

Ductile Iron Circular Flap Valves



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GENERAL

The primary application of flap valves is for surface water drainage associated with rivers, estuaries and sea water outfalls to prevent reverse flow conditions. Flap valves can be utilised on final effluent outfalls for sewage treatment plant to prevent flood damage within the works.

The flap valves should be positioned on the outfall structure so as to avoid the build-up of debris around the invert area which could prevent the valve operating correctly. Sufficient fall-away should be provided between the invert of the flap valve and the base of the outfall structure. An inclined seating plane is used to ensure that the valve will operate a 'positive close' position.

DUCTILE IRON PROPERTIES

Ductile iron is an iron/carbon/silicon alloy. In 1948 it was discovered that with the addition of magnesium to the molten iron, the graphite in the iron forms in spheres rather than flakes. Thus brittleness is eliminated and the material is strong and 'ductile'. The material retains all of cast iron's attractive qualities in terms of durability and corrosion resistance with the added benefits of strength and toughness, giving a high degree of dependability.

DESCRIPTION

A range of circular flap valves up to 600mm diameter for use in surface water, wastewater and sea water applications. The valve may be mounted on a vertical wall or flange (PN16) and is suitable for static on-seating heads up to 6 metres.

Note

It is recommended that at least 300mm fall away is provided at the invert to prevent fouling of the bottom of the door.

OPTIONS

- Fixing bolts can be supplied on request
- Flap valves are designed for fixing to BS EN 1092-2 : 1997 PN16 flanges. However, due to the low operating duty only a proportion of the specified full number of holes is used for fixing.



FEATURES AND BENEFITS

FEATURE	BENEFIT
Inherent Strength	High safety factor incorporated into design Ability to withstand exceptional loadings
Excellent Impact Resistance	Minimises risk of damage due to impact Higher resistance to vandalism
Lighter than equivalent Cast Iron Flap Valve	Easier installation
Phosphor bronze sealing faces	Durability and low leakage rates Resistance to erosion by grit
Double hung door	Ensures full face seating Reduces leakage
Thermoplastic powder coated	Maximises resistance to corrosion

MATERIAL SPECIFICATION

Frame

Constructed in ductile iron Grade 420/12 to BS EN 1563 : 1997, for wall, pipe or thimble mounting applications.

Door

Constructed in ductile iron Grade 420/12 to BS EN 1563 : 1997, designed to withstand static seating heads up to 6 metres.

Sealing Faces

Phosphor bronze sealing faces to BS EN 12167 : 1998 are supplied as the standard material. Sealing faces are set to 0.1mm feeler gauge non-acceptance to provide an effective seal.

Hinge Links

Manufactured from ductile iron Grade 420/12 to BS EN 1563 : 1997.

Hinge Pins

Manufactured from stainless steel to BS EN 10088 : 1995 Grade 1.4401 (316).

Coating

Black Plascoat PPA571 thermoplastic coating powder to 200 microns minimum thickness. This coating gives excellent resistance to ultraviolet light, salt spray and atmospheric pollutants. For detailed information visit: www.plascoat.com

