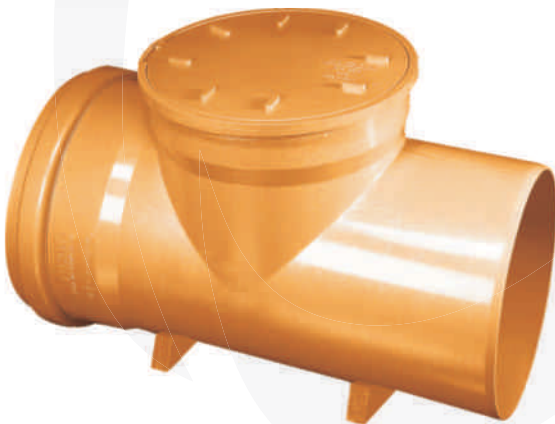




# NON-RETURN & FLAP VALVES



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## FLAP VALVES

The principal applications for flap valves are for surface water drainage associated with river, estuary and sea water outfalls to prevent backflow into the sewer and for final effluent outfalls from wastewater treatment works to prevent flood damage within the works.

## NON-RETURN VALVES

Non-return valves or backwater valves are used within sewerage and drainage systems to eliminate the risk of flood damage by the backflow of sewage or flood water into properties through low level entries such as low level drain gullies, toilets and washing machine outlets. The Environment Agency in their publication on damage limitation for properties at risk from flooding and the Government guidance note "Preparing for Floods" both recommend the installation of non-return valves (anti-flooding devices) on all such drains and sewers.

The Building Regulations 2000, Approved Document H, recommends the installation of non-return valves on drains from basements in low risk areas and on all drains in areas with a high risk of flooding or sewer surcharge.

These valves are also used in commercial and industrial applications where non-pressure flow control is required (e.g. fish farming).

## MATERIALS

### FLAP VALVES

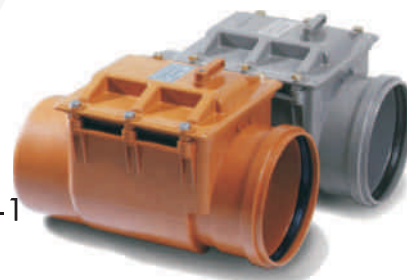
- |             |   |
|-------------|---|
| Body & Flap | - Glass reinforced plastic using a isophtalic polyester resin with surface isophtalic gel coat    |
| Hinge       | - Self lubricating Ertacetal plastic  |
| Seal        | - Ethylene Propylene Diene Monomer (EPDM) to BS EN 681-1<br>Optional nitrile (NBR) seal available |
| Fittings    | - Grade 1.4401 (316) austenitic stainless steel to BS EN 10088-2                                  |



### NON-RETURN VALVES

#### REDI (DN100 to 600)

- |             |  |
|-------------|--|
| Body & Flap | - PVCu   |
| Seal        | - Ethylene Propylene Diene Monomer (EPDM) to BS EN 681-1 |



#### Norham (DN250 to 500)

- |             |   |
|-------------|---|
| Body & Flap | - Glass reinforced plastic using a isophtalic polyester resin with surface isophtalic gel coat    |
| Hinge       | - Self lubricating Ertacetal plastic  |
| Seal        | - Ethylene Propylene Diene Monomer (EPDM) to BS EN 681-1<br>Optional nitrile (NBR) seal available |
| Fittings    | - Grade 1.4401 (316) austenitic stainless steel to BS EN 10088-2                                  |



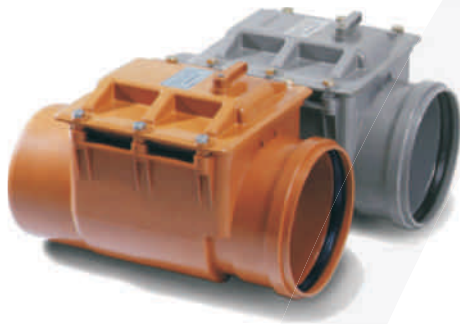
## REDI DN100 to DN600

A range of PVCu non-return valves complying with the requirements of BS EN 13564 - 'Anti-flooding devices for buildings'. Sizes DN100 to DN200 are certified by the German Institute LGA.

