



Hydro-Valve



TECHNICAL
SPECIFICATION

Hydro-Valve Technical Specification

2.0 OPERATION

2.1 General

A Hydro-Valve is a device for controlling fluid flow by hydraulic effect without requiring moving parts. At low flow rates, water enters through the inlet passes through the vortex chamber to the outlet with no restriction. As head height increases hydrostatic pressure also increases, this pressure forces fluid through the valve with enough energy to create a vortex in the vortex chamber which results in a considerable pressure drop between the inlet and outlet restricting flow to the required discharge rate (e.g. 5 l/s)

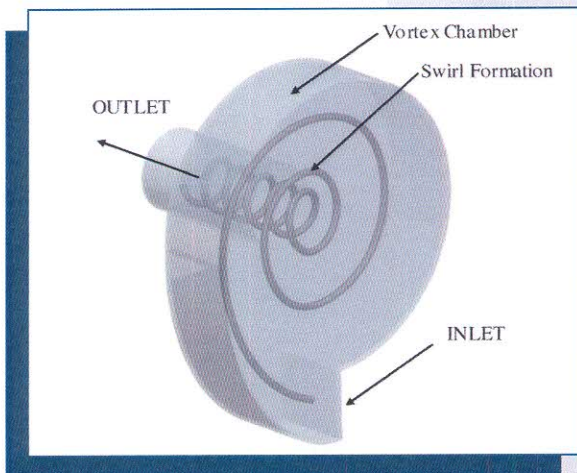


Fig. 3 (Vortex Chamber)

The creation of a forced vortex in the chamber allows an outlet orifice much larger in size (3-5 times the CSA) than that of conventional devices. A forced vortex ensures highest velocity will occur at the outer wall, this will inherently shift any solids towards the centre where velocity is lowest. The solids can then exit the valve minimising the risk of blockage.

Hydro-Valves have many advantages which include no moving parts, self activating, self cleansing, no external power source required and minimal maintenance.

2.2 Performance

DESIGN FLOW

This is generally the maximum flow that is required at the designed upstream head of water. (e.g. Pre-development run-off rate of 5 l/s)

FLUSH FLOW

This is the point at which a pressure difference begins to initiate in the vortex chamber having a throttling effect over the flow. The closer this is to the design flow the more water that will pass through this unit in the early stages of a rainstorm event.

KICK-BACK FLOW

This is the point at which the vortex has been initiated and at which time the curve begins to return back to that of an orifice plate performance curve.

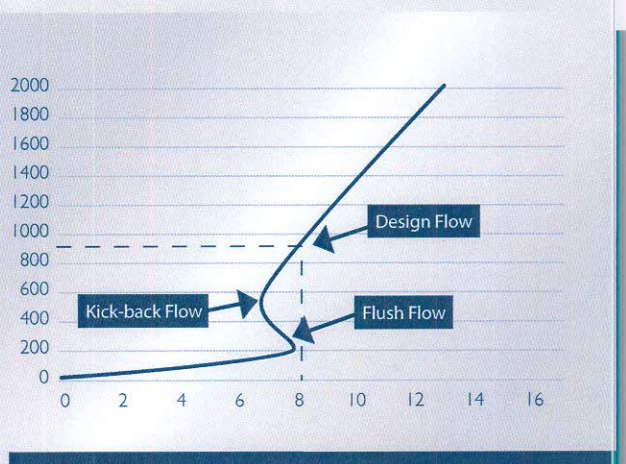


Fig. 4 (Typical Discharge Curve)

Hydro-Valve Technical Specification

3.0 FEATURES

3.1 General

Hydro-Valve vortex flow control devices have patented features such as the unique mounting adaptor which allows the easy installation of the Hydro-Valve onto the curved surface of a 1200mm manhole or the flat surface of a rectangular manhole. This unique mounting adaptor has an integrated bypass facility operated by a wire rope from the top of the manhole in the unusual event of a blockage. Another maintenance feature is a removable service plate on the back of the vortex chamber. (see figure 5.)

A neoprene gasket between the Hydro- Valve and manhole creates a watertight seal.

Outlet pipe sizes are Ø225mm CorriPipe and Ø300mm CorriPipe as standard, other outlet pipe sizes are available upon request.

