



THE VALVE SPECIALISTS
OF SCANDINAVIA

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Installation and operating manual

Quick closing valve

Product no:

901002, 901102, 901062, 901162, 501002, 501102



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1. General information

This manual gives instructions on installation of the Quick Closing Valves together with maintenance instructions and shall be read carefully before installation is started.

It is in the responsibility of the installer to ensure that the work is carried out in a satisfactorily manner, approved materials are used and that the installation meets applicable rules and regulations. Regional safety requirements must be applied and observed both at installation and maintenance as well as in repair work.

It is the installer/owners responsibility to define responsibility and competence of personnel for the installation and maintenance of the valves. In case of problems which cannot be solved from information in this manual the supplier of the valves shall be contacted. The notes and warnings defined in following chapters must be followed as this information concerns your safety.

Note! Part numbering (..) in chapter 4.3.2 Part list are maintained and used as references through all chapters.

The manufacturer reserves the right to introduce technical modifications at any time.

2. Safety precautions

2.1 Significance of symbols



Attention!

Warning of general danger.

2.2 Explanatory notes on safety information

In these Operating and Installation Instructions dangers, risks and items of safety information is highlighted to attract special attention.

Information marked with the above symbol and "*ATTENTION!*" describes practices, a failure to comply with which can result in serious injury or danger of death for users or third parties or in material damage to the system or the environment. It is vital to comply with these practices and to monitor compliance.

All other information not specifically emphasized such as transport, installation, operating and maintenance instructions as well as technical data (in the operating instructions, product documentation and on the device itself) must also be complied with to the fullest extent in order to avoid faults which in turn can cause serious injury to persons or damage to property.

3. Storage and transport



Attention!

Protect valve and other equipment against external forces.

Valve hand wheels (11) and release cylinders (13) are not designed to take external forces e.g. they must not be used for as climbing aids or as connection of lifting gear.

Lifting to be carried out by using suitable handling equipment.

Weights of valves to be taken from data sheet.

- The valves are delivered with plastic protection covers in both flange ends and in the pipe connection to the release cylinder (13). The covers shall not be removed until the installation.
- If the covers have been removed inspect the internals carefully for dirt before installation.
- The valves must be stored indoors well protected from dust and moisture.
- Long time storing must be done in warm warehouses to avoid corrosion attack on unprotected areas inside the valve.
- Do not damage the external coating during transportation and storing.

4. Description

4.1 Scope of applications

The valve is used for shut-off of media from a remote place and to close locally by hand.



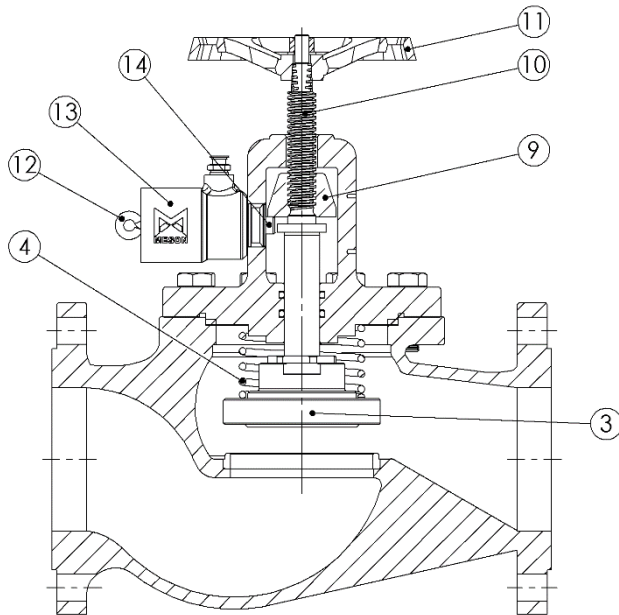
Attention!

The applications and limitations given in these documents must be followed.

Installation in heavy vibrating pipe lines is not recommended.

- The valves have been Type Approved by all major Classification Societies.
- The markings of the valves must be taken into account for each application.
- It is in the responsibility of the installer to ensure compliance with the actual Type Approval and eventually other local rules.
- Please contact the supplier or the manufacturer if you have any questions regarding the application.

4.2 Operating principles



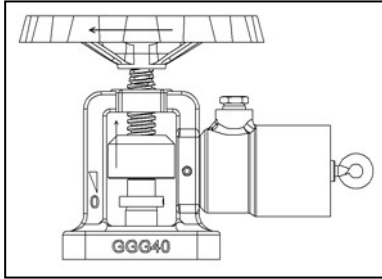
The valve is a stop valve with a remote quick closing function, but can also serve as a conventional stop valve by using the hand wheel (11).

- The quick closing action is instantly carried out by a spring (4), pre-compressed by turning the hand wheel.
- The stem (10) and attached disc (3) is hooked up by means of the setting nut (9).
- When the setting nut is released from loaded position - the valve will close.

Release from loaded position is done by the release mechanism, see following description of release alternatives. Retracting the piston rod (14) extension in the release cylinder (13) by hand will also close the valve.

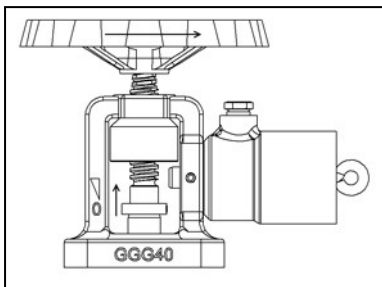
Note: Bonnet turned 90° from factory.

4.2.1 Loading the valve for Quick Closing



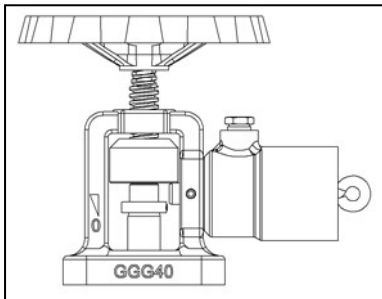
Turn the hand wheel (11) in closing direction (clockwise) until the piston rod (14) in the cylinder comes out and holds the setting (9) nut in its upper position. If needed push back the piston rod (14) by hand

Note! The ring on the stem (10) indicates that the valve is closed when the ring is in the same height as the zero in the indicating symbol at the side of the bonnet (8).



Make sure that the piston rod (14) is fully extended before opening the valve. If needed, reset the piston rod (14) by pushing back the eye bolt.

Turn the hand wheel (11) in opening direction (anti clockwise).



Stop the turning of the hand wheel (11) when the mechanical stop is felt and the setting nut (9) is in hard contact with the shoulder on the stem (10).



Attention!

It is important that the piston rod (14) is fully extended before resetting the valve. If not reset automatically by the internal spring, push back the piston rod by hand.

4.2.2 Closing of valve by the remote Quick Closing function

The valve is quickly closed by a remote hydraulic or pneumatic signal or by pulling back the piston rod (14) of the universal release cylinder (13) by a wire arrangement. In all systems also the fire release arrangement is operating by the melting ring which in case of contact with fire will close the valve.

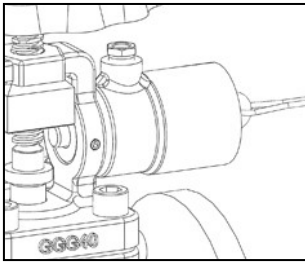


Attention!

Be aware of the fact that the valve stem with related components as hand wheel (11) will fall down very rapidly by spring force at closing of the valve which can cause injury.

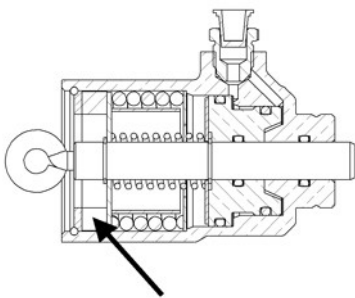
Also avoid injury by always secure the release system when work is carried out on the valve. When testing the remote release system, stay away from moving parts on the valve.

4.2.3 Closing of valve by the remote Mechanic system



The mechanical release system is arranged by connecting a wire to the eye bolt (12). By pulling the wire the piston rod (14) is moved to release position and the valve will close.