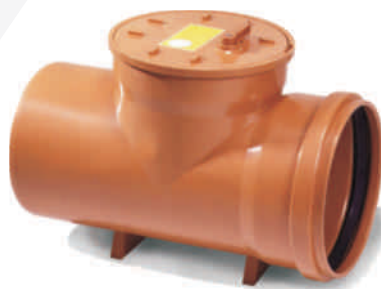
These valves are watertight to a pressure of 0.5 bar (5m Head).

These valves have a spigot and socket with integral seal as standard for direct connection to solid walled PVCu pipe. They can be connected to other pipe material using Mission Rubber Flexible Couplings (see separate technical brochure).

### DN100 - 200



### DN250 - 300

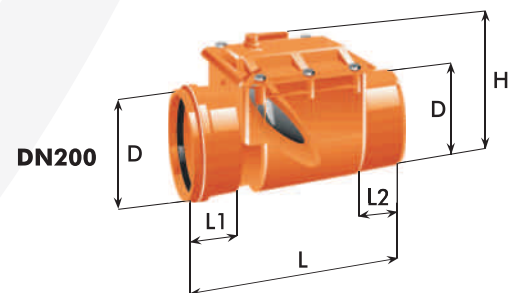
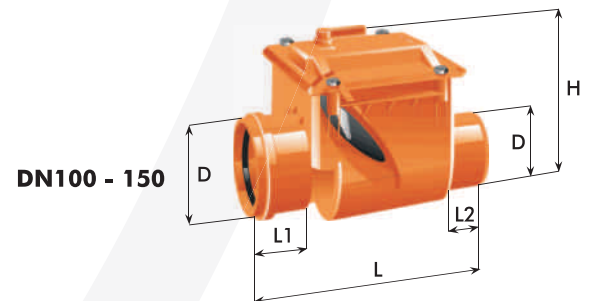


### DN400 - 600



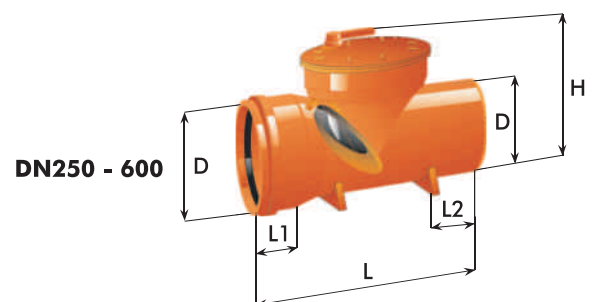
### Single Flap with Locking Lever

Nominal Size	D	L1	L2	L	H	Reference
DN100	110	61	61	307	230	1555551
DN100R	110	61	61	307	230	1555651
DN150	160	74	74	337	255	1551691
DN150R	160	74	74	337	255	1551791
DN200	200	86	100	451	300	1552091
DN250	250	102	130	520	374	1552591
DN300	315	115	165	620	445	1553091



### Single Flap without Locking Lever

Nominal Size	D	L1	L2	L	H	Reference
DN400	400	145	240	790	490	1554091
DN500	500	420	330	1400	780	T555191
DN600	630	-	-	1700	1100	T556391



R = Stainless Steel Flap  
D = Outside Diameter Spigot

## NORHAM DN250 to DN500

A range of GRP non-return valves designed for connection to any pipe material using Mission Rubber Standard Couplings and Bushes.

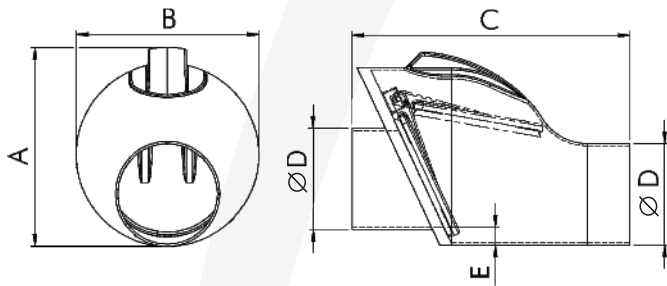
### ADVANTAGES

- Resistant to 1 bar (10m head) back pressure
- Low weight for ease of installation yet with high mechanical strength
- Resistant to all normal sewage effluents operating at normal temperatures (below 80° C) and not containing harmful industrial effluents.
- Seals at a low level of back pressure
- Easily connected to any type of pipe material by means of couplings (not included)
- Low maintenance

