCL-580TMS

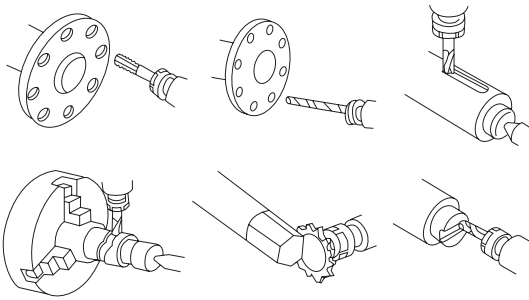
V.D.I. Turret W/C-Axis Moving Range



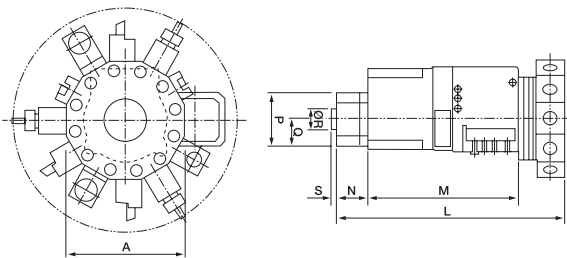
Relation Between Tool and Work Dia. (V.D.I. Tool)



C-Axis Process Drawing



VDI for reference only



Specifications

Model	FCL-450TMS/550TMS	FCL-580TMS
C-Axis precision	0.001	0.001
Power Turret	Type 16	Type 20
Max. Speed	4000 rpm	4000 rpm
Drilling	ø1-13 mm	ø2.5-20 mm
Milling	ø1-13 mm	ø2.5-20 mm
Taper	M1-M10	M3-M12
Tool Shank Size	ø32 mm	ø40 mm
Motor	AC 3.0 KW	AC 3.0 KW

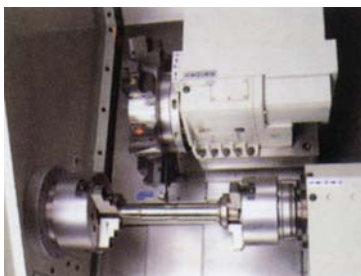
Direct Mount

No.	Tool/Model	FCL-450TMS/550TMS	FCL-580TMS
1	Bore	ø8. ø10. ø12 ø16. ø20. ø25. ø32	ø8. ø10. ø12. ø16 ø20. ø25. ø32. ø40
2	Shank Dia.	□ 20 (25 opt.)	□ 25
3	End	□ 20 (25 opt.)	□ 25
4	Cut	20	25
5	Tap	ø16	ø20
6	Drill	MT#2, #3	MT#2, #3, #4

VDI

No.	Tool/Model	FCL-450TMS/550TMS	FCL-580TMS
1	Bore	ø8. ø10. ø12 ø16. ø20. ø25. ø32	ø8. ø10. ø12. ø16 ø20. ø25. ø32. ø40
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

Wide Range of Options Available



SYNCHRONIZED MACHINING ON TWO SPINDLES

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

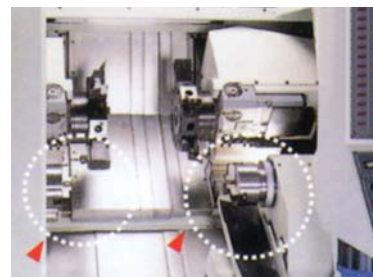


▲ Part Cut-off Detector



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 could be finished front side & back machining in one cycle and caught by part catcher

Specifications :

