NORHAM

# MULTITUBE

## VALVES

Anti-backflow valves for rainwater and wastewater networks

- **Lightweight and compact :** quick and easy to install.
- **Highly resistant :** to pressure, corrosion, mechanical stress, and UV.
- **Maximum tightness,** even at very low counter-pressures.

NORHAM

afaq ISO 9001 Qualité AFNOR CERTIFICATION N° 1997 | 8004.7

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# MULTITUBE

## VALVES

## CONTENTS

# MULTITUBE
## VALVES

## INTRODUCTION

For over 30 years, NORHAM has been designing and manufacturing the **MULTITUBE** range of anti-backflow valves, made from glass-fibre reinforced polyester resin.

By choosing polyester as its main material, NORHAM offers an innovative, lightweight range that is highly resistant to pressure (from 0.9 bar to 1.0 bar depending on the model) and to external stresses: corrosion, weathering, UV, thermal shock, mechanical and chemical stress.

## AREA OF USE

The **MULTITUBE** range is designed to protect buildings or infrastructures against all types of water backflow from downstream (flooding, high water, etc.). The valves are designed for sewage, rainwater, surface water and sea water.

Product not suitable for use in marine environments (swell, swirls). Please contact us for further information.

- **End-of-pipe valves** are placed at the end of a network (e.g. in ponds, lakes, rivers, treatment plants) and are available in two mounting configurations :
  - on a vertical wall ;
  - directly on the pipe ;
- **In-line valves** are installed in the middle of the network in a manhole, on the pipe.

### END-OF-PIPE VALVES


**MULTI NB FLANGED VALVES**
From DN 200 to DN 1500


**MULTI-N**
with **NORHAM COUPLINGS** connections
from DN 200 to DN 600

### IN-PIPE VALVES

**MULTI**
with **NORHAM COUPLINGS** connections
from DN 250 to DN 500



Dimensions in mm. Weight in kg. Operating pressure ($W_p$) in bar. Non-contractual visuals.

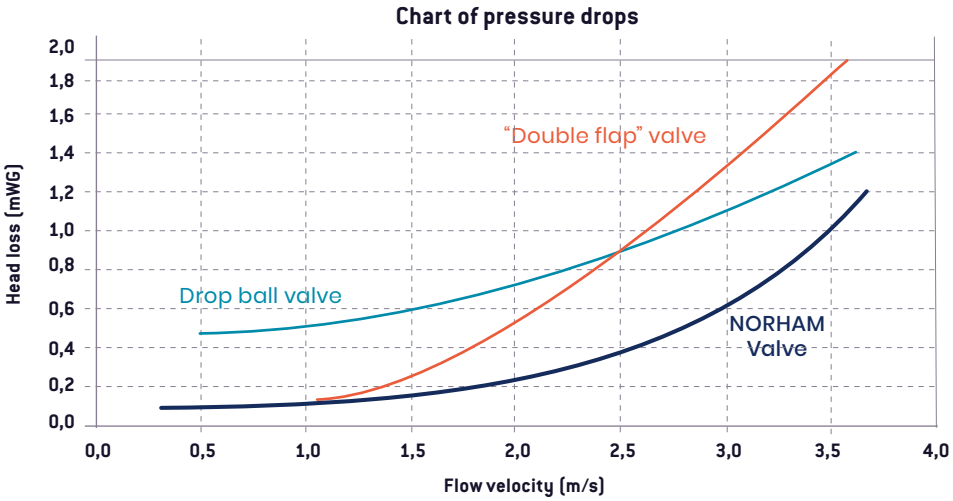
## TECHNICAL DATA

### PRESSURE

Pressure loss is a reduction in pressure in a network. This may be due to the roughness of the pipes or to an obstacle that the fluid has to overcome. The pressure loss chart is only valid for networks under load.

**Example :** DN 250 valve under load.

- Section = π x Ø² / 4 = 0.05 m²
- Throughflow: 100 l/s = 0.10 m3/s
- Speed (m/s) = throughflow (m3/s) / section (m²) = 0.10 / 0.05 = 2 m/s




Pressure drop NORHAM valve = **0,25 mWG**
Pressure drop «double flap» valve = **0,5 mWG**
Pressure drop ball valve = **0,75 mWG**

### PRESSURE REQUIRED TO OPEN THE VALVE

When the pipe is not loaded or when the flap is partially or fully submerged, a minimum level of water upstream is required for the flap to open.

To assess this level, the following estimate can be used :

**OPTION 1 :** no water downstream :

Water level upstream
- Ø valve / 10
- or
- 10 % of Ø.

