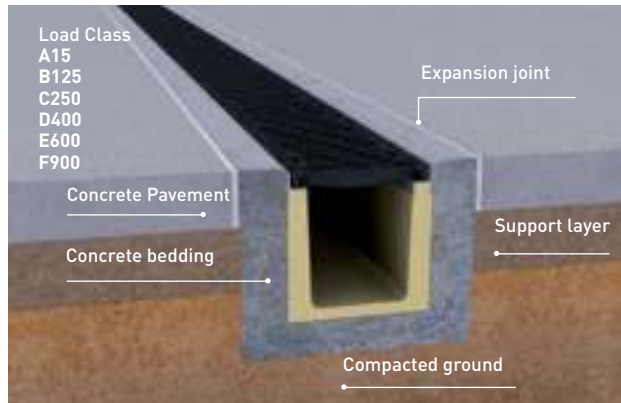
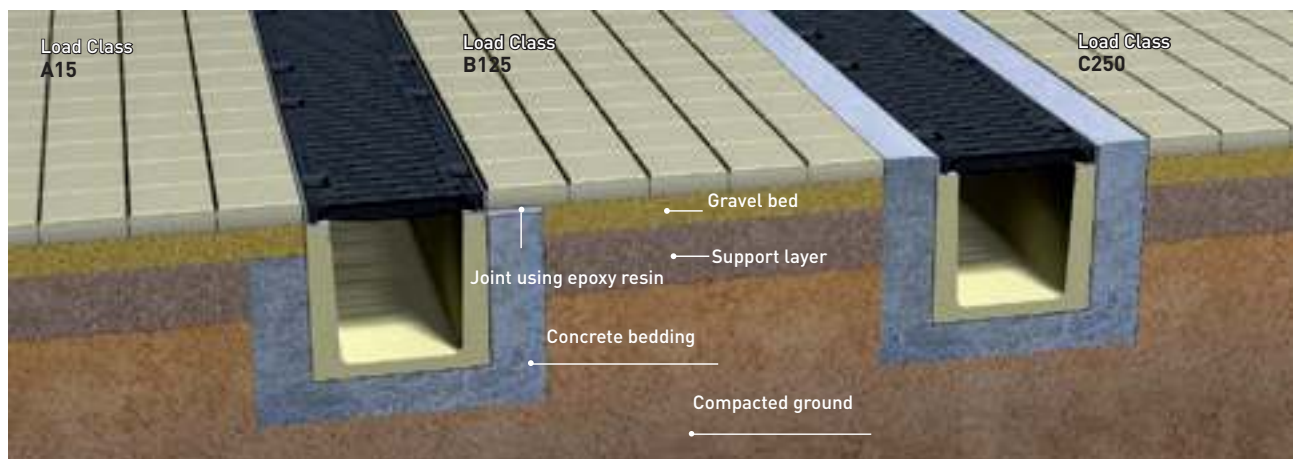
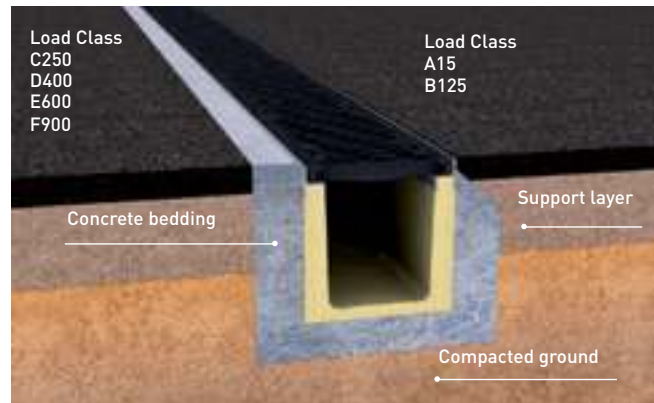


CONCRETE PAVEMENT



ASPHALTE PAVEMENT



PAVING

GENERAL CONDITIONS

GENERAL ON-SITE LAYOUT CONDITIONS

The ULMA Architectural Solutions drainage system has been designed and tested under the strictest premises of the EN1433 STANDARD, following the constructive details illustrated on the following pages.

The design of the road surface adjacent to the concrete trench drain / concrete bedding (concrete, asphalt or paving) must include the dilation and contraction joints necessary to prevent any tangential or perpendicular force on the concrete trench drain / concrete bedding. Depending on the constructive details of the road surface, the size of said joints shall be the responsibility of the Professional Management or designer.

The following illustrations show what the suitable section to be installed for each type of road surface and load is, along with the recommended constructive details.

TYPES OF INSTALLATION

INDICATIONS COMMON TO THE DIFFERENT TYPES OF INSTALLATION

The ditch must have the necessary depth and width to comply with the concrete bedding dimensions recommended in table 1 in accordance with the required load type.

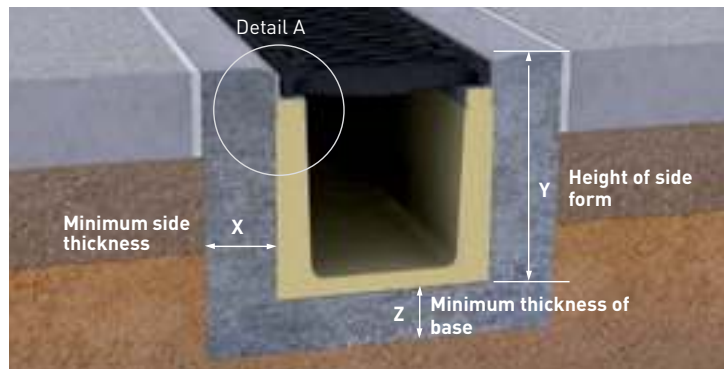
Special care must be taken in the installation of an unprofiled trench drain; the thickness of the grating must be taken into account so that, when the installation is finished, the grating is situated below the level of the road surface as recommended in Detail B.

