

KILLESHAL

TRUSTED SINCE 1969

kilform

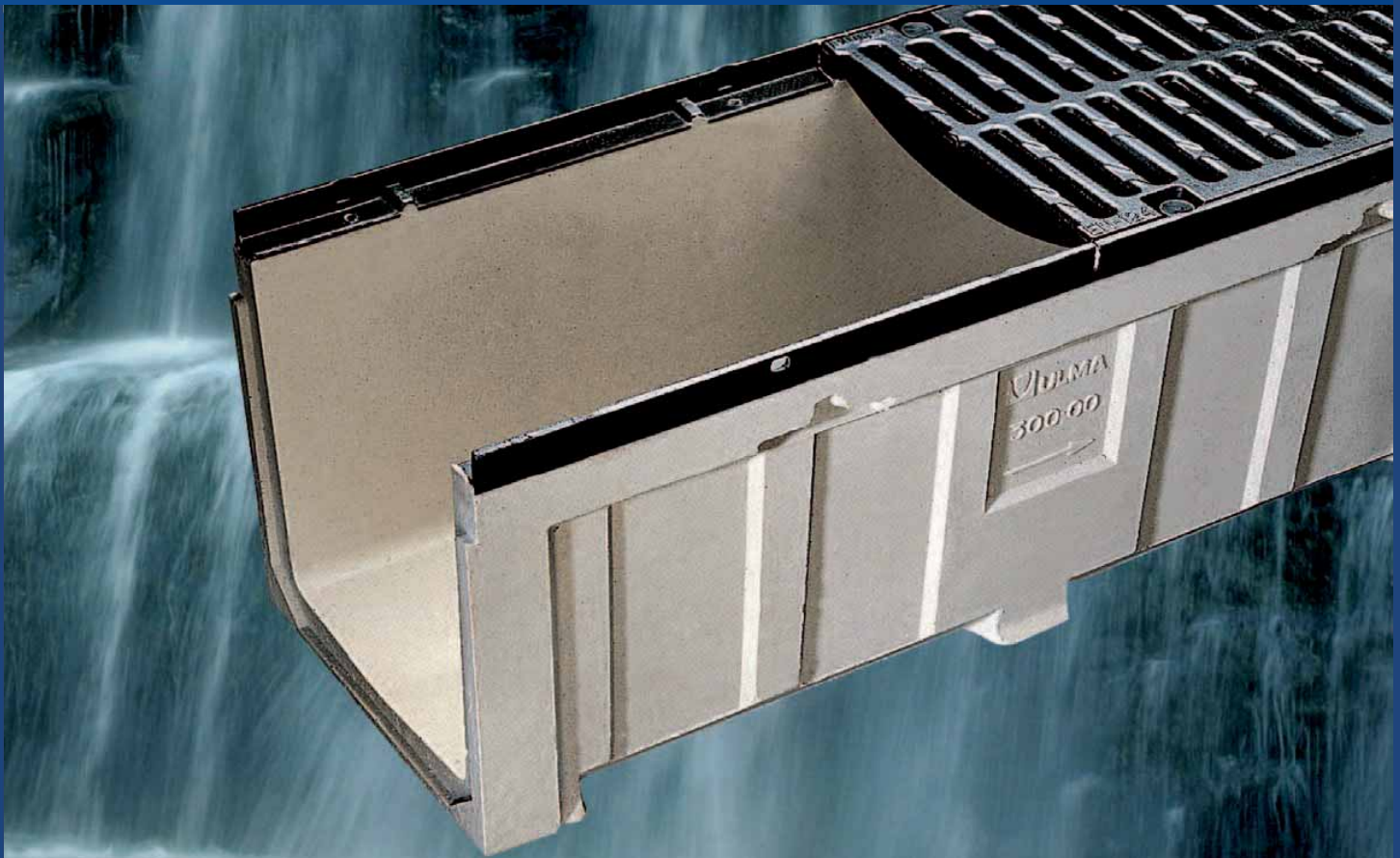
234/11/23

Rep. Irl Tel: 057 935 3018 - UK Tel: 0800 039 3367



UMLA Pre-fabricated Drainage Systems

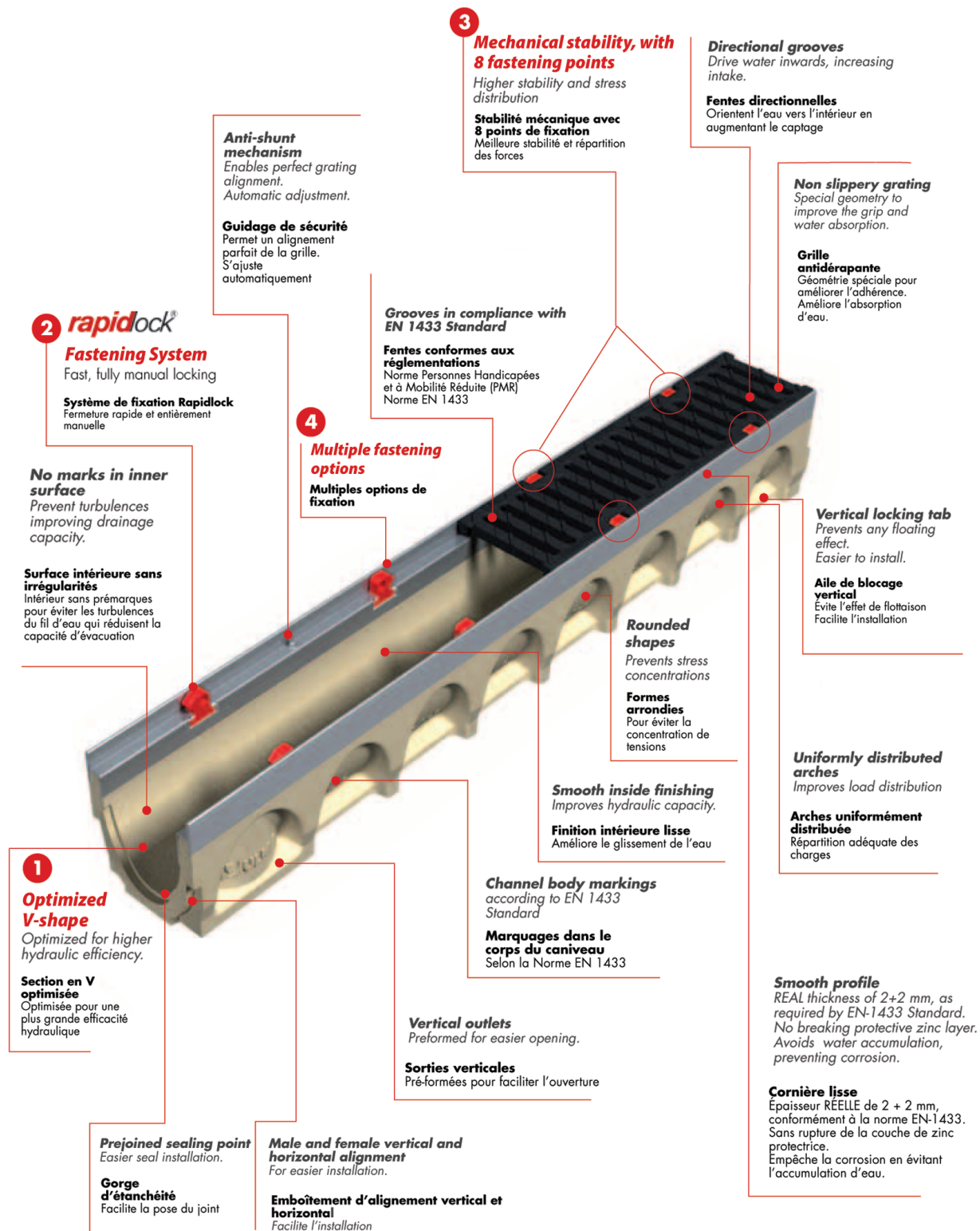
Ensor Polymer Channel
Killeshal Grass Blocks



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ADVANTAGES OF THE multiV+ SYSTEM

MULTI V+ SYSTEM



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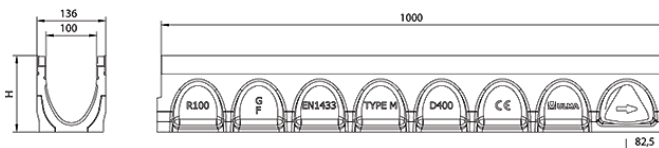


multiV+ 100



C. RÉSISTANCE
JUSQU'À D400
Selon NORME EN-1433

LOAD CLASS
UP TO D400
EN-1433 Standard



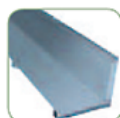
CODE	L (mm)	H (mm)	LARGEUR / WIDTH (mm)		Ø SORTIE / OUTLET (mm)*		HIDRAUL. SECTION (cm ²)	UNITÉS x PALETTE PCS x PALLET
			Z	X	Vert.	Horiz.		
R100GH8**	1000	80	136	100	110	-	40	90
R100G00R	1000	100	136	100	110	-	56	90
R100G10R	1000	150	136	100	110	-	91,5	75
R100G20R	1000	200	136	100	110	-	133	60
R100G30R	1000	250	136	100	110	-	176	45
R100G40R	1000	300	136	100	110	-	220	45

