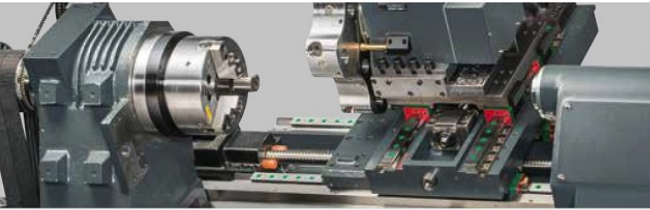




YIDA PRECISION

Humanity. Innovation. Technology



- Slant Bed Design
- Precision Turning Performance
- Extraordinary Efficiency Extensive Cutting Capacity

Linear Guide Way CNC LATHES

ML Series

- High speed cutting with fine finish effect
- Linear ways on X, Y, Z axes
- Various tool turrets to select from
- Fully automated production system available



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SLANT BED CNC LATHE

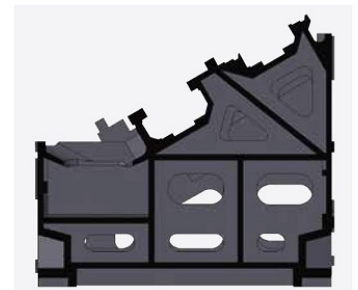
Processing precision parts with top performance and high efficiency cutting

Linear guide ways lathe with high cost-performance index



Users across various industries desire a CNC lathe that offers high precision turning performance and technical reliability at a competitive price. YIDA's ML Series CNC Lathe can fully meet these requirements. With the ML series, you can reduce machining time due to high feed rates. The massive slant bed structure provides maximum stability during cutting. With the use of C-axis function in combination with the live-tooling turret, the machine can perform milling, drilling, and tapping operations with a single setup of the workpiece.

If your machining operation requires a CNC lathe that offers high speed, and high precision machining performance, the YIDA ML Series has the right machine for you. This series of lathes integrates many quality features to meet your most demanding requirements, such as linear ways on X, Y & Z axes with high feed rates, highly rigid slant bed, and a selection of various turret types.



Advantages of Slant Bed Lathe

Easy chip evacuation, small footprint and ergonomic operation.

GANG TYPE / TURRET TYPE TURNING CENTER

- Flat bed design, compact floor space, and multi-tasking production
- X / Y / Z axis linear guide way with high feed rate and low abrasion
- Varied turret and gang tooling selection - gang tooling system and turret
- Enhancement of varied parts with Y-axis tooling system design

Focus on reliability and precision machining for automation, high speed and complex development workflows



Compact
Floor Space

Flexible
Tooling Choice

High Accuracy
High Efficiency

Modern
Outlook with
Sleek Design

Production Cell
for High Volume
Application

ML-430 + Gang-Tool

- Low cost and compact configuration
- Long X-axis traverse, 5~6 tools, and 30 m/min. feed rate, offers quick and high precision machining jobs
- Auxiliary tool plate available for quick tool-set change
- Load / Unload system (optional)

ML-430 + Hydraulic or Servo Turret + Gang-Tool

- Gang-tool slide can be mounted for a total of 12~13 tools available when alongside an 8T turret.
- Auxiliary tool plate available for quick tool-set change
- Load / Unload system (optional)
- High pressure coolant pump (optional)

ML-430 + Power Turret + Gang-Tool

- Auxiliary tool plate for gang-tool can also mount 12T power turret at 5000 rpm, totally 15~16 tools.
- Offer CS-axis for turn-mill machining job
- Load / Unload system (optional)
- High pressure coolant pump (optional)

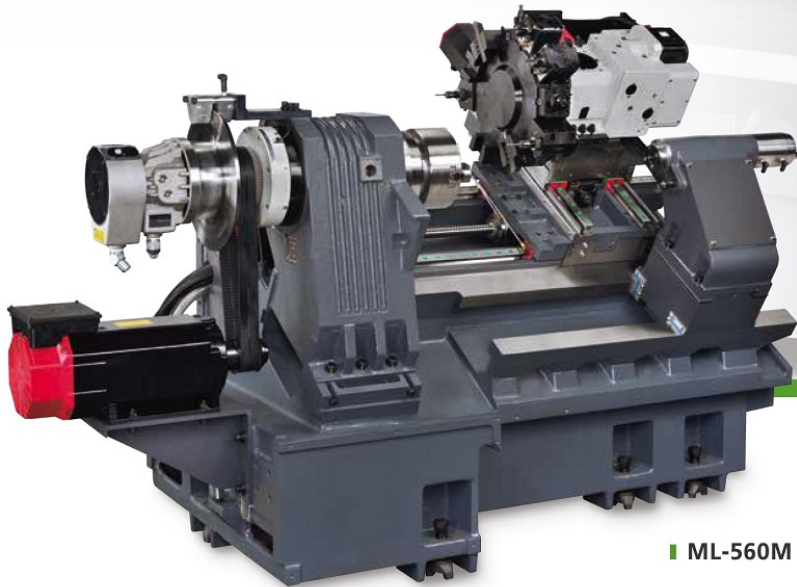
ML-430Y + Gang-Tool

- Auxiliary tool plate for gang-tool turret mount 5-tools for Y-axis power turret.
- Offer CS-axis for turn-mill machining job.
- Load / Unload system (optional)
- High pressure coolant pump (optional)

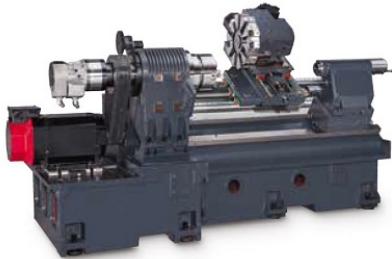
ROBUST STRUCTURE

Get exceptional rigidity with YIDA's optional bed design

The YIDA ML Series of CNC lathes features a compact machine structure. All structural parts are manufactured from high quality cast iron, stress relieved to eliminate deformation problems. The structural parts are scientifically rib reinforced to damp vibration reduce structural deflection to a minimum. During the machine design stage, Finite Element Analysis (FEA) is applied to simulate various stress/strain conditions. This allows the ML series to achieve outstanding vibration resistant performance.



ML-560M



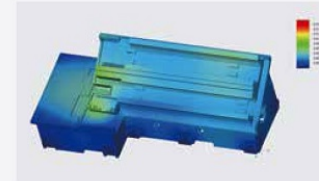
ML-600M



ML-360



ML-430

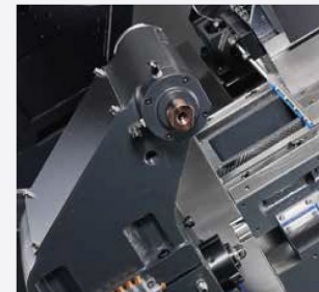


Finite Element Analysis (FEA)



Highly Rigid Headstock

The headstock with wide base design contributes to lower center of gravity, thus increasing rigidity and stability during cutting.



Automatic Tailstock

The saddle drives the tailstock via a lock pin on the tailstock.