3.2 Installation Manhole

There are two main types of mounting adaptors available with all Hydro- Valves:

- To suit a Ø1.2m Manhole (plastic or concrete, see fig. 5)
- To suit a rectangular manhole (precast, cast in situ or blocked)
- Customised Manhole adaptors available on request.

See installation drawings on pages 6 & 7 for more details.

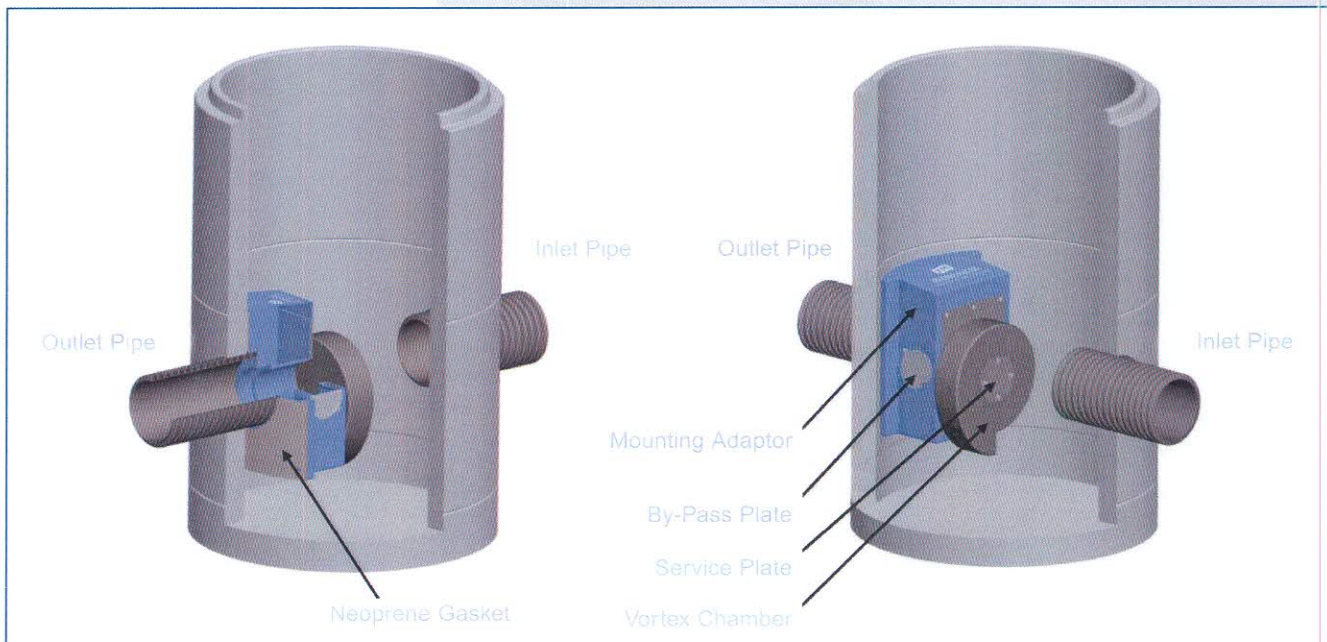


Fig. 5 (Ø1200mm Manhole Installation)

