



The best condition for an easy installation of the FUNNEL is that the slope of the pipe and the slope of the finished paving are the same. In case that it doesn't happen, due to the ground morphology or due to choices that cannot be modified according to the project, we recommend the use of "extensions" to compensate the difference of quotations.

The measurement and preparation of the single extensions will have to be executed in the job site. The extension is composed by:

- a triple depth socket that has to be inserted directly into the hole of Ø110 positioned in the corrugated pipe, that guarantees by itself a supplementary height of about 13cm.
  - a possible additional pipe as the one used in sewage system in PVC or in similar material to be cut on measure to cover the failing distance (the pipe can be "welded half coupling" type or "smooth" that could be realized "welded half coupling" in the job site after having warmed it).
- If the triple depth socket is enough, it will be possible to plan to insert the ductile iron cone directly on it.

If the height to be covered is lower than 13cm of the triple depth socket, it will be necessary to cut it on measure before inserting it. At the end, in case that the height to be covered is higher than 13 cm of the triple depth socket, the fragment of pipe will be inserted on it and therefore the ductile iron cone will be assembled to the pipe.

In case that the height of the extension is lower than 25cm, it will be needed to make the concrete coating of the flanking of "pipe + extension" with C25/30 class concrete up to a height of 5/10cm below the head of the extension.

In case that the height of the extension is higher than 25cm, it will be needed to make the concrete coating of the flanking of "pipe + extension" with a concrete mixture at 6% up to a height of 5/10cm below the head of the extension.

In order to ensure the alignment of all extensions, it is necessary to lay a wire on the whole line length in order to guarantee the right position.

Therefore the concrete with Constituency Class S4 (EN 206-1) is recommended and the rock aggregate will have to be made of stones with a maximum diameter of 8 mm. In case of intensive and frequent stressis equip the concrete around the FUNNEL with stretches of electrowelded mesh and/or steel rods.

SUMMARY TABLE

		D 400	E 600	F 900
Load class (EN 1433)				
Applicable load (EN 1433)	kN	400	600	900
Minimum height H of concrete laying bed	mm	200	200	250
Minimum thickness S of the concrete flanking <sup>18</sup>	mm	300	350	400
Concrete compression strength class (EN 206-1)		C 25/30 <sup>15</sup>	C 30/37	C 35/45
Concrete compression strength class <sup>7</sup> (EN 206-1)		C 30/37 XF4	C 35/45 XF4	C 40/50 XF4

18- In any case the thickness S will never be lower to (DN/2 + X mm), with X=100mm for class of load D400 and X=200mm for classes of load E600 and F900.

7- If concrete can be affected by frost and thaw cycles.

