

Neles™ ball valve

Series W1

Installation, maintenance and
operating instructions

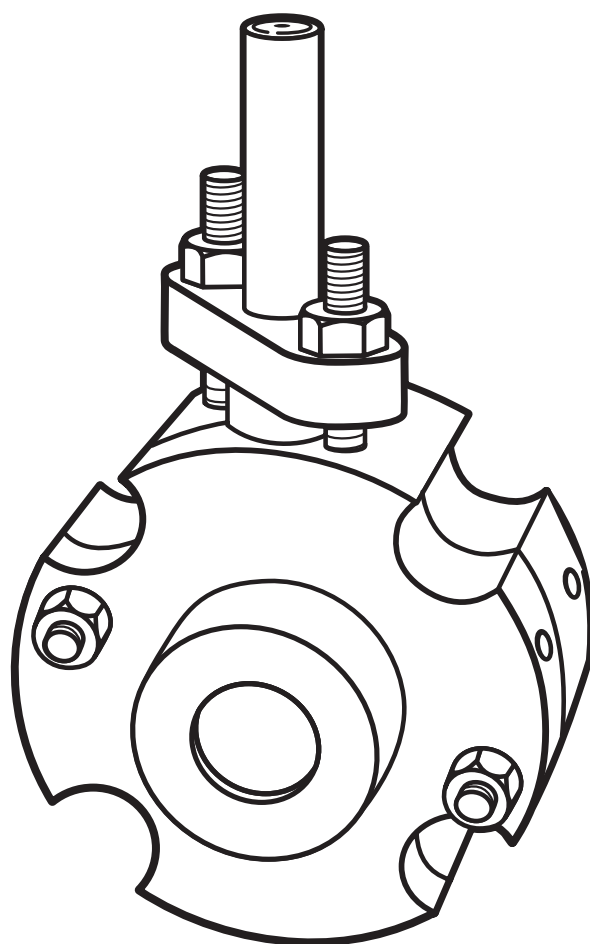


Table of contents

GENERAL	3	MOUNTING OF ACTUATOR ON BALL VALVE	7
Scope of the manual	3	VALVE TESTING	7
Valve description	3	PACKAGING	7
Valve markings	3	TOOLS	7
Technical specifications	3	ORDERING SPARE PARTS	7
CE and Atex markings	3	ASSEMBLY DRAWING AND PARTS LIST	8
Recycling and disposal	3	DIMENSIONS	9
Safety precautions	4	TYPE CODING	10
Welding notes	4	GENERAL SAFETY WARNINGS AND DISCLAIMERS	11
TRANSPORTATION, RECEPTION AND STORAGE	4	General safety warnings	11
INSTALLATION AND USE	5	General disclaimers	11
General	5		
Installing in the pipeline	5		
Actuator	5		
Commissioning	5		
MAINTENANCE OF VALVE	5		
General	5		
Replacing of shaft packing	6		
Disassembling of valve	6		
Maintenance of disassembled valve	6		
Assembly of valve	6		

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This product meets the requirements set by the Customs Union of the Republic of Belarus, the Republic of Kazakhstan and the Russian Federation.

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 the essential information on the use of soft seated W1 Series ball valves. For further information on actuators and other instruments, which are covered only briefly, please refer to separate manuals on their installation, use 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 installing, using or servicing the valve.

If you are uncertain about use of the valve or its suitability for your intended purpose, please contact Valmet for more information.

For valves in oxygen service, please see also the separate installation, maintenance and operating instructions for oxygen service (see Neles document id:10O270EN.pdf).

1.2 Valve description

The Neles W1 Series valve has been designed to meet the requirements of UOP 671 and, with a Neles B1C double acting actuator complete with accessories, provides the ideal for the control of organic chlorides.

W1 Series valves are full bore wafer style ball valves. Valves have two-piece bodies with bolted body joint, one-piece ball and stem with the ball supported by the seats.

All Inconel construction is used for its compatibility with the highly corrosive organic chloride. Teflon seats are provided to provide the bubble shut off required by the UOP specification.

Construction details are indicated in the type code in the identification plate. For more information about the type code, see Section 12.

