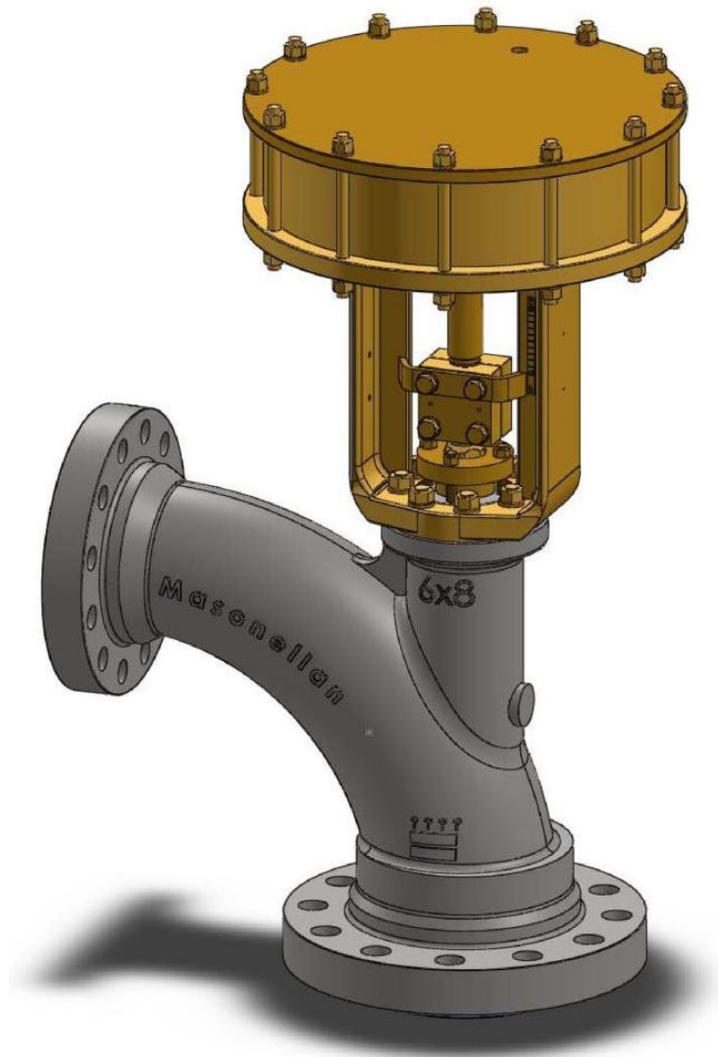


GE Oil & Gas

73000 Series

Masoneilan* Sweep Angle Control Valves
Models XX-73471

Instruction Manual



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About this Manual

- The information contained in this manual is subject to change without prior notice.
- The information contained in this manual, in whole or part, shall not be transcribed or copied without GE's written permission.
- Please report any errors or questions about the information in this manual to your local supplier.
- These instructions are written specifically for the Masoneilan 73000 Series control valves, and do not apply for other valves outside of this product line. As to the construction of the valve body, please refer to the attached drawing. Regarding the actuator, side hand-wheel, etc, please refer to the respective instructions.

Useful Life Period

The current estimated useful life period for the Masoneilan 73000 Series control valves is 25+ years. To maximize the useful life of the product, it is essential to conduct annual inspections, routine maintenance and ensure proper installation to avoid any unintended stresses on the product. The specific operating conditions will also impact the useful life of the product. Consult the factory for guidance on specific applications if required prior to installation.

Warranty

Items sold by General Electric are warranted to be free from defects in materials and workmanship for a period of one year from the date of shipment provided said items are used according to GE recommended usages. GE reserves the right to discontinue manufacture of any product or change product materials, design or specifications without notice.

