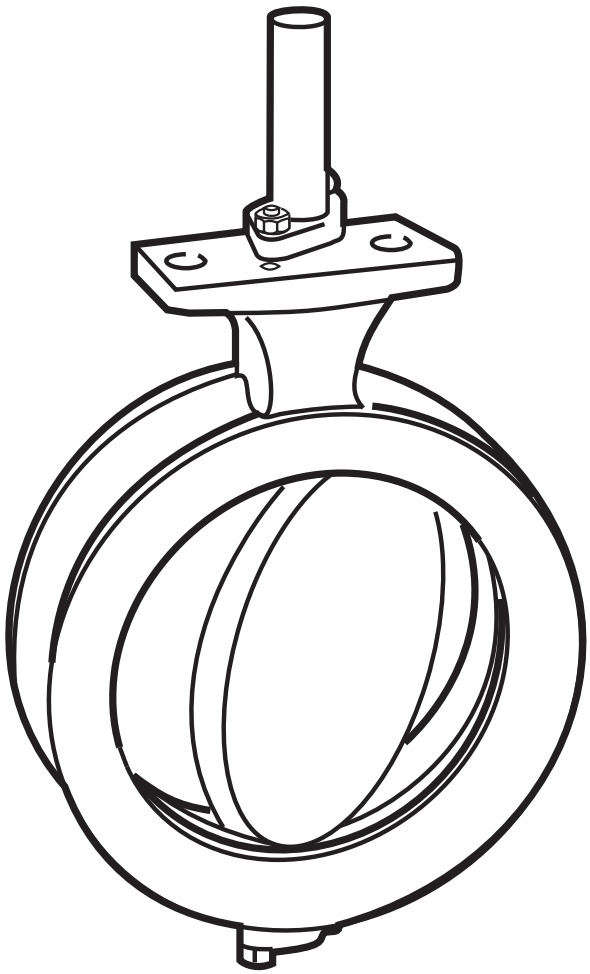
Neles™ Neldisc™ high performance butterfly valves

Series L12

Installation, maintenance and operating instructions



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READ THESE INSTRUCTIONS FIRST!

These instructions provide information about safe handling and operation of the valve.

If you require additional assistance, please contact the manufacturer or manufacturer's representative.

SAVE THESE INSTRUCTIONS!

Addresses and phone numbers are printed on the back cover.

1 GENERAL

1.1 Scope of the manual

This manual provides essential information on L12 series NelDisc™ triple eccentric disc valves. Actuators and other accessories are only discussed briefly. Refer to the individual manuals for further information on their installation, operation and maintenance.

NOTE:
Selection and use of the valve in a specific application requires close consideration of detailed aspects. Due to the nature of the product, this manual cannot cover all the individual situations that may occur when the valve is used.
If you are uncertain about use of the valve or its suitability for your intended purpose, please contact Valmet for more information.

1.2 Valve construction

Neles™ Neldisc™ series L12 valve is a wafer type metal seated, full bore triple eccentric disc valve. The valve body is one-part in sizes DN 80–600 and the sizes DN 700–1400 have a bolted clamp ring.

The disc is elliptical and has a triple eccentric mounting. When the valve is closed, the elliptical disc at the major axis displaces the seat ring outward, causing the seat ring to contact the disc at the minor axis. When the valve is opened, the contact is released and the seat ring returns to its original circular shape (see Fig. 1).

The disc is fitted to shafts with pins and there are no holes through the disc.

Construction details of individual valves are included in the type code shown on the valve identification plate. To interpret the type code, please refer to Section 11.

The valve operates both in control and shut-off applications.

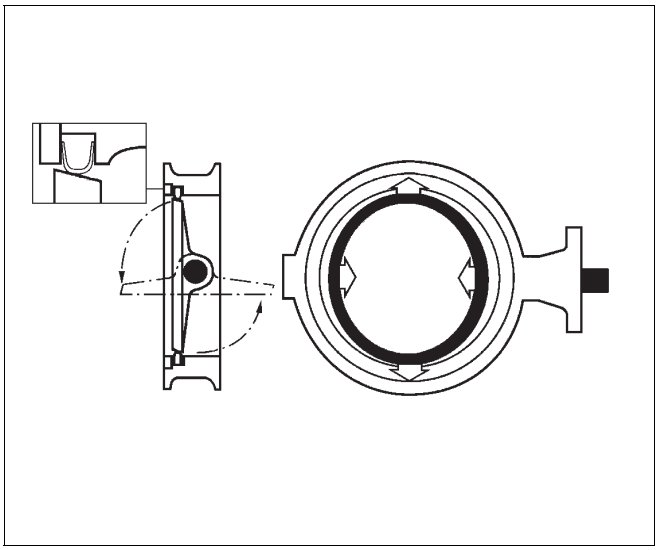


Fig. 1 Construction of a triple eccentric disc valve

1.3 Valve markings

Body markings are cast on the body. The valve also has an identification plate attached to it (see Fig. 2).

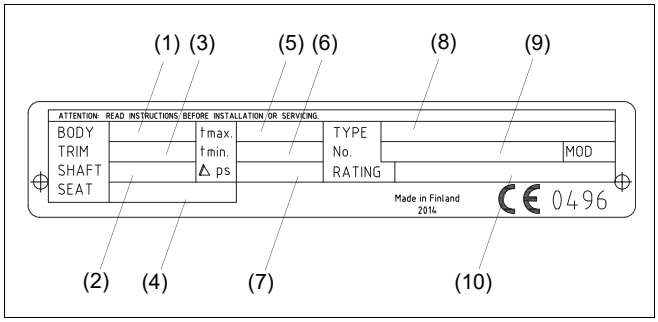


Fig. 2 Identification plate

Identification plate markings:

1. Body material
2. Shaft material
3. Trim material
4. Seat material
5. Maximum operating temperature
6. Minimum operating temperature
7. Maximum shut-off pressure differential
8. Type designation
9. Valve manufacturing parts list no.
10. Pressure class

1.4 Technical specifications

Type:	Full bore, metal seated triple eccentric disc valve	
Pressure class		
Body:	ASME 150 / PN 25	
Rated pressure differential for the trim.	DN 80–150	Δp_{max}=25 bar
	DN 200	Δp_{max}=20 bar
	DN 250–1000	Δp_{max}=10 bar
	DN 1200, 1400	Δp_{max}=6 bar
Temperature range:	-40° to +260 °C	
Flow direction:	Free	
Dimensions:	See Section 10	
Weight:	See Section 10	

1.5 Valve approvals

The valve meets the requirements of BS 6755, Part 2: 1987 and API 607, Third Edition, November 1985 on fire safety.

Valve with codes T or G are TA-Luft approved (sizes DN 700 and above).

1.6 CE marking

The valve meets the requirements of the European Directive 2014/68/EU relating to pressure equipment, and has been marked according to the Directive.

1.7 Recycling and disposal

Most valve parts can be recycled if sorted according to material. Most parts have material marking. A material list is supplied with the valve. In addition, separate recycling and disposal instructions are available from the manufacturer. A valve can also be returned to the manufacturer for recycling and disposal against a fee.

1.8 Safety precautions

CAUTION:
Do not exceed the valve performance limitations!
Exceeding the limitations marked on the valve may cause damage and lead to uncontrolled pressure release.
Damage or personal injury may result.

CAUTION:
Do not dismantle the valve or remove it from the pipeline while the valve is pressurized!
Dismantling or removing a pressurized valve will result in uncontrolled pressure release. Always isolate the relevant part of the pipeline, release the pressure from the valve and remove the medium before dismantling the valve. Be aware of the type of medium involved. Protect people and the environment from any harmful or poisonous substances.
Make sure that no medium can enter the pipeline during valve maintenance.
Failure to do this may result in damage or personal injury.

CAUTION:
Beware of the discs cutting movement!
Keep hands, other parts of the body, tools and other objects out of the open flow port. Leave no foreign objects inside the pipeline. When the valve is actuated, the disc functions as a cutting device.
The position of the disc can also be changed when moving the valve. Close and detach the actuator pressure supply pipeline for valve maintenance. Failure to do this may result in damage or personal injury.

CAUTION:
Beware of noise emissions!
The valve may produce noise in the pipeline. The noise level depends on the application. It can be measured or calculated using Neles Nelprof computer program. Observe the relevant work environment regulations on noise emission.

CAUTION:
Beware of a very cold or hot valve!
The valve body may be very cold or very hot during use. Protect yourself against cold injuries or burns.

CAUTION:
When handling the valve or the valve package, bear in mind its weight!
Never lift the valve or valve package by the actuator, positioner, limit switch or their piping.
Place the lifting ropes securely around the valve body (see Fig. 3).
Damage or personal injury may result from falling parts.

NOTE:
Do not turn the disc more than 90° as this could damage the seat. The valve is so constructed that the disc operates only between 0–90°.

CAUTION:
Potential electrostatic charging hazard. Ensure the protection in the process.

1.9 Welding notes

WARNING:
Welding and/or grinding stainless steel and other alloys containing chromium metal may cause the release of hexavalent chromium. Hexavalent chromium(VI) or Cr(VI), is known to cause cancer. Be sure to use all appropriate personal protective equipment (PPE) when welding metals containing chromium.

NOTE:
A qualified welder must do the installation welding. The welder and welding procedure should be qualified in accordance with the ASME Boiler and Pressure Vessel Code Section IX or other applicable regulation.

CAUTION:
To prevent damage to the seat and seals, do not allow the temperature of the seat and body seal area to exceed 94 °C (200 °F). It is recommended that thermal chalks be used to check the temperature in these areas during welding.

CAUTION:
Ensure that any weld splatter does not fall onto the valve closing members eg. ball or seats. This may damage critical seating surfaces and cause leaks.

2 TRANSPORTATION, RECEPTION AND STORAGE

Check the valve and the accompanying devices for any damage that may have occurred during transport.

Store the valve carefully before installation, preferably indoors in a dry place.

Do not take the valve to the intended location and do not remove the flow port protectors until the valve is installed.

The valve is delivered in the closed position. A valve equipped with a spring-return actuator is delivered in a position determined by the spring. During storage the valve must be lightly closed.

3 INSTALLATION

3.1 General

Remove the flow port protectors and check that the valve is undamaged and clean inside.

CAUTION:
When handling the valve or the valve package, bear in mind its weight!
Follow the lifting methods shown in Fig. 3.

3.2 Installing into the pipeline

Flush or blow the pipeline carefully before installing the valve. Foreign particles, such as sand or pieces of welding electrode, will damage the disc sealing surface and seat.

The valve may be installed in any position and offers tightness in both directions.

