

FCL series

PRECISION CNC SLANT BED LATHE



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FCL series

PRECISION CNC SLANT BED LATHE

The FCL model suits a mighty 45-degree slant bed design and offers excellent performance in high speed and high precision. The 45-degree slant bed design ensures superior chip evacuation and ergonomic operation.



FCL SERIES WITH POWER TURRET (OPT.)



FCL SERIES WITH GANTRY LOADING SYSTEM (OPT.)

FCL series

PRECISION CNC SLANT BED LATHE



FCL SERIES WITH TT (TWIN TURRET / TWIN SPINDLE OPT.)

The FCL series structural design and optimized engineering expertise can effectively suppress geometric deformation caused by thermal temperature rise without the need for a linear scale or temperature compensation function. The FCL series features an excellent modular design for expansion, allowing the addition of functions such as a twin turret, Y-axis, and sub-spindle to better meet diverse processing needs.



FCL SERIES WITH TTY
(TWIN TURRET / TWIN SPINDLE / Y AXIS OPT.)

MACHINE FEATURES

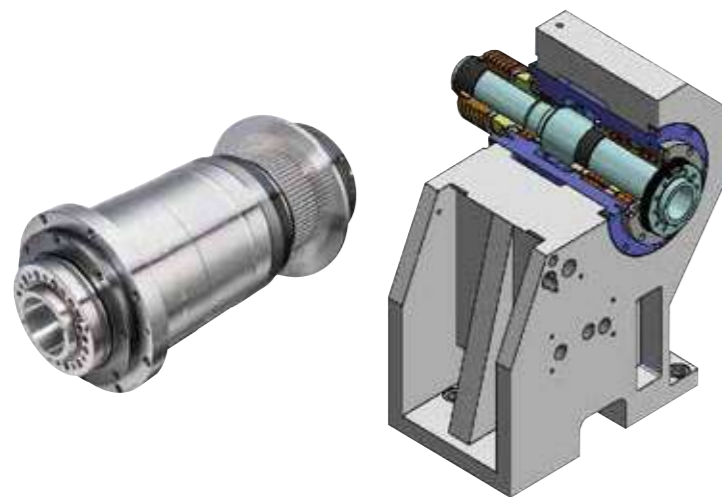
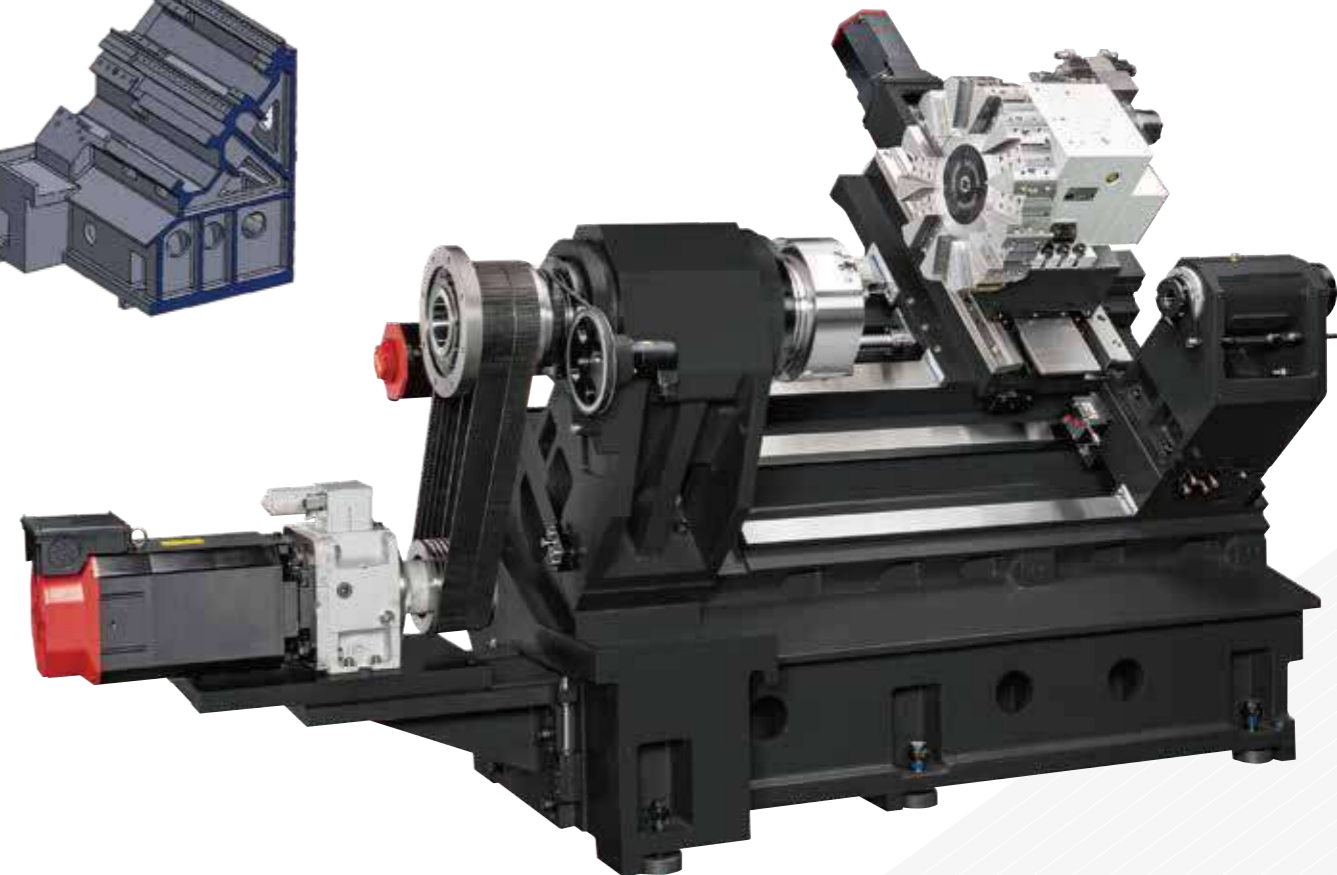
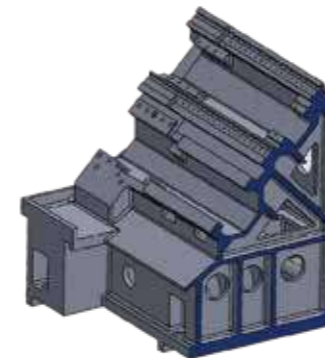
OPTIMIZED STRUCTURE DESIGN

THE ULTIMATE IN RIGIDITY AND STABILITY

- The major machine components, such as the base, saddle, headstock, and tailstock, are made of Meehanite-grade cast iron and are stress-relieved through tempering, thereby ensuring lifetime accuracy.
- High-performance servo motors are directly coupled to the pre-tensioned ball screws.



- Choice of Linear Guideways or box guideways on X and Z axis.
- 45 degree slant bed construction features efficient chip removal and firm support.



PRECISION SPINDLE

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



HYDRAULIC TURRET 8-POSITION HYDRAULIC TURRET (FCL-15/20)

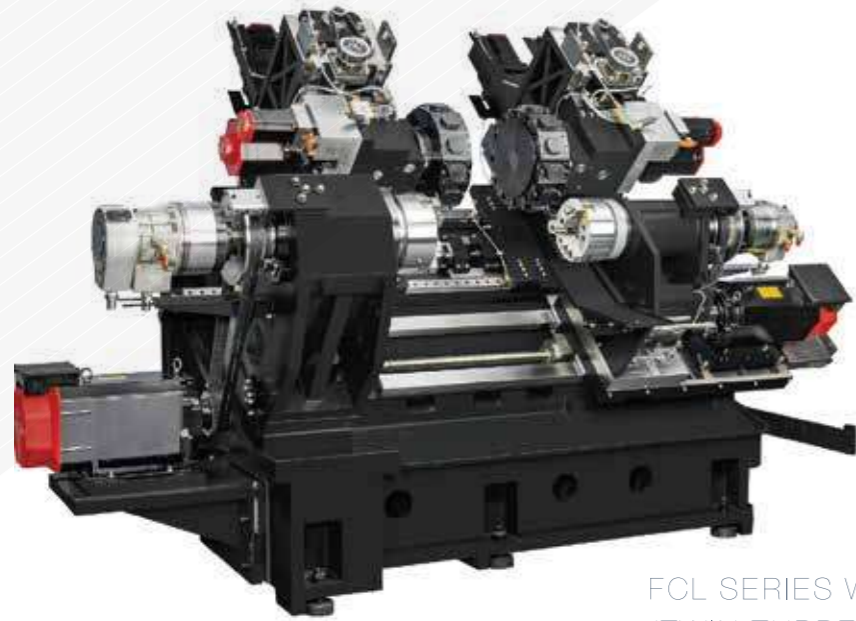
- The 8 position turret features bi-directional random tool selection. Fast tool positioning can be accomplished in only 1 second for upgrading efficiency.
- The turret can accommodate 25 x 25 mm O.D tools and Ø32 mm I.D tools.

12-POSITION HYDRAULIC TURRET (FCL-25/30/36/38)

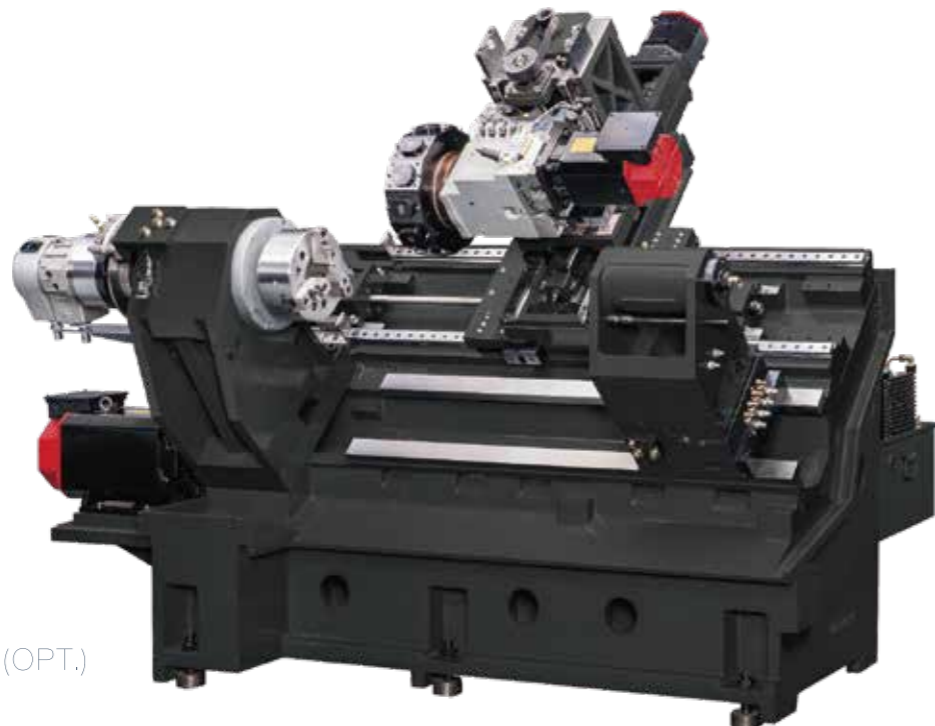
- The 12 position turret features bi-directional random tool selection. Fast tool positioning can be accomplished in only 1 second for upgrading efficiency.
- The turret can accommodate 25 x 25 mm and Ø40 mm I.D tools.(FCL-25/30)
- The turret can accommodate 32 x 32 mm and Ø50 mm I.D tools.(FCL-36/38)

FORCE ONE Y AXIS CNC OPTION

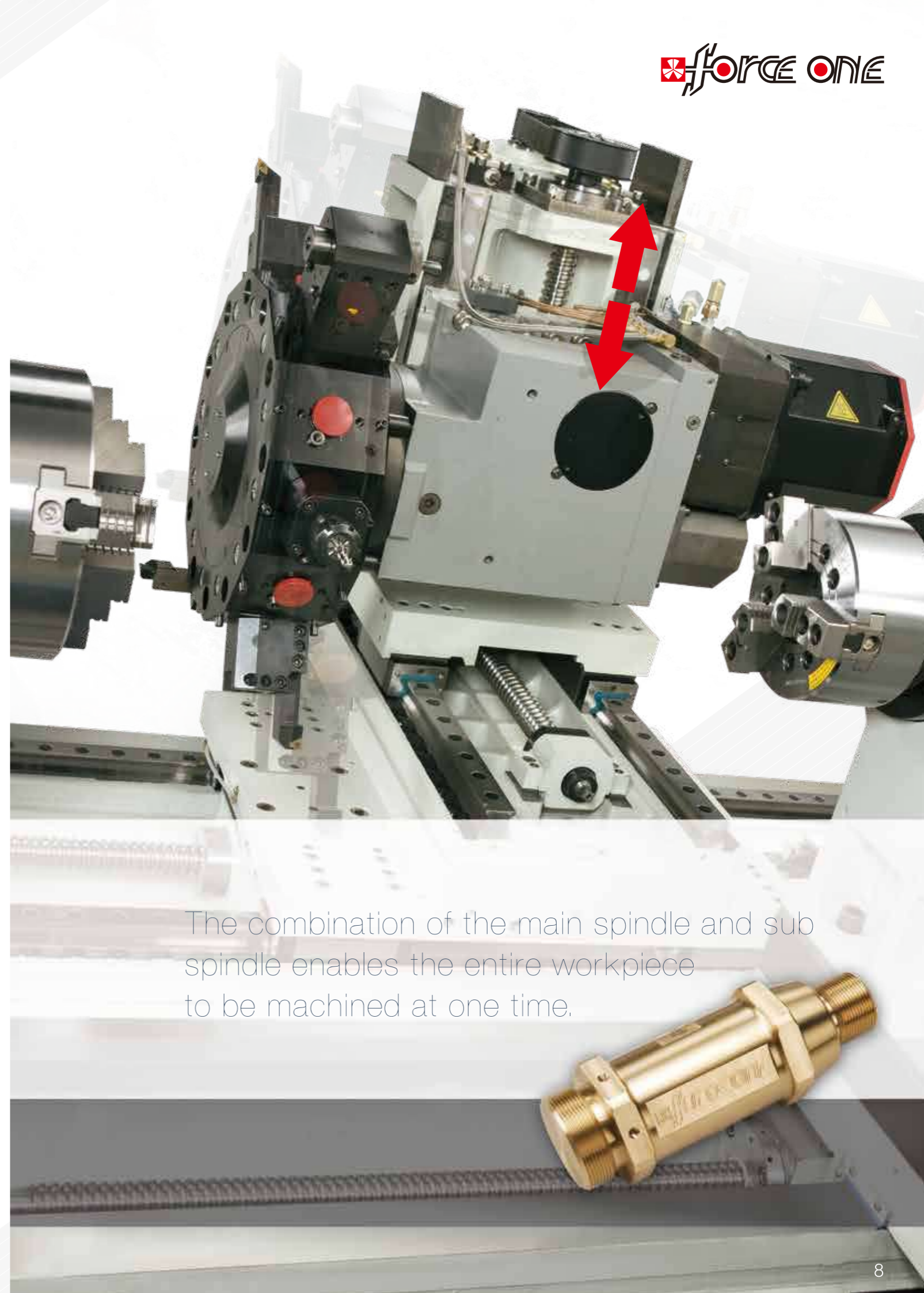
Maximize Machining Versatility, Productivity and Profits with Proven FORCE ONE Y axis Turning Center. The FORCE ONE Y axis Turning Centers are designed with a Y axis turret. The series of Turning Center has a 45 degree slant bed construction combined with heavy duty roller type Linear Guideways on X / Z / Y axis. A wide range of axis configurations are available that meet flexible machining requirements.