*Sorties vert. sur commande. / Vert. outlets on order.

**Section en forme de U / U shaped section

TECHNICAL DESCRIPTION

ULMA Linear Drainage Channel, type **multiV+®** R100G; External width 136mm, Internal width 100mm, with overall heights between 80 and 300mm; suitable for cascade-type slopes to collect rainwater; sections 1 LM in length; optimised V-shape with self-cleaning effect; especially designed for channel runs with no longitudinal slope; galvanised steel edges for lateral protection; **RapidLock®**, fast, boltless fastening system with 8 fastening points per LM; suitable for use with the following gratings:



Fente
Single Slot



Nervurée / Slotted

GRILLES / GRATINGS

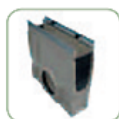
MATIERE MATERIAL	DESSIN DESIGN	RESIST. LOAD CLASS	CODE	L (mm)	LARGEUR WIDTH (mm)	HAUTEUR HEIGHT (mm)	UNITÉS x ML UNITS x LM
Fonte DUCTIL IRON	NERV. / SLOT.	C 250	FNHX100RGCM	500	127	-	2
	NERV. / SLOT.	D 400	FN100RGDM	500	127	-	2
ACIER GALVANISÉ GALVANIZED STEEL	FENTE SINGLE SLOT	D 400	GRL100ROD	1000	131	105(1)	1

