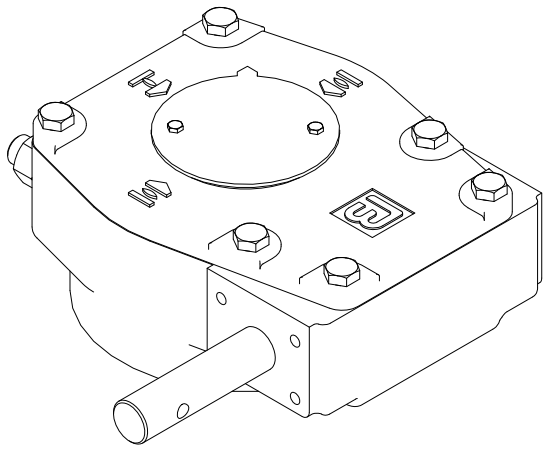
402 SERIES
MANUAL ACTUATORS

INSTRUCTION MANUAL



Tianjin Beifang Valve Actuator Co., Ltd.

Issue 200501

Thanks for purchasing and using our 402 series quarter turn actuators. Before you do anything, be sure to read through this booklet at least once and then keep it handy for ready reference.

1. SUMMARIZE

1.1 Range of application

402 series manual actuators can provide a reliable position control of butterfly, ball valves, as well as similar ones. They are used as the manual operator attached with a handwheel. They also can be electric controlled when combined with multi-turn electric actuators.

1.2 Brief

402 series offers comprehensive torque capability from 150 to 640000 Nm, and it has 15 unit sizes classified by output torque.

402 series actuators with design features of high strength, efficiency and watertightness（IP68 enclosure is accessible）can be applied to different kinds of working environment.

402 series manual actuators can be used as electric ones for quarter-turn valves when combining with 903 series electric actuators made by our company.

402 series manual actuators with design of different mechanism can meet any operating requirements.

Limit switch and a potentiometer can be supplied for position transmitting.

2. TECHNICAL DATA

Unit size	Rated output torque	Structural form	weight
	Nm		kg
4020	150		5
4021	300		7
4022	600		11
		V	14
4023	1200		18
		V	21
4024	2500		40
		V	38
		G	34
4025	5000		71
		V	68
		G	53
4026	10000		124
		V	118
		G	93

Unit size	Rated output torque	Structural form	weight
	Nm		kg
4027	20000		199
		V	190
		G	152
4028	40000	V	405
		G	334
4028.5	60000	V	507
		G	421
4029	80000	V	599
		G	503
4029.5	120000	V	844
		G	717
40210	160000	V	1123
		G	964
40211	320000		
		G	2186
40212	640000		
		G	3712

3. LUBRICATION

402 series utilize a totally sealed case. The driving members in the main case are lubricated with 2# molybdenum disulfide grease, and it is not need to refresh the grease periodically.

Please use the grease with the same trademark or the same performance if replacement of grease is necessary.

4. STORAGE

Actuators should be stored in a clean, dry, protected warehouse.

Actuators should be stored on wooden skids to protect the machined mounting flange, and input shafts should be coated with rust proof oil to prevent from corrosion.

Input shafts should be rotated every two or three months to mix the lubricant.

5. INSTALLATION AND DISASSEMBLY

1. Place valve in closed position.
2. Mount the actuator on the valve mounting flange, locating the valve shaft and the actuator drive sleeve correctly.
3. Turn actuator input shaft until the unit is in correct position.
4. Bolt the actuator securely to the mounting flange.

⚠ WARNING!

402 series actuator has self locking characteristics which will stabilize the valve. Do not attempt to remove the unit from a valve on a pressurized line. Removal of the gear box may cause imbalance of the system.

If the gear box is mounted on valve, attach ropes or hooks for the purpose of lifting by hoist to valve and not to the gear box.

6. ADDJUSTMENTS

6.1 Adjust the stopper

1. Loosen the travel stop locknut.
2. Operate the valve to the fully close position.
3. Adjust the close stop bolt until it just touches the worm wheel, then tighten the locknut.
4. Operate the valve to the fully open position and repeat steps 2 & 3 on the open stop bolt.

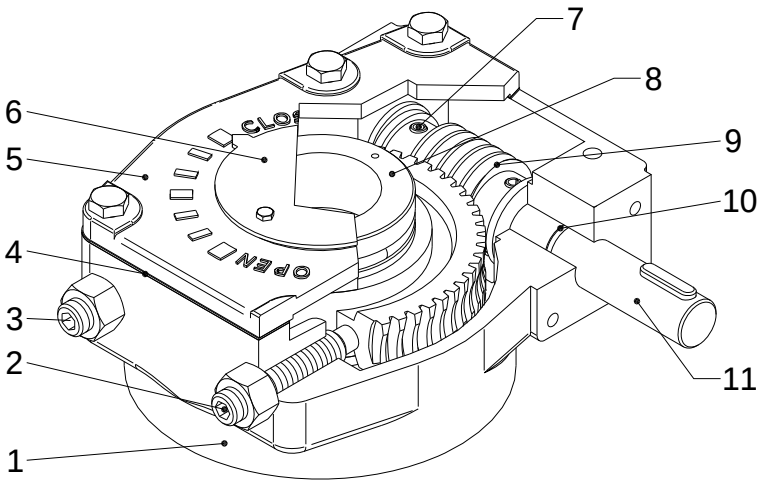
Note: In the case of electric operation, motor operate the valve to the fully close or open position. After making the stop bolt touch the drive sleeve , return the stop bolt one revolution and lock it securely with the lock nut.

