

USE AND MAINTENANCE MANUAL VALVES WITH 2-PIECE THREADED BALL VALVE BODY Models ALFA K20T

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0 CHARACTERISTIC DATA

0.1 MANUFACTURER

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0.2 PERMITTED USES AND USE LIMITS

The operators involved in the storage, assembly, use and/or maintenance of ALFA VALVOLE products must possess adequate skill and experience with pressure equipment. It is the user's responsibility to guarantee these levels of knowledge.

Function: ON-OFF
Fluids: Liquids and gas



ATTENTION: Valves certifiable according to ART. 4.3 , 2014/68/EU.

Use of the valve is only permitted with NON-HAZARDOUS LIQUIDS or GASES of GROUP 2 (GASES only PERMITTED for valves with DN ≤ 32). The classification of fluids is in accordance with Directive 2014/68/EU "PED".

Minimum guaranteed sealing limit:

Body hydraulic test	(1, 5 x Ambient T. Operating Pressure)	zero loss
Seats hydraulic test	(1, 1 x Ambient T. Operating Pressure)	zero loss
Pneumatic seats test	(air at 6 bar)	zero loss

Model	ALFA K20T		
Class	ASME B16.34 1000 psi PN63		
Rated diameters	DN 06-50		
Maximum Operating Pressure at Ambient Temperature (bar)	63		
Minimum Operating Pressure at Ambient Temperature (bar)	8 (1)		
	The operating pressure values between the ambient temperature and the maximum temperature vary according to the characteristics of the materials used for the seats and for the sealing gaskets. Contact the Alfa Valvole Technical Department for further information.		
Maximum operating temperature **	180°C (1)		
Minimum operating temperature and ambient temperature:	-29°C**	For valve bodies in carbon steel A216 WCB.	Without strength control
	-40°C**	For stainless steel valve bodies.	
Maximum simultaneous operating conditions:	Please contact the ALFA VALVOLE technical department.		

(1) According to the material of the seats.

**** Any further limitations imposed according to the material of the sealing seats, the material of the gaskets, and the rated diameter of the valve will be indicated on the plate attached to the valve body.**

Valve rated dimensions correspondence table

DN	08	10	15	20	25	32	40	50
Ø"	¼"	⅜"	½"	¾"	1"	1 ¼"	1 ½"	2"

0.3 PARTICULAR DESIGN CHARACTERISTICS

END CONNECTIONS	Threaded NPT ANSI/ASME B1.20.1 or EN 10226-1
BODY SHIMS	ASME VIII sect.1 - EN 17292 (ex-BS 5351).
HARDWARE DESIGN	Not applicable
THREADED CONNECTIONS DESIGN	ASME B16.34
FLANGE DESIGN	Not applicable
SIMULTANEOUS LOADS	Pressure, bending, axial loads of pipes
WIND LOADS	Negligible, according to ASME III sect. 1, subsect. N.B.
SEISMIC LOADS	Negligible, according to ASME III sect. 1, subsect. N.B.
FATIGUE DUE TO START-UP CYCLES	Negligible, according to ASME III sect. 1, subsect. N.B. (see the maximum number of operating hours)
FATIGUE DUE TO FLUCTUATION OF THE OPERATING PRESSURE	Negligible, according to ASME III sect. 1, subsect. N.B. (see the maximum number of operating hours)
MAXIMUM NUMBER OF OPERATING HOURS	Function that expresses the actual operating conditions with fluids, but in any case these conditions must not exceed the duration of:
	50,000 : valve opening/closing operations (liquid service); 5,000 : valve opening / closing operations (if gas); 1,500 : pressurisation-depressurisation cycles (carbon steel valves) 13,000 : pressurisation-depressurisation cycles (stainless steel valves);
CORROSION OVER THICKNESS AVAILABLE	N/A

1. TRANSPORTATION, HANDLING AND STORAGE

1.1 TRANSPORT AND HANDLING

The valves must be transported and handled keeping the ball in the OPEN position.
DO NOT remove the end protection caps until the valve is assembled on the line.