Note: Prior to installation

- The valve must be installed, put into service and maintained by qualified and competent professionals who have undergone suitable training.
- All surrounding pipe lines must be thoroughly flushed to ensure all entrained debris has been removed from the system.
- Under certain operating conditions, the use of damaged equipment could cause a degradation of the performance of the system which may lead to personal injury or death.
- Changes to specifications, structure, and components used may not lead to the revision of this manual unless such changes affect the function and performance of the product.

1. Safety Information

Important - Please Read Before Installation

The 73000 Series control valves instructions contain **DANGER**, **WARNING**, and **CAUTION** labels, where necessary, to alert you to safety related or other important information. Read the instructions carefully **before** installing and maintaining your control valve. **DANGER** and **WARNING** hazards are related to personal injury. **CAUTION** hazards involve equipment or property damage. Operation of damaged equipment can, under certain operational conditions, result in degraded process system performance that can lead to injury or death. Total compliance with all **DANGER**, **WARNING**, and **CAUTION** notices is required for safe operation.



This is the safety alert symbol. It alerts you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.



When used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, could result in property damage.

Note: Indicates important facts and conditions.

2. Installation

Prior to installing the valve, clean the pipeline of all foreign matter such as dirt, spatters (welding chips), scale, oil or grease. Install the valve in the pipeline so that the fluid flows in the direction indicated by the flow arrows attached to the body, or the fluid flows from "IN" toward "OUT" marked at the connection point.

When securing the lower flange to the pipeline, press the seat ring against the body until it touches the flange surface of the pipeline. The lower flange and the pipeline pinch the seat ring and the pipeline's gasket which is prepared in advance, and tighten the pipeline bolts rigidly.

If the valve is installed in a horizontal position, be sure to take the support from the yoke or other part of the actuator.

In case of the extension type bonnet, do not apply insulation to the extended portion.

Provide the required air tubing for the signal pressure and air supply, and the electrical wiring to the positioner. Make sure no air leaks from the air pipeline.

3. Maintenance

When the control valve needs to be disassembled for inspection, cleaning or polishing the valve seat, follow the procedures described below.

It explains the following procedure as an example of the attached drawing (MNS-148001).

3.1. Disassembly

Shut off all air supplies, disconnect the tubing for the air supply and the positioner signal pressure, and the air tubing from the volume tank.

To disassemble the valve, it must be removed from the piping. Bring a chain block over the valve to remove it from the piping for disassembly and reinstall it after reassembly.

- 1) Run a strong rope through the actuator yoke and remove the valve retaining bolts from the piping while slightly pulling the valve upward.
If the valve is installed in a horizontal position, also run a rope around the body so that no lopsided force is exerted on the valve, when disconnecting the valve from the pipeline.
- 2) Seat ring (12) and gasket (11) can be taken apart, after the valve body is removed from the pipeline. At this time, pay attention not to be damaged with the seat ring.
- 3) Remove the positioner linkage from the split clamp (18) which connects the piston rod (19) of actuator and the plug (13) of the body side.
- 4) Loosen the nut (16) or bolt (26) of the split clamp (18) in order to remove the split clamp (18). Take the record on the depth of insertion of the stem and the position of the split clamp so that they can be reassembled to the same dimension.
- 5) Remove the seat ring (12) first from the bottom of the body. The actuator can also be removed by loosening the drive nut (5) which connects the body (10) and the yoke (14). However, in case of the stud and nut type connection that connects the yoke to the body by the stud (23) and nut (24), loosen the nut (24) to remove the actuator from the body.

Remove the packing flange (3) and the packing follower (4), after loosening and removing the stud nut (2) which have tightened the packing flange. In the case of keeping connecting the valve body and the yoke, the packing flange can be passed through the space between the bottom end of the piston rod

and the upper end of plug. If the space is narrow, it can be extended by pushing down the plug or raising the piston rod by hand-wheel operation.

- 6) Dismantle the plug (13) from the bottom of the body (10).

Note: The disassembly is completed by dismantling the packings (6), packing spacer (8), lantern ring (9) and guide bushing (7).