4.2.4 Closing of valve by the Automatic fire release



The release cylinder is internally equipped with a melting ring (see arrow) which will melt at temperatures above 178 °C. The strong spring will push the piston rod (14) into the release cylinder (13) allowing the valve to close by spring force.



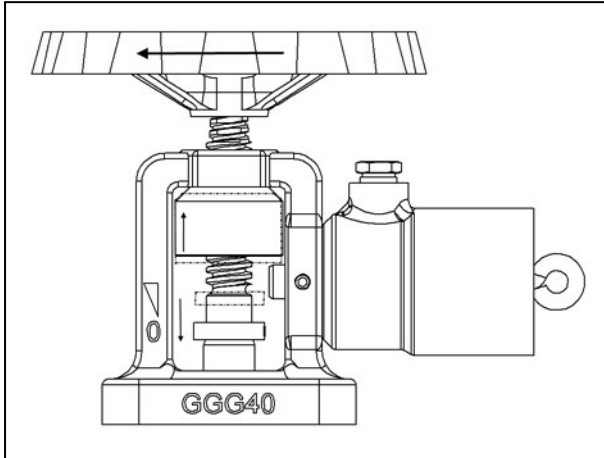
Attention!

It is important that the release cylinder (13) is replaced when it has been exposed to excessive heat.

4.2.5 Closing valve by hand wheel (11)

The valve can be closed by the hand wheel (11), when required.

Turn the hand wheel (11) in clockwise direction. The setting nut (9) will then be fully pushed up against the top of the bonnet (8), which holds the disc (3) in shut off position.



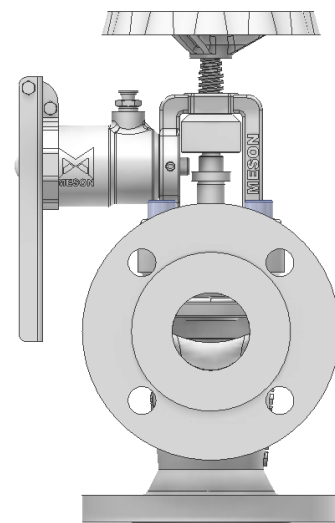
Attention!

Do not use tools to increase the torque on the hand wheel (11).

4.2.6 Closing valve by the manual release handle

The manual release handle is mounted on the release cylinder to allow for quick and simple manual execution of the quick closing function.

To close the valve by pulling the eye nut on the release cylinder a force of about 450N must be applied. The release handle reduces the required force to approximately 180N and provides a better grip for the operator.

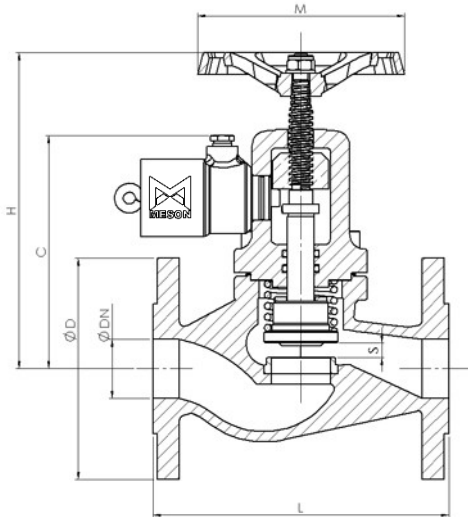


Pos.	Item	Material
16	Clamp	EN 10088-2 – 1.4301
17	Grip	EN 10088-2 – 1.4301

4.3 Technical data

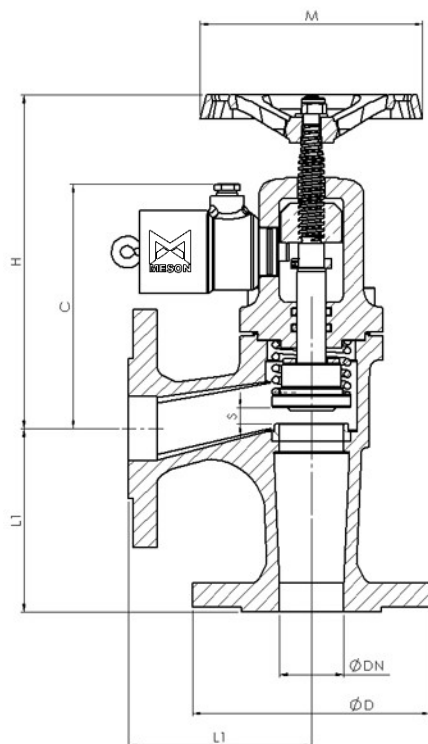
4.3.1 Dimensions

901002, 901102, 501002, 501102:



SIZE	DIN			JIS			H _{open}	H _{closed}	M	S	C	Kg
	PN	ØD	L	PN	ØD	L						
DN15	16	95	130	JIS 5K	-	-	180	172	120	7,5	119	4,5
DN20	16	105	150	JIS 5K	-	-	180	172	120	7,5	119	5,0
DN25	16	115	160	JIS 5K	95	120	198	190	120	8,0	136	5,9
DN32	16	140	180	JIS 5K	-	-	198	190	120	8,0	136	7,4
DN40	16	150	200	JIS 5K	120	160	210	200	140	10,0	139	10,1
DN50	16	165	230	JIS 5K	130	210	220	207	140	12,5	148	12,5
DN65	16	185	290	JIS 5K	155	250	258	241	140	16,5	166	17,4
DN80	16	200	310	JIS 5K	180	280	277	257	160	20,0	183	23,0
DN100	16	220	350	JIS 5K	200	340	304	279	160	25,0	198	32,0
DN125	16	250	400	JIS 5K	235	410	350	318	200	32,0	231	50,8
DN150	16	285	480	JIS 5K	265	480	410	372	200	37,5	291	72,3
DN200	10	340	600	JIS 5K	320	570	553	503	400	50,0	376	150,0
DN250	10	405	730	JIS 5K	385	740	585	523	400	63,0	404	230,0

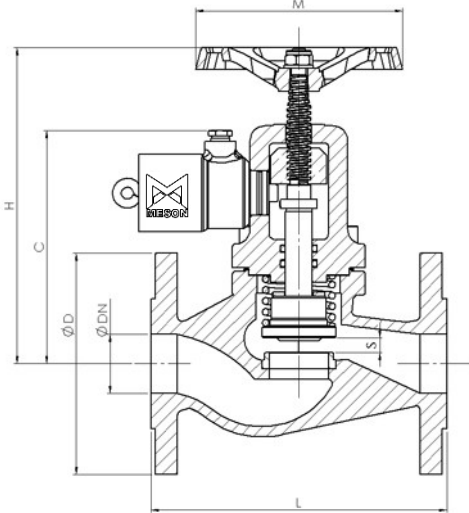
Note: Bonnet turned 90° from factory.



SIZE	DIN			JIS			H _{open}	H _{closed}	M	S	C	Kg
	PN	ØD	L1	PN	ØD	L1						
DN15	16	95	90	JIS 5K	-	-	175	168	120	7,5	114	4,6
DN20	16	105	95	JIS 5K	-	-	172	165	120	7,5	111	5,3
DN25	16	115	100	JIS 5K	95	65	185	177	120	8,0	124	6,1
DN32	16	140	105	JIS 5K	-	-	189	181	120	8,0	128	7,7
DN40	16	150	115	JIS 5K	120	80	209	199	140	10,0	138	10,5
DN50	16	165	125	JIS 5K	130	100	205	193	140	12,5	133	12,7
DN65	16	185	145	JIS 5K	155	115	238	222	140	16,5	147	17,0
DN80	16	200	155	JIS 5K	180	130	250	230	160	20,0	156	22,4
DN100	16	220	175	JIS 5K	200	150	278	253	160	25,0	172	33,5
DN125	16	250	200	JIS 5K	235	170	296	264	200	32,0	177	48,0
DN150	16	285	225	JIS 5K	265	190	344	307	200	37,5	226	65,3
DN200	10	340	275	JIS 5K	320	220	458	408	400	50,0	281	150,0
DN250	10	405	325	JIS 5K	385	275	463	400	400	63,0	282	230,0

