



RAIL  
BALTICA

Visualization of RAIL BALTICA technical solution



# DRAINAGE SYSTEMS FOR RAILWAY CONSTRUCTION

## ADVANTAGES OF EVOPIPES DRAINAGE PIPES AND CHAMBERS

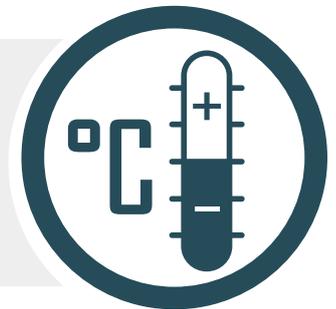


### Mechanical

Excellent balance between product ring stiffness, ring flexibility and impact resistance.

### Thermal

The products can be installed in low temperatures until  $-10\text{ }^{\circ}\text{C}$



### Chemical

Products are resistant to exposure to aggressive substances present in sewage and subsoil from pH2 (acidic medium) until pH12 (alkaline medium)

### Ecologic

The products are environment-friendly and recyclable after several decades in operation



Product lifetime  $\geq$  **100 years.**



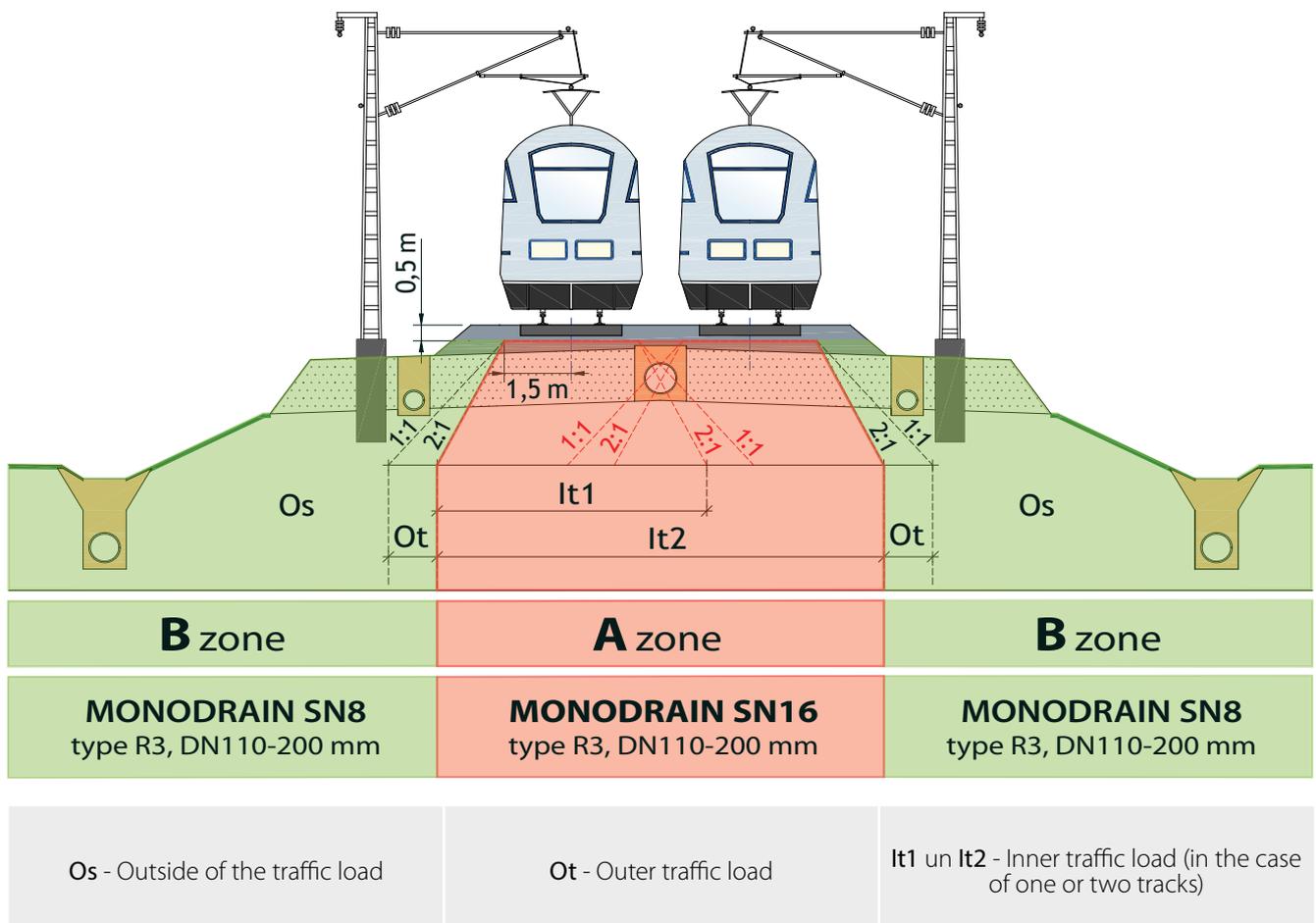
## DRAINAGE PIPES FOR RAILWAY CONSTRUCTION