- 7) Inspect for any damages to each component parts.

Note: As the assembly procedure for packing box may vary with the type of valve, please refer to the respective assembly drawings.

3.2. Polishing the Valve Seat

When the valve seat needs polishing, install the seat ring (12) and plug (13) from the bottom of the body (10), attaching them tentatively to the body hand-tight, lightly press the plug (13) against the seat side from the bottom of the body (10), hold the plug with a wrench applied to the wrench holder, and polish the seating surface. Do not polish the seating surface too hard, otherwise it may be damaged. When polishing the seating surface, apply a fine-grain, quality abrasive to it. Thoroughly clean the seating surface prior to reinstallation.

3.3. Reassembly

Reassemble the valve according to the following procedure after having completed the necessary maintenance.

Please note that new packings and gaskets should be prepared for re-assembly.

- 1) Clean all the gasket surfaces of the body and the seat ring.
- 2) Set the guide bushing (7) toward the packing box bottom of the body (10).
- 3) Insert the plug (13) from the bottom of the body (10). Set the seat ring without the gasket. Stand up the body.
- 4) Install the packings (6), packing spacer (8), and lantern ring (9), leaded by the stem of plug (13) and yet the amount of packings and the order of packings are specified by each valve. When installing the packings which have the cut ends, they have to be staggered 120 degrees with respect to each other.
- 5) Regarding the installation of the packing follower (4) and of packing flange (3), follow the reverse of the disassembly procedure. Refer to the section 3-1 – point 5.
- 6) Mount the actuator on the body. At this time, follow the reverse of the disassembly procedure. Refer to the section 3-1 - point 5.
- 7) Move down the piston until it stops whether by applying air pressure in the upper part of the actuator piston or by hand-wheel operation.
- 8) Couple the piston rod (19) to the plug (13) with the split clamp (18). When coupling, confirm that the threads of piston rod and plug are completely engaged with each split clamp. It will be useful that you were marking before disassembling. Lightly tighten the nut (16) or bolt (26) of split clamp at the position being completely engaged.
- 9) Raise the plug whether by applying air pressure to the piston bottom of the actuator or by hand-wheel operation. At that time, the plug is kept away from the seating surface. And then rotate the plug at a half turn counterclockwise in order to get completely the seating force. You can use the record made at the time of disassembly to provide the seating clearance.