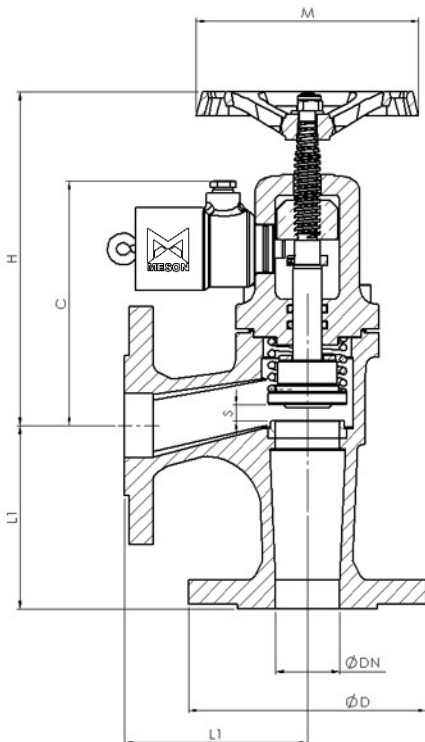
Note: Bonnet turned 90° from factory.

901062, 901162:



SIZE	DIN								
	PN	ØD	L	H _{open}	H _{closed}	M	S	C	Kg
DN15	16	95	130	180	172	120	7,5	119	5,3
DN20	16	105	150	180	172	120	7,5	119	5,9
DN25	16	115	160	198	190	120	8,0	136	7,3
DN32	16	140	180	198	190	120	8,0	136	8,8
DN40	16	150	200	210	200	140	10,0	139	11,0
DN50	16	165	230	220	207	140	12,5	148	15,0
DN65	16	185	290	258	241	140	16,5	166	22,0
DN80	16	200	310	277	257	160	20,0	183	26,0
DN100	16	220	350	304	279	160	25,0	198	48,0
DN125	16	250	400	350	318	200	32,0	231	58,0
DN150	16	285	480	410	372	200	37,5	291	76,0

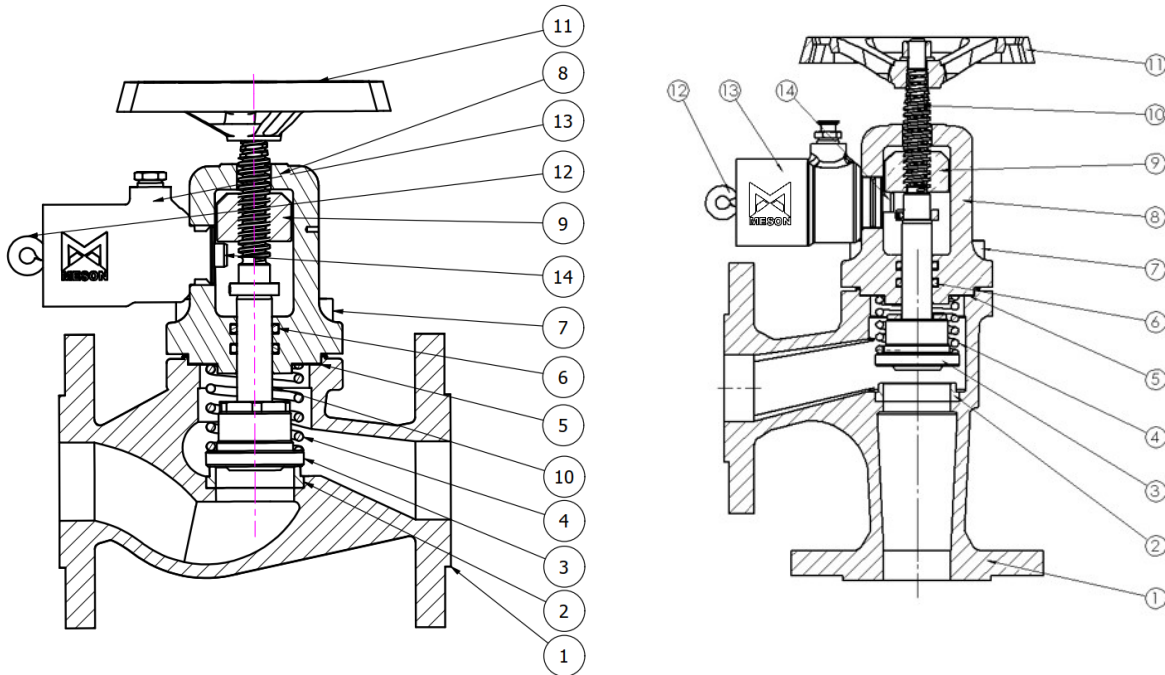
Note: Bonnet turned 90° from factory.



SIZE	DIN								
	PN	ØD	L1	H _{open}	H _{closed}	M	S	C	Kg
DN15	16	95	90	175	168	120	7,5	114	5,0
DN20	16	105	95	172	165	120	7,5	111	5,2
DN25	16	115	100	185	177	120	8,0	124	6,8
DN32	16	140	105	189	181	120	8,0	128	8,5
DN40	16	150	115	209	199	140	10,0	138	10,0
DN50	16	165	125	205	193	140	12,5	133	14,5
DN65	16	185	145	238	222	140	16,5	147	19,0
DN80	16	200	155	250	230	160	20,0	156	26,0
DN100	16	220	175	278	253	160	25,0	172	46,0
DN125	16	250	200	296	264	200	32,0	177	55,0
DN150	16	285	225	344	307	200	37,5	226	72,0

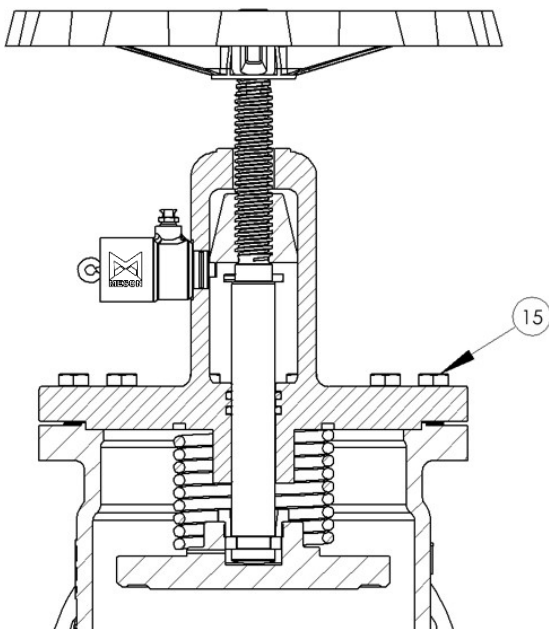
Note: Bonnet turned 90° from factory.

4.3.2 Part list



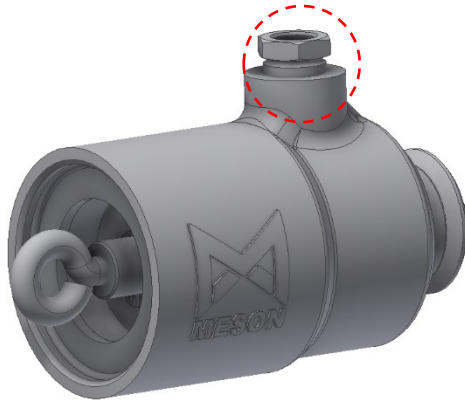
Note: Bonnet turned 90° from factory.

