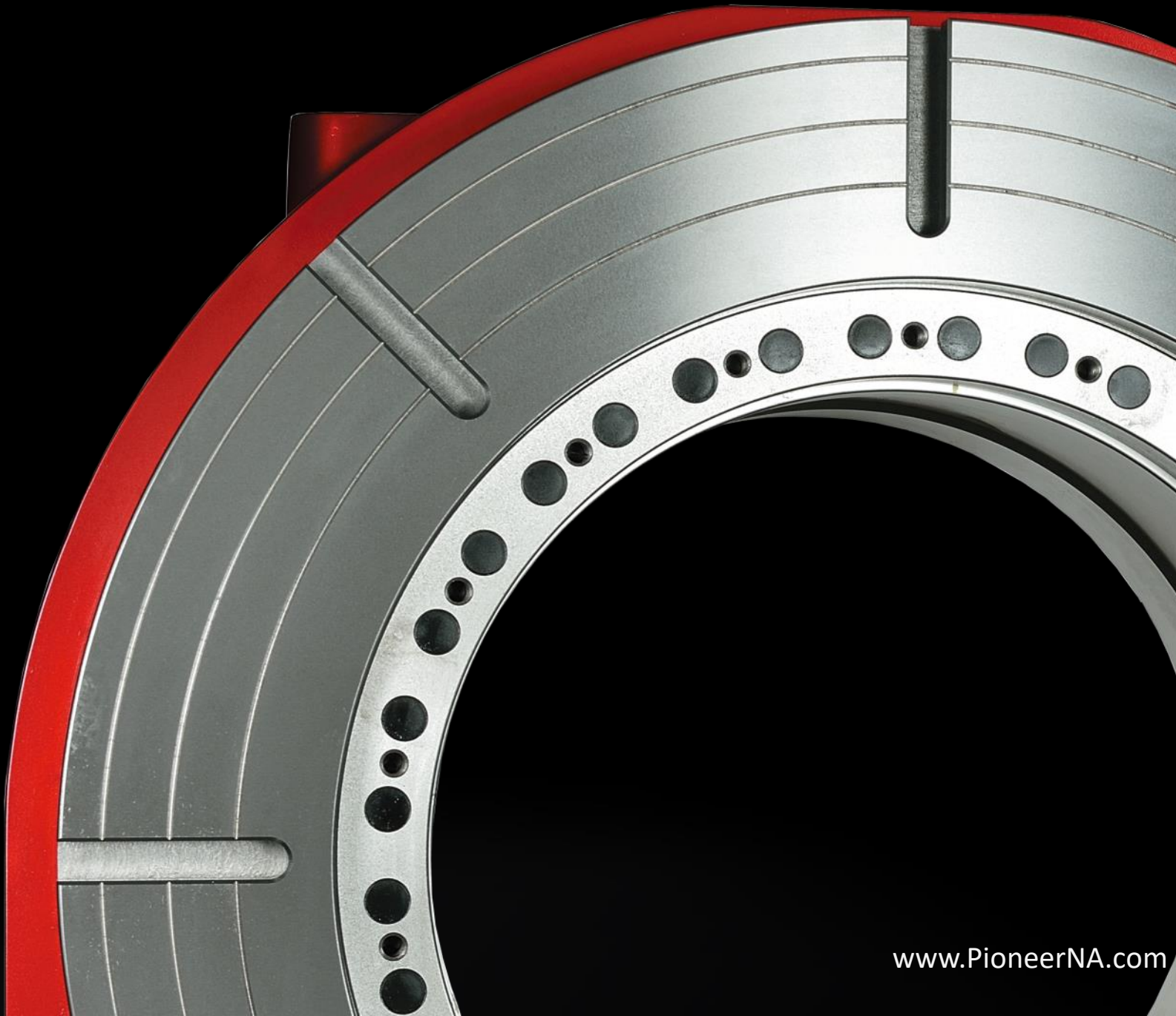



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PIONEER
PIONEER N.A., INC.

PIONEER WORK HOLDING SOLUTIONS 2020 CATALOG





We understand the engineering intricacies that vary by industry. That's why Pioneer actively invests in research and development to enhance our already superior line of products and allow for development of individualized solutions. We are continuously working to expand our available product lines by listening to our customers while staying on top of market trends and new technology.

Since 1974, **PIONEER** has delivered world class tool and work holding products, earning a reputation built on unsurpassed service, custom solutions, and innovation.

We believe that a quality tool requires quality balance and are uncompromising in our pursuit to provide the most cost effective work holding in the market, going above and beyond the industry standard. Why? Because we know that higher accuracy results in superior outcomes, while also reducing wear and tear, and ultimately saving our customers money by extending their tool life.

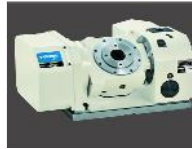
Whatever your need, we have your business covered with our Premium and Standard product lines. We are passionate about providing our customers the latest, most sophisticated technology to guarantee a competitive advantage. We guarantee better performance through increased consistency and accuracy and invite you to explore the Pioneer difference.



Premium Performance Rotary Table



Heavy-duty Premium performance Table
YNCP & BNC Series
P.10



Premium Compact 5 Axis Table
TNT Series
P.20



Standard-duty performance table
JNC Series
P.14



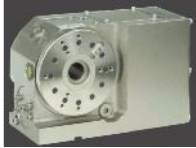
Index Controller
AC5
P.22



Slim Type—performance table
TNC Series
P.16



Accessories
P.26

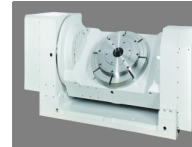


Economical EDM Rotary Table
JNC EDM
P.18

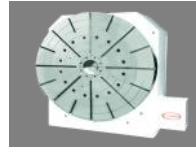
PIONEER Premium Rotary Table



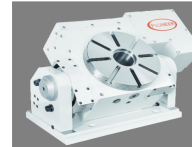
Standard AX 4th Axis
P.30



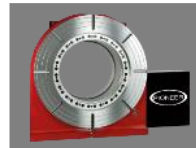
5 Axis Trunnion Tilting
P.46



Large Size AX 4th Axis
P.34



5 Axis Manual Tilting
P.48



Big Bore AX 4th Axis
P.36



IDX Controller
P.52



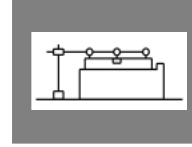
Back Mounted Motor
4th Axis
P.38



Tailstocks & Accessories
P.54



Roller Gear Cam 4th Axis
P.40



Accuracy Standards
P.58



Multi-Spindle 4th Axis
P.42



Rotary table inquiry form
P.60



5 Axis Tilting Table
P.44

Power to Perform

YUKIWA and PIONEER put the highest level of technology and engineering together to build the CNC Rotary Tables that have the power to perform.

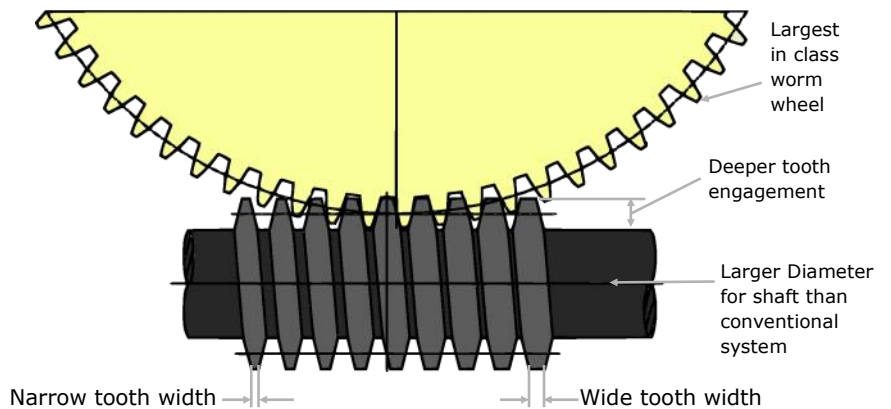


Durable and Rigid Dual-Lead Gear System

All YUKIWA and PIONEER tables use a combination of case hardened special alloy dual-lead screw that has larger shaft diameter, and special high tensile strength brass worm wheel ensures exceptional wear resistant and long durability for the life of the gear system.

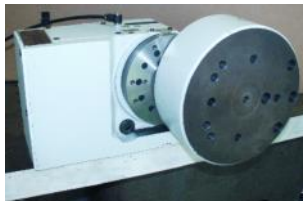
Largest in Class Worm Wheel

Using the largest diameter in class worm wheel adds extra rigidity, smoothness and torque transfer efficiency to the gear system. It also allows deeper tooth engagement that improves surface contact by 30% compared to a conventional wheel, securing extra rigidity for heavier duty application.



Adjustment of back lash is easy and quick!

1 million index test



Model JNC140

Weight 50 lbs

1 million Indexes = Equivalent to 1 Index / 1Minute cycle, 24/7, 1.9years worth

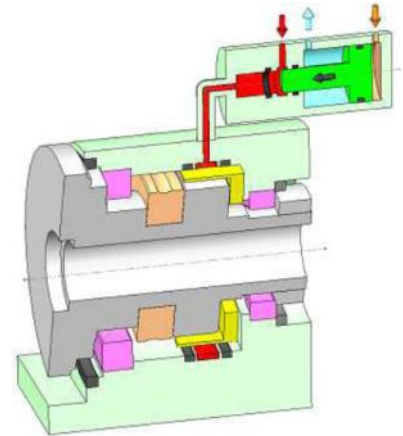
Backlash amount

Start 0.0005" (13 micron)

End **0.0009" (23 micron)**

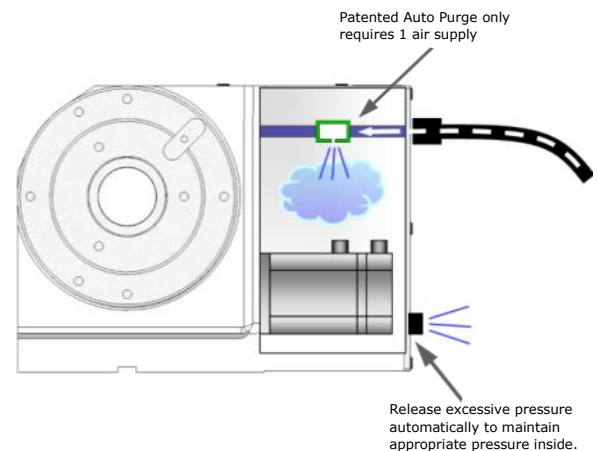
The Most Powerful Brake System

With Yukiwa's proprietary brake system, YNCP and TNT series deliver the most powerful brake torque, but you do not need an expensive and cumbersome hydraulic supply. Thanks to the Yukiwa's compact built-in air over hydraulic booster, simply supply standard shop air and it immediately generates strong brake torque equivalent to a hydraulic brake system. This feature makes the YUKIWA table the heaviest duty in its class.



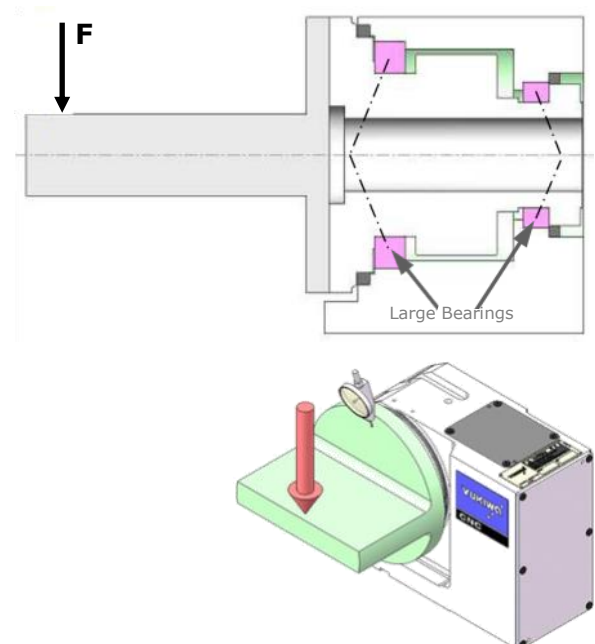
Auto Air Purge Protects You From Water Hazards

If you have ever experienced problems with the rotary tables within a couple of year or so, 90% of the problems are with electric devices like servo motors, solenoid switches and wire harness caused by cutting fluid. As high pressure coolant is getting more popular, it has become more important to select a table that has excellent water protection. Yukiwa's patented auto air purging system is the ultimate answer. It always keeps the appropriate pressure inside the cover to protect electric devices from water hazards. Auto Air Purge is standard on all Yukiwa models. Air purge is available as an option for most PIONEER models. Don't let the water down your machine any more!



Rock Solid Design gets your job done right

YUKIWA's True Dual Bearing System with Triple Support makes the YNCP and TNT series most robust and rock solid table in its class. Large bearings are located beneath the table face providing axial and radial support. Unlike most competitors who use only "1" bearing, YUKIWA added one more bearing at the very end of the spindle for extra support. Mated with the largest diameter spindle, YNCP and TNT series are the most robust and rock solid table. This massive construction reduces displacement from machining load by nearly 80% compared to competitors equivalent table. Whether you need to just index or simultaneous cut, remember your accuracy relies on the rigidity of the rotary table. YUKIWA rotary tables guarantees your job gets done right.

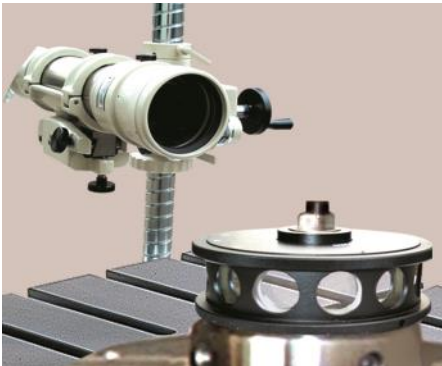


100% inspection is our policy

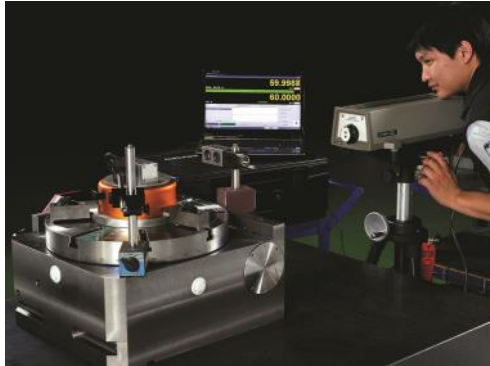
In order to guarantee quality for our rotary tables 100%, we believe the only way is to inspect every single rotary table before we ship. YUKIWA and PIONEER tables are subject to 100% inspection at the factory to ensure quality and performance of the rotary tables meet or exceed specifications. All YUKIWA and PIONEER table are provided with actual inspection certificate from the factory so you know your table has guaranteed quality. Further more, all YUKIWA tables are subject to test run at least 3 hours at the factory.

Tilting Rotary Table - Inspection Report					
Model	TNT170R	Manufacturing Serial No.	120		
Order					
Delivery					
Accuracy					
No.	Inspection Item	Unit	Actual		
1	Parallelism of Table Face to Bottom Face (Tilting Axis direction)	On a 300mm	mm 0.02 0.002		
2	Runout of Table Face During Rotation	10mm inside form table edge	mm 0.02 0.003		
3	Runout of Table Facet Hole	On Table Facet Hole	mm 0.01 0.004		
4	Parallelism of Tilting Axis Center Line to Bottom Face	On a 300mm	mm 0.03 0.006		
5	Indexing Accuracy of table	Accumulated Pitch Error	" 30 1R		
6	Indexing Accuracy of Tilting Axis	*1R ~ *2R Accumulated Pitch Error	" 4S 1S		
1		2			
3		4			
5	Indexing Accuracy to be measured with Optical Instrument.		6	Indexing Accuracy to be measured with Optical Instrument.	
Note					
DATE					
YUKIWA SEIKO INC.		Approved by	Checked by		
TNT170-SD検査報告書 12.6.25					

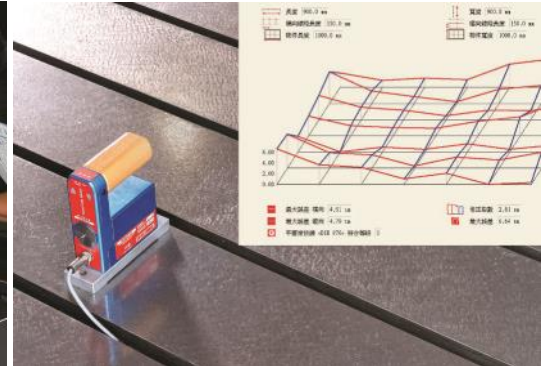
Top notch inspection equipment ensures accuracy



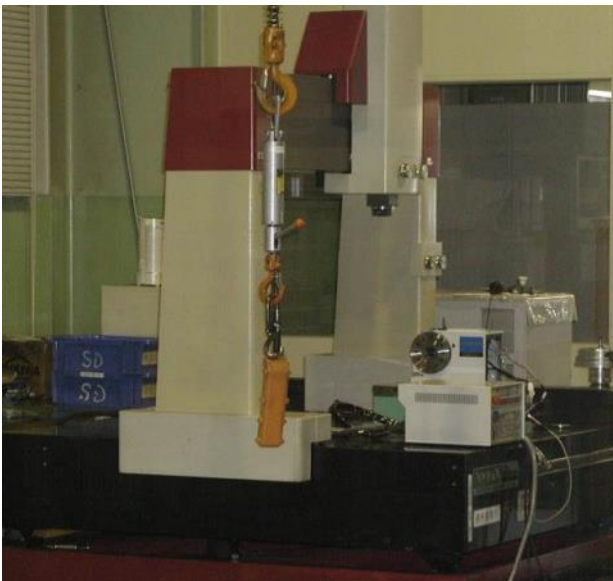
Nikon autocollimator



HP optical angle encoder



Wyler electric level tester



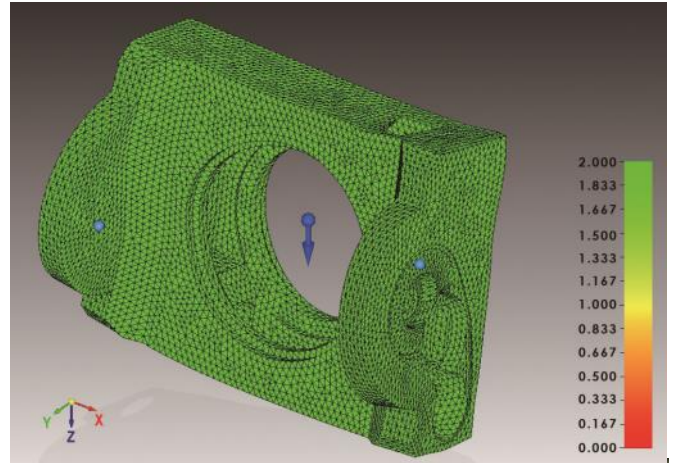
Large CMM for after finished table inspection




ZEISS CMM for components inspection

State of the art factory equipment makes

YUKIWA and PIONEER with the state of the art factory equipment produce the widest range of CNC rotary table products such as: 5" most affordable table to up to 80" super large table, compact 5 axis table for BT30 application to up to 800mm 5 axis trunnion table, industry standard worm gear system, roller gear cam, Direct Drive system, and many more. From our standard rotary tables to special tailor made rotary tables, we have the ability to quote, build and service. This feature makes us the "one stop shop" for all your rotary table needs.





PIONEER brings an Installation and Service department
SECOND TO NONE

PIONEER brings an Installation and Service department second to none, with over 20 years experience in full rotary table 4th and 5th Axis installations as well as repair and service on many popular brands.

- Full Turnkey Installations on many Fanuc based controls including Fanuc 0i, 16i, 18i, 21i series and more.
- Guaranteed Compatibility - We only install OEM Motors & Controllers to guarantee 100% compatibility with the machine control.

Installation includes:

- Drive (Amplifier) Installation
- Table Installation
- Parameter Updates
- External Cable Installation
- Cable Set
- Communication Cables
- Fiber Optic Cables
- Bulkhead Cable Set

Rotary Tables or Indexer - Which one do you need?

- **Indexer:** using a secondary controller for part positioning. While simultaneous or contour milling is not possible with indexer, advantage of indexer is you can move the indexer and controller from machine to machine easily when you need it on the other machine. Indexer option only needs one M-code function to send FIN signal to the secondary controller. Most machines these days come with M-code function so check your local machine dealer or builder if the machine has the M-code function.
- **Integrated Rotary Table:** which is wired directly to the machine control and functions as an additional true axis of the machine. This configuration can be used for positioning and simultaneous cutting. While interfacing is a lot more complicated than indexer (we can do that for you!), the benefits and options are dramatically improved. Integrated Rotary Table is the only option that enables you to perform true 4th and 5th axis work on your machine.

Machine and control capability

Even though you want to install 4th & 5th axis rotary table if the machine control is capable of only 4 simultaneous axis, it will only be 4th axis and you will need separate control for your 5th axis. It is also possible that your machine control is capable of 5 simultaneous axis but your machine does not have 5th axis software preinstalled at the factory. If you are not sure, we can help you find your machine and control capability. With over 15 years of installation experience PIONEER knows many different machines and controls.

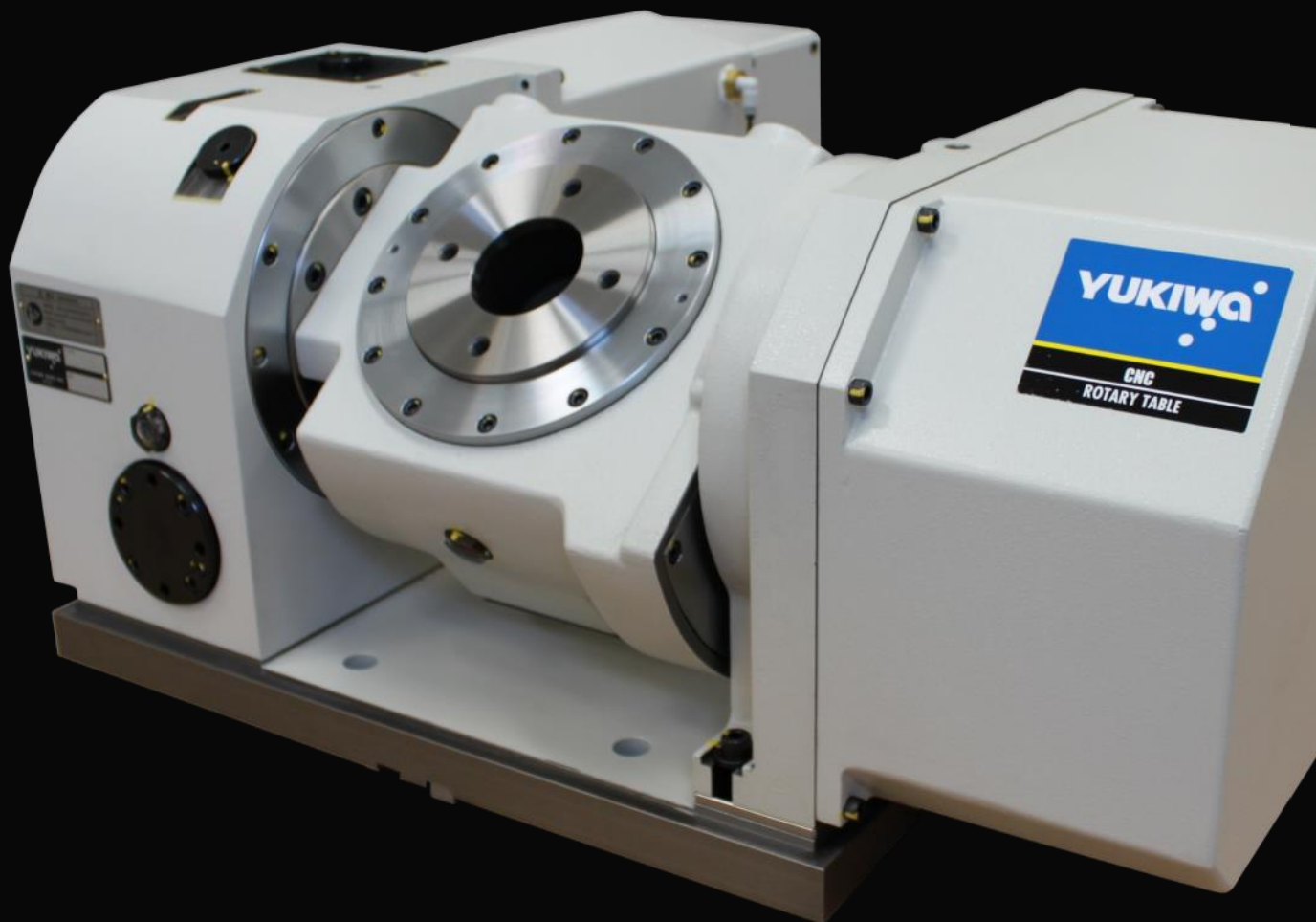
What machine and control brand can PIONEER do the installation?

With over 15 years of experience we can install on most Fanuc based control machines including Mori Seiki. Installation on Yaskawa and Mitsubishi control can be available, too. We just need to know your machine make, model, year and control model, or simplest and best way is send us the machine data sheet then we can advise you if we can offer installation immediately.

Note that availability of installation on custom controls or proprietary control like Haas, Mazak, Okuma etc are subject to availability of information and support from the machine builder and/or dealer.