**OPTION 2 :** water downstream :

downstream water level = xx mm

Water level upstream
- Ø valve / 10 + xx mm
- or
- 10 % of Ø + xx mm.

### FOR EXAMPLE

Find the minimum water level upstream for opening a DN 250 valve when there is no water downstream :

250 / 10 mm = **25 mm WG.**

**NB :** this value does not take into account any environmental disturbances such as eddies, obstacles, etc.

# MULTITUBE
## VALVES

## SPÉCIFICITÉS DES MATÉRIAUX

| | MATERIALS | ADVANTAGES |
|---|---|---|
| **BODY AND FLAP** | Fibreglass-reinforced isophthalic polyester resin, isophthalic gel-coat | • Low weight for high pressure resistance<br>• For long-term resistance to weathering, UV, ozone, chemical attack and mechanical stress<br>• High resistance to corrosion.<br>• Improves service life (minimum friction)<br>• Stainless steel suitable for untreated water (sewage, rainwater, sea water) |
| **SEAL** | EPDM, compliant with NF-EN 681-1 standard (some products other than MULTI NB may have the nitrile option: please contact us) | |
| **AXLE** | AISI 316 stainless steel for MULTI NB valves and MULTI N ERTACETAL (POM) for MULTI in-line valves | |
| **RING-NUT[1] Screws, threaded rod** | AISI 316 stainless steel | |

*(1) End-of-pipe valves can be supplied with or without ring nut (see pages 9, 11 and 13, on request).*

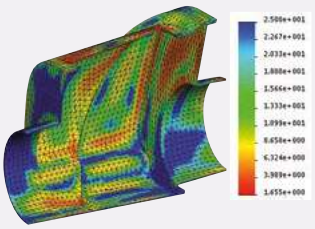
## DESIGN

Each **MULTITUBE** valve is designed by **our R&D department**.

It has the computing resources (CAD) to model the hydraulic and mechanical behaviour of each valve.

Each new design is also tested on test benches to validate its behaviour under maximum pressure.

### EXAMPLE OF COMPUTER MODELLING AND VALIDATION TEST OF THE MULTI 315 VALVE



Finished element computer modelling of the MULTI 315 valve body.

### EXAMPLE OF VALIDATION OF A MULTITUBE VALVE ON A TEST BENCH

Validation of the pressure resistance of a MULTI 315 valve.
The same type of test is applied to all valves in the MULTITUBE range.

**FRENCH**
**design and manufacture**



Dimensions in mm. Weight in kg. Operating pressure ($W_p$) in bar. Non-contractual visuals.

# MULTITUBE

## VALVES

## THE RANGE

The following diagram will help you choose the **MULTITUBE** valve best suited to your configuration


*(1) ISO PN10 drilling available on request, please consult us.*
*(2) The choice of NORHAM COUPLING depends on the pipe material, please consult us.*

# MULTI NB FLANGED VALVES

## FROM DN 200 TO DN 600

### AREA OF USE

**MULTI NB FLANGED END-OF-PIPE** valves with angled flap in glass fibre-reinforced isophthalic polyester resin, isophthalic gel-coat and seal in EPDM.

The end-of-pipe valves can be fixed directly to a vertical wall or to a standard flange(1) ;

- fixed to a vertical wall with screws supplied (mechanical anchoring) ;

**Optional :** they can be fixed to an ISO PN10 standard flange with special screws (please contact us for details)(1).

### TECHNICAL DATA

- **Pressure resistance :** 1 bar (10 mWG).


*(1) ISO PN 10 flange to be drilled, available on all MULTI-NB range except MULTI NB 1200, MULTI NB 1400 and MULTI NB 1500 (bolts not supplied).*

### OPTIONS

- **ISO PN10 flange** to be drilled, suitable for the entire MULTI NB range except MULTI NB 1200, MULTI NB 1400 and MULTI NB 1500 (bolts not supplied);;
- AISI316 stainless steel **ring nut**;
- **Handling cable** 3 m ou 6 m ;
- **Weight disc** in AISI 316 stainless steel ;
- **Adaptor flange** for circular manhole.

