

INSTALLATION AND OPERATING MANUAL FOR FLANGED BALL CHECK VALVES

Ductile iron ball check valve for water distribution and watering.

Ductile iron EN GJS-400-15 body with anti-corrosion epoxy painting and stainless steel bolting.

According to water pumping stations NF EN 12050-4

Bolted bonnet for easy maintenance.

Certificate

3.1



Size : DN40 to DN500

Connection : Flanged PN10/16 RF

Min Temperature : -10°C

Max Temperature : +70°C

Max Pressure : 10 Bars

Specifications : Metallic NBR coated ball

Horizontal or vertical with ascending fluid position

Bolted bonnet

Ball type

Materials : Ductile iron EN GJS-400-15 body

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SPECIFICATIONS :

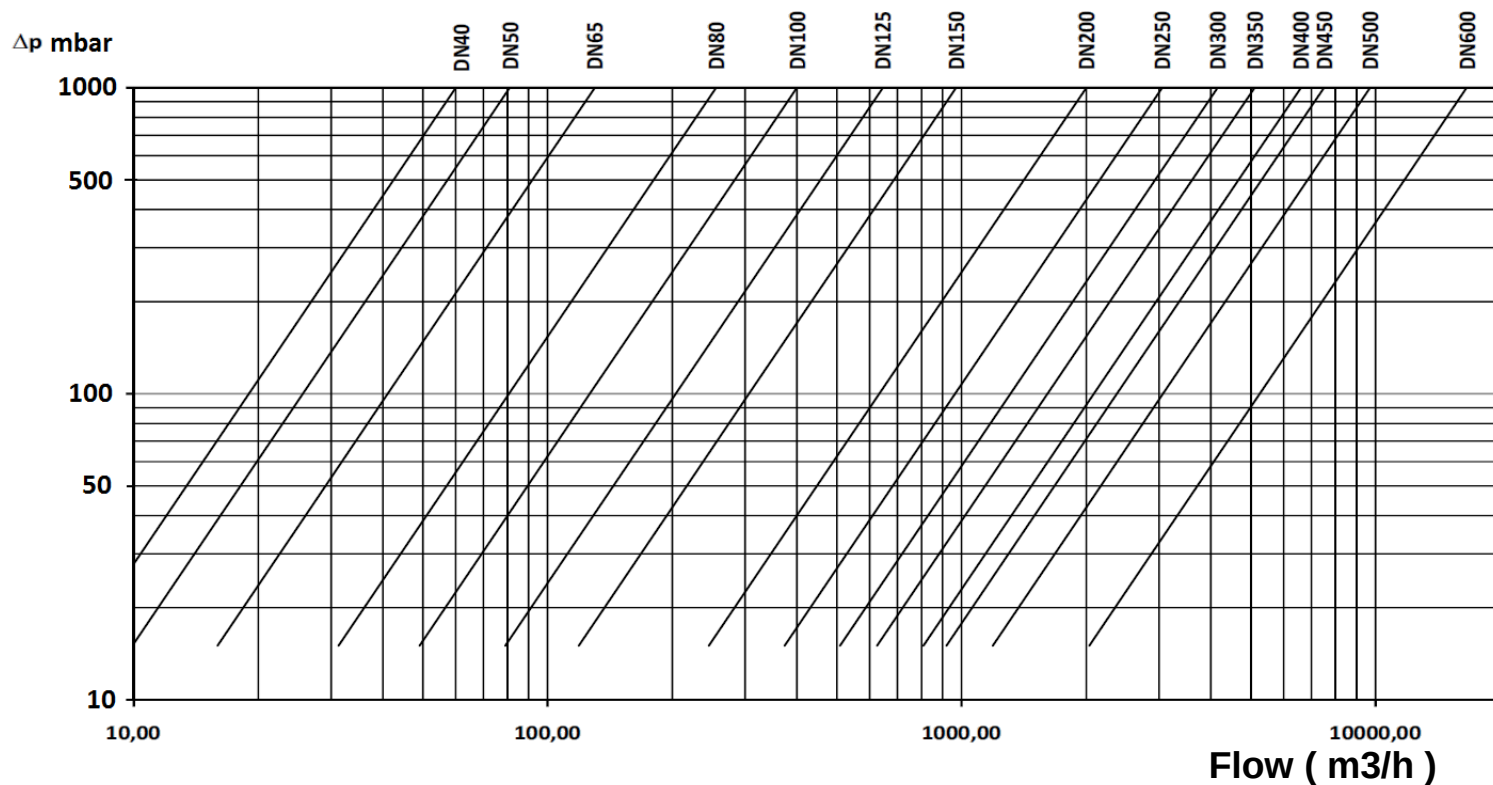
- Ball type
- Vertical with ascendant fluid or horizontal (respect the flow direction indicated by the arrow)
- PN10/16 RF Flanged up to DN150, PN10 over
- Removable bonnet for easy maintenance
- Anti-corrosion epoxy painting RAL 5017 blue color 150 microns thickness
- Anti-corrosion stainless steel bolting
- Aluminium or ductile iron NBR coated ball non floating
- Full bore
- Minimum backpressure for tightness between 0.3 and 0.5 bars