FCL SERIES WITH TTY
(TWIN TURRET / TWIN SPINDLE/Y AXIS OPT.)



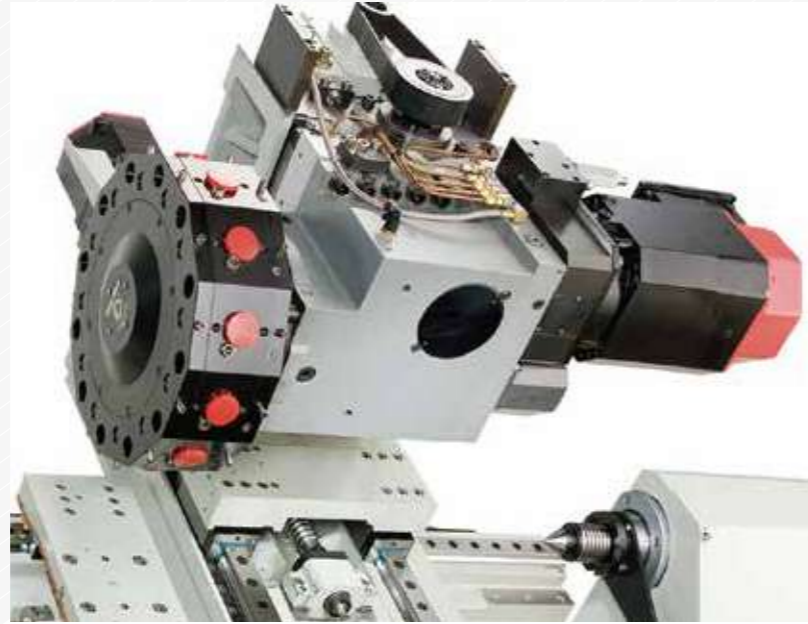
FCL SERIES WITH Y AXIS (OPT.)



The combination of the main spindle and sub spindle enables the entire workpiece to be machined at one time.

Y AXIS TURRET (OPT.)

- One-piece design of the Y axis base and X saddle for high accuracy structure configuration.
- Fast indexing turret features with high repeat accuracy.
- High rigidity turret better for front and back machining.



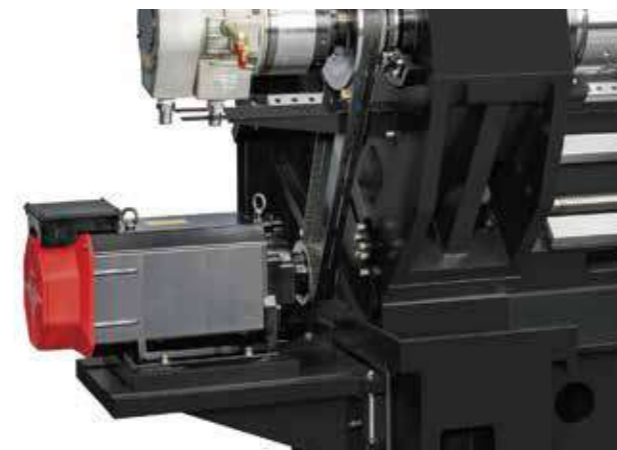
POWER TURRET (OPT.)

- Employs Radial type disc, the Radial VDI, a 12 position power turret with Fanuc 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. The unit allows front and back machining with fast tool change.
- The turret disk and TD axis are driven by a motor.



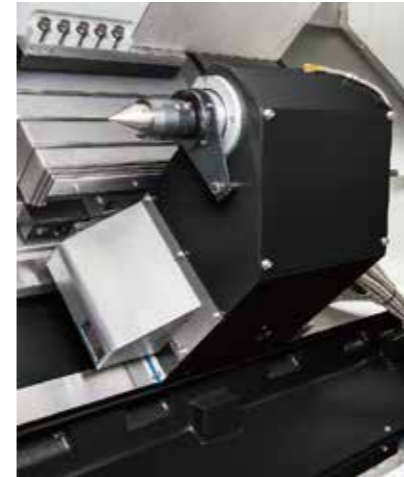
CF AXIS (OPT.)

CF axis with additional servo motor and gear box. it has better rigidity for simultaneous milling.



CS AXIS (OPT.)

CS axis is driven by a servo spindle motor, it is suitable for spindle indexing and milling at position.



Programmable Tailstock

Driven by the Z-axis slide, this tailstock features programmable positioning. It comes standard with a fixed hydraulic quill, which can be upgraded to a rotary quill for enhanced bearing rigidity and superior thrust.

Servo Driven Tailstock (OPT.)

Driven by an independent servo motor, this version allows for precise thrust adjustment and eliminates hydraulic components. This design ensures maximum movement flexibility and significantly reduces positioning and support cycle times.



SUB SPINDLE (OPT.)

Synchronization for main and sub spindle. The workpiece can be machined at one time.



BUILT-IN TYPE PRECISION SPINDLE (OPT.)

- Quill type design is easier to remove and maintain.
- 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.



MIDDLE DOOR (OPT.)

Can load a new part to the main spindle when the sub spindle side is turning.

PARTS CATCHER (OPT.)

The sub-spindle material pusher can eject the workpiece internally and transfer it downward to the material receiver outside the machine. Could loading new part when sub spindle turning.

WORKPIECE PROBE



TOOL MEASURE SYSTEM

Manual / Automatic swing arm.



WORKPIECE MEASURE SYSTEM

Automatic measurement and correction of dimensions.

ESG (OPT.)



AUTOMATIC GREASE LUBRICATION SYSTEM

It significantly reduces lubricant usage, effectively reduces coolant tank pollution, and improves coolant



VARIABLE FREQUENCY HYDRAULIC SYSTEM

Excellent energy saving effect, smaller fuel tank volume and temperature control.



SMART POWER-OFF SYSTEM

Smart power-off system temporarily limits the use of power-hungry devices during standby. After processing is completed, the system can automatically power off the equipment.

AI (OPT.)



SMART MACHINE MONITORING AND PREVENTION SYSTEM

Real-time spindle load monitoring is combined with artificial intelligence software technology to automatically construct a safe processing load zone, and includes intelligent tool performance management to monitor and prevent abnormalities during processing, eliminating the need for human supervision.



ELECTRICAL CABINET

The entire control circuit in the electrical cabinet is well planned for easy maintenance. Top quality electronic components assure extra stable control performance and long service life.



HOLLOW BALL SCREWS WITH COOLANT SYSTEM (OPT.)

The hollow ball screw cooling system can significantly reduce the thermal temperature rise position accuracy error caused by screw friction during machine movement, thereby improving the positioning accuracy of the machine.



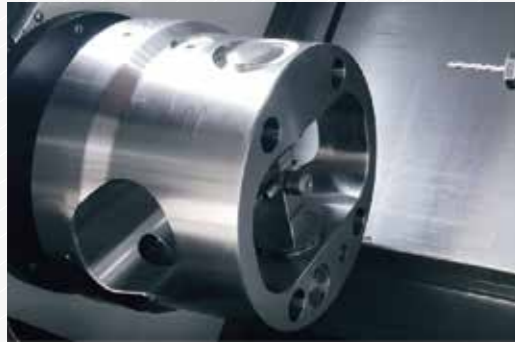
PARTS CUT-OFF DETECTOR (OPT.)

The detector is used for detecting if the part is completely cut off. It prevents cutting problems on twin spindles caused by cut-off failure.



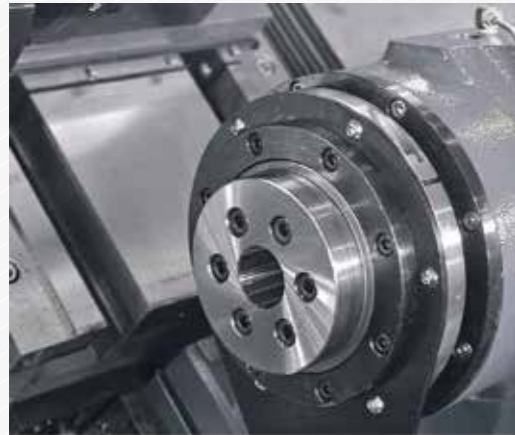
HYDRAULIC STEADY REST (OPT.)

The standard hydraulic steady rest is manual base moving, there are programmable, and servo driven bases for options.



INDEX CHUCK (OPT.)

Capable of turning multi-angle machining parts, such as tees and crosses, with automatic angle adjustment and complete processing at one time.



ROTARY QUILL TAILSTOCK (OPT.)

The higher rigidity rotate quill type tailstock has bigger bearings than live center.



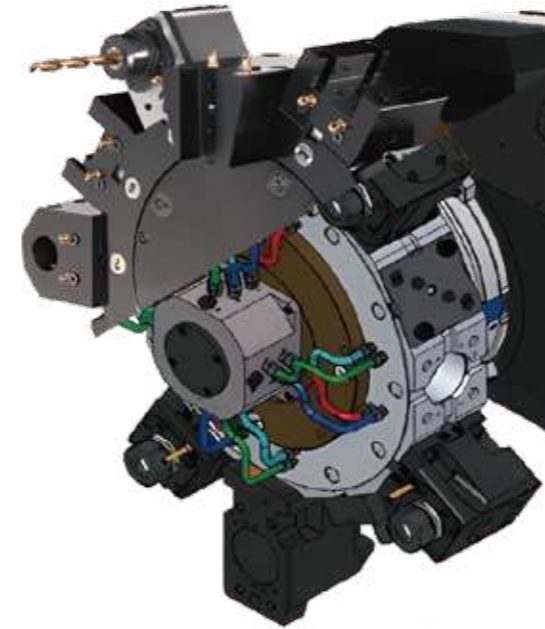
THE TELESCOPIC RUBBER COVER (OPT.)

Provides superior micro-dust protection for the track and extends the lifespan of the cover during composite material grinding operations.



DUST COLLECTOR (OPT.)

The dust collector is designed for efficient dust management, swiftly capturing fine particles and debris during machining to maintain a clean workspace, enhance machining accuracy, and improve operational safety. Its advanced filtration system ensures discharged air meets environmental standards, while also extending equipment lifespan, making it an ideal solution for maintaining a productive environment.



BMT & AUTO TOOL CHANGE TURRET SOLUTION (OPT.)

The BMT interface turret features a more rigid structure, supporting a wide range of live tooling options and quick-change interfaces such as Capto, enabling efficient external tool management. Additionally, we offer a hydraulic turret auto-change solution, which, when combined with a robotic arm, enables automated turret tool changing functionality.



OIL MIST COLLECTOR (OPT.)

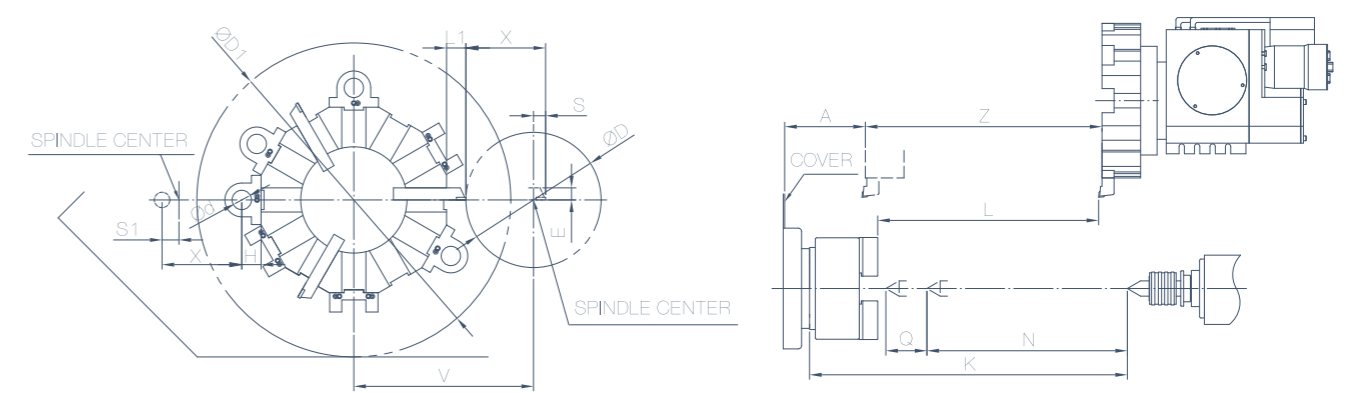
The oil mist collector uses advanced separation technology to efficiently capture oil mist generated during machining, reducing air pollution and improving workshop environment quality. Recovered cutting fluids can be recycled, saving costs and extending equipment lifespan, making it the perfect blend of environmental and economic benefits.



SPINDLE COOLER (OPT.)

The spindle cooler is designed for high-precision machining, ensuring stable temperature control to prevent overheating, which can compromise accuracy and cause equipment wear. Its efficient cooling system enhances machining stability, extends spindle lifespan, and improves productivity and product quality, making it an essential component for reliable machine operation.

WORKING RANGE



- FCL-15/FCL-20 features 8T turret. The image is for reference only. Please refer to the P.31-P.34 specification.



COOLANT CONTROL SYSTEM (OPT.)

- High pressure coolant system 5/10/20/50/70 bar
- Oil skimmer
- Paper filter system
- Magnetic filter system

CONTROLLER

The standard controller is FANUC, there are other controllers such as SIEMENS, MITSUMISHI, FAGOR, SYNTEC, and others you could select as optional.

