

TNT Series



- Compact Size** Suitable for small size machining center.
- Fixed Cables** Fixed Cables
- Water protection** Auto purging (PAT.) as standard specifications
- High speed** Indexing at 41.6min⁻¹ in rotating axis (TNT100/170)

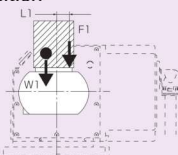
Main Body Specifications

Model	Right Handed			TNT170R		TNT250R															
	Left Handed	TNT100L		TNT170L																	
	Axis	Rotating axis	Tilting axis	Rotating axis	Tilting axis	Rotating axis	Tilting axis														
Table diameter (mm)		100	—	120	—	180	—														
Table faucet hole diameter (mm)		50H7 Depth 23	—	55H7 Depth 45	—	90H7 Depth 10	—														
Table center through hole (mm)		36 Depth 86, 28 thru	—	40	—	72	—														
Table height at vertical position (mm)		180	—	240	—	295	—														
Tilting axis center height (mm)		—	135	—	180	—	225														
Tilting range		—	110°~—20°	—	110°~—20°	—	110°~—20°														
Clamp system		Air pressure (0.5~0.7MPa)		Air pressure (0.3~0.5MPa)		Air pressure (0.3~0.5MPa)															
Clamp torque (N·m)		200	320	520	1,000	1,050	1,200														
Indexing accuracy (cumulative)		Within 35sec.	Within 40sec.	Within 30sec.	Within 45sec.	Within 25sec.	Within 40sec.														
Total reduction ratio		1/72	1/120	1/72	1/120	1/90	1/120														
Table Rotation Torque (N·m)	AC5-10/10A	14	14	—	—	—	—														
	AC5-30/30A	—	—	35	97	85	143														
Max. number of revolutions (min ⁻¹)		41.6	25	41.6	25	22.2	16.6														
Indexing time (Clamping / unclamping times are included.)	<table border="1"> <tr><td>A</td><td>10°</td></tr> <tr><td>C</td><td>30°</td></tr> <tr><td>5</td><td>90°</td></tr> <tr><td>10</td><td>180°</td></tr> <tr><td>10A</td><td></td></tr> <tr><td>30</td><td></td></tr> <tr><td>30A</td><td></td></tr> </table>	A	10°	C	30°	5	90°	10	180°	10A		30		30A		0.93	1.05	0.94	0.91	0.88	0.91
		A	10°																		
		C	30°																		
		5	90°																		
10	180°																				
10A																					
30																					
30A																					
1.11	1.26	1.09	1.03	1.06	1.11																
1.38	1.70	1.34	1.42	1.50	1.71																
1.73	—	1.67	—	2.20	—																
Available size of scroll chuck		4·5 inch	—	6 inch	—	9 inch	—														
Weight (kg)		80		138		280															
Guide piece width (mm)		14h7		14h7		18h7															
Standard accessories		Guide piece (2 pcs), Main body fixture (4 sets), Clamping air tube (5 m)		Guide piece (2 pcs), Main body fixture (4 sets), Clamping air tube (5 m)		Guide piece (2 pcs), Main body fixture (4 sets), Clamping air tube (5 m)															
Optional accessories		—		Sub-table		Sub-table															

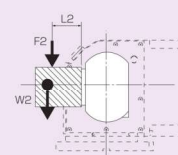
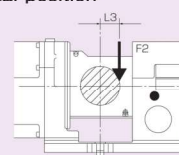
Resistance to load

Max diameter of work		100	170	250
Allowable weight	At vertical position	W1=30 kg	W1=60 kg	W1=90 kg
	At horizontal position	W2=20 kg	W2=40 kg	W2=60 kg
Allowable max cutting thrust	At vertical position	L1= 0mm F1=4,000N	L1= 0mm F1=8,000N	L1= 0mm F1=11,000N
		L1=50mm F1=2,000N	L1= 85mm F1=3,300N	L1=110mm F1= 5,600N
	At horizontal position	L2=85mm L3= 0mm F2=2,100N	L2=125mm L3= 0mm F2=3,400N	L2=120mm L3= 0mm F2= 4,650N
		L2=40mm L3=45mm F2=4,000N	L2= 40mm L3=95mm F2=5,000N	L2= 50mm L3=110mm F2= 7,800N