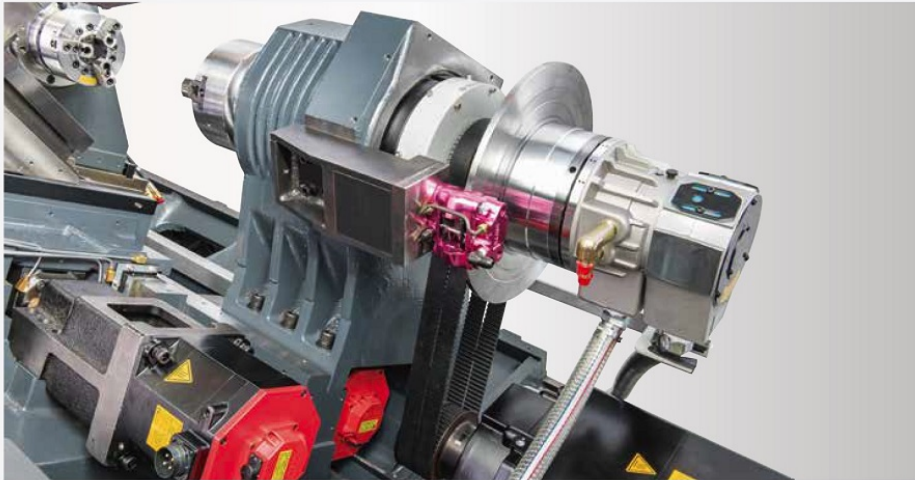
Linear Guideways

High precision heavy duty roller type linear guideways are mounted on X, Y & Z axes, allowing the axes to move at high rapid traverse rates with high positioning accuracy due to low stick-slip and low coefficient of friction.

High Precision, High Speed Ballscrews

Ballscrews on X & Z axes are pretensioned in combination with the use of double nuts to eliminate backlash. The pretensioned ballscrews effectively suppress temperature buildup during high speed machining.

CS-AXIS / Y-AXIS / CF-AXIS



CS-Axis Function

- The CS-axis function in combination with the live tooling turret enable the machine to perform milling, drilling and tapping operations with only a single setup.
- CS-axis is equipped with a rotary encoder for high orientating accuracy.



Y-Axis Function

- The Y-axis features a lightweight structure and is directly driven by a servo for high positioning accuracy.
- The excellent use of a Y axis saves money, time, floor space, manpower and fixture cost. Full cycle machining reduces loss of accuracy.



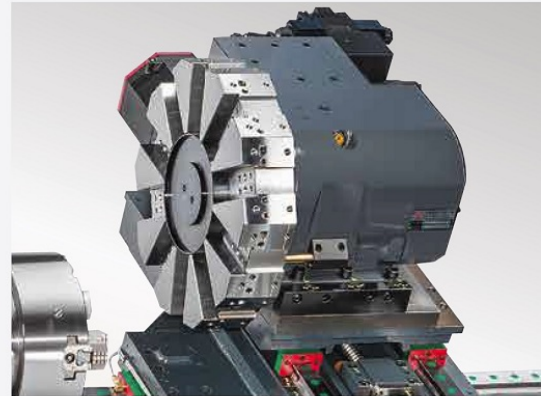
CF-Axis Function (for ML-850)

- The CF-axis features higher rigidity and is ideal for heavy cutting application.
- The CF-axis function in combination with the live tooling turret enable the machine to perform milling, drilling and tapping operations with a single setup.



Turn-milling center MT-540 obtained the Award of Eminence at TIMTOS 2011, with its orthogonal structure and rotating mill head, offering C, Y and B axes turn-mill capability.

TURRET

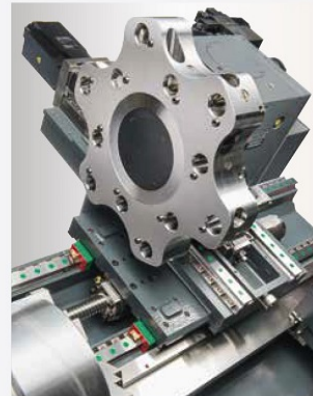


Hydraulic Turret (Standard)

Live Tooling Turret (Optional)

Servo Turret (Optional)

VDI or BMT Turret Disc (Optional)



Heidenhain ERM Magnetic Encoder

C axis for lathe application is usually for machining bar material. The precision and repeatability of the ERM magnetic encoder can improve milling performance on C axis application.

GEARBOX

Headstock with 4-Step Gear Transmission

- The spindle rotation is transmitted through a 4-step gearbox, providing spindle speed range from 40 to 2,000 RPM. This provides high torque output, making the machine suitable for heavy cutting.
- An oil cooling system is contained inside the box in combination with a heat exchanger mounted outside the box.



Gearbox on ML-850

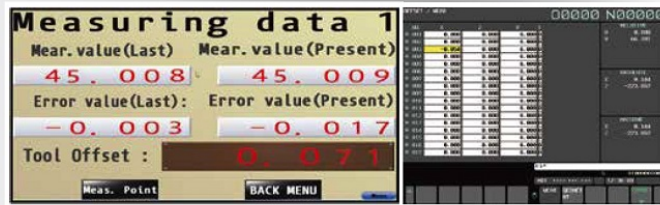


GTP or ZF gear box (Optional)

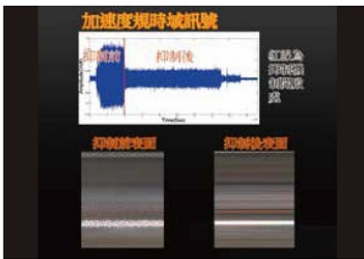
AUTOMATIC MACHINING COMPENSATION



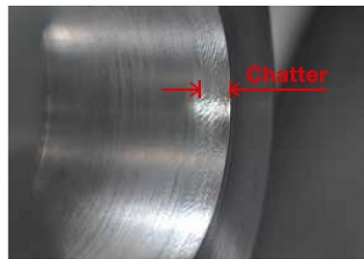
Comparing the error value between the measured point data and the measured workpiece data, then outputting the error value to the NC for executing tool wear compensation.



DESCRIPTION OF VIBRATION SUPPRESSION



Our system provides instant adjustment of cutting parameters for suppressing vibration on a smart production line. This function is designed to meet the requirements of smart production lines. It helps to upgrade machining surface quality, reduce tool wear, reduce vibration, and reduce energy consumption of a cutting motor, thus resulting in an overall energy saving effect.

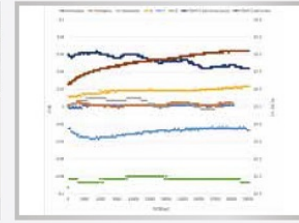


YIDA collaborates with universities, industrial research centers and institutes in many areas, with many efforts leading to awards and prizes. The anti-vibration features of the BML-500 earned it the Award of Eminence at TIMTOS 2015.

CONTROL: AI, IOT, ITRI CONTROL SYSTEM



Since maintenance has a direct influence on performance, productivity and product quality, we're improving the process through recent developments in Augmented Reality technologies.



The FANUC AI Thermal Displacement Compensation module was implemented on EV-860. The thermal displacement after applying AI adjustment is within 0.002 mm, compared to 0.08 mm without AI.



Current efforts are focused on developing AR applications for maintenance.

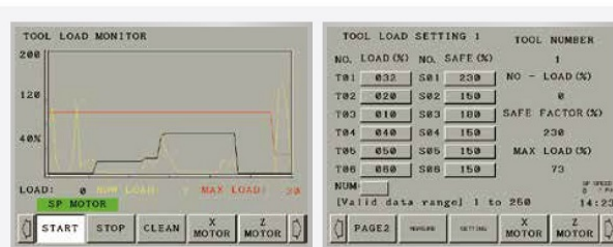


SMART MACHINE ENGINE

PRODUCTION MANUFACTURER / PROCESS RECORDS



SPINDLE OR SERVO LOAD INSPECTION



Spindle or Servo-axis Load Inspection

This function is used to inspect the spindle load or servo axis load through the controller. If the spindle load or servo axis load exceeds a set value, the machine will stop and an alarm will occur.



Features

- Can be equipped with a built-in gantry type automation device with automatic detection function.
- Outstanding features of parts supply equipment are low investment cost, fast parts change, small space occupation, and excellent scalability. Applicable for parts loading and unloading for metalworking on a CNC lathe, which can reduce parts changing time and achieve high automation efficiency.
- Help customers to save investment capital and working costs, which in turn creates automation efficiency and competitiveness.
- Available to select various types of modular parts supply equipment for increased efficiency and time sharing.