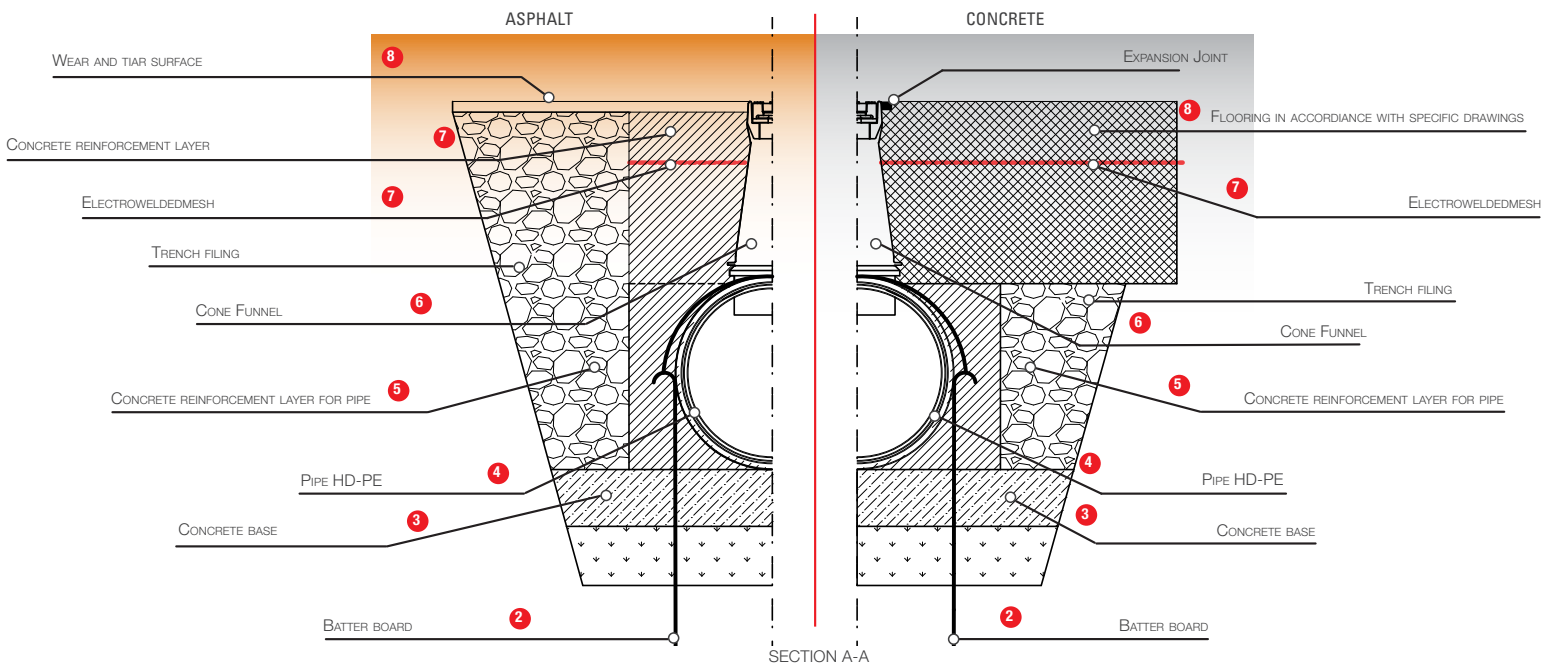
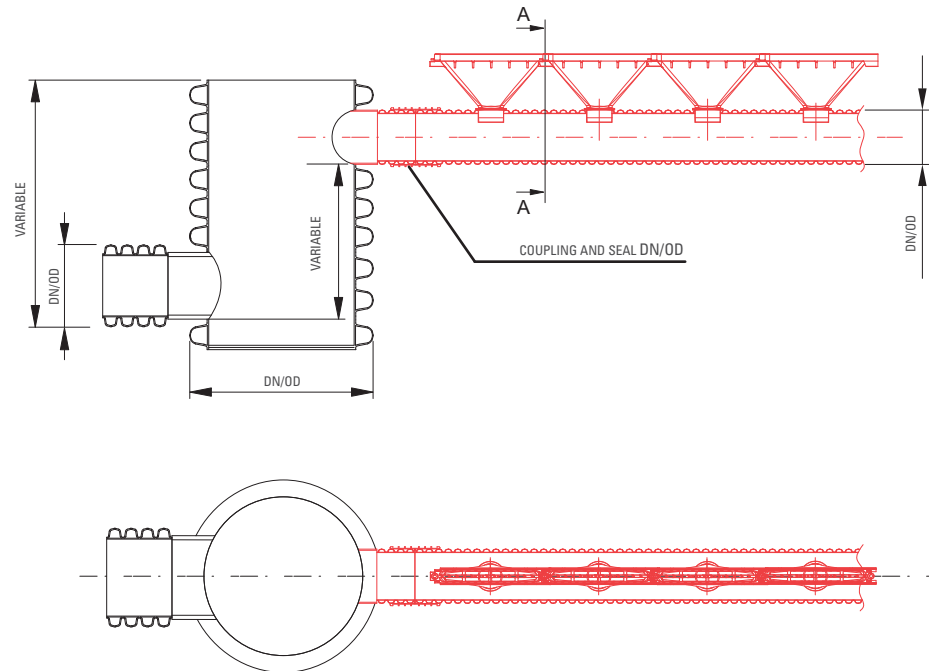
15- If installation is in road crossings subject to heavy traffic (especially trucks), Class C30/37 concrete should be used.