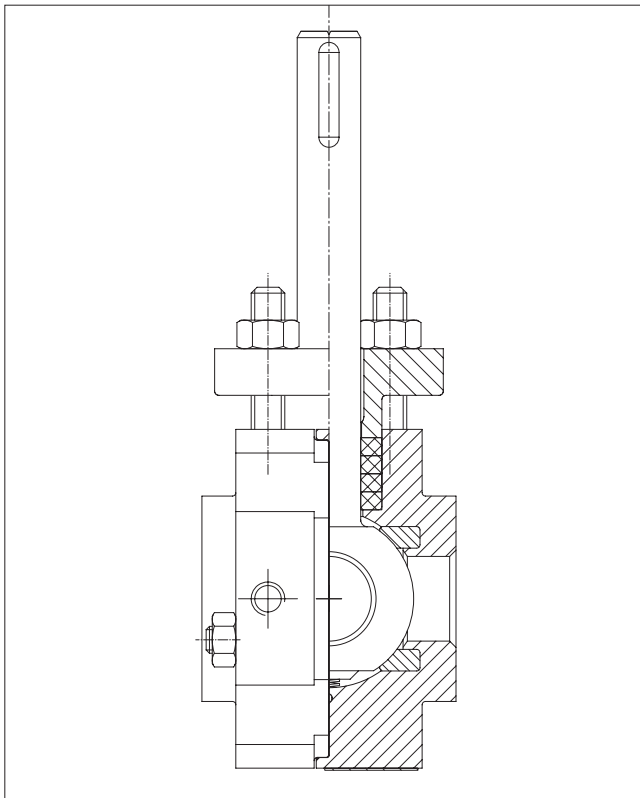


Fig. 1 Construction of W1 Series valves

1.3 Valve markings

The identification plate (Fig. 2) is attached to the flange. Identification plate markings are:

1. Body material
2. Shaft material
3. Trim material
4. Seat material
5. Max and min operating temperature
6. Max shut-off pressure at room temperature
7. Pressure class
8. Type designation
9. Valve manufacturing parts list no.
10. Model
11. Certification and approvals, eg. CE, Atex etc.

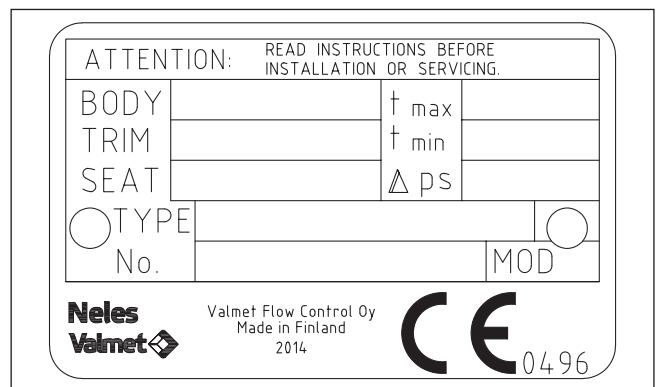


Fig. 2 Example of identification plate

1.4 Technical specifications

Body rating: ASME Class 300

Dimensions: see Section 11

1.5 CE and Atex markings

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

When applicable, the valve meets the requirements of the European Directive 2014/34/EU relating to equipment and protective systems intended for use in potentially explosive atmospheres, and has been marked according to the Directive.

1.6 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.

1.7 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:

Be aware of ball 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 ball functions as a cutting device. 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 emission!

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

CAUTION:

Beware of extreme temperatures!

The valve body may be very hot or very cold during use. Protect people 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. Please consult separate document: Instructions for lifting Neles products. (See Neles document id: 10LIFT70en.pdf). Damage or personal injury may result from falling parts.

The weights are shown in Section 11.

CAUTION:

Follow the proper procedures when handling and servicing oxygen valves.

CAUTION:

Potential electrostatic hazard, ensure the protection (grounding, etc.) in the process.

CAUTION:

Beware of extreme temperatures!

The actual surface temperature of valve is depended on the process temperature. The protection from high or low temperature must be considered by the end user before valve is put into service.

CAUTION:

Ensure the general process and worker protection from static electricity in the facilities.

Note! Within series there is possibility to Category 2, Category 3 and non-ATEX valve.

1.8 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 chocks 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 device for any damage that may have occurred during transport.

Store the valve carefully. We recommend storing indoors in a dry place.

Do not remove the flow port protectors until installing the valve.

Move the valve to its intended location just before installation.

The valve is usually delivered in the open position.

3. INSTALLATION AND USE

3.1 General

Remove the flow bore protectors and check that the valve is clean inside. Clean the valve if necessary.

Please consult separate document: Instructions for lifting Neles products. (See Neles document id: 10LIFT70en.pdf)

3.2 Installing in the pipeline

CAUTION:

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

Flush the pipeline carefully before installing the valve. Make sure the valve is entirely open when flushing. Foreign particles, such as sand or pieces of welding electrode, will damage the ball and seats.

NOTE:

Use screws, nuts, bolts and gaskets equivalent to the fastenings used elsewhere in the pipeline. Center the flange gaskets carefully when fitting the valve between flanges.

NOTE:

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

The valve may be installed in any position. However we do not recommend installing the valve with the actuator on the underneath side because dirt in the pipeline may then enter the body cavity and damage the gland packing. The position to be avoided is shown in Figure 3.

It may be necessary to firmly support the pipeline in order to protect the valve from excess stress. Sufficient support will also reduce pipeline vibration and thus ensures proper functioning of the positioner.

To facilitate servicing, it is preferable that the valve be supported by the body, using pipe clamps and supports. Do not fasten supports to the flange bolting or to the actuator, see Figure 4.