**The multi-hole ADAPTATION FLANGE provides a suitable and optimal solution when a flat surface part has to be installed in a circular manhole. See pages 9 and 17.**



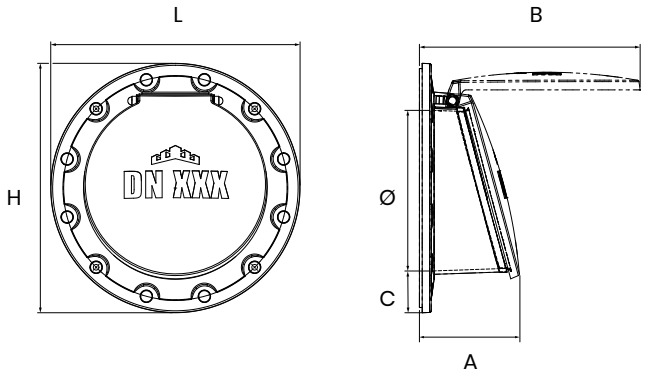
Dimensions in mm. Weight in kg. Operating pressure ($W_p$) in bar. Non-contractual visuals.

# MULTITUBE

## VALVES

### DIMENSIONS FROM DN 200 TO DN 600

| REF. | DN | Ø | A | B | C | H | L | WEIGHT | $W_P$ |
|---|---|---|---|---|---|---|---|---|---|
| **MULTI200NB** | 200 | 183 | 145 | 280 | 80 | 343 | 343 | 1,6 | 1,0 |
| **MULTI250NB** | 250 | 245 | 160 | 338 | 76 | 395 | 395 | 2,0 | |
| **MULTI315NB** | 300 | 290 | 177 | 390 | 79 | 445 | 445 | 3,7 | |
| **MULTI400NB** | 400 | 375 | 201 | 476 | 97 | 565 | 565 | 6,5 | |
| **MULTI500NB** | 500 | 470 | 240 | 588 | 101 | 670 | 670 | 9,7 | |
| **MULTI600NB** | 600 | 599 | 274 | 714 | 92 | 780 | 780 | 14,3 | |




## OPTIONS

### ADAPTOR FLANGES

Adaptor flanges for **MULTI NB** valves from DN 200 to DN 600.
Body in HDPE, EPDM seal and screws in AISI 316 stainless steel.

| REF. | MANHOLE Ø | DN |
|---|---|---|
| AR_V_B_200 | 600 to 1500 | 200 |
| AR_V_B_250 | 800 to 1500 | 250 |
| AR_V_B_300 | 800 to 1200 | 300 |
| AR_V_B_400 | 800 to 1200 | 400 |
| AR_V_B_500-2 | 1500 to 2000 | 500 |
| AR_V_B_600-3 | 5000 to 8000 | 600 |

BARE PART, WITHOUT VALVE

*Other custom sizes on request.*

### HANDLING ACCESSORIES

Ring nut and cable compatible with all and **MULTI NB** and **MULTI N** valves.

| REF. | DESCRIPTION |
|---|---|
| ① CABLE3M-316 | Handling cable 3 m, AISI 316 stainless steel, Ø 5 mm, 2 cable loops with shackle |
| ① CABLE6M-316 | Handling cable 6 m, AISI 316 stainless steel, Ø 5 mm, 2 cable loops with shackle |
| ② ÉCROU-ANNEAU10-316 | AISI 316 stainless steel ring |

# MULTITUBE
## VALVES

## MULTI NB FLANGED VALVES

### FROM DN 800 TO DN 1500

#### AREA OF USE

**MULTI NB FLANGED END-OF-PIPE** valves with angled flap in glass fibre-reinforced isophthalic polyester resin, isophthalic gel-coat and seal in EPDM.

The end-of-pipe valves can be fixed directly to a vertical wall or to a standard flange(1) ;

- fixation sur paroi verticale avec visserie fournie (ancrage mécanique) ;

**En option :** fixed to a vertical wall with screws supplied (mechanical anchoring)(1).

#### TECHNICAL DATA

- **Pressure resistance :** 1 bar (10 mWG).


*(1) ISO PN10 flange to be drilled, available for the entire MULTI NB range except MULTI NB 1200 to MULTI NB 1500 (bolts not supplied).*

#### ACCESSORIES AND OPTIONS

- **ISO PN10** flange to be drilled, available for the entire MULTI NB range except **MULTI NB 1200** to **MULTI NB 1500** (bolts not supplied).



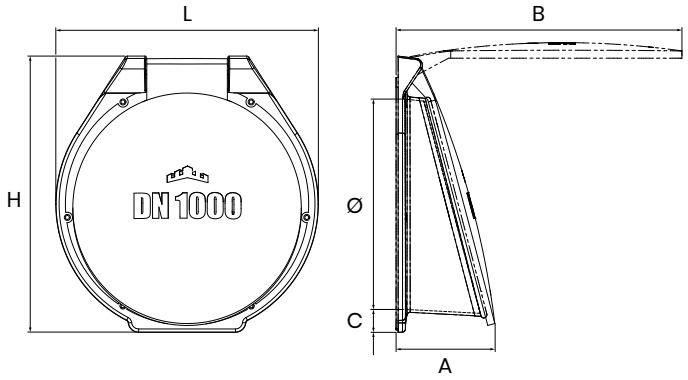
Dimensions in mm. Weight in kg. Operating pressure ($W_p$) in bar. Non-contractual visuals.