DIRECT TYPE TURRET HYDRAULIC/SERVO STD. Unit:mm

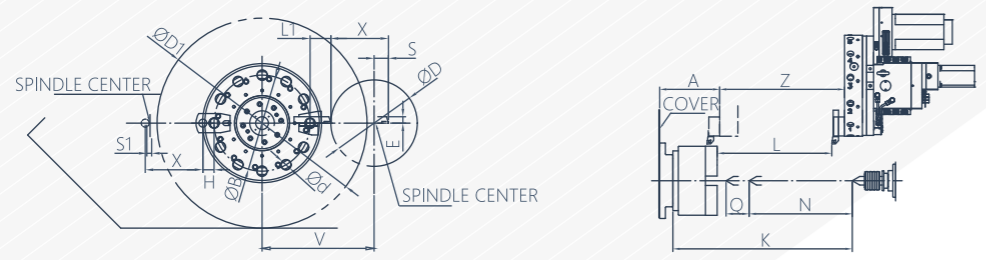
MODEL	A	Turning Dia D	D1	VDI d	E	H	K	Turning L	L1	N	Q	S	S1	V	Travel X	Z
FCL-15L03	134	280	460	32	25	50	485	300	40	240	85	20	30	320	160	340
FCL-20L04	167	280	460	32	25	50	655	455	40	415	85	25	35	320	165	490
FCL-20L07	167	280	460	32	25	50	905	705	40	665	85	25	35	320	165	740
FCL-20L12	167	280	430	32	25	50	1400	1200	40	1160	85	25	35	320	165	1235
FCL-20L15	167	280	430	32	25	50	1700	1500	40	1460	85	25	35	320	165	1535
FCL-20L22	167	280	400	32	25	50	2400	2200	40	2160	85	25	35	320	165	2235
FCL-25L04	165	316	640	40	25	40	660	435	40	380	85	27	27	390	185	490
FCL-25L07	178	316	640	40	25	40	910	685	40	630	85	27	27	390	185	740
FCL-25L12	178	316	610	40	25	40	1510	1285	40	1230	85	27	27	390	185	1340
FCL-25L15	165	316	610	40	25	40	1705	1480	40	1425	85	27	27	390	185	1535
FCL-25L22	165	316	580	40	25	40	2405	2180	40	2125	85	27	27	390	185	2235
FCL-30L07	173	450	630	40	25	40	955	700	40	650	100	25	25	470	250	740
FCL-30L12	173	450	600	40	25	40	1555	1300	40	1250	100	25	25	470	250	1340
FCL-30L15	163	450	600	40	25	40	1705	1450	40	1400	100	25	25	470	250	1500
FCL-30L22	163	450	570	40	25	40	2405	2150	40	2100	100	25	25	470	250	2200
FCL-36L07	238	570	770	50	32	50	889.7	600	40	595	100	30	40	565	315	660
FCL-36L12	238	570	740	50	32	50	1489.7	1200	40	1195	100	30	40	565	315	1260
FCL-36L15	238	570	740	50	32	50	1789.7	1500	40	1495	100	30	40	565	315	1560
FCL-36L22	238	570	710	50	32	50	2389.7	2100	40	2095	100	30	40	565	315	2160
FCL-38L07	238	670	840	50	32	50	889.7	600	40	595	100	30	40	615	365	660
FCL-38L12	238	670	810	50	32	50	1489.7	1200	40	1195	100	30	40	615	365	1260
FCL-38L15	238	670	810	50	32	50	1789.7	1500	40	1495	100	30	40	615	365	1560
FCL-38L22	238	670	780	50	32	50	2389.7	2100	40	2095	100	30	40	615	365	2160

- All specification, design and characteristics shown on this catalogue are subject to change without prior notice.
 - The BMT Turret is available

GANTRY / ROBOT LOADING AND UNLOADING SYSTEM



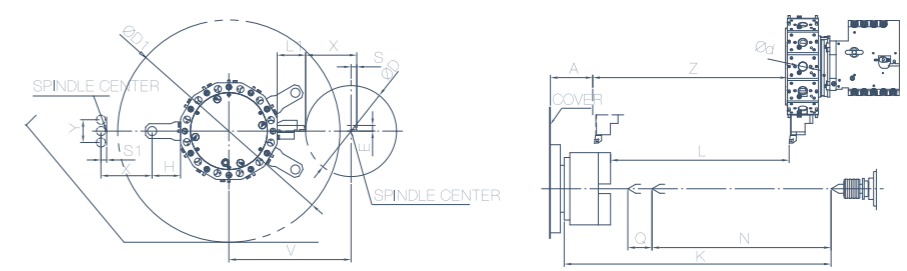
WORKING RANGE



POWER TURRET VDI AXIAL MOUNTING OPT.

Unit:mm

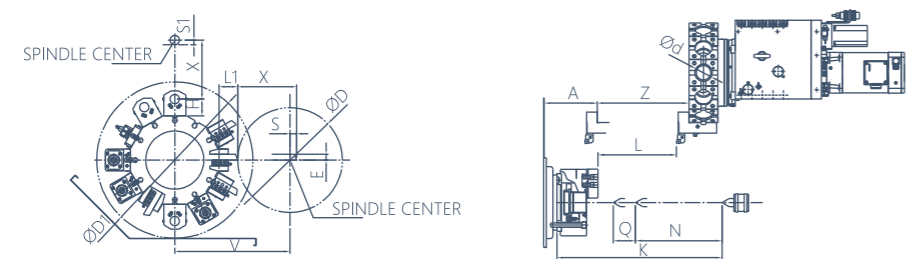
MODEL	A	B	Turning Dia D	D1	VDI d	E	H	K	Turning L	L1	N	Q	S	S1	V	Z	Travel X
FCL-15L03	111	300	220	460	30	20	35	487	283	65	240	85	50	20	325	340	160
FCL-20L04	201	300	220	460	30	20	35	660	440	65	240	85	50	20	325	480	160
FCL-20L07	201	300	220	460	30	20	35	910	690	65	650	85	50	20	325	730	160
FCL-20L12	201	300	220	430	30	20	35	1405	1185	65	1145	85	50	20	325	1225	160
FCL-20L15	191	300	220	430	30	20	35	1705	1485	65	1460	85	50	20	325	1535	160
FCL-20L22	191	300	220	400	30	20	35	2405	2185	65	2160	85	50	20	325	2235	160
FCL-25L04	221	300	270	640	30	20	35	660	420	65	380	85	45	15	350	460	180
FCL-25L07	221	300	270	640	30	20	35	910	670	65	630	85	45	15	350	710	180
FCL-25L12	221	300	270	610	30	20	35	1510	1270	65	1230	85	45	15	350	1310	180
FCL-25L15	191	300	270	610	30	20	35	1705	1465	65	1425	85	45	15	350	1535	180
FCL-25L22	191	300	270	580	30	20	35	2405	2165	65	2125	85	45	15	350	2235	180
FCL-30L07	187	340	450	630	40	25	65	955	670	82.5	650	100	40	22.5	477.5	740	265
FCL-30L12	187	340	450	600	40	25	65	1515	1230	82.5	1210	100	40	22.5	477.5	1300	265
FCL-30L15	187	340	450	600	40	25	65	1715	1430	82.5	1410	100	40	22.5	477.5	1500	265
FCL-30L22	187	340	450	570	40	25	65	2415	2130	82.5	2110	100	40	22.5	477.5	2200	265
FCL-36L07	243	420	536	770	50	32	80	889.7	550	90	595	100	47	37	568	660	315
FCL-36L12	243	420	536	740	50	32	80	1489.7	1160	90	1195	100	47	37	568	1260	315
FCL-36L15	243	420	536	740	50	32	80	1789.7	1450	90	1495	100	47	37	568	1560	315
FCL-36L22	243	420	536	710	50	32	80	2389.7	2060	90	2095	100	47	37	568	2160	315
FCL-38L07	243	420	636	840	50	32	80	889.7	550	90	595	100	47	37	618	660	365
FCL-38L12	243	420	636	810	50	32	80	1489.7	1160	90	1195	100	47	37	618	1260	365
FCL-38L15	243	420	636	810	50	32	80	1789.7	1450	90	1495	100	47	37	618	1560	365
FCL-38L22	243	420	636	780	50	32	80	2389.7	2060	90	2095	100	47	37	618	2160	365



POWER TURRET / Y AXIS VDI RADIAL MOUNTING OPT.

Unit:mm

MODEL	A	Turning Dia D	D1	VDI d	E	H	K	Turning L	L1	N	Q	S	S1	V	Y	Travel X	Z
FCL-20YL04	141.5	320	680	30	20	100	653.5	365	100	360	85	20	20	430	±40	175	410
FCL-20YL07	149	320	680	30	20	100	938.9	625	100	630	85	20	20	430	±40	175	685
FCL-20YL12	149	320	650	30	20	100	1538.9	1225	100	1230	85	20	20	430	±40	175	1285
FCL-20YL15	149	320	650	30	20	100	1763.9	1450	100	1455	85	20	20	430	±40	175	1510
FCL-20YL22	149	320	620	30	20	100	2363.9	2050	100	2055	85	20	20	430	±40	175	2110
FCL-25YL07	149	320	680	30	20	100	938.9	590	100	500	85	20	20	430	±40	175	685
FCL-25YL12	149	320	650	30	20	100	1538.9	1190	100	1100	85	20	20	430	±40	175	1285
FCL-25YL15	149	320	650	30	20	100	1738.9	1390	100	1300	85	20	20	430	±40	175	1485
FCL-25YL22	149	320	620	30	20	100	2438.9	2090	100	2000	85	20	20	430	±40	175	2185
FCL-30YL07	169.5	430	660	40	25	140	845	605	120	550	100	5	25	495	±60	220	650
FCL-30YL12	169.5	430	630	40	25	140	1445	1205	120	1150	100	5	25	495	±60	220	1250
FCL-30YL15	169.5	430	630	40	25	140	1645	1405	120	1350	100	5	25	495	±60	220	1450
FCL-30YL22	169.5	430	600	40	25	140	2345	2105	120	2050	100	5	25	495	±60	220	2150
FCL-38YL07	257.5	500	630	40	25	120	890	500	120	550	100	20	20	530	±80	270	550
FCL-38YL12	257.5	500	600	40	25	120	1490	1100	120	1150	100	20	20	530	±80	270	1150
FCL-38YL15	257.5	500	600	40	25	120	1790	1400	120	1450	100	20	20	530	±80	270	1450
FCL-38YL22	257.5	500	570	40	25	120	2390	2000	120	2050	100	20	20	530	±80	270	2050

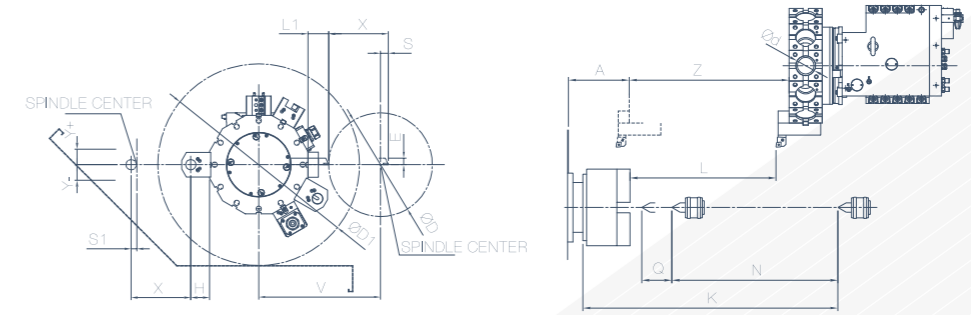


POWER TURRET BMT AXIAL MOUNTING OPT.

Unit:mm

MODEL	A	Turning Dia D	D1	BMT d	E	H	K	Turning L	L1	N	Q	S	S1	V	Travel X	Z
FCL-15L03	128	280	535	55	20	60	658	376	70	415	85	25	15	375	165	490
FCL-20L04	128	280	535	55	20	60	908	626	70	665	85	25	15	375	165	740
FCL-20L07	128	280	535	55	20	60	1508	1226	70	1265	85	25	15	375	165	1340
FCL-20L12	128	280	535	55	20	60	1808	1526	70	1565	85	25	15	375	165	1640
FCL-20L15	128	280	535	55	20	60	2408	2126	70	2165	85	25	15	375	165	2240
FCL-20L22	126	300	535	55	20	60	660	355	70	380	85	25	20	385	180	490
FCL-25L04	126	300	535	56	20	60	910	605	70	630	85	25	20	385	180	740
FCL-25L07	126	300	535	56	20	60	1510	1205	70	1230	85	30	20	385	180	1340
FCL-25L12	126	300	535	56	20	60	1810	1505	70	1530	85	30	20	385	180	1640
FCL-25L15	126	300	535	56	20	60	2410	2105	70	2130	85	30	20	385	180	2240
FCL-25L22	203	450	650	65	25	72	630	300	80	300	85	28	20	495	253	350
FCL-30L07	203	450	650	65	25	72	930	600	80	630	85	28	20	495	253	650
FCL-30L12	203	450	650	65	25	72	1530	1200	80	1230	85	28	20	495	253	1250
FCL-30L15	203	450	650	65	25	72	1830	1500	80	1530	85	28	20	495	253	1550
FCL-30L22	203	450	650	65	25	72	2430	2100	80	2130	85	28	20	495	253	2150
FCL-36L07	180	506	775	75	25	90	887.7	490	100	595	100	62	52	568	315	660
FCL-36L12	180	506	775	75	25	90	1487.7	1090	100	1195	100	62	52	568	315	1260
FCL-36L15	180	506	775	75	25	90	1787.7	1390	100	1495	100	62	52	568	315	1560
FCL-36L22	180	506	775	75	25	90	2387.7	1990	100	2095	100	62	52	568	315	2160
FCL-38L07	180	606	845	75	25	90	887.7	490	100	595	100	62	52	618	365	660
FCL-38L12	180	606	845	75	25	90	1487.7	1090	100	1195	100	62	52	618	365	1260
FCL-38L15	180	606	845	75	25	90	1787.7	1390	100	1495	100	62	52	618	365	1560
FCL-38L22	180	606	845	75	25	90	2387.7	1990	100	2095	100	62	52	618	365	2160

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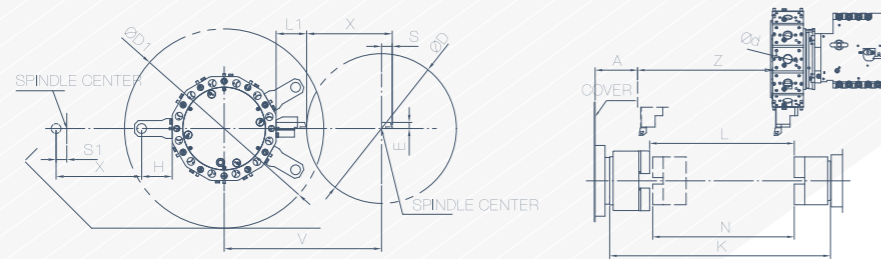


POWER TURRET / Y AXIS BMT RADIAL MOUNTING OPT.

Unit:mm

MODEL	A	Turning Dia D	D1	BMT d	E	H	K	Turning L	L1	N	Q	S	S1	V	Travel X	Y	Z
FCL-20YL04	185	370	680	55	20	100	521	325	65	360	85	5	40	415	190	±40	365
FCL-20YL07	185	370	680	55	20	100	821	625	65	630	85	5	40	415	190	±40	685
FCL-20YL12	185	370	650	55	20	100	1421	1225	65	1230	85	5	40	415	190	±40	1285
FCL-20YL15	185	370	650	55	20	100	1721	1525	65	1455	85	5	40	415	190	±40	1510
FCL-20YL22	185	370	620	55	20	100	2321	2125	65	2055	85	5	40	415	190	±40	2110
FCL-25YL07	185	370	680	55	20	100	821	625	65	630	85	5	40	415	190	±40	685
FCL-25YL12	185	370	650	55	20	100	1421	1225	65	1230	85	5	40	415	190	±40	1285
FCL-25YL15	185	370	650	55	20	100	1721	1525	65	1430	85	5	40	415	190	±40	1510
FCL-25YL22	185	370	620	55	20	100	2321	2125	65	2130	85	5	40	415	190	±40	2110
FCL-30YL07	201	400	660	65	25	72	845	485	80	550	100</						

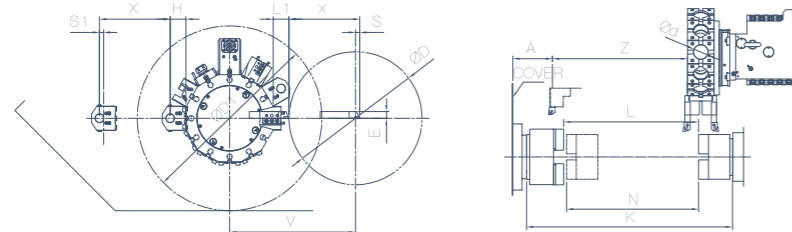
WORKING RANGE



POWER TURRET / TWIN SPINDLE / SINGLE TURRET
VDI RADIAL MOUNTING OPT.