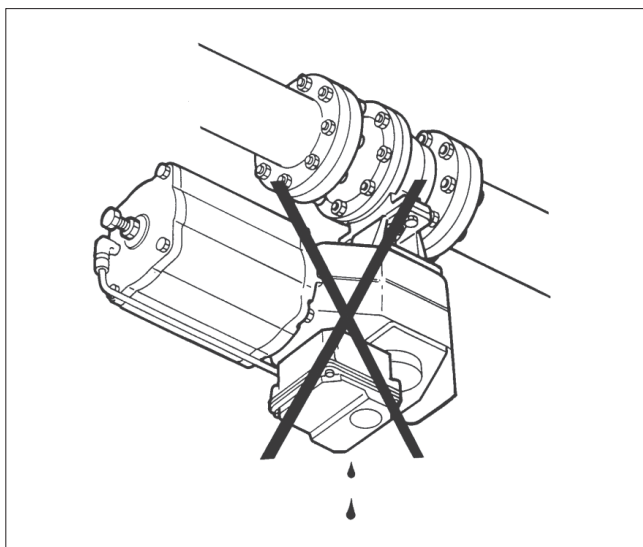


Fig. 3

3.3 Actuator

NOTE:

When installing the actuator on the valve, make sure that the valve package functions properly. Detailed information on actuator installation is given in the separate actuator instructions.

The valve open/closed position is indicated as follows:

- by an indicator on the actuator or
- by a groove at the end of the ball shaft (parallel to the ball flow opening).

If there is any uncertainty about the indicator, check the ball position by the groove.

The actuator should be installed in a manner that allows plenty of room for its removal.

The upright position is recommended for the actuator cylinder. The actuator must not touch the pipeline, because pipeline vibration may interfere with its operation.

In certain cases it may be considered advantageous to provide additional support to the actuator. These cases will normally be associated with large actuators, extended shafts, or where severe vibration is present. Please contact Valmet expert for advice.

3.4 Commissioning

Ensure that there is no dirt or foreign objects left inside the valve or pipeline. Flush the pipeline carefully. Make sure that the valve is entirely open when flushing.

Ensure that all nuts, pipings, and cables are properly fastened.

Check that the actuator, positioner, and switch are correctly adjusted.

4. MAINTENANCE OF VALVE

4.1 General

CAUTION:

Observe the safety precautions mentioned in Section 1.7 before servicing!

CAUTION:

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

NOTE:

Always use original spare parts to make sure that the valve functions as intended.

The ball valve needs no regular maintenance. Tighten the shaft packing if leakage occurs.

NOTE:

If you choose to send the valve to the manufacturer for servicing, do not dismantle it. Instead, clean the valve carefully of all medium and inform the manufacturer of any dangerous medium involved.

4.2 Replacing of shaft packing

Do not attempt to add or change packing while valve is pressurized. Change or add packing if it has hardened or it will not seal by reasonable tightening. If you disassemble the valve, check the condition of the shaft packing.

The actuator does not need to be removed. After loosening the gland nuts and lifting up the bushing, the packing can be removed by means of a hooked wire or a special tool for this purpose. There are four packing rings. Avoid placing PTFE with cuts at the same position as the body split. Install graphite ribbon per the manufacturer's instructions.

4.3 Disassembling of valve

It may be necessary to disassemble the valve for maintenance, e.g. due to the following:

- If the valve leaks in the closed position and the leakage cannot be stopped by reversing the valve.
- The ball is stuck or moves stiffly.
- The interior of the body needs to be cleaned.

Instructions for disassembly of valve

OPTION 1

1. Remove the valve with actuator from the pipeline and place it on a level surface.
2. In the fully open and closed positions of the valve, some line fluid stays in the space between the body and the ball. Turn the valve shaft to make the fluid run out. It is most important to empty the valve if the medium is poisonous or corrosive. Empty the valve before storing or shipping.
3. Remove the actuator mounting screws. Pull the actuator away from the shaft either with a removing tool or by hand.
4. Remove the brackets that mount the operator. Before opening the valve, obtain a clean wood or cardboard surface on which to place the disassembled parts. Do not put ball on cement or metal surface.
5. Loosen the nuts of the packing gland. Pull the gland away from the stud bolts to clear them.
6. Remove the bolts that fasten the body halves together. Lift the loosened body half carefully. Take care not to let it hit the ball as it is lifted clear.

OPTION 2

1. Remove the actuator from the valve, maintaining all air and electrical connections possible, and supporting the actuator in position so that it can not "swing" or rotate with the ball when the actuator mounting screws are removed.
2. Remove the actuator mounting screws. Remove the pipe flange bolting. Pull the valve away from the actuator either with a removing tool, or by hand.
3. In the fully-opened and closed position of the valve, some line fluid stays in the space between the body and the ball. Turn the valve shaft to make the fluid run out. It is most important to empty the valve if the medium is poisonous or corrosive. Empty the valve before storing or shipping.
4. Before opening the valve, obtain a clean wood or cardboard surface on which to place the disassembled parts. Do not put on a cement or metal surface.

4.4 Maintenance of disassembled valve

1. Clean all dirty parts carefully. If necessary, use suitable solvents.
2. Check whether the sealing surface of the ball or seats are damaged. If only the seats are damaged, the valve can be put in operating order by replacing the seats. Minor scratches or flashes in the ball surface or in the seats can be smoothed with a fine emery cloth.
3. Check the condition of the shaft packing.
4. Handle the valve parts with care to prevent bumping, especially the surface of the ball. If the sealing surfaces of the ball are damaged, the ball and seats may be replaced or may be repaired at Valmet. If sent to the factory, reassemble the valve for shipment. Pack in a manner so that more damage cannot occur in shipment.