N.B. Sizes and weights are subject to usual manufacturing tolerance values.

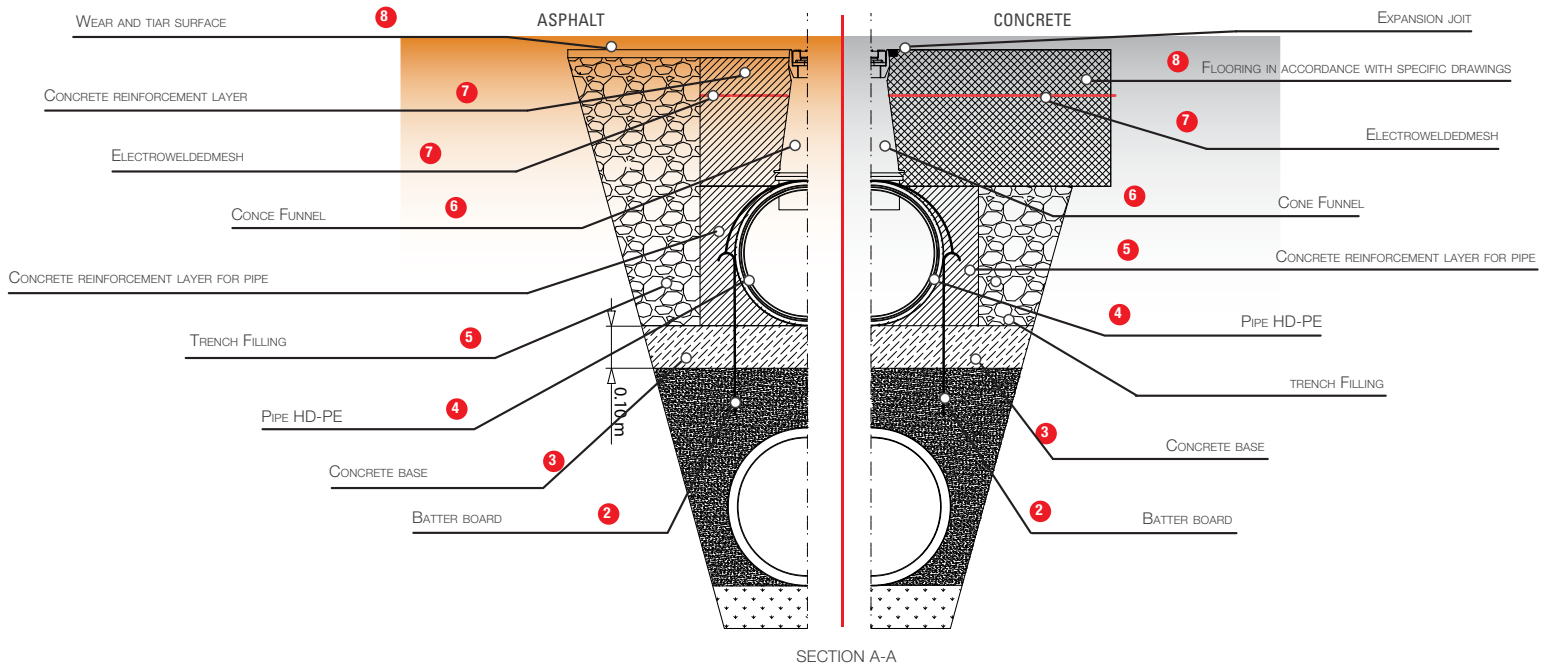
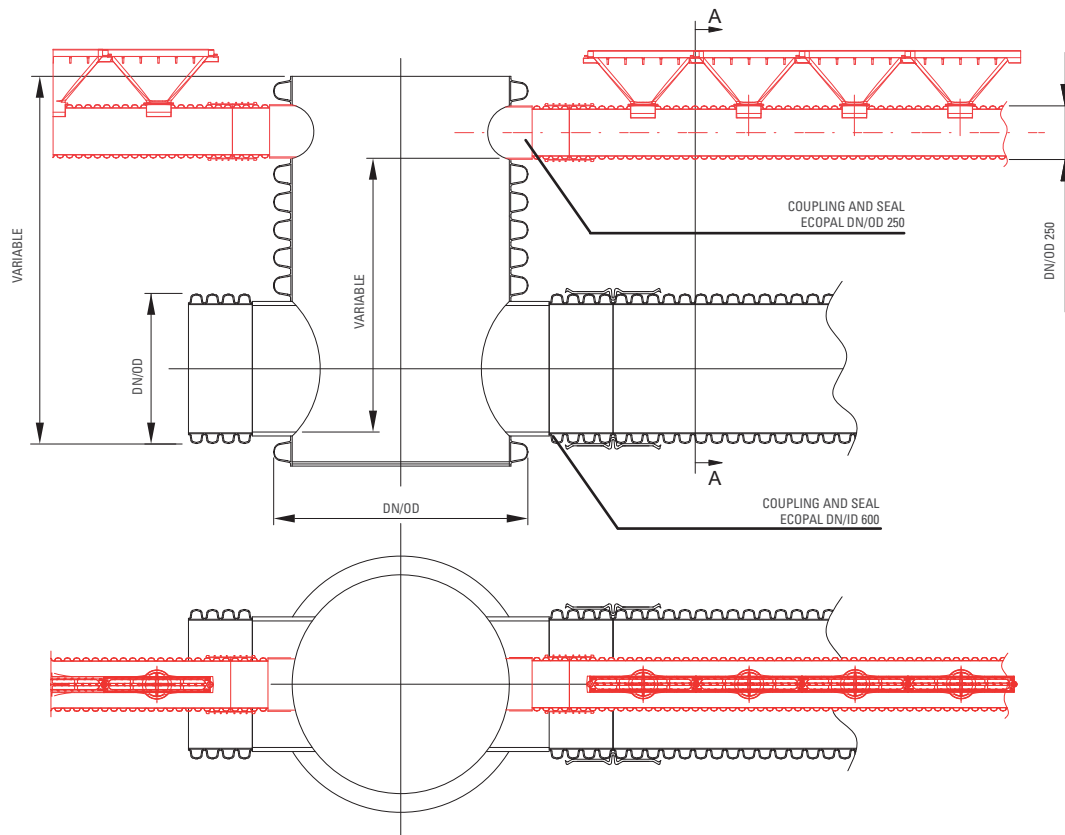