6.2 Adjust the pointer cap

1. Loosen the screw on the pointer cap.
2. Operate the valve to the fully close position.
3. Rotate the pointer cap until the pointer points the fully close position then tighten the screw.

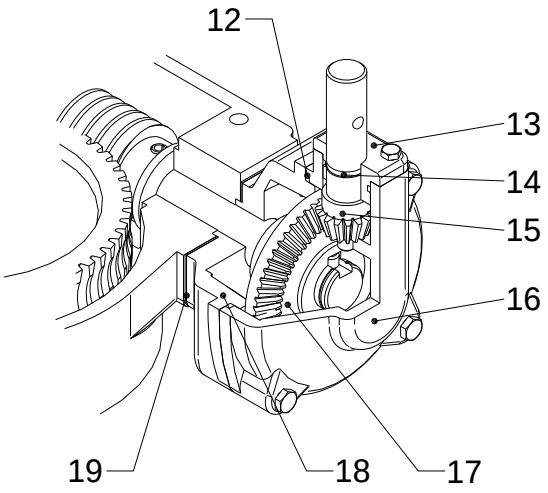
7. CONSTRUCTION

7.1 4021~4023



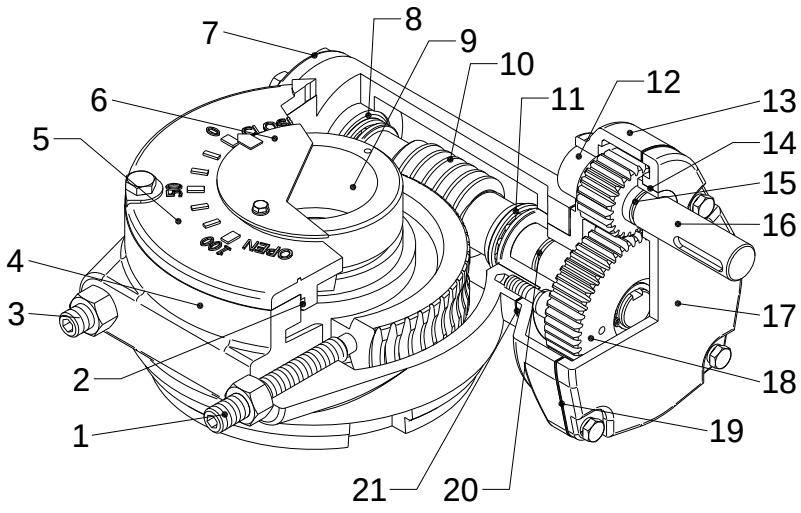
1	Main house
2	Stop bolt (full close)
3	Stop bolt (full open)
4	Gasket
5	Cover
6	Pointer cap
7	Spring pin
8	Drive sleeve
9	Worm
10	O-ring
11	Input shaft

Type V



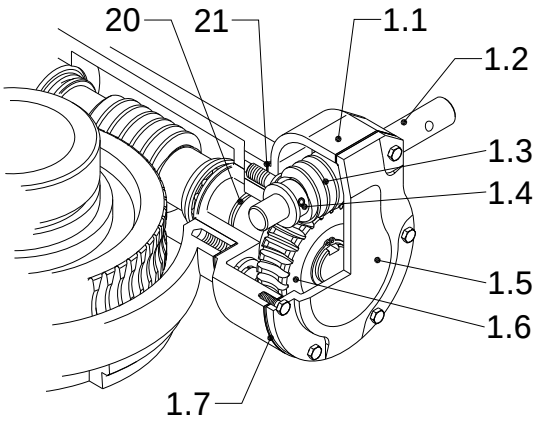
12	O-ring
13	Through cap
14	O-ring
15	Input bevel gear
16	Gear box
17	Drive bevel gear
18	Gear box seat
19	Gasket

7.2 4024~4027

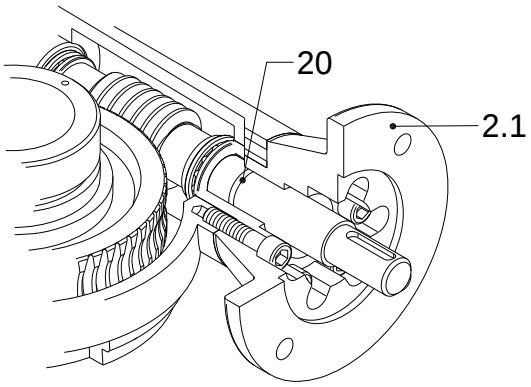


Note : Double spur gear reducing mechanism adopted in sizes 4025-4027 is differ from the diagram.