Unit:mm

MODEL	A	Turning Dia D	D1	VDId	E	H	K	Turning L	L1	N	S	S1	V	Z	Travel X
FCL-15TSL04	132	250	640	30	20	100	536	260	100	260	40	40	395	310	165
FCL-15TSL07	132	250	640	30	20	100	836	560	100	560	40	40	395	610	165
FCL-15TSL12	132	250	610	30	20	100	1436	1160	100	1160	40	40	395	1210	165
FCL-15TSL15	132	250	610	30	20	100	1736	1460	100	1460	40	40	395	1510	165
FCL-15TSL22	132	250	580	30	20	100	2336	2060	100	2060	40	40	395	2110	165
FCL-20TSL07	150	490	640	30	20	100	780	510	100	500	35	35	515	560	280
FCL-20TSL12	150	490	610	30	20	100	1380	1110	100	1100	35	35	515	1160	280
FCL-20TSL15	150	490	610	30	20	100	1680	1410	100	1400	35	35	515	1460	280
FCL-20TSL22	150	490	580	30	20	100	2280	2010	100	2000	35	35	515	2060	280
FCL-30TSL07	155	470	630	40	25	120	771	470	120	470	25	25	515	540	260
FCL-30TSL12	155	470	600	40	25	120	1371	1070	120	1070	25	25	515	1140	260
FCL-30TSL15	155	470	600	40	25	120	1671	1370	120	1370	25	25	515	1440	260
FCL-30TSL22	155	470	570	40	25	120	2271	1970	120	1970	25	25	515	2040	260
FCL-36TSL07	235	506	770	40	25	120	803	470	120	470	62	62	538	540	315
FCL-36TSL12	235	506	740	40	25	120	1403	1070	120	1070	62	62	538	1140	315
FCL-36TSL15	235	506	740	40	25	120	1703	1370	120	1370	62	62	538	1440	315
FCL-36TSL22	235	506	710	40	25	120	2303	1970	120	1970	62	62	538	2040	315

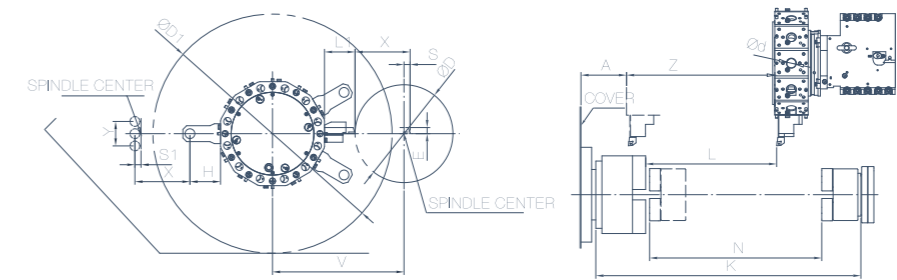


POWER TURRET / TWIN SPINDLE / SINGLE TURRET
BMT RADIAL MOUNTING OPT.

Unit:mm.

MODEL	A	TurningDia D	D1	BMT d	E	H	K	Turning L	L1	N	S	S1	V	Travel X	Z
FCL-15TSL04	132	250	640	55	20	100	536	260	60	260	40	40	395	165	310
FCL-15TSL07	132	250	640	55	20	100	836	560	60	560	40	40	395	165	610
FCL-15TSL12	132	250	610	55	20	100	1436	1160	60	1160	40	40	395	165	1210
FCL-15TSL15	132	250	610	55	20	100	1736	1460	60	1460	40	40	395	165	1510
FCL-15TSL22	132	250	580	55	20	100	2336	2060	60	2060	40	40	395	165	2110
FCL-20TSL07	150	490	640	55	20	100	780	510	60	500	35	35	515	268	560
FCL-20TSL12	150	490	610	55	20	100	1380	1110	60	1100	35	35	515	268	1160
FCL-20TSL15	150	490	610	55	20	100	1680	1410	60	1400	35	35	515	268	1460
FCL-20TSL22	150	490	580	55	20	100	2280	2010	60	2000	35	35	515	268	2060
FCL-30TSL07	155	470	630	65	25	120	771	470	80	470	25	25	515	260	540
FCL-30TSL12	155	470	600	65	25	120	1371	1070	80	1070	25	25	515	260	1140
FCL-30TSL15	155	470	600	65	25	120	1671	1370	80	1370	25	25	515	260	1440
FCL-30TSL22	155	470	570	65	25	120	2271	1970	80	1970	25	25	515	260	2040
FCL-36TSL07	235	506	770	75	25	120	803	470	100	470	62	62	538	315	540
FCL-36TSL12	235	506	740	75	25	120	1403	1070	100	1070	62	62	538	315	1140
FCL-36TSL15	235	506	740	75	25	120	1703	1370	100	1370	62	62	538	315	1440
FCL-36TSL22	235	506	710	75	25	120	2303	1970	100	1970	62	62	538	315	2040

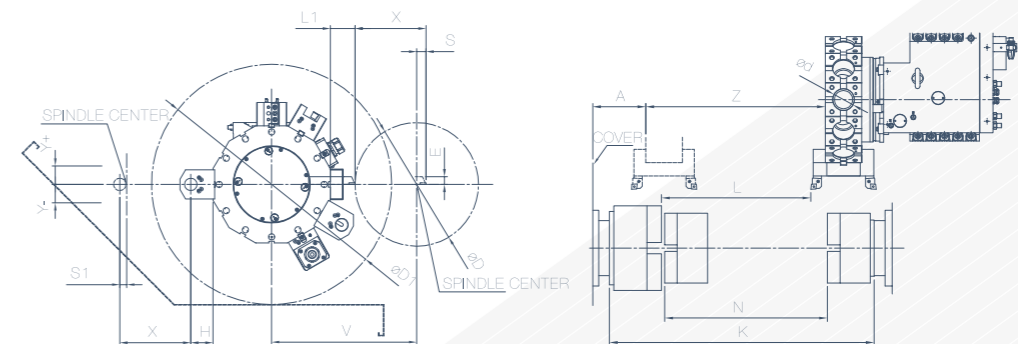
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POWER TURRET / TWIN SPINDLE / SINGLE TURRET/
Y AXIS VDI RADIAL MOUNTING OPT.

Unit:mm

MODEL	A	TurningDia D	D1	VDId	E	H	K	Turning L	L1	N	S	S1	V	Y	Z	Travel X
FCL-15TSYL04	160	300	680	30	20	100	490	192	100	250	25	25	420	±40	224	175
FCL-15TSYL07	160	300	680	30	20	100	790	492	100	550	25	25	420	±40	524	175
FCL-15TSYL12	160	300	650	30	20	100	1390	1092	100	1150	25	25	420	±40	1124	175
FCL-15TSYL15	160	300	650	30	20	100	1690	1392	100	1450	25	25	420	±40	1424	175
FCL-15TSYL22	160	300	620	30	20	100	2290	1992	100	2050	25	25	420	±40	2024	175
FCL-20TSYL07	160	300	680	30	20	100	780	467	100	500	25	25	420	±40	500	175
FCL-20TSYL12	160	300	650	30	20	100	1380	1067	100	1100	25	25	420	±40	1100	175
FCL-20TSYL15	160	300	650	30	20	100	1680	1367	100	1400	25	25	420	±40	1400	175
FCL-20TSYL22	160	300	620	30	20	100	2280	1967	100	2000	25	25	420	±40	2000	175
FCL-30TSYL07	169.5	380	660	40	25	120	798	494	120	490	30	30	470	±60	540	220
FCL-30TSYL12	169.5	380	630	40	25	120	1398	1094	120	1090	30	30	470	±60	1140	220
FCL-30TSYL15	169.5	380	630	40	25	120	1698	1394	120	1390	30	30	470	±60	1440	220
FCL-30TSYL22	169.5	380	600	40	25	120	2298	1994	120	1990	30	30	470	±60	2040	220
FCL-38TSYL07	270	500	750	40	25	120	803	430	120	470	30	30	505	±80	500	260
FCL-38TSYL12	270	500	750	40	25	120	1403	1030	120	1070	30	30	505	±80	1100	260
FCL-38TSYL15	270	500	750	40	25	120	1703	1330	120	1370	30	30	505	±80	1400	260
FCL-38TSYL22	270	500	750	40	25	120	2303	1930	120	1970	30	30	505	±80	2000	260



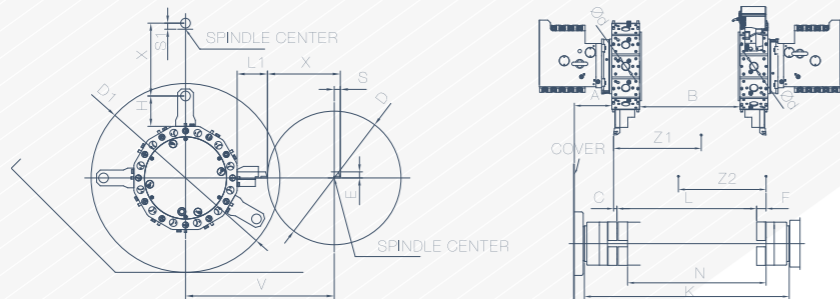
POWER TURRET / TWIN SPINDLE / SINGLE TURRET/
Y AXIS BMT RADIAL MOUNTING OPT.

Unit:mm

MODEL	A	TurningDia D	D1	BMT d	E	H	K	Turning L	L1	N	S	S1	V	Travel X	Y	Z
FCL-15TSYL04	215	370	680	55	20	100	490	325	65	250	5	40	415	190	±40	385
FCL-15TSYL07	215	370	680	55	20	100	790	625	65	550	5	40	415	190	±40	685
FCL-15TSYL12	215	370	650	55	20	100	1390	1225	65	1150	5	40	415	190	±40	1285
FCL-15TSYL15	215	370	650	55	20	100	1690	1525	65	1450	5	40	415	190	±40	1510
FCL-15TSYL22	215	370	620	55	20	100	2290	2125	65	2050	5	40	415	190	±40	2110
FCL-20TSYL07	215	370	680	55	20	100	780	625	65	500	5	40	415	190	±40	685
FCL-20TSYL12	215	370	650	55	20	100	1380	1225	65	1100	5	40	415	190	±40	1285
FCL-20TSYL15	215	370	650	55	20	100	1680	1525	65	1400	5	40	415	190	±40	1510
FCL-20TSYL22	215	370	620	55	20	100	2280	2125	65	2000	5	40	415	190	±40	2110
FCL-30TSYL07	157	400	660	65	25	100	798	485	80	490	30	22	470	260	±60	530
FCL-30TSYL12	157	400	630	65	25	100	1398	1085	80	1090	30	22	470	260	±60	1130
FCL-30TSYL15	157	400	630	65	25	100	1698	1385	80	1390	30	22	470	260	±60	1430
FCL-30TSYL22	157	400	600	65	25	100	2298	1985	80	1990	30	22	470	260	±60	2030

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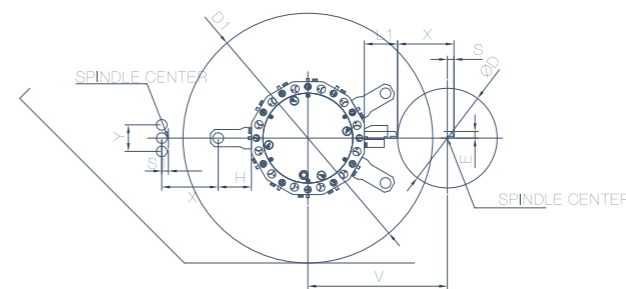
WORKING RANGE



POWER TURRET / TWIN SPINDLE / TWIN TURRET
VDI RADIAL MOUNTING OPT.

Unit:mm

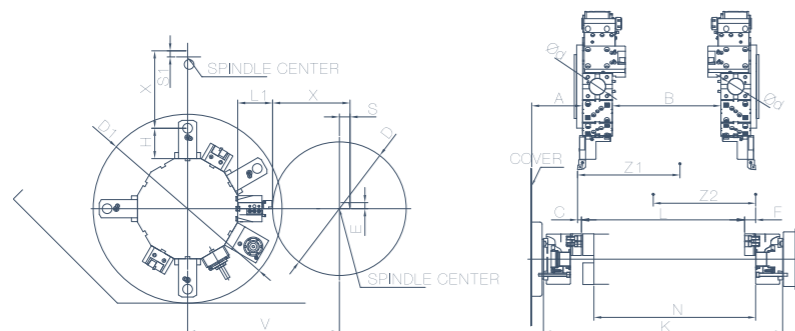
MODEL	A	B	C	Turning Da D	D1	VDId	E	F	H	K	Turning L	L1	N	S	S1	V	Travel X	Z1	Z2
FCL-15TTL07	147.5	396	13	440	600	30	20	37	100	806	550	100	545	20	20	490	240	345	345
FCL-15TTL12	147.5	996	13	440	600	30	20	37	100	1406	1150	100	1085	20	20	490	240	620	620
FCL-15TTL15	147.5	1296	13	440	570	30	20	37	100	1706	1450	100	1385	20	20	490	240	745	745
FCL-15TTL22	147.5	1896	13	440	540	30	20	37	100	2306	2050	100	1985	20	20	490	240	1020	1020
FCL-20TTL07	147.5	396	38	440	600	30	20	37	100	794	525	100	520	20	20	490	240	345	345
FCL-20TTL12	147.5	996	38	440	600	30	20	37	100	1394	1125	100	1085	20	20	490	240	620	620
FCL-20TTL15	147.5	1296	38	440	570	30	20	37	100	1694	1425	100	1385	20	20	490	240	745	745
FCL-20TTL22	147.5	1896	38	440	540	30	20	37	100	2294	2025	100	1985	20	20	490	240	1020	1020
FCL-25TTL07	162.5	360	42	440	600	30	20	38	100	788	484	100	475	15	15	490	235	345	345
FCL-25TTL12	162.5	960	42	440	600	30	20	38	100	1388	1084	100	1075	15	15	490	235	620	620
FCL-25TTL15	162.5	1260	42	440	570	30	20	38	100	1688	1384	100	1375	15	15	490	235	745	745
FCL-25TTL22	162.5	1860	42	440	540	30	20	38	100	2288	1984	100	1975	15	15	490	235	1020	1020
FCL-30TTL07	164	366	34	480	660	40	25	38	140	791	494	130	490	10	20	530	250	345	345
FCL-30TTL12	164	966	34	480	660	40	25	38	140	1391	1089	130	1085	10	20	530	250	620	620
FCL-30TTL15	164	1266	34	480	630	40	25	38	140	1691	1389	130	1385	10	20	530	250	745	745
FCL-30TTL22	164	1866	34	480	600	40	25	38	140	2291	1994	130	1990	10	20	530	250	1020	1020



POWER TURRET / TWIN SPINDLE / TWIN TURRET
/ Y AXIS VDI RADIAL MOUNTING OPT.