# INSTALLATION WITH ONE OUTLET ONLY AT THE END OF DRAINAGE LINE

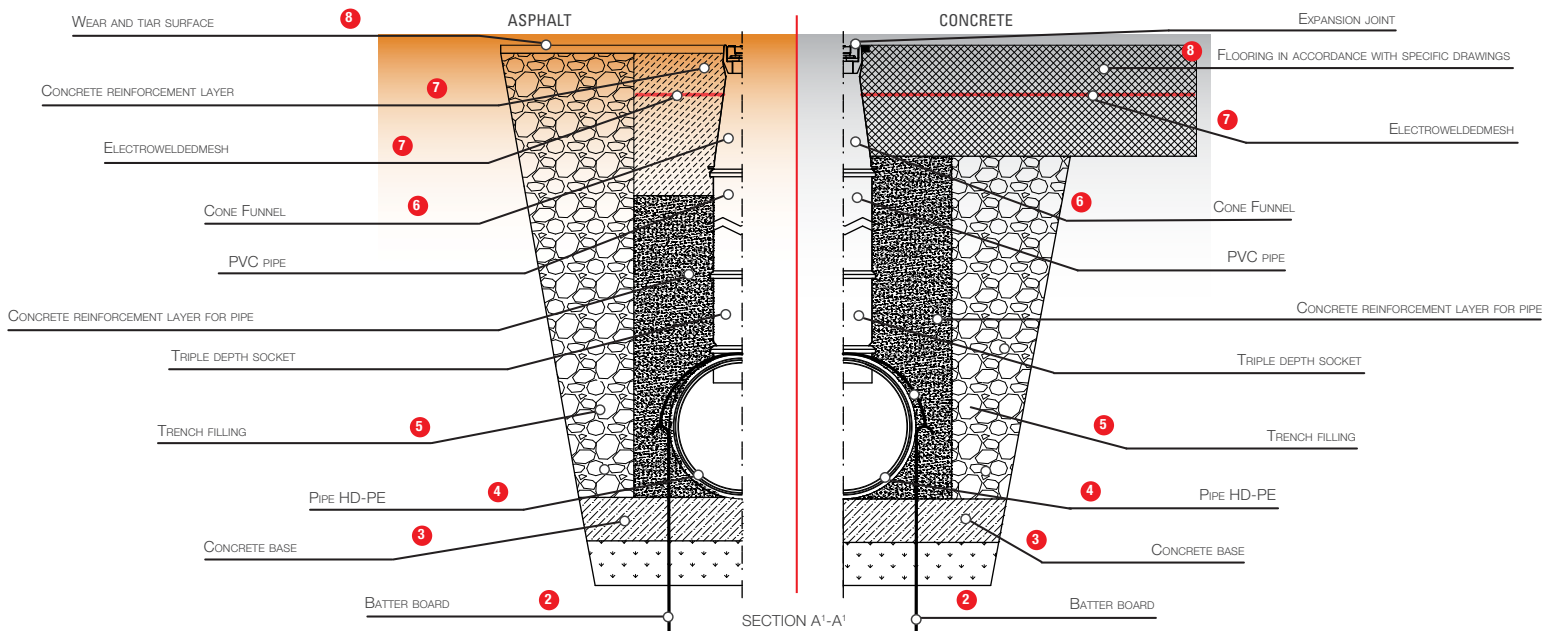
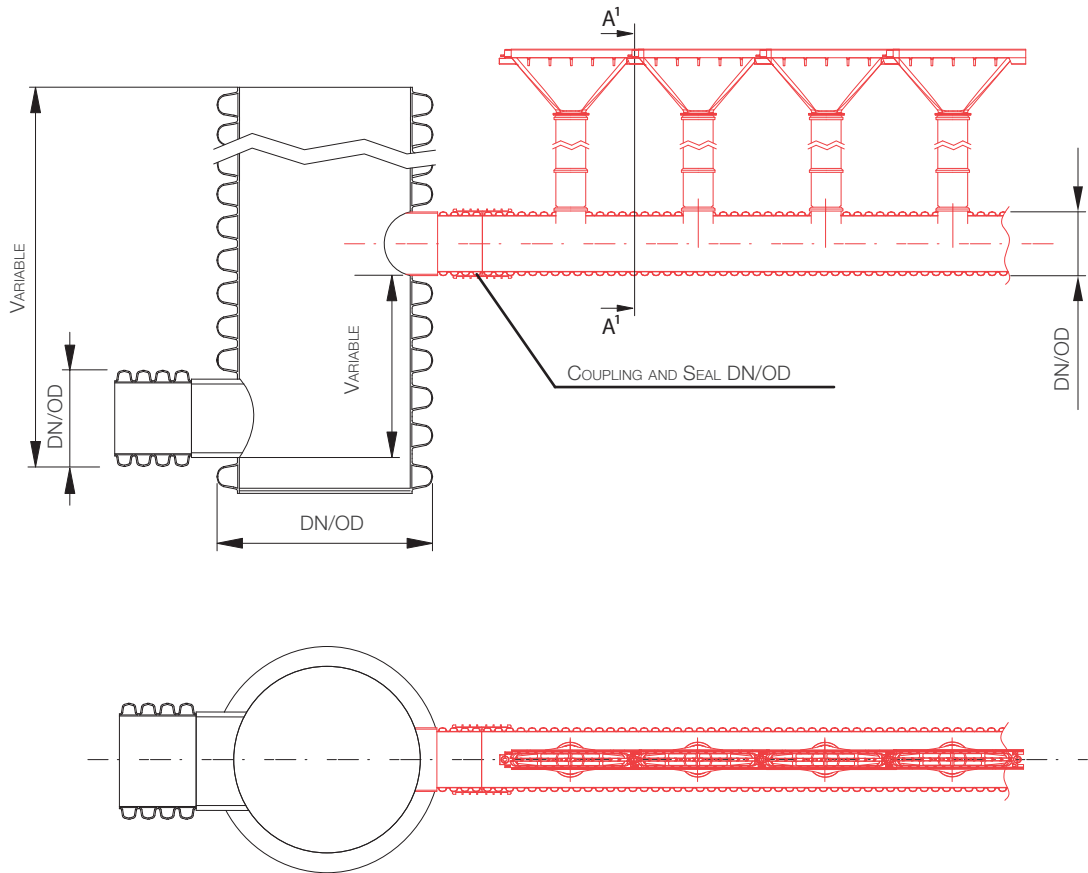
**FUNNEL**



