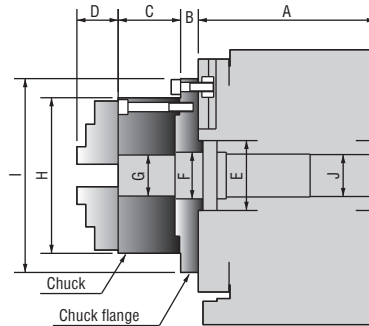
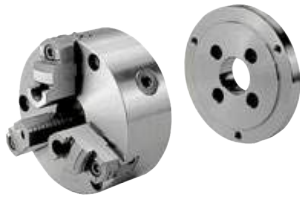


CHUCKS

SCROLL CHUCKS



Scroll Chucks	
Chuck Size (inches)	Chucking Range (mm)
6" Manual 3-Jaw Chuck	3 ~ 127
8" Manual 3-Jaw Chuck	5 ~ 165
10" Manual 3-Jaw Chuck	10 ~ 200
12" Manual 3-Jaw Chuck	11 ~ 254
15" Manual 3-Jaw Chuck	15 ~ 380

Notes 1. The values in the table above are dimensions with hardened jaw (soft blank jaw is optional).
2. Occasionally a workpiece within the chucking range can not be chucked due to jaw configuration.







SCROLL CHUCK MOUNTING DIMENSIONS

Dimensions = mm

Rotary Table Model	Chuck Size (inches)	A	B	C	D	E	F	G	H	I	J
RN-100	5	145	15	60	37.3	50	50	32	132	132	30
TWA-130	5	210	18	60	37.3	55	45	32	132	132	35
RWE-160, RWA-160 RWE-160 TPC	6	155	-	60	39	55	40	39	152	-	40
TWA-160	6	235	-	60	39	55	45	39	152	-	40
RWE-200 RWA-200 RWE-200 TPC	8	165 175 (RWE-200 TPC)	-	80	53	65	45	60	210	-	45
TWA-200	8	270	-	80	53	65	55	60	210	-	45
RWE-250 RWA-250	10	190	-	86	66	75	50	73	254	-	50
RWB-250	10	195	-	86	66	70	71	73	254	-	71
RNCM-251	10	165	-	86	66	40	32	73	254	-	32
RWE-320 RWA-320	12	250	-	102	66	110	82	83	305	-	82
TN-320	12	355	-	102	66	105	95	83	305	-	102
RNCM-301	12	220	-	102	66	40	40	83	305	-	40
RWB-320	12	250	-	102	66	130	101	83	305	-	101
RNCM-401 RNCV-401	15	250 220 (RNCV-401)	-	147	90	40	40	108	381	-	40
RWB-400	15	257	35	100	70	190	151	150	385	400	151
RWB-500	18	325	35	114	79.8	220	165	180	460	500	220

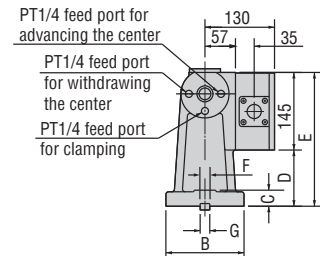
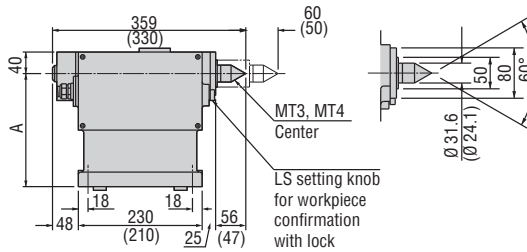
Notes 1. The dimensions above are for reference only.
2. Specifications subject to change without notice.

