

HYDRO SYSTEM



MEETING YOUR NEEDS
COMPOSITE
SOLUTIONS

WHO WE ARE



ULMA Architectural Solutions is a member of the **ULMA Group**, a leading industry group in the Basque Country, and also part of the Industrial Division of the **MONDRAGON Corporation**, one of the largest business corporations in Spain and the largest Cooperative Group in the world. Our expertise and experience in **prefabricated systems for construction** has led us to develop a wide range of products aimed at **four market** segments:



APPLICATIONS



WINERIES

FOOD WAREHOUSES

SWIMMING POOLS

SPORT FACILITIES

DRESSING ROOMS

HYDRO SYSTEM

ULMA, specialists in precast channelling and drainage systems, have launched a new range of **HYDRO** channels. EN-1433 Standard compliant and manufactured in thermoplastic matrix composite, Polypropylene (PP)/ Polyethylene (PEHD), with mineral filler reinforcement, the new **HYDRO** channels complement the wide range of existing Polymer Concrete products.

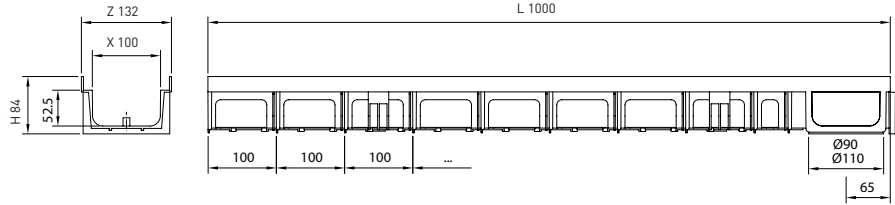


Salón de Pinos del Manzanares, Madrid. Over 8000 metres of HYDRO channels installed.

MAIN CHARACTERISTICS

- **Compatible with the full range of grates available for polymer concrete channels;** a limited product range covers all needs
- **The broadest range of grates** available in ductile casting, galvanized steel, stainless steel and plastic including the new heelproof versions.
- **Modular and robust design** for load classes of up to C250 in accordance with the EN-1433 Standard.
- **Lightweight and easy to transport and handle.**
- **High drainage capacity**
- **Simple leak tight** tongued and grooved assembly.
- **Premarked to cut at 0.5m** maintaining the leak tight tongued and grooved assembly.
- **Prejoined outlets,** vertical and horizontal.
- **Easy to trim** to any length with a manual saw.
- **End caps at start and end of line, with and without outlets.**
- **Installation instructions** printed on base of channel.
- **High resistance to chemical products.**
- Operating temperature range from -20°C to 80°C.

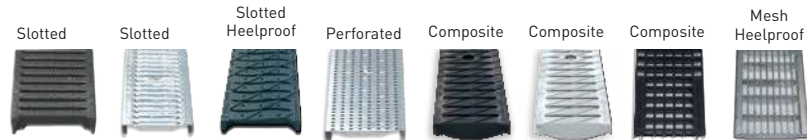
HYDROMINIPLUS



Code	L (mm)	H (mm)	Width (mm)		Ø Outlet (mm)		Hydraul. Section (cm ²)	Pcs (x pallet)
			Z	X	Vert.	Horiz.		
HYDROPLUSH80	1000	84	132	100	90-110	Connection at 90° [1]	51	170

[1] Every channel has two preformed side knockouts for T, L and cross connections.

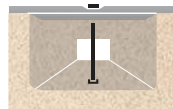
GRATINGS



Material	Design	Load	Code	L. (mm)	Width (mm)	Units (x 1m)
COMPOSITE	HEELPROOF BLACK SLOTTED	A15	PNH100KCAM	500	123	2
	HEELPROOF GREY SLOTTED	A15	PNH100KCAM-GRIS	500	123	2
	MESH	B125	PE100KCBM	500	123	2
DUCTILE IRON	SLOTTED	C250	FNX100KCCM	500	123	2
	HEELPROOF SLOTTED	C250	FNHX100KCCM	500	123	2
GALVANIZED STEEL	SLOTTED	A15	GN100KCA	1000	123	1
	MESH HEELPROOF	B125	GEHX100KCB	1000	123	1
STAINLESS STEEL	SLOTTED	A15	IN100KCA	1000	123	1
	MESH	B125	LEX100KCB	1000	123	1
	PERFORATED	A15	IP100KCA	1000	123	1

LOCKING SYSTEM

SCREW LOCKING SYSTEM. 2 screw per metre.