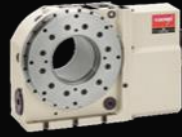
Premium Performance Rotary Tables





Heavy-duty Premium performance Table

YNCP Series P.10



Heavy-duty Premium performance Table

BNC Series P.12



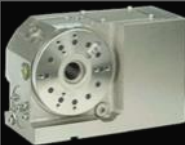
Standard-duty performance table

JNC Series P.14



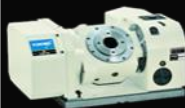
Slim Type - performance table

TNC Series P.16



Economical EDM Rotary Table

JNC EDM P.18



Premium Compact 5 Axis Table

TNT Series P.20



Index Controller

AC5 P.22



Accessories

P. 26






4th Axis - YNCP Super Heavy Duty

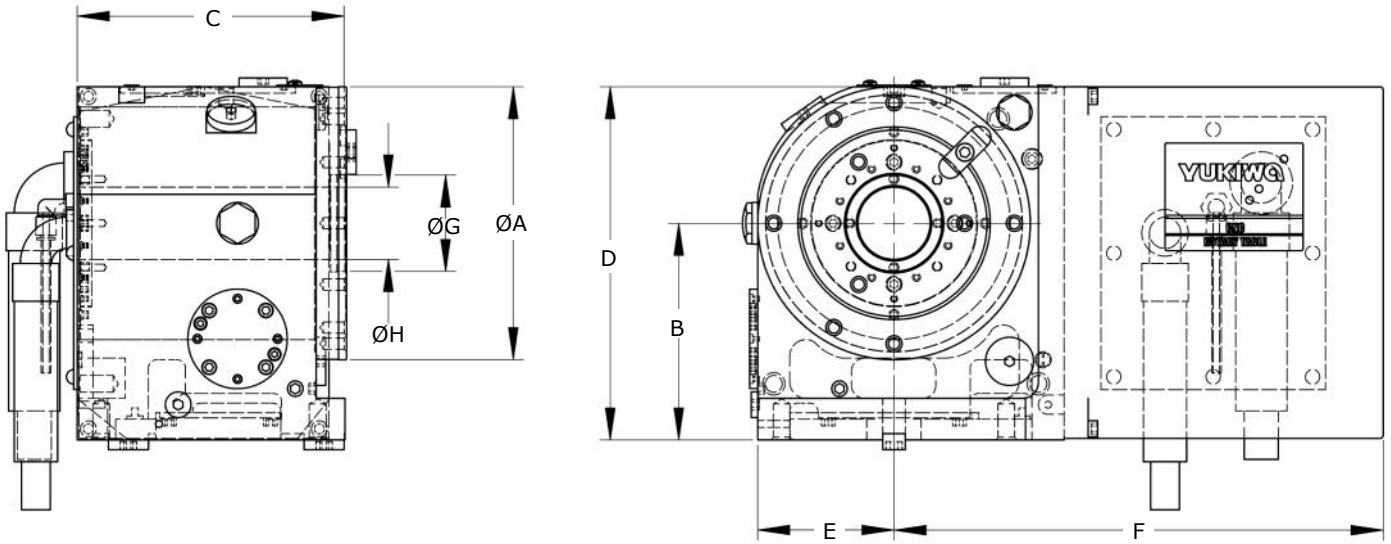


- Strongest brake torque in class with "Built In" air over hydraulic booster
- Heaviest duty design in class:
 - True Dual Bearing design with nose & tail bearing spindle for "Best in Class" Rigidity
 - Largest diameter bearing, worm wheel and spindle diameter for heavier duty milling
 - Solid one piece face plate and spindle construction
- Exceptional water protection with patented Auto Air Purging System

Available as :

- Integrated 4th axis
- Indexer with programmable YUKIWA AC4 control box
- Left hand configurations
- Super high resolution with optional rotary scale

Model	YNCP170 R/L		YNCP200 R/L		YNCP250 R/L	
Table Diameter	170mm	6.69"	200mm	7.87"	250mm	9.84"
Center Height	135mm	5.31"	160mm	6.30"	200mm	7.87"
Center Pilot Diameter	60mm H7 x 10mm	2.36" H7 x 0.39"	70mm x H7	2.76" H7 x 0.39"	90mm H7 x 10mm	3.54" H7 x 0.39"
Center Hole	45mm	1.77"	56mm	2.20"	72mm	2.83"
Guide Block Width	14mm h7	0.55" h7	18mm h7	0.71" h7	18mm h7	0.71" h7
FANUC servo motor	aiF1/2		aiF4/8		aiF8	
Max. RPM	33.3		33.3		33.3	
Gear Ratio	1:90		1:90		1:90	
Indexing Accuracy arc sec.	± 12.5		± 10		± 10	
Net Weight without motors	43kg	95lbs	69kg	152lbs	114kg	251lbs
Clamp System	Pneumatic - Air Over Hydraulic					
Clamp Torque (at 72 psi)	550Nm	406 ft-lbs	850Nm	627 ft-lbs	1,050Nm	774 ft-lbs
Vertical Workload Limit (Inertia) 	70kg (0.25kgm ²)	154lbs (0.25kgm ²)	100kg (0.5kgm ²)	220lbs (0.5kgm ²)	125kg (1.0kgm ²)	275lbs (1.0kgm ²)
Horizontal Workload Limit (Inertia) 	140kg (0.5kgm ²)	309lbs (0.5kgm ²)	200kg (1.0kgm ²)	440lbs (1.0kgm ²)	250kg (2.0kgm ²)	550lbs (2.0kgm ²)
Horizontal Load Limit 	9,000N	2,023lbf	10,000N	2,248lbf	11,000N	2,473lbf
Circumference Load Force 	550Nm	406 ft-lbs	850Nm	627 ft-lbs	1050Nm	774 ft-lbs
Vertical Load Limit 	4,000N	900lbf	6,000N	1,350lbf	7,000N	1574lbf



PART NUMBER	A DIA.	B	C	D	E	F	G PILOT	H HOLE
YNCP170 R/L	170mm	135mm	168mm	220mm	85mm	305mm aif2	60mm H7	45mm
YNCP200 R/L	200mm	160mm	192mm	260mm	100mm	320mm aif4	70mm H7	56mm
YNCP250 R/L	250mm	200mm	220mm	325mm	125mm	390mm aif8	90mm H7	72mm






4th Axis - BNC Super Heavy Duty

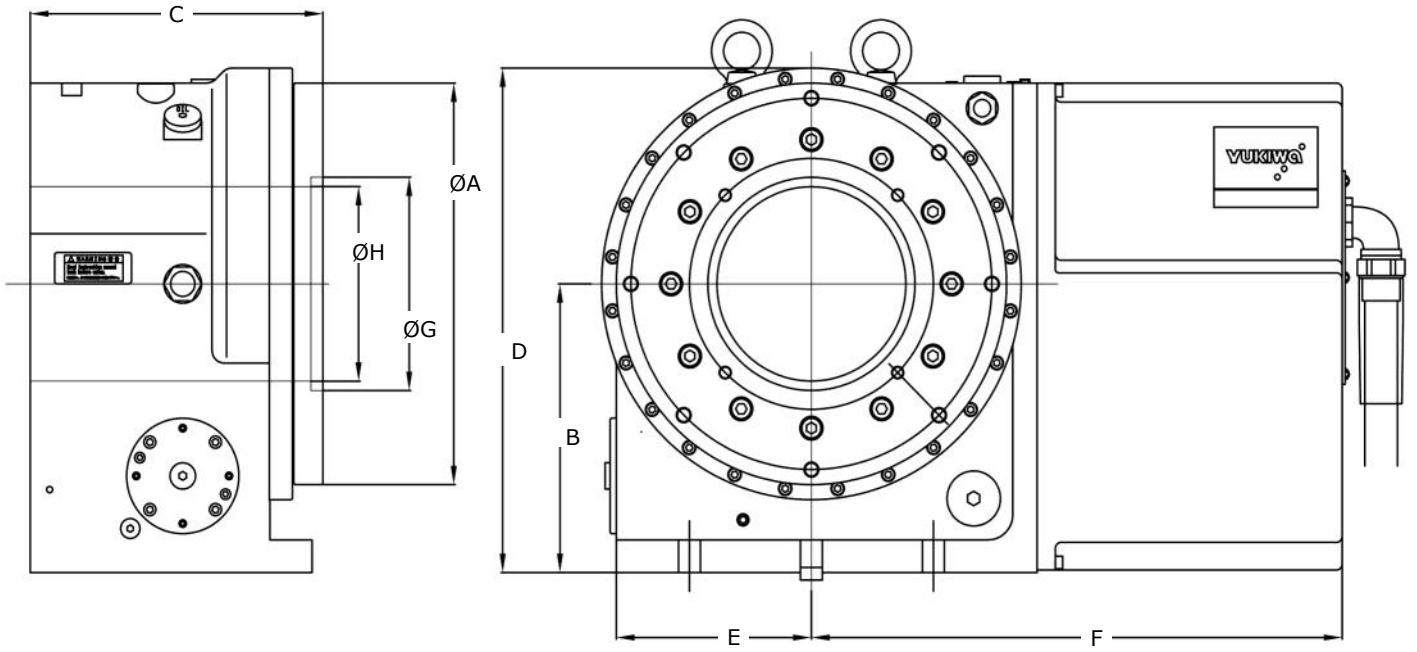


- Strongest brake torque in class with "Built In" air over hydraulic booster
- Heaviest duty design in class:
 - True Dual Bearing design with nose & tail bearing spindle for "Best in Class" Rigidity
 - Largest diameter bearing, worm wheel and spindle diameter for heavier duty milling
 - Solid one piece face plate and spindle construction
- Big Bore Design – largest in class
- Exceptional water protection with patented Auto Air Purging System

Available as :

- Integrated 4th axis
- Indexer with programmable YUKIWA AC3 control box
- Left hand configurations
- Super high resolution with optional rotary scale

Model	BNC320R	
Table Dia meter	320mm	12.6"
Center Height	230mm	9.05"
Center Pilot Diameter	170mm H7	6.69" H7
Center Hole	160mm	6.30"
Guide Block Width	18mm h7	0.71" h7
FANUC servo motor	αiF 8	
Max. RPM	22.2	
Gear Ratio	1:90	
Indexing Accuracy arc sec.	± 10 seconds	
Net Weight without motors	175kg	385 ft-lbs
Pneu. Clamp Torque (at 72 psi)	3,000Nm	2,212 ft-lbs
Vertical Workload Limit (Inertia)	 200kg (2.50kgm ²)	440lbs (2.50kgm ²)
Horizontal Workload Limit (Inertia)	 400kg (5.0kgm ²)	880lbs (5.0kgm ²)
Horizontal Load Limit	 18,000 N	4,046lbf
Circumference Load Force	 3,000Nm	2,213 ft-lbs
Vertical Load Limit	 11,000 N	2,473lbf



PART NUMBER	A DIA.	B	C	D	E	F	G PILOT	H HOLE
BNC320 R	320mm	230mm	240mm	402mm	160mm	435mm aif8	170mm H7	160mm






4th Axis - JNC High Performance



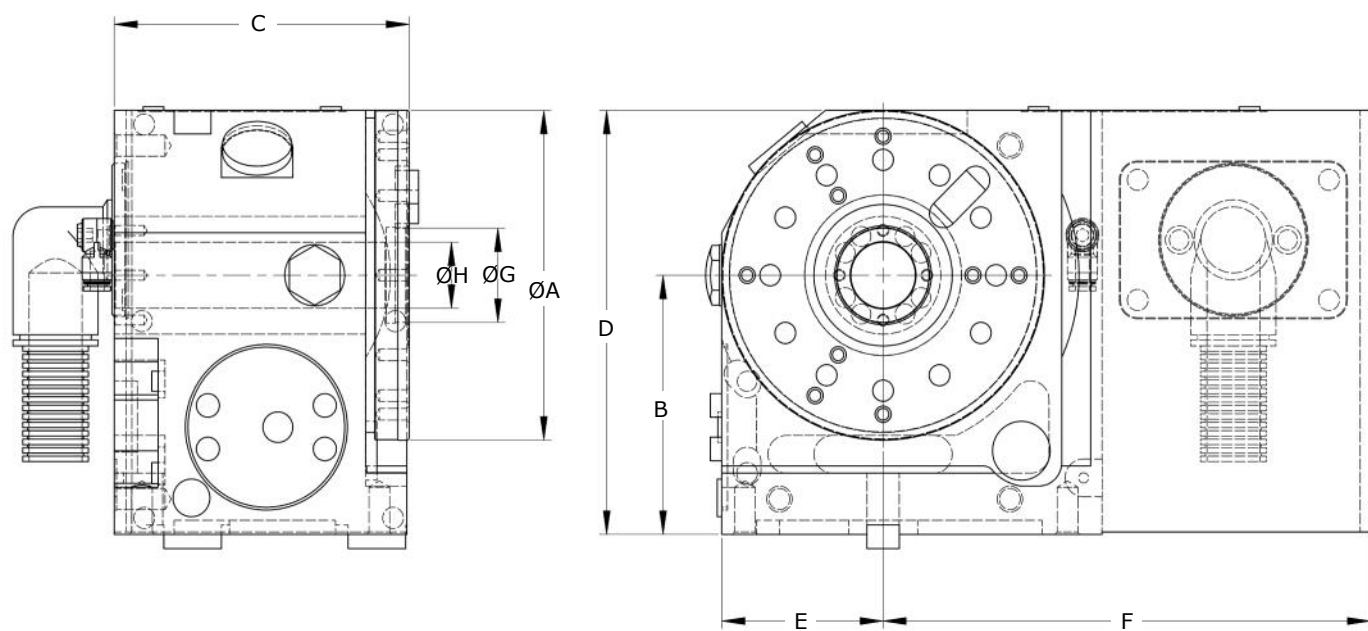
- Affordable Quality Japanese manufactured rotary table
- Compact Design suitable for small machines.
- Accurate indexing & high durability worm gearing system and solid once piece face plate and spindle design
- Exceptional water protection with patented Auto Air Purging System
 - Protects unit against high pressure coolant
 - Suitable for grinding, graphite and EDM application

Available as :

- Integrated 4th axis
- Indexer with programmable YUKIWA AC4 control box
- Left hand configurations
- Super high resolution with optional rotary scale

Model	JNC140R/L		JNC170R/L		JNC200R/L		JNC250R/L	
Table Diameter	140mm	5.51"	170mm	6.69"	200mm	7.87"	250mm	9.84"
Center Height	110mm	4.33"	135mm	5.31"	160mm	6.30"	200mm	7.87"
Center Pilot Diameter	40mm H7 x 10mm	1.57" H7 x 0.39"	60mm H7 x 10mm	2.36" H7 x 0.39"	70mm x H7	2.76" H7 x 0.39"	90mm H7 x 10mm	3.54" H7 x 0.39"
Center Hole Diameter	28mm	1.10"	45mm	1.77"	56mm	2.20"	72mm	2.83"
Guide Block Width	14mm h7	0.55" h7	14mm h7	0.55" h7	18mm h7	0.71" h7	18mm h7	0.71" h7
FANUC servo motor	Bis1		aiF1/2		aiF2		aiF4/8	
Max. RPM	41.6		33.3		33.3		33.3	
Gear Ratio	1:72		1:90		1:90		1:90	
Indexing Accuracy arc sec.	± 20 seconds		± 20 seconds		± 20 seconds		± 15 seconds	
Net Weight without motors	27kg	60lbs	38kg	84lbs	58kg	128lbs	86kg	190lbs
Pneu. Clamp Torque (at 72 psi)	120Nm	89ft-lbs	230Nm	170ft-lbs	450Nm	332ft-lbs	650Nm	480ft-lbs
Vertical Workload Limit (Inertia) 	50kg (0.125kgm ²)	110lbs (0.125kgm ²)	70kg (0.25kgm ²)	154lbs (0.25kgm ²)	100kg (0.5kgm ²)	220lbs (0.5kgm ²)	125kg (1.0kgm ²)	275lbs (1.0kgm ²)
Horizontal Workload Limit (Inertia) 	100kg (0.25kgm ²)	220lbs (0.25kgm ²)	140kg (0.5kgm ²)	309lbs (0.5kgm ²)	200kg (1.0kgm ²)	440lbs (1.0kgm ²)	250kg (2.0kgm ²)	550lbs (2.0kgm ²)
Horizontal Load Limit 	4,000N	900lbf	5,000N	1,124lbf	7,000N	1,574lbf	8,000N	1,800lbf
Circumference Load Force 	120Nm	89ft-lbs	230Nm	170ft-lbs	450Nm	332ft-lbs	650Nm	480ft-lbs
Vertical Load Limit 	2,000N	450lbf	3,000N	675lbf	4,000N	900lbf	5,000N	1,124lbf

* All specifications can be modified according to customer's requirement



PART NUMBER	A DIA.	B	C	D	E	F	G PILOT	H HOLE
JNC140 R/L	140mm	110mm	128mm	180mm	70mm	207mm bis1	40mm H7	28mm
JNC170 R/L	170mm	135mm	128mm	220mm	85mm	260mm aif1	60mm H7	45mm
JNC200 R/L	200mm	160mm	148mm	270mm	110mm	306mm aif2	70mm H7	56mm
JNC250 R/L	250mm	200mm	168mm	325mm	125mm	390mm aif8	90mm H7	72mm

4th Axis - TNC Slim



- Slim Type - 97mm body thickness
- Affordable Quality Japanese manufactured rotary table
- Light weight Compact: Suitable for small-sized machining centers
- Accurate indexing: high durability worm gear system and solid one piece face plate / spindle design.
- Outstanding water protection:
 - Auto-Air Purging system (PAT.) is built in as standard.
- Easy maintenance

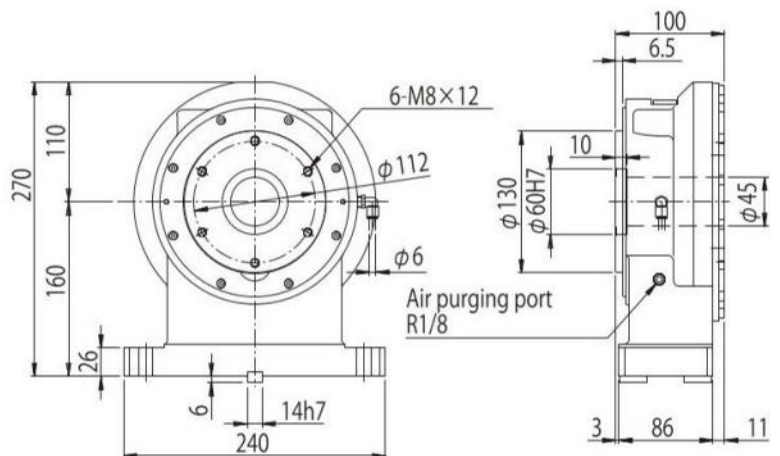
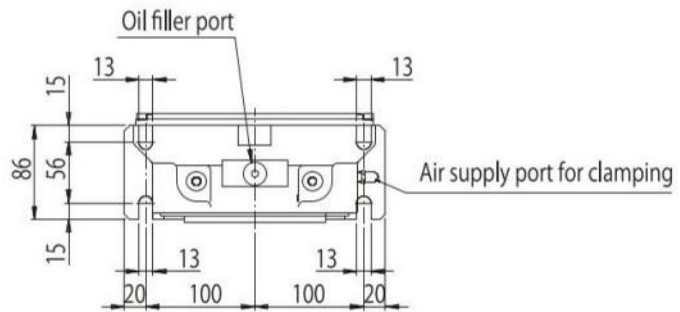
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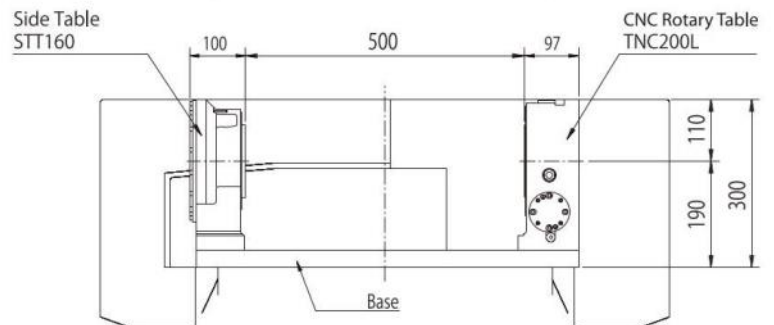
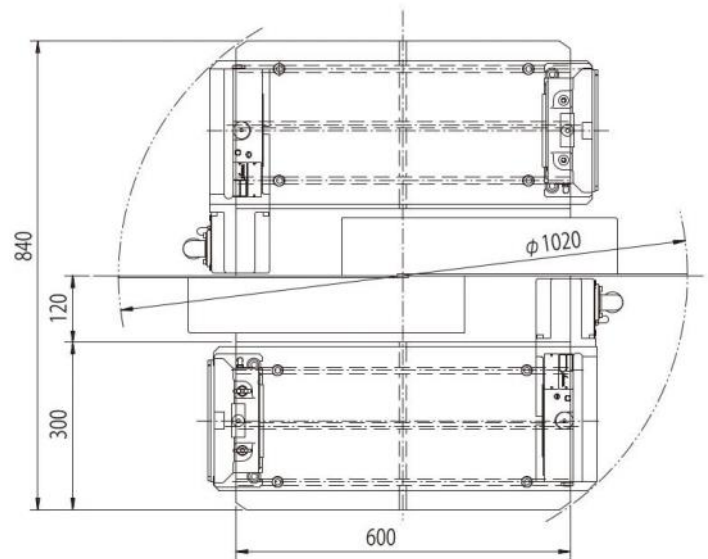
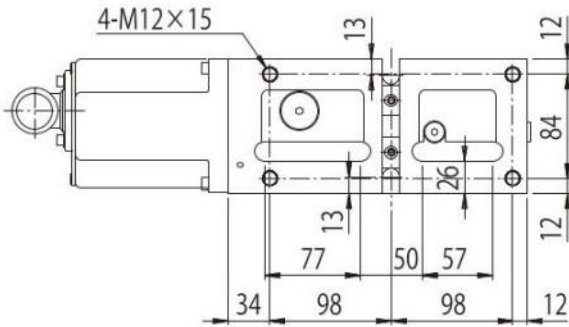
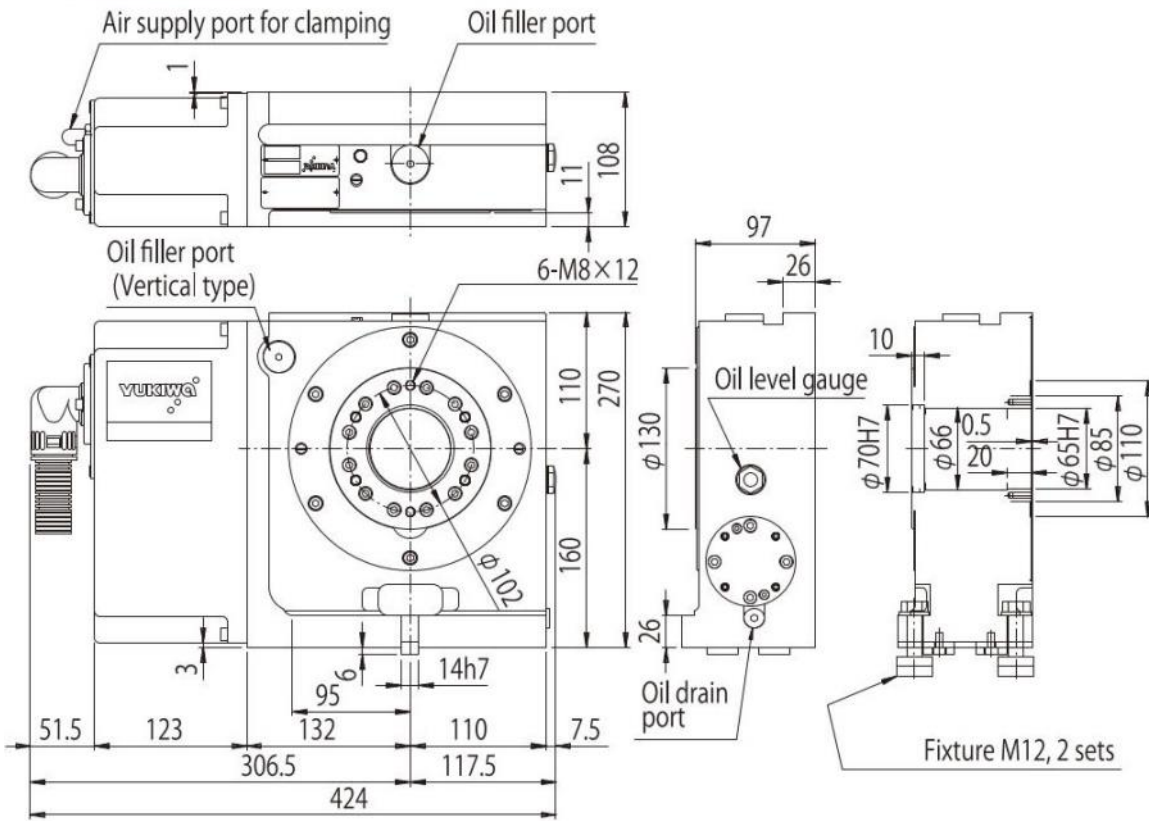
- Integrated 4th axis
- Indexer with programmable YUKIWA AC4 control box
- Left hand configurations
- Super high resolution with optional rotary scale

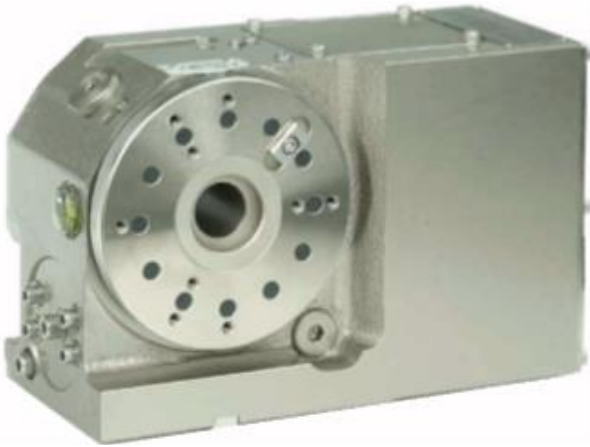
Model	TNC200L	
Table Diameter	130mm	5.12"
Center Height	160mm	6.30"
Center Pilot Diameter	70mm x H7	2.76" H7 x 0.39"
Center Hole Diameter	66mm	2.598"
Guide Block Width	14mm h7	0.551" h7
FANUC servo motor	aiF2	
Max. RPM	33.3	
Gear Ratio	1:90	
Indexing Accuracy arc sec.	± 15 seconds	
Net Weight without motors	43kg	95lbs
Pneu. Clamp Torque (at 72 psi)	340Nm	251ft-lbs

SST 160

- Wider jig area in combination with TNC200L
 - A wider variety of parts can be machined owing to increased flexibility in selection of available jigs.
- Suitable for support for trunnion jigs
 - Effective for high-precision machining owing to the high rigidity attained by its clamping mechanism.