(1) La hauteur de la grille correspond à la partie qui ressort du bord supérieur de la feuillure.
The grating height corresponds to the part that extends out from the top edge of the profile



SYSTÈME DE FIXATION / LOCKING SYSTEM

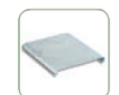
rapidlock® FERMETURE RAPIDE DE SÉCURITÉ SANS BOULONS. 8 fixations par mètre linéaire.
FAST, BOLTLESS SAFETY LOCKING 8 fastening points per linear meter



AR100G

AVALOIR ET ACCESSOIRES / SUMP UNITS AND ACCESSORIES TABLE

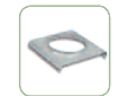
CODE	L (mm)	H. (mm)	LARGEUR WIDTH (mm)	Ø SORTIE / OUTLET (mm)		CORPS SUMP UNITS
				LATERAL	FRONT	
AR100G	500	490	136	110/160	110	1



Fermé/Closed

OBTURATEURS / END CAPS

CANIVEAU CHANNEL	CODE	TYPE	Ø (mm)
R100GH8	TR100H8C	FERMÉ / CLOSED	-
R100G00R	TR10000C	FERMÉ / CLOSED	-
R100G10R	TR10010C	FERMÉ / CLOSED	-
	TR10010A	OUVERT / OPEN	-
R100G20R	TR10020C	FERMÉ / CLOSED	110
	TR10020A	OUVERT / OPEN	-
R100G30R	TR10030C	FERMÉ / CLOSED	110
	TR10030A	OUVERT / OPEN	110
R100G40R	TR10040C	FERMÉ / CLOSED	-
	TR10040A	OUVERT / OPEN	110



Ouvert/Open



PANIER / GALVANIZED STEEL BUCKET

CODE
CR100



SABOT DE RACCORDEMENTS / STEP UNITS

CODE
CER100

TYPES DE PENTE / SLOPE DESIGNS



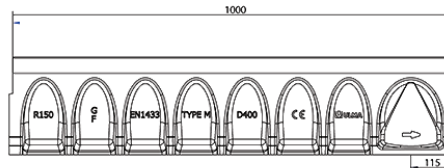
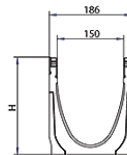


multiV+ 150



C. RÉSISTANCE
JUSQU'À D400
Selon NORME EN-1433

LOAD CLASS
UP TO D400
EN-1433 Standard



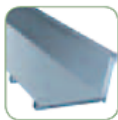
CODE	L (mm)	H (mm)	LARGEUR / WIDTH (mm)		Ø SORTIE / OUTLET (mm)*		HIDRAUL. SECTION (cm²)	UNITÉS x PALETTE PCS x PALLET
			Z	X	Vert.	Horiz.		
R150GH8**	1000	80	186	150	160	-	60	81
R150GH12**	1000	120	186	150	160	-	119	72
R150G00R	1000	170	186	150	160	-	156	45
R150G10R	1000	220	186	150	160	-	218	36
R150G20R	1000	270	186	150	160	-	283	36
R150G30R	1000	320	186	150	160	-	350	27

*Sorties vert. sur commande. / Vert. outlets on order

**Section en forme de U / U shaped section.

TECHNICAL DESCRIPTION

ULMA Linear Drainage Channel, type **multiV+®** R150G; External width 186mm, Internal width 150mm, with overall heights between 80 and 320mm; suitable for cascade-type slopes to collect rainwater; sections 1 LM in length; optimised V-shape with self-cleaning effect; especially designed for channel runs with no longitudinal slope; galvanised steel edges for lateral protection; **RapidLock®**, fast, boltless fastening system with 8 fastening points per LM; suitable for use with the following gratings:



Fente
Single Slot



Nervurée / Slotted

GRILLES / GRATINGS

MATIERE MATERIAL	DESSIN DESIGN	RESIST. LOAD	CODE	L (mm)	LARGEUR WIDTH (mm)	HAUTEUR HEIGHT (mm)	UNITÉS x ML UNITS x LM
FONTE DUCTILE IRON	NERV. / SLOT.	C 250	FNH150RGCM	500	177	-	2
		D 400	FN150RGDM	500	177	-	2
ACIER GALVANISÉ GALVANIZED STEEL	FENTE SINGLE SLOT	D 400	GRL150ROD	1000	181	105(1)	1

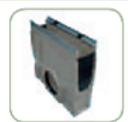
(1) La hauteur de la grille correspond à la partie qui ressort du bord supérieur de la feuillure.
The grating height corresponds to the part that extends out from the top edge of the profile



SYSTÈME DE FIXATION / LOCKING SYSTEM



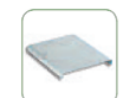
FERMETURE RAPIDE DE SÉCURITÉ SANS BOULONS. 8 fixations par mètre linéaire.
FAST, BOLTLESS SAFETY LOCKING 8 fastening points per linear meter



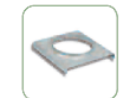
AR150G

AVALOIR ET ACCESSOIRES / SUMP UNITS AND ACCESSORIES TABLE

CODE	L (mm)	H (mm)	LARGEUR WIDTH (mm)	Ø SORTIE / OUTLET (mm)		CORPS SUMP UNITS
				LATERAL	FRONT	
AR150G	500	590	186	160/200	110	1