Closed



END CAPS

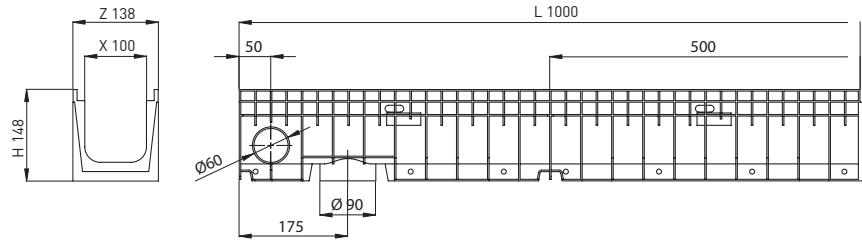
Code	Type
TH100H80C	CLOSED

LEAF GUARD

Code
FS90



HYDROPLUS



Code	L (mm)	H (mm)	Width (mm)		Ø Outlet (mm)		Hydraul. Section (cm ²)	Pcs (x pallet)
			Z	X	Vert.	Horiz.		
HYDROPLUS	1000	148	138	100	90	60	97	90

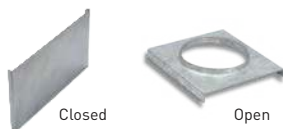


GRATINGS

Material	Design	Load	Code	L. (mm)	Width (mm)	Units (x lm)
COMPOSITE	HEELPROOF BLACK SLOTTED	A15	PNH100KCAM	500	123	2
	HEELPROOF GREY SLOTTED	A15	PNH100KCAM-GRIS	500	123	2
	MESH	B125	PE100KCBM	500	123	2
DUCTILE IRON	SLOTTED	C250	FNX100KCCM	500	123	2
	HEELPROOF SLOTTED	C250	FNHX100KCCM	500	123	2
GALVANIZED STEEL	SLOTTED	A15	GN100KCA	1000	123	1
	PERFORATED	A15	GP100KCA	1000	123	1
	MESH HEELPROOF	B125	GEHX100KCB	1000	123	1
STAINLESS STEEL	SLOTTED	A15	IN100KCA	1000	123	1
	PERFORATED	A15	IP100KCA	1000	123	1
	MESH	B125	IEX100KCB	1000	123	1

LOCKING SYSTEM

LOCKING BAR. Two locking bars and two screws per linear metre.