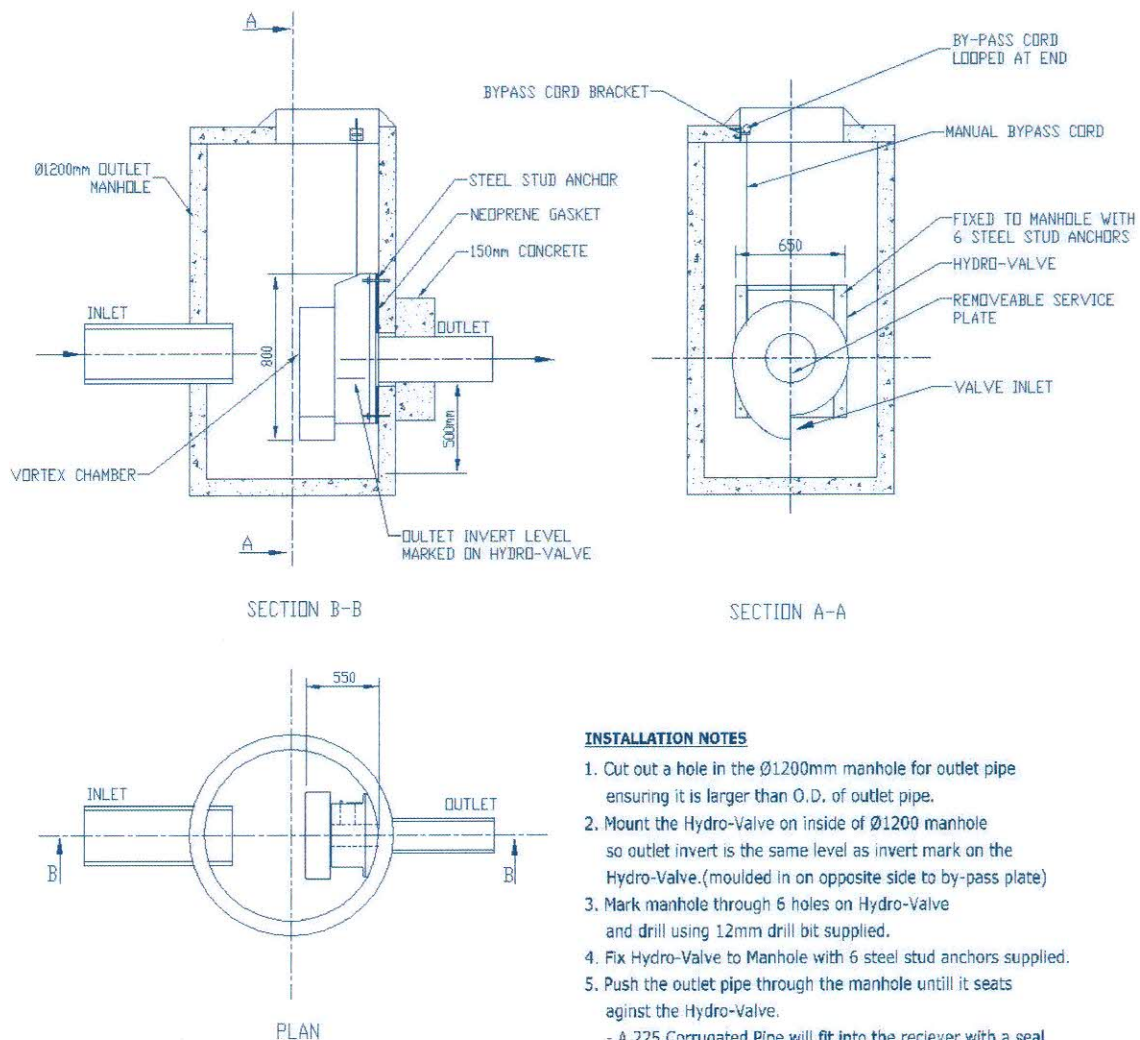
Hydro-Valve Technical Specification



HYDRO-VALVE

Ø1.2m Manhole Installation Instructions for Large Mounting Box

JFC Manufacturing
 Weir R.D. Tuam, Co. Galway.
 Tel: 093 24066 Fax: 093 24923
 Web: www.jfc.ie Email: info@jfc.ie



INSTALLATION NOTES

1. Cut out a hole in the Ø1200mm manhole for outlet pipe ensuring it is larger than O.D. of outlet pipe.
2. Mount the Hydro-Valve on inside of Ø1200 manhole so outlet invert is the same level as invert mark on the Hydro-Valve. (moulded in on opposite side to by-pass plate)
3. Mark manhole through 6 holes on Hydro-Valve and drill using 12mm drill bit supplied.
4. Fix Hydro-Valve to Manhole with 6 steel stud anchors supplied.
5. Push the outlet pipe through the manhole until it seats against the Hydro-Valve.
 - A 225 Corrugated Pipe will fit into the reciever with a seal
 - All other pipe sizes will seat against front of Hydro-Valve.
6. Case the outlet pipe with 150mm of concrete as shown above.
7. Fix the first by-pass cord bracket to the inside wall of the precast biscuit vertically above the by-pass plate.
8. Fix the second bracket to the inside wall of the precast biscuit in a position that leaves easy access to the by-pass cord handle.
9. Adjust the length of the by-pass cord using the u-clamp on the by-pass plate to leave easy access to the handle
10. Ensure the cord operates freely.