Type V



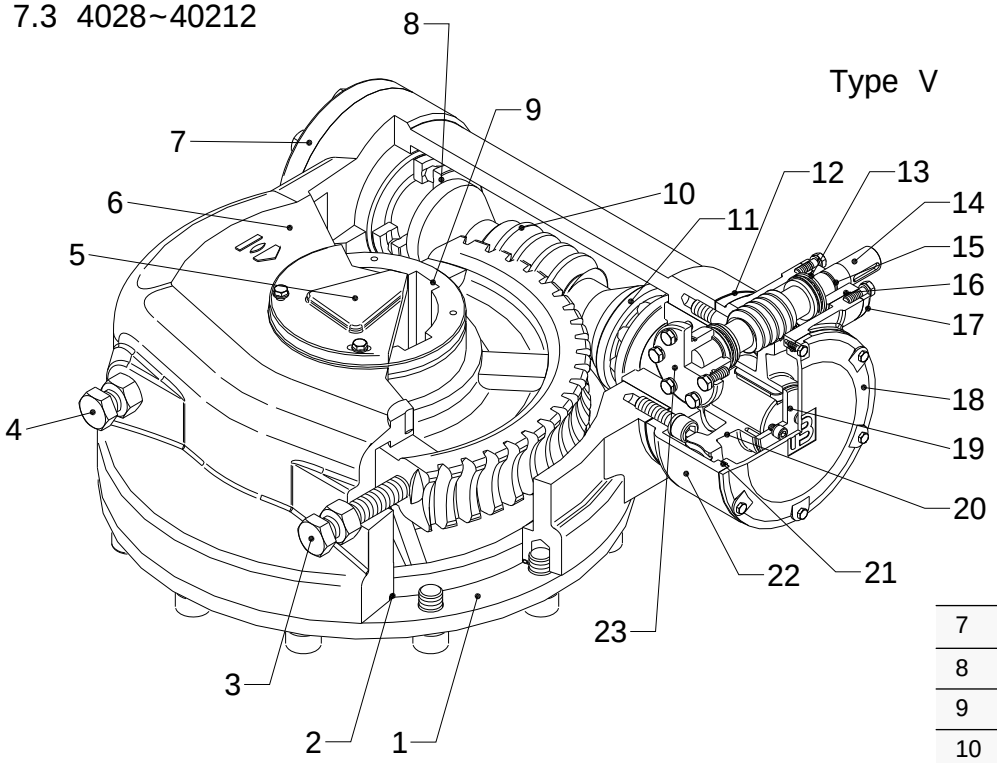
Type G



1	Stop bolt (full close)
2	O-ring
3	Stop bolt (full open)
4	Main house
5	Cover
6	Pointer cap
7	End cap
8	Thrust bearing
9	Drive sleeve
10	Worm shaft
11	Thrust bearing
12	Sliding bearing
13	Housing
14	Sliding bearing
15	O-ring
16	Input gear
17	Cover
18	Drive gear
19	Gasket
20	O-ring
21	Gasket
1.1	Worm house
1.2	Input shaft
1.3	worm
1.4	Spring pin
1.5	Cover
1.6	Worm wheel
1.7	Gasket
2.1	Input flange

7.3 4028~40212

Type V



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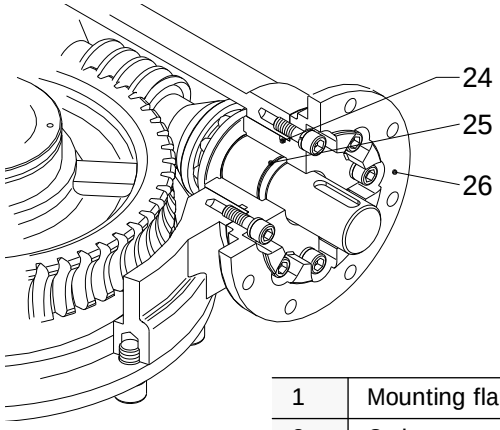

1	Mounting flange
2	O-ring
3	Stop bolt (full close)
4	Stop bolt (full open)
5	Pointer cap
6	Main house

7	End cap
8	Thrust bearing
9	Drive sleeve
10	Worm
11	Thrust bearing
12	Gasket
13	Thrust bearing
14	Worm shaft
15	O-ring
16	O-ring
17	Through cap
18	Cover
19	Worm cap
20	Worm wheel
21	O-ring
22	Worm house
23	End cap
24	O-ring
25	O-ring
26	Input flange

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Please tell us some information about your product when contact with us:
Model, Factory Number, Production Date