■ At vertical position



■ At horizontal position



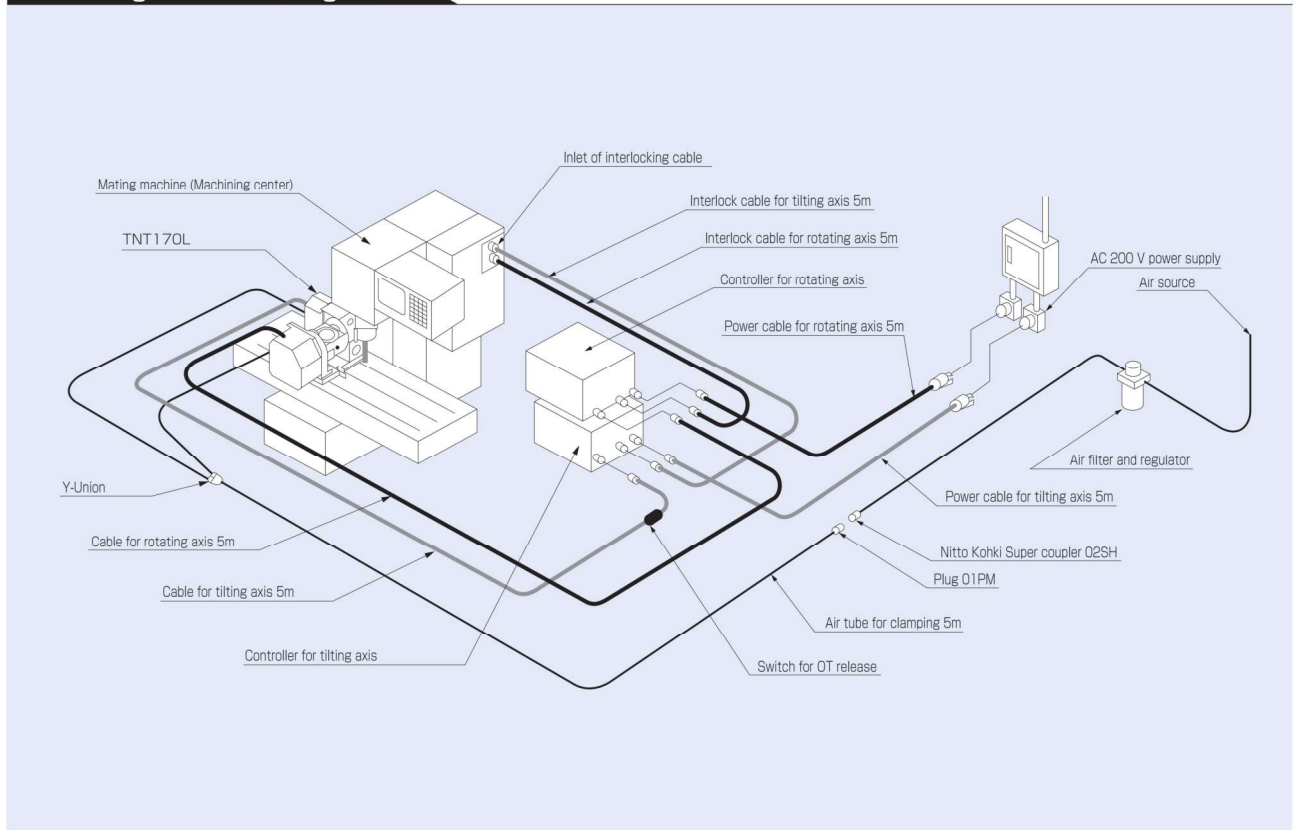
TNT

Model No. and control device

Series name Table diameter R:Right handed, L:Left handed Specifications extended
TNT 170 R - AC5 - 30 A