Unit:mm

MODEL	A	B	C	Turning Da D	D1	VDId	E	F	H	K	Turning L	L1	N	S	S1	V	Travel X	Y	Z1	Z2
FCL-15TTYL07	144	374	16.5	300	740	30	20	31.5	100	786	530	100	520	20	20	420	170	±40	320	320
FCL-15TTYL12	144	974	16.5	300	720	30	20	31.5	100	1386	1130	100	1085	20	20	420	170	±40	620	620
FCL-15TTYL15	144	1274	16.5	300	720	30	20	31.5	100	1686	1430	100	1385	20	20	420	170	±40	745	745
FCL-15TTYL22	144	1874	16.5	300	700	30	20	31.5	100	2286	2030	100	1985	20	20	420	170	±40	1020	1020
FCL-20TTYL07	148	370	37.5	300	740	30	20	31.5	100	774	505	100	500	20	20	420	170	±40	295	295
FCL-20TTYL12	148	970	37.5	300	720	30	20	31.5	100	1374	1105	100	1085	20	20	420	170	±40	620	620
FCL-20TTYL15	148	1270	37.5	300	720	30	20	31.5	100	1674	1405	100	1385	20	20	420	170	±40	745	745
FCL-20TTYL22	148	1870	37.5	300	700	30	20	31.5	100	2274	2005	100	1985	20	20	420	170	±40	1020	1020
FCL-25TTYL07	169	351	35.7	300	740	30	20	45.5	120	778	474	100	465	2	22	420	152	±40	295	295
FCL-25TTYL12	169	951	35.7	300	720	30	20	45.5	120	1378	1074	100	1065	2	22	420	152	±40	620	620
FCL-25TTYL15	169	1251	35.7	300	720	30	20	45.5	120	1678	1374	100	1365	2	22	420	152	±40	745	745
FCL-25TTYL22	169	1851	35.7	300	700	30	20	45.5	120	2278	1974	100	1965	2	22	420	152	±40	1020	1020
FCL-30TTYL07	162	285	33.1	380	750	40	25	32.1	140	711	414	120	400	10	30	470	200	±60	280	280
FCL-30TTYL12	162	885	33.1	380	730	40	25	25.1	140	1318	1021	120	1000	10	30	470	200	±60	600	600
FCL-30TTYL15	162	1185	33.1	380	730	40	25	25.1	140	1618	1321	120	1300	10	30	470	200	±60	720	720
FCL-30TTYL22	162	1785	33.1	380	710	40	25	25.1	140	2218	1921	120	1900	10	30	470	200	±60	990	990

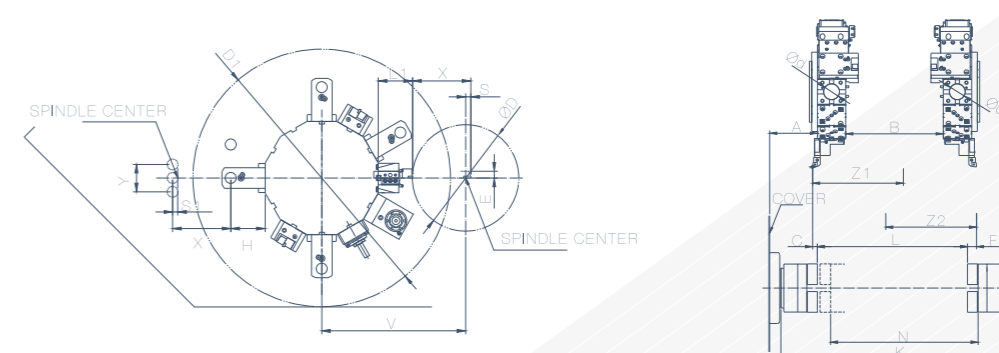


POWER TURRET / TWIN SPINDLE / TWIN TURRET
BMT RADIAL MOUNTING OPT.

Unit:mm

MODEL	A	B	C	Turning Da D	D1	BMT d	E	F	H	K	Turning L	L1	N	S	S1	V	Travel X	Z1	Z2
FCL-15TTL07	171.5	366	13	440	600	55	20	37	100	806	550	115	545	35	20	500	255	345	345
FCL-15TTL12	171.5	966	13	440	600	55	20	37	100	1406	1150	115	1085	35	20	500	255	620	620
FCL-15TTL15	171.5	1266	13	440	570	55	20	37	100	1706	1450	115	1385	35	20	500	255	745	745
FCL-15TTL22	171.5	1866	13	440	540	55	20	37	100	2306	2050	115	1985	35	20	500	255	1020	1020
FCL-20TTL07	171.5	366	38	440	600	55	20	37	100	794	525	115	520	35	20	500	255	345	345
FCL-20TTL12	171.5	966	38	440	600	55	20	37	100	1394	1125	115	1085	35	20	500	255	620	620
FCL-20TTL15	171.5	1266	38	440	570	55	20	37	100	1694	1425	115	1385	35	20	500	255	745	745
FCL-20TTL22	171.5	1866	38	440	540	55	20	37	100	2294	2025	115	1985	35	20	500	255	1020	1020
FCL-25TTL07	171.5	366	57	440	600	55	20	59	100	788	484	115	475	30	15	500	250	345	345
FCL-25TTL12	171.5	966	57	440	600	55	20	59	100	1388	1084	115	1075	30	15	500	250	620	620
FCL-25TTL15	171.5	1266	57	440	570	55	20	59	100	1688	1384	115	1375	30	15	500	250	745	745
FCL-25TTL22	171.5	1866	57	440	540	55	20	59	100	2288	1984	115	1975	30	15	500	250	1020	1020
FCL-30TTL07	212.5	380	34	490	660	65	25	38	100	791	494	80	490	5	25	515	250	345	345
FCL-30TTL12	212.5	980	34	490	660	65	25	38	100	1391	1094	80	1090	5	25	515	250	620	620
FCL-30TTL15	212.5	1280	34	490	630	65	25	38	100	1691	1394	80	1390	5	25	515	250	745	745
FCL-30TTL22	212.5	1880	34	490	600	65	25	38	100	2291	1994	80	1990	5	25	515	250	1020	1020

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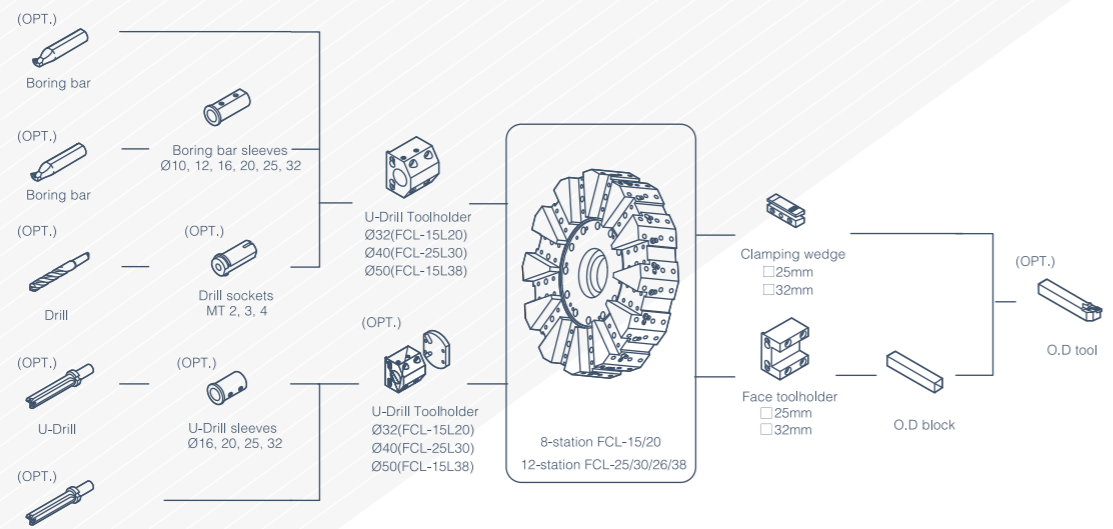
POWER TURRET / TWIN SPINDLE / TWIN TURRET
/ Y AXIS BMT RADIAL MOUNTING OPT.

Unit:mm

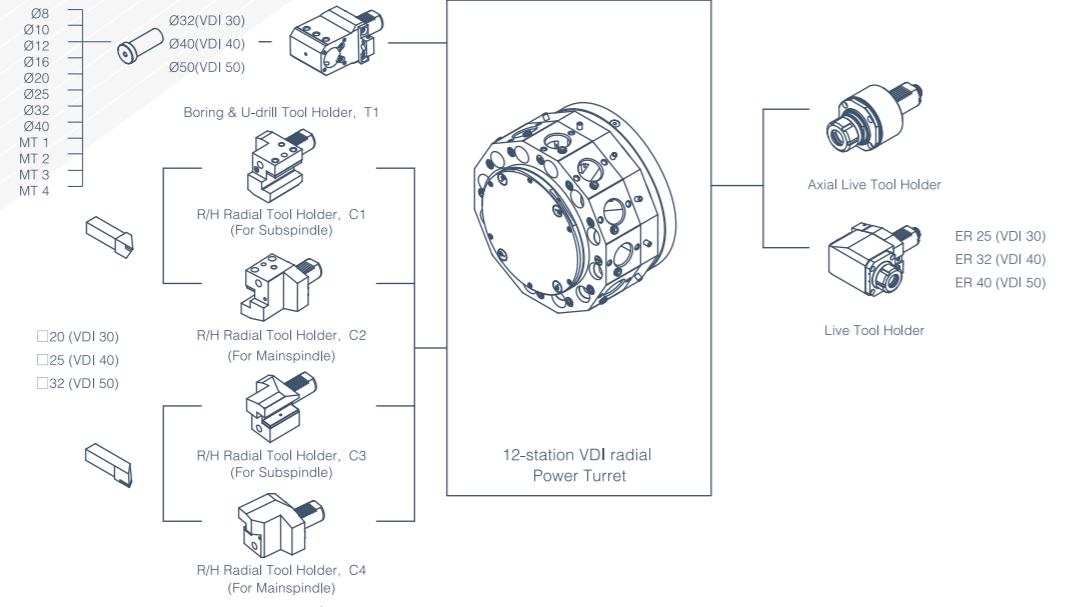
MODEL	A	B	C	Turning Da D	D1	BMT d	E	F	H	K	Turning L	L1	N	S	S1	V	Travel X	Y	Z1	Z2
FCL-15TTYL07	168	344	16.5	310	740	55	20	31.5	100	786	530	100	520	15	15	420	170	±40	320	320
FCL-15TTYL12	168	944	16.5	310	720	55	20	31.5	100	1386	1130	100	1085	15	15	420	170	±40	620	620
FCL-15TTYL15	168	1244	16.5	310	720	55	20	31.5	100	1686	1430	100	1385	15	15	420	170	±40	745	745
FCL-15TTYL22	168	1844	16.5	310	700	55	20	31.5	100	2286	2030	100	1985	15	15	420	170	±40	1020	1020
FCL-20TTYL07	193	319	16.5	310	740	55	20	31.5	100	774	505	100	500	15	15	420	170	±40	295	295
FCL-20TTYL12	193	919	16.5	310	720	55	20	31.5	100	1374	1105	100	1085	15	15	420	170	±40	620	620
FCL-20TTYL15	193	1219	16.5	310	720	55	20	31.5	100	1674	1405	100	1385	15	15	420	170	±40	745	745
FCL-20TTYL22	193	1819	16.5	310	700	55	20	31.5	100	2274	2005	100	1985	15	15	420	170	±40	1020	1020
FCL-25TTYL12	193	321	35.7	310	740	55	20	45.5	120	778	474	100	465	2	22	420	152	±40	295	295
FCL-25TTYL15	193	921	35.7	310	720	55	20	45.5	120	1378	1074	100	1060	2	22	420	152	±40	620	620
FCL-25TTYL22	193	1221	35.7	310	720	55	20	45.5	120	1678	1374	100	1360	2	22	420	152	±40	745	745
FCL-30TTYL07	193	1821	35.7	310	700	55	20	45.5	120	2278	1974	100	1960	2	22	470	152	±40	1020	1020
FCL-30TTYL12	213	220	50.5	400	750	65	25	38.5	72	751	437	80	430	30	22	470	230	±60	280	280
FCL-30TTYL15	213	820	50.5	400	730	65	25	38.5	72	1351	1037	80	1030	30	22	470	230	±60	590	590
FCL-30TTYL22	213	1120	50.5	400	730</															

TOOLING SYSTEM

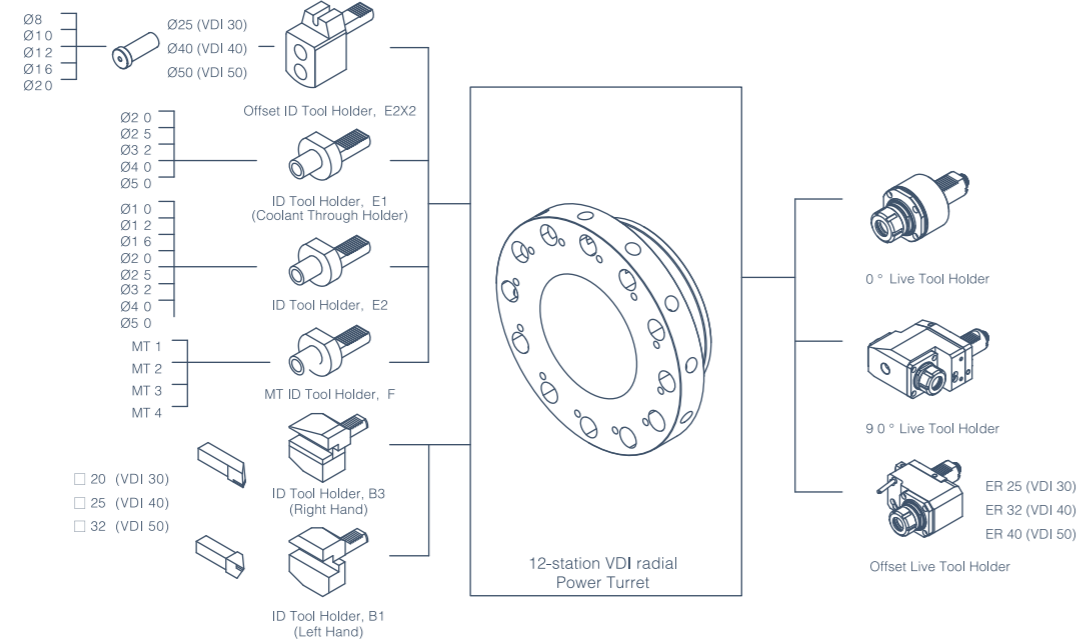
DIRECT TYPE
TURRET STD.



VDI RADIAL
TYPE OPT.



VDI AXIAL
TYPE OPT.

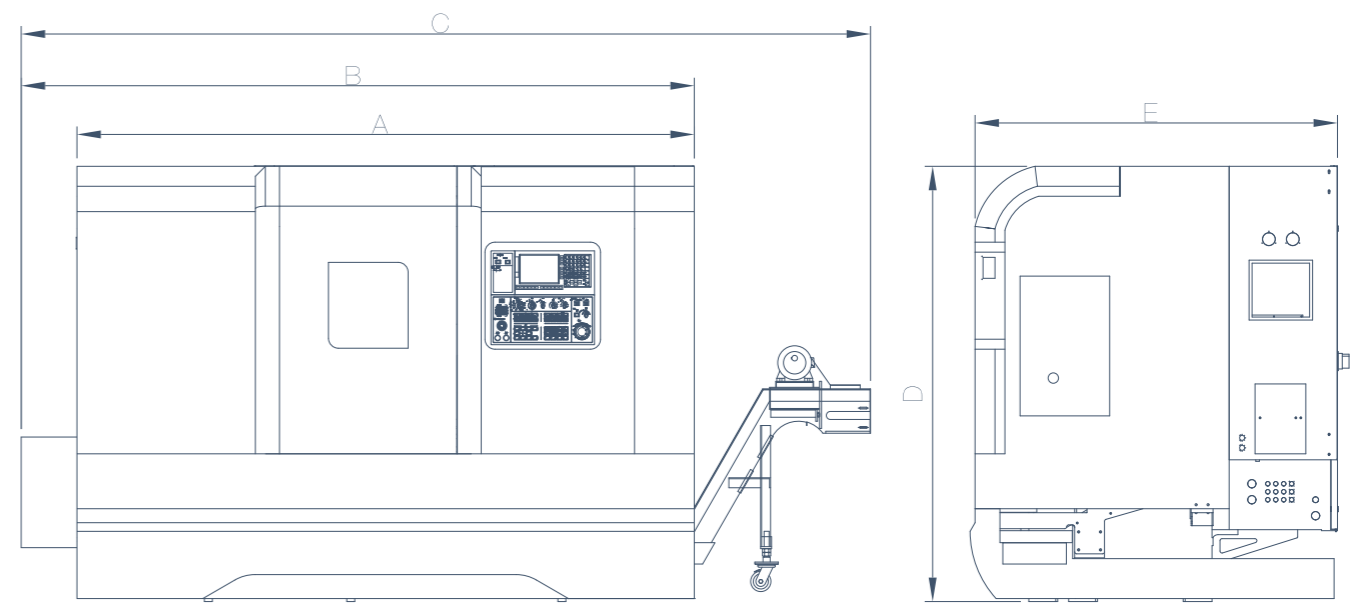


BMT TYPE OPT.