TAILSTOCKS & SUPPORT SPINDLES

Rotary Table Model	Tailstock Model (Number = Center Height)			Support Spindle Model (Number = Center Height)		
	Manual (M)	Hydraulic (H)	Pneumatic (P)	No Clamping	Pneumatic (P)	Hydraulic (H)
						
RN-100	TL-110M	-	-	-	-	-
RWE-160, RWA-160, RWE-160 TPC	TL-135M	TLH-135	TLP-135	TS-135	TS-135P	-
RWE-200, RWE-250, RWA-200, RWA-250, RNCM-251, RWB-250, RWE-200 TPC	TL-160M	TLH-160	TLP-160	TS-160	TS-160P RTA-160P	SSB-160 RTA-160H
RWE-320, RWA-320, RNCM-301, RWB-320, TWA-200	TL-210M	TLH-210	*	TS-210	TS-210P	SSB-210 RTA-210H
RNCM/RNCV-401, RWB-400	TL-255M	TLH-255	*	*	*	SSB-255 RTA-255H
RWB-500, RNCM-501, RNCK-501	TL-310M	*	*	*	*	SSB-310
RNCM/RNCK-631	TL-400M	*	*	*	*	*
RNCV-801	TL-530M	*	*	*	*	*
TWA-320	TL-255M	TLH-255	*	*	*	*
THNC-251	TL-210M	TLH-210	*	*	*	SSB-210
THNC-301	TL-235M	*	*	*	*	*

*All tailstocks & support spindles can be mounted on risers to match the required table center height.

HYDRAULIC TAILSTOCK DIMENSIONS

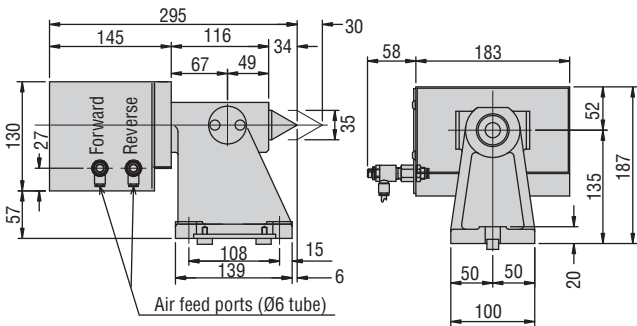


Tailstock Model	A	B	C	D	E	F	Carbide center	Hydraulic pressure PSI	Center thrust force N (lbf.)	Clamp torque N (lbf.)	Weight kg (lbs.)
TLH-135	135	110	25	30	175	19	MT3	218 ~ 986	1,666 (373)	2,450 (549)	28 (62)
TLH-160	160	130	30	55	200		MT4				33 (73)
TLH-210	210	146		105	250	23			36 (79)		
TLH-255	255	170	35	150	295		40 (88)				

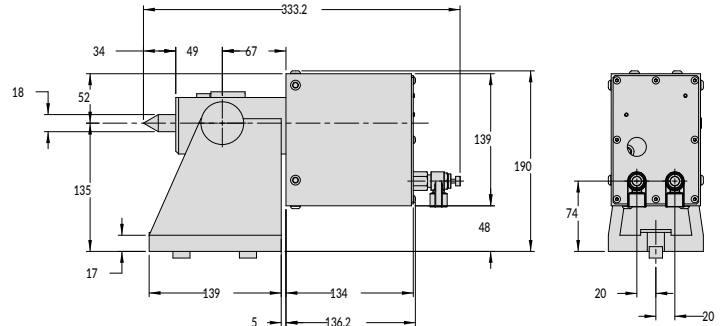
The above table shows the center thrust force and clamp torque when hydraulic pressure is 500 PSI.