In the event of a compaction process being required in the proximity of the trench drain (e.g. class A15 and B 125 asphalt surface), special care must be taken not to damage the edge and walls of the trench drain.

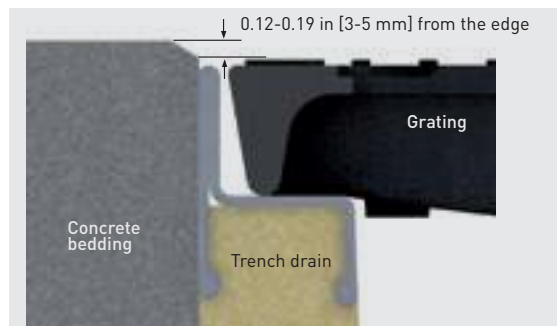
The surrounding road surface and concrete bedding must remain on a plane of between 0.12 and 0.19 inches (3-5mm) above the plane of the upper edge of the trench drain.

TABLE 1: THICKNESS OF CONCRETE BEDDING

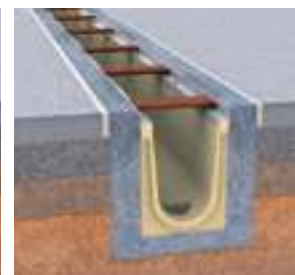
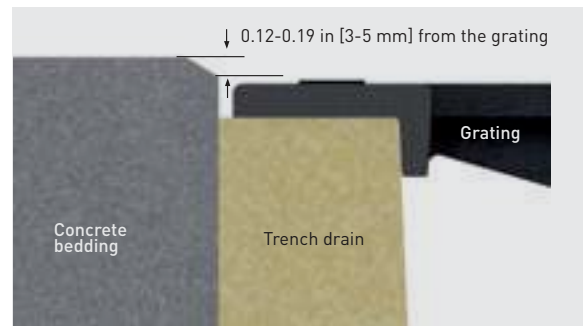
LOAD ACCORDING TO STANDAR EN-1433	X MINIMUM SIDE THICKNESS (in/mm)	Z MINIMUM THICKNESS OF BASE (in/mm)	Y HEIGHT OF SIDE FORM (in/mm)	RECOMMENDED WIRE MESH (in x in x in)	TYPE OF CONCRETE (psi)
A15	3.94 [100]	3.94 [100]	At least at a point located at 1.57 in (40 mm) below the level of the pavement.		2 133.5
B125	3.94 [100]	3.94 [100]			3 556
C250	5.91 [150]	5.91 [150]	Up to the level of the wire mesh and the adjoining pavement.		3 556
D400	5.91 [150]	5.91 [150]		5.9 X 5.9 X 0.24	3 556
E600	5.91 [150]	5.91 [150]		5.9 X 5.9 X 0.40	3 556
F900	7.87 [200]	7.87 [200]		7.87 X 7.87 X 0.47	3 556



Detail A Trench drain with edge



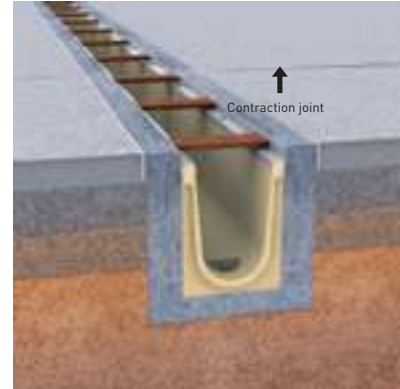
Detail B Trench drain without edge



The installation of the trench drains shall be started at the evacuation point or at the deepest point.

In the event of any of the layers adjacent to the concrete bedding also being made of concrete, a dilation joint must always be placed between the concrete bedding and said concrete layer.

Before tipping out the concrete for the concrete bedding place wooden battens or the gratings themselves protected with plastic, in order to prevent deformations which might impede the placement of the gratings.



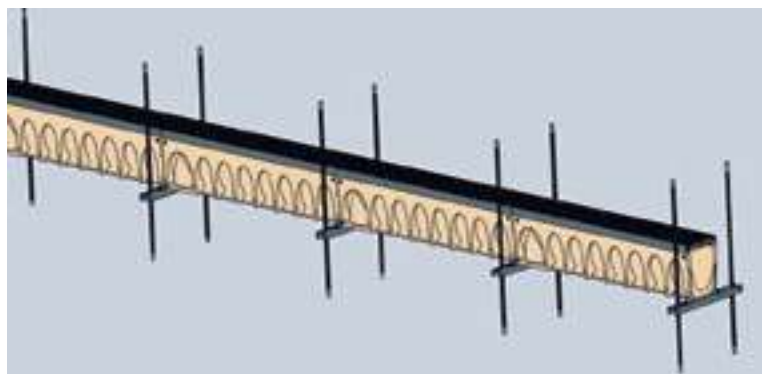
When it comes to opening the pre-marked outlets (vertical or horizontal), it is recommended to mark the perimeter every 1.97 to 2.36 inches (5 to 6 cm) with a drill or rotaflex, in order then to carefully open the pre-marked outlet with a hammer and chisel.

It is advisable for the contraction joint perpendicular to the trench drain to be placed every 236.22 to 275.60 inches (6 to 7 metres) and to be made to coincide with the union between trench drains.

TRENCH DRAIN INSTALLATION USING ULMA'S INSTALLATION DEVICE.



Devices are attached to the dimples at the bottom of the trench drain what enables the alignment of the trench drains. One device required for every joint.



Rebars allow the adjustment of the required height