The drawing will be provided by the requirement.

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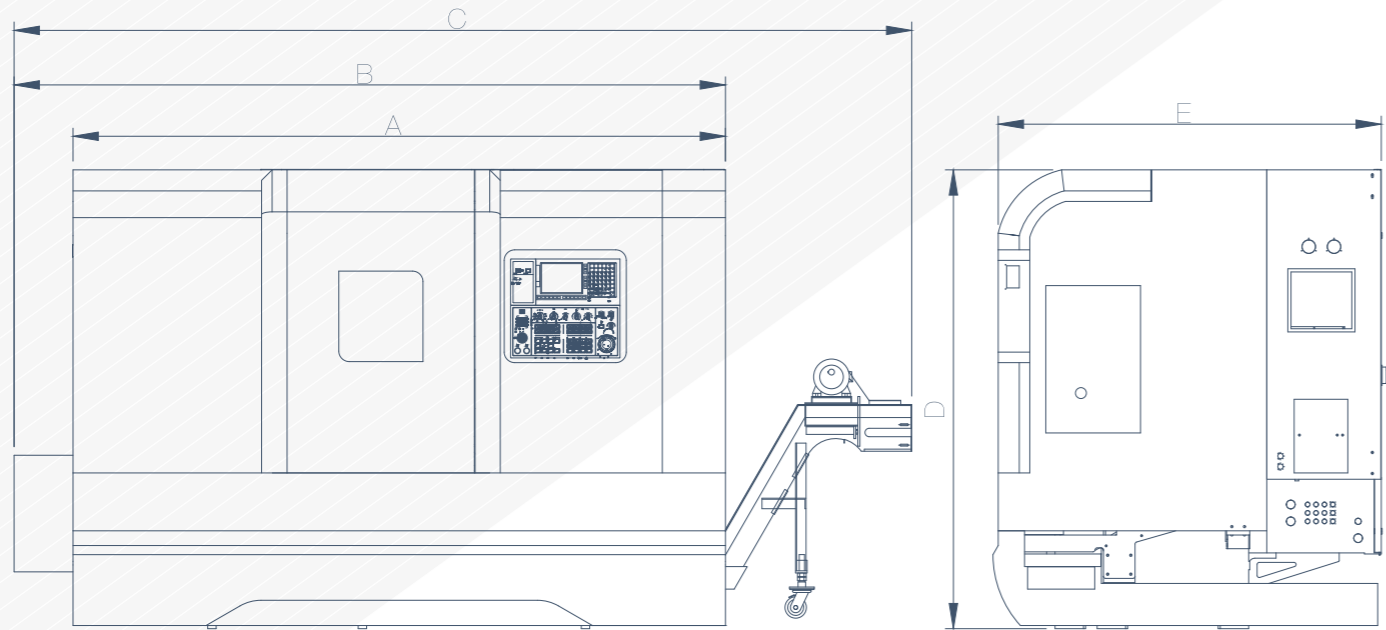
DIMENSIONAL DRAWINGS TWIN AXIS SERIES



MODEL	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	W (kg)	Coolant tank(L)
FCL-15L03	1600	1850	2800	1739	1500	3600	110
FCL-20L04	2235	2440	3210	1739	1575	4800	115
FCL-20L07	2700	2900	3760	1739	1575	5100	180
FCL-20L12	3135	3340	4110	1739	1575	5500	230
FCL-20L15	3470	3675	4440	1739	1575	6000	260
FCL-20L22	4275	4275	5040	1739	1575	6400	320
FCL-25L04	2430	2600	3430	2010	1820	5000	190
FCL-25L07	2800	2950	3890	1982	1820	5600	250
FCL-25L12	3600	3750	4740	1982	1820	6400	300
FCL-25L15	3900	4050	5040	1982	1820	7400	330
FCL-25L22	4650	4650	5640	1982	1820	8200	420
FCL-30L07	2930	3100	3930	2040	1820	5600	250
FCL-30L12	3600	3770	4760	2040	1820	6400	330
FCL-30L15	3900	4070	5060	2040	1820	7400	350
FCL-30L22	4670	4670	5660	2040	1820	8200	420
FCL-36L07	2760	3355	4180	2090	1895	6400	280
FCL-36L12	3360	3955	4780	2090	1895	7200	375
FCL-36L15	3660	4255	5080	2090	1895	8200	395
FCL-36L22	5000	5000	5800	2090	1895	9000	520
FCL-38L07	3000	3450	4440	2090	1895	7000	280
FCL-38L12	3600	4050	5040	2090	1895	7800	375
FCL-38L15	3900	4350	5340	2090	1895	8800	395
FCL-38L22	4950	4950	5940	2090	1895	9600	520

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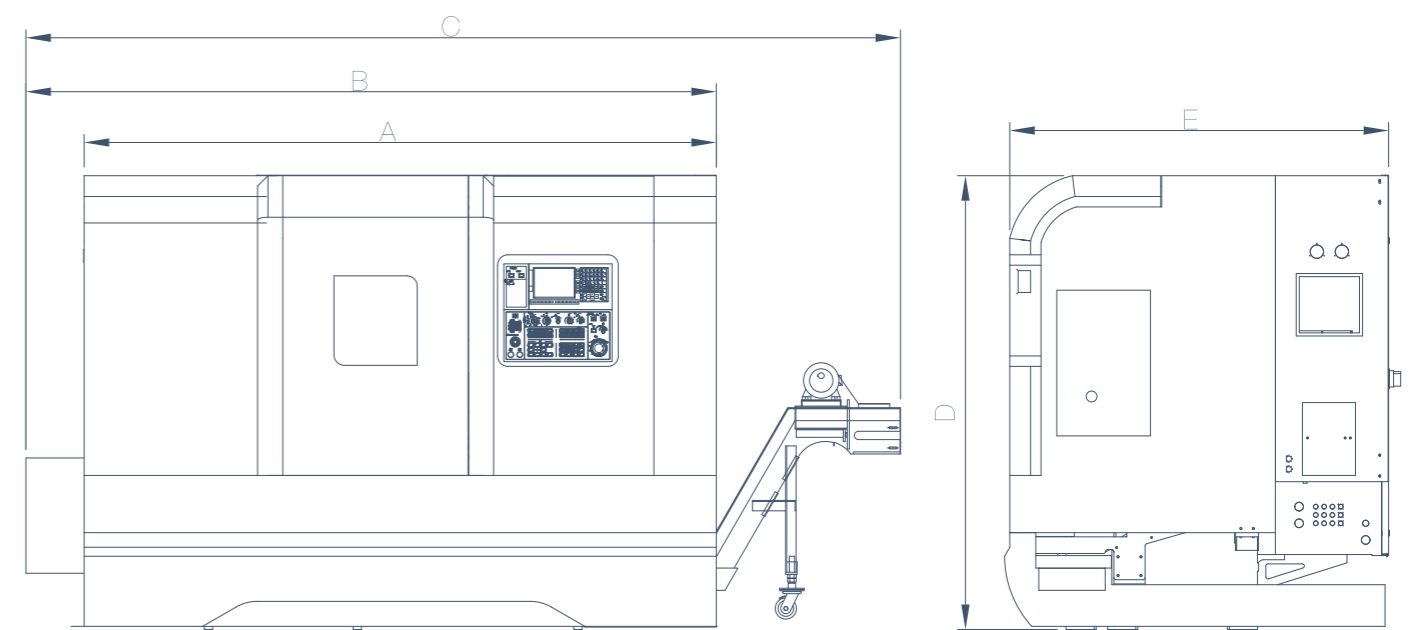
TWIN AXIS WITH Y-AXIS SERIES



MODEL	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	W (kg)	Coolant tank (L)
FCL-20YL04	2550	2830	3715	2182	1820	5160	100
FCL-20YL07 FCL-25YL07	2800	3080	3980	2182	1820	6320	200
FCL-20YL12 FCL-25YL12	3400	3570	4560	2182	1870	8720	230
FCL-20YL15 FCL-25YL15	3750	3920	4910	2182	1870	9920	260
FCL-20YL22 FCL-25YL22	4730	4730	5630	2182	1870	12380	320
FCL-30YL07	2800	3080	3965	2278	1820	6510	200
FCL-30YL12	3600	3770	4760	2278	1870	8910	230
FCL-30YL15	3950	4120	5110	2278	1870	10180	260
FCL-30YL22	4930	4930	5830	2278	1870	12680	320
FCL-38YL07	2800	3250	4240	2278	1910	7670	280
FCL-38YL12	3600	4050	5040	2278	1910	10070	310
FCL-38YL15	4300	4470	5460	2278	1910	11270	330
FCL-38YL22	5280	5280	6270	2278	1910	13670	350

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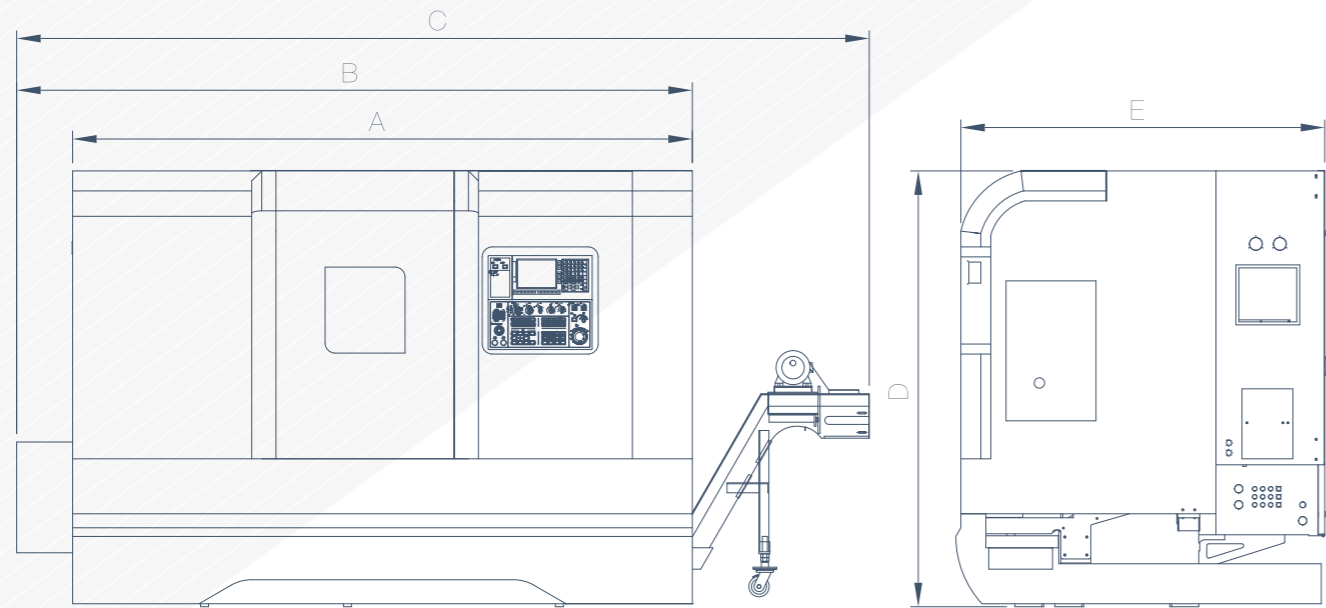
TWIN SPINDLE SERIES



MODEL	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	W (kg)	Coolant tank (L)
FCL-15TSL04	2730	2900	3730	1982	1820	5350	110
FCL-15TSL07 FCL-20TSL07	3100	3250	4190	1982	1820	5950	180
FCL-15TSL12 FCL-20TSL12	3900	4050	5040	1982	1820	6750	230
FCL-15TSL15 FCL-20TSL15	4200	4350	5340	1982	1820	7750	260
FCL-15TSL22 FCL-20TSL22	4950	4950	5940	1982	1820	8550	320
FCL-30TSL07	3230	3400	4230	2040	1820	5950	250
FCL-30TSL12	3700	3870	4860	2040	1820	6750	310
FCL-30TSL15	4000	4170	5160	2040	1820	7750	330
FCL-30TSL22	4770	4770	5760	2040	1820	8550	430
FCL-36TSL07	3060	3655	4480	2090	1895	6750	250
FCL-36TSL12	3460	4055	4880	2090	1895	7550	310
FCL-36TSL15	3760	4355	5180	2090	1895	8550	330
FCL-36TSL22	5100	5100	5900	2090	1895	9350	430

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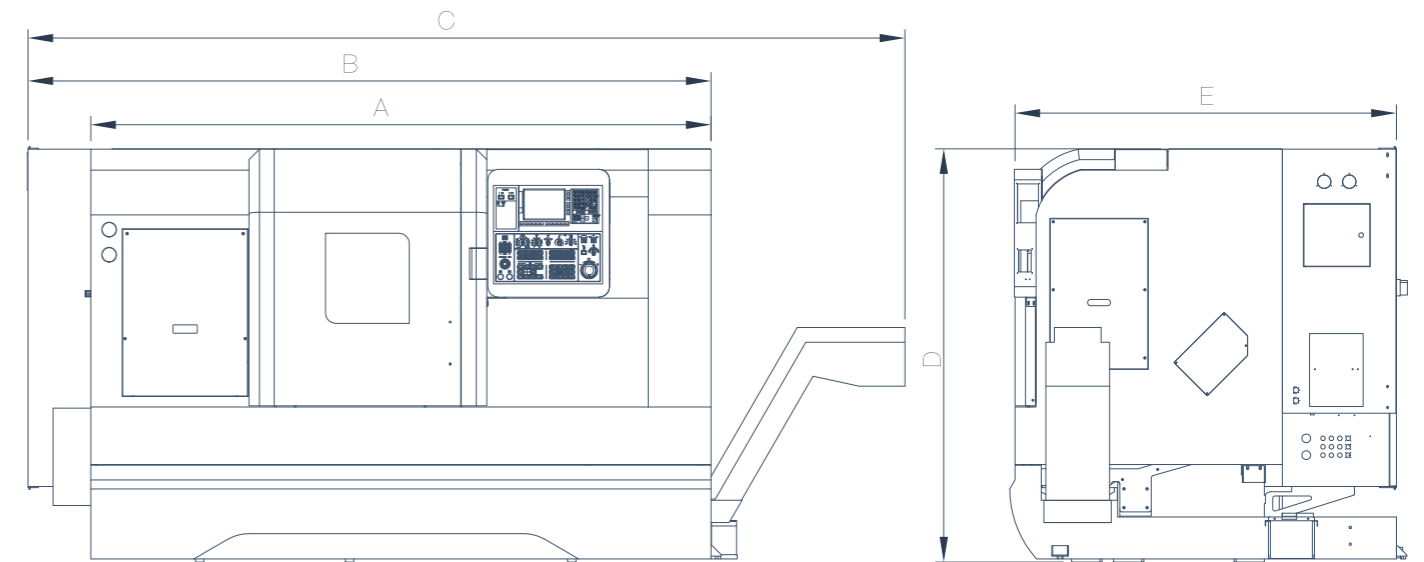
TWIN SPINDLE WITH Y-AXIS SERIES



