



Welding Rotator Technical Specification

Welding/Cutting expert

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Welding rotators are often also called turning rolls or tank rotators.

Welding rotators are used predominately in the petrol chemical industry, onshore and off shore oil and gas industries, conventional power and nuclear industries and many other fabrication industries where pipes or vessel required to be rotated for semi or automatic welding processes.

They come in two distinctive types - self aligning and adjustable rotators.

Both welding rotator types can be equipped with integral bogies or mounted on bogies to enable the rotator sections to be driven along a track way. Welding rotators nominally come in sets or pairs consisting of a powered rotator and an idle rotator.

Characteristics

- 1) It includes one powered rotator and one idle rotator, each with four rollers. Powered rotator is driven by double motors to make sure the higher torque available, smooth rotating and reliable operation.
- 2) Both powered and idle rotator base are welded by Section steel with stiffener. It has excellent solidarity and anti-twisting.
- 3) Both powered and idle are treated by annealing and further machining to make sure the job stable during long time working.
- 4) Roller rotating smoothly.
- 5) There are rubber and steel rollers in powered and idle rotators, the body frame processed by heat treatment.
- 6) Automatic angle adjusting according to the diameter of the work piece (for self-aligning rotator).
- 7) AC Stepless frequency conversion timing, imported transducer, high low-speed torque, excellent quality, wide range of speed regulating, and over-current, over-voltage, over-loading multi-protection functions.
- 8) High quality cycloidal reducer, planetary gearbox, transmission rolling contact method. It has the lowest loss, and mechanical efficiency is high than 95%.
- 9) Control system includes electrical cabinet and manual operator.
- 10) With linkage interface, it can be jointly controlled with manipulator, SAW to form an automatic welding center.

1. TR1 Self-aligning welding rotator

Self-aligning welding rotator can adjust the swing angle automatically according to the diameter of work piece. Double-motor driven, the rotator has three forms: sub-rubber tire wheel, steel wheel, and steel and rubber combination wheel. The control method has two options: switch relay type and digital type. This product is widely used in wind tower, pressure vessel, petrochemical, pipeline, steel structure, boiler, shipbuilding, welding repair industry.

1.1. TR1 Technical parameter

Model(TR1-)				5	10	20	30	40	50	60	80	100	150
Loading capacity				5t	10t	20t	30t	40t	50t	60t	80t	100t	150t
Rotor group	T wheel	Steel	Diameter(mm)	-	-	-	340	340	390	390	490	490	540
			Width(mm)	-	-	-	30	30	40	40	60	60	100
	Rubber	Rubber	Diameter(mm)	250	250	300	350	350	400	400	500	500	550
			Width(mm)	120	120	140	120	120	120	120	120	120	120
Diameter of work piece	Min(mm)			350	350	600	600	600	750	800	900	900	1000
	Max(mm)			2500	2500	4000	4500	4500	5000	5000	5500	5500	6000
Roller speed(m/h)				6-60	6-60	6-60	6-60	6-60	6-60	6-60	6-60	6-60	6-60
Motor power(kw)				2*0.25	2*0.25	2*0.25	2*0.37	2*0.5	2*0.75	2*0.75	2*1.1	2*1.5	2*2.2
Speed regulating mode				Stepless speed regulation									
Overall size	Length(mm)			1450	1450/1450	2124/2124	2410/2410	2410/2410	2596/2596	2596/2596	3012/3012	3012/3012	3420/3420
	Power/idle			0	0	0	0	0	0	0	0	0	0
	Width(mm)			887/392	926/92	1002/422	1269/552	1299/552	1336/588	1452/588	1746/760	1771/760	1889/1080
Height(mm)				667	667	943	1064	1064	1130	1130	1408	1408	1640

2. TR2 Adjustable welding rotator

Adjustable welding rotator can adjust the center distance by reserved holes or lead screw in order to adapt to diameter of work piece, the roller is double-motor driven and it has three forms: sub-rubber tire wheel, steel wheel, steel and rubber combination wheel. I can be jointly controlled with other equipments. This product is widely used in wind power, pressure vessel, petrochemical, pipeline, steel structure, boiler, shipbuilding, welding repair industry.