PNEUMATIC TAILSTOCK DIMENSIONS

▶ TLP-135



▶ TLP-160

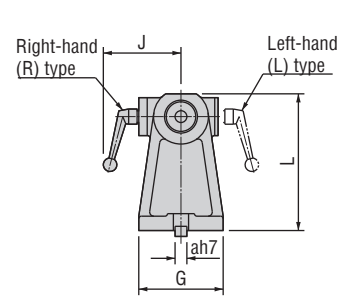
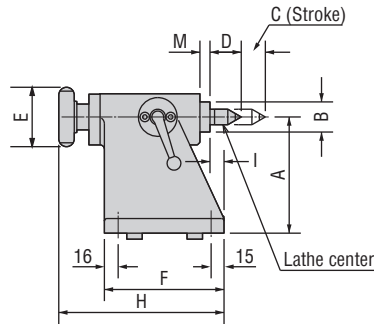


Tailstock Model	Stroke	Forward thrust force @72 psi	Reverse thrust force @72 psi
TLP-135	30mm	1,557 N (349 lbf)	1,400 N (314 lbf)
TLP-160	50mm		

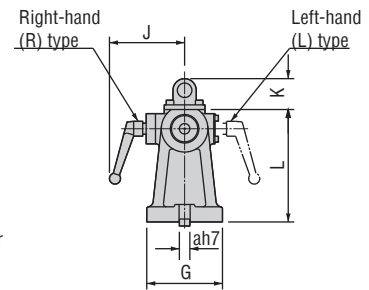
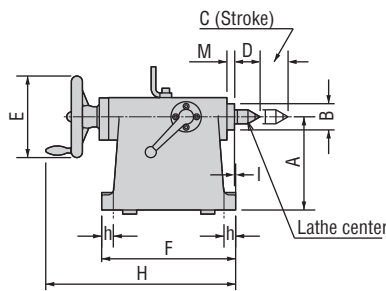
MANUAL TAILSTOCK DIMENSIONS

Tailstock Model	Morse taper	A Center height	B Center dia.	C Stroke	D Lathe center	E Handle dia.	F x G Base Dimension	H	I	J	K	L	M	a	b	c	d	e	g	h	Weight kg (lbs.)
TL-110M	MT2	110	35	28	36	69	139 x 100	192	16	92	-	137	12	14	12	55	8	23	20	-	8 (18)
TL-135M	MT2	135	35	28	36		139 x 100					162									9 (20)
TL-160M	MT3	160	45	48	44	140	230 x 130	326	2	129	53	193	13	75	30	17.5	30	26 (57)	30 (66)	22 (48)	
TL-180M	MT3	180					223					24 (53)									
TL-210M	MT3	210					243					26 (57)									
TL-235M	MT4	235	50	53	52.5	160	270 x 160	383	12	131	65	270	8	18	16	80	11	28	35	17.5	30 (66)
TL-255M	MT4	255					270					290									
TL-280M	MT4	280	60	53	52.5	180	315 x 220	417	15	154	65	350	10	85	40	20	32	40	20	63 (139)	
TL-310M	MT4	310					440					76 (167)									
TL-350M	MT4	350					590					138 (304)									
TL-400M	MT4	400	80	68	225	410 x 290	532	30	164	5	22	18	90	32	40	20	63 (139)	76 (167)	138 (304)		
TL-530M	MT4	530																		80	68

TL-110M/135M

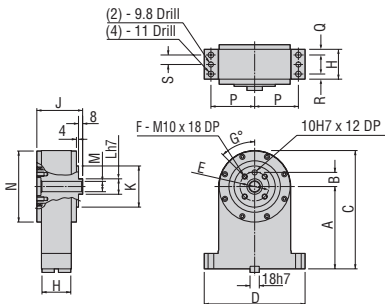


TL - M

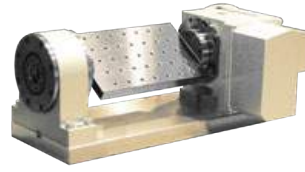


SUPPORT SPINDLES

TS - (No clamping)