MODEL	A (mm)	B(mm)	C(mm)	D(mm)	E (mm)	W(kg)	Coolant tank(L)
FCL-15TSYL04	2850	3130	4015	2182	1820	5480	100
FCL-15TSYL07 FCL-20TSYL07	3100	3380	4265	2182	1820	6640	300
FCL-15TSYL12 FCL-20TSYL12	3700	3870	4860	2182	1870	9040	380
FCL-15TSYL15 FCL-20TSYL15	4050	4220	5210	2182	1870	10240	420
FCL-15TSYL22 FCL-20TSYL22	5030	5030	5930	2182	1870	12700	520
FCL-30TSYL07	3100	3380	4265	2278	1820	6830	300
FCL-30TSYL12	3700	3870	4860	2278	1870	9230	380
FCL-30TSYL15	4050	4220	5210	2278	1870	10500	420
FCL-30TSYL22	5030	5030	5930	2278	1870	13000	520

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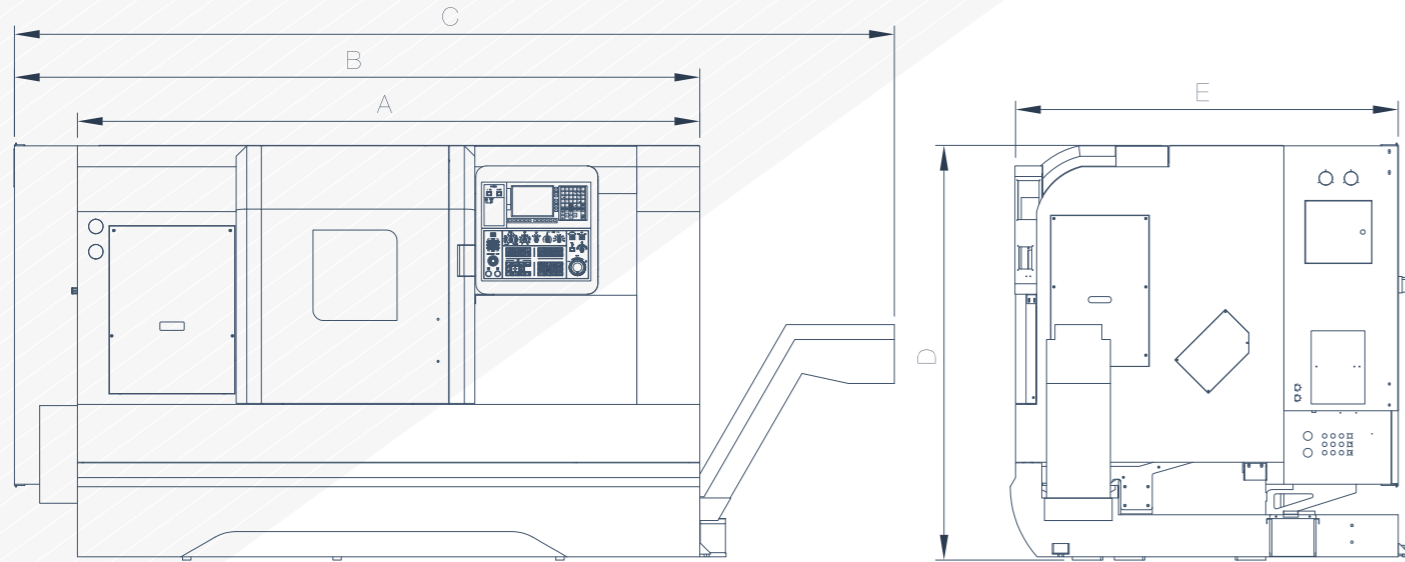
TWIN SPINDLE TWIN TURRET SERIES



MODEL	A(mm)	B(mm)	C(mm)	D(mm)	E (mm)	W(kg)	Coolant tank (L)
FCL-15TTL07 FCL-20TTL07 FCL-25TTL07	2960	3260	4185	1972	1820	7300	250
FCL-15TTL12 FCL-20TTL12 FCL-25TTL12	3560	3860	4785	1972	1880	8000	310
FCL-15TTL15 FCL-20TTL15 FCL-25TTL15	3860	4160	5085	1972	1880	8500	330
FCL-15TTL22 FCL-20TTL22 FCL-25TTL22	4760	4760	5685	1972	1880	9200	430
FCL-30TTL07	3130	3285	4210	2077	1820	7500	250
FCL-30TTL12	3730	3885	4810	2077	1880	8200	330
FCL-30TTL15	4030	4185	5110	2077	1880	8700	350
FCL-30TT/22	4785	4785	5710	2077	1880	9500	450

-Allspecification,designandcharacteristicsshownonthiscataloguearesubjecttochangewithoutpriornotice.

TWIN SPINDLE TWIN TURRET WITH Y-AXIS SERIES

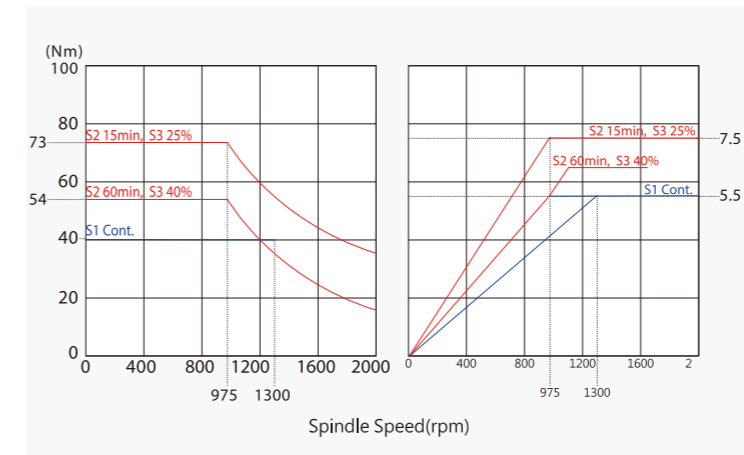


MODEL	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	W(kg)	Coolant tank (L)
FCL-15TTYL07 FCL-20TTYL07 FCL-25TTYL07	3030	3260	4185	2207	1820	7800	250
FCL-15TTYL12 FCL-20TTYL12 FCL-25TTYL12	3630	3860	4785	2207	1880	8500	350
FCL-15TTYL15 FCL-20TTYL15 FCL-25TTYL15	3930	4160	5085	2207	1880	9000	370
FCL-15TTYL22 FCL-20TTYL22 FCL-25TTYL22	4760	4760	5685	2207	1880	9700	450
FCL-30TTYL07	3200	3285	4210	2278	1820	8000	330
FCL-30TTYL12	3800	3385	4810	2278	1880	8700	350
FCL-30TTYL15	4100	4185	5110	2278	1880	9200	370
FCL-30TTYL22	4760	4785	5710	2278	1880	10000	450

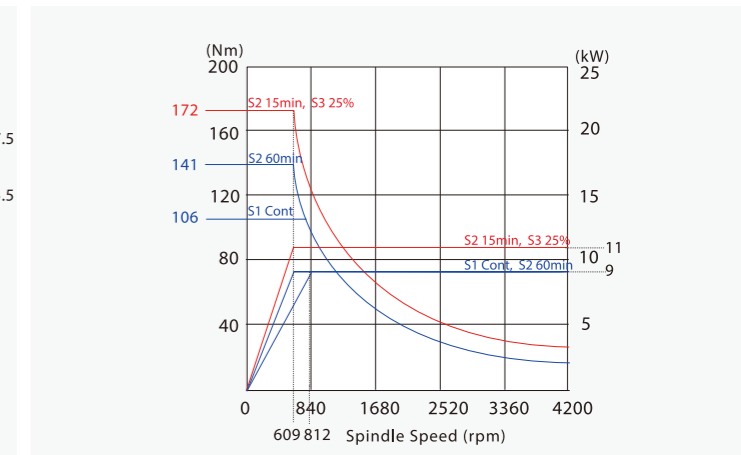
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SPINDLE OUTPUT

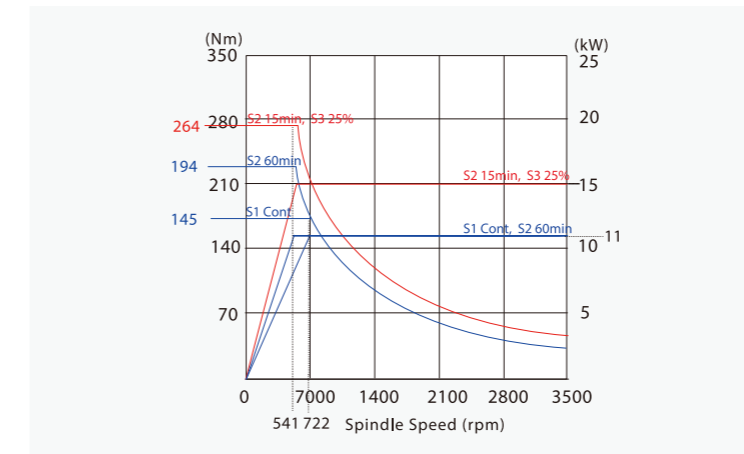
FCL-15 SERIES



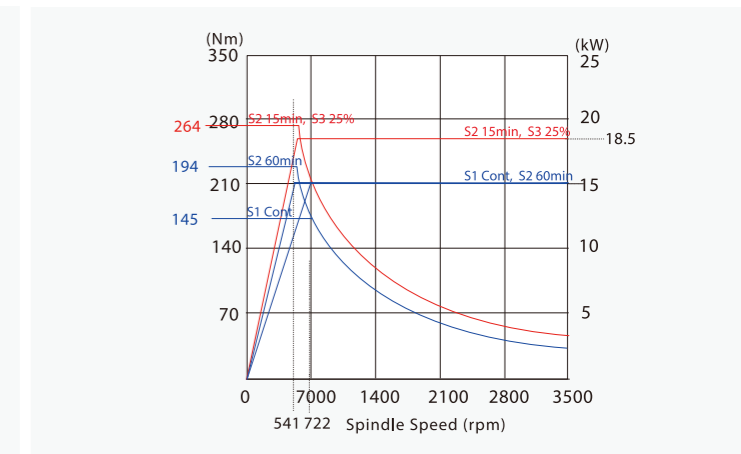
FCL-20 SERIES



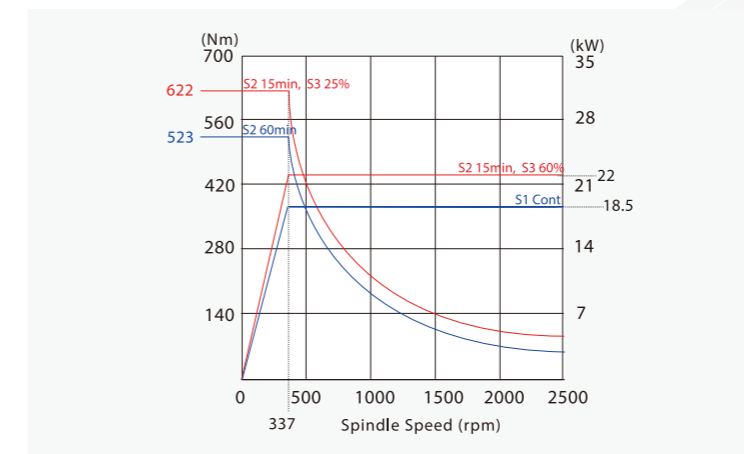
FCL-25 SERIES



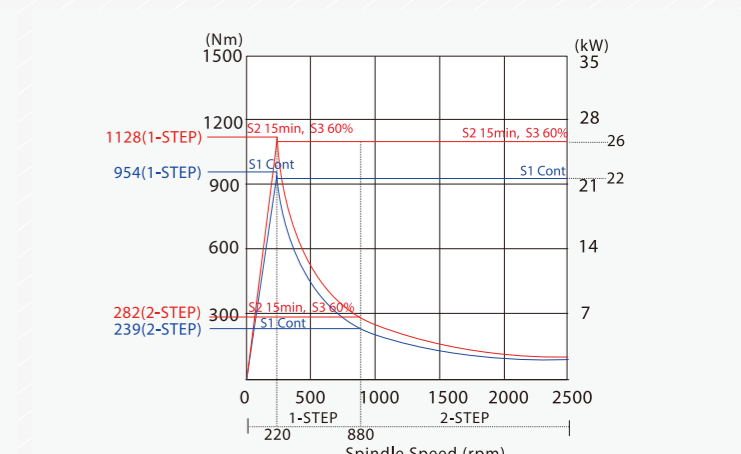
FCL-30 SERIES



FCL-36 SERIES



FCL-38 SERIES



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FCL SPECIFICATIONS

MODEL	ITEM	UNIT	FCL-15			FCL-20		
			FCL-15	FCL-15TS	FCL-15TSY	FCL-20	FCL-20TS	
Capacity	Swing over bed	mm	Ø460	Ø600	Ø740	Ø460	Ø630	
	Swing over saddle	mm	Ø275	Ø450	Ø500	Ø275	Ø400	
	Max. turning dia.	mm	Ø280	Ø250	Ø300	Ø280	Ø490	
	Working Length	mm	300	1) 260-2060 max.	1) 192-1992 max.	1) 455-2200 max.	1) 510-2010 max.	
Main Spindle	Spindle nose		A2-5	A2-5	A2-5	A2-6	A2-6	
	Spindle bore	mm	Ø56	Ø56	Ø56	Ø61	Ø61	
	Bar capacity	mm	Ø45	Ø45	Ø45	Ø52	Ø52	
	Range of spindle speed	rpm	6000	6000	6000	4200	4200	
	Hydraulic chuck	mm	Ø169 (6")	Ø169 (6")	Ø169 (6")	Ø210 (8")	Ø210 (8")	
	Motor (Cont. / 30 min)	kW	5.5/7.5	5.5/7.5	5.5/7.5	9/11	9/11	
Sub Spindle	Spindle nose		-	A2-5	A2-5	-	A2-5	
	Spindle bore	mm	-	Ø56	Ø56	-	Ø56	
	Bar capacity	mm	-	Ø45	Ø45	-	Ø45	
	Range of spindle speed	rpm	-	6000	6000	-	6000	
	Hydraulic chuck	mm	-	Ø169 (6")	Ø169 (6")	-	Ø169 (6")	
	Motor	kW	-	5.5 / 7.5	5.5 / 7.5	-	5.5/7.5	
Turret	Tool station		8T	12T	12T	8T	12T	
	O.D tooling	mm	□25×25	□20×20	□20×20	□25×25	□20×20	
	I.D tooling	mm	Ø32	Ø32	Ø32	Ø32	Ø32	
	Live Tool Speed / kW		-	4000 (OPT.)	4000 / 3	-	4000 (OPT.)	
Travels & Rapid Traverse Speed	X axis travel	mm	160 (140+20)	165 (125+40)	175 (150+25)	165(140+25)	280 (245+35)	
	Y axis travel	mm	-	-	±40	-	-	
	Z axis travel	mm	340	1) 310-2110 max.	1) 224-2024 max.	1) 490-2235 max.	1) 560-2060 max.	
	E axis travel	mm	-	1) 260-2060 max.	1) 250-2050 max.	-	1) 500-2000 max.	
	Rapid speed (X axis)	m/min	30	30	30	30	30	
	Rapid speed (Y axis)	m/min	-	-	7	-	-	
	Rapid speed (Z axis)	m/min	30	30	30	30	30	
	Rapid speed (E axis)	m/min	-	30	20	-	20	
Servo motor X/Y/Z/E axis	kW	1.2/ - /1.2/ -	1.6/ - /1.6/1.6	3/1.4/3/1.6	1.8/ - /1.8/ -	1.6/ - /1.6/1.6		
Tailstock	Quill dia.	mm	Ø75 (OPT.)	-	-	Ø75	-	
	Quill stroke	mm	85 (OPT.)	-	-	85	-	
	Taper of center		MT 4 (OPT.)	-	-	MT4	-	
	Tailstock travel	mm	240 (OPT.)	-	-	1) 415-2160 max.	-	
Tank Capacity	Hydraulic tank	Liter	40	60	60	60	60	
Machine Dimensions	Length * Width * High	mm	1850*1600					2)
	Weight (NW/GW)	kg	3600/4050					

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- 1) Refer to tool P.16 - P.22 interference diagram.