DN15-150



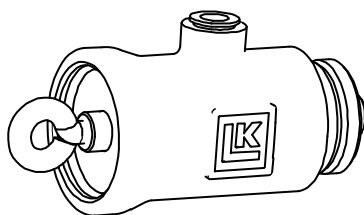
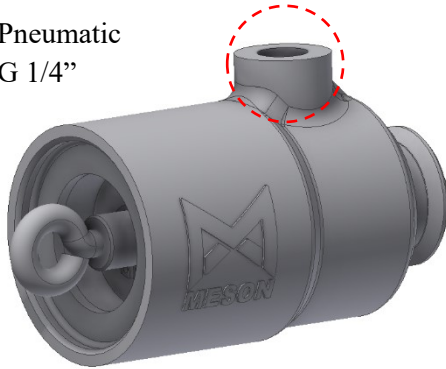
Pos.	Item	Material	
		901x02, 501x02	901x62
1	Body	EN-GJS 400-15 EN 1563	EN 10213 – 1.6220
2	Seat ring	EN 10088-3 – 1.4301	
3	Disc	EN 10088-3 – 1.4301	
4	Spring	EN 10270-1:2001 SH	
5	Gasket	NBR bonded aramid	
6	O-ring	FPM	
7	Screw ML65		
8	Bonnet	EN-GJS 400-15 EN 1563	
9	Setting nut	Cu Zn 39 Pb 3 EN 12164	
10	Stem	EN 10088-3 – 1.4301	
11	Hand wheel	EN GJL 250 SR EN 1561	
12	Eye bolt	8.8 FZB	
13	Release cylinder	Cu Zn 39 Pb 3 EN 12164	
14	Piston rod	EN 10088-3 – 1.4301	
15	Screw M65	8.8 FZB	

4.3.3 Release cylinder (13)



Current type

Pneumatic
G 1/4"



Previous type

Technical data for the release cylinder (13), hydraulic execution

Stroke volume	3,8 cm ³
Max hydraulic static pressure	4,0 bar
Recommended working pressure for hydraulic actuation	25 Bar
Pressure class	PN 30
Fire release temperature	178°C
Connecting thread	ISO G1/8"

Technical data for release cylinder (13), pneumatic execution

Stroke volume	9,9 cm ³
Recommended working pressure in pneumatic system	7 bar
Pressure class	PN 30
Fire release temperature	178°C
Connecting thread	ISO G1/4"

Technical data for the release cylinder (13)

Stroke volume	4,4 cm ³
Recommended working pressure in pneumatic system	8 bar
Max hydraulic static pressure	0,7 bar
Pressure class	PN 30
Fire release temperature	178°C
Connecting thread	ISO G1/8"



Attention!

Make sure that the inlet nipple is fitted in hydraulic installation and removed in pneumatic installation.

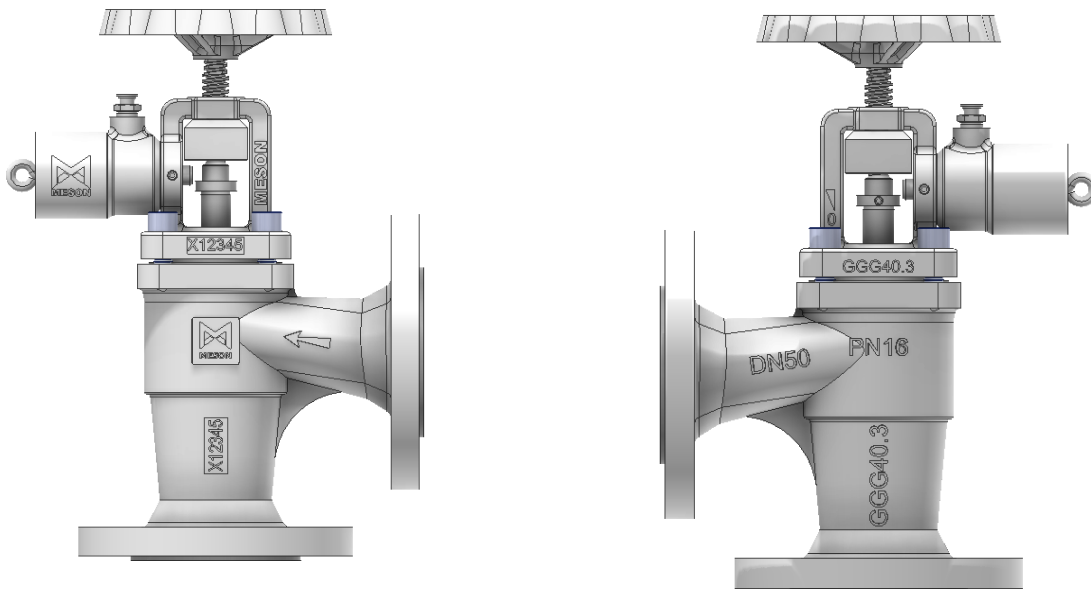
4.3.4 Marking

The quick closing valve is identified by reading the individual manufacturing number engraved on the valve bonnet (8).

The valve castings can be traced by size and the casting identification on the valve body (1).

All Quick Closing Valves have the following markings:

- Serial number engraved on the valve bonnet name plate.
- Size, pressure class and material on valve body.
- Flow direction on valve body.
- Manufacturers logo on valve body.
- Manufacturers casting identification.



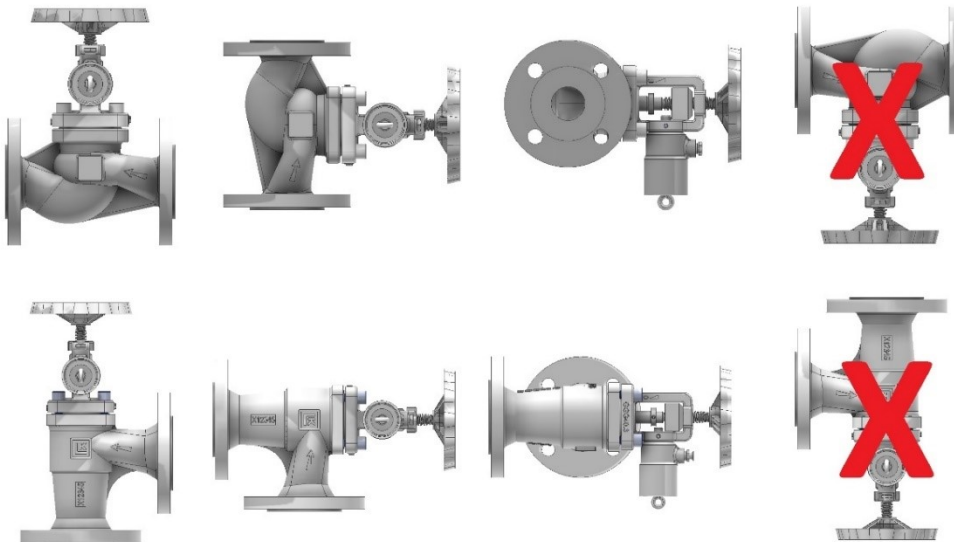
Note: Bonnet turned 90° from factory.

5. Installation

5.1 General notes for installation



- Remove protecting covers for valve flanges.
- Protect valve from dirt during the whole installation procedure.
- Check for dirt and foreign particles in valves and pipelines.
- Note installation positions with reference to flow and marking arrow (19) on valve.
- Use only counter flanges and screws with correct dimensions.
- Centre gaskets between flanges.
- Avoid damaging forces on valve when pipeline is installed.
- Valve hand wheels and actuators are not designed to take external forces e.g. they must not be used for as climbing aids or as connection of lifting gear.
- Lifting to be carried out by using suitable handling equipment.
- Weights of equipment to be taken from data sheet.
- Installation of the valve with stem vertical is preferred, but all positions indicated below can be used.