4.5 Assembly of valve

1. Lay out parts to be assembled. Check against order form and parts lists for item number, tag number, parts and accessories.
2. Trial fit pieces, visually check for defects, finish, etc. Remove all traces of dirt with solvent and wash with soap and water.
3. Assemble valve.
Note! Lubricant is not allowed to use for valves in pipelines for media which react with organic materials e.g. ozone, oxygen, peroxide, chlorine or high pressure gas/steam service".
4. Use 2 mm PTFE cord 71.2 mm (2.8") long on body joint.
5. Body joint tightening torques, please see Table 1.

Table 1 Body joint tightening torques

Thread	Material A4-70
	Tightening torque (Nm)
1/4UNC	9
5/16UNC	18
3/8UNC	33

NOTE: Check the correct bolt material from valve bill of materials. If material is not shown above table, please consult the manufacturer.

NOTE: Lubricant is not allowed to use for valves in pipelines for media which react with organic materials e.g. ozone, oxygen, peroxide, chlorine or high pressure gas/steam service".

5. MOUNTING OF ACTUATOR ON BALL VALVE

1. Clean the valve shaft and the actuator shaft bore. File away possible sharp edges that might hamper fitting. Lubricate the shaft bore of the actuator with pure nickel Molykote® to make the mounting easier and to prevent possible rusting.
Note: In case of oxygen service, only thin layer of oxygen grease Klüberalfa YV 93-1202 is allowed to use.
2. If an intermediate bushing is required between the actuator bore and the valve shaft, install the bushing in the actuator bore.
3. There are two keyways in the actuator bore. The valve shaft has a keyway parallel to the ball flow port. See assembly drawing. For a cylinder actuator, choose the actuator keyway that establishes that the piston is in its upper position (outer end of the cylinder) when the valve is closed. In a valve with a screw operator, choose the actuator keyway that establishes a closed valve position when the handwheel is turned fully clockwise to its stop.
4. Fasten the actuator brackets loosely to the valve. Do not tighten them. Lubricate the screw threads with pure nickel Molykote before insertion.
Note: In case of oxygen service, only thin layer of oxygen grease Klüberalfa YV 93-1202 is allowed to use.
5. Check by eye that the actuator is in a straight position to the valve. Tighten all fastening screws and nuts carefully. See recommended torques from Table 2.
6. Check that the actuator stop screws of open and closed positions are correctly adjusted.
7. Check that the stop screw in the end of the cylinder actuator is tight. To leakproof the screw, use non-hardening sealer, e.g. "Loctite 76" on the entire threaded portion of the screw.

Table 2 Bracket tightening torques

Thread	Material A2-70
	Tightening torque (Nm)
5/16UNC	18
3/8UNC	33

NOTE: Lubricant is not allowed to use for valves in pipelines for media which react with organic materials e.g. ozone, oxygen, peroxide, chlorine or high pressure gas/steam service".

6. VALVE TESTING

1. With actuator mounted and the ball in the closed position, conduct a seat leakage test in both directions.
ISO 5200 Rate A test with 6 bar air.
Body shell test acc. to ASME Class 300.

7. PACKAGING

1. Valves which have been tested and accepted to this specification are to be left in the full-open position and protected immediately as follows:
Plastic covers with desiccant attached to the interior surface (See para. 4 and para. 7 below) are to be attached to the valve ends with sealing tape in a manner which will insure that no dirt or moisture can enter the valve. The valve ends are to be overwrapped with poly film and the film is to be securely taped to the valve body in a manner which will prevent the entry of dirt or moisture. **Note:** Use extreme care to insure that the poly film barriers are not damaged in storage or handling.
2. Valves and valve-actuator assemblies which are to be packaged for storage are to be handled and packaged in a manner which will insure that the poly film is not damaged, and will not be damaged provided the box/crate remains intact and undamaged.
3. Mark the exterior of each box/crate with the following notation:
"CONTENTS DRY-PACKED. KEEP DRY - DO NOT WET"
4. Desiccant is to be purchased in 5 gram packages and delivered in a dry serviceable condition. The 5 gram packages are to be packed in air-tight containers with humidity indicator cards.
5. At time of use, the 5 gram packages needed for use within a 4-hour period are to be removed from the air-tight container, and the container is to be resealed immediately. At the time of removal, check the humidity card. Do not use desiccant if the humidity card indicates moisture present.
6. Use extreme care in handling loose desiccant packages to insure they do not come in contact with water or high humidity.
7. Tape (1) desiccant package to the interior surface of each flange protection disc in a manner which will not interfere with attaching the protection disc to the full-open valve and will not stop the free flow of air to the desiccant. i.e. tape must not cover more than 1/8" of the package ends.

8. TOOLS

In addition to standard tools, the following special tools are needed.