Model No.	Type	Specifications									
TNT100L-AC5-10 TNT170L-AC5-30	Left handed	Controller AC5 Specification (Incremental motor) Two AC5 controllers attached for tilting axis and rotating axis each. Depending on the interfacing methods, the program unification will become possible by editing of the rotary table program on the machining center side.									
TNT170R-AC5-30 TNT250R-AC5-30	Right handed										
TNT100L-AC5-10A TNT170L-AC5-30A	Left handed	Controller AC5A Specification (Absolute motor) Two AC5A controllers attached for tilting axis and rotating axis each. Depending on the interfacing methods, the program unification will become possible by editing of the rotary table program on the machining center side.									
TNT170R-AC5-30A TNT250R-AC5-30A	Right handed										
TNT100L-AX TNT170L-AX	Left handed	Additional axis specifications <table border="1"> <tr> <td>TNT100</td> <td>Rotating axis: FANUC aiF1 or equivalent</td> <td>Tilting axis: FANUC aiF2 or equivalent</td> </tr> <tr> <td>TNT170</td> <td>Rotating axis: FANUC aiF2 or equivalent</td> <td>Tilting axis: FANUC aiF2 or equivalent</td> </tr> <tr> <td>TNT250</td> <td>Rotating axis: FANUC aiF4 or equivalent</td> <td>Tilting axis: FANUC aiF4 or equivalent</td> </tr> </table>	TNT100	Rotating axis: FANUC aiF1 or equivalent	Tilting axis: FANUC aiF2 or equivalent	TNT170	Rotating axis: FANUC aiF2 or equivalent	Tilting axis: FANUC aiF2 or equivalent	TNT250	Rotating axis: FANUC aiF4 or equivalent	Tilting axis: FANUC aiF4 or equivalent
TNT100	Rotating axis: FANUC aiF1 or equivalent	Tilting axis: FANUC aiF2 or equivalent									
TNT170	Rotating axis: FANUC aiF2 or equivalent	Tilting axis: FANUC aiF2 or equivalent									
TNT250	Rotating axis: FANUC aiF4 or equivalent	Tilting axis: FANUC aiF4 or equivalent									
TNT170R-AX TNT250R-AX	Right handed	It is controlled by the NC device of the mating machine. A controller and NC device are not attached. <ul style="list-style-type: none"> The servo motor should be supplied by the customer. Outer dimensions of the table can be changed depending on the servo motor. It may be required to have confirmation on the specifications of the electricity circuit, etc. ※For the details, please inquire to us.									

Interlocking Connection Diagram



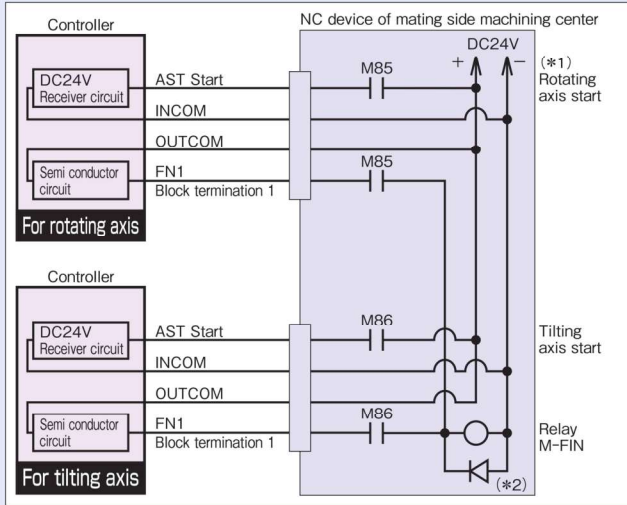
Inspection Standards

Inspection Item	Instructions	Tolerance (mm)		
		TNT100	TNT170	TNT250
Parallelism of the table top face and the base bottom face in tilting axis direction	for 300mm		0.02	
Deflection of spindle top face during rotation	10mm inside from the table outer periphery		0.02	
Deflection of spindle center hole	at the faucet		0.01	
Parallelism of the tilting centerline to the base bottom face	for 300mm		0.03	
Rotating axis Indexing accuracy	by an optical measuring device	Within 35 sec.	Within 30 sec.	Within 25 sec.
Tilting axis Indexing accuracy	by an optical measuring device	Within 40 sec.	Within 45 sec.	Within 45 sec.

Example of interlocking signal with a machining center

Two pairs of M-signal are used. The following are an example only showing M85 used for the rotating axis and M86, for the tilting axis, but the details of the interlocking circuit must be referred to each of the instruction manuals for the controllers.

