Made in USA

SWING CHECK
VALVE INSTALLATION, OPERATION & MAINTENANCE MANUAL

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⚠WARNING **BEFORE REMOVING ANY CHECK VALVE FROM A LINE OR BEFORE REMOVING A BONNET FROM A CHECK VALVE, THE LINE PRESSURE MUST BE BLED DOWN TO ATMOSPHERIC PRESSURE, BOTH UPSTREAM AND DOWNSTREAM OF THE VALVE.**

BALON CHECK VALVE STORAGE

In order to protect check valves during shipment, Balon ships valves in cardboard cartons or wooden boxes.

BALON CHECK VALVE INSTALLATION AND OPERATION

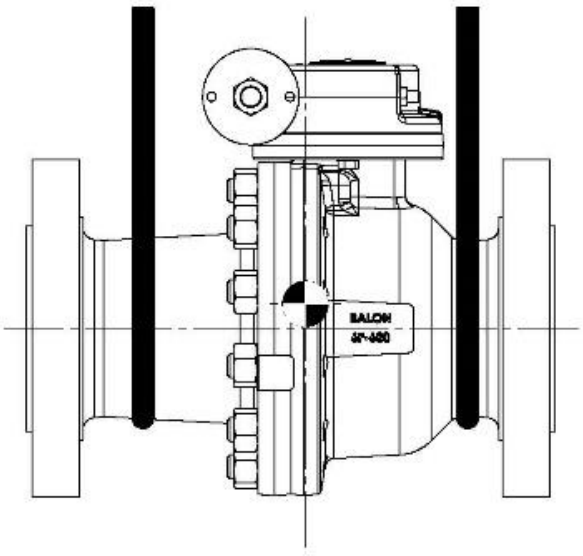
A check valve is designed to allow fluids to flow through the valve when the fluid is moving in the downstream direction. A check valve is designed to prevent the flow of fluids through the valve when the flow is moving in the upstream direction.

Balon check valves are uni-directional. An arrow on the Balon check valve indicates the required flow direction. A Balon check valve is not bi-directional.

A Balon check valve installed on a horizontal line should be oriented such that the top of the valve is upright and the inlet and outlet are at the same level.

A Balon check valve may be installed on a vertical line only if the normal flow is in the upward direction. The valve must be installed with the hinge pin parallel to the horizontal plane. The valve must also be installed with the part of the disc nearest to the hinge pin at a level equal to or higher than the part of the disc farthest from the hinge pin. A Balon check valve should never be installed on a vertical line with the normal flow in the downward direction.

Heavy valves should be lifted into position using suitable straps.



Industry accepted make-up practice should be followed when installing flanged end valves.

Balon recommends the use of a high-quality thread compound when installing threaded end valves. A back- up wrench should be placed on the valve component (body or end adapter) nearest to the pipe connection that is being adjusted.

Trash, such as welding slag, dirt, sand, and other foreign matter, should always be flushed from the line before operating any valve.

Piping systems are often pressure tested prior to their being placed in service. In order to avoid damage to check valve seats, pressure should be introduced from the upstream direction. Valve shell testing may be done at a pressure up to 1.5 times the rated working pressure of the valves. Check valve shell testing should never be done with pressure introduced from the downstream side.

With pressure introduced from the downstream side, check valve seat testing may be done at pressures up to 1.1 times the rated working pressure of the valves.

The pressure test medium should be eliminated from the system after testing has been completed. Water that is allowed to remain trapped inside valves can freeze. Water that freezes inside valves can damage the valves and associated pipe.

A valve should always be operated within the pressure and temperature limits designated by the manufacturer. Pressure and temperature limits are based on the combination of shell components and seat material. See Table 1 and Table 2 for limits.

Table 1: WCB / A105 Pressure (psi) and Temperature (°F) Limits			
Pressure Class	150	300	600
-20° - 100°F	285	740	1480
Buna 250°F	245	668	1335
Fluorocarbon 300°F	230	655	1310

MAINTENANCE FOR BALON CHECK VALVES

Before removing any check valve from the line, the line pressure must be bled down to atmospheric pressure, both upstream and downstream of the valve that is being removed.

Some Balon check valves are equipped with bonnets. Before removing the bonnet of a Balon check valve, the line pressure must be bled down to atmospheric pressure, both upstream and downstream of the valve.

Under normal conditions, Balon check valves require no periodic maintenance.

Valve replacement discs and/or cartridges are available to renew worn or damaged sealing surfaces. Repair instructions are provided with the kits. For additional information on available repair kits or parts, contact the factory.