According to Deutsche Bahn specification DBS 918 064

Product name	Description	Standard
MONODRAIN SN8	R3 type drainage pipe with smooth internal and external surface	<ul style="list-style-type: none"> <li>• DBS 918 064</li> <li>• EN 1852-1</li> <li>• DIN 4262-1</li> <li>• DIN 4102-1*</li> </ul>
MONODRAIN SN16	R3 type drainage pipe with smooth internal and external surface	<ul style="list-style-type: none"> <li>• DBS 918 064</li> <li>• EN 1852-1</li> <li>• DIN 4262-1</li> <li>• DIN 4102-1*</li> </ul>

\*On request available pipe conform to DIN 4102-1 (used for tunnel construction, self-extinguishing, class B2).

### RAILWAY CONSTRUCTION





## DRAINAGE PIPES FOR RAILWAY CONSTRUCTION

### MONODRAIN

DN/OD series R3 type drainage pipe with smooth internal and external surface. **Water inlet perforation opening area  $\geq 100 \text{ cm}^2/\text{m}$** . The products are supplied in straight 6m bars. Each bar is equipped with a double sleeve with two integrated sealing rings. The supplied sealing rings conform to EN 681-1/A3.

**Conformity** DBS 918 064, EN 1852-1, DIN 4262-1, DIN 4102-1\*

**Type:** R3 (smooth-wall pipes)

**Material:** polypropylene (PP)

**Ring stiffness:** SN8

**Perforation opening width:** 5 mm

**Perforation type:** TP(360°), LP(180°±10°), MP(≤120°), UP

**DN/OD:** 110, 160, 200 mm

Ring stiffness **SN8**  
Water inlet perforation opening area  $\geq 100 \text{ cm}^2/\text{m}$

Perforation type	Cross section	View form top of the pipe	Perforation opening, mm
TP (360°)			
LP (180°)			
MP (120°)			

**Notes**

\*On request available pipe conform to DIN 4102-1 (used for tunnel construction, self-extinguishing, class B2)

# pipes with DN/OD > 200 mm available on request



## DRAINAGE PIPES FOR RAILWAY CONSTRUCTION



**DRAIN mono**

**R3**

### MONODRAIN

DN/OD series R3 type drainage pipe with smooth internal and external surface. Due to the SN16 ring stiffness class the pipe is perfectly suited for installation works in zones/places with large traffic loads. **Water inlet perforation opening area  $\geq 100 \text{ cm}^2/\text{m}$** . The products are supplied in straight 6m bars. Each bar is equipped with a double sleeve with two integrated sealing rings. The supplied sealing rings conform to EN 681-1/A3.

**Conformity** DBS 918 064, EN 1852-1, DIN 4262-1, DIN 4102-1\*

**Type:** R3 (smooth-wall pipes)

**Material:** polypropylene (PP)

**Ring stiffness:** SN16

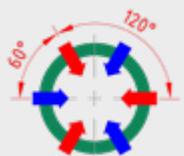
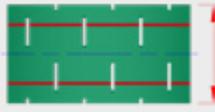
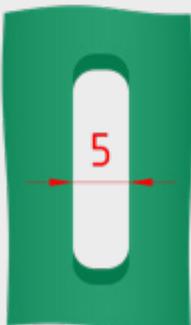
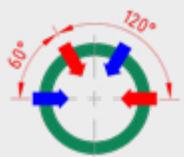
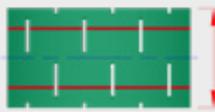
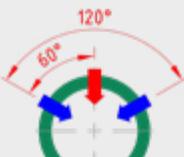
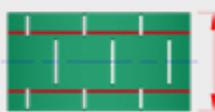
**Perforation opening width:** 5 mm