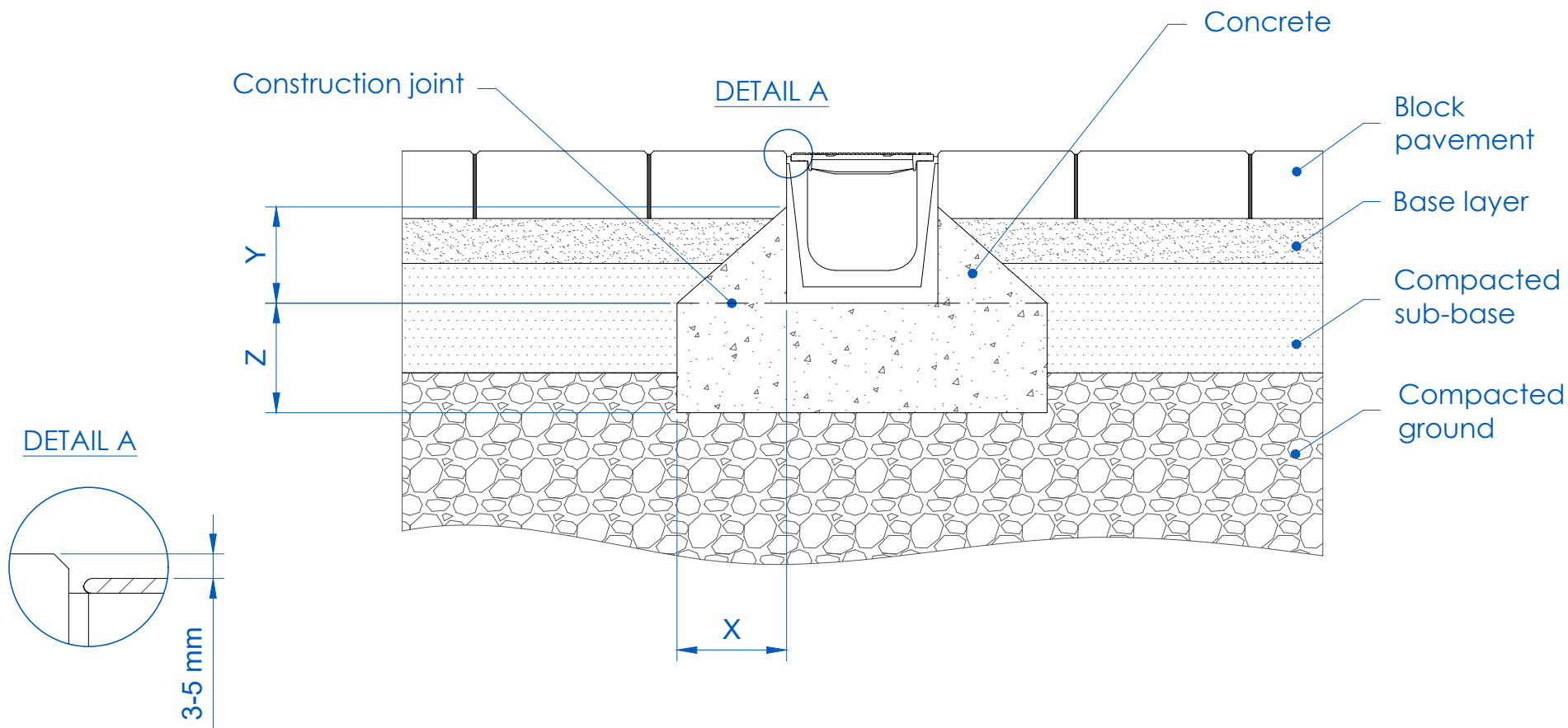
END CAPS

Code	Type	Ø (mm)
TH100KC	CLOSED	-
TH100KA	OPEN	Ø90

LEAF GUARD

Code
FS90





* In case of an incorrect compaction of the soil, the concrete fill must be made up to the pavement level.