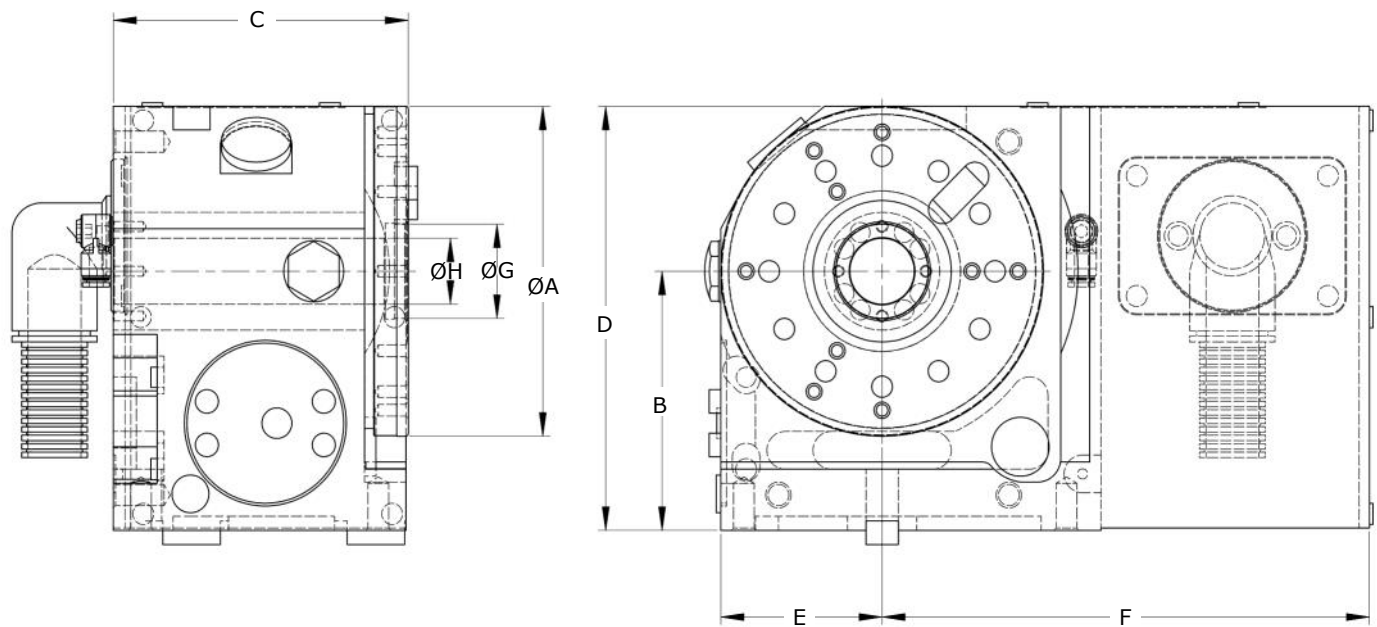


- Most affordable EDM rotary and indexing solution
- Submersible protection w/ Standard Auto Air Purging System (PAT)
- Optional stainless steel face plate with commutator block
- Optional nickel plating for corrosion protection
- Super high resolution indexing accuracy w/optional rotary scale
- Vertical installation standard – Optional horizontal available

Available as :

- Integrated 4th axis
- Indexer with programmable YUKIWA AC4 control box

Model	JNC140R-EDM		JNC170R-EDM		JNC200R-EDM		JNC250R-EDM		
Table Diameter	140mm	5.51"	170mm	6.69"	200mm	7.87"	250mm	9.84"	
Center Height	110mm	4.33"	135mm	5.31"	160mm	6.30"	200mm	7.87"	
Center Pilot Diameter	40mm H7 x 10mm	1.57" H7 x 0.39"	60mm H7 x 10mm	2.36" H7 x 0.39"	70mm x H7	2.76" H7 x 0.39"	90mm H7 x 10mm	3.54" H7 x 0.39"	
Center Hole Diameter	28mm	1.10"	45mm	1.77"	56mm	2.20"	72mm	2.83"	
Guide Block Width	14mm h7	0.55" h7	14mm h7	0.55" h7	18mm h7	0.71" h7	18mm h7	0.71" h7	
FANUC servo motor	βis1		αiF1/2		αiF2		αiF4/8		
Max. RPM	41.6		33.3		33.3		33.3		
Gear Ratio	1:72		1:90		1:90		1:90		
Indexing Accuracy arc sec.	± 20 seconds		± 20 seconds		± 20 seconds		± 15 seconds		
Net Weight without motors	27kg	60lbs	38kg	84lbs	58kg	128lbs	86kg	190lbs	
Pneu. Clamp Torque (at 72 psi)	120Nm	89ft-lbs	230Nm	170ft-lbs	450Nm	332ft-lbs	650Nm	480ft-lbs	
Vertical Weight Limit (Inertia)		50kg (0.125kgm ²)	110lbs (0.125kgm ²)	70kg (0.25kgm ²)	154lbs (0.25kgm ²)	100kg (0.5kgm ²)	220lbs (0.5kgm ²)	125kg (1.0kgm ²)	275lbs (1.0kgm ²)
Horizontal Weight Limit (Inertia)		100kg (0.25kgm ²)	220lbs (0.25kgm ²)	140kg (0.5kgm ²)	309lbs (0.5kgm ²)	200kg (1.0kgm ²)	440lbs (1.0kgm ²)	250kg (2.0kgm ²)	550lbs (2.0kgm ²)
Horizontal Load Limit		4,000N	900lbf	5,000N	1,124lbf	7,000N	1,574lbf	8,000N	1,800lbf
Circumference Load Force		120Nm	89ft-lbs	230Nm	170ft-lbs	450Nm	332ft-lbs	650Nm	480ft-lbs
Vertical Load Limit		2,000N	450lbf	3,000N	675lbf	4,000N	900lbf	5,000N	1,124lbf



PART NUMBER	A DIA.	B	C	D	E	F	G PILOT	H HOLE
JNC140R-EDM	140mm	110mm	128mm	180mm	70mm	207mm bis1	40mm H7	28mm
JNC170R-EDM	170mm	135mm	128mm	220mm	85mm	260mm aif1	60mm H7	45mm
JNC200R-EDM	200mm	160mm	148mm	270mm	110mm	306mm aif2	70mm H7	56mm
JNC250R-EDM	250mm	200mm	168mm	325mm	125mm	390mm aif8	90mm H7	72mm

5th Axis - TNT Heavy Duty



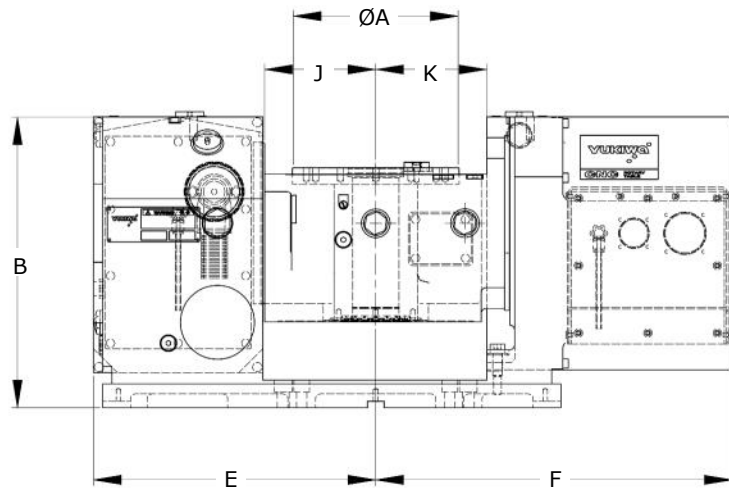
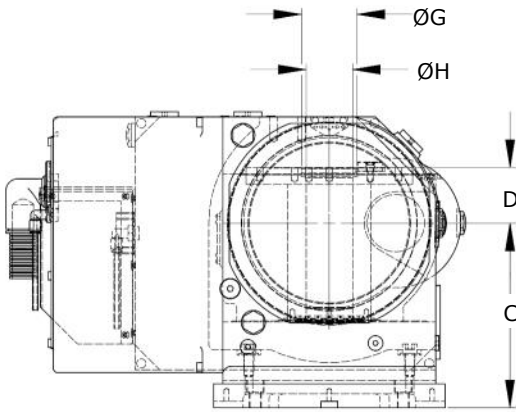
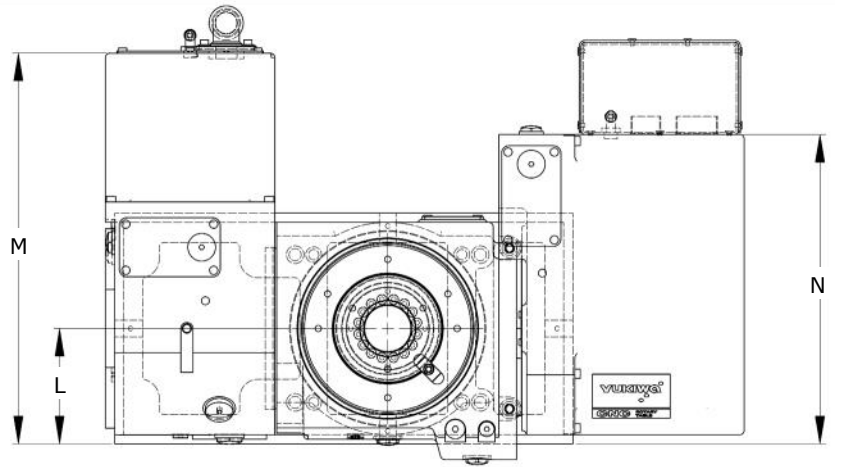
- Most compact design in class to fit small machines
- Largest machine-able work area in class
- Strongest brake torque in class with "Built In" air over hydraulic booster
- Heaviest duty design in class:
 - True Dual Bearing design with nose & tail bearing spindle for "Best in Class" Rigidity
 - Largest diameter bearing, worm wheel and spindle diameter for heavier duty milling
- Exceptional water protection with patented Auto Air Purging System

Available as :

- Integrated 5th axis
- Integrated 4th axis + programmable Yukiwa AC4 controller on tilt axis
- Indexer with programmable YUKIWA AC4 control boxes
- Left hand configurations (TNT170 only)
- Super high resolution with optional rotary scale



Right Hand	TNT100L	TNT170R/L (L shown)	TNT250R
Spindle Diameter	100mm 3.94"	120mm 4.72"	180mm 7.09"
Spindle Diameter w/ Adapter	-	170mm 6.69"	250mm 9.84"
Center Height	135mm 5.31"	180mm 7.09"	225mm 8.86"
Table ID Pilot	50mm H7 x 23	55mm H7 x 45	90mm H7
Thru Hole Diameter	28mm 1.10"	40mm 1.57"	72mm 2.83"
Air Pressure	72-100 psi	72-100 psi	72-100 psi
Clamp Torque Rotary	200 Nm 148 ft/lbs @ 72 psi	520 Nm 384 ft/lbs @ 72 psi	1,050 Nm 774 ft/lbs @ 72 psi
Clamp Torque Tilting	300 Nm 236 ft/lbs @ 72 psi	1,100 Nm 738 ft/lbs @ 72 psi	1,200 Nm 885 ft/lbs @ 72 psi
Indexing Accuracy Rotary	+/- 17.5 seconds	+/- 17.5 seconds	+/- 12.5 seconds
Indexing Accuracy Tilting	+/- 20 seconds	+/- 20 seconds	+/- 20 seconds
Total Reduction Ratio Rotary	1/72	1/72	1/90
Total Reduction Tilting	1/120	1/120	1/120
Max RPM Rotary	41.6	41.6	33.3
Max RPM Tilting	25	25	16.6
Guide / Location Key Width	14mm h7	14mm h7	18mm h7
Table Weight	80kg 176bs	138kg 304lbs	280kg 617lbs



PART NUMBER	A DIA.	B	C	D	E	F	G PILOT	H HOLE	J	K	L	M	M
TNT100 L	100mm	230mm	135mm	45mm	230mm	215mm	50mm H7	28mm	103mm	103mm	95mm	305mm	345mm
TNT170 R/L	170mm	282mm	180mm	60mm	260mm	320mm	55mm H7	40mm	115mm	117mm	110mm	320mm	422mm
TNT250 R	250mm	365.5mm	225mm	70mm	322mm	371mm	90mm H7	72mm	145mm	145mm	145mm	495mm	385mm

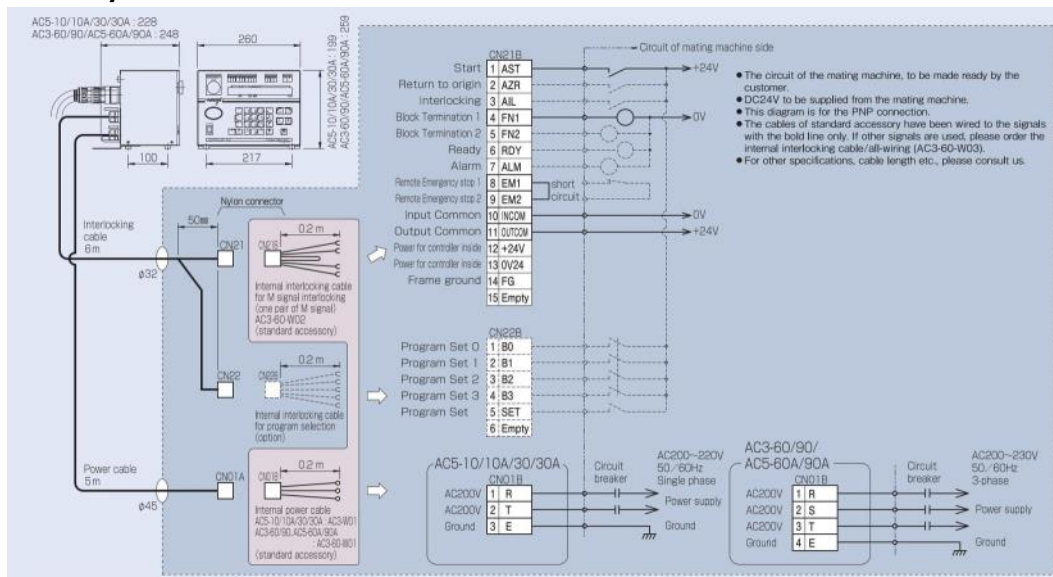
AC5 - Indexer Controller



- Direct Programming up to 100 programs, total storage of 10,000 Steps
- Machine Control / Off Line Programmable w/ Machine Macro β Function & RS232 Connection
- Compact Design
- Closed Construction to prevent contamination from oil mist

Model	AC5-10	AC5-30	AC5-60	AC5-90
Voltage	Single phase AC200V~230V + 10~-15% 50/60Hz		3-phase AC200V~230V + 10%~-15% 50/60Hz	
Rated output of AC servo-motor	300W	750W	1.0kW	1.5kW
Power consumption	Max	2.2A	7A	8.7A
	Min	7.5A	15.3A	26.1A
External dimensions & Mass (including cables)	W260mm X H199mm X D228mm, 7.8kg		W260mm X H250mm X D248mm, 10.0kg	
	W10.24" X H7.83" X D8.97", 17.16lbs		W10.24" X H9.84" X D9.76", 22lbs	
Number of control axis	Rotary axis, 1 axis			
Position detection method	Incremental encoder			
Angle setting unit & Max. command angle	0.001 , $\pm 999.999^\circ$, 999 rotations (Max rotation is continuous rotation: 5,965)			
Speed setting range	0~99999 (but limited by the reduction ratio and the motor rotation)			
JOG (manual feed) function	Selecting the rotation speed with the JOG key and the numeric keys			
Rapid override	Selecting the rapid transverse speed from 10 steps (setting 0~100% with parameter)			
Movement Mode	Auto (AUT), Manual (MAN), Return to machine origin (MZ), Return to work origin (WZ), Jog (JOG), Program edit (EDT), Parameter (PRM)			
Programming	Command method (Incremental, Absolute, Shortcut), Equal division, Sector division, Cutting feed, Multi-rotation (999 rotations), Continuous start, Interlocking start, Return to machine origin, Setting of work coordinate, Continuous block operation, Dwell, FIN, output change, Jump, Subprogram (repeating 1~999 times), Clamp valid/invalid, Running function (for trial operation)			
Program edit function	1 step/inserting deleting the steps of specified range, 1 program/deleting the programs of specified range			
Program capacity & External selection	100 programs X 100 steps, Binary mode: 16 programs, M signal mode: 100 programs			
Program/parameter memory	Non-volatile memory (Rewriting 100,000 times)			
Stroke limit	Setting with the parameter or the program (Selectable of the machine coordinate or the work coordinate)			
Diagnosis & Alarm history	Alarm number, Executing program, Current position, Shift remain, Override %, Rotation speed, Motor load torque, etc. Memorized automatically in alarming (past 69 times)			
Interlocking input	Number of point	8 points (DC24V, Non-contract Bipolar)		
	Function	Start, Return to origin, Program selection signal 0~3, Program set, interlocking		
Interlocking output	Number of point	4 points (DC24V, Non-contract Bipolar, Max.50mA)		
	Function	Block termination signal 1&2, Ready, Alarming		
External emergency stop input	1 point (b-connection input. Interlocking cable inside), Connect the switch having contact.			
Serial interface	RS232C 1port, Dsub connector 9 pins			
Internal interlocking cable	AC3-W01		AC3-60-W01	
External interlocking cable	AC3-60-W02			

External Dimensions / Connections



Data display

To display program, current position, parameter, diagnosis address, data and etc.

P : Program numbers

N : Step numbers

ADRS : Address for program function

DATA : The first digit from the left will be indicated as follows:

Rotation direction	-	+
Shortcut		
Effective stroke limit		

W : Flickering during return to work origin and will be ON when the table is on work origin.

M : Flickering during return to machine origin and will be ON when the table is on machine origin.

INC : ON during incremental command.

EMERGENCY STOP Button

When pressed, the motor will be on SERVO-OFF. For releasing, turn to right.

INTERLOCKING SIGNAL

Always to show the state with interlocking signals. AST, AZR, AIL, BO~B3, SET are output signals. FN1, FN2, and ALM are output signals.

ROTARY TABLE

Always to show the state with signals of rotary table.

LSZ : Proximity/limit switch for zero point deceleration

LSC : Proximity/limit switch for clamping confirmation

CLP : Flickering during the clamping and will be ON after confirmation

UNC : Flickering during the unclamping and will be ON after confirmation

STATUS

Always to show running status.

RUN : ON during program execution.

STOP : ON when stopped or when alarming appears, but flickering during the emergency stop.

POWER Switch

ON: Controller will be switched on.

MODE Numeric Key

Mode is selected by entering figures after pressing. Selected mode will be indicated on the left upper side of the figures.

MZ : Machine origin mode(return/setting)

WZ : Work origin mode(return/setting)

JOG : To effect one pulse feed or jog feed.

AUT : Automatic operation mode interlocked with the mating machine.

MAN : Operation by the controller only.

EDT : Program editing, initiating and selecting.

PRM : Parameter setting mode.

For the figure key, the first pressing will enter the address of EDT mode, and the second pressing and further pressings will enter figures.

RAPID OVR Rapid Override Numeric Key

Flickering frequency will change per percentage and, at 100%, the lamp will be OFF.

In MAN mode, when **START** is pressed, one block of the program will be executed.

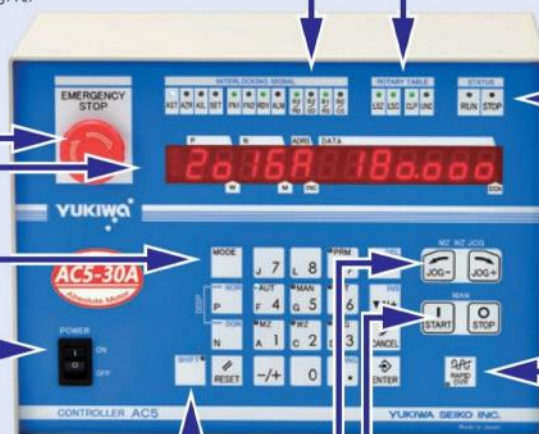
In executing the program at MAN mode or AUT mode, when **STOP** is pressed, the program will stop temporarily. It will be released by pressing **START**.

When **JOG** key is pressed briefly in JOG mode, the table will rotate one pulse.

Numeric key if the key is pressed together with a figure key, the table will rotate in the speed of the figure.

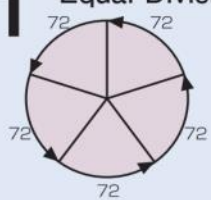
If the key is kept being pressed in MZ mode or WZ mode, the table will return to origin.

When **SHIFT** is pressed, the lamp will be ON and the function will be indicated on the right-upper side of each key.



Example of program

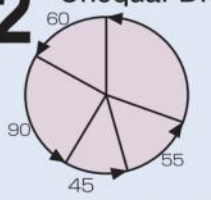
1 Equal Division



```

N00 d 5   Division into five
N01 J 0   Jump to N00
    
```

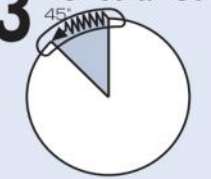
2 Unequal Division



```

N00 A 60000
N01 A 90000
N02 A 45000
N03 A 55000
N04 g 24   Return to work origin
N05 J 0
    
```

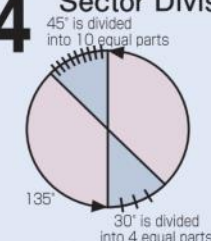
3 Circular Cutting



```

N00 F 75   Set the rotating speed to 0.75 min⁻¹.
           This is effective only for the next
           step. Thereafter, it rotates at rapid
           traverse speed unless set.
N01 A 45000 45° cutting feed.
    
```

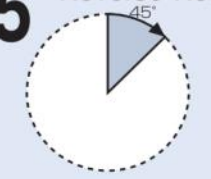
4 Sector Division



```

N00 H 45000 An angle obtained by
N01 d 10    dividing 45° into ten equal parts
           rotates. Repeat it ten times,
           and go to the next step.
N02 A 135000 135° rotation
N03 H 30000 30° is divided
N04 d 15    into 15 equal parts.
N05 g 24   Return to work origin.
N06 J 0
    
```

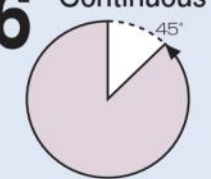
5 Reverse Rotation



```

N00 A-45000
    
```

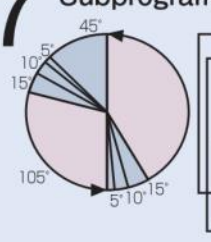
6 Continuous Rotation



```

N00 F 60   Set to 0.6 min⁻¹
N01 g 22   Start for continuous rotation
    
```

7 Subprogram



```

N00 A 45000
N01 C 10   Call subprogram from N10
N02 A 105000
N03 C 10
N04 g 24
N05 J 0
N10 A 5000 Head of the subprogram
N11 A 10000
N12 A 15000
N13 r 0   Return
    
```

Address

A	Commands the angle rotation	(0~±999.999deg)	R
B	Equal divisions command	(±999.999deg)	R
C	Sets rotating speed	(0~±999.999deg/MIN)	B
D	Jump	(0~9999)	B
E	Subprogram	(0~9999.999)	B
F	Setting Value	[Per G code immediate before.]	B
G	Preparation function		

G Code

G30		Reverse rotation	R
G31	Return to machine origin	Normal rotation	R
G32		Automatic selection	R
G33	Interlock start		R
G34		Reverse rotation	R
G35	Continuous start	Normal rotation	R
G50		Incremental ●	B
G51	Command mode	Absolute	B
G52		Shortcut	B
G53		Invalid ●	B
G54	Clamp	Valid ■	B,A
G61		End ■	B,A
G62		Start	B
G63		End	B,A
G64	Running	Start	B
G70		Current position	B
G71		Machine coordinate	B
G72	Sector Aperture angle setting	LO~359.999(deg)	B
G73	Setting of multiple rotations	L+999	B
G81	Dwell	LO~9.999(sec)	A
G82		Not output	A
G83	FIN output change	FN2 only output	A
G84		FN1,2 output	A

●: Setting with the power source being ON and changeable by parameter.

■: Setting with the power source being ON.

R: Commanding to execute rotation

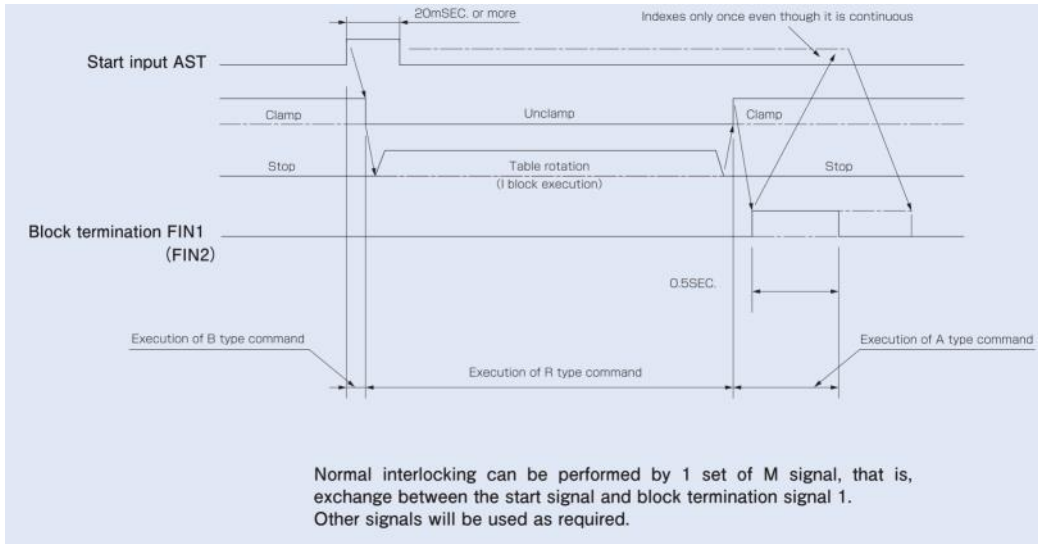
B: Commanding to immediate before R-type.

A: Commanding to immediate after R-type.

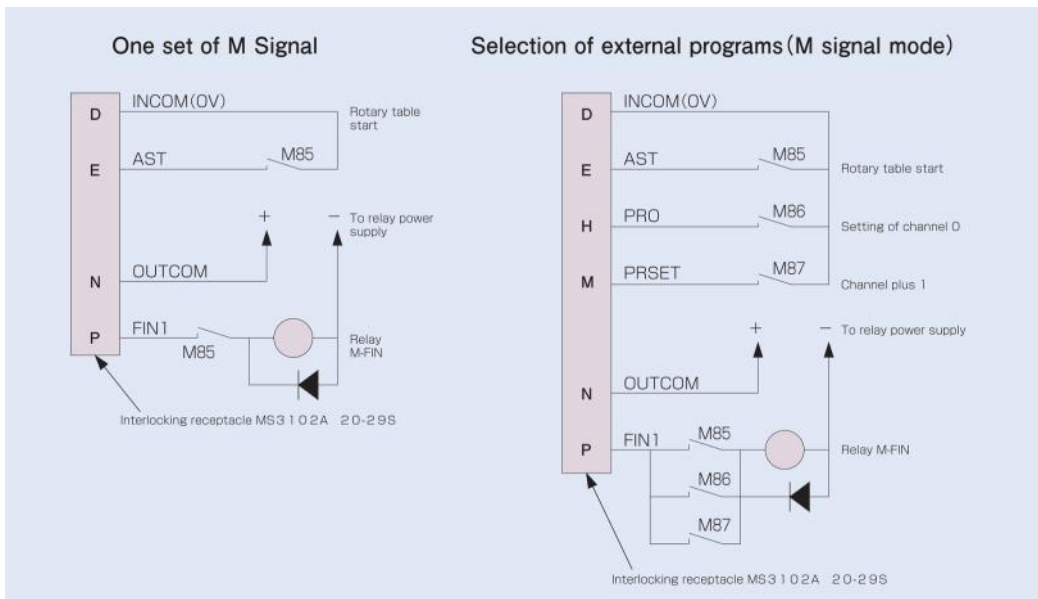
For G-code with L, the figures will be set by L-commands of preceding G-code.

Commanding to immediate before R-type.