Designed to meet the requirements in an automated production line, the device provides positioning and quality inspection, size measurement, identification and confirmation. Using the controller's image treatment to conduct visual inspection functionality can eliminate human error in judgment and inspection. As a result, product quality and machining yield rate can be upgraded.



Smart Machine Industrialization

To meet specific machining requirements, various automation devices and automatic detection functions can be selected (such as vibration suppression, collision compensation, measurement and image).



Rotating Change Type Twin Jaw

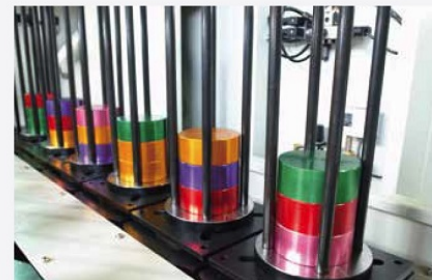
The pneumatic twin jaws design upgrades part clamping stability. Fast clamping / unclamping without damage to the workpiece.

Specifications

Automatic Gantry Loader System

Clamping range	Ø30 mm (Ø1.18")
Max. machining diameter	Ø160 mm (Ø6.3")
Max. weight of workpiece	3 (x2) kg
X axis travel	550 mm
Z axis travel	1,770 mm
X axis feed rate	90 m/min
Z axis feed rate	120 m/min
Clamping type	3-jaw (pneumatic)
Travel of clamping jaws	8 mm

* X axis - up / down; Z axis - right / left



Rotating Elevating Type Part Supply Device

Suitable for circular discs, stackable parts with specific angle. Transmitted by conveyor chain. Standard design is 16 pallets. Custom designs to meet customer's workpiece requirements are available.

Feeding System

Pallet no.	16 pcs
Max. loading	40 kg
Max. height	410 mm

ACTUAL MACHINING DATA



O.D. Heavy Cutting

- Material: **S45C**
- Cutting tool: **Ø25 mm**
- Feed rate: **0.4 mm/rev**
- Cutting depth: **4 mm**
- Chip removal: **215 c.c./min**



Slot Cutting

- Material: **S45C**
- Cutting tool: **Ø25 mm**
- Feed rate: **0.2 mm/rev**
- Cutting width: **4 mm**
- Cutting position length: **120 mm**

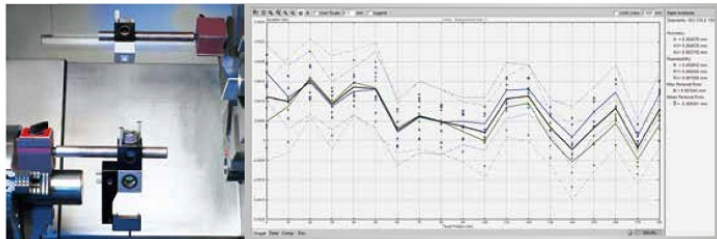


End Mill

- Material: **S45C**
- Cutting tool: **Ø20 mm**
- Cutting width: **16 mm**
- Cutting depth: **7 mm**
- Feed rate: **500 mm/min**

QUALITY ASSURANCE

Each machine has been inspected before shipping to ensure optimal operation performance.



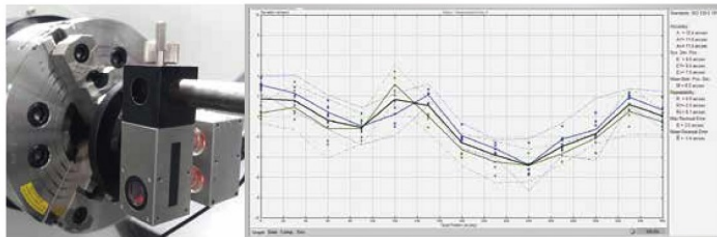
Laser Calibration

Calibration of the positioning and repeatability for axial.



Ball Bar Circularity Inspection

Calibration of roundness deviation for CW / CCW.



C-axis positioning and repeatability accuracy inspection.

MACHINE SPECIFICATIONS - 430 SERIES

		430 series		
ITEM	UNIT	ML-430	ML-430Y	
CAPACITY	Swing over bed	mm	Ø430	Ø430
	Swing over saddle	mm	Ø160	Ø160
	Max. machining dia.	mm	Ø430	Ø430
	Max. machining length	mm	240	240
TRAVEL RANGE	Slant angle of bed		0°	0°
	X-axis	mm	350	350
	Z-axis	mm	320	320
	Y-axis	mm	-	165
	C-axis	°	OPT: 360°	-
SPINDLE	Spindle speed	min ⁻¹	6,000	6,000
	Spindle nose		(A2-5)	(A2-5)
	Spindle bore dia.	mm	Ø56	Ø56
	Draw bar dia.	mm	Ø45	Ø45
CHUCK	Chuck diameter	mm	Ø152 (6")	Ø152 (6")
	Type		Gang type	Power tool
TURRET	Station		6	5
	Square tool shank	mm	20 x 20	-
	Boring bar shank diameter	mm	Ø25	-
	Drive model		-	Gear
LIVE-TOOL	Tool max. speed	min ⁻¹	-	5000
	Tool specification		-	ER16M
FEED RATE	Rapid traverse	m/min	X: 30, Z: 30	X: 30, Y: 18, Z: 30
	Main spindle (30 min/cont.)	kw (HP)	5.5/7.5 (7.4/10)	5.5/7.5 (7.4/10)
MOTORS	Live tool (30 min/cont.)	kw (HP)	-	-
	X-axis servo motor	kw (HP)	1.2 (1.6)	1.2 (1.6)
	Y-axis servo motor	kw (HP)	-	1.2 (1.6)
	Z-axis servo motor	kw (HP)	1.2 (1.6)	1.2 (1.6)
	Y-axis power tool motor	kw (HP)	-	0.75 (1)
	Hydraulic pump	kw (HP)	0.75 (1)	0.75 (1)
	Coolant pump	kw (HP)	0.96 (1.3)	0.96 (1.3)
POWER	Requirements	KVA	12	12
	Length	mm	2,100	2,100
MACHINE SIZE	Width	mm	2,030	2,030
	Height	mm	2,120	2,120
	Packing size	mm	2,420 x 2,300 x 2,120	2,420 x 2,300 x 2,120
	New weight	kg	3,000	3,000
	Gross weight	kg	3,150	3,150
CONTROLLER			STD: FANUC 0i-TF(3) plus	STD: FANUC 0i-TF(3) plus

MACHINE ACCESSORIES

● Standard ○ Option

ITEM	ML-430	ML-430Y	ITEM	ML-430	ML-430Y
Manual positioning	●	--	LED work lamp	●	●
Spindle hydraulic braking	○	--	Coolant system	●	●
positioning CS-axis+2-step hydraulic braking	○	●	Tools box	●	●
Tooling system	●	●	Oil-mister collector	○	○
High pressure coolant pump	○	○	Bar feeder	○	○
Spindle device Chuck	●	●	Transformer	○	○
Hydraulic rotary cylinder	●	●	Chip conveyor	○	○
Lubrication system	●	●	Parts conveyor	○	○
Safety door	●	●	Collet chuck	○	○
Parts catcher	○	○	Parts collector	○	○
Bar feeder interface	○	○	Gantry robot and loading / unloading device	○	○
Air blow for chuck	●	●	Variable frequency hydraulic system	○	○
End of program light	●	●	Customized loading / unloading automatic design	○	○
			Various chucks option and fixture design	○	○