TS-135

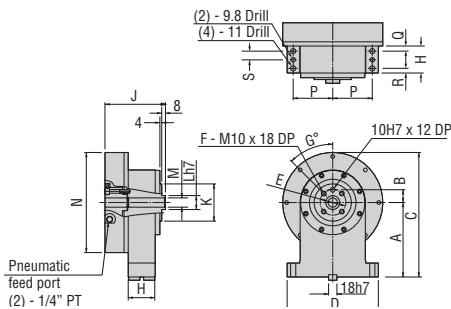


TS-135 + RWA-160

Unit: mm

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	Net Weight kg (lbs.)
TS-135	135	27.5	205	196	55	4	45	58	89	80	30	20	138	85	11	10	18.5	13 (29)
TS-160	160	27.5	230	196	55	4	45	58	89	80	30	20	138	85	11	10	18.5	15 (33)
TS-210	210	37.5	295	226	75	6	30	67	101	100	50	40	168	100	11	11	22.5	18 (40)

TS - P (Pneumatic clamping)



TS-160P

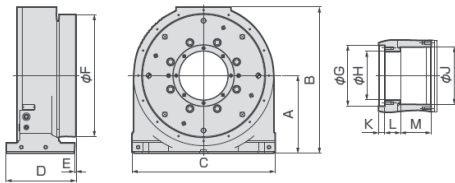


TS-210P + RWA-320R,B

Unit: mm

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	Clamp torque Nm (ft. lbs) @ 72 PSI	Net Weight kg (lbs.)
TS-135P	135	27.5	218.5	196	55	4	45	58	130	80	30	20	167	85	11	10	18.5	156.9 (115.6)	20 (44)
TS-160P	160	27.5	267.5	196	55	4	45	58	130	80	30	20	215	85	11	10	18.5	383.7 (282.8)	27 (59)
TS-210P	210	37.5	337.5	226	75	6	30	67	141	100	50	40	255	100	11	11	22.5	779.1 (574.2)	45 (99)

SSB - (Hydraulic clamping)



SSB-160



SSB-210 + RWB-320

Unit: mm

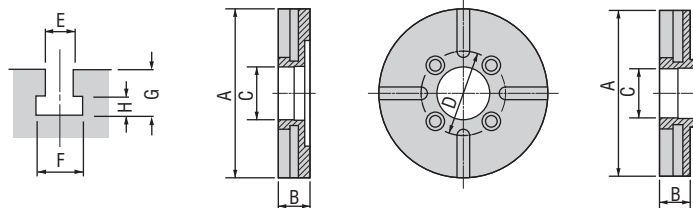
Model	A	B	C	D	E	F	G	H	J	K	L	M	Clamp torque Nm (ft. lbs) @ 500 PSI	Net Weight kg (lbs.)
SSB-160	160	303	290	175	5	250	105H7	80H7	95H8	15	42	66	2,000 (1,475)	60 (132)
SSB-210	210	396	380	210	5	320	150H7	120H7	145H8	15	50	90	4,700 (3,467)	120 (265)
SSB-255	255	480	470	230	5	400	200H7	160H7	190H8	20	52	100	8,000 (5,900)	185 (408)
SSB-310	310	560	470	230	5	500	200H7	160H7	190H8	20	52	100	8,000 (5,900)	230 (507)

FACE PLATES



Unit: mm

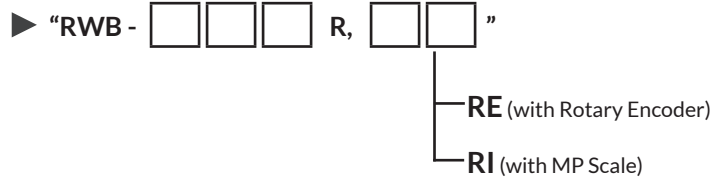
Model	A	B	C	D	E	F	G	H
RN-100	135	30	50H7	-	10H8 ^{+0.012} _{-0.012}	16	17 ^{+0.012} _{-0.012}	7
TTNC-102-2, TN-101, TWA-130	135	25	40H7	70	12H8			
RWE-160, RWA-160, RWE-160 TPC, TWA-160	160	30	50H7	80	12H8 ^{+0.012} _{-0.012}	19	19 ^{+0.012} _{-0.012}	8
RWE-160, RWA-160, RWE-160 TPC, TWA-160	200	30	50H7	80	12H8			
RWE-200, RWA-200, RWE-200 TPC, TWA-200	200	35	60H7	90	12H8			
RWE-200, RWA-200, RWE-200 TPC, TWA-200	250	35	60H7	90	12H8			