MODEL	FCL-450TM		FCL-550TM		FCL-580TM	
Capacity						
No. of axes	STD:5-axis OPT:7-axis (C-axis)		STD:5-axis OPT:7-axis (C-axis)		STD:5-axis OPT:7-axis (C-axis)	
Swing over bed	ø620mm (24.41")		ø620mm (24.41")		ø620mm (24.41")	
Max. turning dia.	ø440mm (17.32")		ø440mm (17.32")		ø440mm (17.32")	
Working length	310mm (12.20")		290mm (11.41")		270mm (10.62")	
Main and sub. spindle						
Spindle nose bar internal taper	L:ASA A2-5	R:ASA A2-5	L:ASA A2-6	R:ASA A2-5	L:ASA A2-6	R:ASA A2-6
Spindle bore	ø56mm (2.2")	ø56mm (2.2")	ø61mm (2.4")	ø56mm (2.2")	ø77mm (3")	ø61mm (2.4")
Bar capacity	ø45mm (1.7")	ø45mm (1.7")	ø51mm (1.7")	ø45mm (1.7")	ø65mm (2.6")	ø51mm (2")
Range of spindle speed (OPT.)	10-6000rpm	10-6000rpm	10-4200rpm	10-6000rpm	10-4000rpm	10-4200rpm
Living tools speed	25-4000rpm		25-4000rpm		25-4000rpm	
No. of spindle speed	Infinitely variable		Infinitely variable		Infinitely variable	
Chuck						
Hydraulic chuck	ø169mm (6")	ø169mm (6")	ø210mm (8")	ø169mm (6")	ø254mm (10")	ø210mm (8")
Turret (L/R)						
Tool station (random)	Servo VDI30-12T		Servo VDI30-12T		Servo VDI30-12T	
O.D. tooling	20x20mm		20x20mm		20x20mm	
I.D. tooling	ø32mm (1.26")		ø32mm (1.26")		ø32mm (1.26")	
X1/X2-axis , Z1/Z2-axis , E-axis						
X1 / X2 axis travel	245mm (9.64")		245mm (9.64")		245mm (9.64")	
Z1 / Z2 axis travel	350mm (13.97")		350mm (13.97")		350mm (13.97")	
E-axis travel	520mm (20.47")		500mm (19.68")		500mm (19.68")	
Rapid traverse speed (X1/X2-axis)	20m/min (787ipm)		20m/min (787ipm)		20m/min (787ipm)	
Rapid traverse speed (Z1/Z2-axis)	20m/min (787ipm)		20m/min (787ipm)		20m/min (787ipm)	
Rapid traverse speed (E-axis)	20m/min (787ipm)		20m/min (787ipm)		20m/min (787ipm)	
Cutting feed rate (X and Z axis)	0.001-500mm/rev.		0.001-500mm/rev.		0.001-500mm/rev.	
Motor						
Main spindle (continuous)	α P12i	5.5kw (7.5HP)	α P18i	9kw (12HP)	α P22i	11kw (15HP)
Main spindle (30 min. rating)		7.5kw (10HP)		11kw (15HP)		15kw (20HP)
Sub spindle (continuous)	α 6i	5.5kw (7.5HP)	α 6i	5.5kw (7.5HP)	α 8i	7.5kw (10HP)
Sub spindle (30 min. rating)		7.5kw (10HP)		7.5kw (10HP)		11kw (15HP)
Zm, Zs-axis	α 8i/3000 1.6kw (2.15HP)x2		α 8i/3000 1.6kw (2.15HP)x2		α 8i/3000 1.6kw (2.15HP)x2	
Xm, Xs-axis	α 8Bi/3000 1.6kw (2.15HP)x2		α 8Bi/3000 1.6kw (2.15HP)x2		α 12Bi/3000 3.0kw (4HP)x2	
E-axis	α 8i/3000 1.6kw (2.15HP)		α 8i/3000 1.6kw (2.15HP)		α 8i/3000 1.6kw (2.15HP)	
Hydraulic pump	1.5kw (2HP)		1.5kw (2HP)		1.5kw (2HP)	
Coolant pump	750w (1HP) x 2		750w (1HP) x 2		750w (1HP) x 2	
Tank Capacity						
Hydraulic tank	60 Liter		60 Liter		60 Liter	
Coolant tank	100 Liter		100 Liter		100 Liter	
Measurements						
Floor space (LxW)	4150 x 2100mm		4150 x 2100mm		4150 x 2100mm	
Height	2350mm		2350mm		2350mm	
Weight (NW/GW)	7160kg / 7830kg		7210kg / 7880kg		7310kg / 7980kg	

● L&W Machine Tools, Inc. reserves the right to alter any mechanical specification without prior notice in the interests of product development.

Standard Accessories :

- High pressure cooling system (3 bar)
- 100 liter capacity cooling tank
- Servo turret 12-position
- Auto lubrication system
- Tool kit
- Work light
- Tricolor alarm 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 interlock
- Auto parts catcher
- Prevent crash install of each axis (safety equipment)
- Bar feeder
- Parts cut off detector

Specifications :