MACHINE SPECIFICATIONS - 560 / 360 SERIES

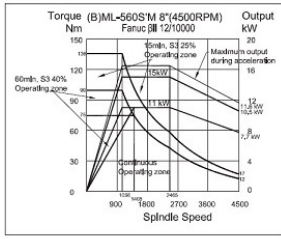
		560 series				360 series			
ITEM	UNIT	ML-560S		ML-560M		ML-360		ML-360Y	
		Standard	C axis	Standard	C axis	Standard	C axis		
CAPACITY	Swing over bed	mm	Ø560		Ø560		Ø600		Ø600
	Swing over saddle	mm	Ø 420		Ø420		Ø400		Ø420
	Distance between center	mm	652		902		STD: 788 (A2-6); OPT: 743 (A2-8)		STD: 779 (A2-6); OPT: 734 (A2-8)
	Max. machining dia.	mm	Ø320	Ø300	Ø320	Ø300	Ø360	Ø350	Ø130
	Max. machining length	mm	320		570		STD: 470 (A2-6); OPT: 460 (A2-8)	STD: 460 (A2-6); OPT: 450 (A2-8)	STD: 470 (A2-6); OPT: 460 (A2-8)
TRAVELS	Slant angle of bed		30°		30°		30°		60° (30°+ 30°)
	X-axis	mm	190 (160+30)	190 (150+40)	190 (160+30)	190 (150+40)	215 (180+35)	215 (175+40)	125 (65+60)
	Y-axis	mm	-		-		-		±40
	Z-axis	mm	360		610		8": 500 / 10": 500		8": 500 / 10": 490
	C-axis	mm	360° (0.001°)		360° (0.001°)		-	360° (0.001°)	360° (0.001°)
SPINDLE	Spindle speed	rpm	STD: 4,500 (A2-6); OPT: 6,000 (A2-5)		STD: 4500 (A2-6); OPT: 6,000 (A2-5)		STD: 50-4,500 (A2-6); OPT: 50-3,500 (A2-8)		STD: 50-4,500 (A2-6); OPT: 50-3,500 (A2-8)
	Spindle nose		STD: A2-6; OPT: A2-5		STD: A2-6; OPT: A2-5		STD: A2-6; OPT: A2-8		STD: A2-6; OPT: A2-8
	Spindle bore dia.	mm	STD: Ø62; OPT: Ø79 (A2-6), Ø56 (A2-5)		STD: Ø62; OPT: Ø79 (A2-6), Ø56 (A2-5)		STD: Ø62 (A2-6); OPT: Ø86 (A2-8)		STD: Ø62 (A2-6); OPT: Ø86 (A2-8)
	Front bearing inner dia.	mm	Ø100		Ø100		STD: Ø100 (A2-6); OPT: Ø120 (A2-8)		STD: Ø100 (A2-6); OPT: Ø120 (A2-8)
	Draw bar dia.	mm	STD: Ø52; OPT: Ø66, Ø45		STD: Ø52; OPT: Ø66, Ø45		STD: Ø52; OPT: Ø75		STD: Ø52; OPT: Ø75
CHUCK	Chuck diameter	inch	STD: 8"; OPT: 6"		STD: 8"; OPT: 6"		STD: 8"; OPT: 10"		STD: 8"; OPT: 10"
TURRET	Type		STD: servo OPT: hydraulic	Live-tooling (VDI30)	STD: servo OPT: hydraulic	Live-tooling (VDI30)	STD: servo OPT: hydraulic	Live-tooling (VDI40)	Live-tooling (VDI40)
	Station	pcs	STD: 10; OPT: 8, 12	12	STD: 10; OPT: 8, 12	12	STD: 12; OPT: 10	STD: 12	STD: 12
	Model		YDPM YT-200	LS-160SP	YDPM YT-200	LS-160SP	LS-200SV	TBMA200	TBMR200 / 12DX (short)
	Square tool shank	mm	STD: 25 x 25 OPT: 20 x 20 (12T)	20 x 20	STD: 25 x 25; OPT: 20 x 20 (12T)	20 x 20	25 x 25		25 x 25
	Boring bar shank diameter	mm	Ø40, OPT: Ø32 (12T)		Ø40, OPT: Ø32 (12T)		Ø40		Ø40
LIVE TOOL	Indexing time(0~180 °)	sec	1.7 (8T), 2.1 (10T), 2.4 (12T)	0.85	1.7 (8T), 2.1 (10T) 2.4 (12T)	0.85	0.97	0.73	0.73
FEED RATE	Spindle speeds	rpm	-		4,000		-		50-4,000
	Rapid traverse	M/min	X: 30, Z: 30		X: 30, Z: 30		X: 36, Z: 36		X: 36, Z: 36, Y: 36; C: 200 rpm
TAILSTOCK	type		Automatic		Automatic		Automatic		Automatic
	Quill diameter	mm	Ø65		Ø65		Ø65		Ø65
	Quill bore taper		MT-4		MT-4		MT-4		MT-4
	Quill travel	mm	100		100		80		80
MOTORS	Main spindle	kw	STD: β12 (11/15); OPT: α8 (7.5/11)		STD: β12 (11/15); OPT: α8 (7.5/11)		STD: α12 (11/15); OPT: α15 (15/18.5)		STD: α12 (11/15); OPT: α15 (15/18.5)
	Live-tool	kw	-		-		-		α3 (3.7/5.5)
	X/Z-axis servo motor	kw	X/Z: β12 (1.8); OPT: X/Z: α8 (1.6)		X/Z: β12 (1.8); OPT: X/Z: α8 (1.6)		X: α12 3.0; Z: α12 3.0		X: α12 3.0; Y: α12 3.0; Z:α12 3.0
	Hydraulic oil pump	kw	0.75		0.75		1.5		1.5
	Chip conveyor	kw	0.2		0.2		0.2		0.2
	Coolant pump	kw	0.85		0.85		0.8		0.8
ACCURACY	Positioning	mm	±0.003		±0.004		±0.004		±0.004
	Repeatability	mm	±0.002		±0.003		±0.003		±0.003
POWER	Requirements	KVA	380-415 / 220V 15KVA		380-415 / 220V 15KVA		380-415 / 220V 26KVA		380-415 / 220V 30KVA
	Height	mm	1,810		1,810		1,860		2,260
MACHINE SIZE	Floor space (W x D)	mm	3,540 x 1,910		3,850 x 1,910		3,690 x 2,240		4,020 x 2,280
	Packing (w/conveyor)	mm	3,870 x 2,280 x 2,180		4,040 x 2,280 x 2,180		3,700 x 2,270 x 2,140		3,870 x 2,280 x 2,550
	Net weight (w/conveyor)	kg	3,380		3,720		4,870		5,790
	Gross weight (w/conveyor)	kg	3,670		4,070		5,120		6,060