**Perforation type:** TP(360°), LP(180°±10°), MP(≤120°), UP

**DN/OD:** 110, 160, 200 mm

### Ring stiffness **SN16**

Water inlet perforation opening area  $\geq 100 \text{ cm}^2/\text{m}$

Perforation type	Cross section	View form top of the pipe	Perforation opening, mm
TP (360°)		 DN/OD 110, 160, 200	
LP (180°)		 DN/OD 110, 160, 200	
MP (120°)		 DN/OD 110, 160, 200	

**Notes**

\*On request available pipe conform to DIN 4102-1 (used for tunnel construction, self-extinguishing, class B2)

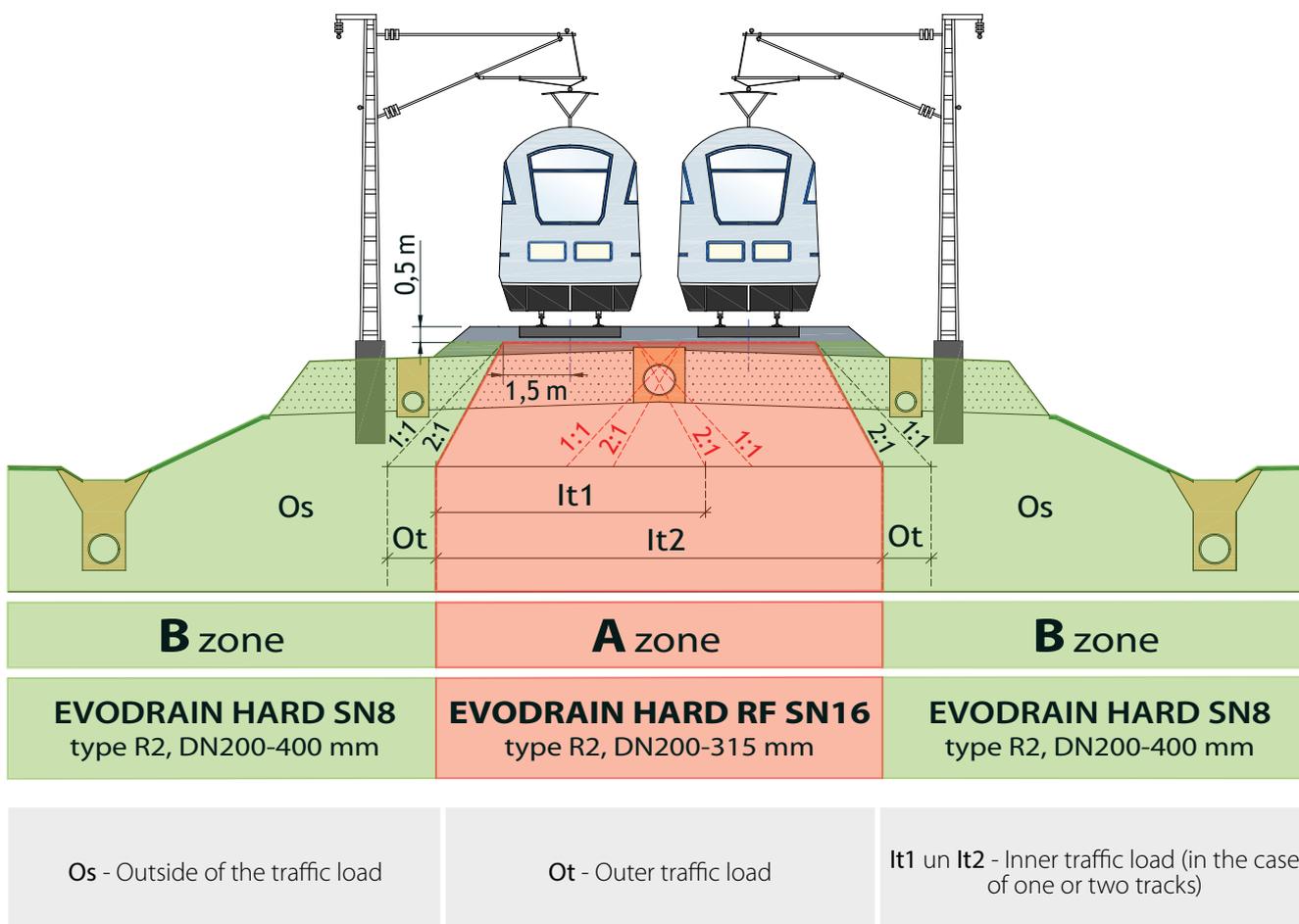
# pipes with DN/OD > 200 mm available on request