Controller AC5 specifications (An example of PNP connection)



Example of program		
Program of Mating Machine N00	Program for Rotating Axis	Program for Tilting Axis
M85(ROT90 SH)	: N00 g52	Rotating axis
	N01 A90.0	Rotating axis to 90° normal rotation
N01 M86(TIL30 AB)	:	Tilting axis
	N02 A60.0	Tilting axis to 30° normal rotation
N02 M85(ROT60)	: N02 A60.0	Rotating axis to 60° reverse rotation
N03 M86(TIL90)	:	Tilting axis to 90° normal rotation
N04 M85(ROT180)	: N03 A180.0	Rotating axis to 180° normal rotation
N05 M86(TILO)	:	Tilting axis to 0° reverse rotation
N06 M85(ROT30)	: N04 A30.0	Rotating axis to 30° reverse rotation
N07 M86(TIL355)	:	Tilting axis to 355° reverse rotation
N08 M85(ROT270)	: N05 A270.0	Rotating axis to 270° reverse rotation
N09 M86(TILO)	:	Rotating axis to 0° normal rotation
.	.	.
.	.	.
.	.	.
M30	J0	J0
		Return to top of program

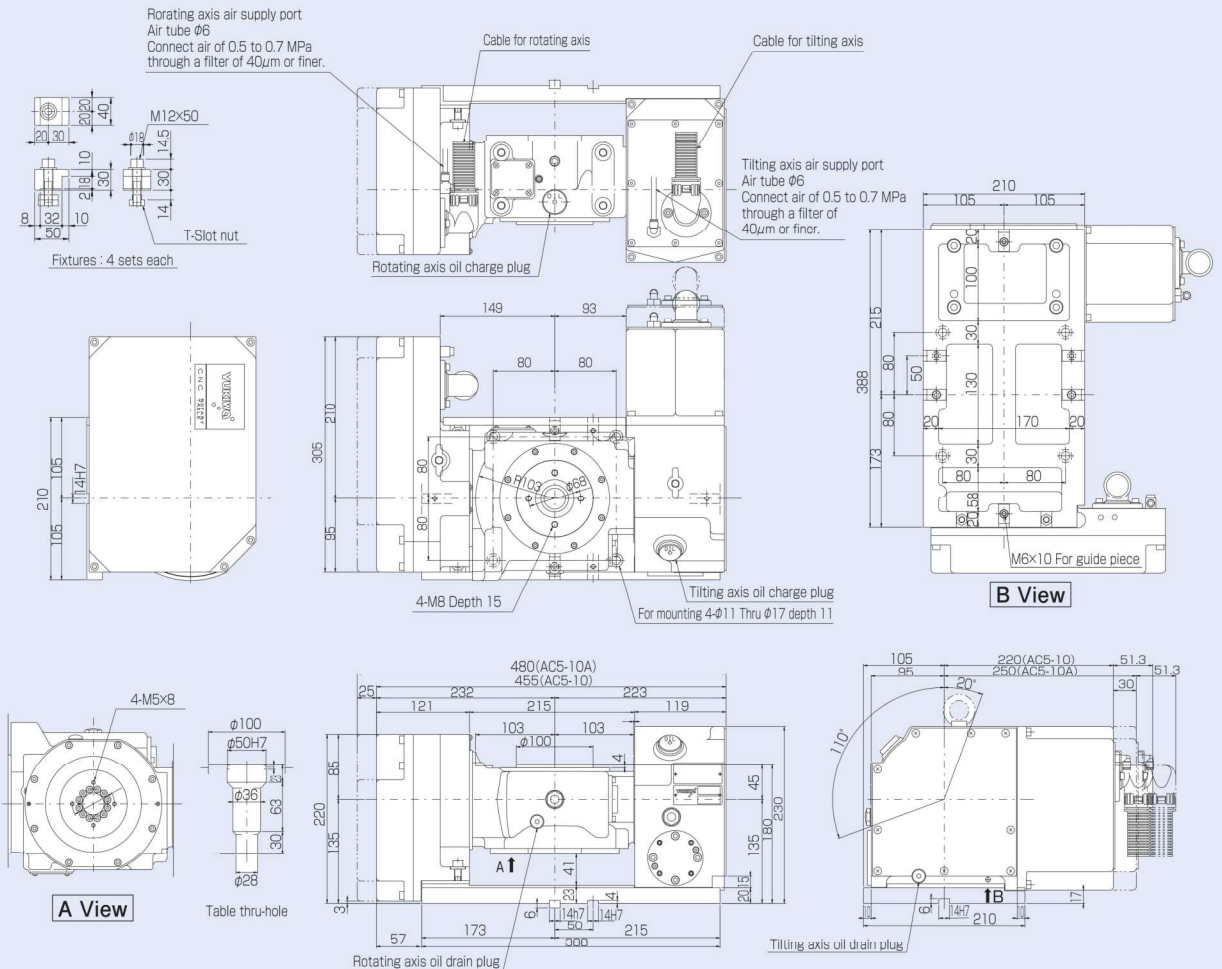
- 1) Use the DC24V circuit for the input/output signal. When connecting to AC100V or AC200V circuit, do so through a relay. Place a surge suppressor or diode into the relay coil. (*2)
- 2) In the NPN connection, + and - (*1) of DC24V becomes opposite and the polarity (*2) of the diode becomes opposite.