Watertight Seal

- The neoprene gasket seals the Hydro-Valve to the wall of the Manhole preventing any water from entering the outlet pipe without going through the valve.
- The concrete casing prevents any water that leaves the valve from entering the ground around the outlet pipe.



Stormwater Management

THE INFILTRATION RANGE



INFILTRATION MODULES INFILTRATION FILTERS
RETENTION CISTERNS SHAFTS AND ACCESSORIES

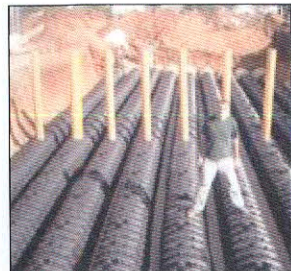
Internationally proven: GRAF infiltration technology



Business Park, Hradec Králové (CZ)



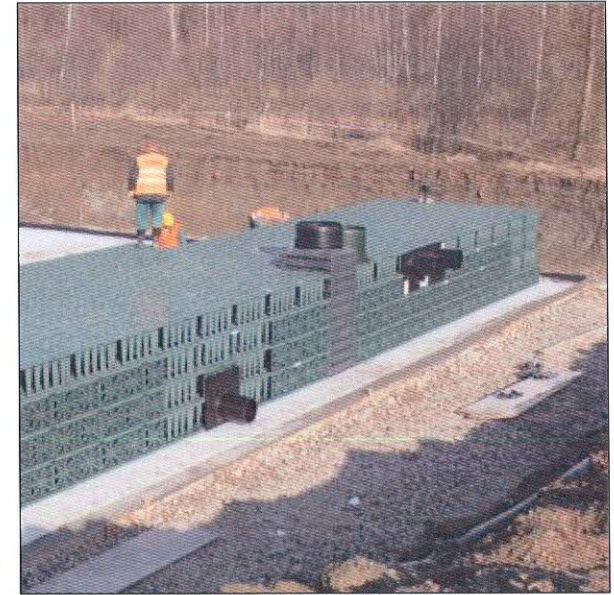
Energy supplier, Warwick (UK)



Car dealership, Sofia (BG)



Industrial building, Tumeltsham (AT)



Recycling centre, Vresová (CZ)



DIY chain store, Bratislava (SK)



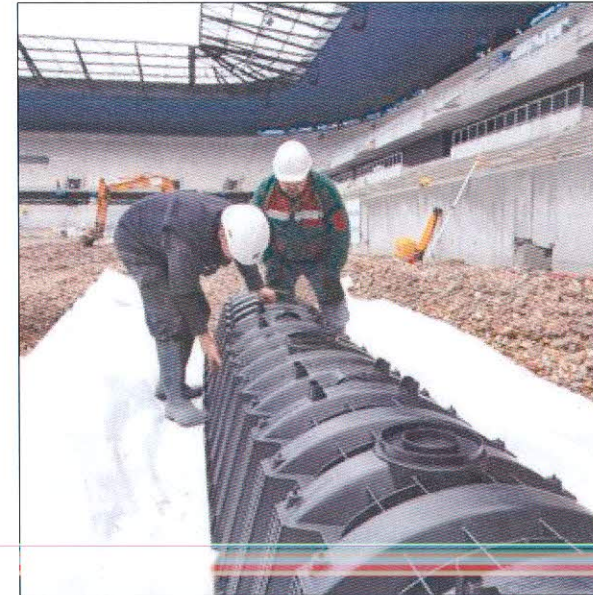
Shopping center, Kent (UK)



Military building, Mazuren (PL)



Industrial building, Merseburg (DE)



Football stadium, Le Havre (FR)