## DRAINAGE PIPES FOR RAILWAY CONSTRUCTION

Product name	Description	Standard
EVODRAIN HARD RF	R2 type drainage pipe with profiled (corrugated) external and smooth internal surface, SN16	<ul style="list-style-type: none"> <li>• EN 13476-3</li> <li>• DIN 4262-1</li> </ul>
EVODRAIN HARD	R2 type drainage pipe with profiled (corrugated) external and smooth internal surface, SN8	<ul style="list-style-type: none"> <li>• EN 13476-3</li> <li>• DIN 4262-1</li> </ul>
GIGAPIPE (perforated)	R2 type drainage pipe with profiled (corrugated) external and smooth internal surface, SN8 or SN16	<ul style="list-style-type: none"> <li>• EN 13476-3</li> <li>• DIN 4262-1</li> </ul>

### RAILWAY CONSTRUCTION





## DRAINAGE PIPES FOR RAILWAY CONSTRUCTION



### EVODRAIN HARD RF

DN/OD series R2 type double-wall pipe with profiled (corrugated) external and smooth internal surface. Due to the SN16 ring stiffness class the pipe is perfectly suited for installation works in zones/ places with large traffic loads. **Water inlet perforation opening area  $\geq 100 \text{ cm}^2/\text{m}$ .** The products are supplied in straight 6m bars. Each bar is equipped with welded on solid PP coupling and rubber sealing ring. The supplied sealing rings conform to EN 681-1/A3.

**Conformity** DIN 4262-1, EN 13476-3

**Type:** R2 (double-wall pipes)

**Material:** polypropylene (PP)

**Ring stiffness:** SN16

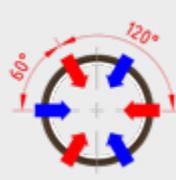
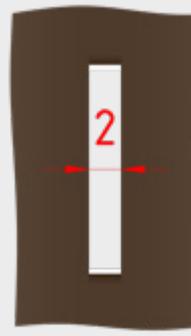
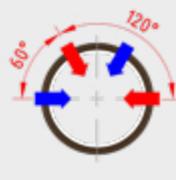
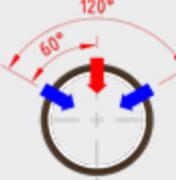
**Perforation opening width:** 2 mm

**Perforation type:** TP(360°), LP(180°±10°), MP(≤120°), UP

**DN/OD:** 200-315 mm

### Ring stiffness **SN16**

Water inlet perforation opening area  $\geq 100 \text{ cm}^2/\text{m}$

Perforation type	Cross section	View form top of the pipe	Perforation opening, mm
TP (360°)		 DN/OD 200, 250, 315	
LP (180°)		 DN/OD 200, 250, 315	
MP (120°)		 DN/OD 200, 250, 315	



## DRAINAGE PIPES FOR RAILWAY CONSTRUCTION





### EVODRAIN HARD

DN/OD series R2 type double-wall pipe with profiled (corrugated) external and smooth internal surface. **Water inlet perforation opening area  $\geq 100 \text{ cm}^2/\text{m}$ .** The products are supplied in straight 6m bars. Each bar is equipped with welded on solid PP coupling and rubber sealing ring. The supplied sealing rings conform to EN 681-1/A3.

