

ZP375 ROTARY TABLE

INSTRUCTION MANUAL



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Charles Rig Supplies, Inc.

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1. USE

ZP375 rotary table is mainly used for:

- 1.1 Driving the drill pipe in the process of drill or fishing operation.
- 1.2 Equalizing the torque reaction of the drill string during drilling.
- 1.3 Suspend the pipe string while unloading the drill pipe or casing.
- 1.4 Loosen the thread joint while raising the drill pipe.

The product is designed, manufactured and verified in accordance to API SPEC 7K 2001.

2. TECHNICAL SPECIFICATION

Opening Diameter:	37 ½ in(952.5mm)
Max.Static Load:	645 ton (5850kN)
Max. torque	23870ft·lbs (32362N · m)
Max.Rotating Speed:	300r/min
Transmission Ratio:	3.56
Size(L×W×H):	97.2×71.3×28.3in (2468×1810×718mm)
Weight:	17678 lb (8026kg)

3. STRUCTURE

The ZP375 rotary table is mainly consist of basement(1),rotating turret device (2),master bushing device (3),cover plate(4), horizontal shaft assembly(5) and locking device (6).

Sizes of rotary shaft extension and borehole conform to API standards

(See the Structure Scheme).

1. Cast welding basement

The basement is the cast welding combined parts, being welded of cast steel basement and metal structural member. The basement is also served as oil pool, which can lubricate sector gear and bearing.

2. Rotating turret device

The rotating turret device is consist of rotating turret, big toothed rim ,bearing I and bearing II . It is moved by one pair of sector gear, the opening hole of the rotating turret is used for passing the drilling tool and casing pipe pillar.

3. Master bushing device

Master bushing device is consist of two halves.

4. Horizontal shaft assembly

The horizontal shaft assembly is consist of bevel pinion, centripetal short-cylindrical rollers bearing, centripetal spherical rollers bearing, Horizontal shaft and double-row sprocket.

5. Locking device

The locking mechanism is made up of the left and right sides pawl, control rod pin, shot pin and control rod. In order to brake the rotating turret, the left and right sides pawl can be sent into one of 28 slots on the turntable by control rod.

4. ASSEMBLY

4.1 All parts and disassemblies must be inspected and verified, ensure they are

clean and cut all corners.

4.2 Adjust the thickness of iron pad between the bearing shell and the rotary table shell to guarantee the flank clearance of 0.34~0.76 mm.

4.3 The normal temperature of the bearings should be down to 45 °C ,it shouldn't exceed 80 °C .

4.4 All sealers are placed manually. No metallic tools in assembling procedure.

4.5 After assembly, gear pair runs smoothly, no abnormal noise and latching mechanism should be flexible and reliable.

5. MAINTENANCE

5.1 Maintenance before drilling

5.1.1 Checking the locking device on the location of control rod, it should be in the relax location before the rotary table service.

5.1.2 Checking rotating turret and main master bushing on the slipper and pin, they should turn flexible.

5.1.3 Checking the level of lubrication oil and quality, the level of lubrication oil shouldn't be below scale.

5.1.4 For temperature down to 0 °C ,runs the rotary table 0.5h on unload.

5.2 Maintenance in drilling

5.2.1 Checking the horizontal shaft whether the lip seal is reliably.

5.2.2 There is no snap-in and collision during the rotary table operating.

5.2.3 Checking up whether the bearing temperature is normal.

5.2.4 Checking up whether the chain sprocket has the axial displacement, if having, fastening the flange with bolt.

5.2.5 Checking up the level of lubrication oil and quality in a shift (8 hours), the level of lubrication oil shouldn't be below scale.

5.2.6 Feed the grease fitting with grease once in a shift(8 hours).

5.2.7 Remove the cover plate to clear away the mud once or twice each month. Increase the frequency of cleaning especially in the freezing winter.

6. LUBRICATION

6.1 Fill the rotary table with 90 # sulphur-phosphorous Ep gear oil(SAE90), change the oil once each two months, checking up the lubrication oil once weekly, if dirty, it should be changed timely.

6.2 The pin of the locking mechanism is lubricated with 2# lithium grease once weekly.

7. PACKING AND DELIVERY

when convey the rotary table, suspend the four corner at bottom, dragging on the ground is forbidden.