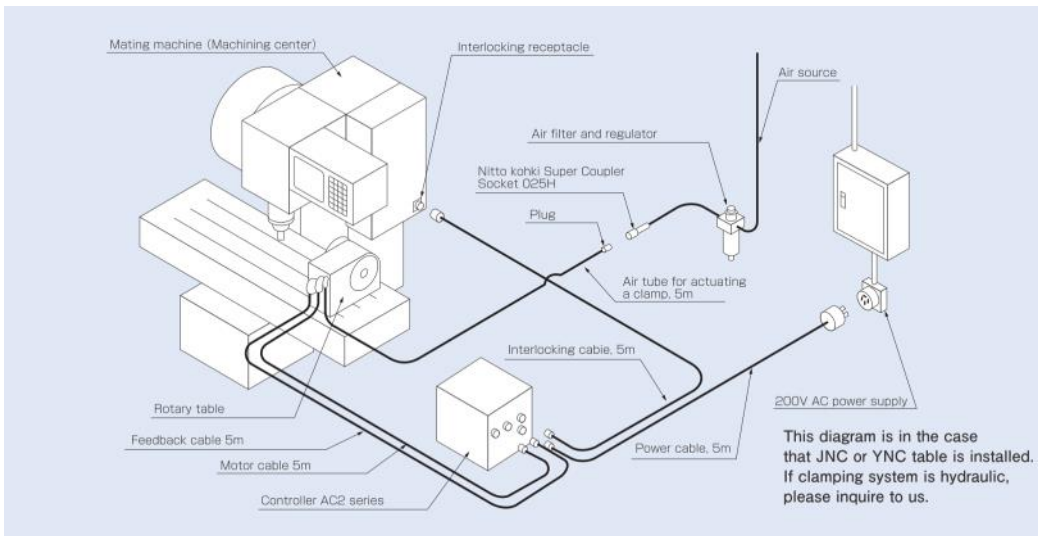
Timing Chart



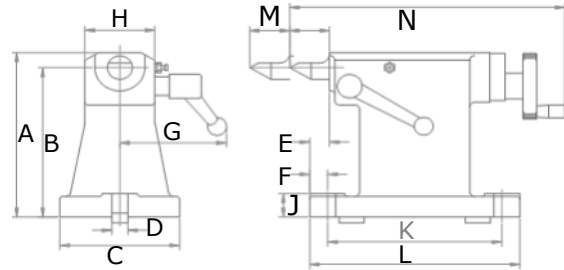
Example of interlocking signal with a machining center



Interlocking Connection Diagram

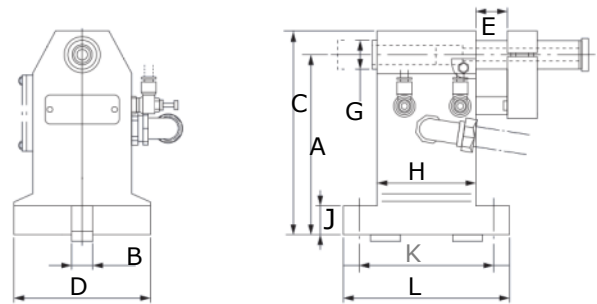


Manual Tail Stock



Model	Applicable Model	Center (shaft OD)	Weight	A	B	C	D	E	F	G	H	J	K	L	M	N	P
TSB110S	JNC140	25mm	8kg	126mm	110mm	110mm	14mm	10mm	22mm	88mm	50mm	20mm	160mm	190mm	20mm	25mm	205mm
		0.98"	17lbs	4.96"	4.33"	4.33"	0.55"	0.39"	0.87"	3.46"	1.97"	0.79"	6.30"	7.48"	0.79"	0.98"	8.07"
TSB135S	JNC170,YNCP170	25mm	10kg	151mm	135mm	110mm	14mm	20mm	26mm	107mm	70mm	23mm	174mm	210mm	40mm	40mm	275mm
		0.98"	22lbs	5.94"	5.31"	4.33"	0.55"	0.79"	1.02"	4.21"	2.76"	0.91"	6.85"	8.27"	1.57"	1.57"	10.83"
TSB160S	JNC200,YNCP200	25mm	11kg	176mm	160mm	120mm	18mm	20mm	26mm	107mm	70mm	25mm	174mm	210mm	40mm	40mm	275mm
		0.98"	24lbs	6.93"	6.30"	4.72"	0.71"	0.79"	1.02"	4.21"	2.76"	0.98"	6.85"	8.27"	1.57"	1.57"	10.83"
TSB200S	JNC250,YNCP250	38mm	25kg	227mm	200mm	140mm	18mm	10mm	25mm	128mm	90mm	35mm	228mm	260mm	40mm	50mm	395mm
		1.50"	55lbs	8.94"	7.87"	5.51"	0.71"	0.39"	0.98"	5.04"	3.54"	1.38"	8.98"	10.24"	1.57"	1.97"	15.55"

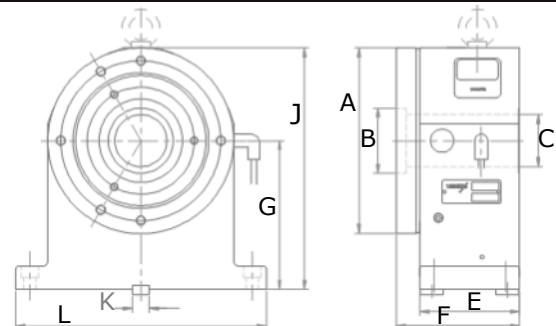
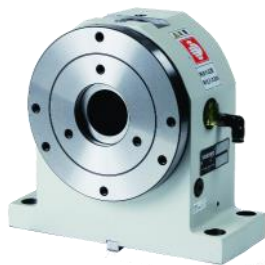
Pneumatic Tail Stock



Model	Applicable Model	Shaft Thrust	Weight (kg)	ID Taper	A (Center Height)	B (h7)	C	D	E (Stroke)	F	G	H	J	K	L
TPA110	JNC140	310mm	6kg	MT2	110mm	14mm	130mm	88mm	40mm	25mm	25mm	85mm	20mm	119mm	149mm
		12.20"	13lbs		4.33"	0.55"	5.12"	3.46"	1.57"	0.98"	0.98"	3.35"	0.79"	4.69"	5.87"
TPA135	JNC170,YNCP170	310mm	7kg	MT2	135mm	14mm	155mm	88mm	40mm	25mm	25mm	85mm	20mm	119mm	149mm
		12.20"	15lbs		5.31"	0.55"	6.10"	3.46"	1.57"	0.98"	0.98"	3.35"	0.79"	4.69"	5.87"
TPA160	JNC200,YNCP200	310mm	9kg	MT2	160mm	18mm	180mm	120mm	40mm	25mm	25mm	85mm	25mm	119mm	149mm
		12.20"	19lbs		6.30"	0.71"	7.09"	4.72"	1.57"	0.98"	0.98"	3.35"	0.98"	4.69"	5.87"
TPA200	JNC250,YNCP250	490mm	12kg	MT3	200mm	18mm	225mm	120mm	40mm	32mm	32mm	89mm	25mm	123mm	153mm
		19.29"	27lbs		7.87"	0.71"	8.86"	4.72"	1.57"	1.26"	1.26"	3.50"	0.98"	4.84"	6.02"

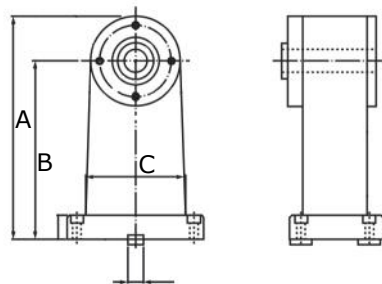
Side Table

Features: Air Break System for additional holding power



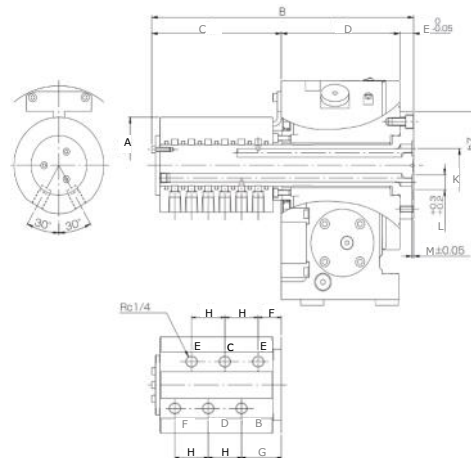
Model	Applicable Model	Clamp Torque	Weight	A (Spindle Dia)	B (Pilot)	C (Hole Thru)	E	F	G (Center Height)	J	K	L
ST135	JNC170,YNCP170	153Nm	21kg	170mm	60mm	45mm	98mm	117mm	135mm	220mm	14mm	240mm
		112.85ft-lbs	46lbs	6.69"	2.36"	1.77"	3.86"	4.60"	5.31"	8.66"	0.55"	9.45"
ST160	JNC200,YNCP200	415Nm	33kg	200mm	70mm	56mm	107mm	132mm	160mm	270mm	18mm	270mm
		306.09ft-lbs	73lbs	7.87"	2.76"	2.20"	3.86"	5.20"	6.30"	10.63"	0.71"	10.63"
ST200	JNC250,YNCP250	517Nm	58kg	250mm	90mm	72mm	124mm	151mm	200mm	325mm	18mm	320mm
		381.32ft-lbs	128lbs	9.84"	3.54"	2.83"	4.88"	5.94"	7.87"	12.80"	0.71"	12.60"

SS Series



Model	Applicable Model	Center Height	Weight	A	B	C	D
SS110	JNC140	110mm	9kg	160mm	110mm	100mm	14mm
		4.33"	22lbs	6.30"	4.33"	3.94"	0.55"
SS135	JNC170, YNCP170	135mm	10kg	185mm	135mm	100mm	14mm
		5.31"	23lbs	7.28"	5.31"	3.94"	0.55"
SS160	JNC200, YNCP200	160mm	11kg	210mm	160mm	100mm	18mm
		6.30"	24lbs	8.27"	6.30"	3.94"	0.71"
SS200	JNC250, YNCP250	200mm	12mm	250mm	200mm	110mm	18mm
		7.87"	27lbs	9.84"	7.87"	4.33"	0.71"

Outside mount type rotary joint



Model		Number of ports	Applicable Pressure (Mpa)	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
JNC 140 L/R	-SJ4L	4	3.5	87mm	229mm	91mm	128mm	10mm	20mm	36mm	32mm	95mm	24mm	12mm	1.4mm	6-M6X10 (P.C.D.118)	3-M6X10 (P.C.D.78)	-
				3.43"	9.02"	3.58"	5.04"	0.39"	0.79"	1.42"	1.26"	3.74"	0.94"	0.47"	0.06"			
JNC (H) 170 L/R	-SJ6L	6	3.5	97mm	283mm	140mm	128mm	15mm	25mm	43mm	36mm	108mm	34mm	15mm	1.8mm	6-M8X12 (P.C.D.150)	3-M6X15 (P.C.D.88)	-
				3.82"	11.14"	5.51"	5.04"	0.59"	0.98"	1.69"	1.42"	4.25"	1.34"	0.59"	0.07"			
		6	7.0	105mm	283mm	140mm	128mm	15mm	25mm	43mm	36mm	108mm	34mm	15mm	1.8mm			
JNC (H) 200 L/R	-SJ6L	6	3.5	97mm	303mm	140mm	148mm	15mm	25mm	43mm	36mm	130mm	34mm	15mm	1.8mm	6-M10X12 (P.C.D.172)	3-M8X15 (P.C.D.115)	-
				3.82"	11.93"	5.51"	5.83"	0.59"	0.98"	1.69"	1.42"	5.12"	1.34"	0.59"	0.07"			
		6	7.0	105mm	303mm	140mm	148mm	15mm	25mm	43mm	36mm	130mm	34mm	15mm	1.8mm			
JNC (H) 250 L/R	-SJ6L	6	3.5	122mm	358mm	140mm	168mm	15mm	32mm	54mm	44mm	153mm	39mm	15mm	1.8mm	6-M10X17 (P.C.D.210)	3-M10X15 (P.C.D.130)	14h7 Projection 6mm
				3.82"	14.09"	5.51"	6.61"	0.59"	1.26"	2.13"	1.74"	6.02"	1.54"	0.59"	0.07"			
YNC (P) 170 L/R	-SJ6L	6	3.5	97mm	323mm	175mm	168mm	15mm	25mm	43mm	36mm	108mm	34mm	15mm	1.8mm	6-M8X12 (P.C.D.150)	3-M6X15 (P.C.D.88)	-
				3.82"	12.72"	6.89"	6.61"	0.59"	0.98"	1.69"	1.42"	4.25"	1.34"	0.59"	0.07"			
		6	7.0	105mm	323mm	175mm	168mm	15mm	25mm	43mm	36mm	108mm	34mm	15mm	1.8mm			
YNC (P) 200 L/R	-SJ6L	6	3.5	97mm	347mm	140mm	192mm	15mm	25mm	43mm	36mm	130mm	34mm	15mm	1.8mm	6-M10X12 (P.C.D.172)	3-M8X15 (P.C.D.115)	-
				3.82"	13.66"	5.51"	7.56"	0.59"	0.98"	1.69"	1.42"	5.12"	1.34"	0.59"	0.07"			
		6	7.0	105mm	347mm	140mm	192mm	15mm	25mm	43mm	36mm	130mm	34mm	15mm	1.8mm			
YNC (P) 250 L/R	-SJ6L	6	3.5	122mm	410mm	175mm	220mm	15mm	32mm	54mm	44mm	153mm	39mm	15mm	1.8mm	6-M10X17 (P.C.D.210)	3-M10X15 (P.C.D.130)	-
				3.82"	16.14"	6.89"	8.66"	0.59"	1.26"	2.13"	1.74"	6.02"	1.54"	0.59"	0.07"			

PIONEER Premium Rotary Tables

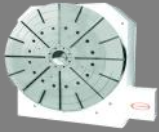




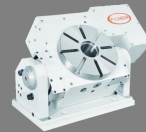
**4th Axis
Standard
P.30**



**5 Axis
Trunnion Models
P.46**



**4th Axis
Large Size
P.34**



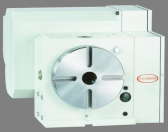
**5 Axis Manual
Tilting Rotary Table
P.48**



**4th Axis
Big Bore
P.36**



**IDX Controller
P.52**



**4th Axis Back
Mounted Motor
P.38**



**Manual Tilting
Tailstocks
P.54**



**4th Axis Roller Cam
Rotary Table
P.40**



**4th Axis
Multi-Spindle Type
P.42**



**5 Axis
Tilting Table
P.44**



4th Axis - AX4 - 170-320mm



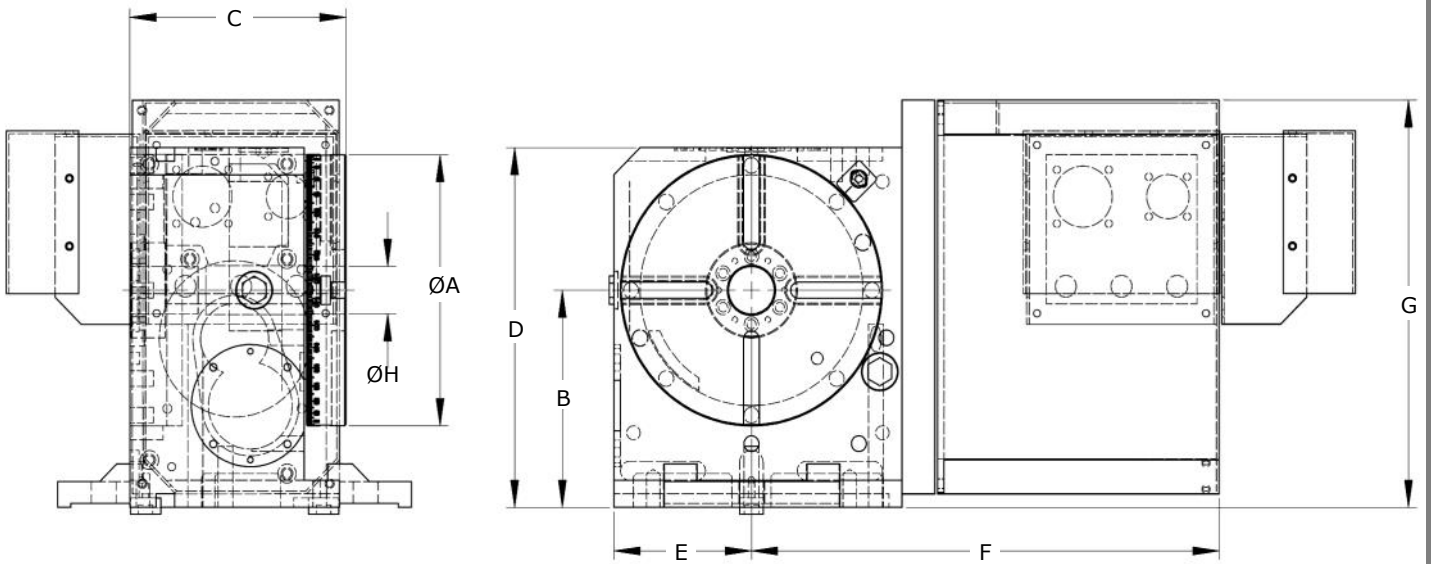
- Combination of case hardened special alloy screw and special high tensile strength brass worm wheel ensures exceptional wear resistant and long durability
- Dual lead worm screw for easy backlash adjustment
- Large diameter worm wheel for extra rigidity, smoothness and torque transfer efficiency
- Double bearing design and solid one piece face plate & spindle for extra rigidity
- Large thru hole standard on most face plate sizes

Available as :

- Integrated 4th axis
- Indexer with a programmable control box
- Optional air purge for water protection
- Left hand configurations
- Super high resolution with optional rotary scale

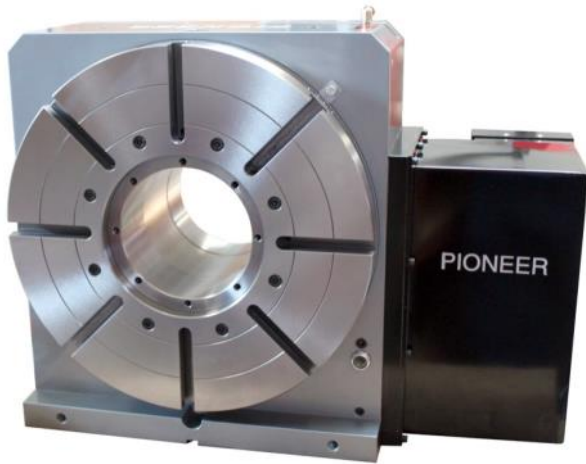
Model		AX4-171R		AX4-200R		AX4-250R		AX4-320R	
Table Diameter		170mm	6.69"	200mm	7.87"	250mm	9.84"	320mm	12.6"
Center Height		160mm	6.30"	160mm	6.30"	185mm	7.28"	210mm	8.27"
Center Hole		35mm H7	1.38" H7	35mm H7	1.38" H7	70mm H7	2.76" H7	110mm H7	4.33" H7
Guide Block Width		18mm h7	0.71" h7	18mm h7	0.71" h7	18mm h7	0.71" h7	18mm h7	0.71" h7
T-slot Width		12mm H7	0.47" H7	12mm H7	0.47" H7	12mm H7	0.47" H7	14mm h7	0.55" h7
FANUC servo motor		aiF4		aiF4		aiF4/8		aiF12	
Max. RPM		22.2		22.2		11.1 / 22.2		11.1 / 22.2	
Gear Ratio		1:90		1:90		1:180/1:90		1:180/1:90	
Indexing Accuracy arc sec.		± 12.5		± 12.5		± 10		± 10	
Net Weight without motors		70kg	155lbs	84kg	185lbs	124kg	275lbs	210kg	463lbs
Clamp Torque	Pneumatic @72psi	245Nm	181ft-lbs	245Nm	181ft-lbs	461Nm	340ft-lbs	696Nm	514ft-lbs
	Hydraulic @286psi	490Nm	361ft-lbs	490Nm	361ft-lbs	921Nm	679ft-lbs	1392Nm	1026ft-lbs
Vertical Weight Limit		75kg	165lbs	100kg	220lbs	125kg	275lbs	150kg	330lbs
Horizontal Weight Limit		150kg	330lbs	200kg	440lbs	300kg	660lbs	350kg	770lbs
Horizontal Load Limit		7,840 N	1,762lbf	8,055N	1,810lbf	1,1840N	2,662lbf	1,3475N	3,030lbf
Circumference Load Force		245Nm	181ft-lbs	245Nm	181ft-lbs	461Nm	340ft-lbs	696Nm	514ft-lbs
Vertical Load Limit		392Nm	290ft-lbs	490Nm	361ft-lbs	705Nm	520ft-lbs	900Nm	665ft-lbs

* All specifications are subject to change without prior notice.



PART NUMBER	A DIA.	B	C	D	E	F	G	H HOLE
AX4-171R	170mm	160mm	165mm	265mm	105mm	355mm aif4	300mm	35mm H7
AX4-200R	200mm	160mm	165mm	265mm	105mm	355mm aif4	300mm	35mm H7
AX4-250R	250mm	185mm	200mm	315mm	130mm	417mm aif8	315mm	70mm H7
AX4-320R	320mm	210mm	240mm	380mm	170	430mm aif12	-	110mm H7






4th Axis - AX4 - 400-800mm

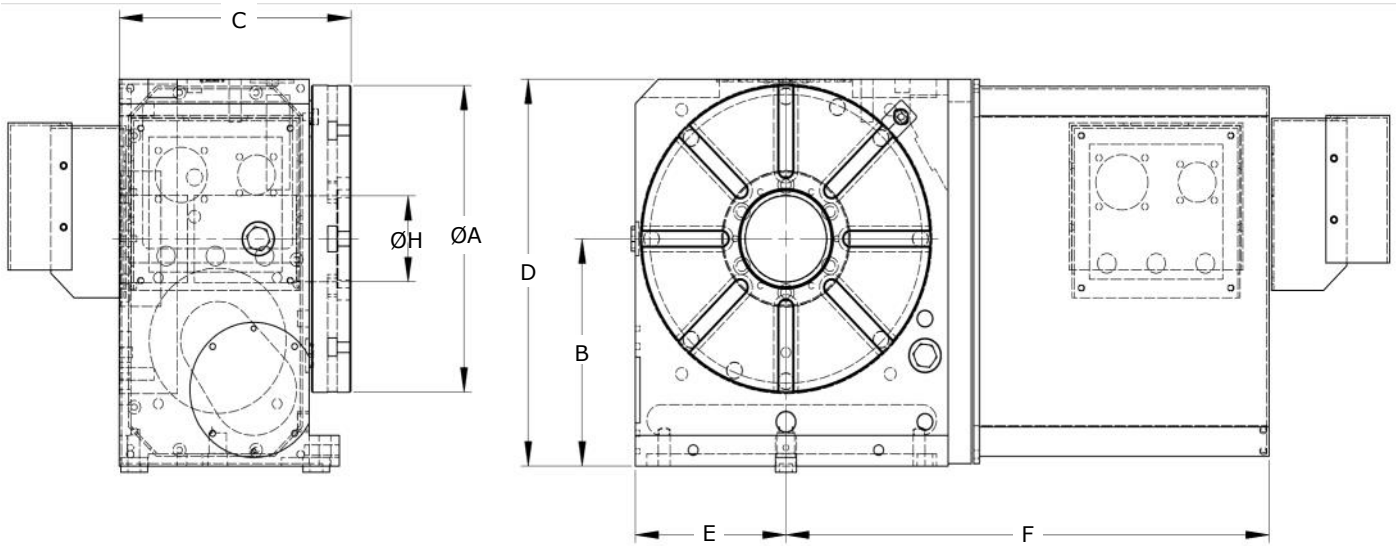


- Combination of case hardened special alloy screw and special high tensile strength brass worm wheel ensures exceptional wear resistant and long durability.
- Dual lead worm screw for easy backlash adjustment
- Large diameter worm wheel for extra rigidity, smoothness and torque transfer efficiency
- Double bearing design and solid one piece face plate & spindle for extra rigidity
- Large thru hole standard on most face plate sizes

Available as :

- Integrated 4th axis
- Indexer with a programmable control box
- Optional air purge for water protection
- Left hand configurations
- Super high resolution with optional rotary scale

Model	AX4-400R		AX4-500R		AX4-630R		AX4-800R		
Table Diameter	400mm	15.75"	500mm	19.68"	630mm	24.8"	800mm	31.5"	
Center Height	250mm	9.84"	310mm	12.2"	400mm	15.75"	480mm	18.9"	
Center Hole	150mm H7	5.91" H7	180mm H7	7.09" H7	254mm H7	10" H7"	254mm H7	10" H7	
Guide Block Width	18mm h7	0.71" h7	18mm h7	0.71" h7	18mm h7	0.71" h7	22mm h7	0.87" h7	
T-slot Width	14mm H7	0.55" H7	18mm H7	0.71" H7	18mm H7	0.71" H7	20mm H7	0.79" H7	
FANUC servo motor	aiF12		aiF12/aiF22		aiF22		aiF22		
Max. RPM	22.2		16.7		11.1		11.1		
Gear Ratio	1:90		1:120		1:180		1:180		
Indexing Accuracy arc sec.	± 7.5		± 7.5		± 7.5		± 7.5		
Net Weight without motors	280kg	616lbs	380kg	836lbs	860kg	1,892lbs	1,200kg	2,640lbs	
Clamp Torque	Pneumatic @72psi	902Nm	665ft-lbs	1,225Nm	904ft-lbs	3,430Nm	2,529ft-lbs	4,214Nm	3,108ft-lbs
	Hydraulic @286psi	1,803Nm	1,330ft-lbs	2,450Nm	1,807ft-lbs	6,860Nm	5,060ft-lbs	1,0297Nm	7,588ft-lbs
Vertical Weight Limit		300kg	660lbs	350kg	770lbs	400kg	880lbs	500kg	1,100lbs
Horizontal Weight Limit		500kg	1,100lbs	600kg	1,320lbs	800kg	1,760lbs	1,000kg	2,200lbs
Horizontal Load Limit		15,533 N	3,942lbf	18,424 N	4142lbf	20,384 N	4582lbf	25,480 N	5,728lbf
Circumference Load Force		902Nm	665ft-lbs	1,225Nm	903ft-lbs	3,432Nm	2,529ft-lbs	4,214Nm	3,108ft-lbs
Vertical Load Limit		1,195Nm	882ft-lbs	1,617Nm	1,192ft-lbs	2,234Nm	1,648ft-lbs	2,793Nm	2,060ft-lbs








PART NUMBER	A DIA.	B	C	D	E	F	H HOLE
AX4-400R	400mm	250mm	250mm	460mm	210mm	462mm aif12	150mm H7
AX4-500R	500mm	310mm	290mm	570mm	260mm	510mm aif12	180mm H7
AX4-630R	630mm	400mm	320mm	725mm	325mm	652mm aif22	254mm H7
AX4-800R	800mm	480mm	340mm	880mm	400mm	727mm aif22	254mm H7

4th Axis - AX4 - 1000 - 2000mm

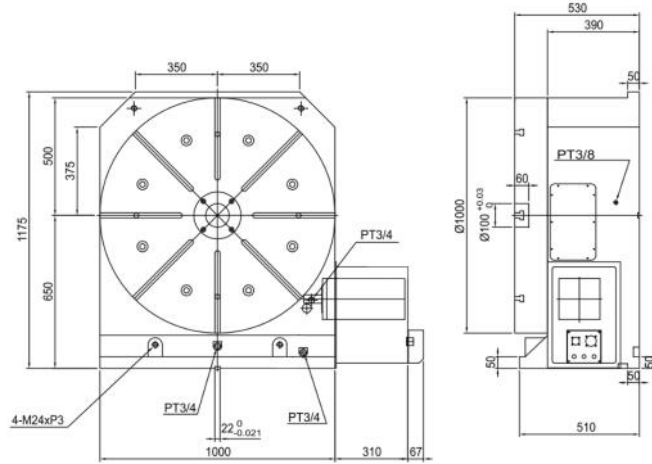


- Table size available from 1,000mm to 2,000mm
- Available in both vertical & horizontal position
- Heavy loading capacity axial-radial roller bearings are incorporated to provide higher rigidity
- Custom design available for various applications
- Super high resolution of +/- 5 sec with direct measuring rotary scale available as option