MACHINE SPECIFICATIONS - 600 / 850 SERIES

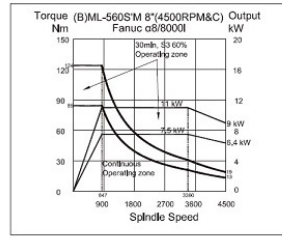
		600 series						850 series	
ITEM	UNIT	ML-600S		ML-600M		ML-600L		ML-850	
		Standard	C axis	Standard	C axis	Standard	C axis	Standard	C axis
CAPACITY	Swing over bed	Ø600		Ø600		Ø600		Ø850	
	Swing over saddle	Ø450		Ø450		Ø450		Ø600	
	Distance between center	STD: 769 (A2-6); OPT: 759 (A2-8)		STD: 999 (10"); OPT: 989 (12")		STD: 1,499 (10"); OPT: 1,489 (12")		STD: 1,743 (A2-11)	
	Max. machining dia.	Ø420	Ø340	Ø420	Ø340	Ø420	Ø340	Ø720 / Ø600	Ø620 / Ø600
	Max. machining length	STD: 560 (8"); OPT: 540 (10")		STD: 780 (10"); OPT: 760 (12")		STD: 1,280 (10"); OPT: 1,260 (12")		STD: Ø720 x 150 + Ø600 x 1,110	Ø620 x 190 + Ø600 x 1,030
Slant angle of bed	30°		30°		30°		45°		
TRAVELS	X-axis	230 (210+20)	225 (170+55)	230 (210+20)	225 (170+55)	230 (210+20)	225 (170+55)	380 (360+20)	380 (310+70)
	Z-axis	600 (8"); 590 (10")		10": 830; 12": 820		10": 1,330; 12": 1,320		1,330	1,290
	C-axis	- 360° (0.001")		- 360° (0.001")		- 360° (0.001")		-	360° (0.001")
SPINDLE	Spindle speeds	STD: 50~4,500 (A2-6); OPT: 50~3,500 (A2-8)		STD: 50~3,500 (A2-8, 75 mm, 10"); OPT: 50~3,000 (A2-8, 78 mm, 10"); 50~2,500 (A2-8, 91 mm, 12")		STD: 50~3,500 (A2-8, 75 mm, 10"); OPT: 50~3,000 (A2-8, 78 mm, 10"); 50~2,500 (A2-8, 91 mm, 12")		40~2,000 (4-step gearbox)	
	Spindle nose	STD: A2-6; OPT: A2-8		STD: A2-8		STD: A2-8		STD: A2-11	
	Spindle bore dia.	STD: Ø62 (A2-6); OPT: Ø86 (A2-8)		STD: Ø86 (10"); OPT: Ø91 (10"), Ø105 (12")		STD: Ø86 (10"); OPT: Ø91 (10"), Ø105 (12")		STD: Ø134 (A2-11)	
	Front bearing inner dia.	STD: Ø100 (A2-6); OPT: Ø120 (A2-8)		STD: Ø120 (10"); OPT: Ø130 (10", 12")		STD: Ø120 (10"); OPT: Ø130 (10", 12")		STD: Ø180 (A2-11)	
CHUCK	Draw bar dia.	STD: Ø52; OPT: Ø75		STD: Ø75; OPT: Ø78 (10"), Ø91 (12")		STD: Ø75; OPT: Ø78 (10"), Ø91 (12")		STD: Ø116; OPT: Ø120	
	Chuck diameter	STD: 8"; OPT: 10"		STD: 10"; OPT: 12"		STD: 10"; OPT: 12"		STD: 15"; OPT: 18"	
TURRET	Type	STD: hydraulic OPT: servo	Live-tooling (VDI40)	STD: hydraulic OPT: servo	Live-tooling (VDI40)	STD: hydraulic OPT: servo	Live-tooling (VDI40)	Hydraulic	Live-tooling (VDI50)
	Stations	STD: 10; OPT: 12	STD: 12	STD: 10; OPT: 12	STD: 12	STD: 10; OPT: 12	STD: 12	STD: 12	
	Model	LS-240	TBMA200	LS-240	TBMA200	LS-240	TBMA200	YDPM hydraulic turret	STCI4032-W2- SMHDT32-460-530
	Square tool shank	25		25 x 25		25 x 25		32 x 32	
Boring bar shank diameter	Ø40		Ø40		Ø40		Ø50		
LIVE TOOL	Indexing time (0~180°)	1.8	0.73	1.8	0.73	1.8	0.73	3.2	2.71
	Spindle speeds	-	50~4,000	-	50~4,000	-	50~4,000	-	50~3,500
FEED RATE	Rapid traverse	X:30, Z:30		X: 30, Z: 30		X: 30, Z: 30		X: 12, Z: 20	
TAILSTOCK	Type	Automatic		Automatic		Automatic		Automatic	
	Quill diameter	Ø85		Ø85		Ø85		Ø125	
	Quill bore taper	MT-5		MT-5		MT-5		MT-5	
	Quill travel	120		120		120		160	
MOTORS	Main spindle	STD: α30ip (15/18.5)		STD: α30 ip (15/18.5)		STD: α30 ip (15/18.5)		STD: α22 (22/26); OPT: α30 (30/37)	
	Live-tool	-	α3 3,7/5,5	-	α3 3,7/5,5	-	α3 3,7/5,5	-	α12 (11/15)
	X/Z-axis servo motor	X: α12 (3.0); Z: α12 (3.0)		X: α12 (3.0), Z: α12 (3.0)		X: α12 (3.0), Z: α12 (3.0)		X: α22 (4.0) ; Z: α22 (4.0)	
	Hydraulic oil pump	1.5		1.5		1.5		2.25	
	Chip conveyor	0.2		0.2		0.2		0.2	
ACCURACY	Coolant pump	0.8		0.8		0.8		0.8	
	Positioning	±0.004		±0.004		±0.005		±0.005	
	Repeatability	±0.003		±0.003		±0.004		±0.004	
POWER	Requirements	380-415/220V 26 KVA		380-415/220V 26 KVA		380-415/220V 26 KVA		380-415/220V; STD: 30 KVA; OPT: 40 KVA	
	Height	1,850		1,850		1,900		2,500	
MACHINE SIZE	Floor space (W x D)	4,010 x 2,140		4,220 x 1,950		4,840 x 2,140		5,290 x 2,180	
	Packing (w/conveyor)	3,830 x 2,120 x 2,120		4,320 x 2,300 x 2,210		4,720 x 2,290 x 2,210		6,070 x 2,290 x 2,560	
	Net weight (w/conveyor)	5,430		6,050		7,000		11,820	
	Gross weight (w/conveyor)	5,730		6,470		7,450		12,600	