8. BEARINGS

Bearings for ZP375 rotary table

No.	Description	Code	Sizes(in)	Quantity	Weight(lb)
1	combination bearing	2687/1049	$\Phi 50 \times \Phi 41.3189 \times$ 8.6614	1	899.64
2	horizontal shaft bearing I	NU 2330	$\Phi 5.9055 \times \Phi$ 12.5984×4.252	1	99.23
3	horizontal shaft bearing II	22330	$\Phi 5.9055 \times \Phi$ 12.5984×4.252	1	94.82

9. CONSUMABLE ACCESSORIES

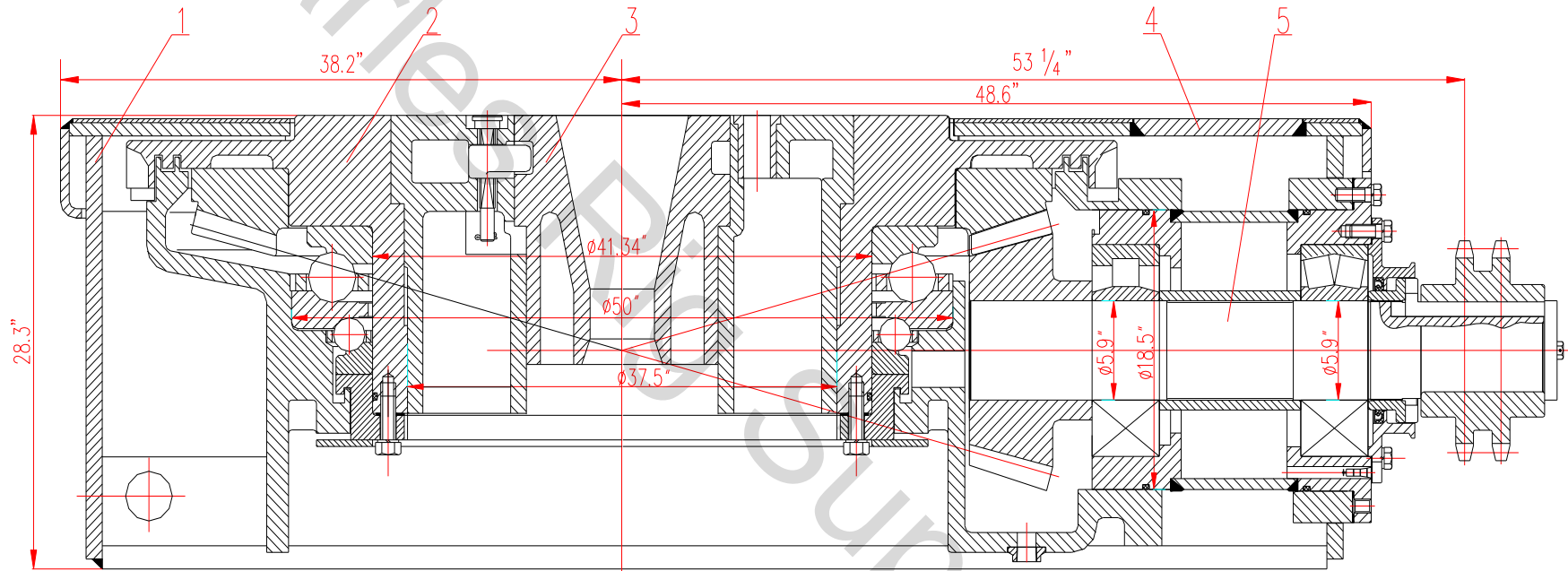
No.	Code	Description	Sizes (in)	Quantity	Weight (lb)
1	805.21.50.02	o-shaped seal ring	$\Phi 18.504 \times \Phi 0.3386$	2	0.3969
2	805.21.40.05	o-shaped seal ring	$\Phi 41.3386 \times \Phi 0.3386$	1	0.419
3	D7-1-67	lip seal ring	$\Phi 8.6614 \times \Phi 7.0866 \times$ 0.59055	1	0.3925