- 3) Because a turn range of the tilting axis is limited, use absolute order. (It is possible to set a way of ordering at the time of power supply ON by the parameter.) For the rotating axis, use a way of ordering according to the use.

Overall dimensions (with-AC5 controller specifications)

*For the additional axis specifications, please consult us.

TNT100L-AC5-10/10A

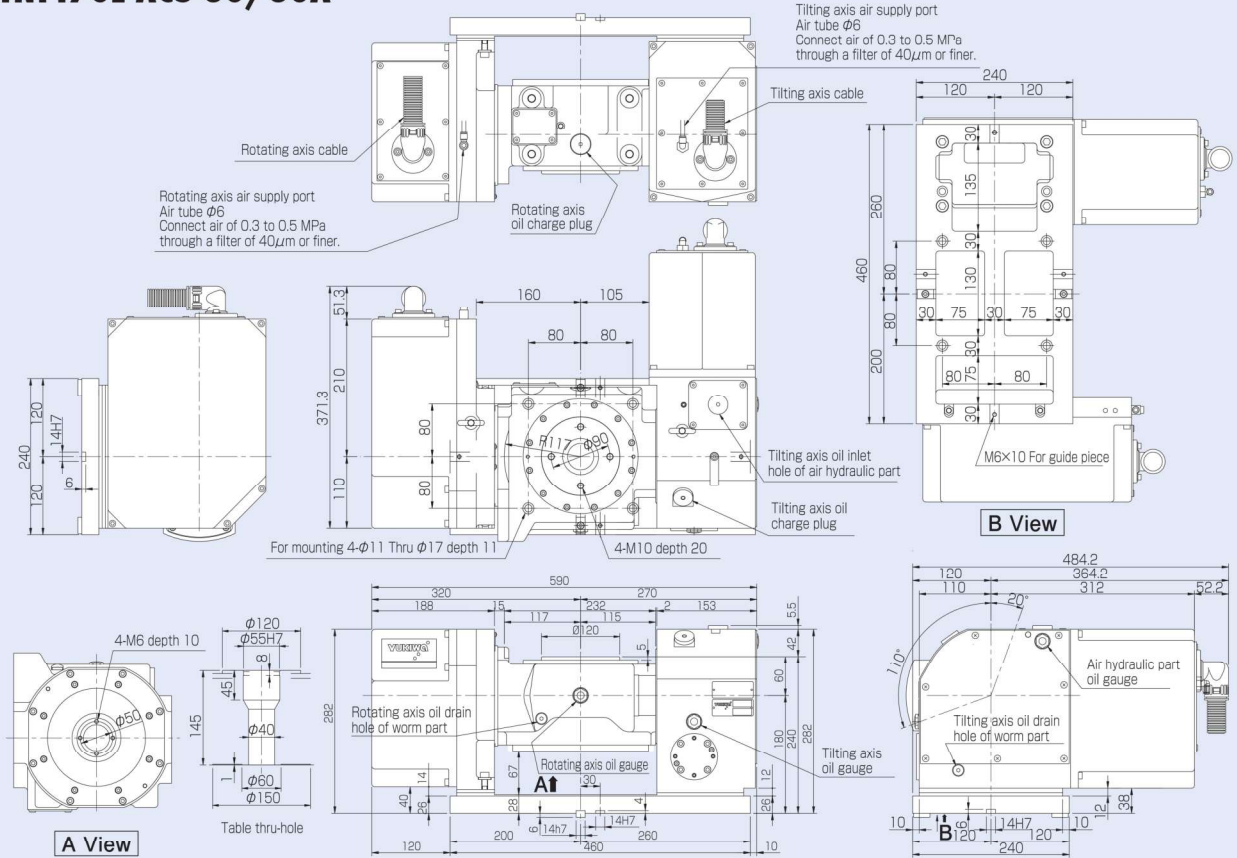


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Overall dimensional drawings

※For the additional axis specifications, please consult us.