SPINDLE POWER & TORQUE DIAGRAM

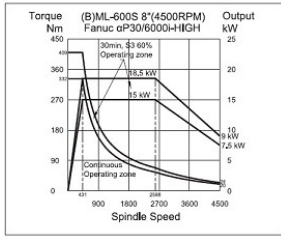
ML-560S/M



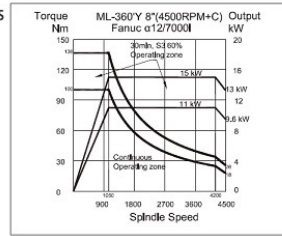
ML-560S/M + C axis



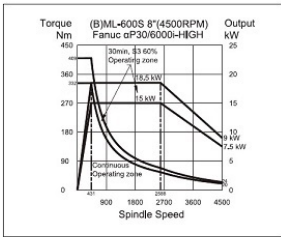
ML-360



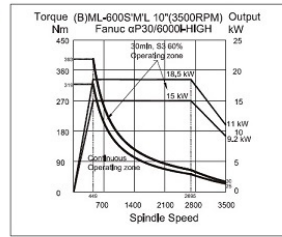
ML-360 + C axis ML-360Y



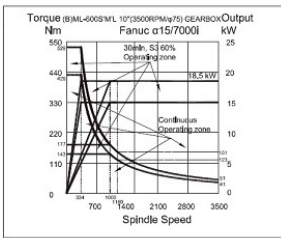
ML-600S



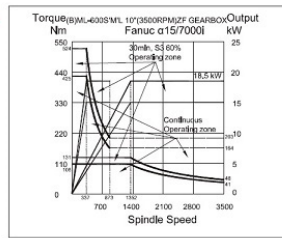
ML-600S/M/L



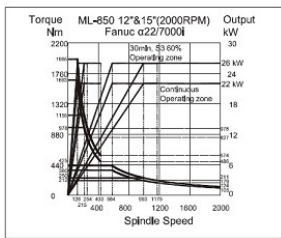
ML-600S/M/L YDPM Gearbox



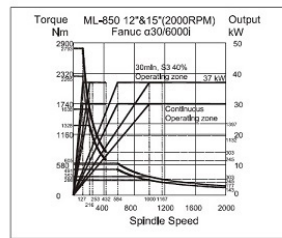
ML-600S/M/L ZF Gearbox



ML-850



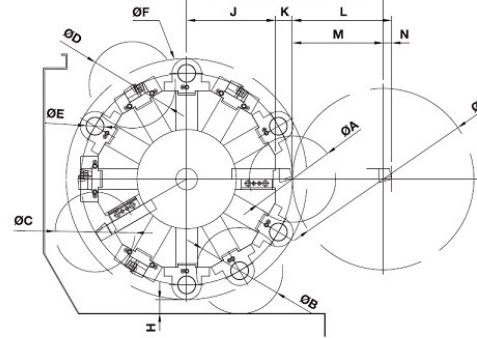
ML-850



TOOL INTERFERENCE DIAGRAM

Hydraulic & Servo Turret

ML-560S/M ML-360 ML-600S/M/L ML-850

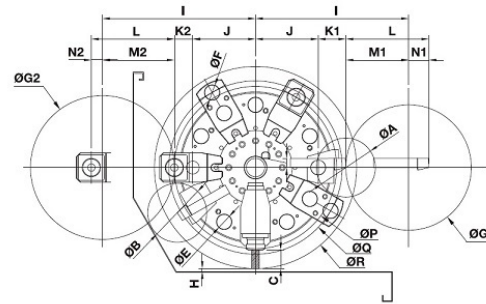


unit: mm

MODEL	CAPACITY	DIMENSION						
		A	B	C	D	E	F	G
ML-560S/M	10-TOOL	205	205	185	210	40	478	320
	12-TOOL	170	170	155	175	32	455	320
ML-360	10-TOOL	250	250	187	250	40	548	360
	12-TOOL	200	200	185	200	40	548	360
ML-600S/M/L	10-TOOL	255	255	230	255	40	558	420
	12-TOOL	205	205	185	210	40	558	420
ML-850	12-TOOL	230	235	200	225	50	650	720

Live Tooling Turret

ML-560S/M ML-360 ML-600S/M/L



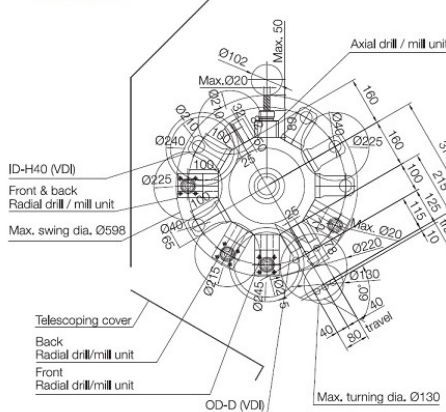
unit: mm

MODEL	CAPACITY	DIMENSION							
		H	I	J	K	L	M	N	
ML-560S/M	10-TOOL	45	360	165	35	190	160	30	
	12-TOOL	57.5	360	165	35	190	160	30	
ML-360	10-TOOL	37	420	200	40	215	180	35	
	12-TOOL	37	420	200	40	215	180	35	
ML-600S/M/L	10-TOOL	32	455	205	40	230	210	20	
	12-TOOL	32	455	205	40	230	210	20	
ML-850	12-TOOL	100	625	225	40	380	360	20	

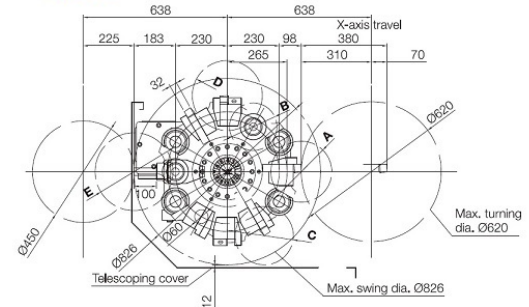
MODEL	CAPACITY	DIMENSION							
		G2	H	I	J	K1	K2	L	
ML-560S/M	12-TOOL	380	67.5	360	135	75	35	190	
	ML-360	12-TOOL	400	46	420	170	75	50	215
ML-600S/M/L	12-TOOL	390	7.9	415	170	75	50	225	

MODEL	CAPACITY	DIMENSION							
		M1	M2	N1	N2	P	Q	R	
ML-560S/M	12-TOOL	150	190	40	0	340	340	435	
	ML-360	12-TOOL	175	200	40	15	440	470	548
ML-600S/M/L	12-TOOL	170	195	55	30	440	470	548	

ML-360Y



ML-850



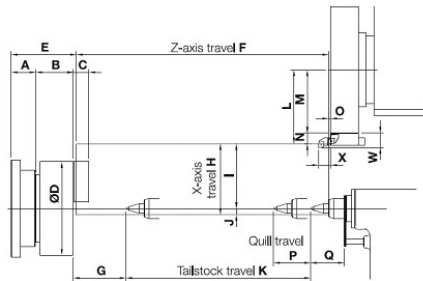
CAPACITY	DIMENSION				
	A	B	C	D	E
12-TOOL	270	210	258	310	345
	10.6"	8.3"	10.2"	12.2"	13.6"

WORK ENVELOPE

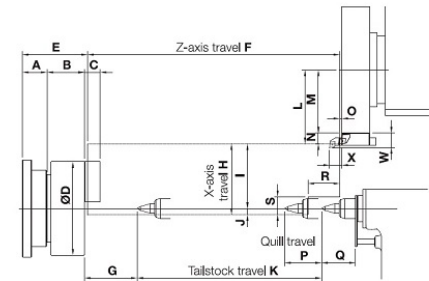
Hydraulic / Servo Turret - O.D. Tool Holder

unit: mm

ML-560S/M ML-360 ML-850



ML-600S/M/L



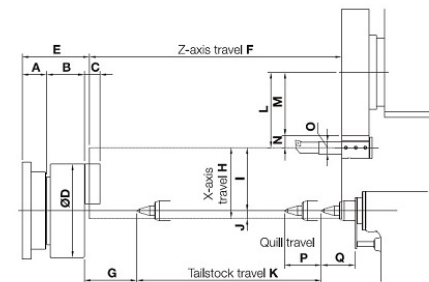
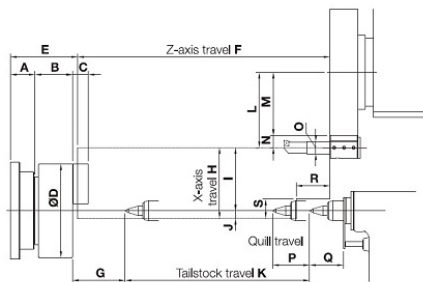
MODEL	SPINDLE	DIMENSION																				
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	W	X
ML-560S	8"	80	103	39	210	189.3	360	104.6	190	160	30	360	200	165	35	7	100	84.7	X	X	47	40
ML-560M	8"	80	103	39	210	189.3	610	104.6	190	160	30	610	200	165	35	7	100	84.7	X	X	47	40
ML-360	8"	79.5	103	38	210	193.6	500	110.9	215	180	35	490	240	200	40	7	80	84.7	X	X	47	40
ML-600S	8"	80	103	38	210	183	600	46	230	180	20	500	245	205	40	7	120	110	98	58	47	40
ML-600M	10"	80	113	43	254	193	830	176	230	210	20	600	245	205	40	7	120	110	98	58	47	40
ML-600L	10"	80	113	43	254	193	1330	276	230	210	20	1000	245	205	40	7	120	110	98	58	47	40
ML-850	15"	100	149	70	381	249	1330	159	380	360	20	1320	265	225	40	8	160	115	X	X	68	40