Avoid collisions with obstacles that could damage the manoeuvre rod or any auxiliary connections (grease nipples, drains, vents).

1.2 STORAGE

Valves with carbon steel and stainless steel bodies must both be stored with the ball in the OPEN position in a dry environment, free from corrosive fumes, gases or vapours.
For very long storage periods it is advisable to cover the protrusions of the end flanges with a layer of protective wax (Tectyl) or to enclose the valves in polyethylene bags.

2. INSTALLATION INSTRUCTIONS

The ball valve installation procedure is essential to ensure long life and satisfactory performance. Valves stored on site awaiting installation must be kept in their original packaging in a dry environment where they cannot be damaged.
Before completing the installation, it is necessary to follow the basic procedures described below:

2.1 General procedures:

- Unpack the valve carefully and check the data plate to identify the materials.
- Remove all packing materials.
- All the valves are two-way and supplied ready for use. The valves can be installed with the rod oriented in any direction.
- Check the valve for the flow indicator signs. The valve must be installed with the appropriate care in order to choose the suitable flow orientation.
- Inspect the inside of the valve through the ends to make sure it is clean and free from foreign bodies in accordance with the ASME G93-03E1 standard.

- Make sure that all the auxiliary connections, if any, are undamaged and properly tightened.
- Have the valve perform a complete manoeuvre, inspecting any functionally significant part.
- Read all documentation taking note of any warning labels or tags affixed to the valve.
- Before installation, make sure that the ball is in the fully open position to avoid damage to the latter and to the seats. The performance of the valve depends on its original condition. Do not leave the valve in a partially open position at any stage of the procedure.

2.2 Valves with threaded connections

- Valves with threaded ends must be considered a single entity and must not be disassembled during installation on the pipes.
- Before installing the valves, make sure the threads on the coupling pipe are free from sand, dirt or excessive burrs.
- When tightening the valves, use a wrench, acting on the part of the valve closest to the pipeline being worked on, following the standard piping practice.
- Use the appropriate sealing materials in the correct quantities.



ATTENTION: Upon completion of the valve installation, a complete functional test must be performed.

The test must verify the ability of the valve to fully open or close and, if applicable, verify the correct position of the position indicators and/or of other auxiliary devices.

The acceptance criteria are as follows:

- It must be possible to move the ball between the "open" and "closed" positions.
- Any position indicator and/or auxiliary device must indicate the correct position of the ball.
- For more detailed information on the performing of the test, please contact the production office of ALFA VALVOLE for further information.

The ALFA VALVOLE ball valves provide a perfect seal, when used under normal conditions and in compliance with the pressure/temperature graph published by ALFA VALVOLE.

Operation of the valves takes place by rotating the lever 90° anti-clockwise for opening and 90° anti-clockwise for closing. All the standard valves, being two-way, can be installed for flow in both directions.

The one-way valves will have a flow direction arrow integral with the body and separate assembly instructions.

A lubricant is applied to both ends and to the seal to reduce the valve break torque. If the lubricant is incompatible, it can be removed with a solvent.

If a shut-off valve is installed for end-of-line service, make sure it is closed with a blind flange and that the valve is fitted with a safety lock against accidental opening.

WARNING: Never look into the valve passage when it is inserted into a flow line. Liquids and pressure can escape from the valve and cause injury.

To avoid leaks or malfunctions due to internal wear or deterioration of the seal, the user must establish a preventive maintenance and inspection program. This program must include:

- a. Part inspections for loss of wall thickness which could result in the reduced ability to withstand pressure.
- b. Routine replacement and inspection of seals to ensure optimum operation.

3. MAINTENANCE

3.1 It is advisable to check the functionality of the valve every 2 years of operation or 5,000 opening and closing cycles.

In the case of interception of dirty fluids, frequent periodic checks are recommended. Contact the ALFA VALVOLE Technical Department for further information.



ATTENTION: It is the user's responsibility to maintain the safety features of the product and of its components in the case of self-maintenance/repair.

4. TESTING

4.1 Before carrying out any tests, to verify that the movement of the ball does not present problems, perform at least one complete opening or closing stroke.