For cut sheets and other information, please see:
https://www.balon.com/downloads/CompleteCatalog.pdf or contact Balon at sales@balon.com or at 405-677-3321.

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Annex 1 PED Information

This is supplemental information to be used in addition to preceding information within the IOM.

Valves are considered to be Cat III to module H. Valves and nameplate are marked CE 0062.

Maximum Design Conditions are indicated on valve nameplate(s). These design conditions shall not be exceeded.

Valves are intended to be used for controlling service common to oil and gas operations. This includes, but not limited to, mixed hydrocarbons and produced water. PED group 1, fluids and/or gases. Do not use valves for any other purpose without first consulting the manufacturer.

Users of the valves are responsible for properly and safely installing valves in appropriate service applications.

Valves do not include safety relief devices. The user is responsible for providing a properly sized relieving device within piping systems to ensure piping system pressure remains below the valve's maximum allowable pressure.

Do not subject the valves to thermal or mechanical shock.

Manufacturer has not considered cyclic loading, external pressure, vibration, or decomposition of unstable fluids in the valve design. Manufacturer did not design the valves for use under external fire conditions.

To prevent operational failures, user must maintain the safe operation of the entire piping system within which the valve is installed.

Annex 1 cont. PED Information
Risk Assessment Numbers

The following information is a risk associated with the installation, maintenance, and decommissioning of valves that the Risk Assessment Number is higher than 11. Table 1

Risk	Risk Assessment Number (RAN)	Preventive Measure (PMN)
Some valves are equipped with lifting lugs. Improper lifting can cause damage to lifting lugs and hence be a potential cause for personal injury	11	3, 4, 5
Attention should be given to the environment in which any fitting, maintenance, and disassembly work is being done. Serious bodily injury, including death, may result if user fails to eliminate all sources of ignition/explosion.	15	1, 2, 3, 5, 6, 8, 9
Any fitting, maintenance, or disassembly should be performed with care.	11	1, 2, 3, 5, 6, 9, 10
Welding valves into piping systems generates heat. This can cause the valve to be hot enough to burn human skin, ignite flammable gases, or create other hazards.	15	1, 2, 3, 5, 6, 8, 9, 11
User must assess and ensure a suitable environment before installing, maintaining, or disassembling a valve.	15	1, 2, 5, 6, 7, 8, 9
User must exercise care when valves are fitted into piping systems with one end open to atmosphere and must not operate the valve from the closed to an open position if the system is under pressure.; otherwise, external leakage and / or serious injury, including death, could occur.	15	1, 2, 5, 9, 12, 13
Metallic piping systems can conduct electric current. Lightning strike, static charge, and any other sources of electric current should be considered as each is a potential source for ignition or explosion that could result in serious injury, including death.	15	1, 5, 8, 16
Ball valves must be used in the fully open or fully closed position. Never throttle through a ball valve because doing so could damage the valve or result in serious injury, including death.	11	1, 5, 6, 9, 17
User must exercise care to prevent unsafe exposure to service media. User must dispose properly of all debris or media removed from a valve and must dispose properly of the valve when it is decommissioned.	13	1, 5, 8, 9, 13, 14, 15

Annex 1 cont. PED Information
Preventive Measure

The following information outlines the preventive measures users must take to mitigate the risk. Table 2

PMN	Preventive Measure
1.	Use proper protective clothing and equipment
2.	Use proper tools
3.	Use caution and follow general safety guidelines.
4.	Use a sling or chain when lifting. Follow lifting manufacturer's guidelines when lifting. Obey all safety regulations/guidelines for lifting.
5.	Specific regulations for the equipment and standard safety regulations must be observed.
6.	See Installation, Operation, and Maintenance Manual (IOM)
7.	Balon valves are not suitable for oxygen service; a risk of combustion or explosion exists.
8.	Static charge can build-up causing an arc that could increase risk of combustion or explosion.
9.	The operator of the equipment is responsible for adhering to any and all applicable regulations.
10.	Use a high-quality thread compound when installing threaded end valves. A back-up wrench should be placed on the valve component (body or Adapter) nearest to the pipe connection that is being adjusted. Failure to do so may allow a valve joint to loosen or separate, which could cause serious injury, including death.
11.	User must follow use appropriate eye protection and follow proper welding procedures.
12.	Depressurize the piping system
13.	Provide a way to contain/capture system media.
14.	Maximum Allowable Working Pressure is displayed on the valve.
15.	Use caution before performing any work, fitting, maintenance, or disassembly
16.	Properly grounded piping system, use of insulation kits, & use of lightning protection are examples of ways to help protect against sources of ignition/explosion. Operator must adhere to all applicable regulations.
17.	Lock valve in the fully open or fully closed position.