Hydraulic / Servo Turret - I.D. Tool Holder

unit: mm

ML-560S/M ML-360 ML-600S/M/L

ML-850

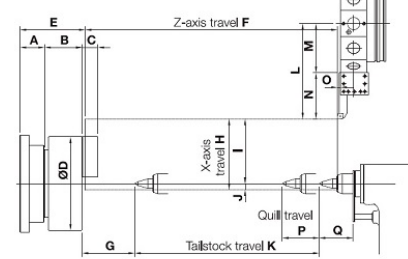


MODEL	SPINDLE	DIMENSION																		
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
ML-560S	8"	80	103	39	210	196.3	360	104.6	190	155	35	360	205	165	40	40	100	84.7	13	80
ML-560M	8"	80	103	39	210	196.3	610	104.6	190	155	35	610	205	165	40	40	100	84.7	13	80
ML-360	8"	79.5	103	38	210	200.6	500	110.9	215	180	35	490	240	200	40	40	80	84.7	22	85
ML-600S	8"	80	103	38	210	183	600	50	230	210	20	500	245	205	40	40	120	110	155	111
ML-600M	10"	80	113	43	254	200	830	176	230	210	20	600	245	205	40	40	120	110	155	111
ML-600L	10"	80	113	43	254	200	1330	276	230	210	20	1000	245	205	40	40	120	110	155	111
ML-850	15"	100	149	70	381	257	1330	159	380	340	40	1320	285	226	60	50	160	115	X	X

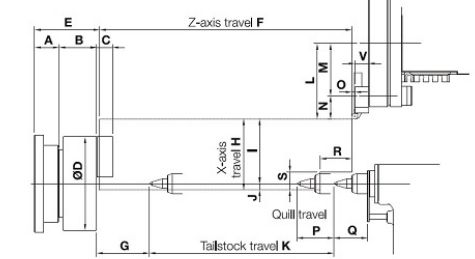
Live Tooling Turret - O.D. Tool Holder

unit: mm

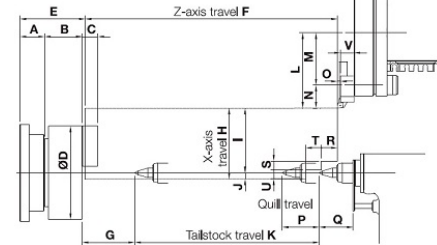
ML-360Y



ML-560S/M ML-360 ML-850



ML-600S/M/L

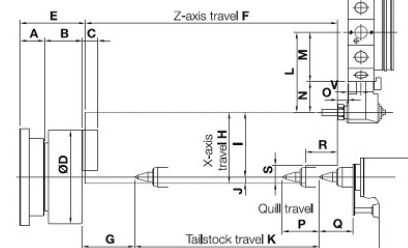


MODEL	SPINDLE	DIMENSION																					
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
ML-560S	8"	80	103	39	210	196.7	360	104.6	190	150	40	360	210	135	75	5	100	84.7	190	54	X	X	40
ML-560M	8"	80	103	39	210	196.7	610	104.6	190	150	40	610	210	135	75	5	100	84.7	190	54	X	X	40
ML-360	8"	80	103	38	210	182.6	500	110.4	215	175	40	490	245	170	75	10	80	84.7	100	44	X	X	44
ML-360Y	8"	80	103	38	210	192	500	101.3	125	65	60	490	310	160	150	10	80	84.7	X	X	X	X	44
ML-600S	8"	78	103	38	210	181	600	67	225	170	55	500	245	170	75	10	120	110	105	24	129	64	44
ML-600M	10"	79	113	43	254	192	830	197	225	170	55	600	245	170	75	10	120	110	105	24	129	64	44
ML-600L	10"	79	113	43	254	192	1330	297	225	170	55	1000	245	170	75	10	120	110	105	24	129	64	44
ML-850	15"	100	149	70	381	249	1289.5	199.5	380	310	70	1280	327.5	230	97.5	10	160	115	80	47	X	X	60

Live Tooling Turret - Radial Drilling and Milling Head

unit: mm

ML-360Y



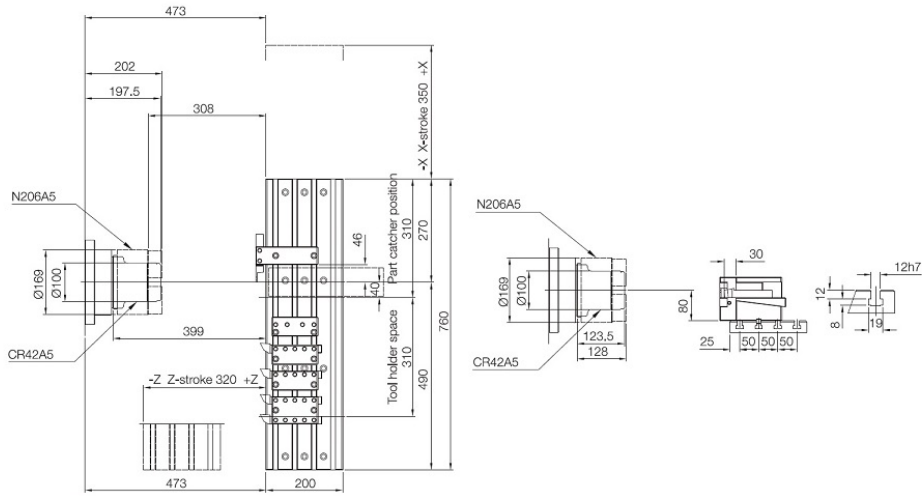
MODEL	SPINDLE	DIMENSION										
		A	B	C	D	E	F	G	H	I	J	K
ML-360Y	8"	80	103	38	210	169	500	101.3	125	115	10	490