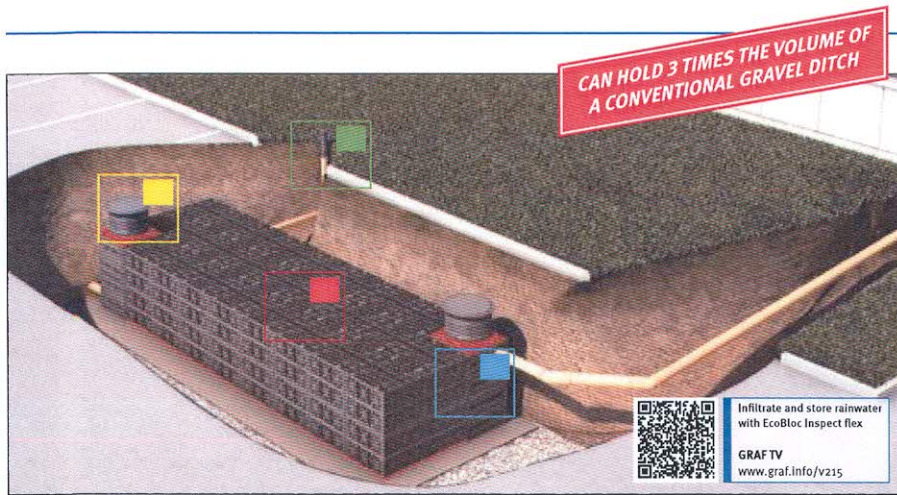


Production site, Ludwigsfelde (DE)



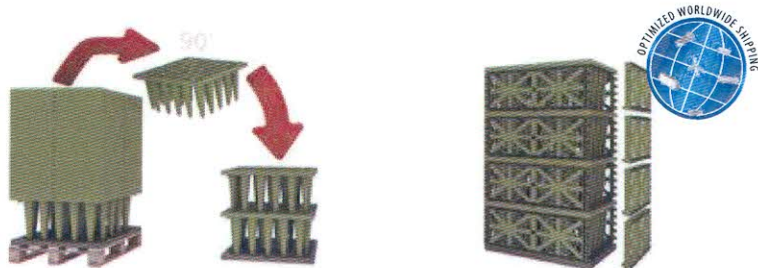
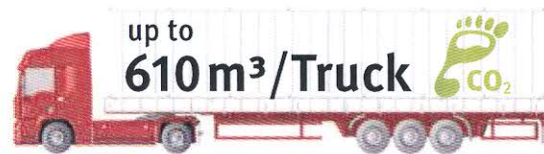
City park, Barcelona (ES)

The EcoBloc system at a glance



Application and logistics

Eco-friendly product – green logistics
 One lorry can transport up to 2700 EcoBloc light modules. That corresponds to a volume of 610 m³ (161,145 US gal.). This reduces carbon emissions during transport by 85 %!



1. Stackable





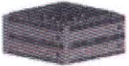
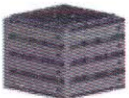
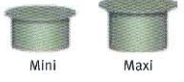


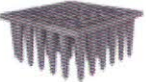
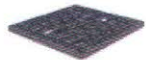













To save space during transport, the EcoBloc maxx and EcoBloc light modules are stacked into each other. This minimizes transport costs, storage space in stock and CO₂ emissions.

2. Easy installation

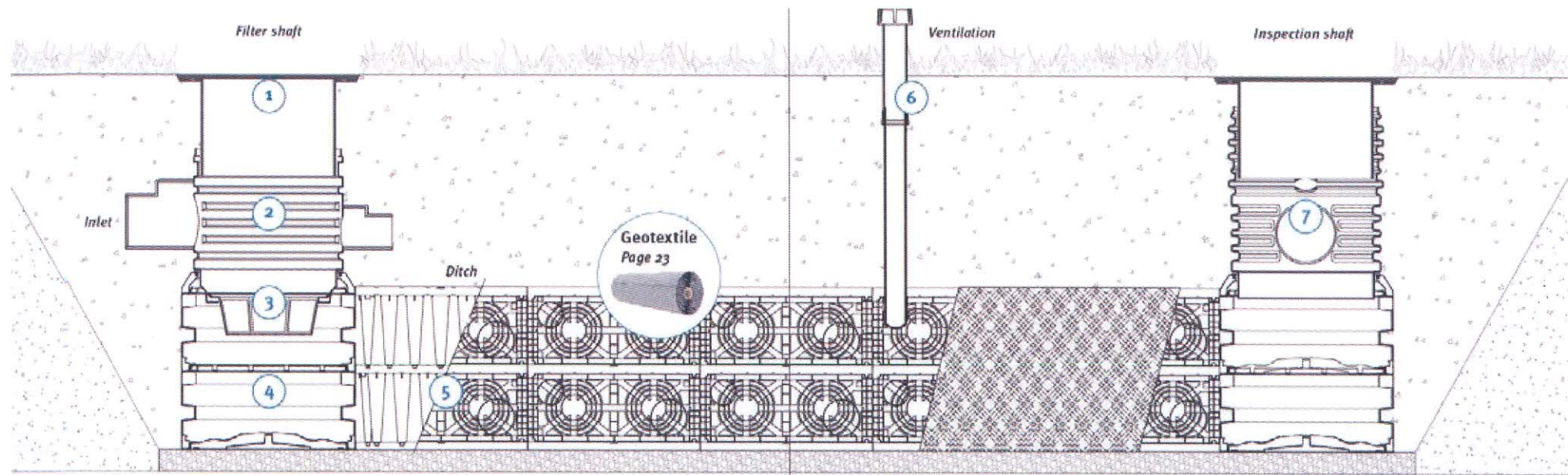
The EcoBloc base plate forms the foundations of each EcoBloc system. Up to 13 EcoBloc modules can be fitted on one base plate.