# MULTITUBE

## VALVES

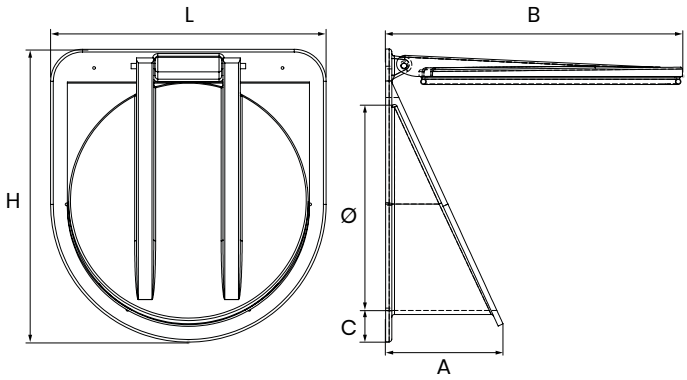
### DIMENSIONS DN 800 AND DN 1000

| REF. | DN | Ø | A | B | C | H | L | WEIGHT | Wp |
|---|---|---|---|---|---|---|---|---|---|
| **MULTI800NB** | 800 | 820 | 427 | 1090 | 88 | 1043 | 1058 | 24,2 | 1,0 |
| **MULTI1000NB** | 1000 | 1012 | 475 | 1363 | 110 | 1330 | 1265 | 102,0 | |




### DIMENSIONS FROM DN 1200 TO DN 1500

| REF. | DN | Ø | A | B | C | H | L | WEIGHT | Wp |
|---|---|---|---|---|---|---|---|---|---|
| **MULTI1200NB** | 1200 | 1190 | 690 | 1620 | 130 | 1525 | 1440 | 151,0 | |
| **MULTI1400NB** | 1400 | 1390 | 800 | 1840 | 115 | 1770 | 1640 | 236,0 | 1,0 |
| **MULTI1500NB** | 1500 | 1490 | 855 | 1980 | 110 | 1870 | 1740 | 285,0 | |




## OPTIONS

### HANDLING ACCESSORIES

Ring nut and cable compatible with all and **MULTI NB** and **MULTI N** valves.

| REF. | DESCRIPTION |
|---|---|
| ① CABLE3M-316 | Handling cable 3 m, AISI 316 stainless steel, Ø 5 mm, 2 cable loops with shackle |
| ① CABLE6M-316 | Handling cable 6 m, AISI 316 stainless steel, Ø 5 mm, 2 cable loops with shackle |
| ② ÉCROU-ANNEAU10-316 | AISI 316 stainless steel ring |


Dimensions in mm. Weight in kg. Operating pressure ($W_p$) in bar. Non-contractual visuals.

# MULTITUBE
## VALVES

## MULTI NB END-OF-PIPE VALVES

### FROM DN 200 TO DN 600

### AREA OF USE

**MULTI N END-OF-PIPE** valves from DN 200 to DN 600 with inclined flap, made of fibreglass-reinforced isophthalic polyester resin, isophthalic gel-coat and EPDM seal.

To be connected directly to any type of pipe with **NORHAM COUPLING**(1).

- The multimaterial **NORHAM COUPLING**(1) supplied already installed on the **MULTI N** valve for quick and easy installation and guarantees a seal between the valve and the pipe ;

**Optional :** adaptor flange for mounting in a circular manhole (**AR_V_N** and **AR_1000_N** range)(2).

### TECHNICAL DATA

- Multimaterial connection (PVC, HDPE, fibre cement, cast iron, clay, concrete, corrugated, etc) ;
- **Pressure resistance :** 1 bar (10 mWG) ;
- Supplied «**ready to install**»(3) with a **NORHAM COUPLING**(1).

*(3) The MULTI N valve is supplied with the necessary connection configuration depending on the pipe to be connected (please confirm type and external diameter).*

(1)


**MULTIMATERIAL CONNECTION WITH NORHAM COUPLINGS**
For all types of connections, the external diameters of the pipes must be specified.