MODEL	SPINDLE	DIMENSION										
		L	M	N	O	P	Q	R	S	T	U	V
ML-360Y	8"	260	160	100	34.5	80	84.7	46	66	X	X	42.5

TOOL INTERFERENCE DIAGRAM - 430 SERIES

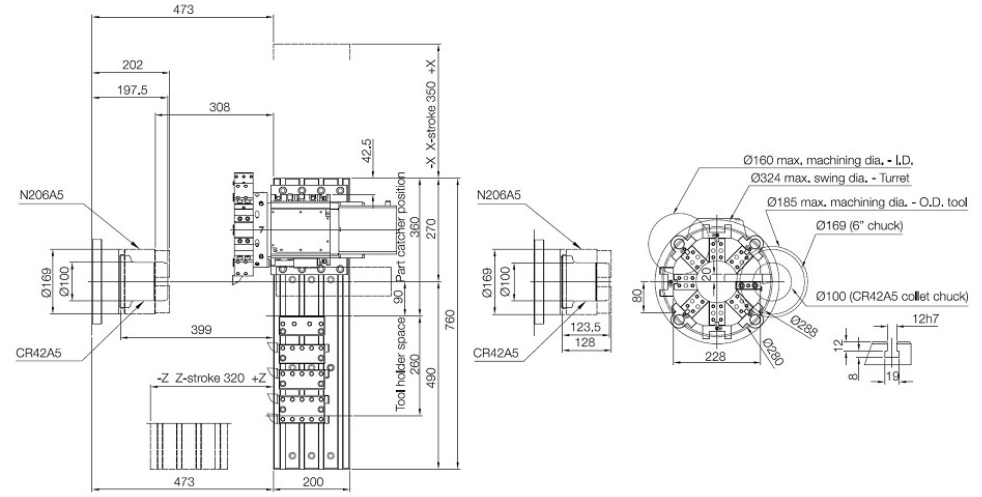
ML-430 + Gang Tool

unit: mm



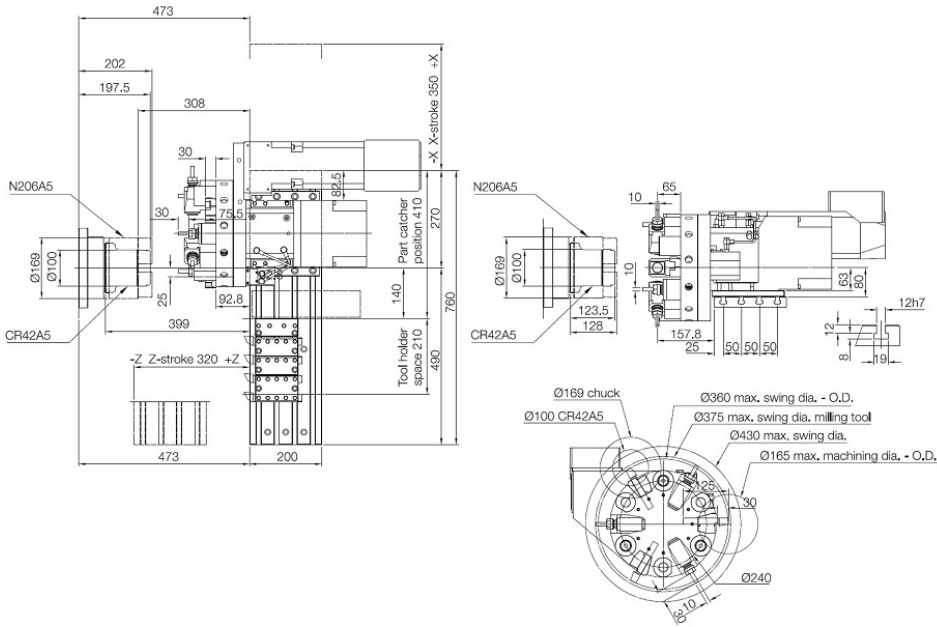
ML-430 + Hydraulic or Servo Turret + Gang Tool

unit: mm



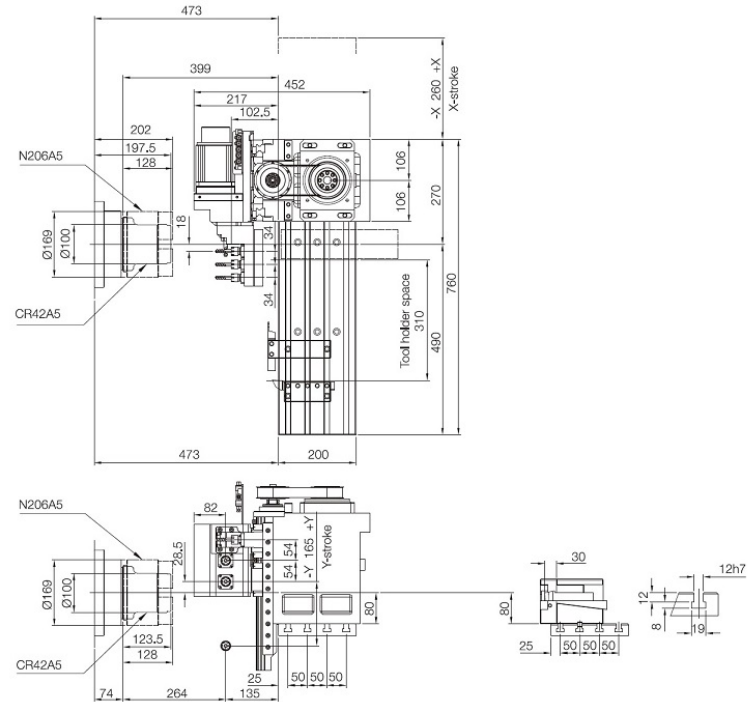
ML-430 + Power Turret + Gang Tool

unit: mm

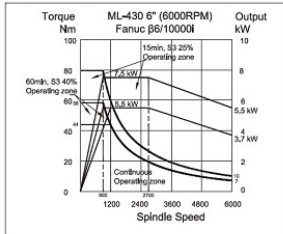


ML-430Y + Gang Tool

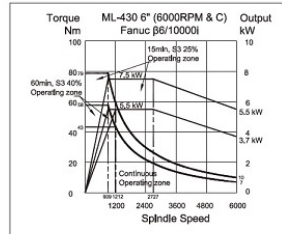
unit: mm



ML-430



ML-430 + C axis



MACHINE ACCESSORIES

Standard Accessories

- FANUC 0i-TF PLUS controller (0i-TF[3] PLUS for ML-560S/M)
- Spindle motor
- Hydraulic chuck
- YDPM servo turret (ML-560S/M)
 - Hydraulic turret (ML-600S/M/L, ML-360, ML-850)
- O.D. turning tools
- I.D. boring bar holders
 - Ø8, Ø10, Ø12, Ø20, Ø25, Ø32 x O.D. 40 (ML-560S/M, ML-600S/M/L, ML-360, ML-360Y)
 - Ø12, Ø16, Ø20, Ø25, Ø32, Ø40 x O.D. 50 (ML-850)
- Taper sleeves
 - MT No. 2, 3, 4 x O.D. 40 (ML-560S/M, ML-600S/M/L, ML-360, ML-360Y)
 - MT No. 3, 4 x O.D. 50 (ML-850)
- Tailstock quill
 - MT 4 (ML-560S/M, ML-360, ML-360Y)
 - MT 5 (ML-600S/M/L, ML-850)
- Coolant system
- Automatic tailstock (exclude ML-430)
- Coolant tank
- Chain type chip conveyor + chip bucket (exclude ML-430)
- Leveling bolts and pads
- Auto. lubrication system
- Work lamp
- Foot pedal for chuck
- Tool kit
- End of program light
- YDPM 4-step gearbox (ML-850)
- Chip flush from upper
- Air blow for chuck (exclude ML-850)

Optional Accessories

- Mitsubishi controller
- Siemens controller
- Collet chuck (Excl: ML-850)
- Bar feeder
- Bar feeder interface
- VDI / BMT turret (10 or 12 Tool)
- Oil mist collector
- Live tooling (C-axis) (ML-560S/M, ML-600S/M/L, ML-360, ML-850)
- Automatic door
- Manual tool setter
- Automatic tool setter
- Transformer
- CE
- GTP, ZF or YDPM 2-step gearbox
- Sling frame
- Stabilizer
- Cooler for coolant tank
- Air conditioner for electrical cabinet
- Hydraulic steady rest
- Parts catcher
- Oil skimmer
- Coolant gun
- Scraper type chip conveyor
- 10 or 20 bar high pressure coolant through tool
- Tool load monitoring
- Linear scale



Built-in Type Spindle

The built-in type spindle provides full power output and low speeds, leading to superior conditions.



Parts Catcher

Once part machining is completed, the parts catcher will move to collect the finished parts, providing convenience for parts collection.



Hydraulic Steady Rest

The hydraulic steady rest provides a stable support for long workpieces, and can prevent workpiece springing and bending.



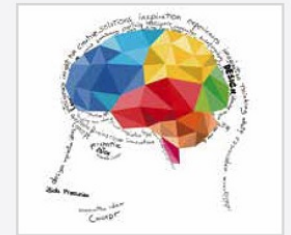
Tool Measuring Device

The tool is program controlled automatically (or manually) touches the measuring probe to accomplish the setup process. It effectively reduces the setup time and automatically compensates for the wear on tools.



Expansion Tank for High Pressure Coolant Through Tool

10 bar or 20 bar for option.



Automation and TURN KEY Solutions



Robot

*Fanuc, Yaskawa, Mitsubishi robots and more.



Oil Mist Collector



Fan Cooler



Bar Feeder