3. Ready


The side faces are sealed with EcoBloc end plates. The EcoBloc system can be adapted to match individual requirements.

Infiltration system body	Infiltration system body accessories	Shaft	Shaft accessories
<p>EcoBloc Inspect flex Page 22</p>  <p>EcoBloc Inspect flex base plate Page 22</p> 	<p>Deaeration end, geotextile, and connectors Page 23</p>  <p>EcoBloc Inspect flex end plates Page 22</p> 	<p>Vario 800 flex, type 1 Page 26</p>  <p>Vario 800 flex, type 2 Page 26</p> 	<p>Telescopic dome shaft pedestrian loading Page 27</p>  <p>Telescopic dome shaft vehicle loading max. load 3.5 t Page 27</p>  <p>Telescopic dome shaft lorry bearing Page 27</p> 
<p>EcoBloc maxx Page 22</p>  <p>EcoBloc maxx base plate Page 22</p> 	<p>EcoBloc maxx end plates Page 22</p>  <p>EcoBloc light end plates Page 23</p> 	<p>Vario 800 flex, base/cover set Page 26</p> 	<p>Infiltration inlet module DN 600 (24") Page 27</p> 
<p>EcoBloc light Page 23</p>  <p>EcoBloc light base plate Page 23</p> 	<p>EcoBloc adaptor plate Page 23</p> 	<p>Infiltration connecting piece 1000 DN 600 (24") Page 27</p> 	<p>Infiltration filter strainer DN 600 (24") Page 27</p> 
<p>EcoBloc light base plate Page 23</p> 	<p>EcoBloc light base plate Page 23</p> 	<p>Choke drain pack 1 DN 100 (4"), pack 2 DN 150 (6"), pack 3 floating choke drains Page 27</p> 	<p>Choke drain pack 1 DN 100 (4"), pack 2 DN 150 (6"), pack 3 floating choke drains Page 27</p> 

Infiltration with EcoBloc maxx



1 Telescopic dome shaft



- Choice of pedestrian, car or HGV loading

Page 27

2 Infiltration inlet module DN 600 (24")



- Freely rotatable for optimum alignment to connecting line
- Connections up to DN 300 (12")

Page 27

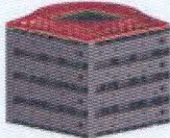
3 Infiltration filter strainer



- Stainless steel filter (mesh width 0.75 mm (0.03")
- Reliably filters out contamination

Page 27


4 Vario 800 flex, type 2



- Optimally aligned to EcoBloc Inspect flex
- Wide range of possible shaft solutions
- Connections up to DN 400 (16")

Page 26


5 EcoBloc maxx



- Lorry-bearing 40 tons/HS-20
- 410 m³ (108,310 US gal.)/Truck

Page 22


6 Deaeration end



- DN 100 (4")
- For separate ventilation
- For installation in green spaces

Page 23

7 Infiltration connecting piece 1000 DN 600 (24")



- For greater installation depths

Page 27