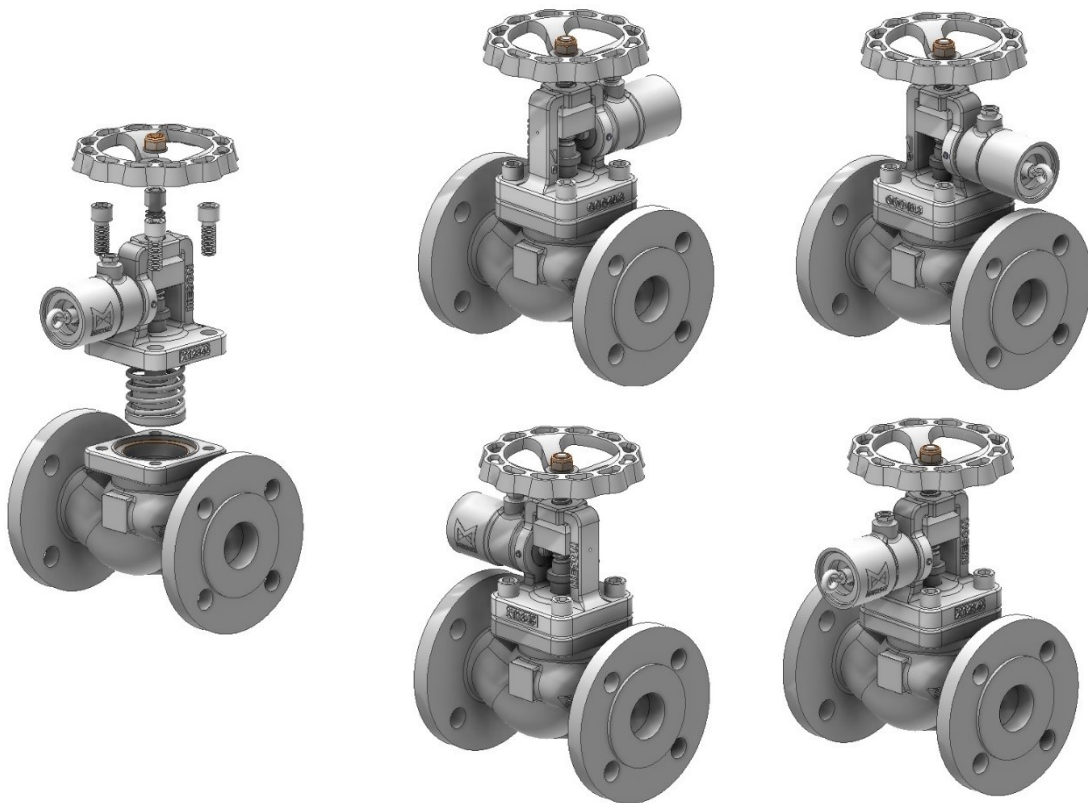


- Keep stem threads and shaft free from paint
- Protect the piston rod in the release cylinder from dirt and paint under the whole installation procedure.
- Verify that the release cylinder is securely attached with screws and in correct position.
- Do not remove the protecting cap in the threads to the release cylinder until the pipe will be connected.
- Make sure that the inlet nipple is fitted in hydraulic installation and removed in pneumatic installation.

5.2 Installing the quick closing valve

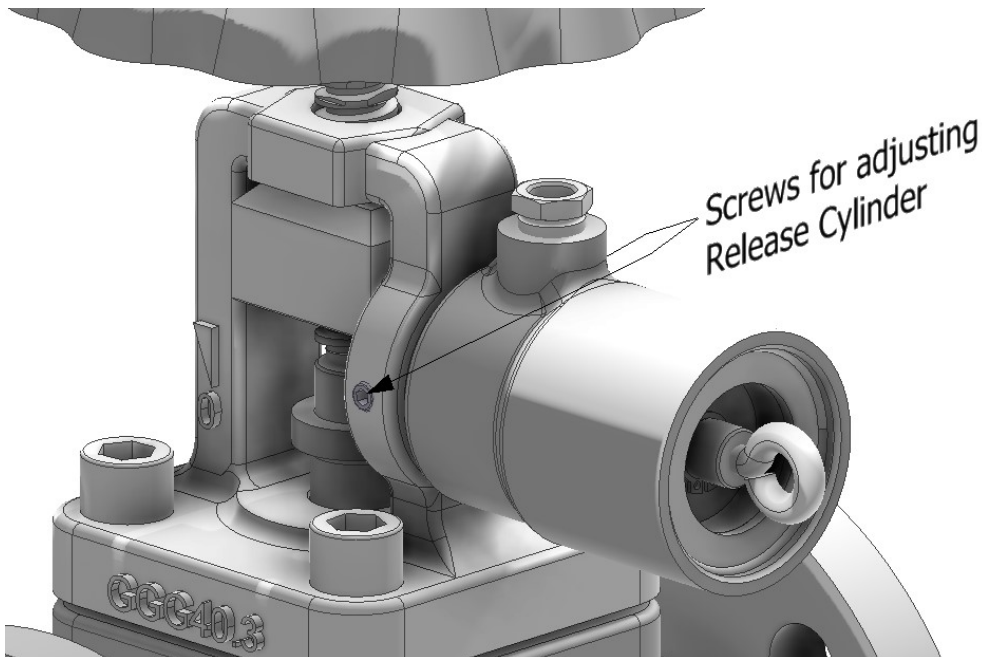
5.2 1 Change direction of valve bonnet (8)

- The direction of the valve bonnet (8) can be turned to suit the installation.
- With the valve in open position remove the screws (15) holding the bonnet (8).
- Turn the bonnet (8) without damage the gasket (5) between valve body (1) and bonnet (8).
- Fit the screws (15) and tighten again.
- Check the gasket for leakage and that the release mechanism is functioning.



5.2.2 Change direction of release cylinder (13) connecting threads

- The release cylinder (13) can be turned to suit direction of the release pipe.
- Loosen the two socket screws and turn the release cylinder (13) in position to suit the direction of the pipe line.
- Be sure that the cylinder (13) is positioned correct in the bonnet (8) and tighten the socket screws, make sure that cylinder is fully inserted into its closest position to the bonnet.
- To facilitate the air venting of the release cylinder (13) in a hydraulic remote system the cylinder (13) should be kept in delivered position with thread connection at top.



Note: Bonnet turned 90° from factory.

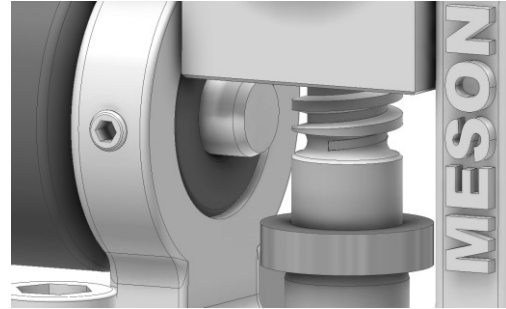


Attention!

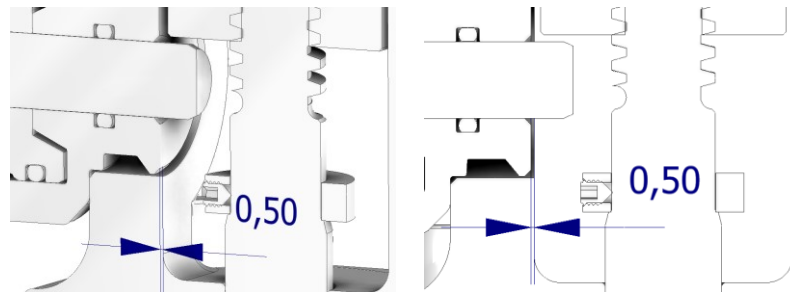
The valve is not designed for installation in heavy vibrating pipe lines (close to main engines and generator engines). If this must be the case all precautions must be taken to prevent the valve from these vibrations.

5.2.3 Verify correct location of release cylinder onto bonnet

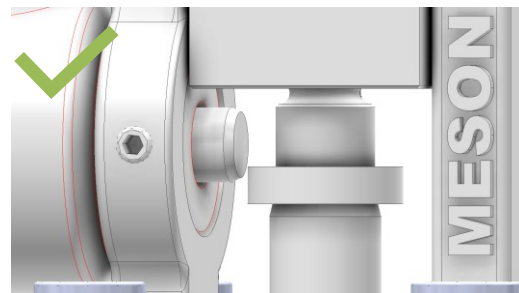
- The release cylinder (13) must not be located too far out from the bonnet for proper function over time.
- Verify the position by checking the end face if the release cylinder body location contra the bonnet, as per pictures below



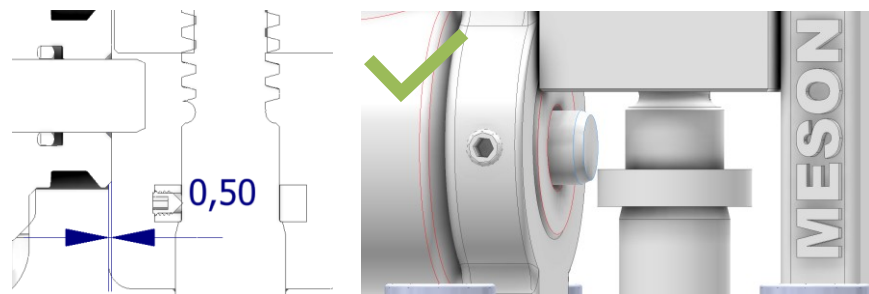
**Nominal
position**
 0,5mm from inner face of
 bonnet loop



Nominal position, reference view
 0,5mm clearance between release cylinder end face and bonnet loop,
 as per above dimension.