10. SPECIAL TOOLS

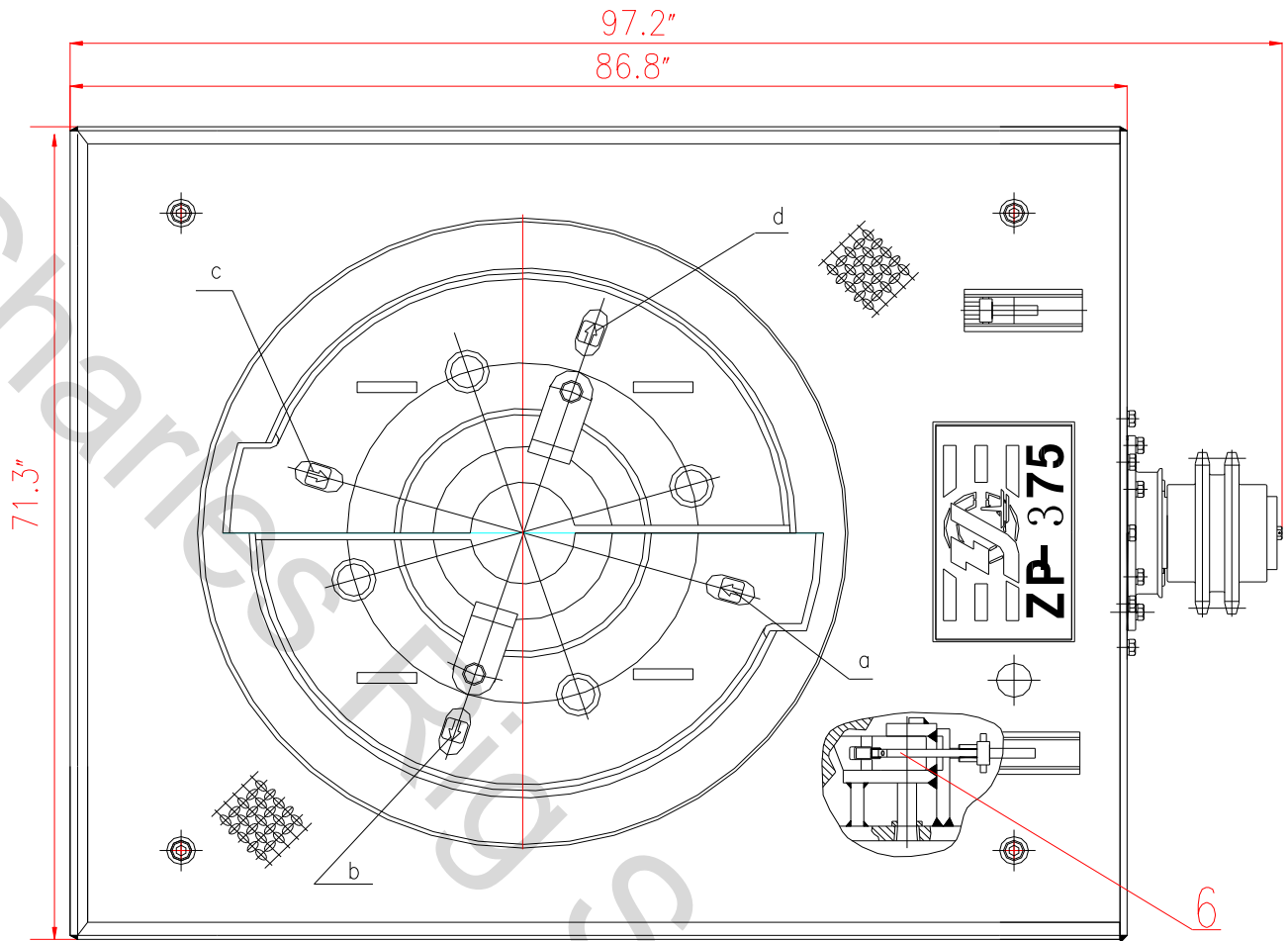
No.	Code	Description	Quantity
1	805K.54.00	square slip bail	2

11. ACCOMPANYING FIGURE

11.1 Figure for assembling sizes



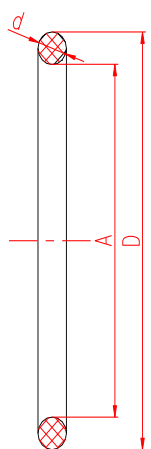
1. cast welding basement 2. rotating turret device 3. master bushing device
 4. cover plate 5. horizontal shaft assembly 6. locking mechanism



a and c are used for locking master bushing device

b and d are used for locking rotating turret device

11.2 Figure for Consumable Accessories



o-shaped seal	D (in)	d (in)	A (in)	material
$\Phi 18.504 \times \Phi 0.3386$	$\Phi 18.504$	$\Phi 0.3386 \pm 0.00984$	$\Phi 17.87 \pm 0.06299$	rubber I -4
$\Phi 41.3386 \times \Phi 0.3386$	$\Phi 41.3386$	$\Phi 0.3386 \pm 0.00984$	$\Phi 40.685 \pm 0.06299$	rubber I -4