Install the valve in the pipeline so that the shaft is horizontal if possible. However, we do not recommend installing the valve with the

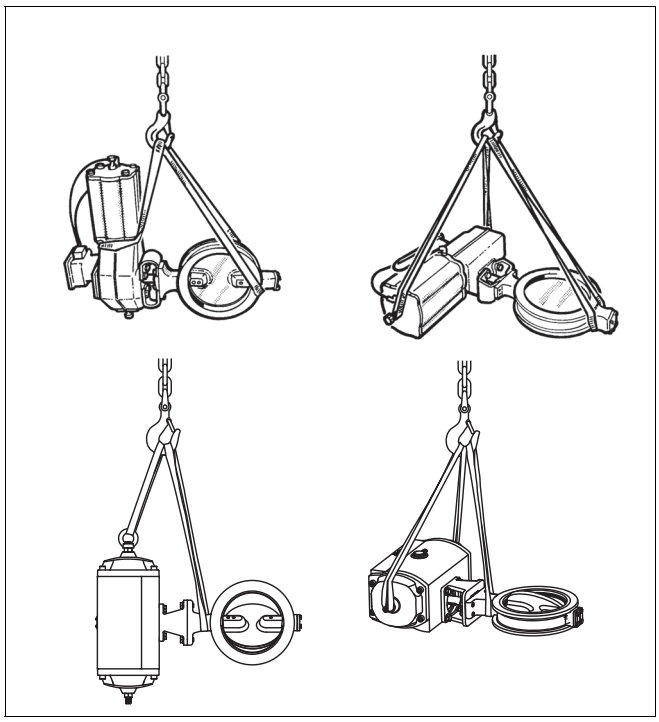


Fig. 3 Lifting of the valve

actuator on the underside because dirt in the pipeline may then enter the body cavity and damage the gland packing.

Select flange gaskets according to the operating conditions.

Do not attempt to correct pipeline misalignment by means of flange bolting.

It may be necessary to firmly support the pipeline to protect the valve from excess stress. Sufficient support will also reduce pipeline vibration and this ensures proper functioning of the positioner. Do not fasten supports to the flange bolting or to the actuator.

It is recommended that the length of the any straight pipe preceding the control valve is at least 2 x pipe diameter.

The flow causes a so-called dynamic torque against the valve disc which attempts to close the valve. In a pipe elbow the pressure on the outer edge is higher than on the inner edge.

When installing the valve immediately after a pipe elbow, the valve shaft must be directed toward the centre point of the pipe (see Fig. 4). This is especially important when the valve is used as a control valve.

The valve shaft of a triple eccentric disc valve mounted after the centrifugal pump must be perpendicular to the pump shaft (see Fig. 5).

When thus installed, the valve discs will be more evenly loaded and vibrations otherwise possible in the intermediate positions will be eliminated.

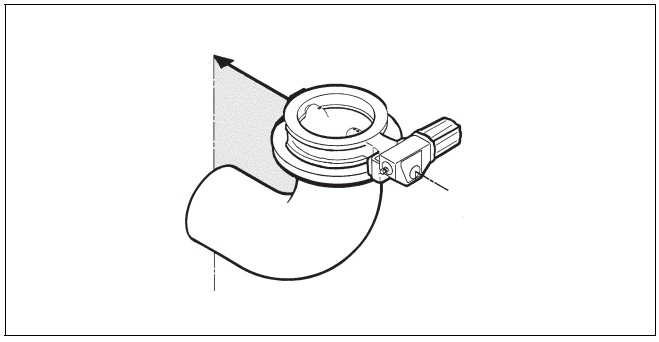


Fig. 4 Mounting after a pipe elbow

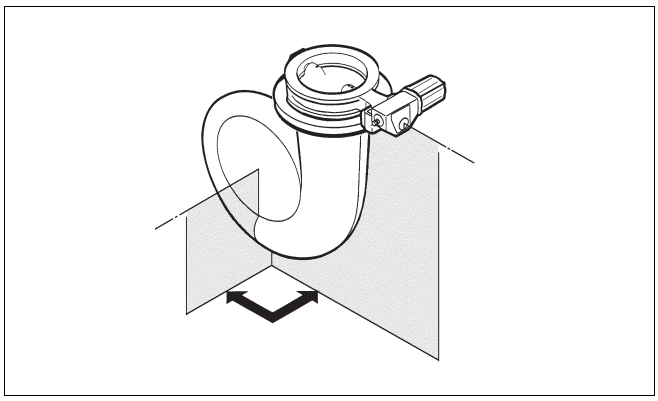


Fig. 5 Mounting after a centrifugal pump

When mounting the valve it must be in a closed position and be carefully centred between the pipe flanges so that the turning disc does not touch the pipe edge or flange gaskets.

Use caution when installing valve with Spring-to-open actuator. Valve must be in closed position during installation if the disc exceeds the Face-to-face length. Energy supply for the actuator must be safely fastened and it cannot suffer damage or break off during the installation.

In case of sudden shutdown of the energy supply the valve will open unexpectedly due to pre-stressed spring package. This may cause significant harm to people and material around the valve.

In valves with certain nominal sizes some flange bolts do not pass the valve body. The valve body is thus equipped with grooves, holes or threads (see Section 3.2.1).

Ensure that the disc can turn to the open position after preliminary tightening of the flange bolts. The actuators of control valves are usually equipped with position stops which usually only allow the disc to open 80°.

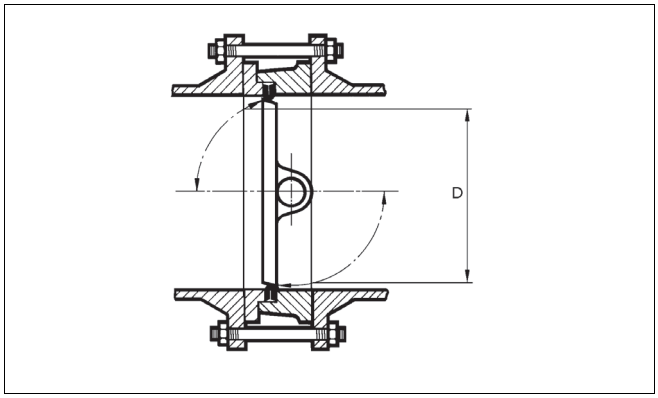


Fig. 6 Mounting dimensions

Table 1 Mounting dimensions (mm)

Valve size	D
	L12
80	67
100	87
125	112
150	143
200	191
250	241
300	287
350	330
400	371
500	464
600	565
700	676
800	773
900	874
1000	968
1200	1150
1400	1350

Table 2 Mounting options

Valve type	PN 10	PN 16	PN 25	ANSI 150
L12A 80	X	X	X	X
L12A 100	X	X	X	X
L12A 125	X	X	X	X
L12A 150	X	X	X	X
L12A 200	X	X	X	X
L12A 250	X	X	X	X
L12A 300	X	X	X	X
L12A 350	X	X	X	X
L12A 400	X	X	X	X
L12A 500	SB	SB	SB	SB
L12A 600	SB	SB	SB	SB
L12B 700	SB	SB	SB	SB
L12B 800	SB	SB	SB	SB
L12B 900	SB	SB	SB	SB
L12B 1000	SB	SB	SB	SB
L12B 1200	SB	SB	SB	SB
L12B 1400	SB	SB	SB	SB

Mounting options

- **X** Flange bolts pass the neck of the body
- **SB** Stud bolts at the neck of the body

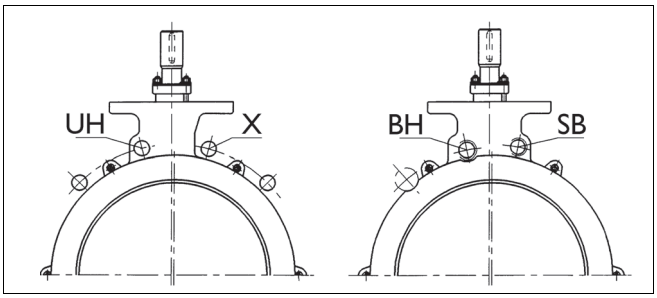


Fig. 7 Mounting options

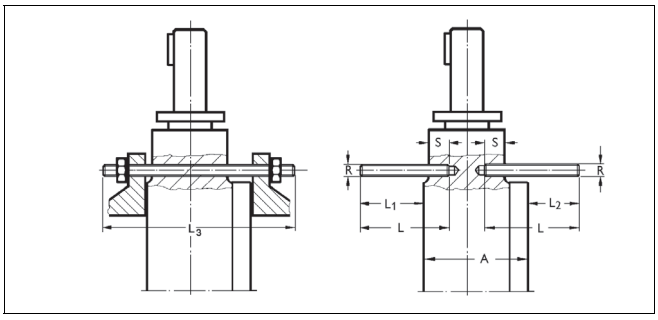


Fig. 8 Stud bolt mounting dimensions, mounting option SB

Table 3 Stud bolt dimensions (mm) and quantities per valve, mounting option SB

		PN 10								PN 16								PN 25								Class 150							
			Through studs		Body mounted studs						Through studs		Body mounted studs						Through studs		Body mounted studs						Through studs		Body mounted studs					
Valve type	A	Thread	Qty	L3	Qty	L	L1	L2	S	Thread	Qty	L3	Qty	L	L1	L2	S	Thread	Qty	L3	Qty	L	L1	L2	S	Thread	Qty	L3	Qty	L	L1	L2	S
L12A 500	127	M24	16	340	8	125	87	87	33	M30	16	340	8	140	102	102	33	M33	16	340	8	140	104	104	31	1 1/8-8 UN	16	340	8	140	106	106	29
L12A 600	154	M27	16	370	8	150	106	106	39	M33	16	390	8	160	116	116	39	M36	16	410	8	170	128	128	37	1 1/4-8 UN	16	370	8	150	108	108	37
L12B 700	165	M27	20	340	8	135	100	71	29	M33	20	380	8	150	119	90	25	M39	20	410	8	165	135	106	24	1 1/4-8 UN	24	440	8	175	151	122	18
L12B 800	190	M30	20	380	8	155	110	80	40	M36	20	410	8	165	124	94	36	M45	20	460	8	190	151	121	34	1 1/2-8 UN	24	510	8	205	173	143	27
L12B 900	203	M30	24	390	8	145	102	82	37	M36	24	420	8	160	119	99	35	M45	24	470	8	185	146	126	33	1 1/2-8 UN	28	520	8	205	169	149	30
L12B 1000	216	M33	24	410	8	165	111	85	44	M39	24	450	8	180	130	104	40	M52	24	520	8	210	164	138	36	1 1/2-8 UN	32	540	8	215	176	150	29
L12B 1200	254	M36	28	520	8	210	153	115	51	M45	28	570	8	230	173	135	46	M52	28	610	8	240	188	150	37	1 1/2-8 UN	40	620	8	260	217	179	51
L12B 1400	279	M39	32	520	8	200	143	100	53	M45	32	580	8	230	173	130	53	M56	32	620	8	240	191	148	45	1 3/4-8 UN	44	610	8	230	186	143	40

Valve insulation

If necessary, the valve may be insulated. Insulation must not continue above the upper level of the valve body, see Figure 9.