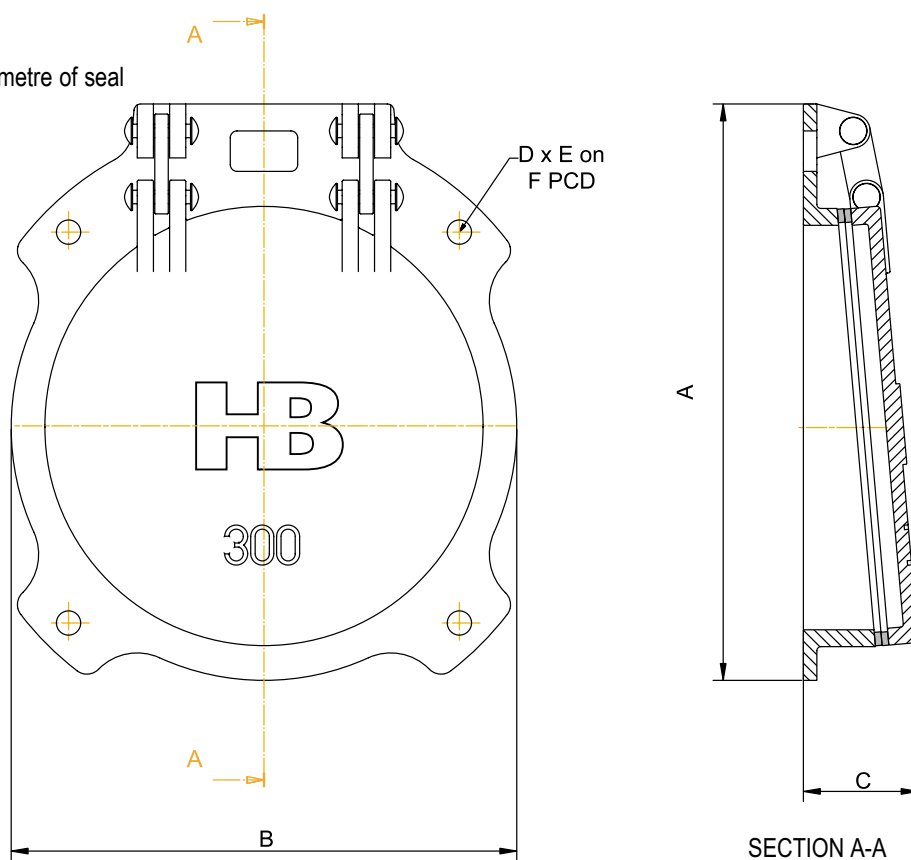
TIDAL AND SEA WATER APPLICATIONS

Turbulence of flow across flaps due to severe wave action may cause the doors to be disturbed from their equilibrium and could result in damage to the sealing faces. Consideration should be given to the building of baffles across the valve or situating the valve in a chamber with a flexible rubber flap valve situated on the seaward side of the chamber.

LEAKAGE

The leakage rate of all flap valves are as follows:

- Heads of less than a metre
= 2.5 litres per minute / metre of seal
- Heads of greater than a metre
= 1.25 litres per minute / metre of seal



NOMINAL BORE	A	B	C	D	E	F	BOLT DIA.	WEIGHT (kg)
DIMENSIONS IN MILLIMETRES								
80	235	200	66	4	18	160	M16	4.4
100	262	220	66	4	18	180	M16	5.6
150	318	285	66	4	18	240	M16	10
200	334	285	76	4	18	295	M16	12
225	366	310	79	4	18	325	M16	12.2
250	383	326	81	4	18	355	M16	14.7
300	428	375	85	4	18	410	M16	16.8
350	606	462	124	4	23	470	M20	27.2
375	603	455	127	4	23	495	M20	30
400	661	517	129	4	23	525	M20	33.5
450	705	550	116	4	23	585	M20	42.5
500	755	610	121	4	23	650	M20	51
600	890	720	129	4	28	770	M24	75

Note: DN350 - DN600 inclusive, available as of October 2004.

Enquiry Questionnaire

Certain basic data is essential to allow selection of the correct equipment against a specification.

Please ensure that the following information is given for each item of your enquiry:

1. Quantity required.
2. Size of opening.
3. Wall or pipe mounting.
4. Working duty (gravity, pumped flow, tidal wave action etc.)
5. Liquid in which the flap valve is to operate.
(receiving water not discharged liquid)

INTERNATIONAL STANDARDS

BS EN ISO 9001 : 2000	Quality Management System : Requirements
BS EN 1092-2 : 1997	Flanges and their joints; Circular flanges for pipes, valves, fittings and accessories; PN designated; Cast Iron Flanges
BS EN 1563 : 1997	Founding - Spheroidal Graphite Cast Iron
BS EN 10088 : 1995	Stainless steels : Technical delivery conditions
BS EN 121671 : 1998	Copper and Copper Alloys : Profiles and rectangular bar for general purposes