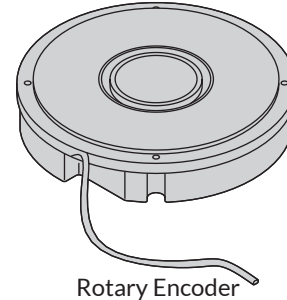
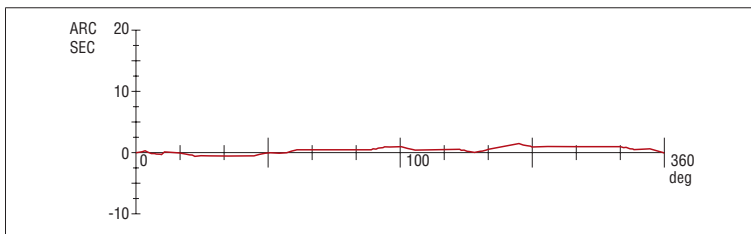
HIGH RESOLUTION ENCODERS & SCALES

The accuracy of a rotary table can be greatly enhanced with the use of an optional rotary scale. The scale (Heidenhain or MP) is mounted directly to the back of the rotating spindle on the rotary table, providing exact position movements from the machine NC control. The model and accuracy of the scale will determine the guaranteed positioning accuracy of the table. **CZi Fanuc scales also available. Call for more information.**

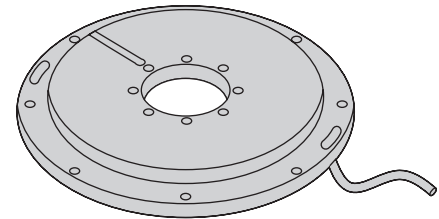
Rotary table model designation



Example of indexing accuracy measurement with encoders or scales.



Rotary Encoder



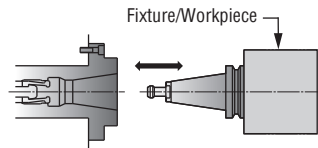
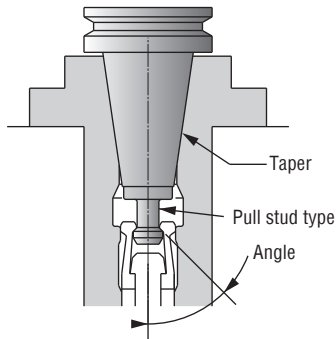
MP Scale

TABLE ACCURACIES WITH SCALES / ENCODERS

Rotary Table		Mitsubishi MP Scales		Heidenhain Rotary Encoders	
		Model	Accuracy with scale	Model	Accuracy with encoder
RWE-160, RWE-200, RWA-160, RWA-200	Rotary axis	MPI 536A	±7.5 arc sec.	RCN-2590	±5 arc sec.
RWE-250, RWE-320, RWA-250, RWA-320		MPI 736B	±5 arc sec.	RCN-2590	±3 arc sec.
RNCM-251, 301		MPI 1072B	±4 arc sec.		
RWB-250(K)					
RWB-320(K)					
RWB-400(K)					
RWB-500(K)					
RNCM-401 ~ 631					
RNCK-501, 631					
RCV-800 ~ 1000					
RNCV-801 ~ 1501					
TWA-130		Rotary axis	MPI 536A	±7.5 arc sec.	RCN-2590
	Tilt axis				
TWA-160	Rotary axis				
	Tilt axis				
TWA-200	Rotary axis				
	Tilt axis				
TN-320	Rotary axis	MPI 736B	±5 arc sec.	RCN-8590	±3 arc sec.
	Tilt axis	MPI 1072B			
TTNC-451, 631	Rotary axis	MPI 736B	±5 arc sec.		
	Tilt axis		±7.5 arc sec.		
TTNC-1001	Rotary axis	MPI 1272B	±4 arc sec.		
	Tilt axis		±7.5 arc sec.		
RT-225	Rotary axis		±4 arc sec.		
	Tilt axis		±7.5 arc sec.		