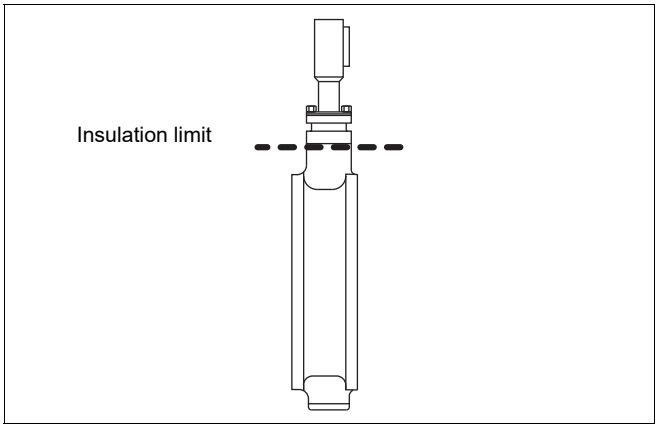


Fig. 9 Insulation of the valve

3.3 Actuator

When installing the actuator on the valve, make sure that the valve package functions properly. See instructions for installing in Section 6.3

Observe the space needed for removal of the actuator.

The upright position is recommended for the actuator cylinder.

The actuator must not touch the pipeline, because pipeline vibration may damage it or interfere with its operation.

In some cases, e.g. when a large-size actuator is used or when the pipeline vibrates heavily, supporting the actuator is recommended. Please contact Valmet for further information.

4 COMMISSIONING

Ensure that no dirt or foreign objects are left inside the valve or pipeline. Flush the pipeline carefully. Keep the valve 30–40° open during flushing.

When starting up the pump, ensure that the valve in the pipeline is closed or, at the very most, 20° open.

A waterhammer, which follows the start-up of high-capacity pumps, creates a torque peak in the disc. This can damage the pin connection between disc and shaft when the valve is 30–90° open.

The gland packing may leak after long storage. Tighten both nuts in the packing evenly until the leakage stops.

5 MAINTENANCE

CAUTION:
Observe the safety precautions mentioned in Section 1.8 before maintenance!

CAUTION:

When handling the valve or the valve package as a whole, bear in mind the weight of the valve or the entire package.

CAUTION:
For safety reasons the retaining plates MUST always be installed acc. to section 5.3.

5.1 Maintenance general

Triple eccentric disc valves require no regular maintenance. However, check the packing regularly for tightness. If the valve should require maintenance for some reason, a few simple service measures are normally sufficient.

The inspection and maintenance interval depends on the actual application and process condition.

The inspection and maintenance intervals can be specified together with your local Valmet experts. During this periodic inspection the parts detailed in the Spare Part Set should be replaced.

Time in storage should be included in the inspection interval.

Maintenance can be performed as presented below. For maintenance assistance, please contact your local Valmet office.

The part numbers in the text refer to the exploded view and to the parts list in Section 9, unless otherwise stated.

NOTE:
When sending goods to the manufacturer for repair, do not disassemble them. Clean the valve carefully and flush the valve internals.
For safety reasons, inform the manufacturer of the type of medium used in the valve.

NOTE:
In order to ensure safe and effective operation, always use original spare parts to make sure that the valve functions as intended.

NOTE:
For safety reasons, replace pressure retaining bolting if the threads are damaged, have been heated, stretched or corroded.

5.2 Removing the valve from the pipeline

CAUTION:
Do not dismantle the valve or remove it from the pipeline while the valve is pressurized!

It is generally most convenient to detach the actuator and its auxiliary devices (see Section 6) before removing the valve from the pipeline.

If the valve package is small or difficult to access, it may be more practical to remove the entire package at the same time.

Ensure that the valve is not pressurized and the pipeline is empty. Ensure that the medium cannot flow into the section where servicing is to take place. The valve must be in a **closed position** when removing.

Support the valve carefully with a hoist. Place ropes carefully and unscrew the pipe flange bolts. Ensure that the ropes are positioned correctly. Lift valve correctly (see Fig. 3).

5.3 Replacing the gland packing

CAUTION:
Do not dismantle the valve or remove it from the pipeline while the valve is pressurized!

PTFE rings are used as a standard gland packing and graphite rings for high temperature constructions. Tightness is ensured by contact between the glandfollower and the packing rings.

The gland packing (20) must be changed if leakage occurs even after the hex nuts (25) have been tightened.

The actuator needs not be removed if the gland packing is made of PTFE. Remove the actuator if the gland packing is made of graphite.

Standard packing

- Make sure the valve is not pressurized.
- Unfasten the nuts (25) and remove the retaining plates (42) and the gland (9) (see Fig. 11).
- Remove the old packing V-rings (20). Do not damage the surfaces of the packing ring counter-bore and shaft.
- Clean the gland packing and packing ring counter-bore. Install new V-ring set by pushing it into place with the gland.
  Slip the graphite rings onto the shaft. Ensure that there are no burrs in the keyway groove which could damage the packing.
- Install the gland.
- Mount the retaining plates with the text UPSIDE on top (see Fig. 10).
- Place the nuts on the studs and tighten the gland packings while the valve is not pressurized (see Table 4).
- Retighten if necessary.

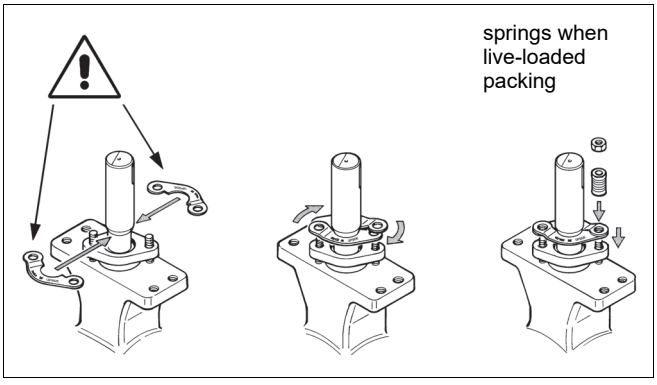


Fig. 10 Mounting the retaining plates

Table 4 Tightening of gland packing (no springs)

Size	Thread	Torque Nm	
		Packing ring material	
DN / NPS	M, UNC	Graphite + PTFE	PTFE
80 / 3	M8, 5/16	10	5
100 / 4	M8, 5/16	12	7
125 / 5	M8, 5/16	12	7
150 / 6	M8, 5/16	12	7
200 / 8	M10, 3/8	24	15
250 / 10	M10, 3/8	24	15
300 / 12	M10, 3/8	29	14
350 / 14	M10, 3/8	29	20
400 / 16	M10, 3/8	29	19
500 / 20	M14, 1/2	65	39
600 / 24	M18, 5/8	100	67
700 / 28	M18, 5/8	100	67
800 / 32	M18, 5/8	110	79
900 / 36	M20, 3/4	220	150
1000 / 40	M20, 3/4	220	150
1200 / 48	M20, 3/4	240	150
1400 / 56	M20, 3/4	240	190

Live-loaded packing

- Make sure the valve is not pressurized.
- Unfasten the nuts (25) and remove the disc spring (TA-Luft) sets (44), the retaining plates (42) and the gland (9) (see Fig. 11).
- Remove old packing rings (20). Do not damage the surfaces of the packing ring counterbore and shaft.
- Clean the gland packing and packing ring counterbore. Install new set of packings (V-ring or graphite). Slip the rings onto the shaft. Ensure that there are no burrs in the keyway groove which could damage the packing.
- Install the gland.
- Mount the retaining plates with the text UPSIDE on top (see Fig. 10).
- Mount the disc spring sets.
- Place the nuts on the studs.
- Pre-compress the gland packing by tightening the nuts with a tool until the disc springs have value of compression (h1–h2) as in Table 5.
- Carry out 3…5 operation cycles with the valve. Suitable range of movement is about 80 %.
  It is not necessary to fully close or open the valve during the operation.
- Unfasten the nuts and disc springs.
- Measure the height h1 of the disc springs and use these values as a basis when defining the final height of the springs (as compressed condition).

- Re-install the disc springs and tighten the nuts with the tool. Tighten the nuts until the set value of compression (h1–h2) of disc springs is achieved, see Table 5.

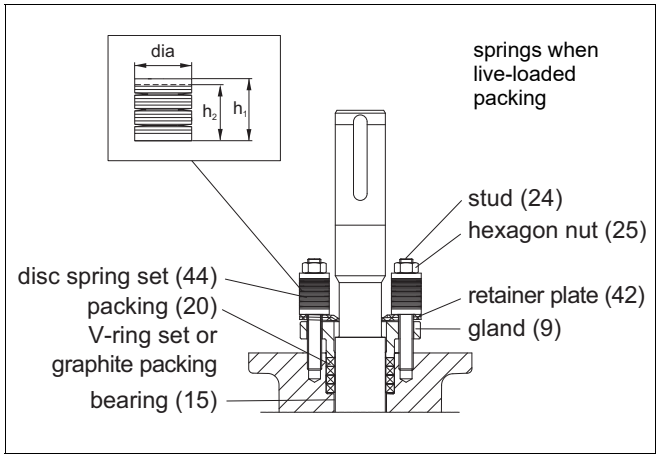


Fig. 11 Gland packing

- If the leakage still occurs when the valve is pressurized, re-tighten the nuts but don't exceed the values in the Table 5 by 50 % or do not fully compress the disc springs.

Table 5 Tightening of live-loaded gland packing

Size	Spring set dia	Thread	Compression (h_1–h_2) mm	
			Packing ring material	
DN / NPS	mm	M, UNC	Graphite + PTFE	PTFE
80 / 3	20	M8, 5/16	2.0	1.0
100 / 4	20	M8, 5/16	2.5	1.5
125 / 5	20	M8, 5/16	2.5	1.5
150 / 6	20	M8, 5/16	2.5	1.5
200 / 8	25	M10, 3/8	2.5	1.5
250 / 10	25	M10, 3/8	2.5	1.5
300 / 12	25	M10, 3/8	3.0	1.5
350 / 14	25	M10, 3/8	3.0	2.0
400 / 16	25	M10, 3/8	3.0	2.0
500 / 20	35.5	M14, 1/2	4.0	2.5
600 / 24	40	M18, 5/8	4.5	3.0
700 / 28	40	M18, 5/8	4.5	3.0
800 / 32	40	M18, 5/8	5.0	3.5
900 / 36	50	M20, 3/4	6.0	4.0
1000 / 40	50	M20, 3/4	6.0	4.0
1200 / 48	50	M20, 3/4	6.5	4.0
1400 / 56	50	M20, 3/4	6.5	5.0

5.4 Replacing the seat ring, sizes DN 700–1400

CAUTION:
Do not dismantle the valve or remove it from the pipeline while the valve is pressurized!