**INCLINED FLAP**
made from fibreglass-reinforced isophthalic polyester resin and isophthalic gel-coat?

**AXIAL SYSTEM**
made of AISI 316 stainless steel.

**NORHAM COUPLINGS**(1)
supplied with the valve, it allows multimaterial installations.

**SEAL**
in EPDM compliant with standard NF EN 681-1.

**OPTIONAL: RING NUT**
made of AISI 304 stainless steel.

### ACCESSORIES AND OPTIONS

- **Ring nut** in AISI 316 stainless steel ;
- **Handling cable** 3 m ou 6 m ;
- **Weight disc** in AISI 316 stainless steel ;
- **Adaptor flange** for circular manhole(2).

(2) The multi-hole ADAPTATION FLANGE provides a suitable and optimal solution when a flat surface part has to be installed in a circular manhole. See pages 13 and 17.



Dimensions in mm. Weight in kg. Operating pressure ($W_p$) in bar. Non-contractual visuals.

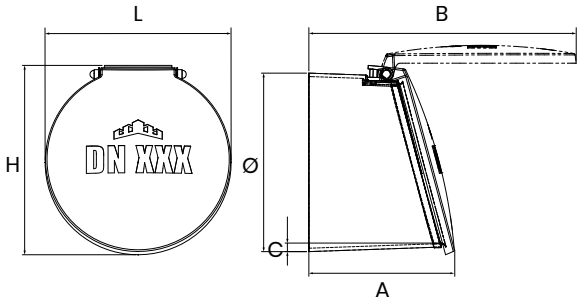
# MULTITUBE

## VALVES

### DIMENSIONS FROM DN 200 TO DN 600

| REF. | DN | Ø | A | B | C | H | L | WEIGHT | Wp |
|---|---|---|---|---|---|---|---|---|---|
| MULTI200N-...** | 200 | 200 | 202 | 337 | 10 | 224 | 216 | 1,2 | 1,0 |
| MULTI250N-...** | 250 | 263 | 218 | 396 | 11 | 282 | 279 | 1,9 | |
| MULTI315N-...** | 300 | 315 | 255 | 469 | 14 | 332 | 327 | 3,0 | |
| MULTI400N-...** | 400 | 400 | 279 | 555 | 15 | 415 | 420 | 5,5 | |
| MULTI500N-...** | 500 | 500 | 317 | 665 | 16 | 520 | 510 | 9,0 | |
| MULTI600N-...** | 600 | 630 | 351 | 791 | 17 | 643 | 642 | 13,5 | |

** Depending on the type of pipe : **PFF :** PVC / fibre cement / cast iron // **G :** clay // **BA :** concrete / corrugated.




## OPTIONS

### ADAPTOR FLANGES

Adaptor flanges for all **MULTI N** valves.
Body in fibreglass-reinforced isophaltic polyester resin, seal in EPDM and screws in AISI 316 stainless steel.

| REF. | MANHOLE Ø | DN |
|---|---|---|
| AR_V_N_200 | 600 to 1500 | 200 |
| AR_V_N_250 | 800 to 1500 | 250 |
| AR_V_N_300 | 800 to 1200 | 300 |
| AR_V_N_400 | 800 to 1200 | 400 |

| REF. | MANHOLE Ø | DN |
|---|---|---|
| AR_1000_N_500 | 1000 | 500 |
| AR_1000_N_600 | | 600 |

*Other custom sizes on request.*

BARE PART, WITHOUT VALVE

### HANDLING ACCESSORIES

Ring nut and cable compatible with all and **MULTI NB** and **MULTI N** valves.

| REF. | DESCRIPTION |
|---|---|
| ① CABLE3M-316 | Handling cable 3 m, AISI 316 stainless steel, Ø 5 mm, 2 cable loops with shackle |
| CABLE6M-316 | Handling cable 6 m, AISI 316 stainless steel, Ø 5 mm, 2 cable loops with shackle |
| ② ÉCROU-ANNEAU10-316 | AISI 316 stainless steel ring |

# MULTITUBE
## VALVES

## IN-LINE MULTI VALVES

### AREA OF USE

**IN-LINE MULTI** valve in isophthalic polyester resin reinforced with fiberglass, isophthalic gel-coat and EPDM seal.

To be connected directly to any type of pipe with **NORHAM COUPLINGS**(1).

Multimaterial couplings are supplied and already installed on the **MULTI** valve for quick and easy installation. They guarantee the tightness between the valve and the pipeline.

### TECHNICAL DATA

- Multimaterial connection (PVC, HDPE, fibre cement, cast iron, clay, concrete, corrugated, etc) ;
- **Pressure resistance :** 0,9 bar (9 mWG) ;
- Supplied «**ready to install**»(3) with a **NORHAM COUPLING**(1).