PULL STUD DEVICES

A pull stud device positions and mounts a fixture/workpiece on a rotary table by using the taper shank with a pull stud. Combining a pull stud unit and a robot/work loader allows for an unmanned machining system.



Knob Angle	Pull Stud Type
45°	I
60°	II
90°	Other



TWA-130 with CAT-40 Pull Stud

PULL STUD MODELS

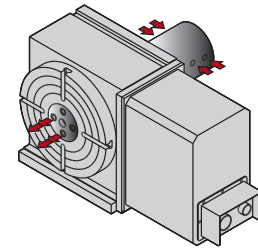
Rotary Table Model	Taper shank	Pull stud clamp force N (lbf.)	Hydraulic pressure PSI	Pneumatic pressure for air blow PSI
RWE-160, 200, 250, 320 RWA-160, 200, 250, 320	CAT/BT-40	11,000 (2,464)	500	30 ~ 60
TN-101 TWA-130, 160				
RWE-200, 250, 320 RWA-200, 250, 320	CAT/BT-50	15,000 (3,360)	500	30 ~ 60
RWB-250(K) TWA-200, 320				
RWB-320(K), 400(K), 500(K)	CAT/BT-50	15,000 (3,360)	500	30 ~ 60

ROTARY JOINTS

A rotary joint unit is used to supply hydraulic or pneumatic pressure to a workpiece or a fixture/actuator mounted to the rotary table. A rotary joint enables automatic loading and unloading of a workpiece. Custom designed rotary joints are available for most tables.

TYPICAL TABLE / ROTARY JOINT SPECIFICATIONS

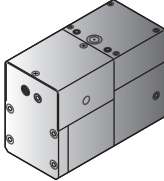
Rotary Table Model	Maximum number of ports	Typical supplied pressure PSI
RWE-160, RWA-160, 200, 250	6	3000 (Custom designs available)
RWE-320, RWA-320	6	
RNCM-251, 301, 401	6	
RNCM-501	6	
RCV-Series	Varies	
RNCV-Series	Varies	
RWB-250(K), 320(K)	12	
RWB-400(K), 500(K)	16	
RNCK-501, 631	8	
RC/RNC-Series	Varies	
SSB 160-210	12	
SSB-255-310	16	

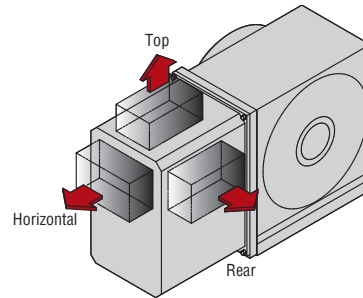


RWB-400K with Capto C8 Pull Stud and custom rotary joint

AIR/HYDRAULIC BOOSTERS

Several models of Tsudakoma rotary tables utilize a high power hydraulic clamping system. For machine tools that lack a hydraulic source, hydraulic clamping rotary tables may be equipped with an optional air/hydraulic booster unit. An air/hydraulic booster unit converts pneumatic pressure into hydraulic output for table clamping.

Booster Type	Table models	Booster
External (enclosure size varies)	Rotary table diameter is 300mm or more	



Booster Mounting Locations

Specify the following when ordering a booster: 1. Mounting position of the air-hydraulic booster unit. 2. Control voltage for the solenoid of the booster unit.

If the machine tool does not have a hydraulic source to power the rotary table clamp mechanism, a Tsudakoma air/hydraulic booster is used to power the clamping. An air source is plumbed to the inlet port of the booster, and the outlet port of the booster is plumbed to the rotary table hydraulic inlet port. Air/hydraulic boosters are either built-in internal units (for RWB-Series tables) or compact externally mounted units.

Booster Type	Table models	Booster
External (enclosure size varies)	Rotary table diameter is 300mm or more	