Fermé/Closed



Ouvert/Open

OBTURATEURS / END CAPS

CANIVEAU CHANNEL	CODE	TYPE	Ø (mm)
R150GH8	TR150H8C	FERMÉ / CLOSED	-
	TR150H12C	FERMÉ / CLOSED	-
R150GH12	TR15000C	FERMÉ / CLOSED	-
R150G00R	TR15000A	OUVERT / OPEN	-
	TR15010C	FERMÉ / CLOSED	110
R150G10R	TR15010A	OUVERT / OPEN	160
	TR15020C	FERMÉ / CLOSED	-
R150G20R	TR15020A	OUVERT / OPEN	160
	TR15030C	FERMÉ / CLOSED	-
R150G30R	TR15030A	OUVERT / OPEN	160



PANIER / GALVANIZED STEEL BUCKET

CODE
CR150



SABOT DE RACCORDEMENTS / STEP UNITS

CODE
CER150

TYPES DE PENTE / SLOPE DESIGNS



SANS PENTE
WITHOUT SLOPE



PENTE EN CASCADE
CASCADED SLOPE

MULTIV+200

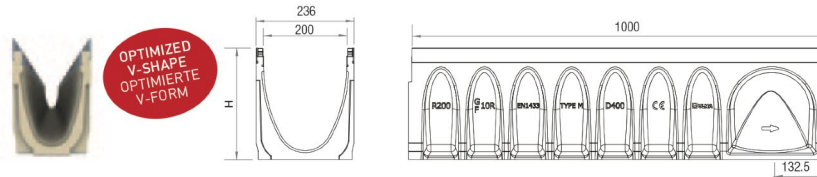
LOAD CLASS
UP TO D400
EN-1433 STANDARD

BELASTUNGSKLASSE
BIS ZU D400
NORM EN-1433



ULMA Linear Drainage Channel, type **MULTIV+® R200G**, External width 236mm, Internal width 200mm, with overall heights between 80 and 370mm; suitable for cascade-type slopes to collect rainwater; sections 1 LM in length; optimized V-shape with self-cleaning effect; especially designed for channel runs with no longitudinal slope; galvanized steel edges for lateral protection; fast, boltless fastening system with 8 fastening points per LM.

Linienentwässerungsrinne ULMA, Typ **MULTIV+®R200G**, Außenbreite 236 mm, Innenbreite 200 mm, Gesamthöhe zwischen 80 und 370mm: Stufengefälle Möglichkeit zur Aufnahme von Regenwasser in 1 m Länge: optimierte V-Form mit Selbstreinigungseffekt; speziell für ohne Sohlgefälle Rinnen zugeschnitten; Kantenschutz aus verzinktem Stahl; schnelles Stecksystem mit 8 Befestigungspunkten pro laufender Meter.



Channel Rinne	L (mm)	H (mm)	Width/Breite (mm)		Ø Outlet* / Auslass* (mm)		Hydraul. Section Hydraulikquerschnitt (cm²)	Pcs. / Pallet Stück/Palette
			Z	X	Vert.	Hor.		
R200GH8**	1000	80	236	200	160	-	79	42
R200GH12**	1000	120	236	200	160	-	159	42
R200G000R	1000	170	236	200	200	-	204	35
R200G00R	1000	220	236	200	200	-	284	28
R200G10R	1000	270	236	200	200	-	368	21
R200G20R	1000	320	236	200	200	-	458	21
R200G30R	1000	370	236	200	200	-	542	21

*Vert. outlets on order / Senkrechten Auslass auf Anfrage
**U shaped section / U-form



GRATINGS / ROSTE

Material	Design	Load Last	Code	L (mm)	Width Breite (mm)	Height Höhe (2) (mm)	Units (x LM) Stück pro Laufmeter
DUCTILE IRON GUSSEISEN	HEELPROOF SLOTTED / STÖCKEL SCHUTZ STEGRÖST	C250	FNHX200RGCM	500	227	-	2
	SLOTTED / STEGRÖST	D400	FNX200RGDM	500	227	-	2
GALVANIZED STEEL VERZINKTES STAHLBLECH (1)	SINGLE SLOT / SCHLITZRAHMEN	D400	GRL200ROD	1000	231	105 (2)	1
	ACCESS UNIT / REVISIONSÖFFNUNG	D400	GRL200RODMA	500	228	105 (2)	2
	SINGLE SLOT / SCHLITZRAHMEN	D400	GRL200RODH150	1000	231	150 (2)	1
	ACCESS UNIT / REVISIONSÖFFNUNG	D400	GRL200RODMAH150	500	228	150 (2)	2
	HEELPROOF MESH / STÖCKEL SCHUTZ MASCHENRÖST	C250	GEHX200RGC	1000	227	-	1

(1) Available Range in Stainless Steel / Produktsortiment aus Edelstahl

(2) The grating height corresponds to the part that extends out from the top edge of the profile / Die Schlitzhöhe ist das Maß, um das das Teil über den oberen Kante des Profils übersteht

LOCKING SYSTEM / BEFESTIGUNGSSYSTEM

FAST, BOLTLESS SAFETY LOCKING 8 fastening points per linear meter / SCHNELLE, SCHRAUBENLOSE SICHERHEITSBEFESTIGUNG. Schnelles Stecksystem mit 8 Befestigungspunkten pro laufender Meter