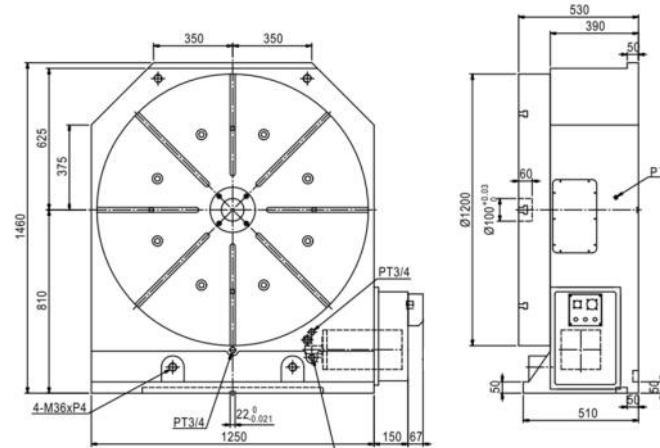
*Available resolution varies depending on the grade of the rotary scale

Model	AX4-1000HV		AX4-1200HV		AX4-1500HV		AX4-2000HV	
Table Diameter	1000mm	39.37"	1,200mm	47.24"	1,500mm	59.06"	2,000mm	78.74"
Center Height in Vertical	650mm	25.59"	810mm	31.89"	900mm	35.43"	1100mm	43.31"
Table Height in Horizontal	530mm	20.87"	530mm	20.87"	700mm	27.56"	800mm	31.5"
Center Holes	100x60mm	3.94x2.36"	100x60mm	3.94x2.36"	200x70mm	7.87x2.76"	200x70mm	7.87x2.76"
Guide Block Width	22mm h7	0.87" h7	22mm h7	0.87" h7	28mm H7	1.10" H7	36mm h7	1.42" h7
T-slot Width	22mm H7	0.87" H7	22mm H7	0.87" H7	22mm H7	0.87" H7	28mm H7	1.10" H7
FANUC servo motor	aiF30		aiF30		aiF30		aiF40	
Gear Ratio	1:360		1:360		1:720		1:720	
Min. Indexing (degree)	0.001°		0.001°		0.001°		0.001°	
Max. RPM	5.56		5.56		2.78		2.78	
Clamp System	Hydraulic							
Clamp Torque @500psi	10,780Nm	7,950ft-lbs	10,780Nm	7,950ft-lbs	14,700Nm	10,840 ft-lbs	19,600Nm	14,454 ft-lbs
Indexing Accuracy arc sec.	± 7.5		± 7.5		± 7.5		± 7.5	
Indexing Accuracy w/ Rotary Scale (optional)	± 5		± 5		± 5		± 5	
Net weight without motors	2,500kg	5,500lbs	3,500kg	7,700lbs	6,000kg	13,200lbs	8,000kg	17,600lbs
Vertical Weight Limit 	1,500kg	3,300lbs	2,000kg	4,400lbs	3,000kg	6,600lbs	4,000kg	8,800lbs
Horizontal Weight Limit 	3,500kg	7,700lbs	5,000kg	11,000lbs	8,000kg	17,600lbs	10,000kg	22,000lbs
Horizontal Load Limit 	29,400 N	6,610lbf	29,400 N	6,610lbf	49,000 N	11,015lbf	58,800 N	13,218lbf
Circumference Load Force 	10,780Nm	7,950ft-lbs	10,780Nm	7,950ft-lbs	14,700Nm	10,840 ft-lbs	19,600Nm	14,454 ft-lbs
Vertical Load Limit 	9,800Nm	7,227ft-lbs	9,800Nm	7,227ft-lbs	14,700Nm	10,840 ft-lbs	19,600Nm	14,454 ft-lbs

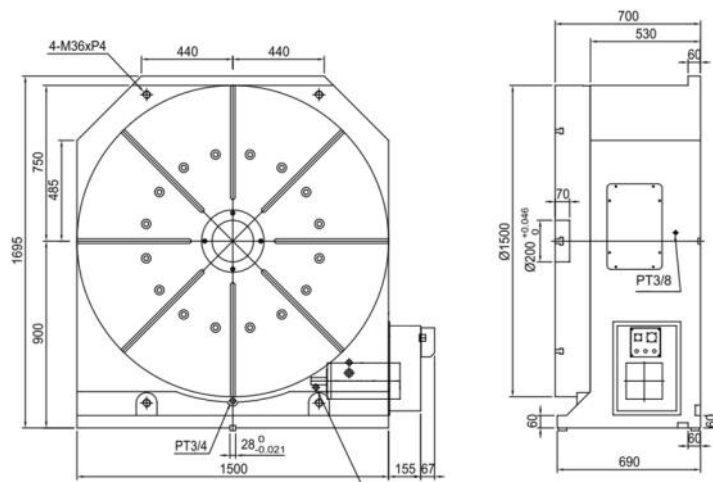
AX-1000HV



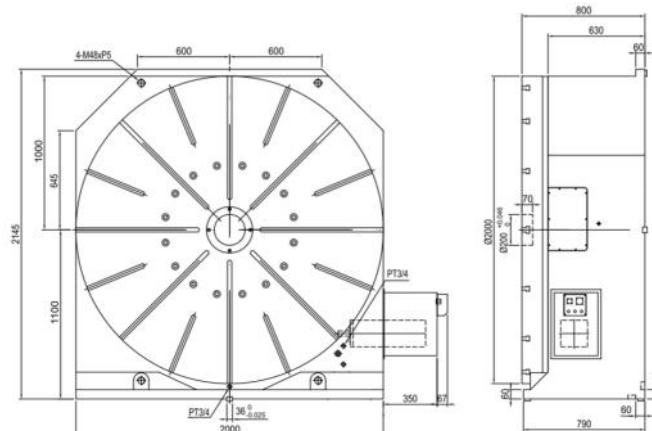
AX-1200HV



AX-1500HV



AX-2000HV








4th Axis - AX4 800mm Big Bore

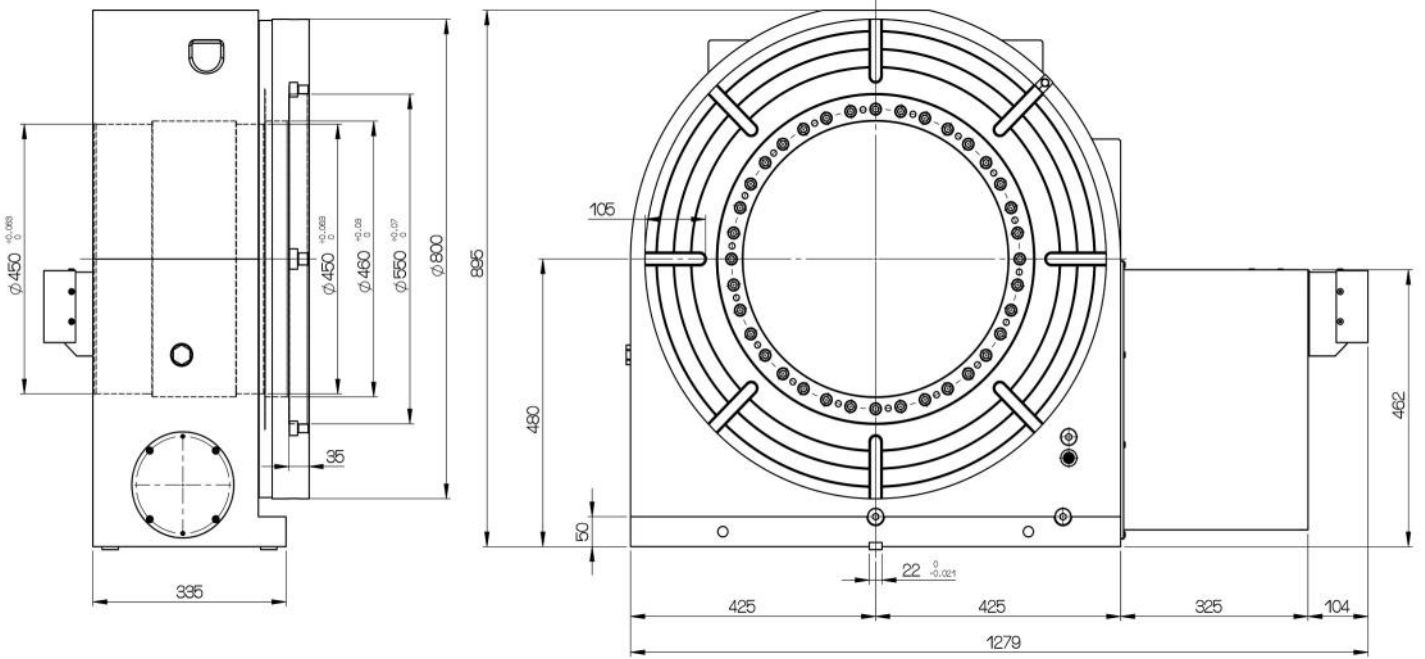


- Table size available 800mm
- Big Bore Design—450mm ID (17.7")
- Available in both vertical & horizontal position
- Heavy loading capacity axial-radial roller bearings are incorporated to provide higher rigidity
- Custom design available for various applications
- Super high resolution of +/- 5 sec with direct measuring rotary scale available as option

*Available resolution varies depending on the grade of the rotary scale

Model	AX-800BR	
Table Diameter	800mm	31.5"
Center Height	480mm	18.9"
Center Hole	450mm H7	17.7" H7
Guide Block Width	22mm h7	0.87" h7
T-slot Width	20mm H7	0.79" H7
FANUC servo motor	aiF22	
Max. RPM	11.1	
Gear Ratio	1:180	
Indexing Accuracy arc sec.	± 7.5	
Net Weight without motors	1,060kg	2,337lbs
Brake Torque Hydraulic @286psi	15,690Nm	11,573ft-lbs
Vertical Weight Limit 	1,500kg	3,307lbs
Horizontal Weight Limit 	3,000kg	6,614lbs
Horizontal Load Limit 	49,033 N	11,023lbf
Circumference Load Force 	15,690Nm	11,573
Vertical Load Limit 	15,690Nm	2,070ft-lbs






AX4-800BR



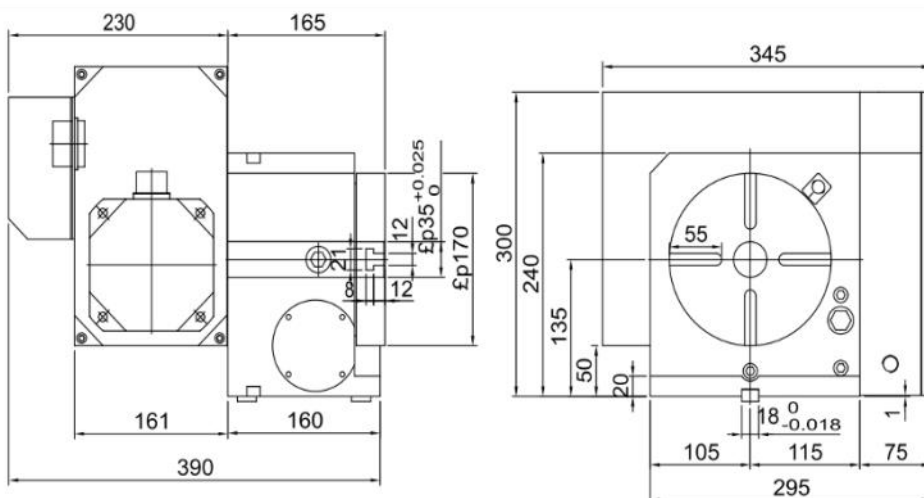
4th Axis - AX4 Back Mount Motor



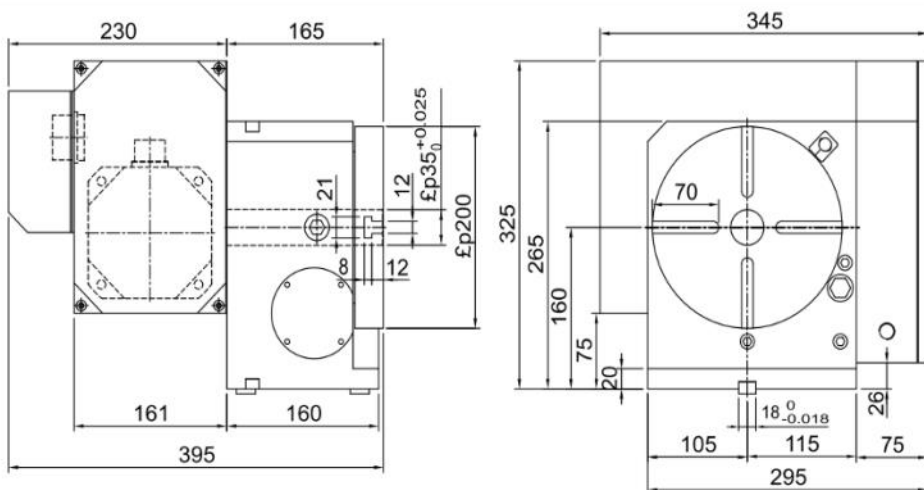
- Back-Mounted Motor, avoid the interference with M/C splash guard
- Suitable for small-size of AX Machining / Tapping-Center.
- **This model cannot be installed for horizontal use.**

Model	AX4-120RB		AX4-170RB		AX4-200RB		AX4-250RB		
Table Diameter	120mm	4.72"	170mm	6.69"	200mm	7.87"	250mm	9.84"	
Center Height	115mm	4.53"	135mm	5.31"	160mm	6.30"	185mm	7.28"	
Center Hole	30mm H7	1.18" H7	35mm H7	1.38" H7	35mm H7	1.38" H7	52mmH7	2.05" H7	
Guide Block Width	14mm h7	0.55" h7	18mm h7	0.71" h7	18mm h7	0.71" h7	18mm h7	0.71" h7	
T-slot Width	10mm H7	0.39" H7	12mm H7	0.47" H7	12mm H7	0.47" H7	12mm H7	0.47" H7	
FANUC servo motor	aiF2		aiF4		aiF4		aiF4		
Max. RPM	33.3		22.2		22.2		22.2		
Gear Ratio	1:60		1:90		1:90		1:90		
Indexing Accuracy arc sec.	± 30		± 12.5		± 12.5		± 12.5		
Net Weight without motors	70kg	154lbs	70kg	154lbs	84kg	185lbs	124kg	273lbs	
Clamp Torque	Pneumatic @72psi	118Nm	87ft-lbs	245Nm	180ft-lbs	245Nm	180ft-lbs	460Nm	340ft-lbs
	Hydraulic @286psi	235Nm	174ft-lbs	490Nm	362ft-lbs	490Nm	362ft-lbs	922Nm	680ft-lbs
Vertical Weight Limit		35kg	77lbs	75kg	165lbs	100kg	220lbs	125kg	275lbs
Horizontal Weight Limit		75kg	165lbs	150kg	330lbs	200kg	440lbs	300kg	660lbs
Horizontal Load Limit		5,880 N	1,322lbf	7,840 N	1,762lbf	8,055 N	1,811lbf	11,838 N	2,661lbf
Circumference Load Force		118Nm	87ft-lbs	245Nm	180ft-lbs	245Nm	180ft-lbs	460Nm	340ft-lbs
Vertical Load Limit		118Nm	87ft-lbs	392Nm	290ft-lbs	490Nm	363ft-lbs	705Nm	522ft-lbs

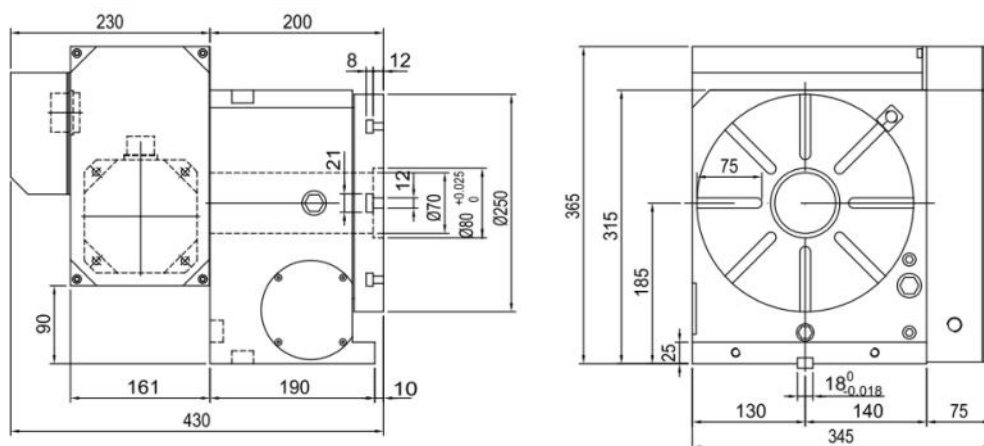
AX-170RB



AX-200RB



AX-250RB



4th Axis - AX4 Roller Cam

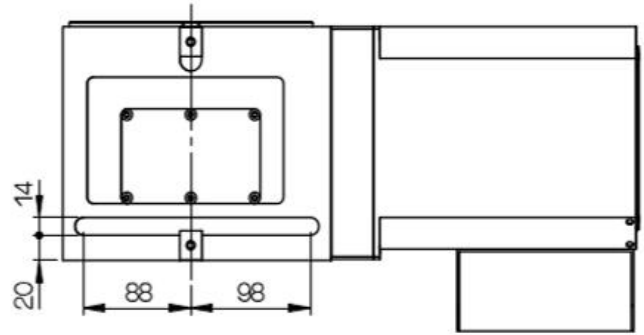
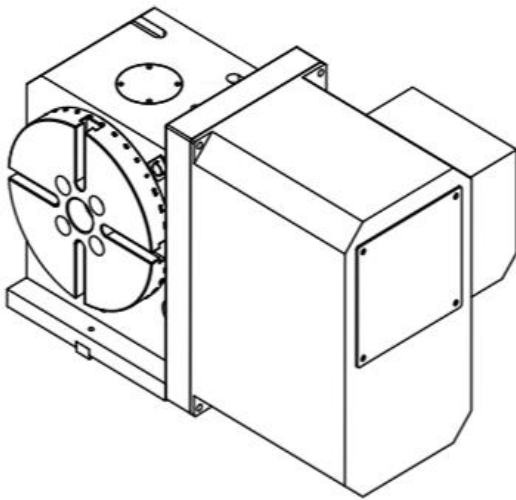
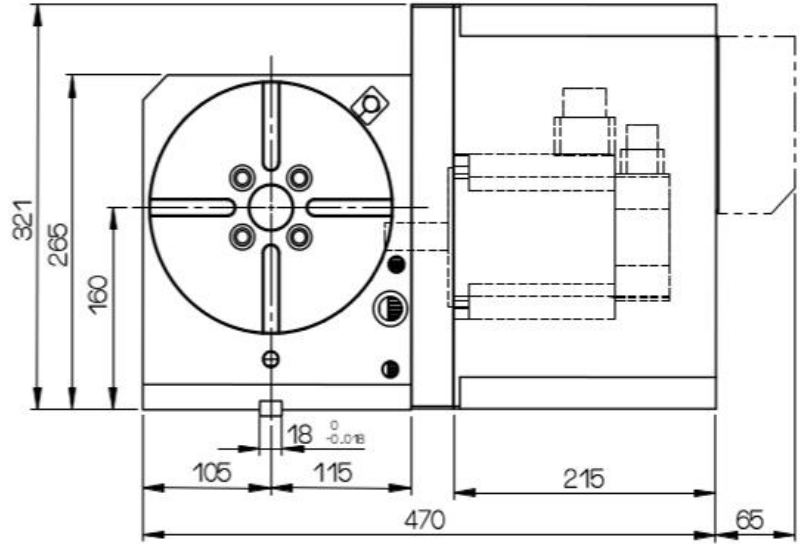
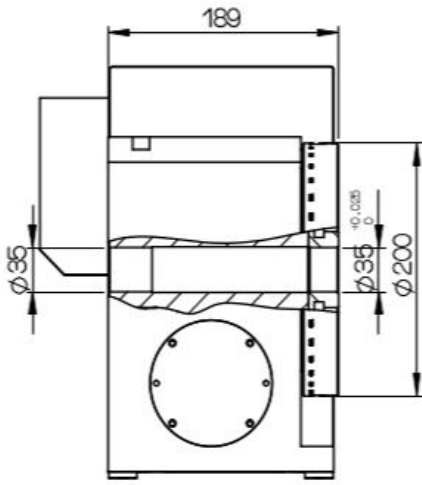


- Roller Cam Gear System has many advantages over conventional worm gearing system
 - Higher RPM
 - Higher rigidity
 - Higher accuracy compared to conventional worm gear system
- Maintenance Free – unique Zero-Backlash design requires no backlash adjustments

Available as :

- Integrated 4th axis
- Indexer with a programmable control box
- Optional air purge for water protection
- Left hand configurations
- Super high resolution with optional rotary scale

Model	RCT-170R		RCT-200R		RCT-250R		RCT-320R		
Table Diameter	170mm	6.69"	200mm	7.87"	250mm	9.84"	320mm	12.60"	
Center Height	135mm	5.31"	160mm	6.30"	185mm	7.28"	210mm	8.27"	
Center Hole	35mm H7 /35mm	1.37" H7 / 1.37"	35mm H7 /35mm	1.37" H7 / 1.37"	70mm H7 /70mm	2.76" H7 / 2.76"	145mm H7 /80mm	5.71" H7 / 3.15"	
Guide Block Width	18mm h7	0.71" h7	18mm h7	0.71" h7	18mm h7	0.71" h7	18mm h7	0.71" h7	
T-slot Width	12mm H7	0.47" H7	12mm H7	0.47" H7	12mm H7	0.47" H7	14mm H7	0.55" H7	
FANUC servo motor	aiF4		aiF4		aiF8		aiF8		
Max. RPM	66.6		50		50		33.3		
Gear Ratio	1:30		1:40		1:40		1:60		
Indexing Accuracy arc sec.	± 10		± 10		± 10		± 10		
Net Weight without motors	65kg	143lbs	80kg	176lbs	120kg	265lbs	200kg	441lbs	
Clamp Torque	Pneumatic @72psi	245Nm	181ft-lbs	245Nm	181ft-lbs	441Nm	325ft-lbs	696Nm	513ft-lbs
	Hydraulic @286psi	490Nm	361ft-lbs	490Nm	361ft-lbs	882Nm	650ft-lbs	1,392Nm	1,026ft-lbs
Vertical Weight Limit		75 kg	165lbs	75 kg	165lbs	100 kg	220lbs	150 kg	330lbs
Horizontal Weight Limit		150 kg	331lbs	150 kg	330.69lbs	250 kg	551lbs	350 kg	771lbs
Horizontal Load Limit		7840 N	1762lbf	7,840 N	1762lbf	13,720 N	3,084lbf	19,600 N	4,406lbf
Circumference Load		245Nm	181ft-lbs	245Nm	181ft-lbs	441Nm	325ft-lbs	696Nm	514ft-lbs
Vertical Load Limit		392 Nm	289ft-lbs	392 Nm	289ft-lbs	980Nm	723ft-lbs	1,960Nm	1,445ft-lbs



Roller Gear Cam Drive Assembly



4th Axis - AX4 Multi-Spindle



- Increase productivity - Available up to 4 spindles
- Combination of case hardened special alloy screw and special high tensile strength brass worm wheel ensures exceptional wear resistant and long durability.
- Dual lead worm screw for easy backlash adjustment
- Large diameter worm wheel for extra rigidity, smoothness and torque transfer efficiency
- Double bearing design and solid one piece face plate & spindle for extra rigidity

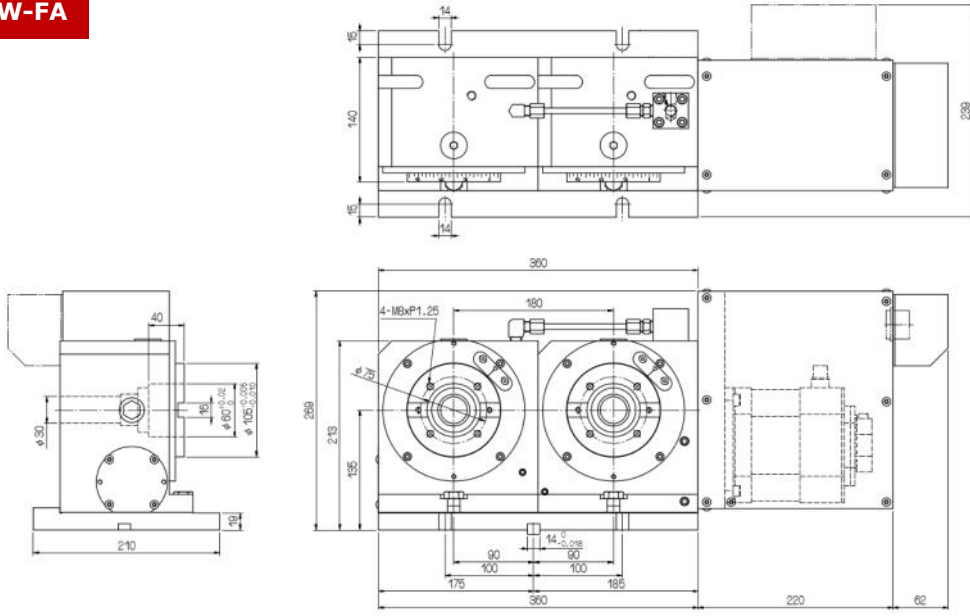
Available as :

- Integrated 4th axis
- Indexer with a programmable control box
- Optional air purge for water protection

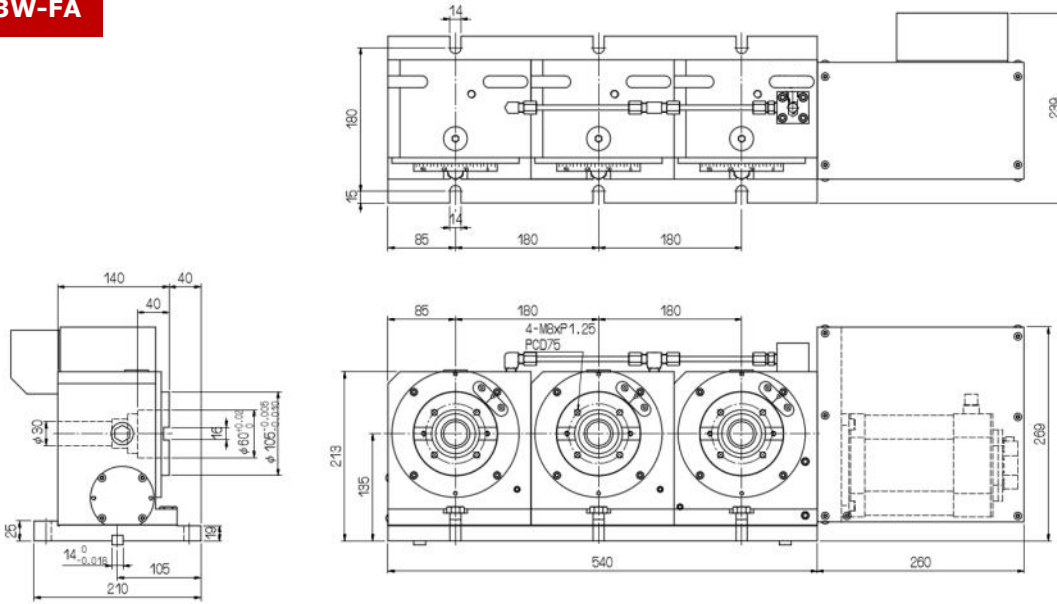
170, 200, 250mm spindles sizes available upon request