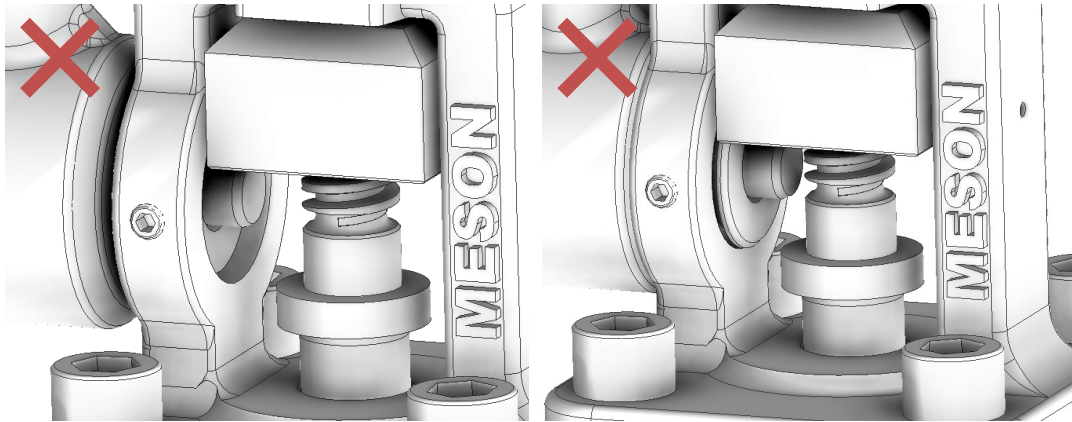


**Allowed
innermost
position**
 Cylinder protrudes
 0,5mm past inner face
 of bonnet loop



- If there is too far distance between the end face of the release cylinder (13) and the bonnet (8) inner face, review must be done as to what is hindering the correct positioning of the release cylinder (13) and counted actions taken to avoid spontaneous activation of the release mechanism.

Not allowed release cylinder positions



Release cylinder in these positions may cause unwanted spontaneous closing of the valve due to faulty mis-alignments. Correct release cylinder position as per previous stated nominal and allowed positions.

5.3 Installing the mechanical release system

Connect the wire to the eye bolt (12) in the end of the release cylinder (13).

Note! To avoid an accidental release by ship movements in heavy sea, make sure that there is no tension in the wire.

The return spring inside the cylinder (13) is keeping the piston rod (14) in position. With the setting nut (9) in top position (no force acting on the piston rod (14)) check that the wire arrangement not is moving the piston to release position.



Attention!

It is important that the weight of the wire is unloaded all the way down to the release cylinder (13) and that the return spring can hold the piston rod (14) in position.

5.4 Installation of the manual release handle

Thread the release handle clamp over the end of the release cylinder. Adjust the clamp into right position and tighten the bolt to squeeze it onto the release cylinder.

To fit the square hole on the grip over the eye nut on the release cylinder, the grip must be disassembled from the clamp. When disassembled fit the grip onto the eye nut and then turn it into to the attachment point on the clamp and re-assemble.

5.5 Putting the valve into operation



Attention!

Before the valve is put into operation check that it is the right valve in its right position (material, pressure, temperature and direction of flow).

Residues in piping and valves (dirt, weld beads, etc.) inevitable lead to leakage.

Check remote control system function and operation directly on valve.

Be aware of the fact that the valve stem (10) with related components as hand wheel (11) will fall down very rapidly by spring force at closing of the valve which can cause injury.

Also avoid injury by always securing the release system when work is carried out on the valve. When testing the remote release system, stay away from moving parts on the valve.

Regional safety instruction must be adhered to.

Touching valves operating at high media temperatures $>50^{\circ}\text{C}$ can cause injury.

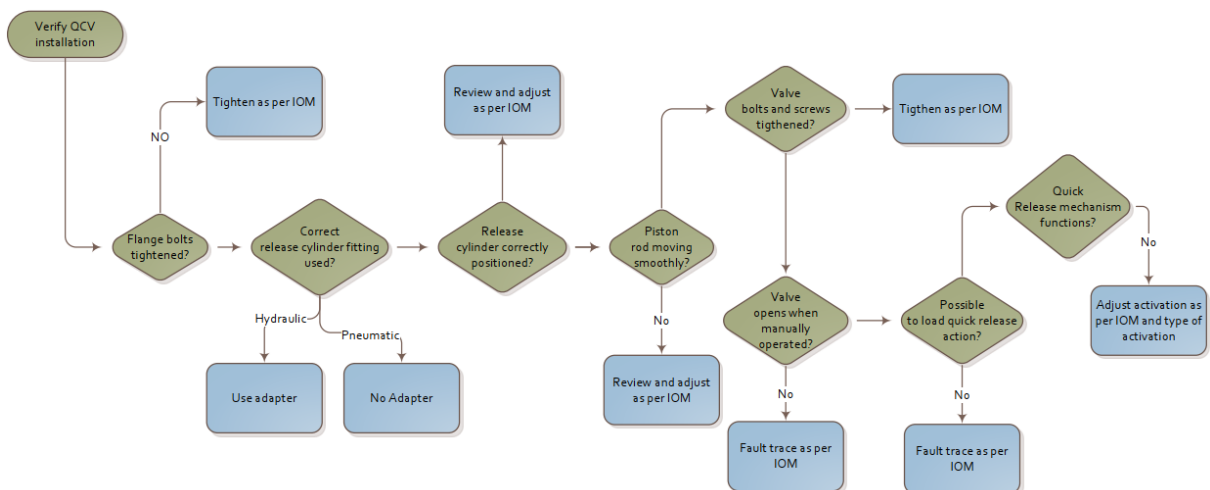
Affix warning notice or protective insulation as appropriate.

Before putting a new plant into operation or restarting after repairs or modifications, always make sure that:

All works has been completed for the valves and other depending systems.

Valve is loaded for remote operation

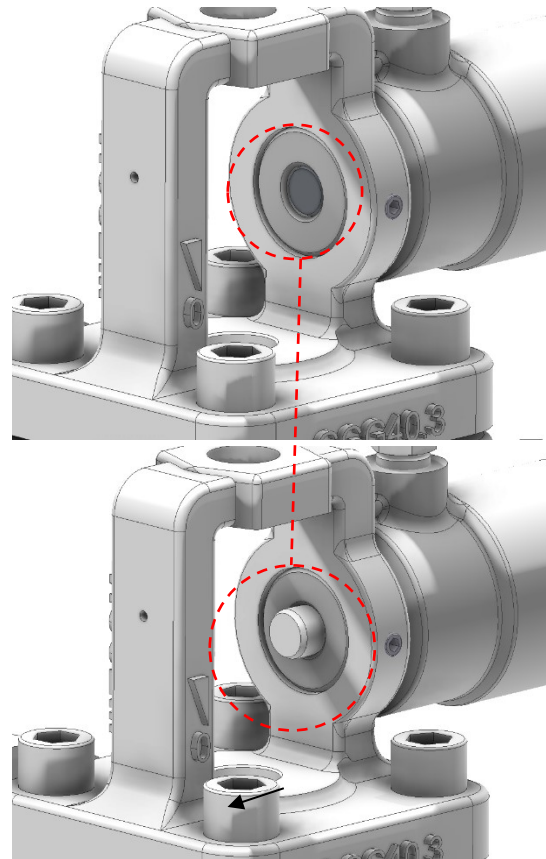
5.6 Verification of installed valve



6. Maintenance instruction

We recommend the following to be checked at regular intervals.