SUMP UNITS AND ACCESSORIES TABLE EINLAUFKASTEN UND ZUBEHÖR

Code	L (mm)	H (mm)	Width/Breite (mm)	Ø Outlet / Ø Auslass (mm)		Sump Units Einlaufkasten
				Lateral/ Seiten	Front/ Vordere	
AR200G	500	550	236	160/200	110	1

END CAPS STIRNPLATTEN

Closed
Geschlossen

Open
Offen

Channel Rinne	Code	Type / Typ	Ø (mm)
R200GH8	TR200H8C	CLOSED / GESCHLOSSEN	-
R200GH12	TR200H12C	CLOSED / GESCHLOSSEN	-
R200G000R	TR200000C	CLOSED / GESCHLOSSEN	-
R200G00R	TR200000A	OPEN / OFFEN	110
R200G10R	TR200000C	CLOSED / GESCHLOSSEN	-
R200G20R	TR200000A	OPEN / OFFEN	160
R200G30R	TR200000C	CLOSED / GESCHLOSSEN	-
R200G00R	TR20010C	CLOSED / GESCHLOSSEN	-
R200G10R	TR20010A	OPEN / OFFEN	160
R200G20R	TR20020C	CLOSED / GESCHLOSSEN	-
R200G30R	TR20020A	OPEN / OFFEN	160
R200G00R	TR20030C	CLOSED / GESCHLOSSEN	-
R200G10R	TR20030A	OPEN / OFFEN	160

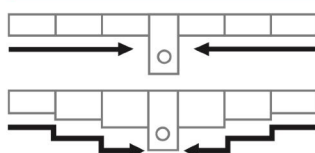
STEP UNITS ÜBERGANGSSTÜCK

Code
CER200

GALVANIZED STEEL BUCKET VERZINKTE SCHLAMMEIMER

Code
CR200

SLOPE DESIGN / GEFÄLLE TYPEN

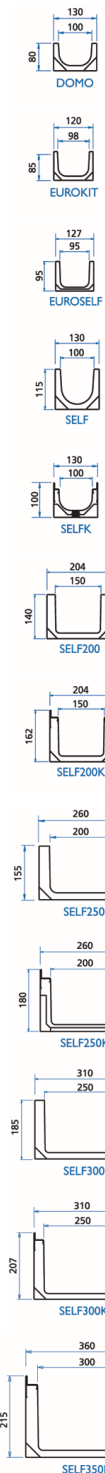


WITHOUT SLOPE
OHNE GEFÄLLE

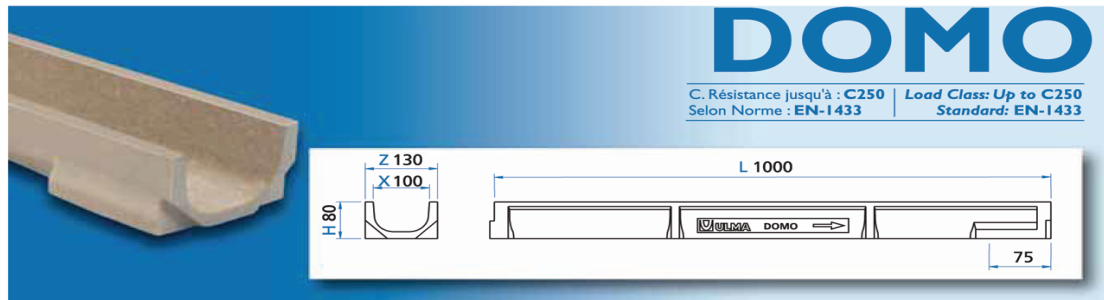
CASCADED SLOPE
STUFENGEFÄLLE



Scan for
up-to-date
Catalogue



SYSTEM SELF



CODE	L (mm.)	H (mm.)	LARGEUR / WIDTH (mm.)		Ø SORTIE / OUTLET (mm.)		HYDRAUL. SECTION (cm²)	KG.	UNITES x PALETTE PCS x PALLET
DOMO	1000	80	Z	X	VERT.	HORIZ.	60	6,5	120

* Sortie vert. et horiz. Sur commande. / Vert. and horiz. Outlets on order.