**Conformity** DIN 4262-1, EN 13476-3

**Type:** R2 (double-wall pipes)

**Material:** polypropylene (PP)

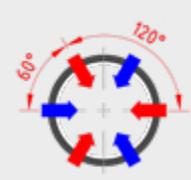
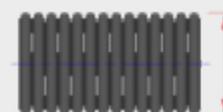
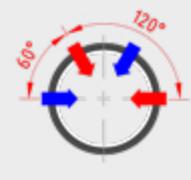
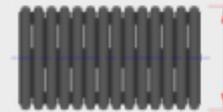
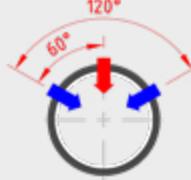
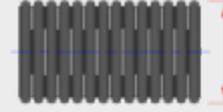
**Ring stiffness:** SN8

**Perforation opening width:** 2 mm

**Perforation type:** TP(360°), LP(180°±10°), MP(≤120°), UP

**DN/OD:** 200-400 mm

Ring stiffness **SN8**  
 Water inlet perforation opening area  $\geq 100 \text{ cm}^2/\text{m}$

Perforation type	Cross section	View form top of the pipe	Perforation opening, mm
TP (360°)		 DN/OD 200, 250, 315, 400*	
LP (180°)		 DN/OD 200, 250, 315, 400*	
MP (120°)		 DN/OD 200, 250, 315, 400*	

**Notes**

\* EVODRAIN HARD DN/OD 400 mm pipe is perforated in each foot of the profile, exactly as GIGAPIPE (perforated) pipe.



## DRAINAGE PIPES FOR RAILWAY CONSTRUCTION



### GIGAPIPE (perforated)

DN/OD series R2 type double-wall pipe with profiled (corrugated) external and smooth internal surface. Water inlet perforation opening area  $\geq 100$  cm<sup>2</sup>/m. The products are supplied in straight 6m bars. Each bar is equipped with integrated expanded coupling for flawless connections. Rubber sealing ring (to be installed on the pipe at the construction site) conform to EN 681-1/ A3.

**Conformity** DIN 4262-1, EN 13476-3

**Type:** R2 (double-wall pipes)

**Material:** polypropylene (PP)

**Ring stiffness:** SN8 or SN16

**Perforation opening width:** 2 mm

**Perforation type:** TP(360°), LP(180°±10°), MP(≤120°), UP

**DN/ID:** 500 mm

Ring stiffness **SN8** or **SN16**

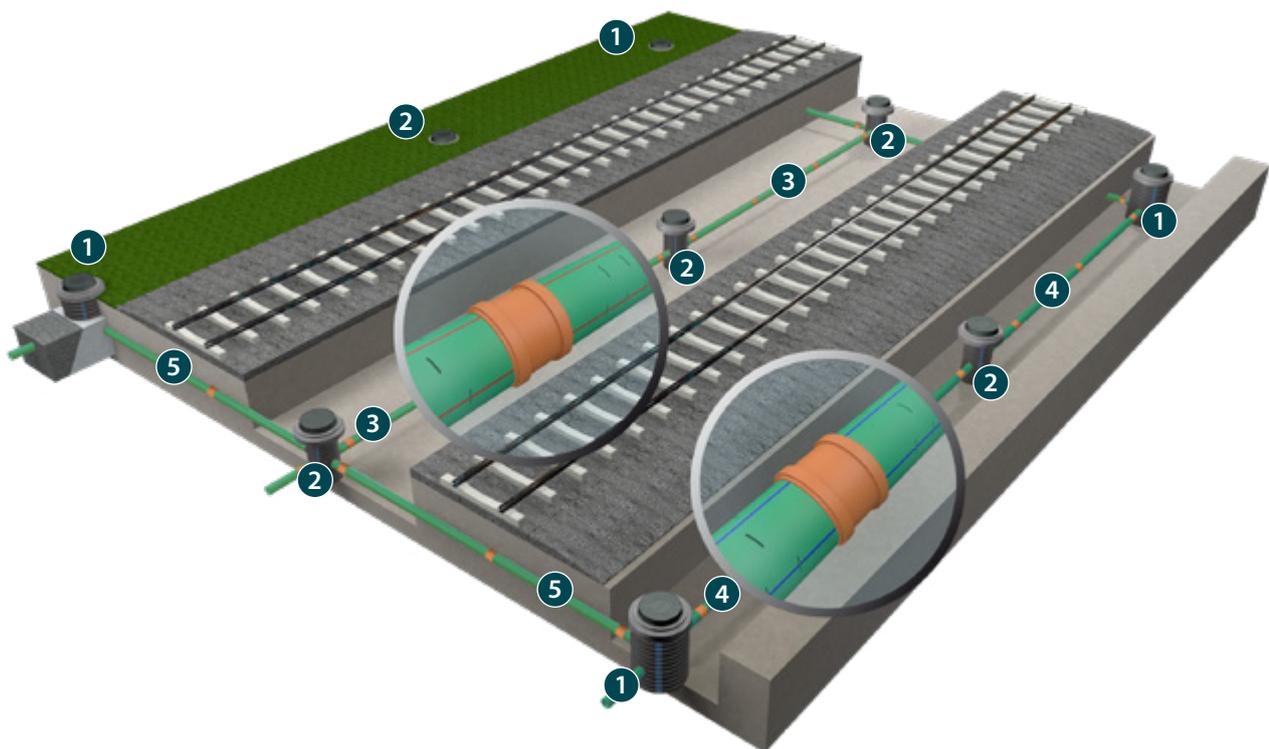
Water inlet perforation opening area  $\geq 100$  cm<sup>2</sup>/m