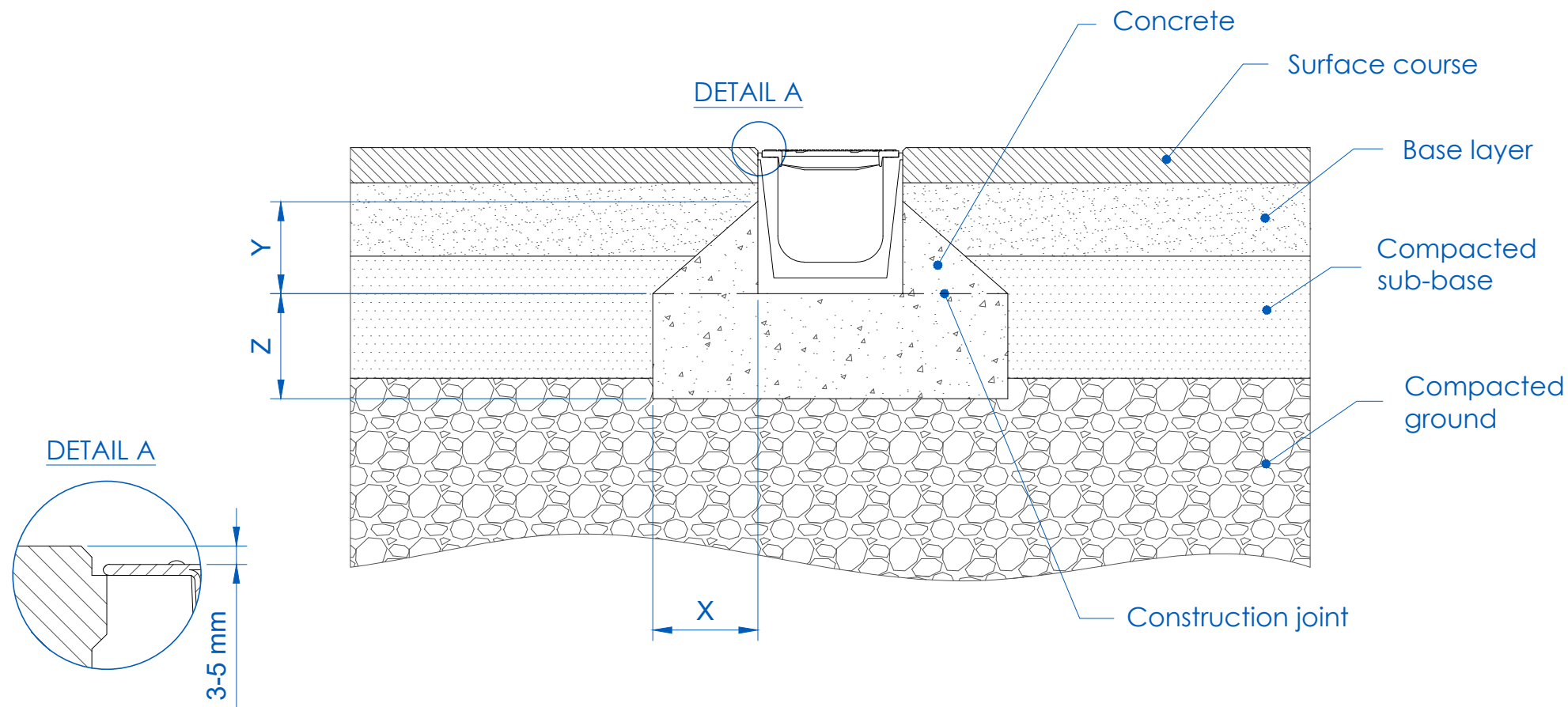
LOAD CLASS EN 1433 Standard		A15	B125	C250	D400	E600	F900	Installation type: BLOCK PAVING	
TYPE OF CONCRETE EN 206-1 Standard		HM-25 (X0)	HM-25 (X0)	HM-25 (X0)				Load class: A15 - B125 - C250	
MINIMUM DISTANCES (mm)	X	100	100	150				Channel type: HYDRO system	
	Y	100 *	100 *	100 *					
	Z	100	100	150					
Installation minimal conditions. For more details, see installation instructions. It is the customer's responsibility to make sure that installation instructions are compatible with the type of soil.								Review:	



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* In case of an incorrect compaction of the soil, the concrete must be made up to the pavement level.