Model	AX4-120R-2W (3W/4W)		
Table Diameter	120mm	4.72"	
Center Height	135mm	5.31"	
Center Hole	30mm H7	1.18" H7	
Guide Block Width	14mm h7	0.55" h7	
T-slot Width	10mm h7	0.39" h7	
FANUC servo motor	aiF4		
Max. RPM	33.3		
Gear Ratio	1:60		
Indexing Accuracy arc sec.	± 7.5 seconds		
Net Weight without motors			
Clamp Torque	Pneumatic @72psi	118Nm	87ft-lbs
	Hydraulic @286psi	490Nm	361ft-lbs
Vertical Weight Limit	35kg	77lbs	
Horizontal Weight Limit	75kg	165lbs	
Horizontal Load Limit	7840 N	1762lbf	
Circumference Load Force	118Nm	87ft-lbs	
Vertical Load Limit	176Nm	130lbf	

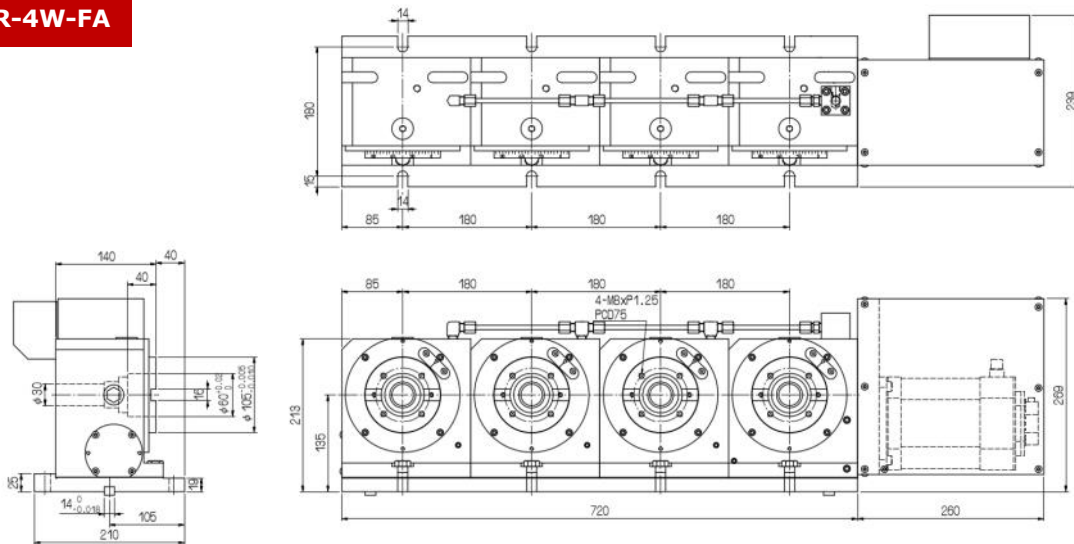
AX4H-120R-2W-FA



AX4H-120R-3W-FA



AX4H-120R-4W-FA






5th Axis - 100-320mm



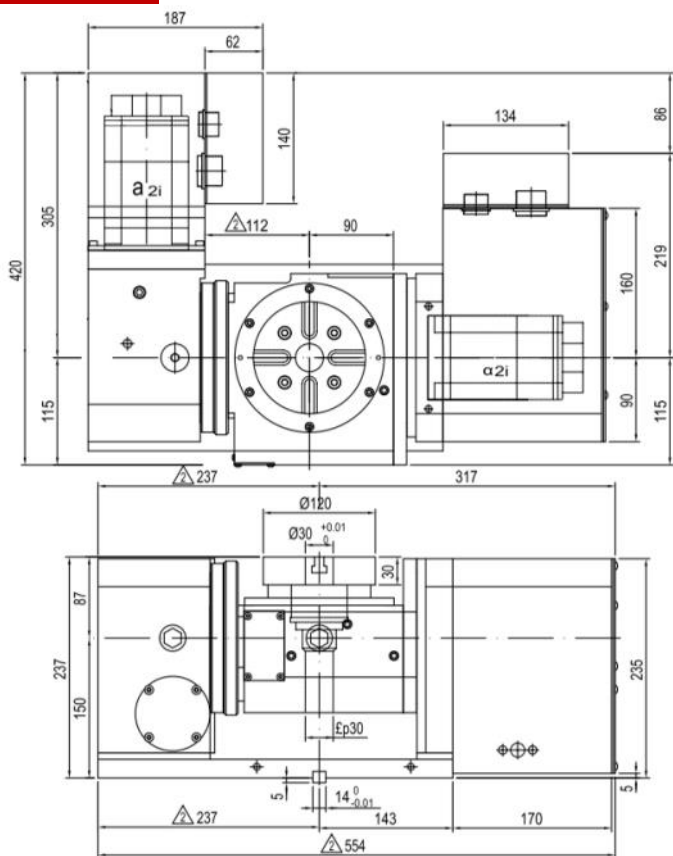
- Compact design with larger machine-able work space
- Combination of case hardened special alloy screw and special high tensile strength brass worm wheel ensures exceptional wear resistant and long durability.
- Dual lead worm screw for easy backlash adjustment
- Large diameter worm wheel for extra rigidity, smoothness and torque transfer efficiency
- Double bearing design and solid one piece face plate & spindle for extra rigidity

Available as :

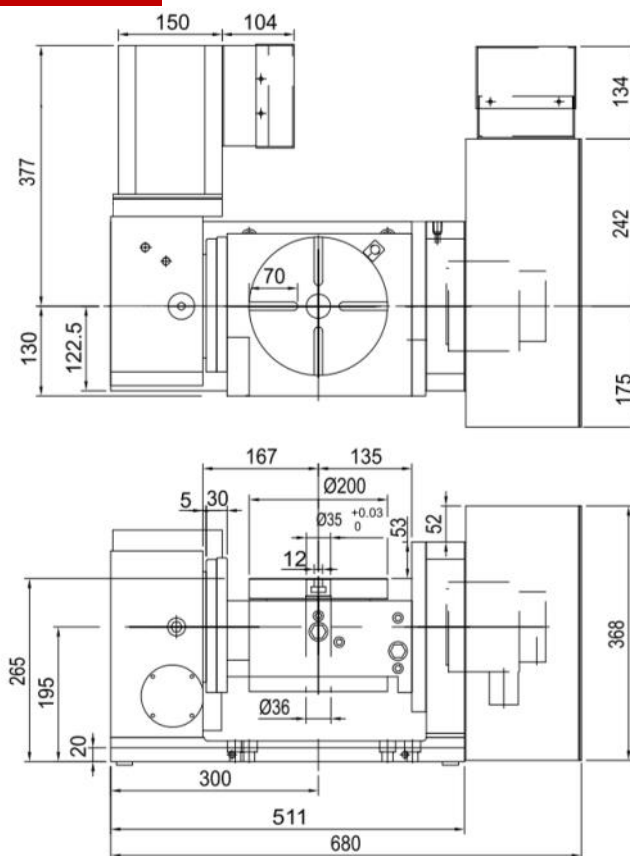
- Integrated 5th axis
- Integrated 4th axis + programmable controller on tilt axis
- Indexer with programmable control boxes on rotary and tilt axis
- Optional air purge for water protection
- Super high resolution with optional rotary scale

Model	AX5-100		AX5-200		AX5-250		AX5-320		
Table Diameter	120mm	4.72"	200mm	7.87"	250mm	9.84"	320mm	12.6"	
Center Height	150mm	5.91"	195mm	7.68"	225mm	8.86"	255mm	10.04"	
Center Hole	30mm H7	1.18" H7	35mm H7	1.38" H7	70mm H7	2.76" H7	110mm H7	4.33" H7	
Guide Block Width	14mm h7	0.55" h7	18mm h7	0.71" h7	18mm h7	0.71" h7	18mm h7	0.71" h7	
T-slot Width	10mm H7	0.39" H7	12mm H7	0.47" H7	12mm H7	0.47" H7	14mm H7	0.55" H7	
FANUC servo motor	Rotating	Tilting	Rotating	Tilting	Rotating	Tilting	Rotating	Tilting	
	aiF2	aiF2	aiF4	aiF8	aiF4	aiF8	aiF8	aiF12	
Tilting degree	-20°~120°		-110°~110°		-110°~110°		-110°~110°		
Max. RPM	27.8	16.7	22.2	11.1	22.1	11.1	11.1	11.1	
Gear Ratio	1:72	1:120	1:90	1:180	1:90	1:180	1:180	1:180	
Indexing Accuracy arc sec.	± 17.5	± 30	± 15	± 30	± 10	± 30	± 10	± 15	
Net Weight without motors	105kg	232lbs	240kg	530lbs	280kg	617lbs	505kg	1,111lbs	
Clamp Torque (Pneumatic @72psi)	Rotary Axis	118Nm	87ft-lbs	245Nm	181ft-lbs	490Nm	361ft-lbs	696Nm	516ft-lbs
	Tilt Axis	118Nm	87ft-lbs	245Nm	181ft-lbs	490Nm	361ft-lbs	696Nm	516ft-lbs
Clamp Torque (Hydraulic @286psi)	Rotary Axis	235Nm	173ft-lbs	490Nm	361ft-lbs	980Nm	722ft-lbs	1,392Nm	1,026ft-lbs
	Tilt Axis	235Nm	173ft-lbs	490Nm	361ft-lbs	1,176Nm	867ft-lbs	1,392Nm	1,026ft-lbs
Max Weight Limit @ 0 deg	35kg	77lbs	100kg	220lbs	100kg	220lbs	200kg	440lbs	
Max Weight Limit @ 90 deg	20kg	44lbs	50kg	110lbs	60kg	132lbs	100kg	220lbs	
Horizontal Load Limit		3,920 N	881lbf	4,900 N	1,101lbf	11,760 N	2,644lbf	14,700 N	3,305lbf
Circumference Load Limit		118Nm	87ft-lbs	245Nm	181ft-lbs	490Nm	362ft-lbs	696Nm	516ft-lbs
Vertical Load Limit		98Nm	73ft-lbs	147Nm	110ft-lbs	255Nm	188ft-lbs	343Nm	253ft-lbs

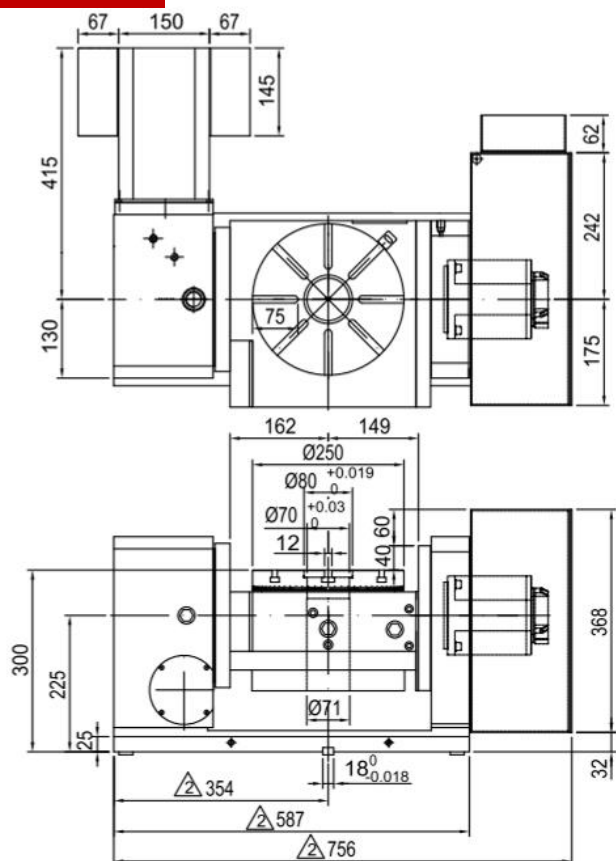
AX5-100



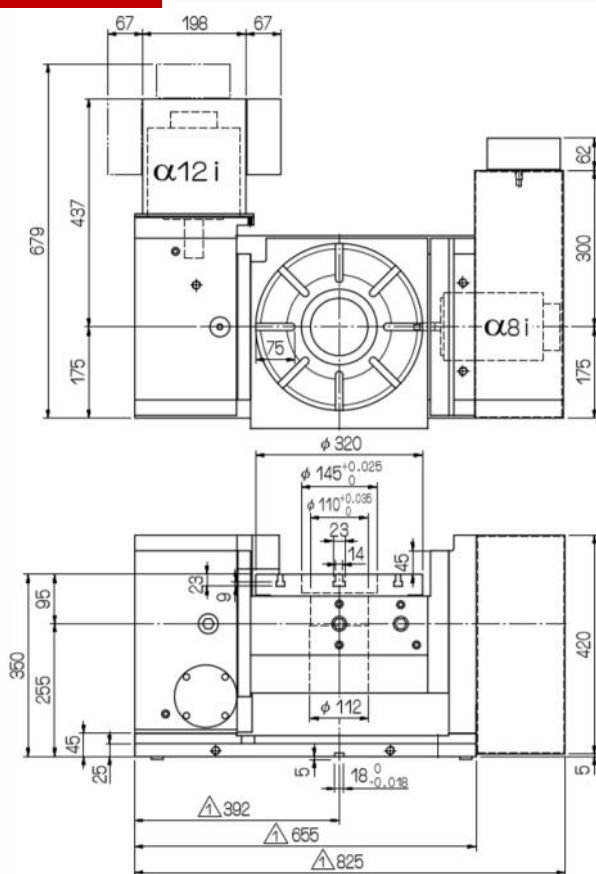
AX5-200



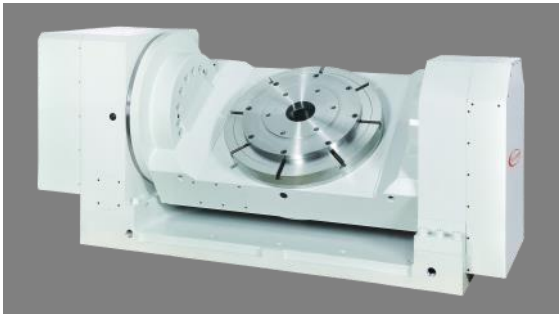
AX5-250






AX5-320



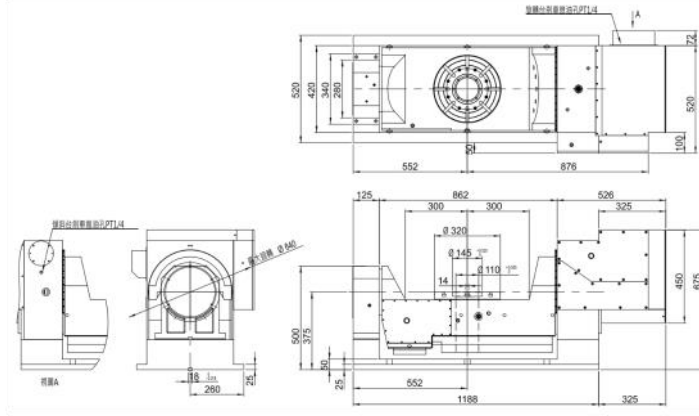
5th Axis - Trunnion 320-800mm



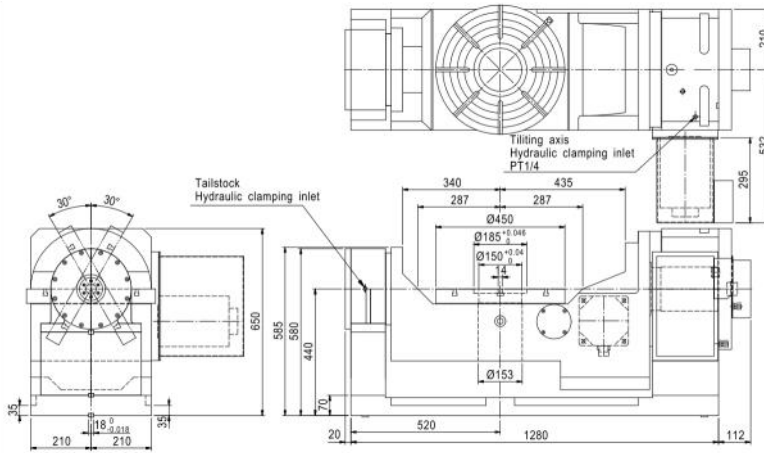
- Compact design with wide machining range.
- Up to 1 meter table M/C install available upon request
- Easy installation & operation.
- Compact design with wide machining range.
- Even an approx. 1 Meter Table M/C can be installed.
- To match 5 axis M/C for continuous machining, the tilting axis can connect to the M-code by using our single axis AC/DC/Stepping servo controller.

Model	AX5-320RT		AX5-450RT		AX5-630RT		AX5-800RT		
Table Diameter	320mm	12.6"	450mm	17.72"	630mm	24.8"	800mm	31.5"	
Center Height	375mm	14.76"	440mm	17.32"	580mm	22.83"	650mm	25.59"	
Center Hole	145mm H7	5.71" H7	150mm H7	5.91" H7	254mm H7	10.0" H7	254mm H7	10.0" H7	
Guide Block Width	18mm h7	0.71" h7	18mm h7	0.71" h7	22mm h7	0.87" h7	22mm h7	0.87" h7	
T-slot Width	14mm H7	0.55" H7	14mm H7	0.55" H7	18mm H7	0.71" H7	20mm H7	0.79" H7	
FANUC servo motor	Rotating	Tilting	Rotating	Tilting	Rotating	Tilting	Rotating	Tilting	
	aiF8	aiF22	aiF12	aiF22	aiF22	aiF22	aiF22	aiF30	
Tilting degree	±120°		±120°		±120°		±120°		
Max. RPM	11.1	11.1	22.2	11.1	11.1	5.8	11.1	2.8	
Gear Ratio	1:180	1:180	1:90	1:180	1:180	1:360	1:180	1:720	
Indexing Accuracy arc sec.	± 10	± 15	± 7.5	± 15	± 7.5	± 15	± 7.5	± 10	
Net Weight without motors	855kg	1,881lbs	1,160kg	2,552lbs	2,650kg	5,830lbs	4,850kg	10,670lbs	
Clamp Torque (Pneumatic @72psi)	Rotary Axis	696Nm	513ft-lbs	882Nm	650ft-lbs	3,430Nm	2,529ft-lbs	-	-
	Tilt Axis	931Nm	687ft-lbs	1,176Nm	867ft-lbs	4,116Nm	3,035ft-lbs	-	-
Clamp Torque (Hydraulic @286psi)	Rotary Axis	1,391Nm	1,026Nm	1,764Nm	1,301ft-lbs	6,860Nm	5,059ft-lbs	9,800Nm	7,227ft-lbs
	Tilt Axis	1,862Nm	1,373ft-lbs	2,058Nm	1,518ft-lbs	7,840Nm	5,782ft-lbs	12,250Nm	9,034ft-lbs
Max Weight Limit @ 0 deg	200kg	440lbs	300kg	660lbs	500kg	1,100lbs	1,000kg	2,200lbs	
Max Weight Limit @ 90 deg	100kg	220lbs	150kg	330lbs	300kg	660lbs	600kg	1,320lbs	
Horizontal Load Limit		14,700 N	3,305lbf	17,640 N	3,965lbf	20,384 N	4,582lbf	25,480 N	5,728lbf
Circumference Load Force		696Nm	513ft-lb	882Nm	650ft-lb	3,430Nm	2,529ft-lb	9,800Nm	7,227ft-lb
Vertical Load Limit		343Nm	253ft-lb	490Nm	361ft-lb	2,234Nm	1,648ft-lb	2,793Nm	2,060ft-lb

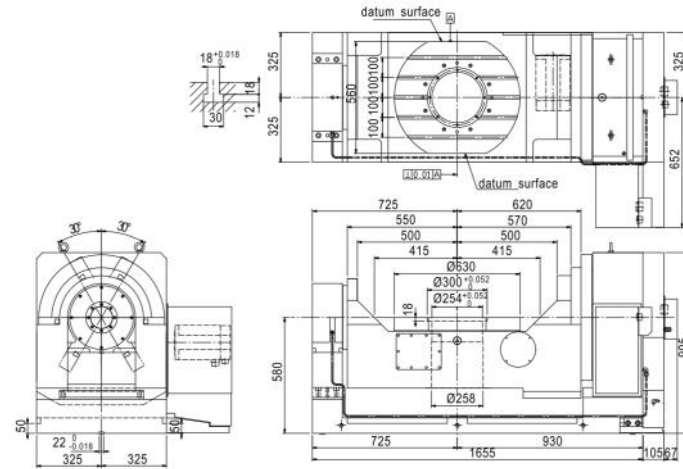
AX5-320RT



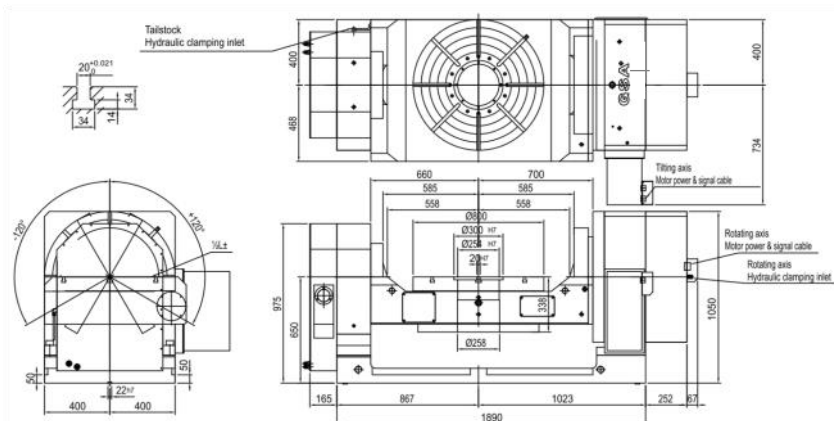
AX5-450RT



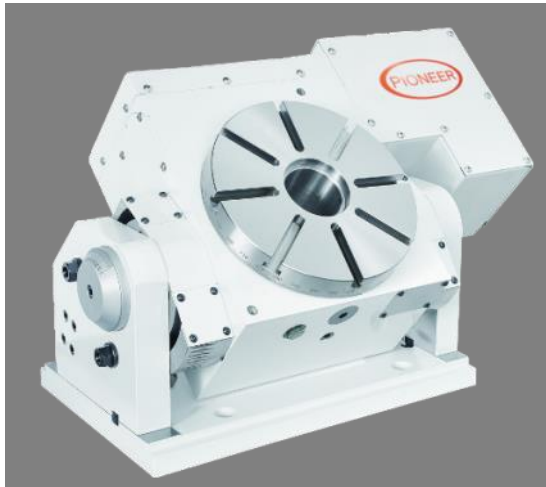
AX5-630RT



AX5-800RT



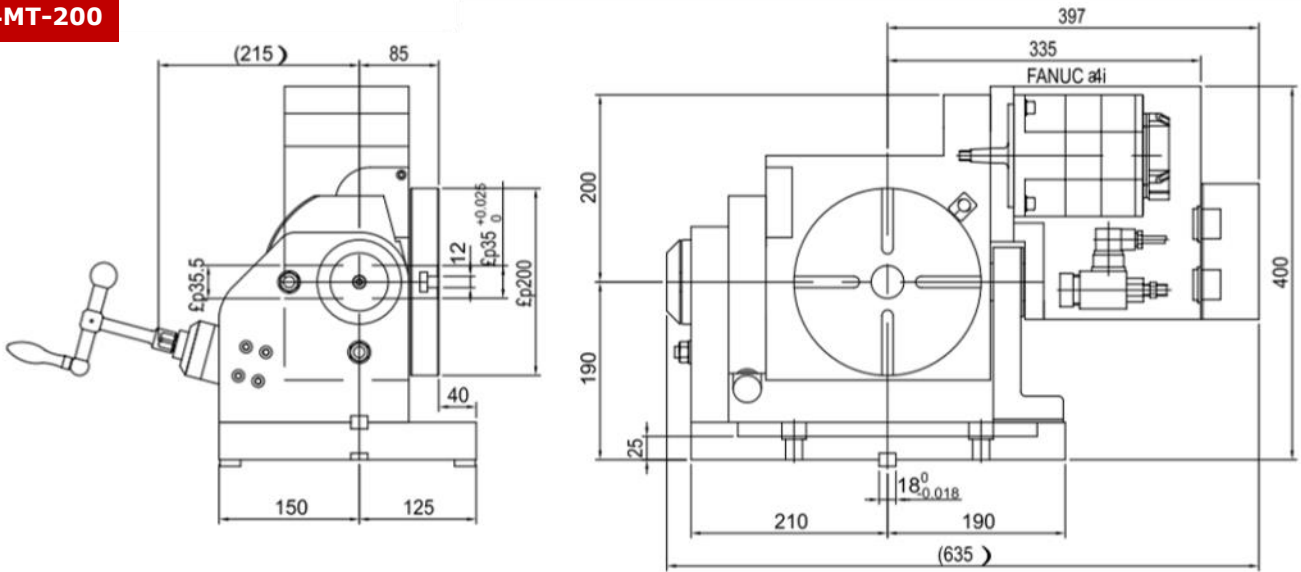
5th Axis - Manual Tilt 200-630mm



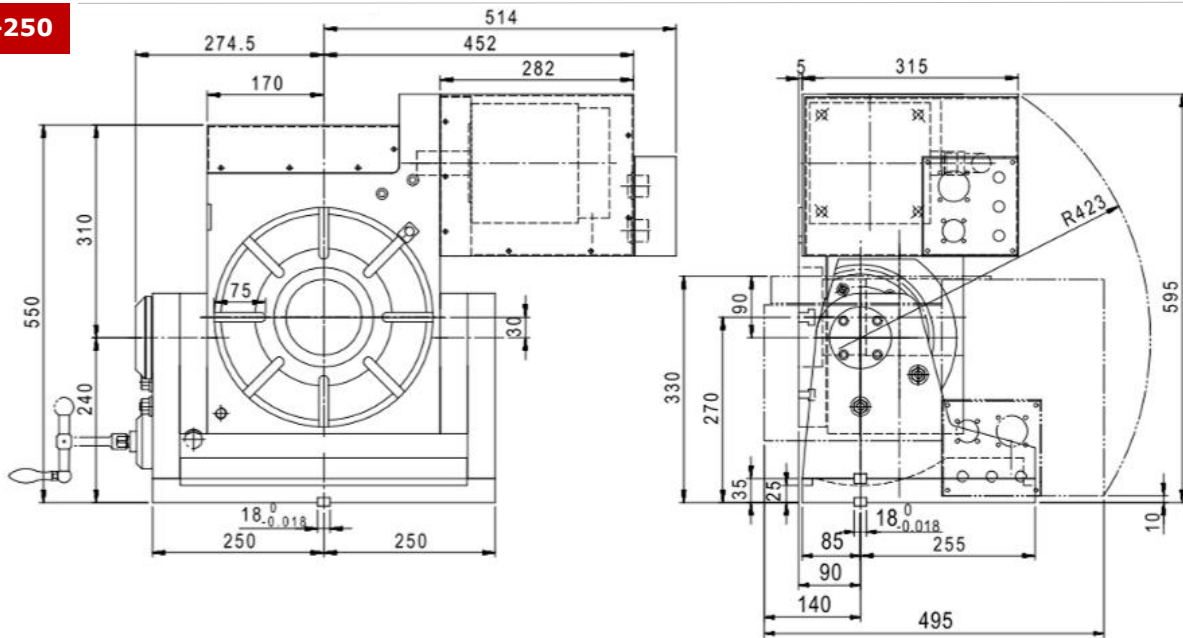
- Suitable for conventional milling, boring, and tapping machine.
- Manual tilting, Rotating by AX control.
- Available as Indexer or 4th Axis Installation.