- 2) Refer to P.24 - P.29 external dimensions.

FCL-20		FCL-25		FCL-30			
FCL-20Y	FCL-20TSY	FCL-25	FCL-25Y	FCL-30	FCL-30TS	FCL-30Y	FCL-30TSY
Ø740	Ø740	Ø600	Ø740	Ø630	Ø650	Ø690	Ø690
Ø500	Ø500	Ø450	Ø500	Ø440	Ø440	Ø500	Ø500
Ø300	Ø300	Ø316	Ø300	Ø450	Ø470	Ø430	Ø380
1) 365-2050 max.	1) 467-1967 max.	1) 435-2180 max.	1) 590-2090 max.	1) 700-2150 max.	1) 470-1970 max.	1) 605-2105 max.	1) 494-1994 max.
A2-6	A2-6	A2-6	A2-6	A2-8	A2-8	A2-8	A2-8
Ø61	Ø61	Ø77	Ø77	Ø90/OPT: Ø101	Ø90	Ø90	Ø90
Ø52	Ø52	Ø65	Ø65	Ø77/OPT: Ø91	Ø77	Ø77	Ø77
4200	4200	3500	3500	3500/OPT: 2500	3500	3500	3500
Ø210 (8")	Ø210 (8")	Ø254 (10")	Ø254 (10")	Ø254(10")/OPT:Ø304(12")	Ø254(10")	Ø254(10")	Ø254(10")
9/11	9/11	11/15	11/15	15/18.5	11/15	15/18.5	11/15
-	A2-5	-	-	-	A2-6	-	A2-6
-	Ø56	-	-	-	Ø61	-	Ø61
-	Ø45	-	-	-	Ø52	-	Ø52
-	6000	-	-	-	4200	-	4200
-	Ø169 (6")	-	-	-	Ø210 (8")	-	Ø210 (8")
-	5.5 / 7.5	-	-	-	7.5/11	-	7.5/11
12T	12T	12T	12T	12T	12T	12T	12T
□20×20	□20×20	□25×25	□20×20	□25×25	□25×25	□25×25	□25×25
Ø32	Ø32	Ø40	Ø32	Ø40	Ø40	Ø40	Ø40
4000 / 3	4000 / 3	-	4000 / 3	4000 / 3	4000 (OPT.)	4000 / 3	4000 / 3
175 (150+25)	175 (150+25)	185 (158+27)	175 (150+25)	250(225+25)	260(245+15)	220 (215+5)	220 (190+30)
±40	±40	-	±40	-	-	±60	±60
1) 410-2110 max.	1) 500-2000 max.	1) 490-2235 max.	1) 685-2185 max.	1) 740-2200 max.	1) 540-2040 max.	1) 650-2150 max.	1) 540-2040 max.
-	1) 500-2000 max.	-	-	-	1) 470-1970 max.	-	1) 490-1990 max.
30	30	30	30	20	30	30	30
7	7	-	7	-	-	7	7
30	30	30	30	20	30	30	30
-	20	-	-	-	20	-	20
3/1.4/3/ -	3/1.4/3/1.6	1.8/ - /1.8/ -	3/1.4/3/-	2.5/ - /2.5/ -	3/ - /3/1.6	4/1.6/3/ -	4/1.6/3/1.6
Ø75	-	Ø75	Ø75	Ø90	-	Ø75	-
80	-	85	80	100	-	80	-
MT4	-	MT4	MT4	MT5	-	MT5	-
1) 360-2055 max.	-	1) 380-2125 max.	1) 500-2000 max.	1) 650-2100 max.	-	1) 550-2050 max.	-
60	60	60	60	60	60	60	60
2)							

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- 1) Refer to tool P.16 - P.22 interference diagram.

- 2) Refer to P.24 - P.29 external dimensions.

FCL SPECIFICATIONS

MODEL	ITEM	UNIT	FCL-36	
			FCL-36	FCL-36TS
Capacity	Swing over bed	mm	Ø770	Ø770
	Swing over saddle	mm	Ø590	Ø590
	Max. turning dia.	mm	Ø570	Ø506
	Working Length	mm	1) 600~2100 max.	1) 470~1970 max.
Main Spindle	Spindle nose		A2-8/OPT.: A2-11	A2-8
	Spindle bore	mm	Ø101/OPT.: Ø131	Ø101
	Bar capacity	mm	Ø91/OPT.: Ø117	Ø91
	Range of spindle speed	rpm	2500/OPT.: 2000	2500
	Hydraulic chuck	mm	Ø304(12") /OPT:Ø381(15")	Ø304(12")
	Motor (Cont. / 30 min)	kW	18.5/22	18.5/22
Sub Spindle	Spindle nose		-	A2-6
	Spindle bore	mm	-	Ø77
	Bar capacity	mm	-	Ø65
	Range of spindle speed	rpm	-	3500
	Hydraulic chuck	mm	-	Ø254 (10")
	Motor	kW	-	11/15
Turret	Tool station		12T	12T
	O.D tooling	mm	□32×32	□25×25
	I.D tooling	mm	Ø50	Ø40
	Live Tool Speed / kW		3000 (OPT.)	4000
Travels & Rapid Traverse Speed	X axis travel	mm	315 (285+30)	315 (253+62)
	Y axis travel	mm	-	-
	Z axis travel	mm	1) 660~2160 max.	1) 540~2040 max.
	E axis travel	mm	-	1) 470~1970 max.
	Rapid speed (X axis)	m/min	24	24
	Rapid speed (Y axis)	m/min	-	-
	Rapid speed (Z axis)	m/min	20	20
	Rapid speed (E axis)	m/min	-	20
Servo motor X/Y/Z/E axis	kW	4 / - / 4 / -	4 / - / 4 / 3	
Tailstock	Quill dia.	mm	Ø100	-
	Quill stroke	mm	100	-
	Taper of center		MT5	-
Tank Capacity	Tailstock travel	mm	1) 595~2095 max.	-
Machine Dimensions	Hydraulic tank	Liter	60	60
	Length * Width * High	mm	2)	
Weight (NW/GW)	kg			

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- 1) Refer to tool P.16 - P.22 interference diagram.
- 2) Refer to P.24 - P.29 external dimensions.

FCL-38		
FCL-38	FCL-38Y	FCL-38TSY
Ø840	Ø780	Ø780
Ø670	Ø640	Ø640
Ø670	Ø500	Ø500
1) 600~2100 max.	1) 500~2000 max.	1) 430~1930 max.
A2-8/OPT.: A2-11	A2-8	A2-8
Ø101/OPT.: Ø131	Ø101	Ø101
Ø91/OPT.: Ø117	Ø91	Ø91
2500/OPT.: 2000	2500	2500
Ø304(12") /OPT:Ø381(15")	Ø304(12")	Ø304(12")
22/26 (Gear box)	22/26 (Gear box)	22/26 (Gear box)
-	-	A2-6
-	-	Ø77
-	-	Ø65
-	-	3500
-	-	Ø254 (10")
-	-	11/15
12T	12T	12T
□32×32	□25×25	□25×25
Ø50	Ø40	Ø40
3000 (OPT.)	4000 / 4	4000 / 4
365 (335+30)	270 (250+20)	260 (250+10)
-	±80	±80
1) 660~2160 max.	1) 550~2050 max.	1) 500~2000 max.
-	-	1) 470~1970 max.
24	24	24
-	7	7
20	20	20
-	-	20
4 / - / 4 / -	4 / 1.6 / 4 / -	4 / 1.6 / 4 / 1.6
Ø100	Ø100	-
100	100	-
MT5	MT5	-
1) 595~2095 max.	1) 550~2050 max.	-
60	60	60
2)		

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- 1) Refer to tool P.16 - P.22 interference diagram.
- 2) Refer to P.24 - P.29 external dimensions.

STANDARD ACCESSORIES

- Hydraulic turret 8 position / 12 Position
- Without tailstock (FCL-15 series)
- 3 bar ~ 750w coolant pump
- Tools & tool box
- Heat exchanger for electrical cabinet
- Coolant tank
- Working light
- Three color alarm light
- Chip conveyor and bucket
- Automatic lubrication system
- Hydraulic unit

OPTIONAL ACCESSORIES

- CE / TS electric control
- Automatic tool setter
- C axis and TD axis contour capability & power turret
- Servo turret
- Main power transformer
- Automatic door & safety switch
- Automatic parts catcher
- Prevent crash installation of each axis (safety equipment)
- Bar feeder
- Parts cut off detector
- Larger hydraulic chuck
- Air conditioner for electrical cabinet
- Larger spindle motor
- High pressure coolant pump
- Oil mist collector
- Oil skimmer
- Manual / Hydraulic steady rest
- Live quill tailstock
- BMT type turret

FCL-TT SPECIFICATION

MODEL	ITEM	UNIT	FCL-15		FCL-20
			FCL-15TT	FCL-15TTY	FCL-20TT
Capacity	Swing over bed	mm	Ø620	Ø740	Ø620
	Max turning dia	mm	Ø440	Ø300	Ø440
	Working Length	mm	1) 550 ~ 2050 max.	1) 530 ~ 2030 max.	1) 525 ~ 2025 max.
Main Spindle & Sub Spindle	Spindle nose		Main: A2-5, Sub: A2-5		Main: A2-6, Sub: A2-5
	Spindle bore	mm	Main: Ø56, Sub: Ø56		Main: Ø61, Sub: Ø56
	Bar capacity	mm	Main: Ø45, Sub: Ø45		Main: Ø52, Sub: Ø45
	Range of spindle speed	rpm	Main: 6000, Sub: 6000		Main: 4200, Sub: 6000
	Live Tool Speed / kW	rpm	4000 (OPT.)	4000 / 3	4000 (OPT.)
Chuck	Hydraulic chuck	mm	Main: Ø169 (6"), Sub: Ø169 (6")		Main: Ø210 (8"), Sub: Ø169 (6")
Turret (L/R)	Tool station	mm	12T		12T
	O.D. tooling	mm	□20×20		□20×20
	I.D tooling	mm	Ø32		Ø32
Cross Slide (X1/X2 axis) & Carriage (Z1/Z2 axis) B axis) & Y axis	X1, X2 axis travel	mm	240 (220+20)	170 (150+20)	240 (220+20)
	Z1, Z2 axis travel	mm	1) 345 ~ 1020 max.	1) 320 ~ 1020 max.	1) 345 ~ 1020 max.
	E axis travel	mm	1) 545 ~ 1985 max.	1) 520 ~ 1985 max.	1) 520 ~ 1985 max.
	Y1, Y2 axis travel	mm	—	±40	—
	Rapid speed (X1 / X2 axis)	m/min	20		20
	Rapid speed (Z1 / Z2 axis)	m/min	20		20
	Rapid speed (E axis)	m/min	20		20
	Rapid speed (Y1 / Y2 axis)	m/min	—	7	—
Motor	Servo motor X/Y/Z/E axis	kW	1.6 / - / 1.6 / 1.6	1.6/1.4/1.6/1.6	1.6 / - / 1.6 / 1.6
	Main spindle (Cont. / 30 min)	kW	5.5 / 7.5		9 / 11
	Sub spindle (Cont. / 30 min)	kW	5.5 / 7.5		5.5 / 7.5
Tank Capacity	Hydraulic tank	Litres	60		60
Machine Dimensions	Length * Width * High	mm	2)		
	Weight (NW/GW)	kg			

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- 1) Refer to tool P.16 - P.22 interference diagram.
- 2) Refer to P.24 - P.29 external dimensions.

STANDARD ACCESSORIES

- Hydraulic turret 8 position / 12 Position
- Programmable tailstock
- Without tailstock
- 3 bar ~ 750w coolant pump
- Tools & tool box
- Heat exchanger for electrical cabinet
- Coolant tank
- Working light
- Three color alarm light
- Chip conveyor and bucket
- Automatic lubrication system
- Hydraulic unit

OPTIONAL ACCESSORIES

- Manual tailstock
- CE / TS electric control
- Automatic tool setter
- C axis and TD axis contour capability & power turret
- Servo turret
- Main power transformer
- Automatic door & safety switch
- Automatic parts catcher
- Prevent crash installation of each axis (safety equipment)
- Bar feeder
- Parts cut off detector
- Larger hydraulic chuck

FCL-20	FCL-25		FCL-30	
FCL-20TTY	FCL-25TT	FCL-25TTY	FCL-30TT	FCL-30TTY
Ø740	Ø620	Ø740	Ø680	Ø750
Ø300	Ø440	Ø300	Ø480	Ø380
1) 505 ~ 2005 max.	1) 484 ~ 1984 max.	1) 474 ~ 1974 max.	1) 494 ~ 1994 max.	1) 414~1921 max.
Main: A2-6, Sub: A2-5	Main: A2-6, Sub: A2-6		Main: A2-8, Sub: A2-6	
Main: Ø61, Sub: Ø56	Main: Ø77, Sub: Ø61		Main: Ø90, Sub: Ø77	
Main: Ø52, Sub: Ø45	Main: Ø65, Sub: Ø52		Main: Ø77, Sub: Ø65	
Main: 4200, Sub: 6000	Main: 3500, Sub: 4200		Main: 3500, Sub: 3500	
4000 / 3	4000 (OPT.)	4000 / 3	4000(OPT.)	
Main: Ø210 (8"), Sub: Ø169 (6")	Main: Ø254 (10"), Sub: Ø210 (8")		Main: Ø254 (10"), Sub: Ø210 (8")	
12T	12T		12T	
□20×20	□20×20		□25×25	
Ø32	Ø32		Ø40	
170 (150+20)	235 (220+15)	152 (150+2)	250 (240+10)	200(190+10)
1) 295 ~ 1020 max.	1) 345 ~ 1020 max.	1) 295 ~ 1020 max.	1) 345 ~ 1020 max.	1) 280~990 max.
1) 500 ~ 1985 max.	1) 475 ~ 1975 max.	1) 465 ~ 1965 max.	1) 490 ~ 1990 max.	1) 400~1900 max.
±40	—	±40	-	±60
20	20		20	20
20	20		20	20
20	20		20	20
7	—	7	-	7
1.6 / 1.4 / 1.6 / 1.6	3 / - /1.6 /1.6	3 /1.4 /1.6 /1.6	3 / - / 3 / 1.6	3 /1.6 / 1.6 / 1.6
9 / 11	11 / 15		15 /18.5	
5.5 / 7.5	7.5 / 11		7.5 / 11	
60	60		60	
2)				

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- 1) Refer to tool P.16 - P.22 interference diagram.
- 2) Refer to P.24- P.29 external dimensions.

- Air conditioner for electrical cabinet
- Larger spindle motor
- High pressure coolant pump
- Oil mist collector
- Oil skimmer
- Manual / Hydraulic steady rest
- Live quill tailstock
- BMT type turret