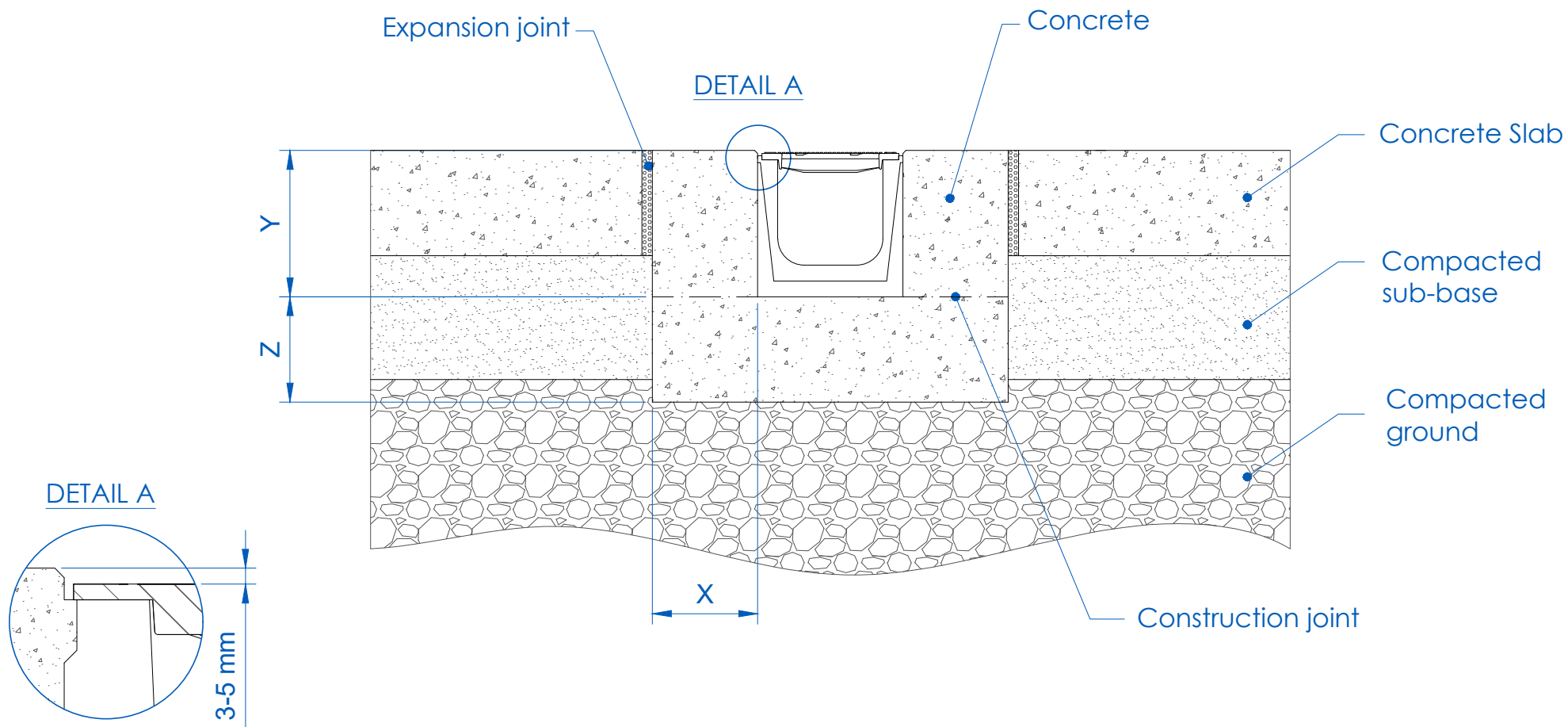
LOAD CLASS EN 1433 Standard		A15	B125	C250	D400	E600	F900	Installation type: ASPHALT	
TYPE OF CONCRETE EN 206-1 Standard		HM-25 (X0)	HM-25 (X0)	HM-25 (X0)				Load class: A15 - B125 - C250	
MINIMUM DISTANCES (mm)	X	100	100	150				Channel type: HYDRO system	
	Y	100 *	100 *	100 *					
	Z	100	100	150					
Installation minimal conditions. For more details, see installation instructions. It is the customer's responsibility to make sure that installation instructions are compatible with the type of soil.								Review:	



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LOAD CLASS		A15	B125	C250	D400	E600	F900	Installation type:	
EN 1433 Standard								CONCRETE	
TYPE OF CONCRETE		HM-25 (X0)	HM-25 (X0)	HM-25 (X0)				Load class:	
EN 206-1 Standard								A15 - B125 - C250	
MINIMUM DISTANCES (mm)	X	100	100	150				Channel type:	
	Y	channel height + grid + 3-5 mm	channel height + grid + 3-5 mm	channel height + grid + 3-5 mm				HYDRO system	
	Z	100	100	150				Review:	
Installation minimal conditions. For more details, see installation instructions. It is the customer's responsibility to make sure that installation instructions are compatible with the type of soil.									