- Ensure that the valve is not pressurized.
- Remove the valve from the pipeline. The valve must be in a closed position during removal.
  Follow the lifting methods shown in Section 3.
- Remove the clamp ring (2) by untightening the screws (27).
- Remove the clamp ring, the old body seal (19) and the seat ring (4). Change the seat ring if it is damaged.
- Clean all the seating surfaces of the body and clamp ring. Check the surface of the seat ring.
- Check also the condition of the disc. A damaged disc must be changed (see Section 5.5).
- Check the condition of the pin connection. Repair it if necessary (see Section 5.5).
- Mount a new, self-adhesive body seal (19) into the body. The surface must be clean and free of grease. Handle the ends of the seal according to Fig. 12.

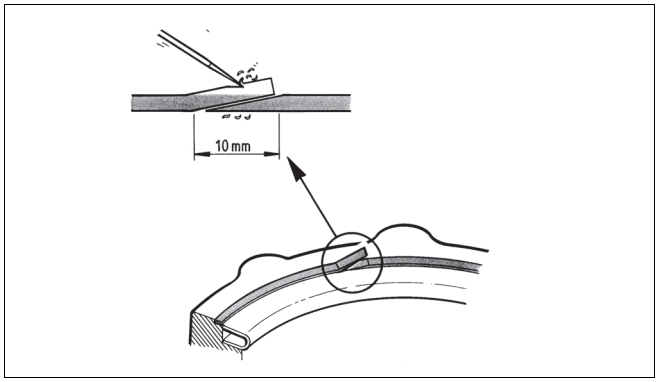


Fig. 12 Mounting the body seal

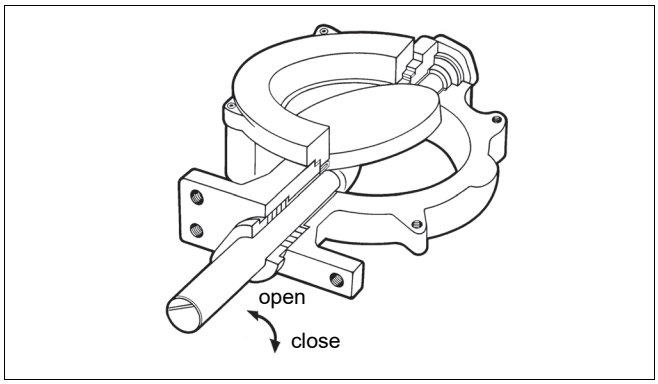


Fig. 13 The contact line between the disc and seat

- Spray a thin layer of dry lubricant, e.g. Molykote 321R or equivalent, into the seat groove, surfaces of the clamp ring and seat ring.
- Centre the seat ring (4) carefully into its groove and turn the disc to maintain light contact with the seat.
- Mount the clamp ring and tighten the screws (27) lightly.
- Turn the disc slightly open and pull it back to set the seat into the proper position.
- Tighten the screws (27) evenly. An unevenly tightened flange may damage the seat ring.
- Check the position between the seat ring and the disc. The valve closes clockwise (see Fig. 13).
- Mount the actuator into the valve. Adjust the closed position limit and check the open position limit (see Section 6.5).

5.5 Replacing the disc, shafts and bearings, sizes DN 700–1400

Disassembling the valve

The pin connection of the disc must be opened by drilling for changing the disc (3), shafts (11, 12) and bearings (15, 16).

- Remove the valve from the pipeline and the actuator from the valve.
- Remove the clamp ring (2) and seat ring (4) according to section 5.4.
- Set the valve horizontally on a sturdy surface so that the flat side of the disc lays against the surface, see Fig. 14.
- Drill the holes carefully to the centre of the pins (14). Choose a drill 0.2–0.5 mm smaller than the diameter of the pin.

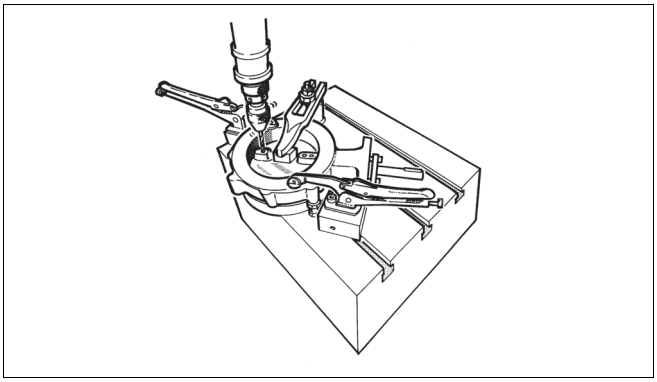


Fig. 14 Drilling the pins

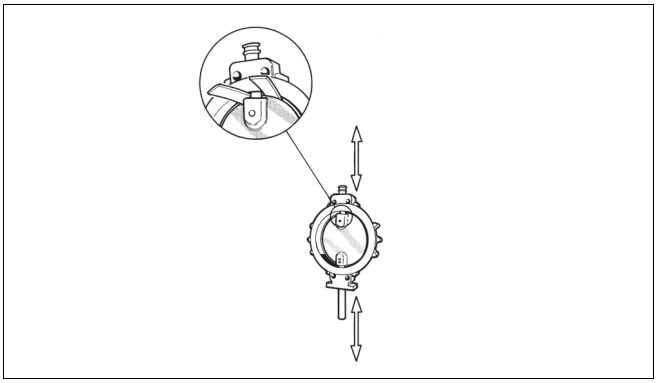


Fig. 15 Protecting the disc during disassembly and assembly

- Drill the holes deep enough, but not to reach the disc.
- Pull the pins out.
- Dismantle the gland packing according to Section 5.3.
- Detach the screws (26) and the blind flange (10) and remove the gasket (18).
- Place rubber strips or other protection between the disc edge and the body and remove the shafts, Fig. 15.
- Remove the bearings (15, 16).
- Clean and check all parts carefully.

5.6 Assembling the valve

- Replace damaged parts with new ones.
- Set the disc and the shaft together beforehand. In case the pin holes have been damaged during removal of the old pins the holes can be drilled to a larger pin size. File off any burrs from the shafts.

The bearing material of the standard construction valves is PTFE-impregnated stainless steel net.
The bearings for the high temperature valves (H-construction) are cobalt alloy bushings which are mounted into the body together with the shafts.

- Mount the bearings into the body (see Fig. 16).

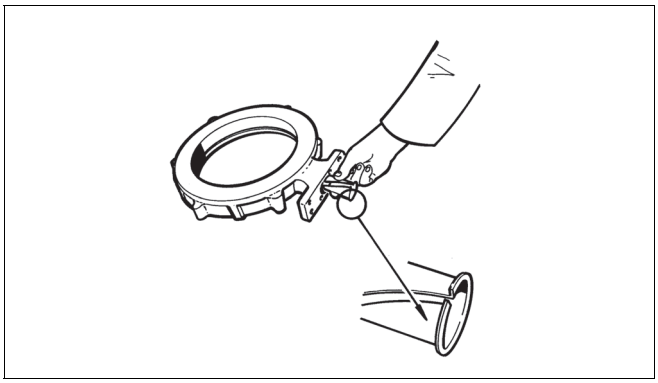


Fig. 16 Mounting the standard bearings

- Place the disc horizontally on a surface so that the flat side of the disc lays against the surface. Lift the body around the disc so that the shaft bores are aligned with the bores in the disc. Protect the disc (see Fig. 15).
- Press the shafts into the disc drillings. Align the pin holes. The shaft (13) position against the disc must be according to Fig. 13.

NOTE:
Use only pins supplied by the manufacturer!

NOTE:
The pins must be pressed with enough force to deform them so that the connection will be free from backlash.

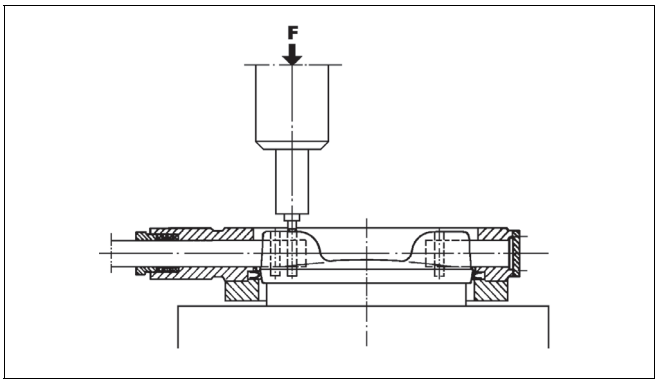


Fig. 17 Pressing the pins

Table 6 Pressing the pins, forces

Pin diam., mm	Force kN	Pin diam., mm	Force kN
5	45	20	500
6	60	25	780
8	80	30	1125
10	125	35	1500
12	180	40	2000
15	280	50	3150

- Support the disc well in a horizontal position during mounting of the pins. Push the new pins into the holes and press them in a press to final form (see Fig. 17). Use a smaller tool than the pin diameter. See Table 6 for force needed.
- Install the gasket (18) and the blind flange (10). Screws of the blind flange must be tightened evenly, see Table 7. An unevenly tightened flange will damage the seat.

Table 7 Torque values for blind flange screws,sizes 80–1400

Screw	M6	M8	M10	M16	M20
Torque [Nm]	8	18	35	170	330

- Install the seat ring. See details in Section 5.4.
- Install the body seal (19) and the clamp ring (2). See details in Section 5.4.
- Install the gland packing (see Section 5.3).
- Check the contact line between the seat ring and the disc (see Fig. 13).

6 DETACHING AND MOUNTING THE ACTUATOR

6.1 General

CAUTION:
When handling the valve or the valve package, bear in mind its weight!

NOTE:
Do not turn the disc more than 90° as this could damage the seat. The valve is so constructed that the disc operates only between 0–90°.

6.2 Mounting the actuator onto the valve

Mounting B series actuators

- Turn the valve to the closed position before mounting the actuator.
- Clean the shaft and the shaft bore and file off any burrs which could interfere with mounting. Protect the joint surfaces from corrosion, e.g. with Cortec VCI 369.
- If a bushing is required between the actuator shaft bore and the valve shaft, mount it first in the actuator shaft bore. Lock the bushing with a retainer screw.
- The valve keyway is on the side opposite the flat side of the disc. The actuator shaft bore has two keyways set 90° apart.
- For double-acting cylinder actuator, B1C, and spring-return cylinder actuator, B1J (spring-to-close), choose the keyway which establishes the piston in its upper position (at the top end of the cylinder) when the valve is closed.
- In the spring-return cylinder actuator B1JA (spring-to-open), choose the keyway which establishes the piston in its lower position when the valve is open.
- In valves with manual operation the disc must be closed by turning the handwheel clockwise.
- Check visually that the actuator is correctly positioned relative to the valve. Tighten all the fastening screws as tightly as possible.
- Adjust the stop screws to the closed position (see Section 6.5).
- The opening angle in a control valve is usually limited by a bolt to 80°. The opening angle of a shut-off valve is 90°.
- When a shaft extension is required, the sizing of the shaft extension must be discussed with the valve manufacturer.