USE :

- Water distribution and watering
- Min Temperature Ts : - 10°C
- Max Temperature Ts : + 70°C
- Max Pressure Ps : 10 bars

HEAD LOSS :

(Bar)



FLOW COEFFICIENT Kvs (in m³/h) :

DN	40	50	65	80	100	125	150	200	250	300	350	400	450	500
Kvs (m³/h)	60	81	130	255	400	645	970	2000	3050	4150	5100	6600	7500	9700

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RANGE :

- Ball check valve PN10/16 RF Flanged from DN40 to 150 and PN10 over **Ref. 336** DN40 to 500

REPAIRABILITY :



DN	40	50	65	80	100	125	150	200	250	300
Ø Ball	51	62	76	96	122	150	180	246	308	363
Ref. Ball	9803649	9803650	9803651	9803652	9803653	9803654	9803655	9803656	9803657	9803658
Ref. Bonnet gasket	9803675	9803676	9803677	9803678	9803679	9803680	9803681	9803682	9803683	9803684

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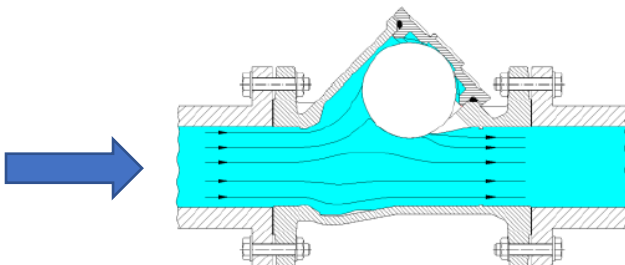
GENERAL GUIDELINES :

- Ensure that the check valves to be used are appropriate for the conditions of the installation (type of fluid, pressure and temperature).
- Be sure to have enough valves to be able to isolate the sections of piping as well as the appropriate equipment for maintenance and repair.
- Ensure that the valves to be installed are of correct strength to be able to support the capacity of their usage.

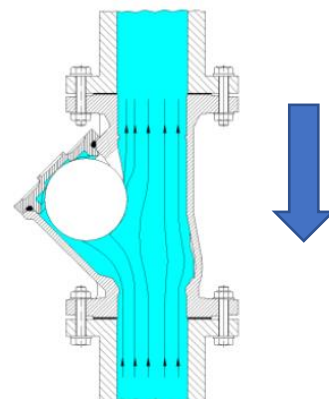
INSTALLATION INSTRUCTIONS :

- **Before installing the check valves, clean and remove any objects from the pipes** (in particular bits of sealing and metal) which could obstruct and block the valves.
- Flanges faces must be clean and without damaged
- **Ensure that both connecting pipes either side of the check valve (upstream and downstream) are aligned (if they're not, the valves may not work correctly).**
- **Make sure that the two sections of the pipe (upstream and downstream) match, the check valve unit will not absorb any gaps. Any distortions in the pipes may affect the tightness of the connection, the working of the check valve and can even cause a rupture.** To be sure, place the kit in position to ensure the assembling will work.
- **If sections of piping do not have their final support in place, they should be temporarily fixed. This is to avoid unnecessary strain on the check valve.**
- Respect the flow direction indicated by the arrow
- Ensure there is enough space after the check valve so that the disc could be opened in total opening position