4.2 The valve must be tested using the following procedure:

- a) Place the ball in the semi-open position.
- b) Pressurise the body with water at 1.5 times the maximum operating pressure at ambient temperature. (see table in para. 0.2).
- c) Check that there are no leaks from the valve body joints.
- d) Discharge the pressure.
- e) Close the valve.
- f) Pressurise the first seat with water at 1.1 times the maximum operating pressure at ambient temperature. (see table in para. 0.2).
- g) Check that there are no leaks from the end opposite to the pressurised one.
- h) Discharge the pressure.
- i) Pressurise the second seat (if present), with water at a pressure of 1.1 times the maximum operating pressure at ambient temperature (see table in para. 0.2).
- j) Check that there are no leaks from the end opposite to the pressurised one.
- k) Release the pressure and completely drain the water contained in the valve.
- l) Repeat the tests described in sections f) and i) using air at 6 bar and checking that there are no leaks from the end opposite to the pressurised one.



WARNING: During testing the valve must be securely locked into the testing equipment to avoid possible damage to operators caused by pressure.

ALFA VALVOLE declines all responsibility for damage to property or persons following tests carried out not in accordance with the procedure indicated above.

ATTENTION: Considering that the information contained therein is sufficient to carry out correct maintenance of the valve, ALFA VALVOLE does not provide any guarantee on the outcome of the intervention and does not extend the warranty unless the latter has been performed by ALFA VALVOLE personnel at the company's workshops.

5. CRITERIA FOR ORDERING SPARE PARTS

5.1 No spare parts are available for the valve referred to in this manual

6. USE WARNINGS

6.1 The valves described are designed for use on clean (without solid parts content) or slightly abrasive fluids.

ATTENTION: use of the valve with abrasive liquids can cause rapid deterioration of its sealing characteristics during operation. The presence of solids or the use of hardening liquids can cause a rapid decrease in the seal and functionality of the valves.

6.2 The user must provide suitable methods for eliminating the risks caused by the surface temperature of the valve bodies in operation.

ATTENTION: The user must evaluate the surface temperature of the bodies if the surrounding environment could present a potentially explosive atmosphere.

6.3 The valves must be used observing the minimum and maximum pressure and temperature values indicated above or stated on the plate.
For further details on the maximum permitted pressure/temperature combinations, please contact the ALFA VALVOLE technical department.

ATTENTION: The user must take measures to avoid exceeding the limits of use.

6.4 Before carrying out any intervention on the valve, make sure there is no residual pressure inside the body cavities by performing a complete opening and closing operation.

- 6.5 ATTENTION:** First make sure there is no pressure inside the valve and body cavities before removing any service connections such as drain plugs, vent points and seat or rod grease nipples.



Removal, even accidental, of the drain plugs, vent valves or of any grease nipples that may be present can cause violent discharges of pressure to the outside or expulsion of the element itself.

In any case, ensure the use of sufficient means of personal protection before carrying out this operation.

- 6.6 Before carrying out any work, make sure that no dangerous residues are contained in the valve body. The valves must be completely drained and the cavities around the ball purified before any intervention.**



WARNING: Any residues will be expelled from the ends of the valve.

- 6.7 ATTENTION:** In the case of use in potentially explosive environments, the user must provide suitable means to avoid collisions of metal parts against the valve body during assembly, operation and maintenance.
- 6.8** Rapid closure of the valve in high-speed flow conditions can cause over-stressing of the sealing seats due to "water hammer" would could result in deterioration of the sealing characteristics.

ATTENTION: The user must provide suitable means against the effects of "water hammer".

- 6.9** The maximum number of operating hours can be influenced by the actual operating conditions.

ATTENTION: The user determines the minimum interval for periodic inspection, based on the actual real operating conditions, in particular according to the degree of corrosion/year expected in the design of the line.

In any case, the periodicity of the check should not exceed 2 years of operation or 5,000 operations.

- 6.10 ATTENTION:** The user must periodically clean the areas subject to accumulation of dust in order to avoid deposits greater than 5 mm on the sliding surfaces of the rod/valve body and actuator pin/actuator body.