Detaching B series actuators

The actuator must always be depressurized, and the air supply tubing detached, before the actuator is detached.

- Unscrew the bracket screws.
- Detach the actuator using a suitable extractor. The correct tool can be ordered from the manufacturer (see Fig. 19).
- Remove the bracket and coupling, if any.

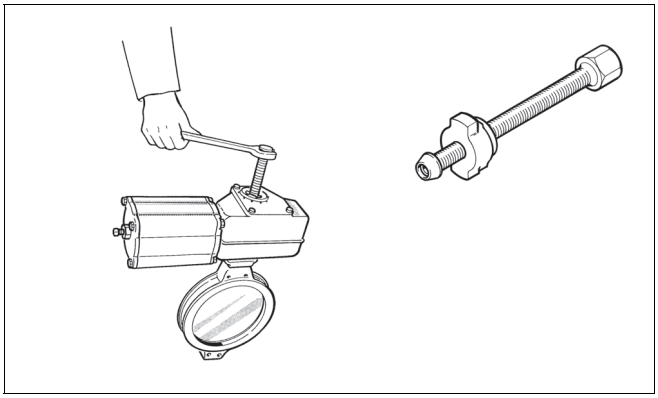


Fig. 18 Detaching B series actuators with an extractor

6.3 Detaching and mounting the other actuator types

See the actuator's manual for details.

6.4 Stop screw adjustment

General

Close the metal seated triple eccentric disc valve by turning the disc with a torque wrench against the seat. Choose the torque from Table 11 for adjusting the stop screw to the closed position of the actuator. Try not to exceed the given values since excessive torque would strain the seat and the joint between the disc and the shaft. Always readjust the stop screw after changing the seat and after mounting the actuator.

Before adjusting check that the flange ring screws are tight and that the ring and body are assembled correctly. Adjust the stop screw preferably when the valve is fastened in the pressure test unit.

Actuators other than tabulated

Close the valve as per the tabulated torque Mc and adjust the stops accordingly. Note the increased torque created by the actuator while the valve is closed.

NOTE:
Valmet accepts no responsibility for compatibility of actuators not installed by Valmet.

Changing the mounting position

CAUTION:
The actuator must not be removed from the valve in a pipeline under pressure as a result of dynamic torque!

Always remove the actuator from the valve shaft before mounting it into another key groove. Readjust the closed position limit as instructed.

If manually operated, the valve should close when the handwheel is turned clockwise. In a double-action cylinder, the piston must be in the upper position of the cylinder when the valve is closed. In this position the actuator creates maximum torque. **Do not turn the disc more than 90° as this could damage the seat.**

Double-acting cylinder actuator B1C

- Apply the tabulated (Table 10) shut-off pressure Pc to the air connection at the cylinder base.
- With the stop screw removed, check through the air connection hole that the piston does not touch the cylinder end. If it does, loosen the bracket screws and turn the actuator clockwise to increase the adjusting margin.

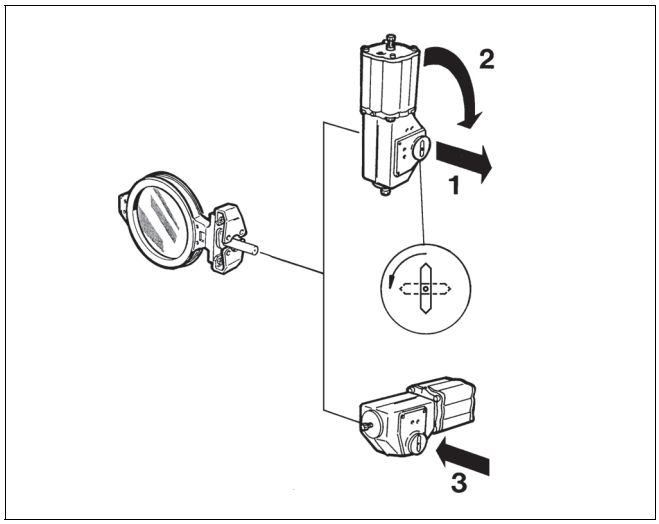


Fig. 19 Changing the mounting position

- Turn the closed position stop screw until it touches the piston, then turn back 1/4 turn and lock up. An O-ring is used for leak-proofing the stop screw.
- An extra long screw is needed for opening angles < 80°.

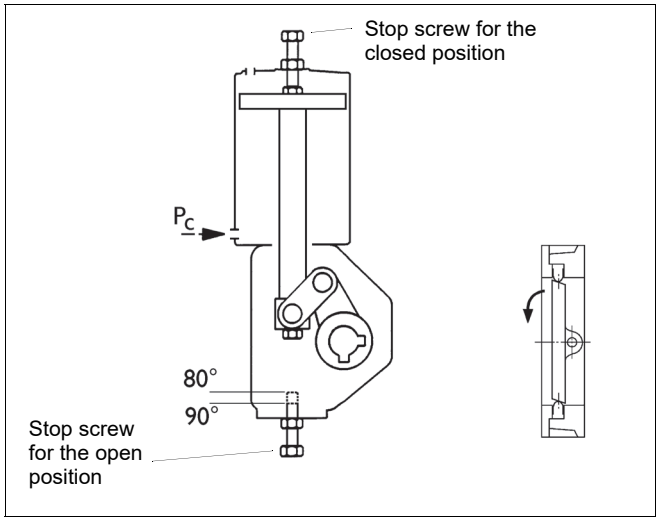


Fig. 20 Cylinder actuator, Series B1C

Spring-return cylinder actuator B1J

Spring-to-close

- Before mounting the cylinder, screw in the closed position stop screw completely.
- The Table 11 indicates **) spring* when the spring-created torque does not exceed the maximum permitted closing torque Mc. Otherwise, apply the tabulated pressure Pc into the air connection at the cylinder end against the spring force. The stop screw cannot be removed when the cylinder is pressurized! Open the stop screw until it does not touch the piston.
- Turn the closed position stop screw until it touches the piston, then turn back 1/4 turn and lock up. An O-ring is used for leak-proofing the stop screw.
- After adjusting, check the adjusting margin through the air connection hole. The piston must not touch the cylinder end. If necessary, increase the margin by loosening the bracket screws and turning the actuator clockwise.
- An extra long screw is needed for opening angles < 80°.

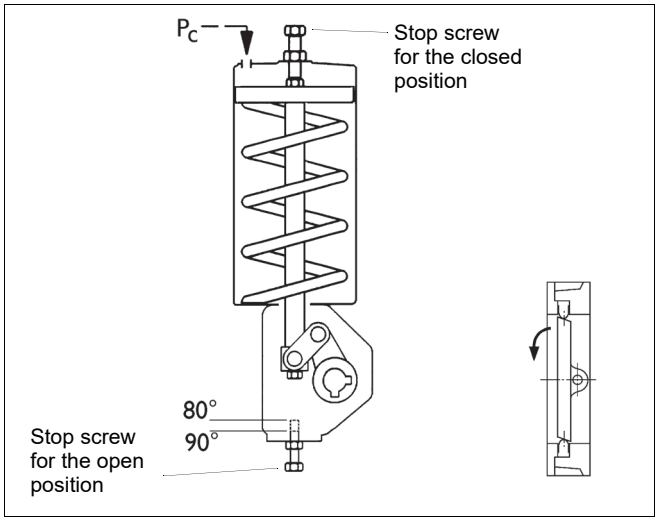


Fig. 21 Cylinder actuator, Series B1J

Spring-return cylinder actuator B1JA

Spring-to-open

- The actuator being unpressurized the valve is open. Unscrew the close limit stop screw (actuator housing). Apply tabulated (Table 11) shut-off pressure Pc to the air connection at the cylinder bottom end against the spring force to close the valve.
- Check through the stop screw hole that the piston rod does not touch the cylinder top end. If it does, loosen the bracket screws and turn the actuator clockwise to increase the adjusting margin.
- Turn the closed position stop screw until it touches the piston, then turn back 1/4 turn and lock up. An O-ring is used for leak-proofing the stop screw.
- An extra long screw is needed for opening angles < 80°.

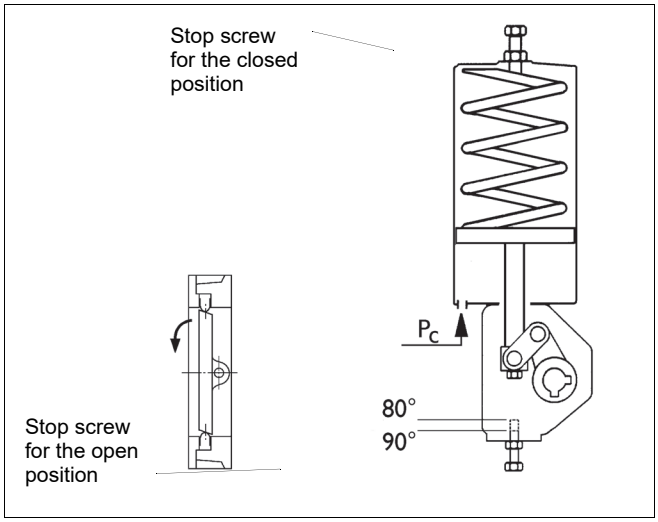


Fig. 22 Cylinder actuator, Series B1JA

Manual operator M

- Close the valve as per the tabulated primary torque M1 (handwheel torque) given in Table 11.
- Tighten the closed position stop screw until it touches the linkage, then turn back 1/4 turn and lock up with Loctite 225.

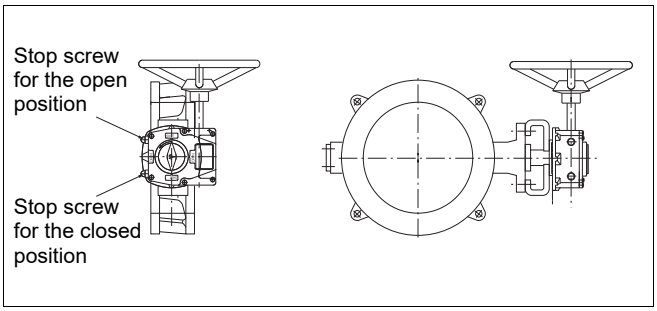


Fig. 23 Manual operator, series M

Hand lever RH

- Mount the hand lever on the valve, but do not fasten hex screws (A). Turn the lever using force F in Table 10.
- When closing torque is applied, turn the housing (B) cog of the closing limit to maintain contact with the lever arm. Fasten hex screws (A).