*(3) The MULTI valve is supplied with the necessary connection configuration depending on the pipe to be connected (please confirm type and external diameter).*

(1)

ETE CE 09 ETA 09/0248 QB 87-01-352

**MULTIMATERIAL CONNECTION WITH NORHAM COUPLINGS**
For all types of connections, the external diameters of the pipes must be specified.

**FLAP**
in fibreglass-reinforced isophthalic polyester resin and isophthalic gel-coat.

**MANHOLE**
for easy maintenance.

**NORHAM COUPLINGS**(1)
upplied with the valve, for multimaterial installations.

**AXIAL SYSTEM**
made of Ertacetal (POM).

**SEAL**
made of EPDM in compliance with standard NF-EN 681-1.

### INSPECTION TRAP CLOSING SYSTEM

Works like a «pressure cooker»: more pressure = more crushing of the seal = optimal sealing.

| PHASE 1 | PHASE 2 | PHASE 3 | PHASE 4 |
|---|---|---|---|
| Valve open, inspection trap removed. | Present the inspection trap at an angle. | Position the inspection trap against the top of the valve. | Once the inspection trap is installed, screw on the fixings. |
|  |  |  |  |



Dimensions in mm. Weight in kg. Operating pressure ($W_p$) in bar. Non-contractual visuals.

# MULTITUBE

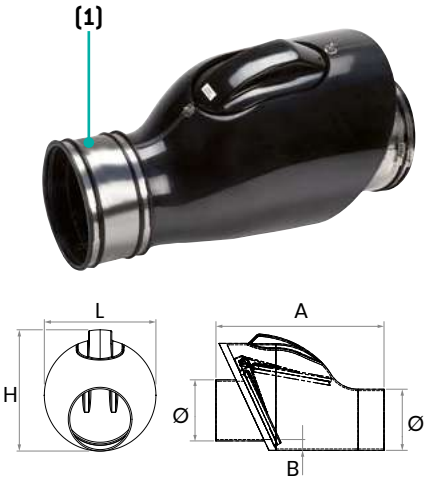
## VALVES

### DIMENSIONS FROM DN 250 TO DN 500

| REF. | DN | Ø | A | B | H | L | WEIGHT | $W_P$ |
|---|---|---|---|---|---|---|---|---|
| MULTI250-...** | 250 | 260 | 715 | 40 | 494 | 455 | 14,0 | 0,9 |
| MULTI315-...** | 300 | 316 | 753 | 43 | 566 | 520 | 17,6 | |
| MULTI400-...** | 400 | 395 | 897 | 34 | 592 | 615 | 35,0 | |
| MULTI500-...** | 500 | 515 | 1225 | 31 | 703 | 703 | 43,0 | |

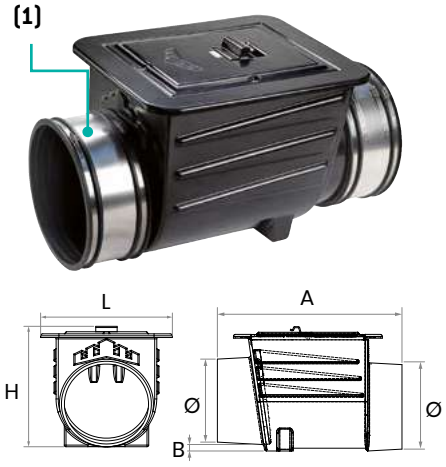
** Depending on the type of pipe : **PFF :** PVC / fibre cement / cast iron // **G :** clay // **BA :** concrete / corrugated.

### DN 250




### DN 315


### DN 400 ET DN 500




# MULTITUBE
## VALVES

## SHUTTER VALVES

### AREA OF USE

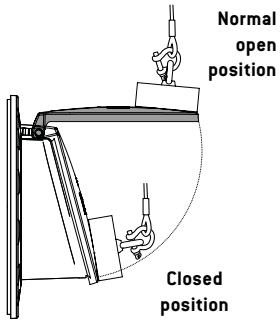
ibreglass-reinforced isophthalic polyester resin, isophthalic gel-coat and EPDM seal valves with AISI 316 stainless steel weight and **ring nut**.

In the normal position, the valve is held open by a **ring nut + cable / loops** (see accessories below).

This solution is not suitable for a closed leaf application in the normal position.