- For removal of the actuator:
- extractor

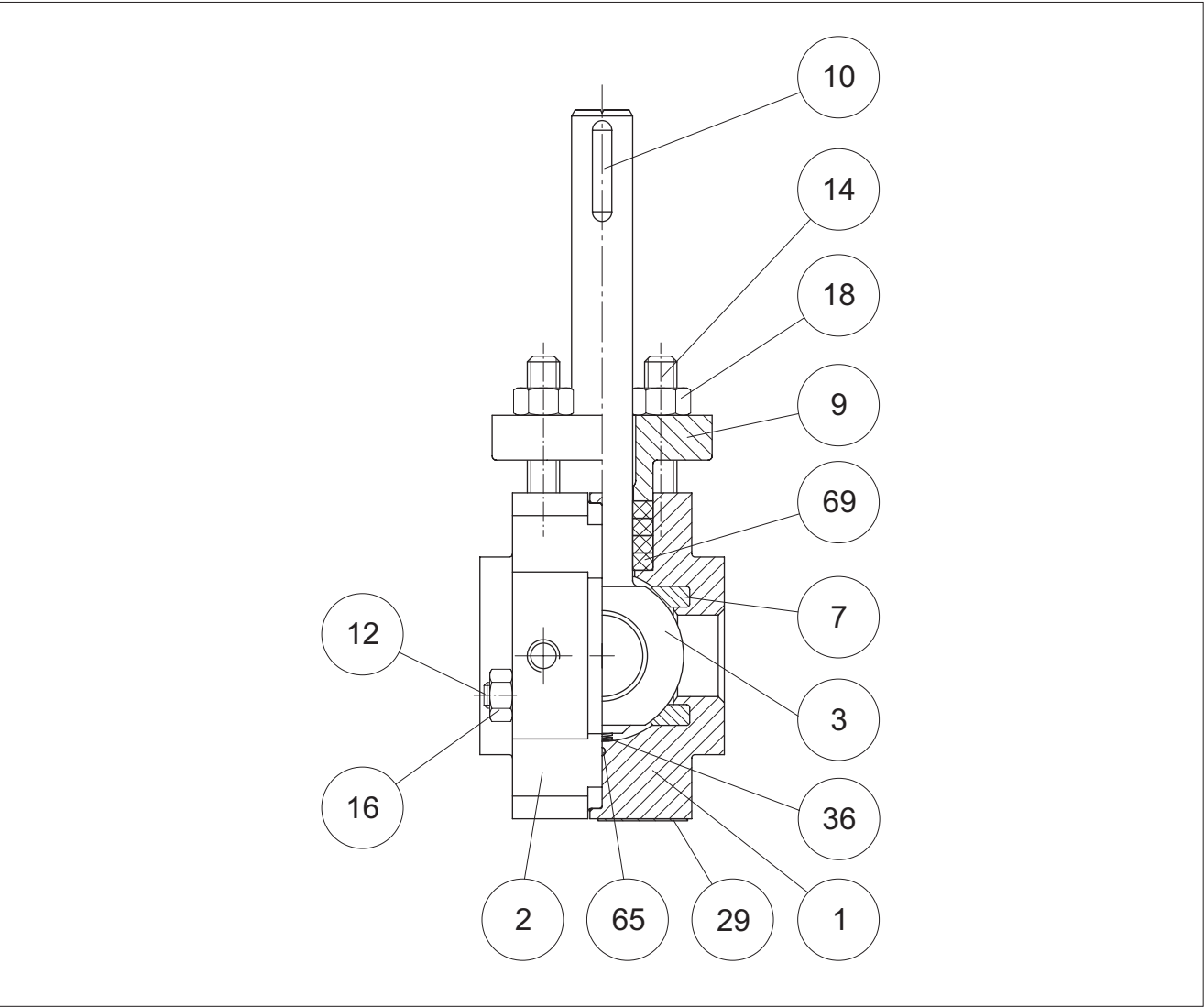
9. ORDERING SPARE PARTS

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

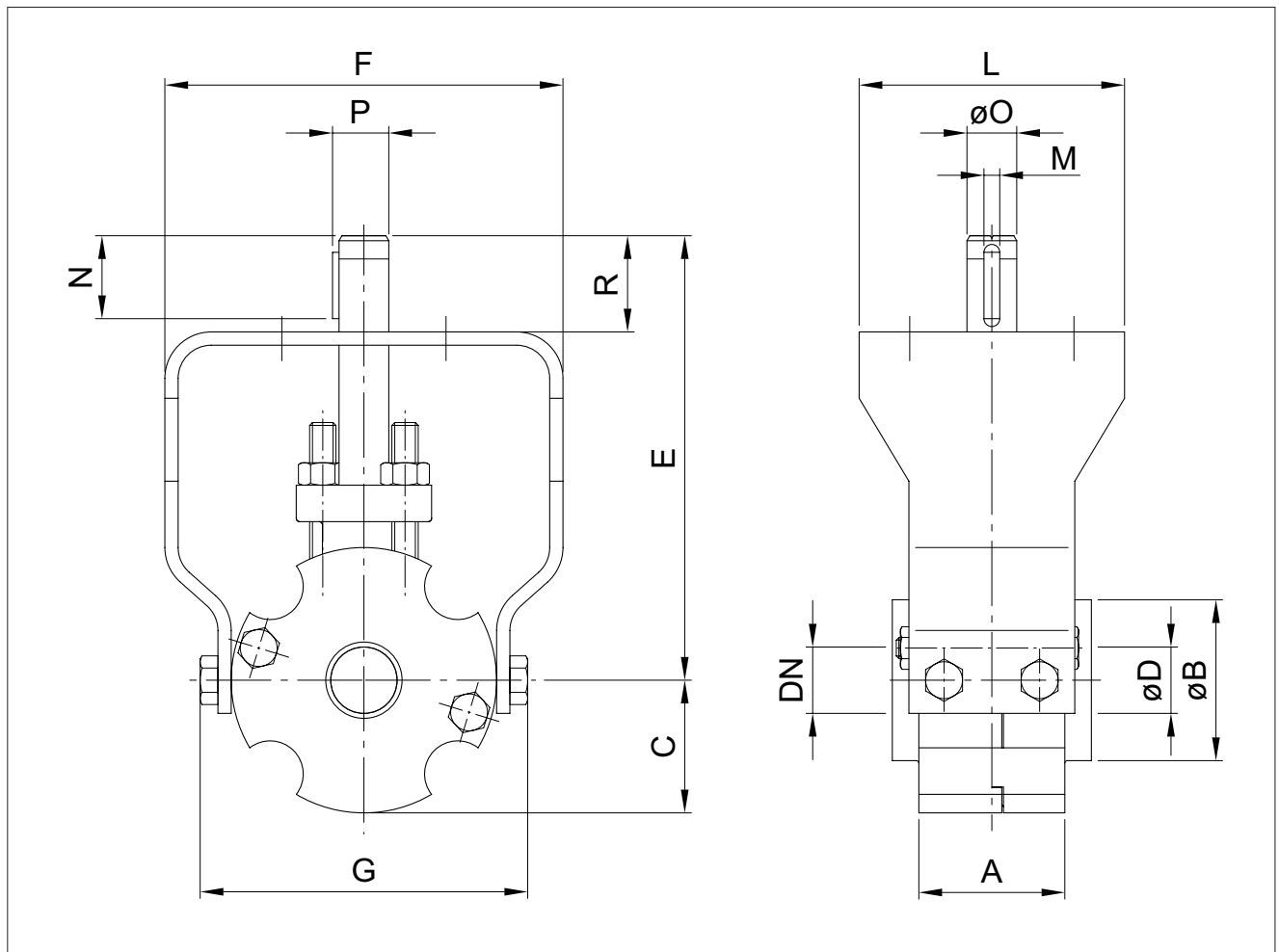
This information can be found from the identification plate or documents.

10. ASSEMBLY DRAWING AND PARTS LIST



Item	Qty	Description	Recommended spare
1	1	Body female	
2	1	Body male	
3	1	Ball	
7	2	Ball seat	
9	1	Casting gland	
1	1	Key	
12	2	Hexagon screw	
14	2	Stud	
16	2	Hexagon nut	
18	2	Hexagon nut heavy	
29	1	Identification plate	
36	1	Anti-static spring	
65	1	Sealing cord	
69	4	Packing ring	

11. DIMENSIONS



TYPE	NPS	DN	MOUNTING ISO 5211	DIMENSIONS IN mm													Weight kg
				A	B	C	D	E	F	G	L	M	N	O	P	R	
W1BU007	0.75	20	F07	60	48.5	40	20	134	120	99	80	4.763	25	15	16.963	29	0.8
W1BU010	1	25	F07	66	56.4	45	25	135	130	109	80	4.763	25	15	16.963	29	1.3
W1BU015	1.5	40	F07	90	82.6	65	40	187	138	151	80	6.35	46	25	27.75	47	2.3

The pressure rating of the valve body is ASME Class 300

FLANGE DRILLING COMPATIBILITY											
TYPE	ASME 150	ASME 300	DIN PN 10	DIN PN 16	DIN PN 25	DIN PN 40	JIS 10 K	JIS 16 K	JIS 20 K	JIS 30 K	JIS 40 K
W1BU007		X	X	X	X	X	X	X	X	X	X
W1BU010	X	X	X	X	X	X	X	X	X	X	X
W1BU015		X	X	X	X	X				X	X

12. TYPE CODING

BALL VALVE, Series W1							
1.	2.	3.	4.	5.	6.	7.	8.
W1	B	U	007	I	I	T	01

1. sign	PRODUCT GROUP
W1	Flangeless, full bore wafer ball valve

2. sign	PRESSURE RATING
B	ASME class 300

3. sign	CONSTRUCTION AND APPLICATION
U	UOP design and construction testing to UOP 671 specification

4. sign	SIZE
007	¾"
010	1"
015	1½"