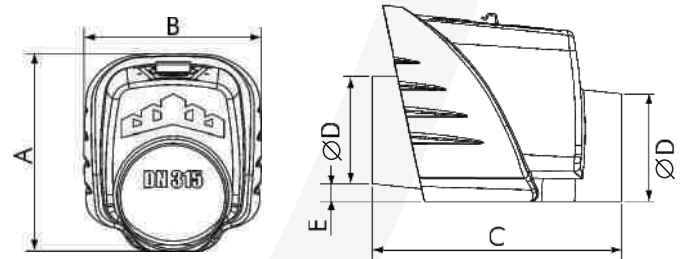


**Note:** Coupling required but dependent on size of pipework

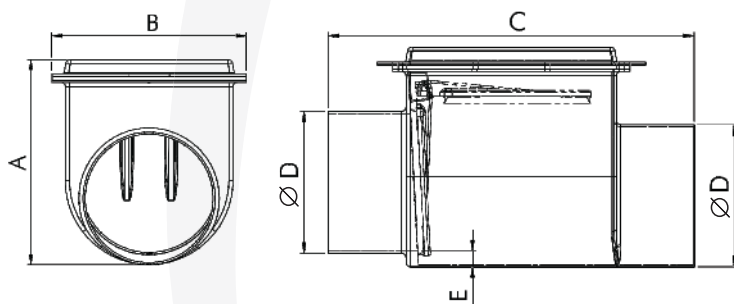
### DN250



### DN300 to DN400



### DN500



REFERENCE	DN	A	B	C	D	E	Wgt(kg)
MULTI250	250	485	455	730	260	60	14
MULTI315	300	578	520	735	324	33	16
MULTI400	400	592	615	897	410	35	26
MULTI500	500	700	710	1245	515	55	43

A range of GRP flap valves designed for ease of installation due to their low weight but with exceptional mechanical strength and durability.

## ADVANTAGES

- Resistant to 1 bar (10m head) back pressure (Multi-CD 0.8 bar)
- Most sizes can be handled by one person due to low weight
- Low weight ensures ease of installation
- High mechanical strength
- High resistance to corrosion and ultraviolet degradation
- Seals at a low level of back pressure
- Low operating head due to low weight
- Low maintenance

## MULTI - N DN200 to DN600

A range of flap valves designed for direct connection to any type of drain or sewer pipe using Mission Rubber Standard Couplings and Bushes

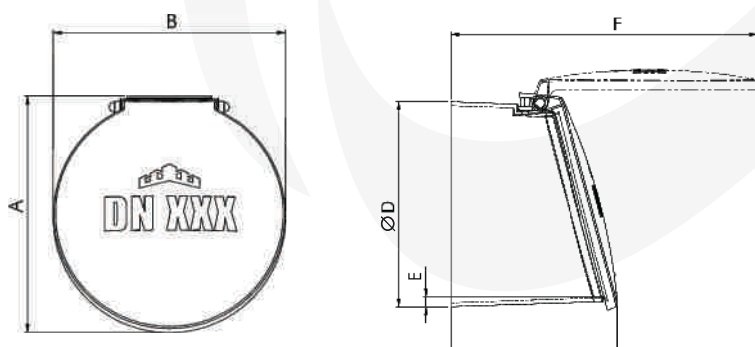
## ADVANTAGES

- Eliminates need for concrete headwall or pipe flange for fixing e.g. can be connected to the spigot of an outfall pipe passing through gabions
- No drilling required
- Fast and easy installation

**Note:** Coupling required but dependent on size of pipework



REFERENCE	DN	A	B	C	D	E	F	Wgt(kg)
MULTI200N	200	224	216	205	202	11	345	1.2
MULTI250N	250	284	280	218	263	12	399	1.9
MULTI315N	300	335	332	269	318	15	480	3.0
MULTI400N	400	420	417	291	405	16	570	5.5
MULTI500N	500	528	522	316	506	17	678	9.0
MULTI600N	600	659	655	352	638	18	808	13.5