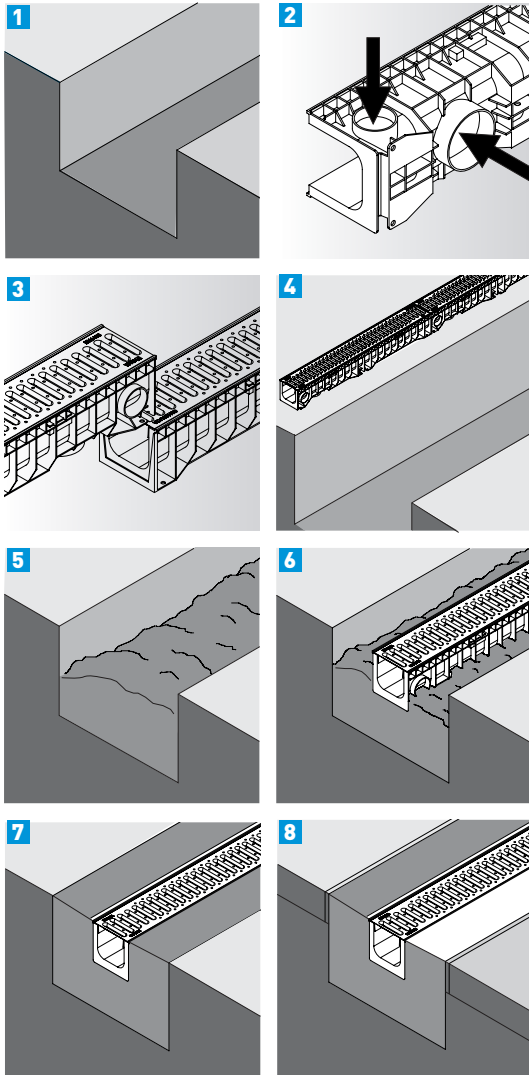


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INSTALLATION INSTRUCTIONS



1. Prepare the trench for the bedding and receiving the concrete, always taking into consideration the X, Y, Z dimensions, depending on the load class to bear.

2. If applicable, proceed to open the premarked assemblies, horizontal and vertical alike, using for that purpose a blade, hand saw, hammer, etc. The same way, if needed, you can easily cut the channels at wished length or at 45° angle. There is a pre-mark to cut channels at 0.5 m that keeps the tongue and groove assemblies.

3. To configure the channel line, join one after the other, using of the tongue and groove assemblies for that purpose. It can be done with the grating on. Verify that the arrow in the channel border points to the water evacuation point. In order to make the channel line waterproof, an elastic sealer can be applied on the groove side before joining the channels.

4. Set up an alignment string and prepare the channels along the trench. The channels must be put with the gratings on, protected with plastic if you are afraid from spoiling them with concrete, in order to avoid deformations that could hinder the posterior placing of them. In order to avoid deformations of the channel that could hinder the posterior placing of the gratings, the channels must be installed with the gratings on, protecting with plastic if you fear spoiling them.

The grilles must be fixed with their corresponding mooring system, by applying a torque strong enough in order to keep the grating from moving after vehicles pass by. To achieve a correctly functioning system, it is essential to install the adequate fastening system for every use.

5. Pour a good-quality concrete into the base of the trench and before it hardens start adding the channels.

6. Place the channels with a slight vertical element, trying that its base remains well-fixed and embedded in concrete without leaving holes and with the recommended base and thickness. Start placing the channels in the trench starting at the outlet point or the lowest point on the evacuation line. Check the alignment along the trench and the height of the channels compared with the die.

7. Pour the concrete along the sides of the channel. It is important that, in places where two layers of concrete meet, both layers be applied within a reasonable period of time to ensure their adherence. In case of placing in areas with load class C-250, install the corresponding wire mesh before pouring the whole concrete die at once.