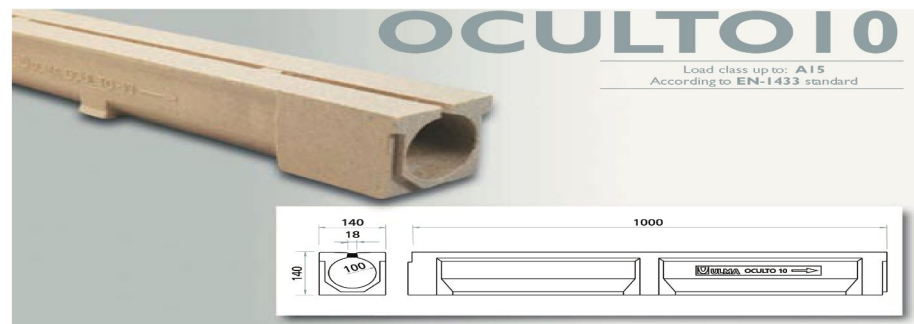
GRILLES / GRATINGS

NERVURÉE SLOTTED	PASSERELLE SLOTTED	MATIERE MATERIAL	DESSIN DESIGN	RESIST. LOAD	CODE	L (mm.)	LARGEUR WIDTH (mm.)	ÉPAISSEUR THICKNESS (mm.)	UNITES x ML UNITS x ML	KG.
		FONTE DUCTILE IRON	NERV. / SLOT.	C 250	FNX100UCCM(1)	500	130	6	2	2,3
			PASS. / SLOT.	A 15	GN100UCA	1000	130	3	1	1,8
			PASS. / SLOT.	A 15	GN100UOA(2)	1000	127	3	1	1,5
			PASS. / SLOT.	A 15	GNH100UCA(3)	1000	130	3	1	1,8
		ACIER GALVANISÉ GALVANISED STEEL	PERF.	A 15	GP100UCA	1000	130	3	1	1,9
			CAIL. / MESH.	A 15	GEX100UOA	1000	130	2	1	2,8
			CAIL. / MESH.	B 125	GE100UCB	1000	130	3	1	3,5
			FENTE / S. SLOT	C 250	GR100UOC(2)	1000	130	70	1	4,7
			FENTE / DOUBLE / SLOT	C 250	GDR100UOC(2)	1000	130	3	1	5,3
		INOXYDABLE STAINLESS STEEL	PASS. / SLOT.	A 15	IN100UCA	1000	130	3	1	1,9
			PERF.	A 15	IP100UCA	1000	130	3	1	1,9
			CAIL. / MESH.	B 125	IE100UCB	1000	130	3	1	3,2

(1) Disponible avec système antidébordement (Voir la photographie à la page 8) / Also Available with non-flooding system (See photograph on page. 8).

(2) Posée, sans vis. / Without screws.

(3) Grille antitaton. / Heelproof.



CHANNEL CODE	LENGTH (mm.)	HEIGHT	WIDTH		OUTLET DIAM.		HYDRAULIC SECTION (cm²)	WEIGHT (kg.)	PCS PER PALLET
OCULTO 10	1000	140	OVERALL	INTERNAL	VERT.	HORIZ.	78,5	17,1	56

TECHNICAL DESCRIPTION

ULMA linear drainage channel, type OCULTO 10, external width 140mm, inside diameter 100mm and overall height 140mm, to collect rain water, in 1 meter long units

LOCKING SYSTEM

The Channel does not have grating. Channel of one piece only.

SUMP UNITS AND ACCESSORIES TABLE

AOCULTO 100S + AU100

AOCULTO 100S + AEURO100

CODE	LENGTH (mm.)	HEIGHT (mm.)	WIDTH (mm.)	SIDE OUTLETS (mm.)	FRONTAL OUTLETS (mm.)	No. OF PIECES FOR SUMP UNIT	GALVANISED STEEL BUCKET CODE
AOCULTO100S + AU100	500	675	140	110/160	110	2	CU100
AOCULTO100S + AEURO100	500	438	140	90/110	90	2	CEURO100

- AOCULTO 100S Sump Unit and maintenance element carries LOCK OF GRATING.

MAINTENANCE ELEMENT

CODE	LENGTH (mm.)	HEIGHT (mm.)	WIDTH (mm.)
OCULTO100RM	500	140	140

OCULTO100RM

GALVANISED STEEL BUCKET

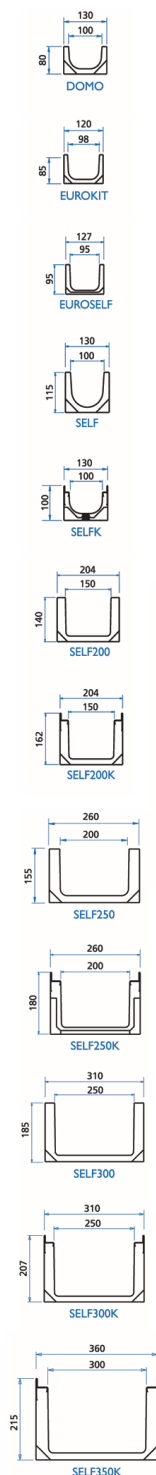
CU100
CEURO100

MAINTENANCE ELEMENT GRATING

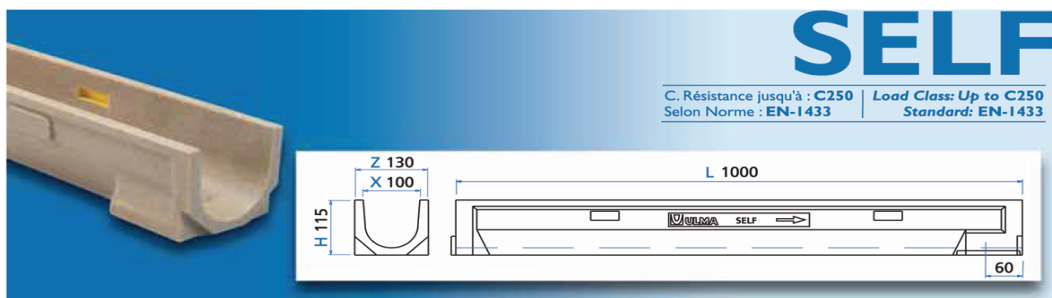
MATERIAL	DESIGN	LOAD CLASS	CODE	LENGTH (mm.)	WIDTH (mm.)	THICKNESS (mm.)	PCS per meter	WEIGHT (kg.)
POLYMER CONCRETE	SINGLE SLOT	A 15	HPR100KCAM	500	110	30	2	3