## MULTI - BD DN100 to DN200

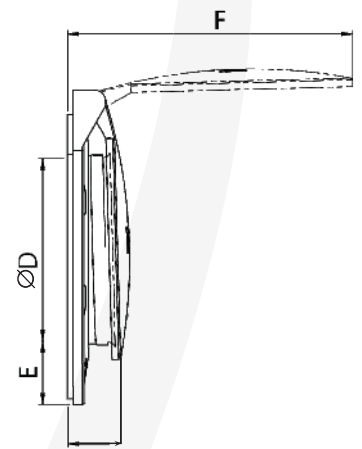
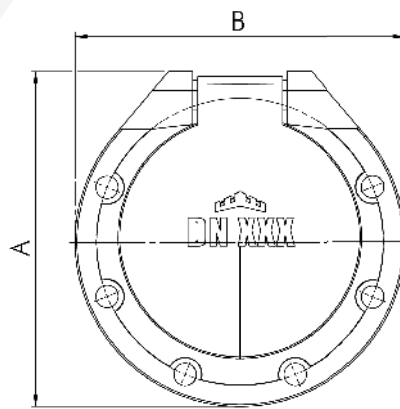
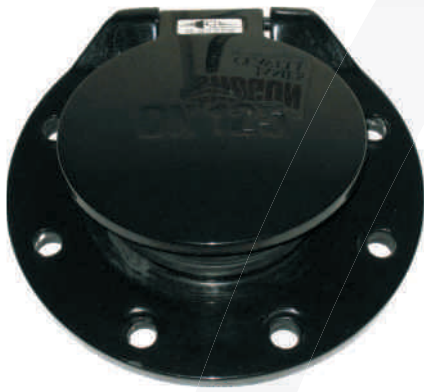
A range of small diameter flap valves with a PN 10 flange and an integral foamed EPDM rubber gasket for direct fixing to a flange or concrete headwall.

### ADVANTAGES

- Lightweight for fast and easy installation
- No need for cement grout when fixing to a headwall
- Resistant to 1 bar (10m head)

REFERENCE	DN	A	B	C	D	E	F	Wgt(kg)
MULTI100BD	100	212	220	57	110	55	195	0.5
MULTI125BD	125	252	250	57	125	66	230	0.75
MULTI150BD	150	285	285	57	160	66	260	1.0
MULTI200BD	200	372	340	65	200	75	315	1.5

Wall mounting kits available

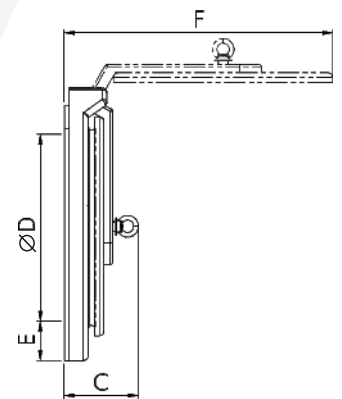
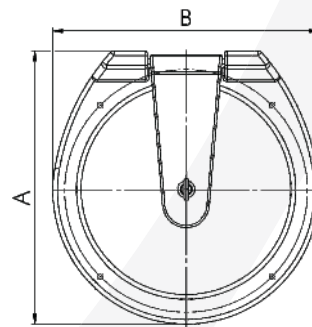


## MULTI - CD DN250 to DN600

A range of medium diameter flap valves with a PN 10 flange. Integral EPDM rubber sealing rings for sealing to concrete headwall.

### ADVANTAGES

- Lightweight for fast and easy installation
- Resistant to 0.8bar (8m head) backpressure
- No need for cement grout when fixing to a headwall
- Hinged design ensures full face sealing when closed



REFERENCE	DN	A	B	C	D	E	F	Wgt(kg)
MULTI250CD	250	420	395	153	250	75	385	8.0
MULTI300CD	300	470	447	153	300	75	460	10.0
MULTI400CD	400	585	565	153	400	85	560	15.0
MULTI500CD	500	722	715	155	500	118	700	22.0
MULTI600CD	600	835	840	162	600	120	785	30.0

Wall mounting kits available



## MULTI - NB

### DN200 to DN1500

A range of medium diameter flap valves with an inclined flap and PN 10 flange. Integral EPDM rubber sealing rings for sealing to concrete headwall.