Model	AX4MT-200		AX4MT-250		AX4MT-320		AX4MT-400		AX4MT-500		AX4MT-630		
Table Diameter	200mm	7.87"	250mm	9.84"	320mm	12.6"	400mm	15.75"	500mm	19.69"	630mm	24.8"	
Center Height	190mm	7.48"	210mm	8.27"	270mm	10.63"	290mm	11.42"	330mm	13.0"	440mm	17.32"	
Center Hole	30mm H7	1.18" H7	70mm H7	2.76" H7	110mm H7	4.33" H7	150mm H7	5.91" H7	180mm H7	7.09" H7	254mm H7	10.0" H7	
Guide Block Width	18mm h7	0.71" h7	18mm h7	0.71" h7	18mm h7	0.71" h7	18mm h7	0.71" h7	18mm h7	0.71" h7	18mm h7	0.71" h7	
T-slot Width	12mm H7	0.47" H7	12mm H7	0.47" H7	14mm H7	0.55" H7	14mm H7	0.55" H7	18mm H7	0.71" H7	18mm H7	0.71" H7	
FANUC servo motor	R-axis	T-axis	R-axis	T-axis	R-axis	T-axis	R-axis	T-axis	R-axis	T-axis	R-axis	T-axis	
	aiF4	Manual	aiF4	Manual	aiF12	Manual	aiF12	Manual	aiF12	Manual	aiF22	Manual	
Tilting degree	0°~105°		0°~100°		0°~100°		0°~100°		0°~100°		0°~100°		
Max. RPM	22.2		22.2		22.2/11.1		22.2		16.7		11.1		
Gear Ratio	1:90		1:90		1:90/1:180		1:90		1:120		1:180		
Indexing Accuracy arc sec.	± 10 seconds		± 10 seconds		± 10 seconds		± 10 seconds		± 10 seconds		± 10 seconds		
Net Weight without motors	135kg	297lbs	220kg	484lbs	310kg	682lbs	380kg	836lbs	450kg	990lbs	1000kg	2200lbs	
Clamp Torque Rotate Axis	Pneumatic @72psi	245Nm	181ft-lbs	461Nm	340ft-lbs	696Nm	514ft-lbs	902Nm	665ft-lbs	1,125Nm	903ft-lbs	3,626Nm	2,674ft-lbs
	Hydraulic @286psi	490Nm	361ft-lbs	921Nm	679ft-lbs	1,392Nm	1,026ft-lbs	1,803Nm	1,330ft-lbs	2,450Nm	1,807ft-lbs	7,252Nm	5,348ft-lbs
Vertical Weight Limit	40kg	88lbs	125kg	275lbs	150kg	330lbs	300kg	660lbs	350kg	770lbs	500kg	1100lbs	
Horizontal Weight Limit	80kg	176lbs	300kg	660lbs	350kg	770lbs	500kg	1100lbs	600kg	1320lbs	1000kg	2200lbs	
Horizontal Load Limit	5880 N	1,322lbf	11,838 N	2661lbf	13,475 N	3,030lbf	15,533 N	3,492lbf	18,424 N	4141lbf	20,384 N	4,582lbf	
Circumference Load Limit	245Nm	181ft-lbs	461Nm	340ft-lbs	696Nm	514ft-lbs	902Nm	665ft-lbs	1,125Nm	903ft-lbs	3,626Nm	2,674ft-lbs	
Vertical Load Limit	196Nm	145ft-lbs	706Nm	520ft-lbs	902Nm	665ft-lbs	980Nm	723ft-lbs	1,617Nm	1,192ft-lbs	2,234Nm	1,648ft-lbs	

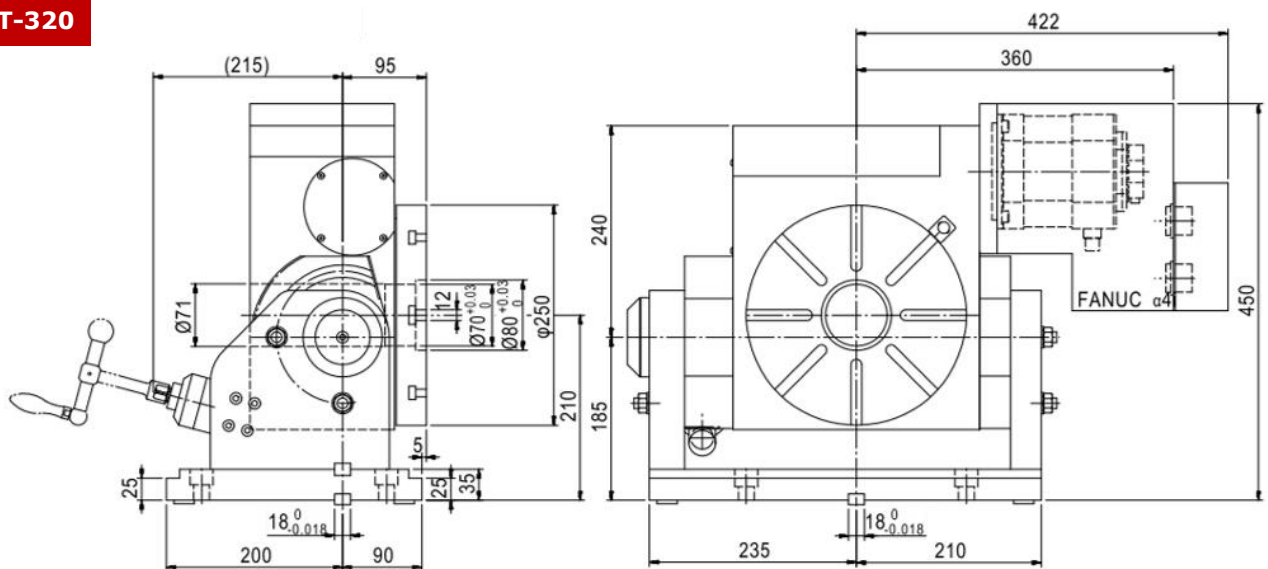
AX4MT-200



AX4MT-250

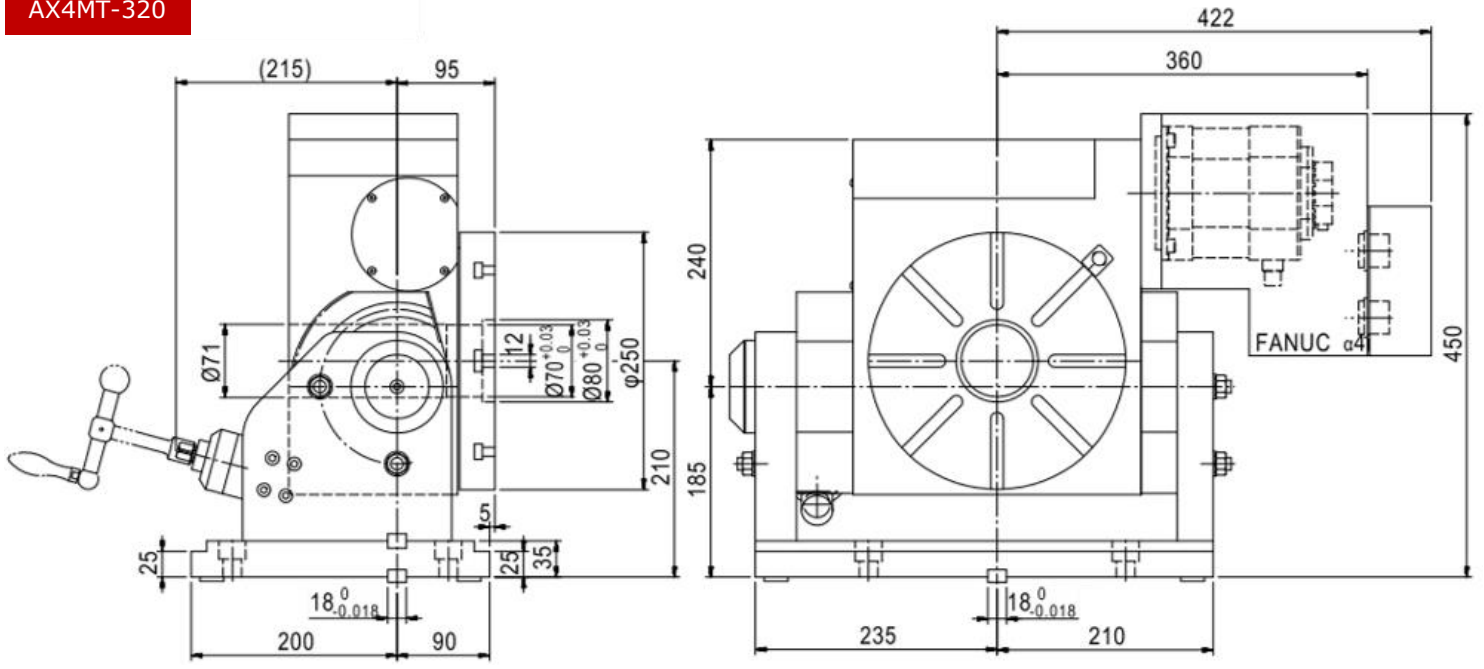


AX4MT-320

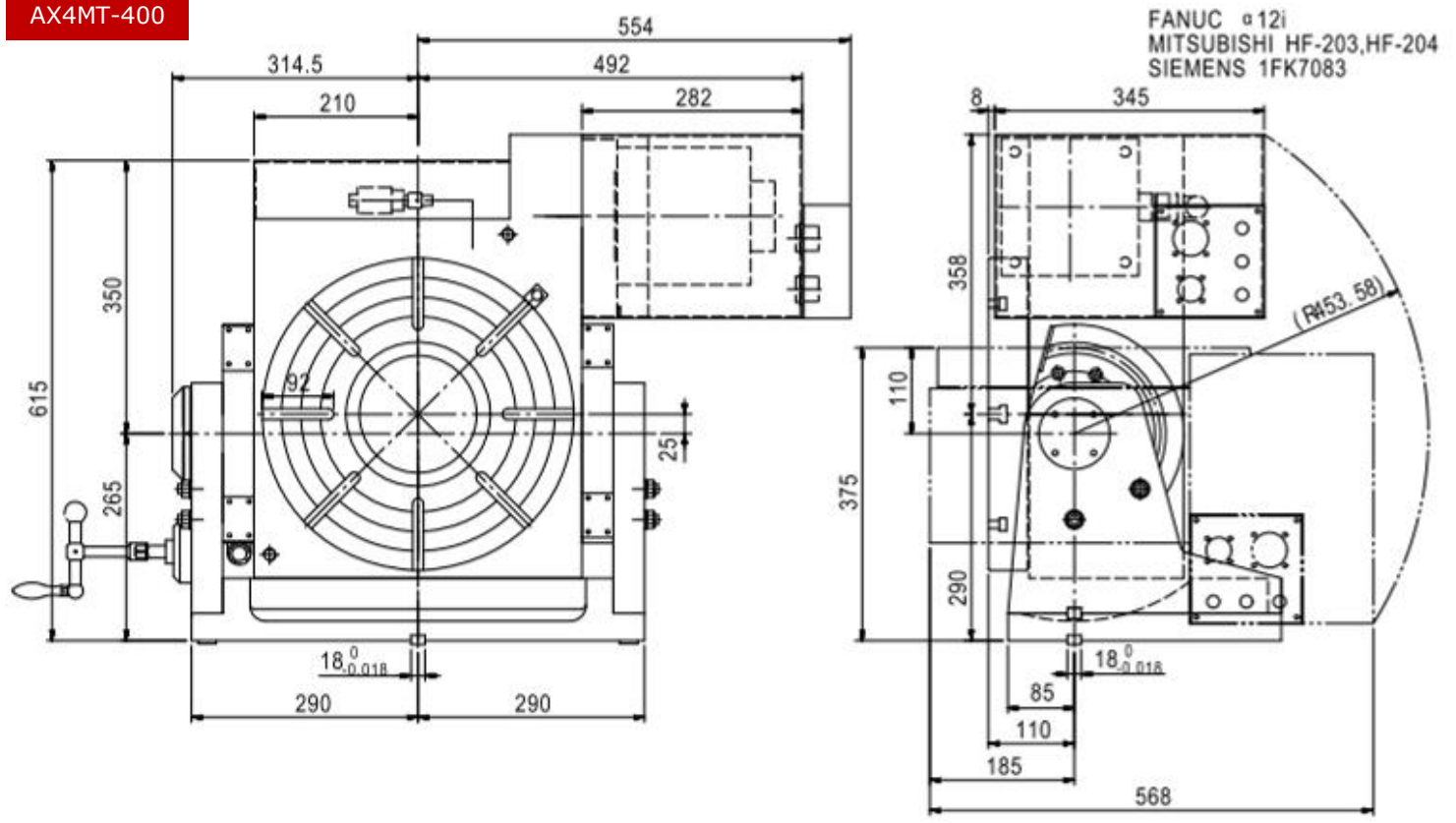


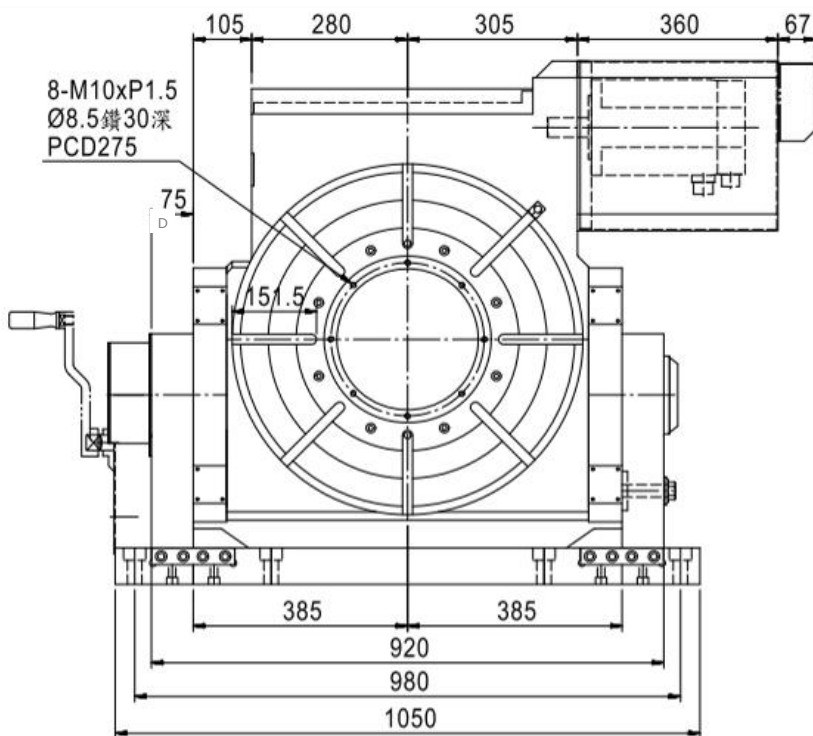
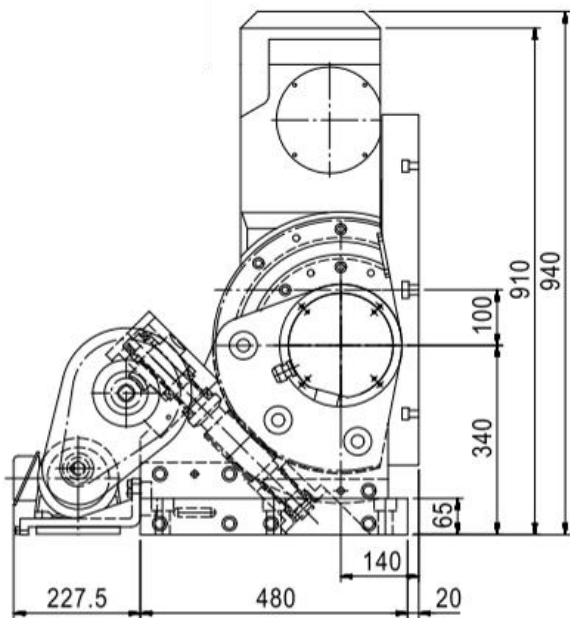
5th Axis - Manual Tilt 200-630mm

AX4MT-320



AX4MT-400



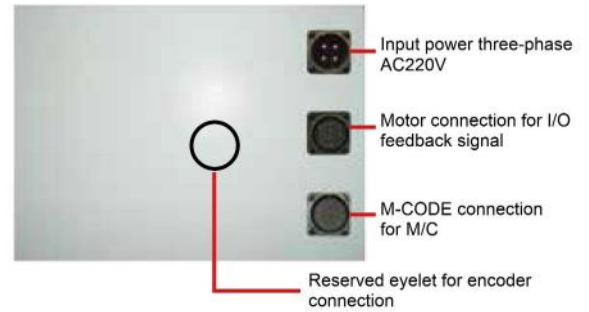




- 15 sets of program, 90 steps for each program
- 0.001° degree minimum increment
- Macro β Functionality
- Power, feedback, M-signal, and power supply cable included
- RS232C capable
- 14"W x 10.5"H x 12.5"D

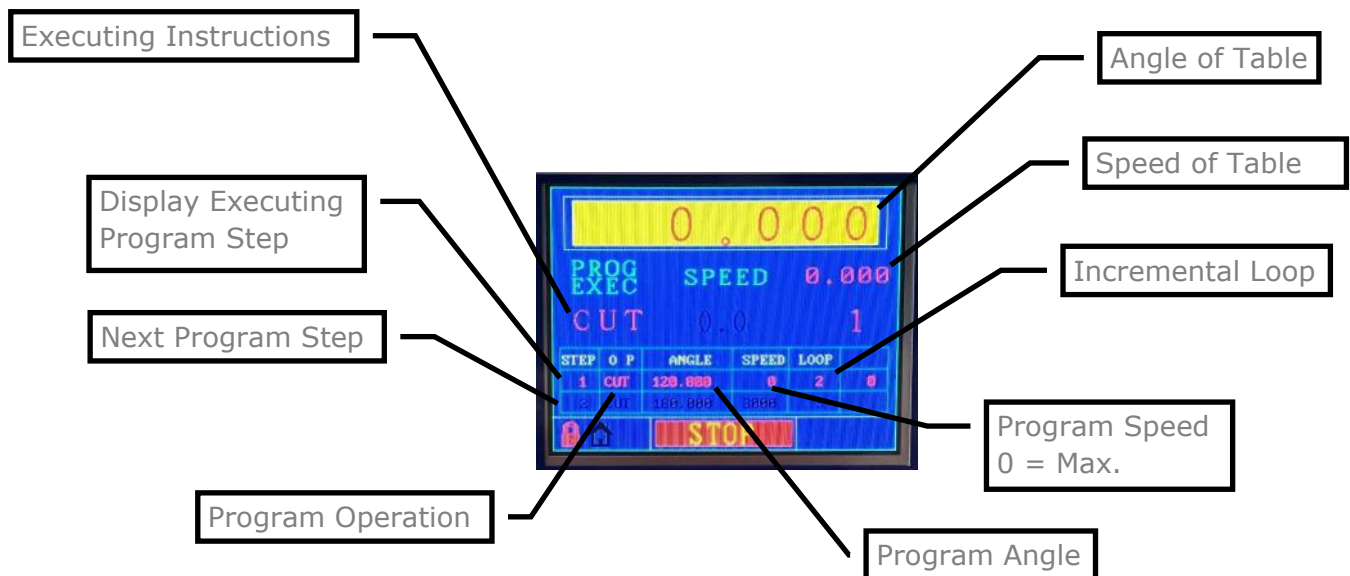
Requirements

- 70PSI filtered air supply for brake system.
- 1 x M signal required.



ITEM	SPECIFICATION	ITEM	SPECIFICATION
Min. Increment	0.001°	Backlash Adjustment	Adjusted by parameter screen 1 of 2
Programmable Angle	0.000~999.999 °	Standard Parameter Function	Input / Output interface, long press "."
Emergency Stop	Whole system stop	Programmable System	Accepted incremental / absolute value
Input Method	Keyboard input	Instruction Selecting	Program input instruction / Indexing and rotating instruction
Program Capacity	15 sets of program	Origin Adjustment	Origin offset compensation setting
Program Step Capacity	90 steps for each program	External start signal	Automatic operation by M-CODE
Homing	Machine homing / relative homing	Delay time	0.1 to 99.9 seconds of delay
Jump Function	Jump to the subroutine (JUMP)	Input Power	Three-phase AC-220V 50/60HZ
Cycle Loop	Step up to 999 times per cycle	Connection cable	Power cable / Motor cable / CNC connection cables

EZX Display





	Power switch		Back to the execution screen
	Emergency stop button		Page key: switching program page
	MPG(hand wheel) socket		Jog key: select the direction for table rotating
	Screen for info displayed		Cursor key: direction selecting
	Stop key		Switching key for system screen
	Numeric keys: enter the program and parameters		Selection key for program OP
	I. To be decimal point while program setting or parameter status II. Program code setting: press key 2 seconds while the program STEP1 of OP		Return to relative origin
	"+" and "-" key: be the function while program setting or parameter status"		Return to mechanical origin
	Insert a program while program setting		Enter key
	I. Long press 3 seconds for setting 0 degree of table while the execution status II. Delete a program while program setting		Start key

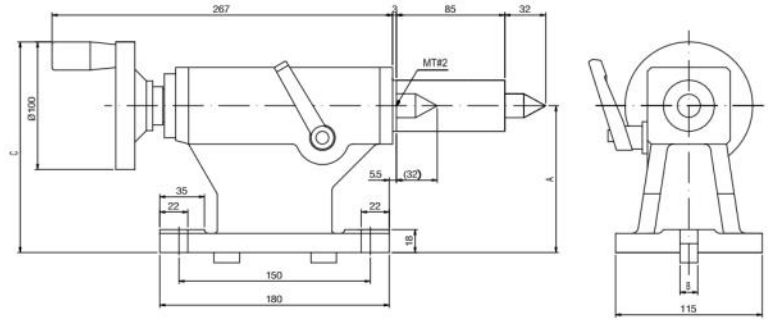
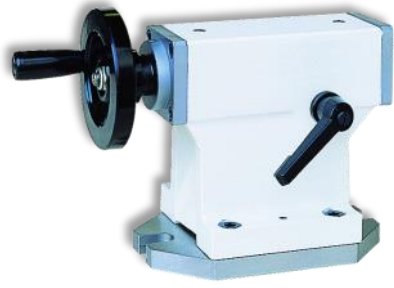
Hand Controller (MPG)

- Part# MPG-1
- Sold Separately



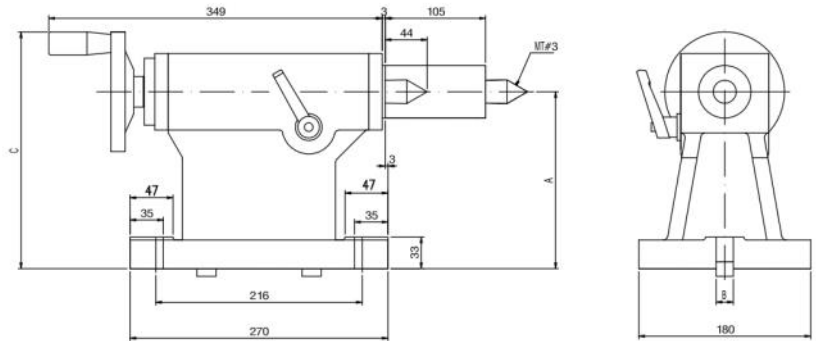
Tail Stocks

TS-A



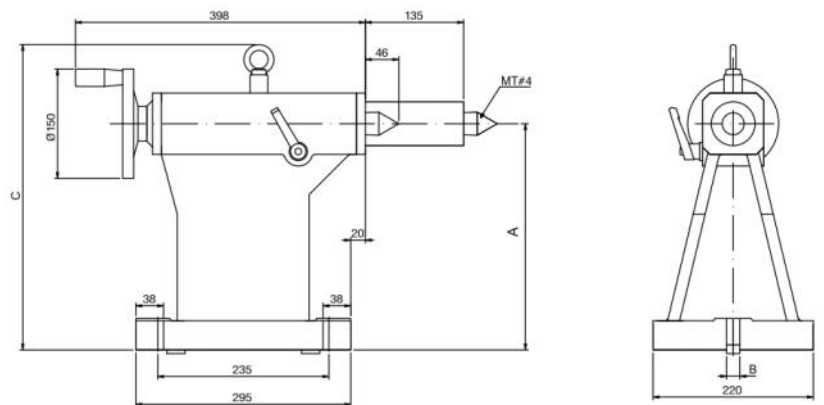
Model	A		B		C		Center Taper	Suitable Rotary Table
TS-A115	115mm	4.53"	14mm	0.55"	165mm	6.50"	MT#2	AX-120R
TS-A135	135mm	5.31"	18mm	0.71"	185mm	7.28"	MT#2	AX-170R, AX-170RB
TS-A160	160mm	6.30"	18mm	0.71"	210mm	8.27"	MT#2	AX-200R, AX-200RB

TS-B



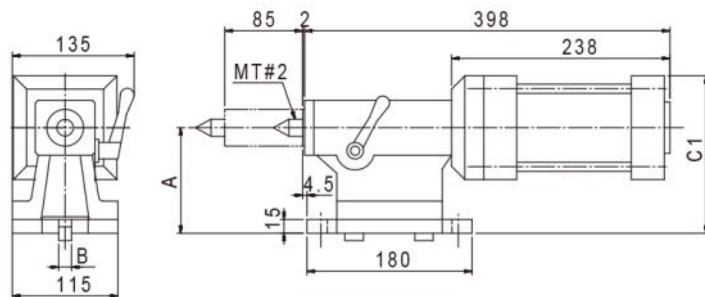
Model	A		B		C		Center Taper	Suitable Rotary Table
TS-B185	185mm	7.28"	18mm	0.71"	250mm	9.84"	MT#3	AX-250R, NCF-250, AX-250RB
TS-B190	190mm	7.48"	18mm	0.71"	255mm	10.04"	MT#3	CNCMT-200
TS-B210	210mm	8.27"	18mm	0.71"	275mm	10.83"	MT#3	AX-320R, NCF-320, CNCMT-250
TS-B250	250mm	9.84"	18mm	0.71"	315mm	12.4"	MT#3	AX-400R, NCF-400
TS-B255	255mm	10.04"	18mm	0.71"	320mm	12.6"	MT#3	CNCT-320
TS-B270	270mm	10.63"	18mm	0.71"	345mm	13.58"	MT#3	CNCMT-320