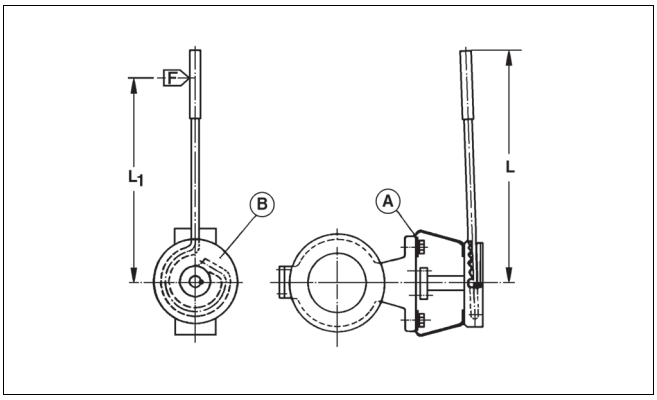


Fig. 24 Hand lever, Series RH

Table 8 Hand lever RH, adjustment values

Size		L		L1		Torque		F	
DN	"	mm	"	mm	"	Nm	lbf ft	N	lbf
80	03	400	16	350	14	40	30	115	26
100	04	400	16	350	14	70	52	200	45
125	05	400	16	350	14	100	74	285	63
150	06	500	20	450	18	135	100	300	67

Electric operator

- Instructions for adjustment are given in a separate leaflet code D304568, which is available from the manufacturer.

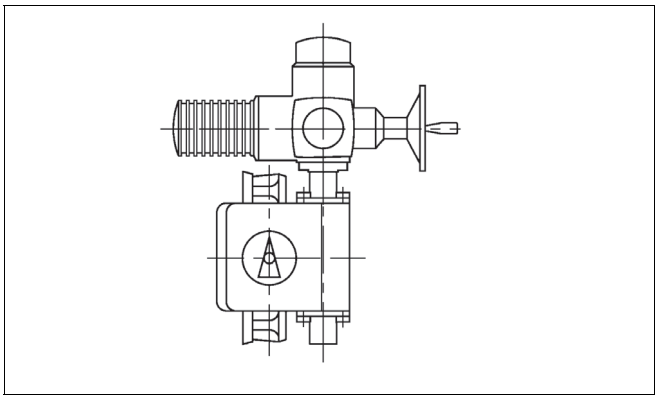


Fig. 25 Electric operator

7 TROUBLE SHOOTING TABLE

Table 11 lists malfunctions that might occur after prolonged use.

Table 9 Trouble shooting

Symptom	Possible fault	Recommended action
Leakage through a closed valve	Wrong stop screw adjustment of the actuator	Adjust the stop screw for closed position
	Faulty zero setting of the positioner	Adjust the positioner
	Damaged seat	Replace seat
	Damaged closing member	Replace the closing member
	Closing member in a wrong position relative to the actuator	Select the correct keyway in the actuator
Leakage through body joint	Damaged gasket	Replace the gasket
	Loose body joint	Tighten the nuts or screws
Irregular valve movements	Actuator or positioner malfunction	Check the operation of the actuator and positioner
	Process medium accumulated on the sealing surface	Clean the sealing surfaces
	Closing member or seat damaged	Replace the closing member or seat
	Crystallizing medium has entered the bearing spaces	Flush the bearing spaces
Gland packing leaking	Gland packing worn or damaged	Replace the gland packing
	Loose packing	Tighten the packing nuts

8 TOOLS

No special tools are needed for servicing the valve. However, we recommend an extractor for removing the actuator from the valve. The tool can be ordered from the manufacturer.

Table 10 Extractor tools (Actuator Series B1C/B1J)

Product:	ID
B1C/B1J 6	303821
B1C 8-11 / B1J 8-10	8546-1
B1C 12-17 / B1J 12-16	8546-2
B1C/B1J 20	8546-3

9 ORDERING SPARE PARTS

When ordering spare parts, always include the following information:

- type code, sales order number, serial number (stamped on a valve body)
- number of the parts list, part number, name of the part and quantity required

This information can be found from the identification plate or documents.

Table 11 Series L12, closing torques

DN SIZE	Mc		BC & BJ SIZE	BC pc		BJ pc		BJA**) pc		BJK pc		BJKA**) pc		BJV pc		BJVA**) pc		EC & EJ	Manual operator	Input torque M1	
	(Nm)	(lbf ft)		(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	SIZE		(Nm)	(lbf ft)
80 3	45	33	6	2.5	36													5	M07	4	3
			8	2.1	30	0.7	10	3.3	48	0.3	4	2.8	41	1.1	16	4	58	7	AR11	4	3
			10	1.6	23	1.1	16	2.8	41	0.7	10	2.2	32	1.6	23	3.4	49	10			
100 4"	75	55	6	4.1	59													5	M07	7	5
			8	3.4	49	0.2	3	3.8	55	*)spring		3.3	48	0.6	9	4.6	68	7	AR11	6	4
			9	2.1	30													10			
			10	1.9	28	0.9	13	3.1	45	0.5	7	2.6	38	1.4	20	3.7	54	12			
			11	1.1	16													14			
125 5"	110	80	6	6	87													5	M07	10	7
			8	5	72	*)spring		4.5	65			3.8	55	*)spring		5.3	77	7	AR11	9	7
			9	3	43													10			
			10	2.4	35	0.6	9	3.4	49	0.2	3	2.9	42	1.1	16	4	58	12			
			11	1.5	22													14			
			12	1.3	19	1.1	16	2.9	42	0.7	10	2.2	32	1.6	23	3.7	54				
150 6"	150	110	6	8.2	119													5	M07	14	10
			9	4.1	59													7	AR11	12	9
			10	3.3	48	0.2	3	3.8	55	*)spring		3.2	46	0.8	12	4.3	62	10			
			11	2.1	30													12			
			12	1.6	23	0.9	13	3.1	45	0.5	7	2.6	38	1.5	22	3.9	57	14			
200 8"	300	220	10	6.5	94	*)spring		5	72			4.4	64	*)spring		5.6	81	5	M10	27	20
			11	4.2	61													7	AR11	24	18
			12	3.3	48	0.2	3	3.8	55	*)spring		3.2	46	0.8	12	4.6	68	10			
			13	2.1	30													12			
			16	1.6	23	0.9	13	3.1	45	0.5	7	2.6	38	1.3	19	3.8	55	14			
250 10"	350	260	11	4.9	71													5	M10	32	24
			12	3.9	57	0.1	1	4	58	*)spring		3.4	49	0.6	9	4.8	70	7	AR11	28	21
			13	2.4	35													10	AR21	20	15
			16	1.9	28	0.7	10	3.2	46	0.4	6	2.7	39	1.2	17	4	58	12			
			17	1.3	19													14			
300 12"	580	430	13	4	58													7	M12	51	38
			16	3.2	46	0.3	4	3.7	54	*)spring		3.2	46	0.8	12	4.5	65	10	AR21	34	25
			17	2.1	30													12			
			20	1.7	25	0.8	12	3.1	45	0.5	7	2.6	38	1.4	20	3.6	52	14			
350 14"	800	590	13	5.6	81													7	M12	67	49
			16	4.4	64	*)spring		4.2	61			3.6	52	0.4	6	4.9	71	10	M14	49	36
			17	2.9	42													12	AR21	46	34
			20	2.3	33	0.6	9	3.3	48	0.3	4	2.8	41	1.2	17	3.8	55	14			
400 16"	1160	860	16	6.4	93	*)spring		4.9	71			4.3	62	*)spring		5.7	83		M14	72	53
			17	4.2	61														AR21	67	50
			20	3.3	48	0.3	4	3.7	54	*)spring		3.1	45	0.8	12	4.2	61		AR31	50	37
			25	1.7	25	0.8	12	3.1	45	0.5	7	2.6	38	1.4	20	3.6	52				
500 20"	1900	1400	20	5.4	78	*)spring		4.5	65			3.9	57	0	0	5	73		M14	145	107
			25	2.8	41	0.5	7	3.5	51	0.1	1	2.9	42	1	14	4	58		M15	93	69
																			AR31	80	60
600 24"	3100	2290	25	4.5	65	*)spring		4.1	59			3.5	51	0.4	6	4.7	68		M15	163	120
			32	2.2	32	0.7	10	3.3	48	0.3	4	2.8	41	1.2	17	3.9	57		M16	117	86
																			AR41	130	95

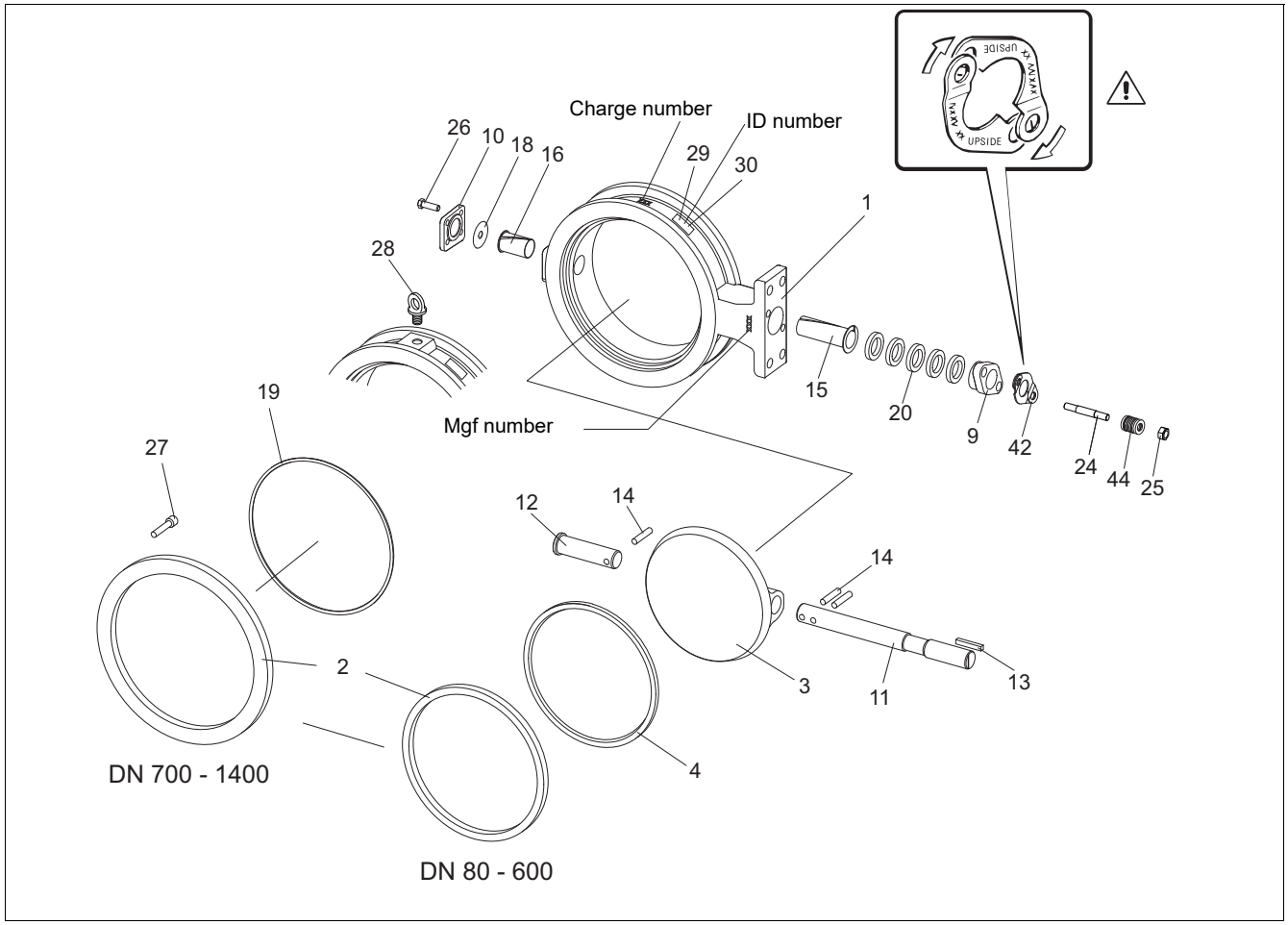
*) spring = spring torque not adequete to reach tightness according to ISO 5208 Rate D, BS 6755 Part 1 Rate D, ANSI/FCI 70.2 Class V, IEC 534-4 or MSS-SP72/1970
**) Adjust the supply pressure regulator to the pressure below. Do not exceed given value.