5. sign	BODY MATERIAL
I	Inconel
A	Stainless steel

6. sign	BALL AND STEM MATERIAL
I	Inconel
A	Stainless steel

7. sign	SEAT TYPE AND MATERIAL
T	Reinforced PTFE seats

8. sign	GASKET AND PACKING MATERIAL
01	PTFE seals
03	Graphite seals

13. GENERAL SAFETY WARNINGS AND DISCLAIMERS

General safety warnings

Lifting

1. Always use a lifting plan created by a qualified person to lift this equipment. Lifting guidance is provided in this IMO (Installation, Maintenance and Operation manual) to assist in lifting plan development. Think about the center of gravity (CG) of the equipment being lifted. Make sure the CG is always under the central lifting point.
2. Valves may be equipped with lifting threads on the body or on the flanges. These are intended to be used with the lifting plan.
3. Use only correct and approved lifting devices. Ensure that lifting devices and straps are securely attached to the equipment prior to lifting.
4. Check, that lifting devices are not damaged and in good condition with a valid check stamp prior to use.
5. Workers must be trained for lifting and handling valves.
6. Never lift an assembly by the instrumentation (solenoid, positioner, limit switch, etc.) or by the instrumentation piping. Straps and lifting devices should be fitted to prevent damage to instrumentation and instrumentation piping. Failure to follow the lifting guidance provided may result in damage and personal injury from falling objects.

Work activities on the valve

1. Wear your personal safety equipment. Personal safety equipment includes but is not limited to protective shoes, protective clothing, safety glasses, helmet, hearing protection and working gloves.
2. Always follow the local safety instructions in addition to the Valmet instructions. If Valmet instructions conflict with local safety instructions, stop work and contact Valmet for more information.
3. Before beginning service on the equipment, make sure that the actuator is disconnected from any kind of power source (pneumatic, hydraulic, and/or electric), and no stored energy is applied on the actuator (compressed spring, compressed air volumes, etc.). Do not attempt to remove a spring return actuator unless the stop screw is carrying the spring force.
4. Make sure that there is a LOTOTO (Lock Out / Tag Out / Try Out) procedure in place for the system in which the valve is installed and strictly follow it.
5. Always make sure that the pipeline is depressurized and in ambient temperature condition before maintenance work is started.
6. Keep hands and other body parts out of the flow port when the valve is being serviced and the actuator is connected to the valve. There is a high risk of serious injury to hands and/or fingers due to malfunction if the valve suddenly starts to operate.
7. Beware of Trim (Disc, Ball or Plug) movement even when the valve is disassembled. Trim may move simply due to the weight of the part or change in position of the valve. Keep hands or other body parts away from locations where they may be injured by movement of the trim. Do not leave objects near or in the valve port which may fall in and need to be retrieved.

General disclaimers

Receiving, handling and unpacking.

1. Respect the safety warnings above!
2. Valves are critical components for pipelines to control high pressure fluids and must therefore be handled with care.
3. Store valves and equipment in a dry and protected area until the equipment is installed.

4. Do not exceed the maximum storage temperatures given in the IMO (installation, maintenance, and operating instructions).
5. Keep the original packaging on the valve as long as possible to avoid environmental contamination by dust, water, dirt, etc.
6. Remove the valve endcaps just before mounting into the pipeline.
7. FOR YOUR SAFETY IT IS IMPORTANT TO FOLLOW THESE PRECAUTIONS BEFORE REMOVAL OF THE VALVE FROM THE PIPELINE OR ANY DISASSEMBLY:
 - Be sure you know what flow medium is in the pipeline. If there is any doubt, confirm with the proper supervisor.
 - Wear any personal protective equipment (PPE) required for working with the flow medium involved in addition to any other PPE normally required.
 - Depressurize the pipeline, bring to ambient temperature, and drain the pipeline flow medium.
 - Cycle the valve to relieve any residual pressure in the body cavity.
 - After removal but before disassembly, cycle the valve again until no evidence of trapped pressure remains.
 - The valves with offset shaft (Butterfly, eccentric rotary plug) have greater trim area on one side of the shaft. This will cause the valve to open when pressurized from the preferred direction without a locking handle or an actuator installed.
 - **WARNING: DO NOT PRESSURIZE THE ECCENTRIC VALVE WITHOUT A HANDLE OR AN ACTUATOR MOUNTED ON IT!**
 - **WARNING: DO NOT REMOVE A HANDLE OR AN ACTUATOR FROM AN ECCENTRIC VALVE WHILE PRESSURIZED!**
 - Before installing the eccentric valve in or remove it from the pipeline, cycle the valve closed. Eccentric valves must be in the closed position to bring the trim within the face to face of the valve. Failure to follow these instructions will cause damage to the valve and may result in personal injury.

Operating

8. The identification plate (ID-plate, type plate, nameplate, or engraved markings) on the valve gives the information of max. process conditions to the valve.
9. (For soft seats) The practical and safe use of this product is determined by both the temperature and pressure ratings of the seat and body. Read the identification plate and check both ratings. This product is available with a variety of seat materials. Some seat materials have pressure ratings that are lower than the body ratings. All body and seat ratings are dependent on the valve type, size and material of the body and seat. Never exceed the marked rating.
10. Temperatures and pressures must never exceed values marked on the valve. Exceeding these values may cause uncontrolled release of pressure and process medium. Damage or personal injury may result.
11. The operating torque of the valve may rise over time due to wear, particles or other damage of the seat. Never exceed the actuator torque preset values (air supply, position). Application of excessive torque may cause damage to the valve.
12. Valmet valves typically are designed to be used in atmospheric conditions. Do not use valves under external pressurized conditions unless specifically designed and explicitly marked for this service.
13. Avoid Pressure shocks or water hammer. Systems with high pressure valves should be equipped with a bypass to reduce the differential pressure before opening the valve to avoid pressure shock.