- When valves can be closed without disturbing the proper function of the piping system use the remote control system and close the valves.
- Also check operation directly on the valve.
- Clean the area around the stem (10) from dirt coming in contact with the stem and check for leakage between bonnet (8) and stem (10) or damage on stem surface.
- Check that the piston rod (14) in release cylinder (13) is kept in outer position. If not, push the eye bolt (12) by hand to end position.
- Check that the piston rod (14) is not full of sticking debris or dry to touch, if so, clean visible parts and apply a thin layer of grease onto the piston rod, operate the cylinder manually by the eye bolt (12) to verify smooth operations of the cylinder.
- Check the setting nut for wear, if the wear is becoming significant and proper functions is at risk exchange the setting nut as per instructions in this manual.



Attention!

Note that the different classification societies may have their own rules and regulations concerning maintenance and their rules supersede any suggestions made in this manual. Meson however still recommends periodic checks if the classification society does not.

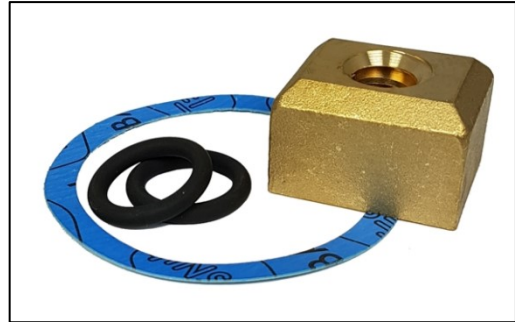
6.1 Spare part kit, 999902

Contains:

- 2 pcs of O-rings (6)
- 1 setting nut (9)
- 1 gasket (5)

Exists for sizes Dn15-250.

For quick closing valves 501002, 201102, 901002, 901062, 901102 and 901162.



6.1.1 Installation instructions

Before any attempts to install the spare parts, make sure that the valve is isolated from any pressurized flow.

1. When flow to the valve is removed make sure that the valve is open.



Attention!

Flow in valve at start of spare part change will lead to leakage of contained media and may result in serious damages to both ship and crew.

2. Release the nuts clamping the bonnet (8) to the valve body (1).



Attention!

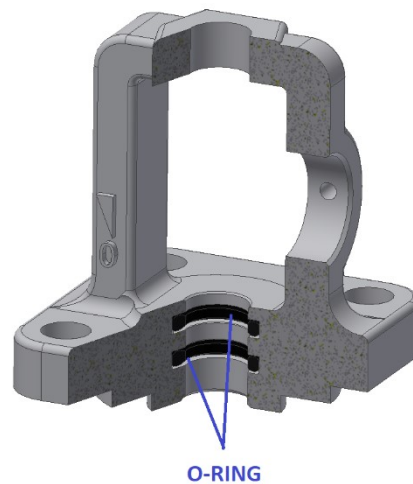
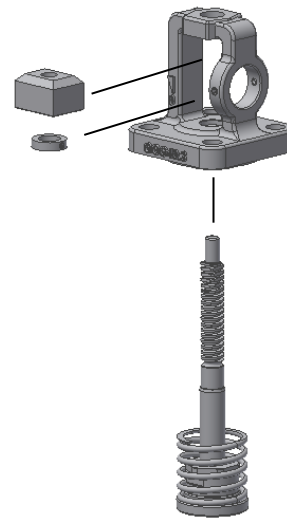
Loosening the bolts while valve is closed will damage the disc and seat.

3. Remove the bonnet (8) from the valve body (1) and lower the disc and stem with the handwheel (11) so that the spring (4) is unstrained.
4. Disassemble the handwheel from the stem (10).
5. Remove the old gasket (5) and replace it with the new one. Make sure to clean the ring before placing the new gasket.
6. Loosen the indication washer on the stem by removing the screw that attach it to the stem.
7. Pull out the stem with disc (3) and spring from the bonnet as you unscrew it from the old setting nut (9).
8. Remove the two O-rings (6) inside the bonnet and replace them with the two new ones. On smaller sized valves use suitable tools to reach the O-rings.
9. Lubricate the new O-rings with grease.

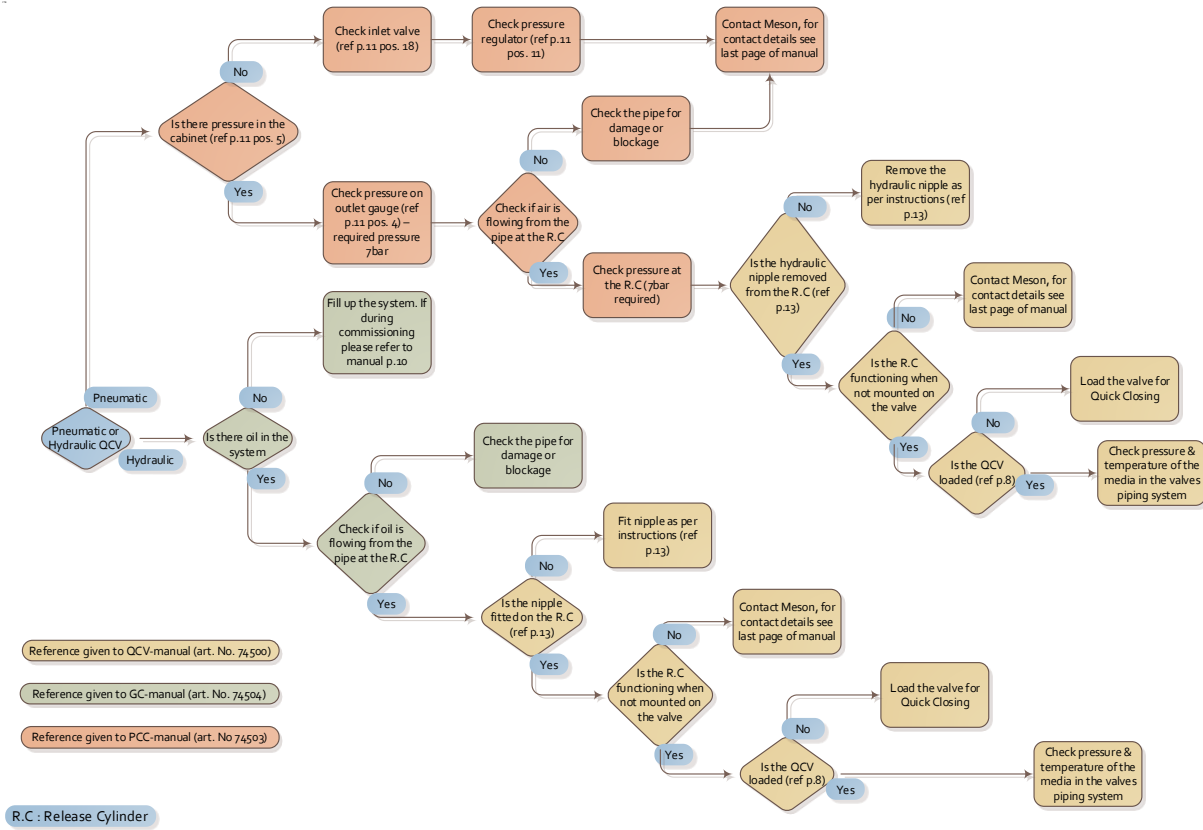


10. Re-assemble the stem with disc and spring into the bonnet using the new setting nut. Don't forget the indication washer.
11. Re-assemble the handwheel onto the stem.
12. Lift the bonnet into place on the valve body. Use the handwheel to lift the disc to a position where it won't be in contact with the valve seat.
13. Re-attach the indication washer to the stem with screw.
14. Re-assemble the bolts to attach bonnet to valve body.
15. Reload the valve for quick closing, see chapter 4.2.1.