HPR100KCAM

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SYSTEM SELF








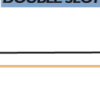


C. Résistance jusqu'à : C250 Load Class: Up to C250
 Selon Norme : EN-1433 Standard: EN-1433

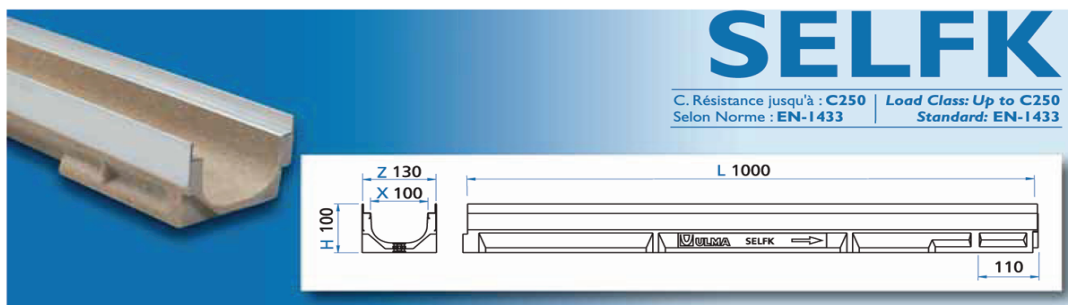
CODE	L (mm.)	H (mm.)	LARGEUR / WIDTH (mm.)		Ø SORTIE / OUTLET (mm.)		HYDRAUL. SECTION (cm²)	KG.	UNITES x PALETTE PCS x PALLET
			Z	X	VERT.	HORIZ.			
SELF	1000	115	130	100	110	—	85	9,2	105

* Sortie vert. et horiz. Sur commande. / Vert. and horiz. Outlets on order.

GRILLES / GRATINGS

NERVURÉE	PASSERELLE	MATIERE MATERIAL	DESSIN DESIGN	RESIST. LOAD	CODE	L (mm.)	LARGEUR WIDTH (mm.)	ÉPAISSEUR THICKNESS (mm.)	UNITES x ML UNITS x ML	KG.
		FONTES DUCTIL IRON	NERV. / SLOT.	C 250	FNX100UCCM(1)	500	130	7	2	2,3
		ACIER GALVANISÉ GALVANISED STEEL	PASS. / SLOT.	A 15	GN100UCA	1000	130	3	1	1,8
			PASS. / SLOT.	A 15	GN100UOA(2)	1000	127	3	1	1,5
			PASS. / SLOT.	A 15	GNH100UCA(3)	1000	130	3	1	1,8
			PERF.	A 15	GP100UCA	1000	130	3	1	1,9
		INOXYDABLE STAINLESS STEEL	CAIL. / MESH.	A 15	GEX100UCA	1000	130	2	1	2,8
			CAIL. / MESH.	B 125	GE100UCB	1000	130	3	1	3,5
			FENTE / S. SLOT	C 250	GR100UOC (2)	1000	130	70	1	4,7
			FENTE / DOUBLE / SLOT	C 250	GDR100UOC (2)	1000	130	3	1	5,3
		INOXYDABLE STAINLESS STEEL	PASS. / SLOT.	A 15	IN100UCA	1000	130	3	1	1,9
			PERF.	A 15	IP100UCA	1000	130	3	1	1,9
			CAIL. / MESH.	B 125	IE100UCB	1000	130	3	1	3,2

(1) Disponible avec système antidébordement (Voir la photographie à la page 8) / Also Available with non-flooding system (See photograph on page. 8).
 (2) Posée, sans vis. / Without screws.
 (3) Grille antitaton. / Heelproof.








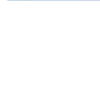


C. Résistance jusqu'à : C250 Load Class: Up to C250
 Selon Norme : EN-1433 Standard: EN-1433

CODE	L (mm.)	H (mm.)	LARGEUR / WIDTH (mm.)		Ø SORTIE / OUTLET (mm.)		HYDRAUL. SECTION (cm²)	KG.	UNITES x PALETTE PCS x PALLET
			Z	X	VERT.	HORIZ.			
SELFK	1000	100	130	100	110	—	53	11,7	105

* Sortie vert. et horiz. Sur commande. / Vert. and horiz. Outlets on order.

GRILLES / GRATINGS

NERVURÉE	NERVURÉE	MATIERE MATERIAL	DESSIN DESIGN	RESIST. LOAD	CODE	L (mm.)	LARGEUR WIDTH (mm.)	UNITES x ML UNITS x ML	KG.
		FONTES DUCTIL IRON	NERV. / SLOT.	C 250	FNX100KCCM(1)	500	123	2	3,4
		ACIER GALVANISÉ GALVANISED STEEL	PERF.	A 15	GP100KCA	1000	123	1	1,7
			PASS. / SLOT.	A 15	GN100KCA	1000	123	1	1,7
			CAIL. / MESH	A 15	GEX100KOA	1000	123	1	2,4
			CAIL. / MESH	B 125	GE100KCB	1000	123	1	2,9
		INOXYDABLE STAINLESS STEEL	PASS. / SLOT.	A 15	IN100KCA	1000	123	1	1,7
			PERF.	A 15	IP100KCA	1000	123	1	1,7
			CAIL. / MESH	B 125	IE100KCB	1000	123	1	3,0
		POLYPROPYLENE POLYPROPYLENE	NERV. / SLOT.	A 15	PNH100KCAM (2)	500	123	2	0,6
			NERV. / SLOT.	A 15	PNH100KCAM GRIS (2)	500	123	2	0,6

(1) Disponible avec système antidébordement (Voir la photographie à la page 8) / Also Available with non-flooding system (See photograph on page. 8).
 (2) Grille antitaton. / Heelproof.