14. Avoid thermal shock. High temperature, Low temperature and cryogenic valves should be operated in a way that limits the rate of increase or decrease in temperature. The valve should be thermally stabilized before being pressurized.
15. Materials of the valve are carefully selected for the process conditions. Changes to the process media can have a major impact on function and safety of the valve. Always confirm the materials are suitable for the service prior to installation.
16. As the use of the valve is application specific, several factors should be considered when selecting a valve for a given application. Therefore, some situations in which the valves are used are outside the scope of this manual.
17. It is the end user's responsibility to confirm compatibility of the valve materials with the intended service, however if you have questions concerning the use, application, or compatibility of the valve for the intended service, contact Valmet for more information.
18. Never use a valve with enriched or pure oxygen if the valve is not explicitly designed and cleaned for oxygen. Selected materials and design have a major impact on the safety to operate the valve with oxygen.
19. Valves intended for use in or with explosive atmospheres must be equipped with a grounding device and marked according ATEX (or equivalent international standards).
20. Manual handles are available for specific butterfly valve sizes and maximum line pressures. Do not operate a valve with a handle or wrench outside the size and pressure limits stated in the IMO. High line pressure may create a large enough force to pull the handle from the operator's hands. Damage or personal injury may result.

Maintenance

21. Respect the safety warnings above!
22. Plan service and maintenance actions, that spare parts, lifting devices and service personnel is available.
23. Maintain the valve within the recommended minimum maintenance intervals or within the recommended maximum operating cycles.
24. Always make sure that the valve and the pipeline is depressurized before starting any kind of maintenance work at a valve.
25. Always check the position of the valve before starting maintenance work. Follow the Lock out /tag out (LOTO) rules at the site before starting any maintenance activity.
 - See IMO for the correct stem position.
 - Consider that the positioner may give the wrong signals.
26. Sealing materials (soft sealing parts) should be changed when the valve is in maintenance. Always use original equipment manufacturers (OEM) spare parts to ensure proper performance of the repaired valve.
27. All pressure containing parts must be inspected visually for damage or corrosion. Damaged parts must be replaced.
28. Valve pressure retaining parts and all internals must be inspected for corrosion or erosion which may result in reduced wall thickness on pressure retaining parts. Damaged pressure retaining parts must be replaced with original equipment manufacturer's (OEM) replacement parts or repaired to factory specifications by an authorized Valmet service partner in order to maintain the warranty.
29. Do not use sharp tools, grinding machines, or files to work on functional surfaces such as sealing, seating or bearing surfaces as this can damage these surfaces.
30. Check the condition of sealing surfaces on the seats, trim (disc, ball, plug, etc.), body and body cap. Replace parts if there are significant wear, scratches, or damage.
31. Check the wear of bearings and bearing contact surfaces on the shaft and replace damaged parts if necessary.
32. Do not weld on pressure retaining parts without an ASME and PED qualified procedure and personnel.
33. Pressure retaining parts of valves in high temperature applications must be carefully examined for the effects of material creep and fatigue.
34. Make sure that the valve is positioned in the correct flow direction into the pipeline.
35. If the valves are marked to be suitable for explosive atmospheres, the correct function of the discharging device must be tested before returning to service.
36. Always work in a clean environment. Avoid getting particles inside the valve due to machining, grinding, or welding nearby.
37. Never store a valve in maintenance without flow port protection.
38. When pressure testing valve seats, never exceed the maximum operating pressure of the system or the maximum shut-off pressure marked on the valve identification plate.
39. Actuator mounting and unmounting:
 - Before installing the actuator on to the valve, be sure the actuator is properly indicating the valve position. Failure to assemble these to indicate correct valve position may result in damage or personal injury.
 - When installing or removing a linkage kit, best practice is to remove the entire linkage assembly, including couplings which may fall off the valve during lifting or when position changes.
 - Mounting sets have been designed to support the weight of the Valmet actuator and recommended accessories either as is or with additional actuator support. Use of the linkage to support additional equipment or additional weight such as people, ladders, etc. may result in equipment damage or personal injury.
40. The valve should be installed between flanges using appropriate gaskets and fasteners that are compatible with the application, and in compliance with applicable piping codes and standards. Center the gaskets carefully when fitting the valve between the flanges. Do not attempt to correct pipeline misalignment by means of the flange bolting.
41. Repairs on valves for special service like Oxygen, Chlorine, and Peroxide, have special requirements.
 - Parts must be cleaned appropriate to the service and protected from contamination prior to assembly.
 - Assembly areas and tools must be clean and dry to prevent contamination of the parts during assembly.
 - Test equipment must be clean and dry to prevent contamination during testing. This includes the test equipment internals that may allow particles or other contamination into the test medium during the test.
 - Lubrication shall be used only if specifically required in the instructions. Where lubrication is required, the lubricant must be approved for the service by the end user.

Subject to change without prior notice.

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