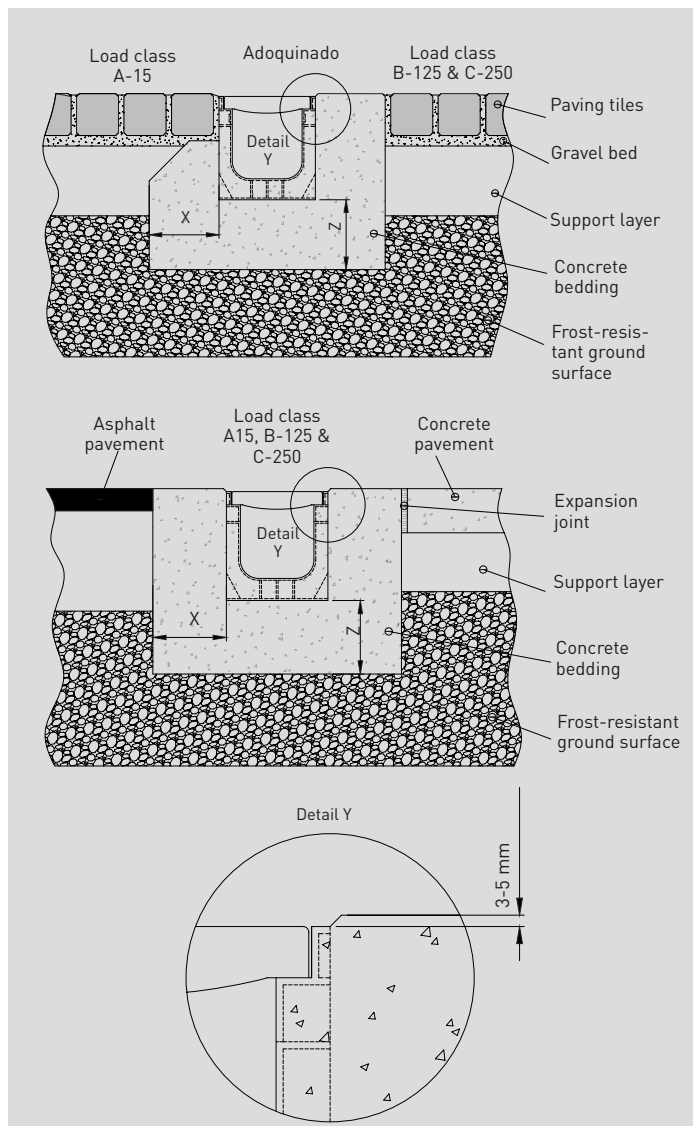
8. If the adjacent sill is made of concrete, you must install elastic expansion joints (polyspan, neoprene, etc.) These joints must be properly dimensioned in order to prevent pressure being applied on the side of the channels.

Table 1.

Load according to standard EN-1433	X Minimum side thickness (mm)	Y Minimum side thickness (mm)	Type of concrete (kg/cm ²)
A-15	100	100	150
B-125	100	100	250
C-250	150	150	250

WORK DISPOSITION

1. Never pass the compacting machine over the channel when compacting the surrounding ground surface.
2. If any of the layers adjacent to the concrete footing is also concrete, always place an expansion joint between the footing and this concrete layer.
3. The upper edge or profile must not protrude above the level of the surrounding ground surface.
4. For channels without profiles, take the thickness of the grating into account when trimming the ground surface. The grating must not protrude above the level of the surrounding ground surface.





CE Declaration of Conformity

Manufacturer	ULMA Architectural Solutions
Address	Barrio Zubillaga, 89 Apdo.20 - 20560 Oñati - Gipuzkoa - SPAIN
Product	HYDROKIT, HYDROMINI, HYDROMINI PLUS, HYDRO, HYDROPLUS, HYDRO250, HYDRO250 PLUS
Description	Drainage Channel Type M to collect and conduct surface water in pedestrian areas and / or areas with vehicle traffic.
Load class	A15 to C250, providing the manufacturer's installation instructions are followed
Dimensions	L=1000 mm b=130-266 mm h=65-185 mm
Channel material	Polypropylene (PP) High-Density Polyethylene (PE-HD)
Grating material	Ductile iron, galvanized steel, stainless steel, composite
Applicable Standard	Construction Products Directive 89/106/CEE Standard EN 1433:2002, Appendix ZA
Notified Body	LGAI, laboratori General d'Assaigs i Investigacions Campus de la U.A.B Apartado 18 - 08193 BARCELONA 
File No.	07/32300936

Oñati, October 2012

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