### ADVANTAGES

- Lightweight for fast and easy installation
- Inclined flap for additional security against backflow
- No need for cement grout when fixing to headwall
- Hinged design ensures flap closure when no discharge
- Resistant to 1 bar (10m head)

REFERENCE	DN	A	B	C	D	E	F	Wgt(kg)
MULTI200NB	200	343	343	147	180	81	285	1.6
MULTI250NB	250	395	395	161	245	78	339	2.0
MULTI315NB	300	448	448	185	290	80	400	3.7
MULTI400NB	400	570	570	210	375	99	478	6.5
MULTI500NB	500	676	676	240	469	102	589	9.7
MULTI600NB	600	788	788	275	593	93	717	14.3
MULTI700NB	700	1003	935	450	700	120	1030	46.0
MULTI800NB	800	1125	1035	523	800	120	1440	53.0
MULTI1000NB	1000	1330	1264	520	1013	110	1400	80.0
MULTI1200NB	1200	1525	1440	690	1200	130	1620	115.0
MULTI1400NB	1400	1770	1640	800	1400	120	1840	160.0
MULTI1500NB	1500	1860	1740	855	1500	120	1980	180.0

Wall mounting kits available

### DN200 - 600



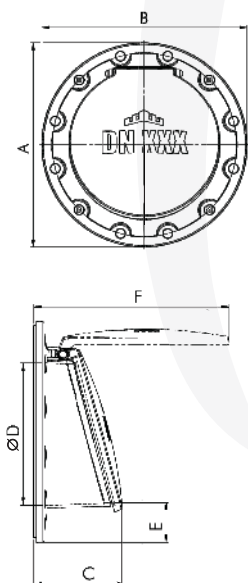
### DN700,800,1200 - 1500



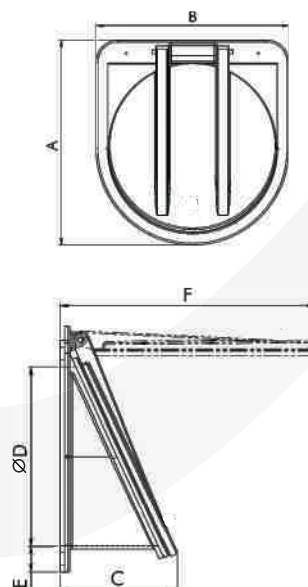
### DN1000



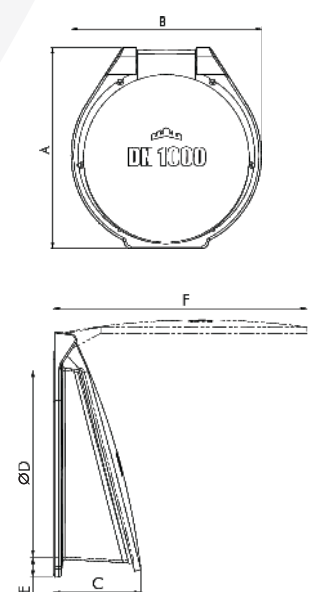
### DN200 - 600



### DN700,800,1200 - 1500



### DN1000



## NORHAM FLAP VALVE TECHNICAL DATA

REFERENCE	PCD	HOLES	
		Number	Diameter (mm)
MULTI100BD	180	8	Ø16
MULTI125BD	210	8	Ø16
MULTI150BD	240	8	Ø22
MULTI200BD	295	8	Ø22

MULTI250CD	350	4	Ø10
MULTI300CD	400	4	Ø10
MULTI400CD	515	4	Ø10
MULTI500CD	620	4	Ø10
MULTI600CD	725	4	Ø10

MULTI200NB	295	4	Ø10
MULTI250NB	350	4	Ø10
MULTI315NB	400	4	Ø10
MULTI400NB	515	4	Ø10
MULTI500NB	620	4	Ø10
MULTI600NB	725	4	Ø10
MULTI700NB	<b>820</b>	6	Ø10
MULTI800NB	<b>915</b>	6	Ø10
MULTI1000NB	1160	6	Ø21
MULTI1200NB	<b>1320</b>	6	Ø15
MULTI1400NB	<b>1515</b>	7	Ø15
MULTI1500NB	<b>1615</b>	7	Ø15

**NOTE:**  
 PCD = PITCH CIRCLE DIAMETER OF THE BOLT HOLES  
 Flanges drilled to BS EN 1092 PN 10 pitch circle diameter as standard except those marked in **blue**.  
 Standard bolt holes in the flanges are not drilled to BS EN 1092 diameters (see table) but can be supplied to special order.

### GENERAL LOCATIONS

Flap valves should be fixed so as to avoid the accumulation of debris around the invert which could prevent the valve operating correctly.

### TIDAL LOCATIONS

Turbulence of flow due to severe wave action will shorten the working life of a flap valve. Therefore it is recommended that careful consideration is given to the positioning of valves and they are installed within an outfall bay or otherwise protected from direct wave action by baffles.

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