### FOR WALL MOUNTING

| REF. | DN | OVERWEIGHT |
|---|---|---|
| MULTI200NB-DE | 200 | 0,76 |
| MULTI250NB-DE | 250 | 3,20 |
| MULTI315NB-DE | 300 | 4,50 |
| MULTI400NB-DE | 400 | 7,10 |
| MULTI500NB-DE | 500 | 12,00 |
| MULTI600NB-DE | 600 | 18,00 |




### FOR PVC, FIBRE CEMENT AND CAST IRON CONNECTIONS

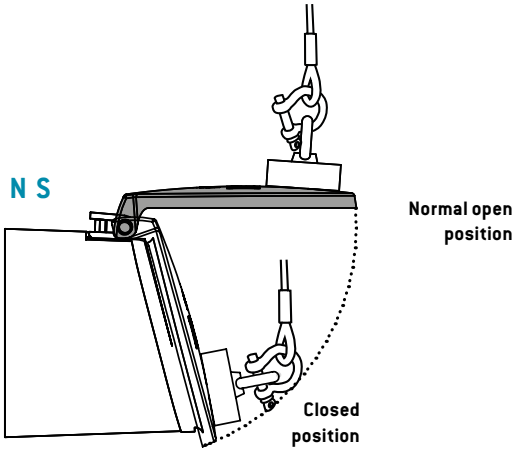
| REF. | DN | OVERWEIGHT |
|---|---|---|
| MULTI200N-PFF-DE | 200 | 0,76 |
| MULTI250N-PFF-DE | 250 | 3,2 |
| MULTI315N-PFF-DE | 300 | 4,5 |
| MULTI400N-PFF-DE | 400 | 7,1 |
| MULTI500N-PFF-DE | 500 | 12,0 |
| MULTI600N-PFF-DE | 600 | 18,0 |

### FOR CLAY CONNECTIONS

| REF. | DN | OVERWEIGHT |
|---|---|---|
| MULTI250N-G-DE | 250 | 3,2 |
| MULTI315N-G-DE | 300 | 4,5 |
| MULTI400N-G-DE | 400 | 7,1 |
| MULTI500N-G-DE | 500 | 12,0 |
| MULTI600N-G-DE | 600 | 18,0 |

### FOR CONCRETE AND CORRUGATED CONNECTIONS

| REF. | DN | OVERWEIGHT |
|---|---|---|
| MULTI250N-BA-DE | 250 | 3,2 |
| MULTI315N-BA-DE | 300 | 4,5 |
| MULTI400N-BA-DE | 400 | 7,1 |
| MULTI500N-BA-DE | 500 | 12,0 |
| MULTI600N-BA-DE | 600 | 18,0 |






Dimensions in mm. Weight in kg. Operating pressure ($W_p$) in bar. Non-contractual visuals.

# ADAPTOR FLANGES

## AREA OF USE

Multi-manhole **ADAPTATION FLANGES** are used to install a flat or «female» interlocking surface piece in a circular manhole.

Thanks to its design (patented system), the same multi-manhole **ADAPTATION FLANGE** can be installed in manholes of very different diameters (one product covers several manhole internal diameters).

## AR_V_B ADAPTATOR FLANGES

- Adaptor flanges for **MULTI NB** valves from DN 200 to DN 600.
- Body made of HDPE, seal made of EPDM and screws made of AISI 316 stainless steel.

### TECHNICAL DATA

The **AR_V_B** range is designed for all NORHAM **MULTI NB** valves DN 200 to 600 and for all other parts with ISO PN10 flanges. The valve is mounted on the flange using AISI 316 stainless steel screws.

| REF. | MANHOLE Ø | DN |
|---|---|---|
| AR_V_B_200 | 600 to 1500 | 200 |
| AR_V_B_250 | 800 to 1500 | 250 |
| AR_V_B_300 | 800 to 1200 | 300 |
| AR_V_B_400 | 800 to 1200 | 400 |
| AR_V_B_500-2 | 1500 to 2000 | 500 |
| AR_V_B_600-3 | 5000 to 8000 | 600 |

*Other custom sizes on request.*

MOUNTING IN CIRCULAR MANHOLE

## AR_V_N ET AR_1000_N ADAPTATOR FLANGES

- Adaptor flanges for all **MULTI N** valves.
- Body in fibreglass-reinforced isophaltic polyester resin, seal in EPDM and screws in AISI 316 stainless steel.