Perforation type	Cross section	View form top of the pipe	Perforation opening, mm
TP (360°)			
LP (180°)			
MP (120°)			

**Notes**

Pipe colour with nominal ring stiffness class SN16 — black with red stripe

## DRAINAGE CHAMBERS FOR RAILWAY CONSTRUCTION



### Legend

1	Drainage manhole with sediment trap CID 1000.600D
2	Drainage chamber with sediment trap CID 600D
3	Drainage pipe MONODRAIN SN16 DN/OD 110-200 mm, type R3, perforation type TP (360°)
4	Drainage pipe MONODRAIN SN8 DN/OD 110-200 mm, type R3, perforation type TP (360°)
5	Drainage pipe MONODRAIN SN16 DN/OD 110-200 mm, type R3, perforation type UP (unperforated)



## DRAINAGE CHAMBERS FOR RAILWAY CONSTRUCTION

### CID 400.315D

Drainage chamber with diameter of DN/OD 400 mm and sediment trap.\* Double-wall PP height adjustment shaft with welded on base. Industrially welded connections. Cast iron cover, conform to EN 124-2, traffic load class D400(40t), with PP smooth-wall telescopic pipe DN 315mm, height of the telescopic pipe — 0,6m. Rubber cuff DN400/315 mm.

*\*standard set 0,7m with volume 67l=67dm<sup>3</sup>; on request available chamber with other height of sediment trap (or without it).*

**Chamber top:** EN 124-2

**Telescopic pipe:**  
EN 13476-2

**Shaft:** EN 13476-3,  
EN 14802

**Connections:**  
DN/OD 110 - 250 mm



### CID 600D

Drainage chamber with diameter of DN/ID 600 mm and sediment trap.\* Double-wall PP height adjustment shaft with welded on base. Industrially welded connections. Reinforced concrete support ring, h=160mm. Reinforced concrete height adjustment ring, h=80mm (adjustment height 60mm, installed if necessary, no more than 4 pieces can be stacked). Stationary type cast iron cover, conform to EN 124-2, traffic load class D400(40t), opening DN/ID>600 mm.

*\*standard set 0,6m with volume 166l=166dm<sup>3</sup>; on request available manhole with other height of sediment trap (or without it).*

**Chamber top:** EN 124-2

**Reinforced concrete support rings:**  
EN 206, EN 1917,  
EN 1917/AC

**Shaft:** EN 13476-3,  
EN 14802

**Connections:**  
DN/OD 110 - 315 mm



### CID 1000.600D

Drainage manhole with diameter of DN/ID 1000 mm and sediment trap.\* Double-wall PP height adjustment shaft with welded on base. Industrially welded connections. Reinforced concrete support ring, h=160mm. Reinforced concrete height adjustment ring, h=80mm (adjustment height 60mm, installed if necessary, no more than 4 pieces can be stacked). Stationary type cast iron cover, conform to EN 124-2, traffic load class D400(40t), opening DN/ID>600 mm.

*\*standard set 0,4m with volume 309l=309dm<sup>3</sup>; on request available manhole with other height of sediment trap (or without it).*

**Manhole top:** EN 124-2

**Reinforced concrete support rings:**  
EN 206, EN 1917,  
EN 1917/AC

**Shaft:** EN 13476-3,  
EN 14802

**Connections:**  
DN/OD 110 - 400 mm  
DN/ID 500 mm





## PRODUCTION AND OFFICE

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