Horizontal position



Vertical position

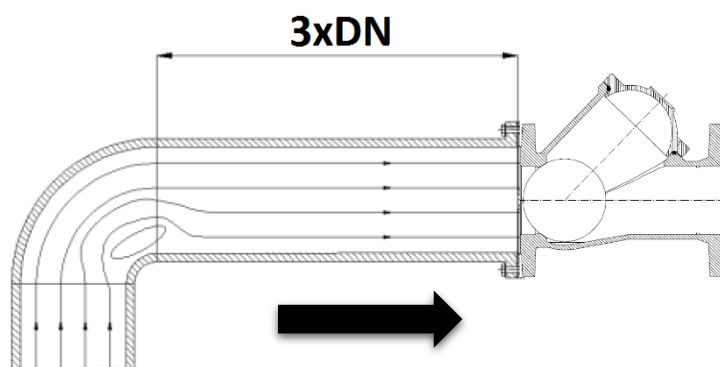
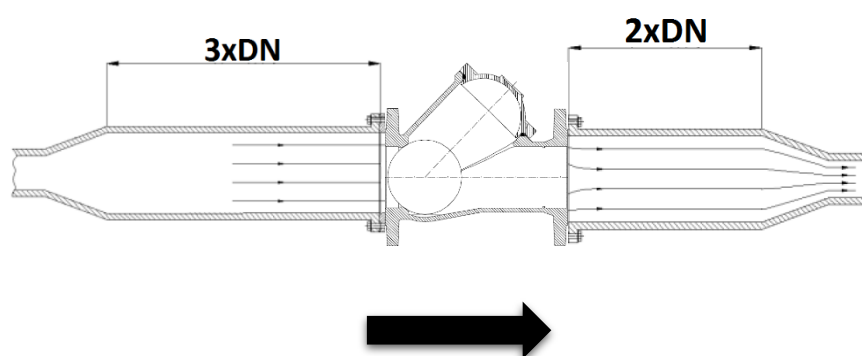


- Bolting should be tightened in cross

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INSTALLATION :

- If there is a direction changing or if there's another material, it's better to take away the check valve so that it is outside the turbulence area (**between 2 and 3 times the ND before and after according to drawing below**).



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MAINTENANCE :

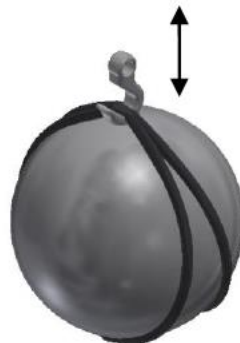
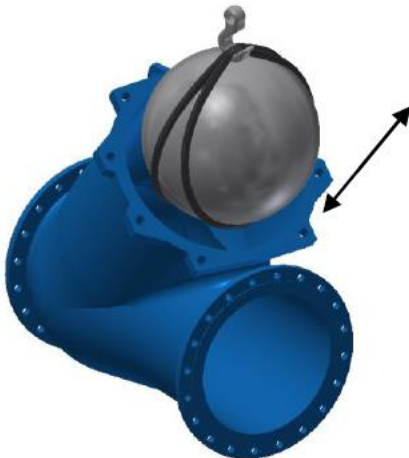
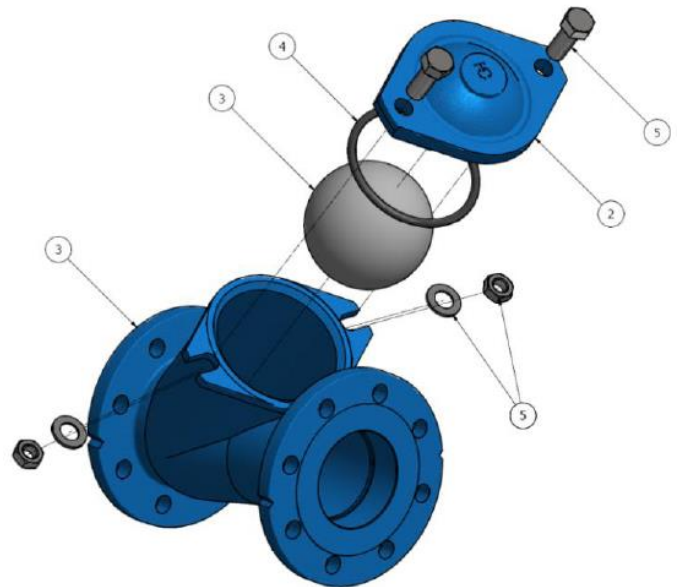
Before preceding the replacement or cleaning, operator should assure the installation is depressurized and free of aggressive/corrosive fluids that can injure the workers.

1- Loosen the bolts of the bonnet (5) in a cross sequence and with adequate tools in order to avoid damage on the components.

2- Proceed lifting the bonnet. For the bigger sized valves, it is recommended the use of elevation equipment. If the Bonnet contains a lifting lug or is foreseen of a threaded hole to fix a lifting lug, tan this must be used to lift the bonnet. If the Bonnet is not foreseen of lifting lugs it is recommended to use straps passing the holes of the bolting.