MODEL	FCL-450TMS		FCL-550TMS		FCL-580TMS	
Capacity						
No. of axes	STD:3-axis OPT:5-axis (C-axis)		STD:3-axis OPT:5-axis (C-axis)		STD:3-axis OPT:5-axis (C-axis)	
Swing over bed	ø600mm (23.62")		ø650mm (25.59")		ø650mm (25.9")	
Max. turning dia.	ø245mm (9.64")		ø490mm (19.29")		ø470mm (18.5")	
Working length	260mm (10.23")		510mm (19.68")		470mm (18.5")	
Main and sub. spindle						
Spindle nose bar internal taper	L:ASA A2-5	R:ASA A2-5	L:ASA A2-6	R:ASA A2-5	L:ASA A2-8	R:ASA A2-5
Spindle bore	ø56mm (2.2")	ø56mm (2.2")	ø61mm (2.4")	ø56mm (2.2")	ø90mm (3.54")	ø61mm (2.4")
Bar capacity	ø45mm (1.7")	ø45mm (1.7")	ø51mm (2")	ø45mm (1.7")	ø77mm (3")	ø51mm (2")
Range of spindle speed	10-6000rpm	10-6000rpm	10-4200rpm	10-6000rpm	10-3500rpm	10-4200rpm
Living tools speed (OPT.)	25-4000rpm		25-4000rpm		25-4000rpm	
No. of spindle speed	Infinitely variable		Infinitely variable		Infinitely variable	
Chuck						
Hydraulic chuck	ø169mm (6")	ø169mm (6")	ø210mm (8")	ø169mm (6")	ø254mm (10")	ø210mm (8")
Turret (L/R)						
Tool station (random)	STD:Hyd LS-200-12T OPT:Servo LS-200-12T		STD:Hyd LS-240-12T OPT:Servo LS-240-12T		STD:Hyd LS-240-12T OPT:Servo LS-240-12T	
O.D. tooling	20x20mm		20x20mm		25x25mm	
I.D. tooling	ø32mm (1.26")		ø32mm (1.26")		ø40mm (1.57")	
Cross Slide (X-axis) and Carriage (Z-axis, E-axis)						
X-axis travel	165mm (6.5")		280mm (11.02")		280mm (11.02")	
Z-axis travel	310mm (12.2")		560mm (22.05")		540mm (21.26")	
E-axis travel	265mm (10.43")		500mm (19.68")		470mm (18.5")	
Rapid traverse speed (X-axis)	30m/min (1180ipm)		30m/min (1180ipm)		30m/min (1180ipm)	
Rapid traverse speed (Z-axis)	30m/min (1180ipm)		30m/min (1180ipm)		30m/min (1180ipm)	
Rapid traverse speed (E-axis)	20m/min (787ipm)		20m/min (787ipm)		20m/min (787ipm)	
Cutting feed rate (X and Z axis)	0.001-500mm/rev.		0.001-500mm/rev.		0.001-500mm/rev.	
Motor						
Main spindle (continuous)	α P12i	5.5kw (7.5HP)	α P18i	9kw (12HP)	α P22i	11kw (15HP)
Main spindle (30 min. rating)		7.5kw (10HP)		11kw (15HP)		15kw (20HP)
Sub spindle (continuous)	α 6i	5.5kw (7.5HP)	α 6i	5.5kw (7.5HP)	α 8i	7.5kw (10HP)
Sub spindle (30 min. rating)		7.5kw (7.5HP)		7.5kw (10HP)		11kw (15HP)
Zm, Zs-axis	α 8i/3000 1.6kw (2.15HP)		α 8i/3000 1.6kw (2.15HP)		α 12i/3000 3.0kw (4HP)	
Xm, Xs-axis	α 8Bi/3000 1.6kw (2.15HP)		α 8Bi/3000 1.6kw (2.15HP)		α 12Bi/3000 3.0kw (4HP)	
E-axis	α 8i/3000 1.6kw (2.15HP)		α 8i/3000 1.6kw (2.15HP)		α 8i/3000 1.6kw (2.15HP)	
Hydraulic pump	1.5kw (2HP)		1.5kw (2HP)		1.5kw (2HP)	
Coolant pump	750w (1HP)		750w (1HP)		750w (1HP)	
Tank Capacity						
Hydraulic tank	60 Liter		60 Liter		60 Liter	
Coolant tank	80 Liter		100 Liter		100 Liter	
Measurements						
Floor space (LxW)	3750 x 2000mm		4150 x 2100mm		4150 x 2100mm	
Height	2000mm		2100mm		2100mm	
Weight (NW/GW)	4550kg / 5470kg		6440kg / 7030kg		6540kg / 7130kg	

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Standard Accessories :

- High pressure cooling system (3 bar)
- 100 liter capacity cooling tank
- Hydraulic turret 12-position
- Auto lubrication system
- Tool kit
- Work light
- Tricolor alarm light
- Hydraulic unit
- Heat exchanger for electric cabinet
- Chip conveyor and bucket

Optional Accessories :

- C. E. electric control
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- Manual tool aetter measurement
- Cs-axis contour capability
- Main transformer
- Safety door interlock
- Auto parts catcher
- Prevent crash install of each axis (safety equipment)
- Bar feeder interface
- Parts cut off detector
- Servo turret

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