TS-C



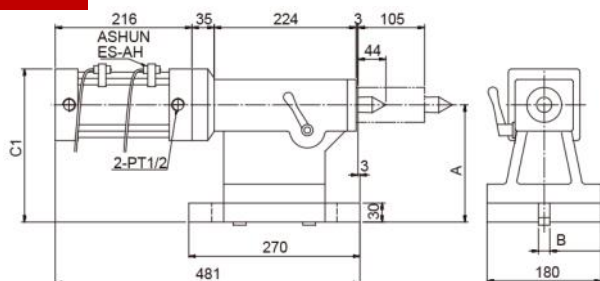
Model	A		B		C		Center Taper	Suitable Rotary Table
TS-C310	310mm	12.2"	18mm	0.71"	420mm	16.54"	MT#4	AX-500R
TS-C400	400mm	15.75"	18mm	0.71"	510mm	20.08"	MT#4	AX-630R
TS-C480	480mm	18.90"	22mm	0.87"	590mm	23.23"	MT#4	AX-800R

TS-A

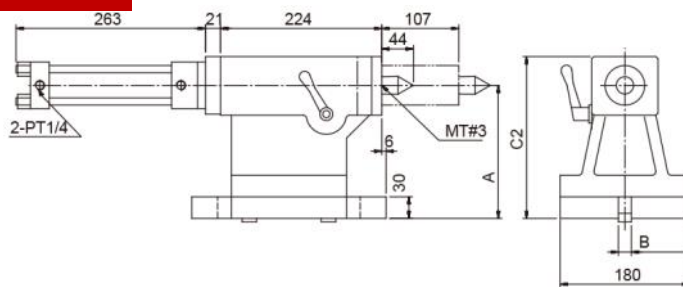


Model	A		B		C1(P)		C2(H)		Center Taper	Suitable Rotary Table
TS-A115(P/H)	115mm	4.53"	14mm	0.55"	172mm	6.77"	148mm	5.83"	MT#2	AX-120R
TS-A135(P/H)	135mm	5.31"	18mm	0.71"	192mm	7.56"	168mm	6.61"	MT#2	AX-170R, AX-170RB
TS-A160(P/H)	160mm	6.30"	18mm	0.71"	217mm	8.54"	193mm	7.60"	MT#2	AX-200R, AX-200RB

TS-B (P)

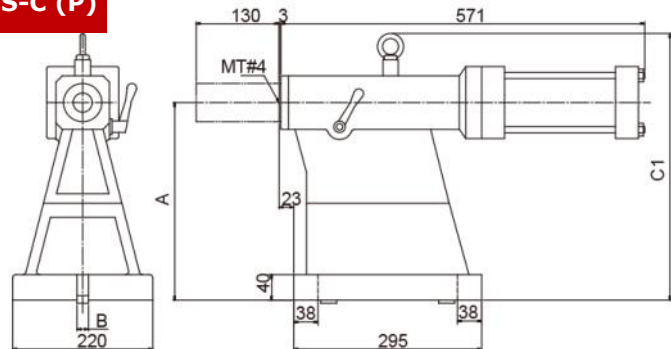


TS-B (H)

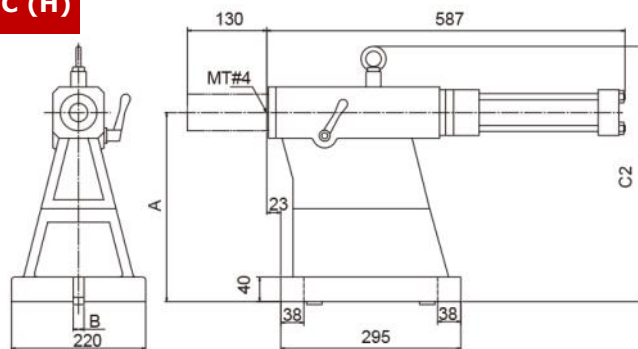


Model	A		B		C1(P)		C2(H)		Center Taper	Suitable Rotary Table
TS-B185(P/H)	185mm	7.28"	18mm	0.71"	242mm	9.53"	225mm	8.86"	MT#3	AX-250R, NCF-250, AX-250RB
TS-B190(P/H)	190mm	7.48"	18mm	0.71"	247mm	9.72"	230mm	9.06"	MT#3	CNCMT-200
TS-B210(P/H)	210mm	8.27"	18mm	0.71"	267mm	10.51"	250mm	9.84"	MT#3	AX-320R, NCF-320, CNCMT-250
TS-B250(P/H)	250mm	9.84"	18mm	0.71"	307mm	12.09"	290mm	11.42"	MT#3	AX-400R, NCF-400
TS-B255(P/H)	255mm	10.04"	18mm	0.71"	312mm	12.28"	295mm	11.61"	MT#3	CNCT-320
TS-B270(P/H)	270mm	10.63"	18mm	0.71"	327mm	12.87"	310mm	12.2"	MT#3	CNCMT-320

TS-C (P)



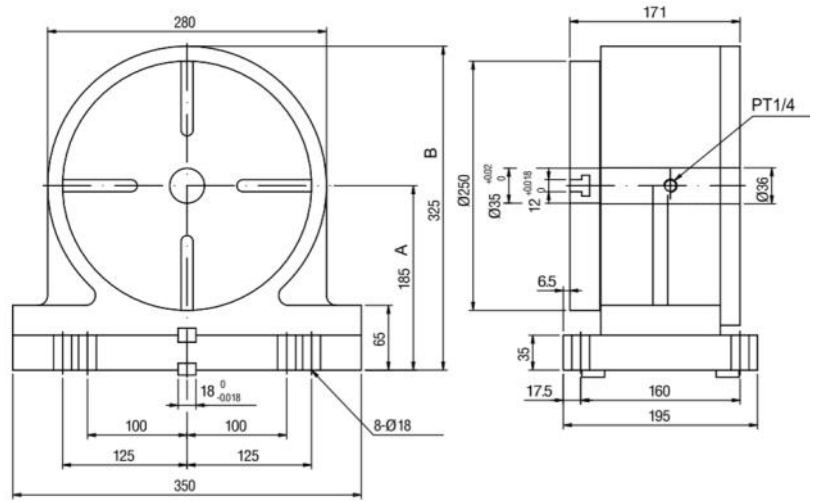
TS-C (H)



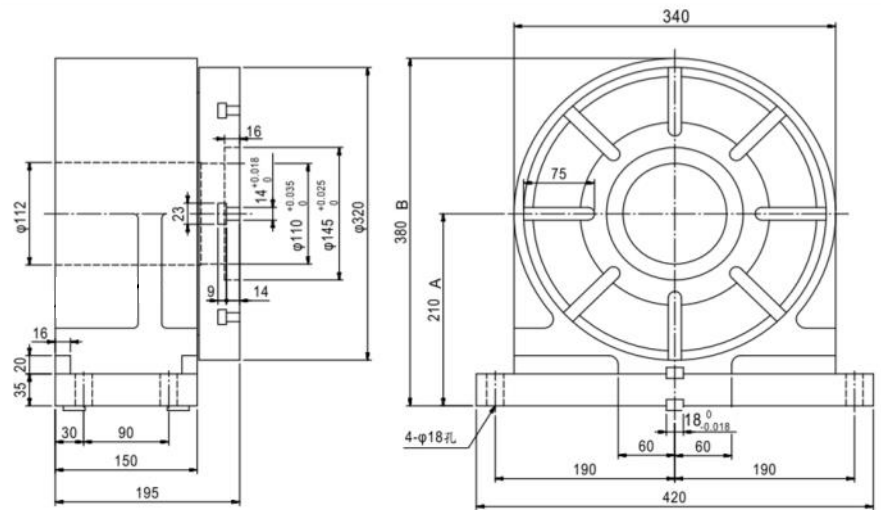
Model	A		B		C1(P)		C2(H)		Center Taper	Suitable Rotary Table
TS-C310(P/H)	310mm	12.2"	18mm	0.71"	420mm	16.54"	420mm	16.54"	MT#4	AX-500R
TS-C400(P/H)	400mm	15.75"	18mm	0.71"	510mm	20.08"	510mm	20.08"	MT#4	AX-630R
TS-C480(P/H)	480mm	18.9"	22mm	0.87"	590mm	23.23"	590mm	23.23"	MT#4	AX-800R

Side Tables & Accessories

TSA-251S



TSA-320S



Model	TSA-200S		TSA-251S		TSA-320S	
Table Diameter	200mm	7.87"	250mm	9.84"	320mm	12.6"
(A) Center Height	160mm	6.30"	185mm	7.28"	210mm	8.27"
(B) Overall Height	265mm	10.43"	325mm	12.8"	380mm	14.96"
Center Hole	35mm	1.38"	35mm	1.38"	110mm	4.33"
Width of Guide Block	18mm h7	0.71" h7	18mm h7	0.71" h7	18mm h7	0.71" h7
Width of T-slot	12mm H7	0.47" H7	12mm H7	0.47" H7	14mm H7	0.55" H7
Pneu.clamp force (at 72psi)	245.2Nm	180.8ft-lbs	637.4Nm	470.1ft-lbs	784.5Nm	578.6ft-lbs
Net Weight without motors	45kg	99lbs	82kg	180lbs	138kg	304lbs
Suitable Rotary Table	AX-170R		AX-250R		AX-320R	
	AX-200R		AX-320R		AX-400R	
	-		AX-400R		AX-500R	



Pioneer Chuck / Hydraulic Cylinder / Tailstock


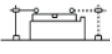


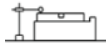


Suitable Rotary Table		AX-171R	AX-200R	AX-250R	AX-320R	AX-400R	AX-500R	AX-630R	AX-800R
Manual scroll chuck	Model No.	585-106	585-106	585-108	585-112	585-112	585-112	585-112-	585-112
	Size	6"	7"	8"	12"	12"	12"	12"	12"
Hydraulic chuck (Non thru hole)	Model No.	595-855	595-855	595-856	595-858	595-860	595-860	-	-
	Size	6"	6"	8"	10"	12"	12"	15"	15"
Tailstock Type	Manual	TS-A135	TS-A160	TS-B185	TS-B210	TS-B250	TS-C310	TS-C400	TS-C480
	Pneumatic	TS-A135P	TS-A160P	TS-B185P	TS-B210P	TS-B250P	TS-C310P	TS-C400P	TS-C480P
	Hydraulic	TS-A135H	TS-A160H	TS-B185H	TS-B210H	TS-B250H	TS-C310H	TS-C400H	TS-C480H
	Strong (P/H)	TSA-200S	TSA-200S	TSA-251S	TSA-251S TSA-320S	TSA-251S TSA-320S	TSA-320S	TSA-320S	TSA-320S

Yukiwa Chuck / Hydraulic Cylinder / Tailstock

Suitable Rotary Table		JNC140	JNC170	JNC200	JNC250	YNCP170	YNCP200	YNCP250	BNC320	TNT100	TNT170
Manual scroll chuck	Model No.	585-004 & 585-005	585-105 & 585-106	585-106	585-108	585-105 & 585-106	585-106	585-108	585-112	585-004 & 585-005	585-106
	Size	4" & 5"	5" & 6"	6"	8"	5" & 6"	6"	8"	12"	4" & 5"	6"
Hydraulic chuck (Non thru hole)	Model No.	N/A	595-855	595-855	595-856	595-855	595-855	595-856	595-860	N/A	595-855
	Size	4" & 5"	5" & 6"	6"	8"	5" & 6"	6"	8"	12"	4" & 5"	6"
Rotary hydraulic cylinder	Model No.	SJ4L	SJ6L/SJ6H	SJ6L/SJ6H	SJ6L/SJ6H	SJ6L/H	SJ6L/H	SJ6L/H	N/A	N/A	N/A
Tailstock Type	Manual	TSA110S	TSA135S/ TSB135S	TSB160S	TSB200S	TSA135S/ TSB135S	TSB160S	TSB200S	TSB230	N/A	N/A
	Pneumatic	TPA110	TPA135	TPA160	TPA200	TPA135	TPA160	TPA200	N/A	N/A	N/A
	Pneumatic w/ confirmation switch	TPB110	TPB135	TPB160	TPB200	TPB135	TPB160	TPB200	N/A	N/A	N/A
	Side Spindle	SS110	SS135	SS160	SS200	SS135	SS160	SS200	N/A	N/A	N/A
	Side Table	N/A	ST135	ST160	ST200	ST135	ST160	ST200	ST230	N/A	N/A

Accuracy Standards (Unit: inch)							
Model\Item	Table top flatness	Parallelism of table top and frame bottom	Runout of table spindle center	Perpendicularity of table top to frame bottom	Table top runout	Perpendicularity of table top to frame bottom guide block	Parallelism of center line between headstock & tailstock to frame bottom guide block
AX-120R	0.0003	0.0003	0.0005	0.0004	0.0003	0.0007	0.0007
AX-170R	0.0003	0.0003	0.0003	0.0007	0.0005	0.0007	0.0007
AX-200R	0.0003	0.0003	0.0003	0.0007	0.0005	0.0007	0.0007
AX-250R	0.0003	0.0003	0.0003	0.0007	0.0005	0.0007	0.0007
AX-320R	0.0003	0.0003	0.0003	0.0007	0.0005	0.0007	0.0007
AX-400R	0.0005	0.0005	0.0003	0.0007	0.0005	0.0007	0.0007
AX-500R	0.0005	0.0005	0.0003	0.0007	0.0005	0.0007	0.0007
AX-630R	0.0009	0.0009	0.0003	0.0009	0.0007	0.0007	0.0007
AX-800R	0.0009	0.0009	0.0003	0.0009	0.0007	0.0007	0.0007
AX-120RB	0.0003	0.0003	0.0003	0.0007	0.0005	0.0007	0.0007
AX-170RB	0.0003	0.0003	0.0003	0.0007	0.0005	0.0007	0.0007
AX-200RB	0.0003	0.0003	0.0003	0.0007	0.0005	0.0007	0.0007
AX-250RB	0.0003	0.0003	0.0003	0.0007	0.0005	0.0007	0.0007
AX-200R-3W	0.0003	0.0007	0.0003	0.0004	0.0005	0.0007	0.0007

Accuracy Standards (Unit: inch)								
Model/Item	Table top flatness	Parallelism of table top and frame bottom	Runout of table spindle center	Table top runout	Parallelism of tilting axis center line and frame bottom	Parallelism of table top to frame bottom guide	An encoder measuring instrument should be used for indexing accuracy measurements (Rotating)	An encoder measuring instrument should be used for indexing accuracy measurements (Tilting)
AX5-100	0.0003	0.0007	0.0003	0.0005	0.0007	0.0007	30"	60"
AX5-200	0.0003	0.0007	0.0003	0.0005	0.0007	0.0007	25"	50"
AX5-250	0.0003	0.0007	0.0003	0.0005	0.0007	0.0007	15"	50"
AX5-320T	0.0003	0.0007	0.0003	0.0005	0.0007	0.0007	15"	30"
AX5-450	0.0003	0.0007	0.0003	0.0005	0.0007	0.0007	15"	30"
AX5-630	0.0003	0.0007	0.0003	0.0005	0.0007	0.0007	15"	30"
AX5-800	0.0003	0.0007	0.0003	0.0005	0.0007	0.0007	15"	30"
AX4MT-201	0.0003	0.0007	0.0003	0.0005	0.0007	0.0007	25"	
AX4MT-250	0.0003	0.0007	0.0003	0.0005	0.0007	0.0007	25"	
AX4MT-320	0.0003	0.0007	0.0003	0.0005	0.0007	0.0007	15"	
AX4MT-400	0.0007	0.0007	0.0003	0.0005	0.0007	0.0007	15"	
AX4MT-500	0.0007	0.0007	0.0003	0.0005	0.0007	0.0007	15"	
AX4MT-630	0.0007	0.0007	0.0003	0.0005	0.0007	0.0007	15"	

Accuracy Standards (Unit: inch)							
Model\Item	Table top flatness	Parallelism of table top and frame bottom	Runout of table spindle center	Perpendicularity of table top to frame bottom	Table top runout	Perpendicularity of table top to frame bottom guide block	Parallelism of center line between headstock & tailstock to frame bottom guide block
							
AX4H-250R	0.0003	0.0003	0.0005	0.0005	0.0003	0.0007	0.0007
AX4H-320R	0.0003	0.0003	0.0003	0.0005	0.0003	0.0007	0.0007
AX4H-400R	0.0005	0.0005	0.0003	0.0007	0.0005	0.0007	0.0007
AX4H-500R	0.0005	0.0005	0.0003	0.0007	0.0005	0.0007	0.0007



Premium Work Holding Systems

Rotary table inquiry form

Dealer: _____ End User: _____
 Company: _____ Company: _____
 Contact: _____ Contact: _____
 Address: _____ Address: _____
 City: _____ State: _____ Zip Code: _____ City: _____ State: _____ Zip Code: _____
 Email: _____ Email: _____
 Phone: _____ Cell: _____ Phone: _____ Cell: _____

Machine Tool Info

Manufacturer: _____ Model: _____ Year: _____
 Control Make: _____ Model: _____

Machine condition: New / Existing or used

Please describe type of the machine. For example, 3 axis vertical machine, horizontal machine with C-axis, vertical with rotary pallet etc.

Table size: X _____ Y _____ Axis travel: X _____ Y _____ Z _____

Workpiece and Application Info

Workpiece dimension: _____
 Material: _____ Weight: _____
 Application is mainly: Drill / Mill Contour milling: Yes / No

Please describe about your application:

Rotary table info

Size of face plate: _____ Number of axis: 4th / 4th & 5th
 Motor orientation (4th axis models only) : Right(standard) / Left / Top / Back
 Type of connection: Integrated 4th axis / Integrated 4th & 5th axis / Indexer with control box/ other

Special request



Rotary Table Interface and Installation RFQ Quick Check List

1. Information of the machine
 Manufacturer: _____ Model: _____ Year: _____
 Control Make: _____ Model: _____
2. Can the customer or dealer send the data sheet of the machine that they can send? Data sheet is usually provided with the machine manual. Yes / No
3. Can the customer or dealer send the electrical manual and electric diagram of the machine? Yes/ No
4. Are these options on your control?
 - a. 4th axis select switch on the control panel Yes/ No
 - b. 5th axis select switch on the control panel Yes/No
 - c. 4th select switch axis on the MPG jog Yes/No
 - d. 5th axis select switch on the control panel Yes/No
 - e. None of above
5. Does the machine have bulkhead mount area for additional axis?
6. Does the machine have 4th and 5th axis software (PLC ladder) preinstalled?
7. Can the customer send pictures of the following?
 - a. Control panel and MPG jog
 - b. Machine table
 - c. Additional axis bulk head mount area
 - d. Inside the back cabinet to see amplifier terminals, I/O terminals etc.

Following control and machine builders are most popular machines we can offer installation. If your machine control or machine builder is not on the list, please contact us.

Control make

- Fanuc OiM series / 16i / 18i / 21i
- Some models of Yaskawa
- Some models of Mitsubishi

Machine builders

- | | |
|-------------------|---------------|
| • Mori Seiki | • Bridgeport |
| • Kitamura | • Doosan |
| • Fanuc RoboDrill | • Daewoo |
| • OKK | • Hyundai-Wia |
| • Enshu | • YCM |
| • Toyoda | • Johnford |

Additional products available upon request from Pioneer:



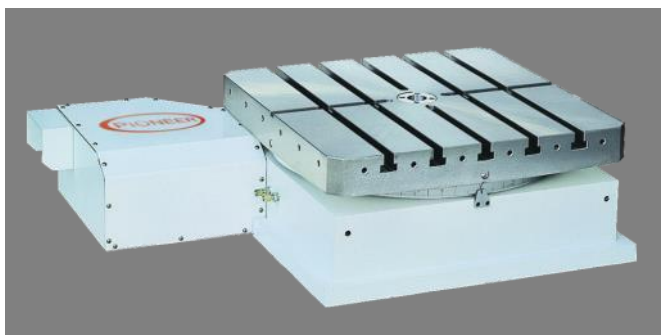
Yukiwa ERB90 EDM Table

- Stainless Steel Body
- Low Profile
- Fully submersible w/ Auto Air Purge
- Super high resolution accuracy optional



Pioneer NC Hirth Coupling Indexer

- Integrated Hirth coupling for exceptional indexing accuracy
- Positive angular location lock



Pioneer Horizontal Index Center Table

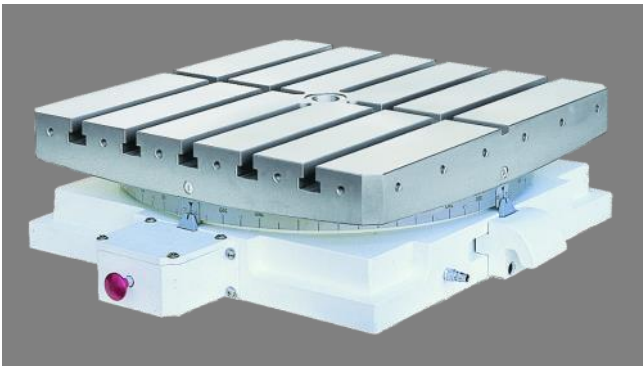
- Available in 400, 500, 630 & 800mm
- Rotation speeds up to 33.3 RPM
- 2X brake system with large clamping contact surface
- Hirth coupling available

Additional products available upon request from Pioneer:



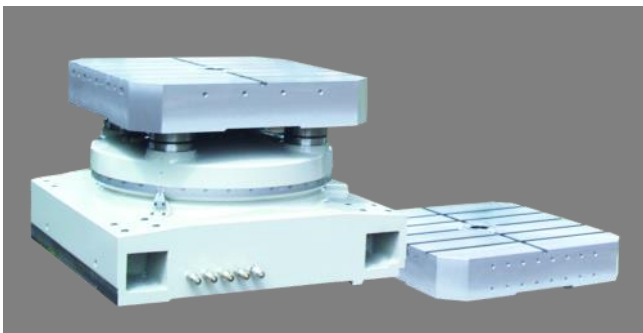
Pioneer Horizontal AX Rotary Table

- Available in 400, 500, 630, 800, 1000, 1500, 2000 & 2500mm
- Hi Accuracy
- Custom designs available



Pioneer Index Table

- Available in 450, 600, 700, 800, 1000 & 1200mm
- Designed for hi accuracy machining
- Hirth coupling clamping system with accuracy +/- 3 seconds

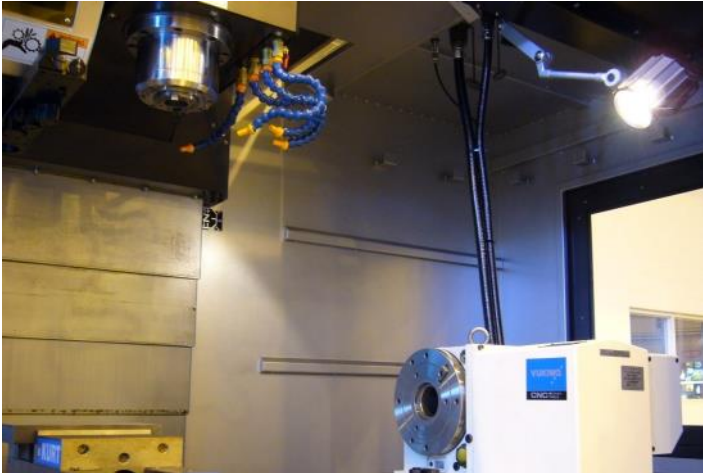


Pioneer Machining Table w/ Pallets

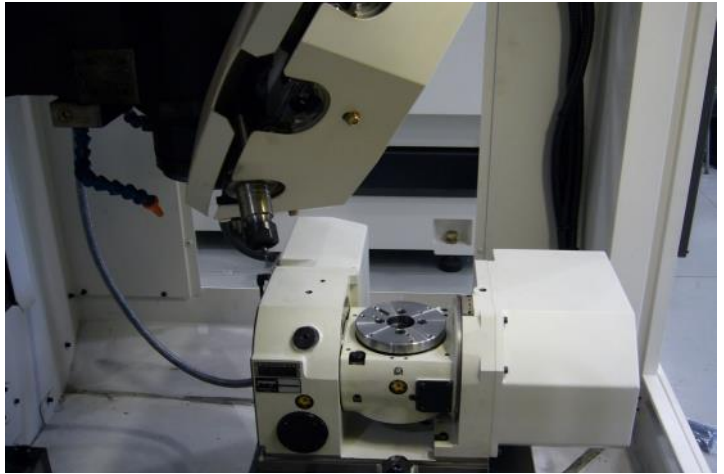
- Available in 400, 500, 630, 800 & 1000mm
- Designed for hi accuracy machining
- High accuracy 4 piece cones/caps
- Hydraulic 4 piece clamp plate system



Vertical / Horizontal Machining Center



Vertical Machining Center



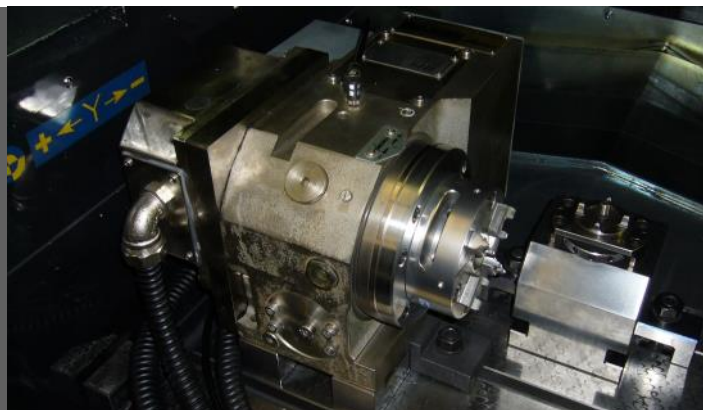
Vertical Machining Center



Vertical Machining Center



Vertical Machining Center



Rotary Scale Option for Graphite Application



Vertical Machining Center



Horizontal Machining Center



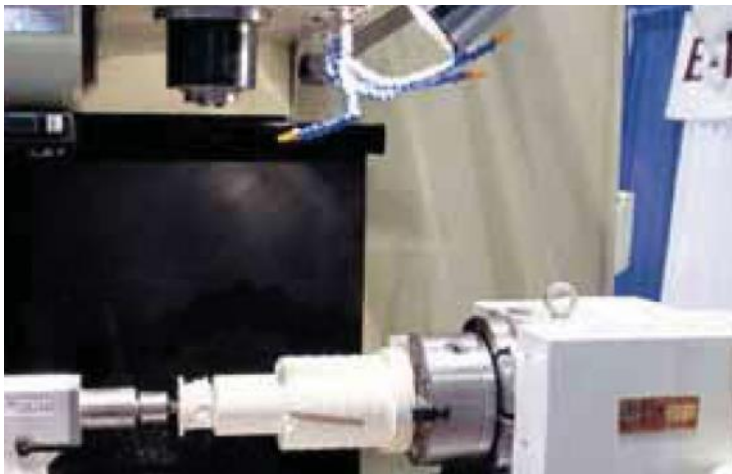
Premium Work Holding Systems



Vertical Machining Center



AX-1500RV + Horizontal Machining Center



Vertical / Horizontal Machining Center



Horizontal Machining Center



Vertical / Horizontal Machining Center



Large Size Machining Center

Also available through Pioneer NA:



Pioneer N.A.
Premium Tool Holding
& Accessories



Pioneer Machine Tool
Air & Diaphragm Chucks



Pioneer Trading Company
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Pioneer North America

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