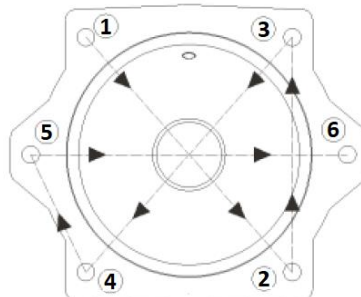
3- Take out the o-ring for sealing the bonnet (4) and proceed with cleaning or replacement. In order to assure the tightness after assembly we recommend the replacement of this o ring every time the bonnet is being disassembled.

Take out the ball (3) to proceed cleaning or replacement. Be careful not damaging the ball or coating during replacement or cleaning when using non compatible products. For the bigger sized valves it is recommended to use elevation equipment and straps like shown in below photos. Verify if the ball is not damaged at any point. In case of any damage we recommend to replace.



4- Clean the area where the ball is located when closed and also the valve passage must be clean.

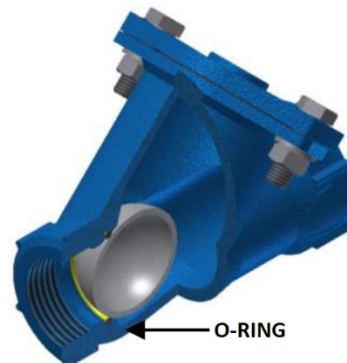
5- Proceed assembly of the valves, introduce the ball (3), place the o ring for tightness (4) and the bonnet (2) centered correctly in the opening of the body (1), take special care that the o ring is placed in the correct position in order to avoid damage when fixing the bolts. Finally start fixing the bolts (5) in a cross sequenced order as indicated on figure.



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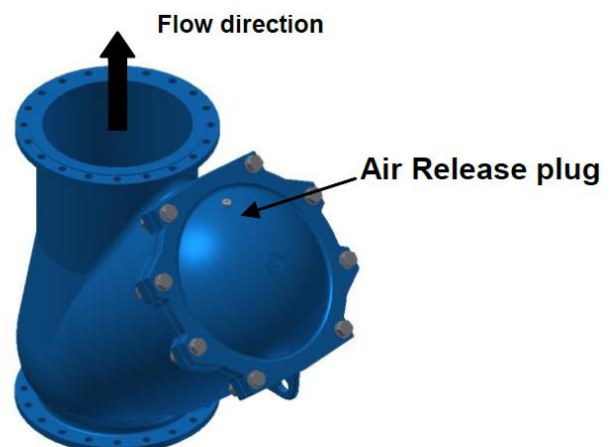
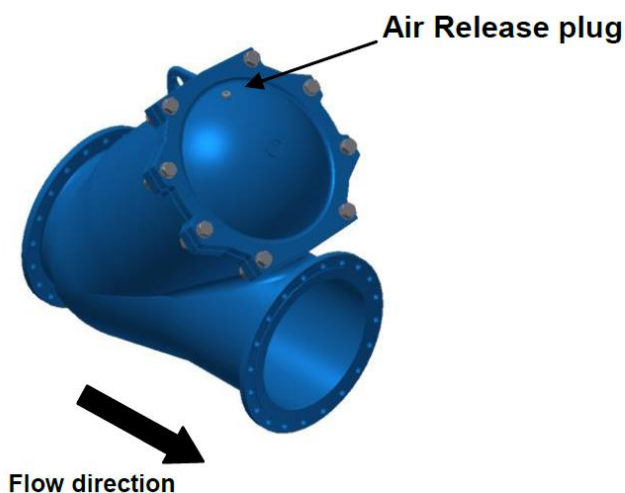
IMPORTANT:

- If the Bonnet is foreseen of an air release plug (DN-400 and above), make sure that it is located in the highest part of the valve.
- The valves with floating ball sized 1" to 2 1/2" are foreseen of an o-ring located in the seat area.



MAINTENANCE AND INSTALLATION FROM DN400 TO DN600:

The ball check valves DN400 and above are foreseen of an air release plug for elimination of the accumulated air in order to avoid damage during start up. This plug must always be located on the highest part of the valve. See figures below depending on vertical or horizontal installation. If not specified by the customer, the plug is installed standard for horizontal pipeline installation. If valves are installed in vertical pipeline (and not specified in the PO), the bonnet must be turned 180°.



To eliminate the air proceed by unscrewing the plug in order to release the accumulated air until the fluid is coming out. The plug is auto blocked and cannot be unscrewed totally. If the plug is damaged or blocked, proceed disassembly of the Bonnet as indicated in previous content. It is recommended to clean the plug when Bonnet is disassembled for maintenance.

ADVICE : Our opinion and our advice are not guaranteed and SFERACO shall not be liable for the consequences of damages. The customer must check the right choice of the products with the real service conditions.