Table 11 Continued

DN SIZE	Mc		BC & BJ SIZE	BC pc		BJ pc		BJA**) pc		BJK pc		BJKA**) pc		BJV pc		BJVA**) pc		Manual operator	Input torque M1	
	(Nm)	(lbf ft)		(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)	(bar)	(psi)		(Nm)	(lbf ft)
700 28"	3500	2580	25	5.1	74	*)spring		4.3	62	*)spring		-		0.1	1	0.5	7	M16	132	97
			32	2.6	38	0.5	7	3.4	49	0.2	3	2.8	41	1.0	15	3.9	57	AR41	147	108
800 32"	5000	3685	32	3.6	52	0.2	3	3.8	55	*)spring		3.2	46	0.6	9	4.3	62	M25	182	134
			40	1.5	22													AR41	147	108
900 36"	6500	4790	32	4.7	68	*)spring		4.2	61	-		3.6	52	0.3	4	4.7	68	M25	236	174
			322	0.6	9	0.6	9	3.4	49	0.2	3	2.7	39	1.1	16	3.9	57			
			40	2.3	33			-												
1000 40"	8500	6260	322	0.8	12	0.4	6	3.6	52	*)spring		2.9	42	0.8	12	4.1	59			
			40	3.0	43			-												
1200 48"	10500	7740	322			0.1	1	3.9	57	*)spring		3.2	46							
			40	3.7	54															
			50	1.9	28															
1400 56"	14500	10690	322			*)spring		4.4	64			3.7	54							
			40	5.1	74															
			50	2.6	38															

*) spring = spring torque not adequete to reach tightness according to ISO 5208 Rate D, BS 6755 Part 1 Rate D, ANSI/FCI 70.2 Class V, IEC 534-4 or MSS-SP72/1970
**) Adjust the supply pressure regulator to the pressure below. Do not exceed given value.

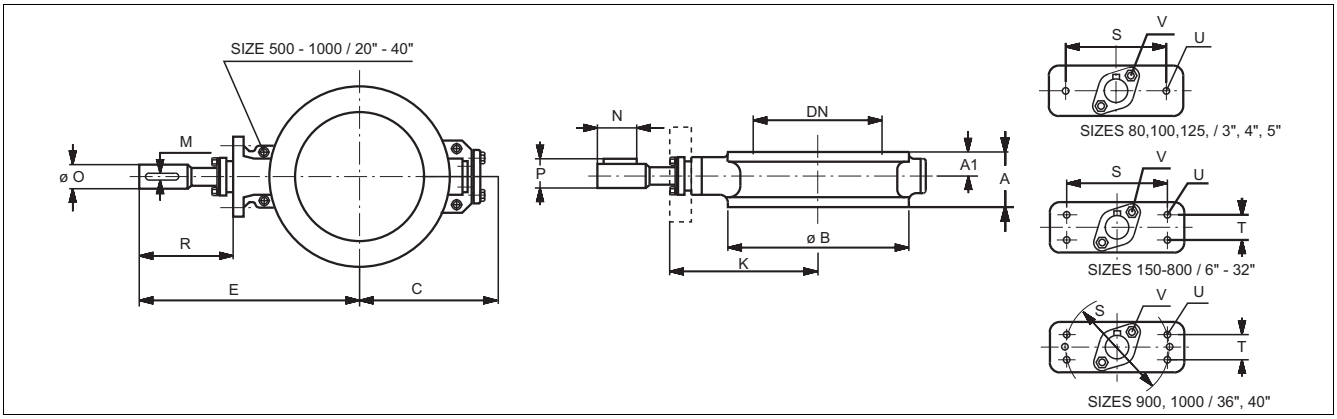
10 EXPLODED VIEW AND PARTS LIST



Item	Qty	Description	Spare part category
1	1	Body	
2	1	Clamp ring	
3	1	Disc (sizes DN 700–1400)	3
4	1	Seat ring (sizes DN 700–1400)	2
9	1	Gland	
10	1	Blind flange	
11	1	Drive shaft (sizes DN 700–1400)	3
12	1	Shaft (sizes DN 700–1400)	3
13	1	Key	3
14	3	Pin (sizes DN 700–1400)	3
15	1	Bearing (sizes DN 700–1400)	3
16	1	Bearing (sizes DN 700–1400)	3
18	1	Gasket	1
19	1	Body seal (sizes DN 700–1400)	1
20	5	Gland packing	1
24	2	Stud	
25	2	Hexagon nut	
26		Hexagon screw	
27	6/8	Hexagon socket screw	
28	1	Lifting eye bolt (sizes DN 1200, 1400)	
29	1	Identification plate	
42	2	Retaining plate	
44	2	Disc spring set (sizes DN 700–1400)	

Spare part category 1: Recommended soft parts, always needed for the repair. Delivered as a set.
Spare part category 2: Parts for replacing of the seat
Spare part category 3: Parts for replacing of the closing element
Spares for the full overhaul: All parts from the categories 1, 2 and 3

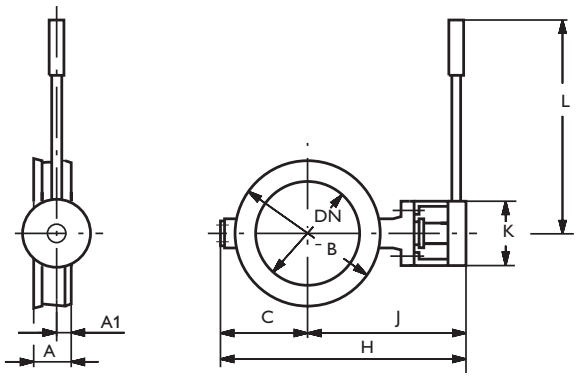
11 DIMENSIONS AND WEIGHTS



Type	DN	Dimensions, mm													Thread		kg
		A	A1	øB	C	E	K	S	T	O	R	M	P	N	U	V	
L12A 80	80	47	20	132	80	213	190	70	-	15	105	4.763	17	25	M12	M8	4
L12A 100	100	52	25	160	100	256	220	90	-	20	125	4.763	22.2	35	M12	M8	5
L12A 125	125	56	27	180	115	269	235	90	-	20	125	4.763	22.2	35	M12	M8	7
L12A 150	150	56	28	216	130	305	270	110	32	20	125	4.763	22.2	35	M12	M8	11
L12A 200	200	61	27	272	160	346	300	110	32	25	136	6.35	27.8	46	M12	M10	16
L12A 250	250	68	32	327	200	376	330	130	32	25	156	6.35	27.8	46	M12	M10	27
L12A 300	300	78	34	373	270	409	360	130	32	30	159	6.35	32.9	51	M12	M10	40
L12A 350	350	78	34	416	310	473	415	160	40	35	178	9.525	39.1	58	M16	M10	45
L12A 400	400	102	45	480	330	513	445	160	40	40	188	9.525	44.2	68	M16	M10	75
L12A 500	500	127	63.5	590	420	610	520	160	55	50	230	12.7	55.5	90	M20	M14	120
L12A 600	600	154	77	690	480	739	620	230	90	70	299	19.05	78.2	119	M24	M16	220
L12B 700	700	165	65	800	536	829	710	230	90	70	299	19.05	78.2	119	M24	M16	331
L12B 800	800	190	80	900	622	937	791	230	90	85	326	22.225	94.7	146	M24	M16	489
L12B 900	900	203	91.4	1000	678	1058	902	330	120	95	376	22.225	104.8	156	M30	M20	651
L12B 1000	1000	216	95	1110	728	1108	952	330	120	95	376	22.225	104.8	156	M30	M20	805
L12B 1200	1200	254	108	1330	855	1250	1080	330	120	105	400	25.4	116.2	170	M30	M20	1200
L12B 1400	1400	279	118	1540	950	1395	1200	360	135	120	455	31.75	133.8	195	M30	M20	1900

