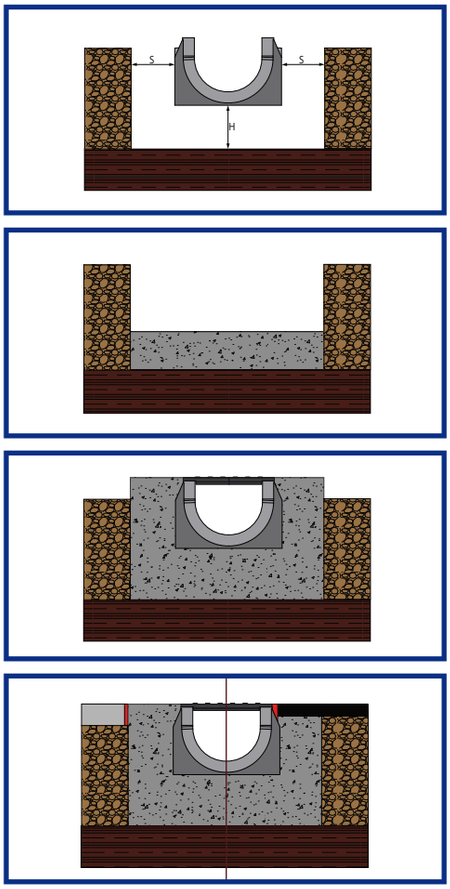
“For all the drainage channels the manufacturer shall supply written instructions for general installation” (Ref. § 7.17 EN 1433)

The installation instructions enclosed in the present technical section are given only as an example in order to supply the main guide lines to the final fitter.
Any particular installation must be evaluated/agreed between MufleSystem srl and the project maker.
The correct installation is necessary to guarantee the proper loads resistance of the drainage system (channel and grating) to static and dynamical traffic which is subjected to.
The correct installation involves a longer operational length of the drainage system itself as well as its better hydraulic function.



NEW FEATURE: The channels can be installed with preassembled gratings through male-female coupling.

Step 1
HOLE SIZE
The hole needed to lay the MufleDrain channel must allow not only for the size of the channel and the drain piping but also for adequate space for the base H and the side concrete props S. The dimensions to be followed are shown in the Summary Table. In this step make sure the underlying layer is suitable to the load it is expected to support.

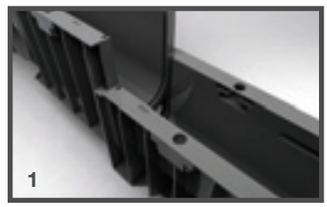
Step 2
CONCRETE BASE
Cast the concrete base H up to the height specified, allowing for any inclination in the drainage line. In case that cycles of loading and unloading are often (for example: periodic transit of vehicles) or the loads are particular heavy (E600 - F900), we recommended to reinforce the concrete base with a electro-welded net or with or beaded mouldings Ø 8 with mesh 15x15 cm. At this stage it is needed to arrange possible slopes of the drainage line.

Step 3
CHANNEL ARRANGEMENT
Lay the channels starting from the flow outlet and block them at basis in order to avoid any floating or misalignment during the concrete casting for the side prop.
Allow for the drains required and build the side prop S up to the maximum height allowed by the final coating. Shape it according to the needs based on the drawing. Introduce and fix the grating required beforehand in order to prevent any deformation of the channel due to the thrust of concrete and to speed up installation.
As well as the step 2, also for the side prop concrete arrange the reinforcement.

Step 4
FINAL COATING
When applying the final coating, make sure its upper profile reaches up to minimum 3/5 mm above the grating’s flow plane.

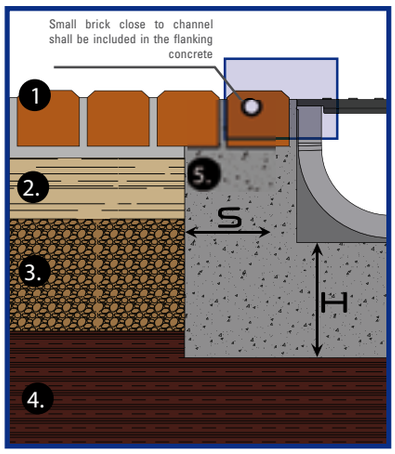
Recommendations for installation

1. In case that channels watertightness is requested, MufleSystem is purposely recommending the use of a bituminous silicone sealant “SHELL TIXOPHALTE”: after carrying out the side prop, apply a thin and homogeneous sealant strip on each slot between the channels and the following one (clean the eventual exceeding sealant). It is strongly advised not to apply the strips of “SHELL TIXOPHALTE” inside the slots in the female joint of the channels before coupling them. Eventually a through and long- lasting guarantees to avoid any leakages can be obtained by welding the joints; this requires welding machines and experienced technicians.
2. While carrying out the phase 2 and 3, protect the gratings with a PVC film so that no final cleaning must be carried out to remove any concrete residues.
3. In case the drainage line is subjected to horizontal loads (for example concrete casting for industrial paving, private car parks and parking decks), it is necessary to arrange effective expansion joints for both direction, parallel and perpendicular to the channels. These joints shall be placed according to the norm standards in force and shall not be placed close to drainage line.
4. In case the drainage line shall be installed on roofs or terraces, it is obligatory to arrange a waterproof sheet according to specific projects.