Note! Check that the release cylinder (13) is in correct position when maintenance has been done. Improper location of the cylinder may lead to spontaneous activation of the release function due to misalignments.



7. Troubleshooting scheme



8. Repair

8.1 Dismantling of the quick closing valve



Attention!

The following points must be observed before dismantling the valve:

Pressure less pipe system.

Medium and valve must cool.

Plant must be drained.

Cleansing of the piping system in case of dangerous media.

Putting quick closing valve into operation after repair

8.2 Putting quick closing valve into operation after repair



Attention!

Before the valve is put into operation check that it is the right valve in its right position (material, pressure, temperature and direction of flow).

Residues in piping and valves (dirt, weld beads, etc.) inevitable lead to leakage.

Check remote control system function and operation directly on valve.

Be aware of the fact that the valve stem with related components as hand wheel (11) will fall down very rapidly by spring force at closing of the valve which can cause injury.

Also avoid injury by always secure the release system when work is carried out on the valve. When testing the remote release system, stay away from moving parts on the valve.

Regional safety instruction must be adhered to.

Touching valves operating at high media temperatures $>50^{\circ}\text{C}$ can cause injury.

Affix warning notice or protective insulation as appropriate.

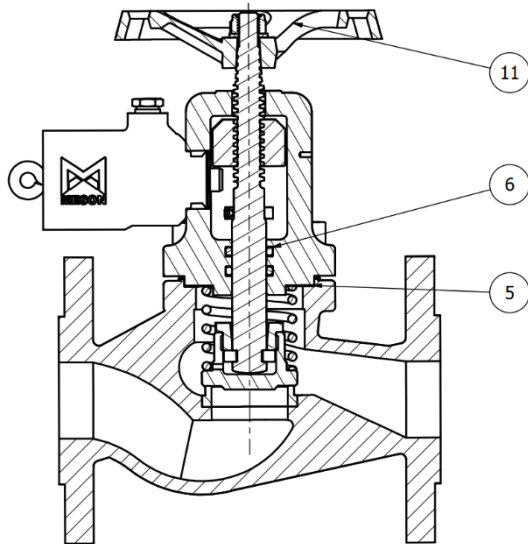
Before putting a new plant into operation or restarting after repairs or modifications, always make sure that:

All works has been completed for the valves and other depending systems.

Valve is loaded for remote operation.

8.3 Repair kit Quick Closing Valve

The repair and service kit contains o-rings (pos. 6) and gasket (pos. 5).



SIZE	Repair kit: art.no. Contains two pcs o-rings (6) & one gasket (5)	Hand wheel (11) art.no.
DN15	M75643	M80487
DN20	M75643	M80487
DN25	M75644	M80487
DN32	M75644	M80487
DN40	M75645	M80488
DN50	M75646	M80488
DN65	M75647	M80488
DN80	M75648	M80489
DN100	M75649	M80489
DN125	M75650	M81033
DN150	M75651	M81033
DN200	M75652	M82082
DN250	M75653	M82082

Note: Bonnet turned 90° from factory.

8.4 Repair of Release cylinders (13)

Only completely assembled release cylinders (13) can be supplied.



Attention!

It is important that the release cylinder (13) is replaced when it has been exposed to excessive heat.

Never dismantle the release cylinder (13). It contains strong springs that can cause injury if they are dismantled.

Complete release cylinder article number: 76103

Note: New version is fully compatible with previous versions.

9. Bolt dimensions

Bolt dimensions				
	PN 10		PN 16	
DN	Bolts	Qty.	Bolts	Qty.
20	M12	4	M12	4
25	M12	4	M12	4
32	M16	4	M16	4
40	M16	4	M16	4
50	M16	4	M16	4
65	M16	4	M16	4
80	M16	8	M16	8
100	M16	8	M16	8
125	M16	8	M16	8
150	M20	8	M20	8
200	M20	8	M20	12
250	M20	12	M24	12

For other flange connections please visit Meson AB website

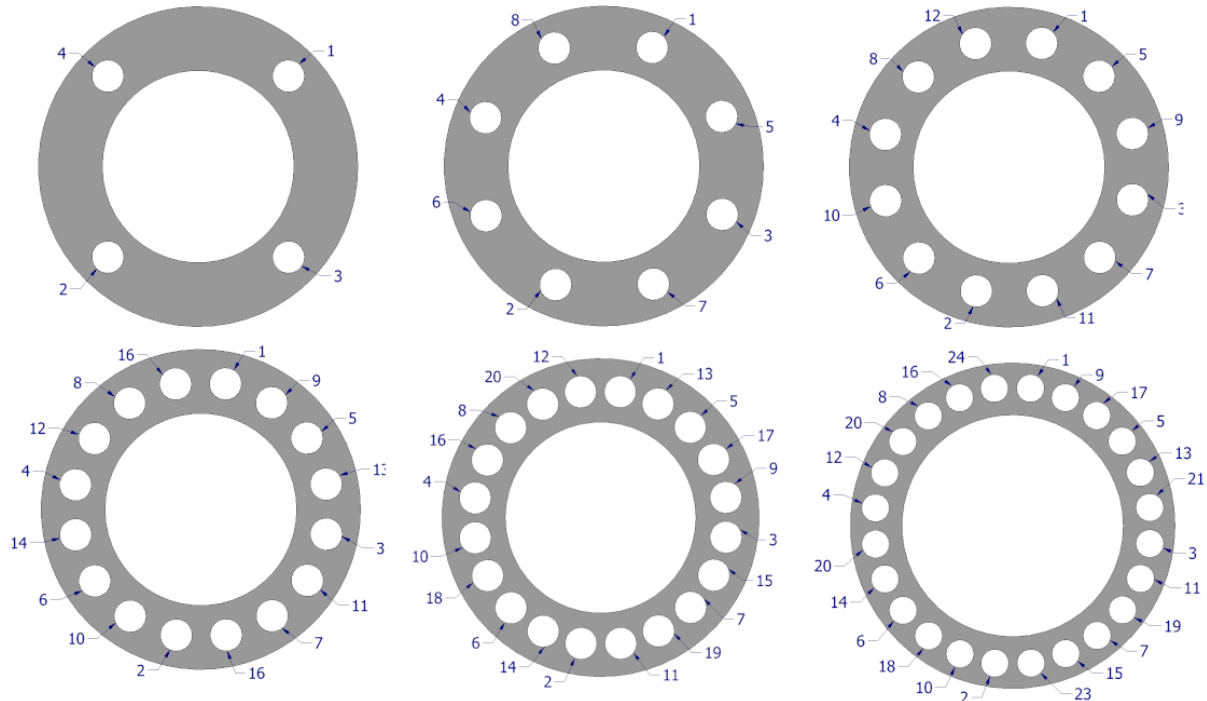
9.1 Bolt torque

Thread size	8.8	10.9	12.9
M5	5,7	8,1	9,7
M6	9,8	14	17
M8	24	33	40
M10	47	65	79
M12	81	114	136
M16	197	277	333
M20	385	541	649
M24	665	935	1120
M30	1310	1840	2210
M36	2280	3210	3850

UNC	8.8	10.9	12.9
1/4 - 20	11	15	19
5/16 - 18	22	31	38
3/8 - 16	38	54	68
7/16 - 14	61	87	108
1/2 - 13	93	131	163
9/16 - 12	133	187	234
5/8 - 11	183	259	323
3/4 - 10	322	455	568
7/8 - 9	516	729	909
1 - 8	772	1090	1360
1 1/8 - 7	1090	1550	1930
1 1/4 - 7	1530	2160	2690
1 1/2 - 6	2650	3750	4680

9.2 Bolt tightening sequence

Crosswise bolt tightening to ensure a fixed installation, other bolt tightening may affect the installation. Bolt torque is given in chapter 8.



10. Contacts

Your Quick closing valves are designed and manufactured by:

Meson AB

Kullsgårdsvägen 27
 SE-312 34 Laholm
 SWEDEN

Phone: +46 (0)430 295 00

Fax.: +46 (0)430 171 91

E-mail: sales@mesongroup.com

Website: <http://www.mesongroup.com>

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