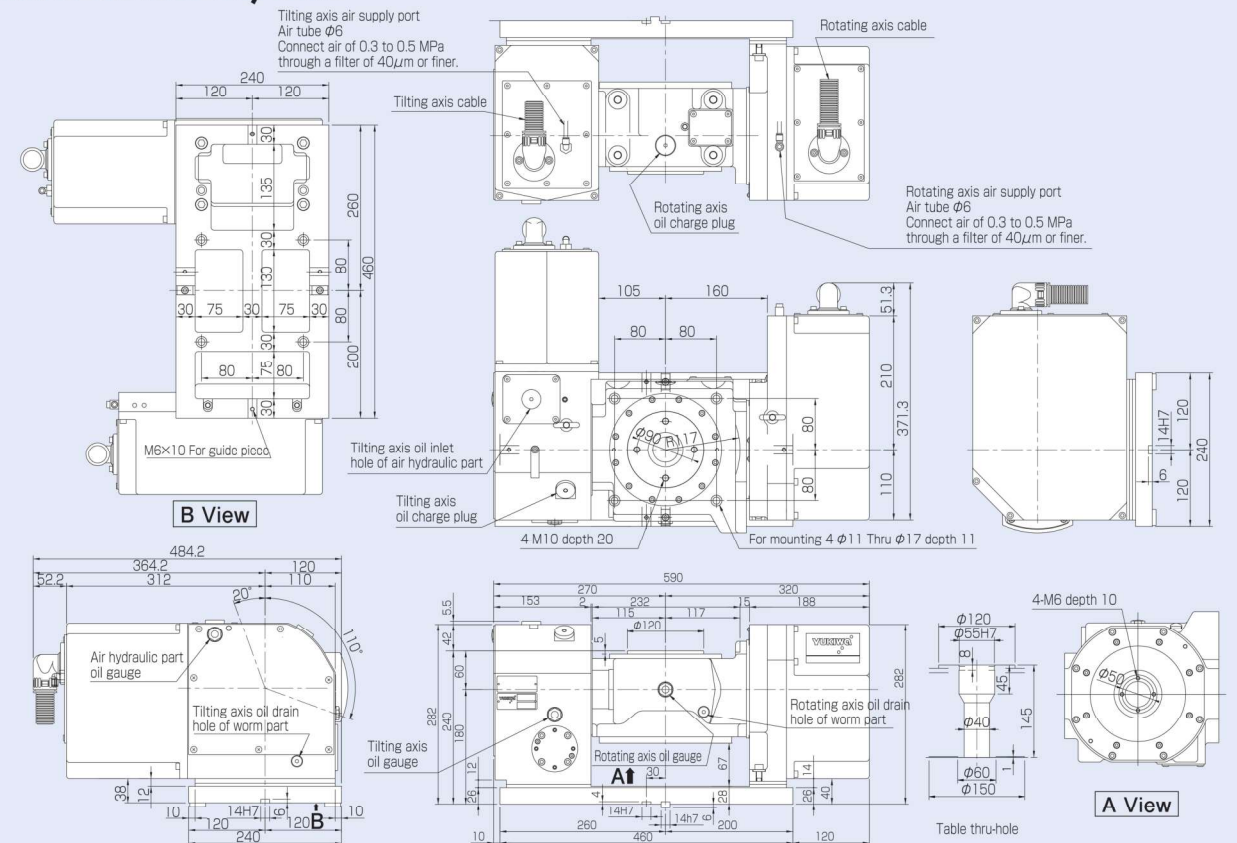
TNT170L-AC5-30/30A



Overall dimensional drawings

※For the additional axis specifications, please consult us.

TNT170R-AC5-30/30A



TNT250R-AC5-30/30A