2.1. TR2 Technical parameter

Model(TR2-)				5	10	20	30	40	50	60	80	100	150	200
Loading capacity				5t	10t	20t	30t	40t	50t	60t	80t	100t	150t	200t

Rotator group	T w e l d e r	Ste el	Diame ter(m m)	-	-	-	340	340	390	440	510	510	620	600
			Width (mm)	-	-	-	30	30	40	50	240	240	240	250
	o n b e r	Ru b b e r	Diame ter(m m)	250	250	300	350	350	400	450	-	-	-	-
			Width (mm)	120	120	140	120	120	120	120	-	-	-	-
Dia met er of wor kpie ce	Min(mm)		250	300	350	600	600	850	850	850	1000	1000	1000	
	Max(mm)		1800	3500	3600	4200	4200	5000	5000	5000	5500	6000	6500	
Roller speed(m/h)			6-60	6-60	6-60	6-60	6-60	6-60	6-60	6-60	6-60	6-60	6-60	
Motor power(kw)			1*0. 25	2*0. 25	2*0. 37	2*0. 55	2*0. 55	2*0. 75	2*0. 75	2*1. 1	2*1. 5	2*2. 2	2*3	
Speed regulating mode			Stepless speed regulation											
Ove rall size	Length(mm)		1260	1760	1960	2440	2440	2800	2800	3010	3310	5220	5330	
	Power/idle		/126 0/	/176 0	/196 0	/244 0	/244 0	/280 0	/280 0	/301 0	/331 0	/402 0	0/49 00	
	Width(mm)		772/ 280	772/ 280	830/ 320	1027 /400	1027 /400	1187 /480	1270 /480	1419 /560	1444 /560	1145 /770	123 0/77 0	
Height(mm)		525	525	570	649	649	740	765	863	863	1085	1210		

3. Equipment details

3.1. Rotator composition

Name	Quantity	Remark
Powered rotator	1 set	With motor
Idle rotator	1 set	
Electrical control cabinet	1 set	
Wired hand operation device	1 set	
Cable	8m	

3.2. Parts' brands list

Parts	Brand(Manufacturer)
Steel	Jinan Steel
Roller	TIME
Bearing	Harbin, Wafangdian
Motor	Huangyan
Reducer	Guomao
Communication cable	Meihe
Jointly control cable	Meihe
Controlling cable	Jinshan
Power cable in control cabinet	Jianshan
Frequency converter	Taida from Taiwan
Electrical parts	Schneider
Plug	Changgang from Taiwan
Driving gear	TIME

4. Equipment manufacturing standard

GB1266-1990	Machining safety standard
JB/T9187-1999	Welding rotator
GB/T 1184-1996	Common difference of shape and position
GB/T 10089-1988	Cylinder turbo and worm precision
GB4064-1983	Principles of design for electrical equipment safety

5. Installation and operation environment

5.1. Power source

- 1) Controller: 380V, Three phases 55KVA.
- 2) Grounding: 10 Ω Maximum overall grounding electrical resistance.

5.2. Installation environment

- 1) Environment temperature: -10-45 $^{\circ}$ C
- 2) Environment humidity: No higher than 75% RH: no frost
No higher than 95%RH in a short period(Less than one month)
- 3) Environment air: No specific requirement (No corrosive and explosive environment)
- 4) Others: No radio interference

The rotators will be installed under the instruction of installation manuals provided.

6. Safety

TIME prompts customers take protection measures to make sure the safety of staff and machine is guaranteed. TIME does not take responsibilities of the accidents caused by not installing corresponding machines.

- 1) Equipment not operated by unqualified people.
- 2) No entering the operation area when equipment is in use
- 3) Read and understand the operation manuals, and provide the training to the operating staff.
- 4) Confirm the necessary conditions before starting up the machine and other equipments.
- 5) Must read manuals carefully before operation and understand them fully.
- 6) To make sure it's safe; operate according to the technical agreement.
- 7) Make sure the person operating the equipment fully aware of the specifications, he/she should be qualified, trained or received the safety education.

7. Working condition

- 1) TIME provides the graphic drawing of foundation; lead rail and construction will be finished by customer
- 2) Power supply will be provided by customer
- 3) During the installation and testing of the system, customer should provide necessary support, including forklift, crane, work piece, filler metal, welding flux etc.
- 4) Customer should provide the correct power to the controller.
- 5) Check the function of the equipment during inner testing.
- 6) Check the control function of system controller during testing.
- 7) All parts' tested before working.
- 8) Customer assists with other necessary support.

Presented by welding & cutting automation department

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