Type	Size	Dimensions, in													Thread		lb
		A	A1	øB	C	E	K	S	T	O	R	M	P	N	U	V	
L12A 80	3	1.85	0.79	5.20	3.15	8.39	7.48	2.76	-	0.59	4.13	0.19	0.67	0.98	M12	M8	8.8
L12A 100	4	2.05	0.98	6.30	3.94	10.08	8.66	3.54	-	0.79	4.92	0.19	0.87	1.38	M12	M8	11
L12A 125	5	2.20	1.06	7.48	4.53	10.59	9.25	3.54	-	0.79	4.92	0.19	0.87	1.38	M12	M8	15.4
L12A 150	6	2.20	1.10	8.50	5.12	12.01	10.63	4.33	1.26	0.79	4.92	0.19	0.87	1.38	M12	M8	24.2
L12A 200	8	2.40	1.06	10.71	6.30	13.62	11.81	4.33	1.26	0.98	5.35	0.25	1.09	1.81	M12	M10	35.2
L12A 250	10	2.68	1.26	12.87	7.87	14.80	12.99	5.12	1.26	0.98	6.14	0.25	1.09	1.81	M12	M10	59.4
L12A 300	12	3.07	1.34	14.69	10.63	16.10	14.17	5.12	1.26	1.18	6.26	0.25	1.30	2.01	M12	M10	88
L12A 350	14	3.07	1.34	16.38	12.20	18.62	16.34	6.30	1.57	1.38	7.01	0.38	1.54	2.28	M16	M10	99
L12A 400	16	4.02	1.77	18.90	12.99	20.20	17.52	6.30	1.57	1.57	7.40	0.38	1.74	2.68	M16	M10	165
L12A 500	20	5.00	2.50	23.23	16.54	24.02	20.47	6.30	2.17	1.97	9.06	0.50	2.19	3.54	M20	M14	264
L12A 600	24	6.06	3.03	27.17	18.90	29.09	24.41	9.06	3.54	2.76	11.77	0.75	3.08	4.69	M24	M16	484
L12B 700	28	6.5	2.55	31.5	21.1	32.64	27.95	9.05	3.54	2.76	11.77	0.75	3.08	4.68	M24	M16	730
L12B 800	32	7.48	3.15	35.4	24.5	36.89	31.14	9.05	3.54	3.35	12.83	0.875	3.72	5.75	M24	M16	1078
L12B 900	36	8	3.6	39.4	26.7	41.65	35.51	13	4.72	3.74	14.80	0.875	4.13	6.14	M30	M20	1435
L12B 1000	40	8.5	3.74	43.7	28.7	43.62	37.48	13	4.72	3.74	14.80	0.875	4.13	6.14	M30	M20	1774
L12B 1200	48	10.00	4.25	52.36	33.66	49.21	42.52	12.99	4.72	4.13	15.75	1.00	4.57	6.69	M30	M20	2640
L12B 1400	56	10.98	4.65	60.63	37.40	54.92	47.24	14.17	5.31	4.72	17.91	1.25	5.27	7.68	M30	M20	4180

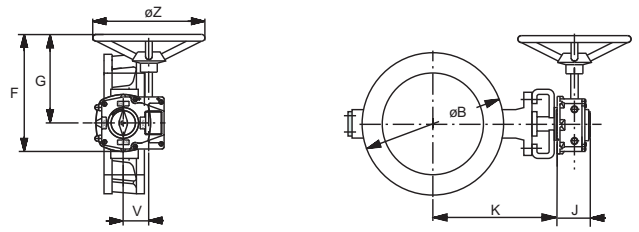
L12 - RH



	Dimensions, mm									kg
	DN	A	A1	øB	C	H	J	K	L	
L12A 80-RH415	80	47	20	132	80	293	213	100	400	5
L12A 100-RH420	100	52	25	160	100	356	256	100	400	6
L12A 125-RH420	125	56	27	190	115	384	269	100	400	8
L12A 150-RH520	150	56	28	216	130	435	305	130	520	12

	Dimensions, in									lb
	Size	A	A1	øB	C	H	J	K	L	
L12A 80-RH415	3	1.85	0.79	5.20	3.15	13.39	8.39	3.94	15.75	11
L12A 100-RH420	4	2.05	0.98	6.30	3.94	14.02	10.08	3.94	15.75	13
L12A 125-RH420	5	2.20	1.06	7.48	4.53	15.12	10.59	3.94	15.75	18
L12A 150-RH520	6	2.20	1.10	8.50	5.12	17.13	12.01	5.12	20.47	26

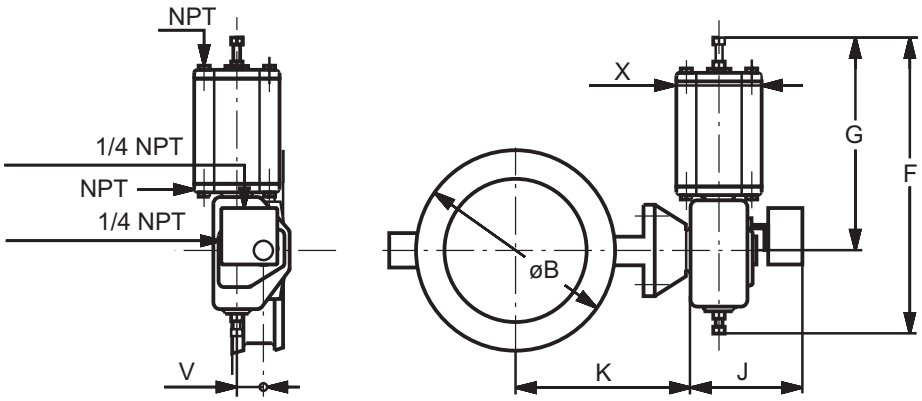
L12 - M



Type	Dimensions, mm					kg
	F	G	J	V	Z	
M07	241	185	65	52	160	4
M10	241	185	65	52	200	4
M12	304	235	88	71	315	10
M14	405	305	93	86	400	18
M15	456	346	102	105	500	26
M16	530	387	124	130	500	37
M25	597	412	160	182	600	61

Type	Dimensions, in					lb
	F	G	J	V	Z	
M07	9.49	7.28	2.56	2.05	6.30	9
M10	9.49	7.28	2.56	2.05	7.87	9
M12	11.97	9.25	3.46	2.80	12.40	22
M14	15.94	12.01	3.66	3.39	15.75	40
M15	17.95	13.62	4.02	4.13	19.69	57
M16	20.87	15.24	4.88	5.12	19.69	81
M25	23.50	16.22	6.30	7.17	23.62	134

L12 - B1C/B1J STANDARD MOUNTING POSITION



Type	Dimensions, mm					NPT	kg
	X	G	F	V	J		
B1C6	90	260	400	36	283	1/4	4.2
B1C9	110	315	455	43	279	1/4	9.6
B1C11	135	375	540	51	290	3/8	16
B1C13	175	445	635	65	316	3/8	31
B1C17	215	545	770	78	351	1/2	54
B1C20	215	575	840	97	385	1/2	73
B1C25	265	710	1040	121	448	1/2	131
B1C32	395	910	1330	153	525	3/4	256
B1C40	505	1150	1660	194	595	3/4	446
B1C50	610	1350	1970	242	690	1	830

Type	Dimensions, in					NPT	lb
	X	G	F	V	J		
B1C6	3.54	10.24	15.75	1.42	11.14	1/4	9
B1C9	4.33	12.40	17.91	1.69	10.98	1/4	21
B1C11	5.31	14.76	21.26	2.01	11.42	3/8	35
B1C13	6.89	17.52	25.00	2.56	12.44	3/8	68
B1C17	8.46	21.46	30.31	3.07	13.82	1/2	119
B1C20	8.46	22.64	33.07	3.82	15.16	1/2	161
B1C25	10.43	27.95	40.94	4.76	17.64	1/2	289
B1C32	15.55	35.83	52.36	6.02	20.67	3/4	564
B1C40	19.88	45.28	65.35	7.64	23.43	3/4	983
B1C50	24.02	53.15	77.56	9.53	27.17	1	1829

Type	Dimensions, mm					NPT	kg
	X	G	F	V	J		
B1J, B1JA8	135	420	560	43	279	3/8	17
B1J, B1JA10	175	490	650	51	290	3/8	30
B1J, B1JA12	215	620	800	65	316	1/2	57
B1J, B1JA16	265	760	990	78	351	1/2	100
B1J, B1JA20	395	935	1200	97	358	3/4	175
B1J, B1JA25	505	1200	1530	121	448	3/4	350
B1J, B1JA32	540	1410	1830	153	525	1	671

Type	Dimensions, in					NPT	lb
	X	G	F	V	J		
B1J, B1JA8	5.31	16.54	22.05	1.69	10.98	3/8	37
B1J, B1JA10	6.89	19.29	25.59	2.01	11.42	3/8	66
B1J, B1JA12	8.46	24.41	31.50	2.56	12.44	1/2	126
B1J, B1JA16	10.43	29.92	38.98	3.07	13.82	1/2	220
B1J, B1JA20	15.55	36.81	47.24	3.82	14.09	3/4	386
B1J, B1JA25	19.88	47.24	60.24	4.76	17.64	3/4	771
B1J, B1JA32	21.26	55.51	72.05	6.02	20.67	1	1479

See K and øB dimensions on page 18.

12 TYPE CODE

Neles™ Neldisc™ high performance butterfly valves, series L12								
1.	**2.**	**3.**	**4.**	**5.**	**6.**		**7.**	**8.**
L12	A	150	A	A	-	/		K

1.	**PRODUCT SERIES**
L12	Wafer type, full bore, metal-seated Face-to-face lenght acc. to API 609

2.	**PRESSURE RATINGS**
A	Body rating DN 80–125: PN 50 / ASME 300 DN 150–600: PN 25 / ASME 150 Maximum shut-off pressure DN 80–125 Ps = 25 bar (ASME 150), welded clamp ring DN 150 Ps = 25 bar, welded clamp ring DN 200 Ps = 20 bar, welded clamp ring DN 250–600 Ps = 10 bar, welded clamp ring
B	Body rating PN 25 / ASME 150 Maximum shut-off pressure DN 700–1000 Ps = 10 bar, bolted clamp ring DN 1200,1400 Ps = 6 bar, bolted clamp ring

3.	**DIAMETER NOMINAL**
	080, 100, 125, 150, 200, 250, 300, 350, 400, 500, 600, 700, 800, 900, 1000, 1200, 1400

4.	**BODY, DISC AND SHAFT MATERIAL**
A	Body and disc: stainless steel ASTM A351 gr. CF8M shaft: SIS 2324, DN 80–1400
H	Body and disc: stainless steel ASTM A351 gr. CF8M shaft: 17-4PH + hard facing, only DN 700–1400

5.	**SEAT MATERIAL**
A	Stainless steel ASTM B 424 (Incoloy 825) hard chrome plated only for DN 80–600
B	W.No 1.4418 + hard chrome plated available only for DN 700–1400

6.	**GLAND PACKING**
-	PTFE, standard, without sign (Available only for sizes DN 80–600) (for sizes DN 700–1400 the sign is always "T")
T	Live loaded PTFE packing with disc springs sets, TA-Luft tested and certified by TÜV. Sizes DN 80–1400
G	Live loaded graphite packing with disc springs sets, TA-Luft tested and certified by TÜV. Sizes DN 80–1400

7.	**FLANGE FACING**
-	EN1092-1Type B1, (Ra 3,2–12.5) Covering: ASME B16.5, (Ra 3.2–6.3) old DIN 2526 Form E (Ra 4)

8.	**FLANGE DRILLING (DN 500 - 1400)**
C	ASME B 16.5 Class 150 sizes DN 500–600 ASME B 16.47 Series A Class 150 size 26" and bigger.
J	PN 10
K	PN 16
L	PN 25
R	JIS 10K
S	JIS 16K

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