N.B. Sizes and weights are subject to usual manufacturing tolerance values.



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# MANHOLES COVERS AND MOULDED TEE



The manholes are independent components which can be installed on line ensuring the inspection of the line itself.

The possibility of realizing the custom made manholes for pipes together with the already existing wide range of manholes with molded base allows us to change both the inferior pipe diameter and the line direction.

The moulded tee can be used as manhole for straight on lining.



EXAMPLE OF MANHOLE WITH MOULDED BASE



EXAMPLE OF MANHOLE FOR PIPES



Our technical office stays at your full disposal for any suggestion about the suitable manhole to be used (in particular with ref. to diameter, number and position of insert jointing, height) and about its installation.

N.B. Sizes and weights are subject to usual manufacturing tolerance values.



# SPECIFICATIONS

**FUNNEL**

**1.** Supply and installation of the drainage system "MufleDrain FUNNEL" equipped with 3 units:

a. high density polyethylene co- extruded twin wall pipe, smooth internally and externally black corrugated for not under pressure underground sewer ducts with stiffness class SN4 (8) kN/m<sup>2</sup> and with jointing by HD-PE coupling and EPDM lip seal. This pipe has a diameter calculated according to the water flow rate so that the filling percentage will be not superior to 70% and is equipped with 110 Ø holes with 500mm pitch. Each hole will be provided with a EPDM gasket;

b. As above mentioned in the point A, the "Funnel" conveys into the pipe the water collected from the surface and is manufactured in ductile iron EN GJS 500/7 according to the EN 1563-2004; the funnels can be connected through male- female coupling system; the funnel shall be realized with one casting in order to assure one monolithic piece; in the upper part there will be a proper seat for the grating, realized by two 20 mm high frames coming from the same casting. The funnel has been designed with a proper seat for a M10 stainless steel screw in order not to let the screw rotate while fixing the gratings through nuts referred to in point C. The funnel body must be equipped with an inferior round part of a 56mm height and of a 110 Ø for direct connection to corrugated pipes that collect water as a sewage pipe referred to in point A.

Pipe dimensions must be the following ones: standard length 500 mm, total height 300 mm, height after connection to the sewage pipe 244 mm, upper width 75 mm.

c. Slotted grating in ductile iron GJS 500/7 according to EN 1563-2004 for water drainage, to be positioned in the "funnel" seat referred to in point B; the gratings shall be fixed to the "funnel" through a M10 stainless steel nut to be screwed to the screw shank sticking out from the under part; the gratings are equipped on both short sides with 2 elliptic eyelets. The eyelets will be positioned staggered so that the upper eyelet of one grating is placed on the lower one of the previous grating while applying the gratings to the "funnel"; the screw shank will be pushed through the 2 eyelets and the nut will be screwed on. The grating shall be in F900 load class with rectangular slot and will be marked with the CE-marking and with all the markings according to the EN 1433-2008. The sizes of grating shall be the following: standard length 498 mm, standard width 60 mm.