### TECHNICAL DATA

The AR_V_N range is designed for all NORHAM **MULTI N** valves and for all parts with «female» connections. The valve is mounted on the flange using a **NORHAM COUPLING**(1).

| REF. | MANHOLE Ø | DN |
|---|---|---|
| AR_V_N_200 | 600 to 1500 | 200 |
| AR_V_N_250 | 800 to 1500 | 250 |
| AR_V_N_300 | 800 to 1200 | 300 |
| AR_V_N_400 | 800 to 1200 | 400 |
| AR_1000_N_500 | 1000 | 500 |
| AR_1000_N_600 | | 600 |

*Other custom sizes on request.*

(1)


MULTI-MATERIAL CONNECTION WITH NORHAM COUPLINGS

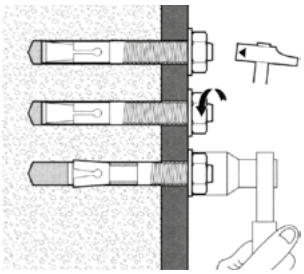
MOUNTING IN CIRCULAR MANHOLE

## INSTALLATION

### MULTI NB

The mounting wall must be smooth and vertical around the orifice.
The valve is fixed using A4 stainless steel anchor bolts.

| | |
|---|---|
| PHASE 1 | **DN 800 and DN 1000:** for ease of installation, set the flap at 45°.<br>**From DN 1200 to DN 1500:** for ease of installation, it may be useful to remove the flap. |
| PHASE 2 | Check that the wall surface is perfectly flat and in good condition. |
| PHASE 3 | Place the valve body on the wall, centre it and mark the fixing points on the wall. |
| PHASE 4 | Drill the wall and blow out the holes. |
| PHASE 5 | Insert the fasteners into the holes, hammering them in if necessary. |
| PHASE 6 | If necessary, reposition the leaf and its axis, position the valve on the fixings in place and tighten all the bolts evenly according to the recommended tightening torque. |



**MULTI NB valves installed on banks**



Dimensions in mm. Weight in kg. Operating pressure ($W_p$) in bar. Non-contractual visuals.

# MULTITUBE
## VALVES

### MULTI N

**MULTI N** valves are installed using pipe fittings.

**NORHAM COUPLINGS** allow the valve to be adapted to all types of pipe.

| | |
|---|---|
| **PHASE 1** | For ease of installation, it may be useful to remove the flap. Use a hex box spanner. |
| **PHASE 2** | The fitting is attached to the valve beforehand. |
| **PHASE 3** | Position the valve plus the female fitting on the pipe. Centre the valve. |
| **PHASE 4** | Tighten all the fasteners on the **NORHAM COUPLING** evenly. |
| **PHASE 5** | Reposition the flap and its axial system. Tighten all screws. |

**MULTI N valves installed on banks, PVC pipes**

### MULTI

**MULTI** valves are installed using **NORHAM COUPLINGS** (supplied), which enable the valve to be adapted to all types of pipe. The valves are installed overhead or in a manhole (they must not be buried).

| | |
|---|---|
| **PHASE 1** | Cut the section of pipe at the valve location, 20 mm longer than the total length of the valve. |
| **PHASE 2** | Draw a mark on the ends of the pipe to be connected corresponding to half the width of the fitting. |
| **PHASE 3** | Loosen the fixings and fit the **NORHAM COUPLINGS** onto the pipe ends (without lubricant or glue). |
| **PHASE 4** | Align the valve between the two parts of the pipe to be connected. |
| **PHASE 5** | Push the **NORHAM COUPLINGS** forward to the marks and tighten all the fittings' fasteners until they lock. |

# MULTITUBE
## VALVES

## CASE STUDIES

### 1 DOHA: MULTITUBE VALVES FOR ARTIFICIAL PORTS

| | CONDITIONS |
|---|---|
| SITE | New Port of Doha, Qatar. |
| INSTALLATION | 42 **MULTI NB** valves, DN 800. |

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**LEGENDS**

**1** et **2** Installation of **MULTITUBE** valves.

**3** Valve in total immersion.



Dimensions in mm. Weight in kg. Operating pressure ($W_p$) in bar. Non-contractual visuals.

# MULTITUBE
## VALVES

## 2 MULTITUBE VALVES FOR SOUTHERN ITALY

| | CONDITIONS |
|---|---|
| SITE | Canal Marana la Pidocchiosa (South Italia). |
| NEED | To improve the hydraulic and environmental functionality of the Marana la Pidocchiosa canal. |
| SOLUTION | Installation of **MULTITUBE MULTI NB** valves on steel flaps, allowing flow through the valve when the flow is low and through the steel flap when the flow is high. |

1

2

**LEGENDS**

1 Scheme of the flap-valve device.

2 MULTI NB flaps on steel shutters photo.

**PROJECT MANAGEMENT**

Euronova International

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## OTHERS NORHAM SOLUTIONS

### VAN'O'FLEX® KSA

Block valves for sewage systems.

DOWLOAD DOCUMENTATION



Dimensions in mm. Weight in kg. Operating pressure ($W_p$) in bar. Non-contractual visuals.

NORHAM

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afaq ISO 9001 Qualité AFNOR CERTIFICATION N° 1997 / 8004.7

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