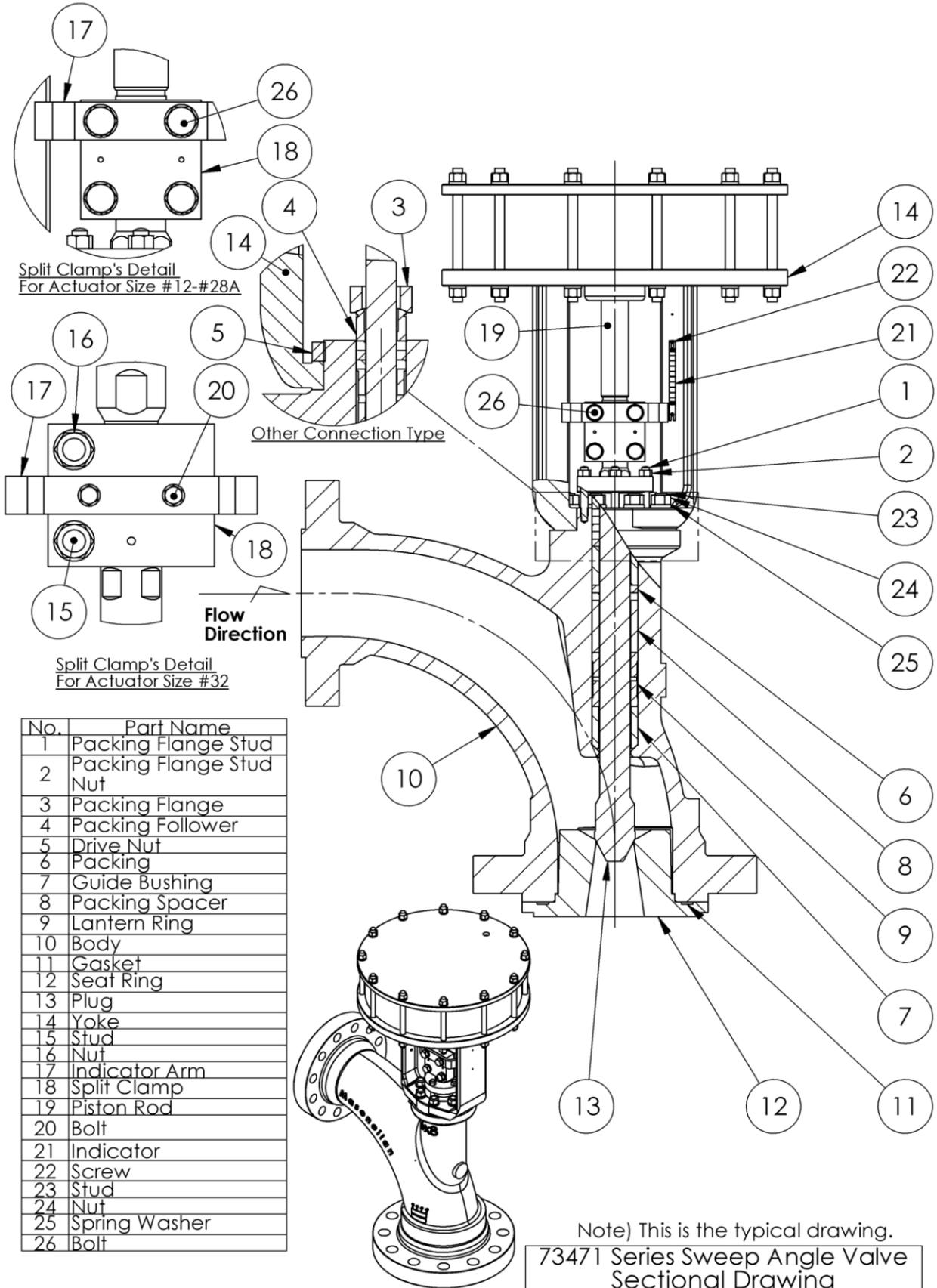
- 10) Tighten the nut (16) or bolt (26) of the split clamp.
- 11) Connect the linkage of positioner to the split clamp (18).
- 12) Install the body to the pipeline per installation procedures. Do not forget to install gasket between the seat ring and the body at this time.
- 13) Reinstall all the air tubing and electric wiring. With the above, re-assembly is completed, but you must confirm the valve function by checking the valve actuation, valve opening, etc. prior to start-up.

3.4. Packing box

Maintenance of the packing box is a routine work.

The sealing performance of packing is kept by compression of packing. Compression is obtained by evenly tightening the packing flange stud nut (2) for the packing flange (3), but pay attention to that it may disturb smooth actuation of valve when tightened too much. New packings are necessary when leak does not stop even if complete compression made.

4. Drawing and Parts References



No.	Part Name
1	Packing Flange Stud
2	Packing Flange Stud Nut
3	Packing Flange
4	Packing Follower
5	Drive Nut
6	Packing
7	Guide Bushing
8	Packing Spacer
9	Lantern Ring
10	Body
11	Gasket
12	Seat Ring
13	Plug
14	Yoke
15	Stud
16	Nut
17	Indicator Arm
18	Split Clamp
19	Piston Rod
20	Bolt
21	Indicator
22	Screw
23	Stud
24	Nut
25	Spring Washer
26	Bolt

Note) This is the typical drawing.
73471 Series Sweep Angle Valve
Sectional Drawing
 DWG. No. : MNS-148001

Notes

Notes

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