1

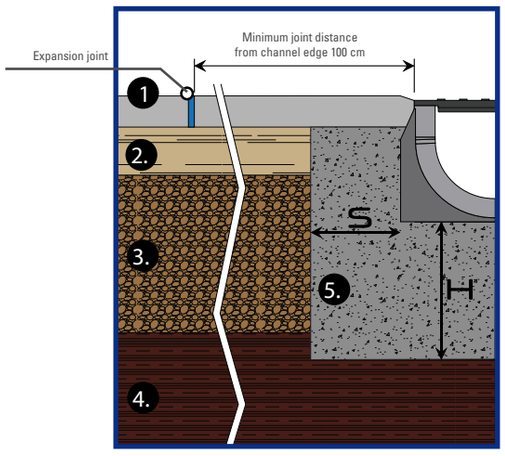

2

Case 1
Flooring
(A15-B125-C250)



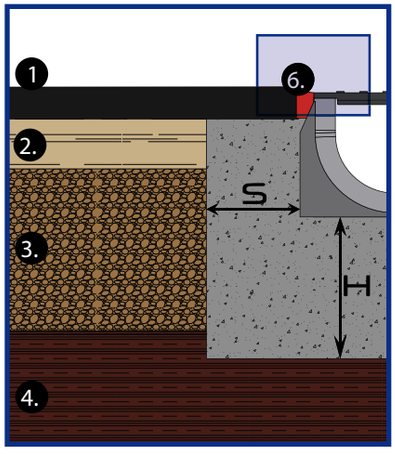
1. Flooring
2. Lower bed layer
3. Bearing layer
4. Subfloor
5. Concrete reinforcement layer

Case 2
Concrete flooring
(A15-B125-C250)

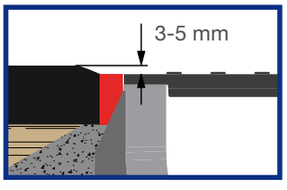


1. Flooring
2. Lower bed layer
3. Bearing layer
4. Subfloor
5. Concrete reinforcement layer
6. Expansion joint

Case 3
Asphalt
(A15-B125-C250)



1. Flooring
2. Lower bed layer
3. Bearing layer
4. Subfloor
5. Concrete reinforcement layer
6. Safety joint (if required)



This Sheet is only aimed to give advice on the installation of channels mod. MufleDrain. In any case, always:
- check the carrying capacity characteristics of the underlying layer
- we recommend using Class S4 concrete (EN 206-1) and stone aggregate with maximum diameter 8 mm.
- comply with the height of the installation surface and the thickness of the prop as specified according to the load classes.

SUMMARY TABLE				
Load class (EN 1433)		A 15	B 125	C 250
Applicable load (EN 1433)	kN	15	125	250
Minimum height H of concrete laying bed	mm	100	100	150
Minimum thickness S of the concrete fl anking	mm	100	100	150
Concrete compression strength class (EN 206-1)		C 20/25	C 25/30	C 25/30
Concrete compression strength class[7] (EN 206-1)		C 30/37 XF4	C 30/37 XF4	C 30/37 XF4

7- If concrete can be affected by frost and thaw cycles.
N.B. MufleSystem srl reserves the right to change the technical characteristics herein specified without prior notice. Said technical characteristics are given for information purposes only and are subject to changes as our products are developed.
N.B. Sizes and weights are subject to usual manufacturing tolerance values.

SPECIFICATIONS

1. Supply and installation of MufleDrain FLAT type HD-PE drainage channel with external stiffening ribs and male-female coupling system allowing the assembly between one channel and the next with the relevant pre-assembled gratings. The channel will have 2 side drain diaphragms at pre-determined points and it will be designed to house a HD-PE drain gate (diameter 100 mm - 110 mm) on the bottom through 4 screws. The channel surface will be perfectly smooth and have a low roughness coefficient to allow the best water flow. Il will also be perfectly water-tight and devoid of any connection points with the outside. The channel will have 2 protrusions on each side of the internal walls in order to ensure the gratings can be locked in place. The channel will have the following dimensions: length 1.000 mm, internal net gap 100 mm, internal height ___ mm.

2. Supply and installation of ductile iron GJS 500/7 covering gratings according to EN 1563-2004 for MufleDrain FLAT drainage channels with bar fixing system, load class C250 according to EN 1433-2004, slot width 13 mm, length 498 mm, width 135 mm.

3. Supply and installation of ductile iron GJS 500/7 covering gratings according to EN 1563-2004 with mesh for MufleDrain FLAT drainage channel with bar fixing system, load class C250 according to EN 1433-2004, length 498 mm, width 135 mm.

4. Supply and installation of galvanised (stainless) steel square-mesh or anti-heel covering gratings for MufleDrain FLAT drainage channels with bar fixing system, load class B125 according to EN 1433-2004, length 998 mm, width 135 mm. A similar grating will be available upon request with length 498 mm. The dimensions will be 33 x 33 mm in the square mesh and 33 x 11 mm in the anti-heel mesh.

5. Supply and installation of galvanised (stainless) steel rung covering gratings for MufleDrain FLAT drainage channels with bar fixing system (Clip), load class A15 according to EN 1433-2004, length 998 mm, width 135 mm. A similar grating will be available upon request with length 498 mm.

6. Supply and installation of HD-PE end cap for MufleDrain drainage channel with coupling system into the special channel housing.

7. Supply and installation of HD-PE open cap with drainage hole diameter ___mm for MufleDrain drainage channel with coupling system into the special channel housing.

8. Supply and installation of MufleDrain FLAT type HD-PE drain box with siphon for MufleDrain FLAT drainage channels, with external stiffening ribs and male-female coupling system. The top of the built-in siphon in the drain box shall be detachable in order to allow the cleaning. The drain box will have 2 preformed outlets with diameter until 200 mm. The sizes of the drain box shall be length 500 mm, internal net gap _____ mm, internal height 400 mm.