CODE	L (mm.)	H (mm.)	LARGEUR / WIDTH (mm.)		Ø SORTIE / OUTLET (mm.)		HYDRAUL SECTION (cm²)	KG.	UNITES x PALETTE PCS x PALLET
			Z	X	VERT.	HORIZ.			
M100	1000	60	130	100	90	-	40	8,2	120

* Sortie vert. et horiz. Sur commande. / Vert. and horiz. Outlets on order.

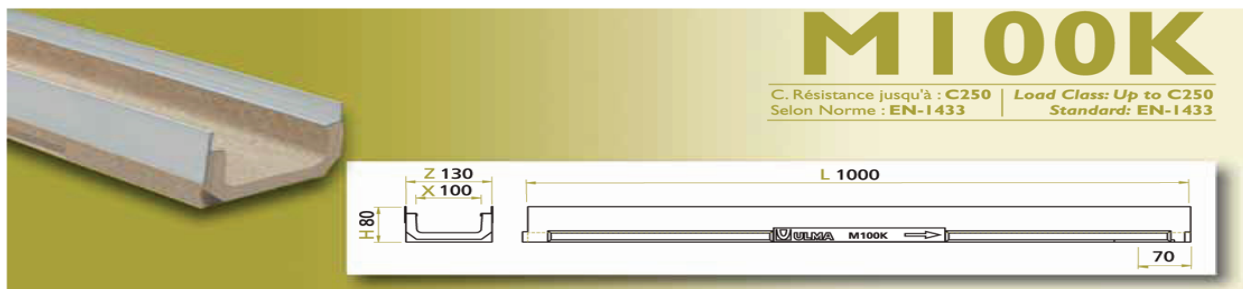
GRILLES / GRATINGS

NERVURÉE SLOTTED	PASSERELLE SLOTTED	MATIERE MATERIAL	DESSIN DESIGN	RESIST. LOAD	CODE	L (mm.)	LARGEUR WIDTH (mm.)	ÉPAISSEUR THICKNESS (mm.)	UNITES x ML UNITS x ML	KG.
		Fonte DUCTIL IRON	NERV. / SLOT.	C 250	FNX100UCCM(1)	500	130	7	2	2,3
		ACIER GALVANISÉ GALVANISED STEEL	PASS. / SLOT.	A 15	GN100UCA	1000	130	3	1	1,8
			PASS. / SLOT.	A 15	GN100UOA(2)	1000	127	3	1	1,5
			PASS. / SLOT.	A 15	GNH100UCA(3)	1000	130	3	1	1,8
			PERF.	A 15	GP100UCA	1000	130	3	1	1,9
			CAIL. / MESH	A 15	GEX100UOA	1000	130	2	1	2,8
		INOXYDABLE STAINLESS STEEL	CAIL. / MESH	B 125	GE100UCB	1000	130	3	1	3,5
			PASS. / SLOT.	A 15	IN100UCA	1000	130	3	1	1,9
			PERF.	A 15	IP100UCA	1000	130	3	1	1,9
			CAIL. / MESH	B 125	IE100UCB	1000	130	3	1	3,2

(1) Disponible avec système antidébordement (Voir la photographie à la page 8) / Also Available with non-flooding system (See photograph on page. 8).

(2) Posée, sans vis. / Without screws.

(3) Grille antitalon. / Heelproof.



CODE	L (mm.)	H (mm.)	LARGEUR / WIDTH (mm.)		Ø SORTIE / OUTLET (mm.)		HYDRAUL SECTION (cm²)	KG.	UNITES x PALETTE PCS x PALLET
			Z	X	VERT.	HORIZ.			
M100K	1000	80	130	100	90	-	40	11,2	120

* Sortie vert. et horiz. Sur commande. / Vert. and horiz. Outlets on order.

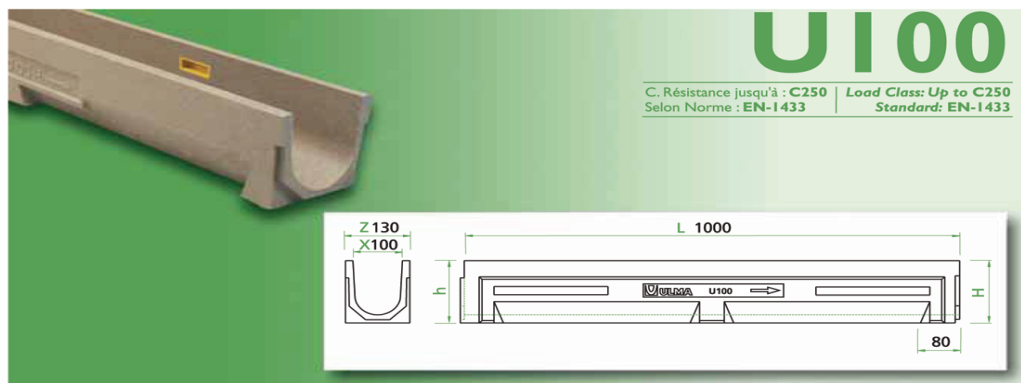
GRILLES / GRATINGS

NERVURÉE SLOTTED	NERVURÉE SLOTTED	MATIERE MATERIAL	DESSIN DESIGN	RESIST. LOAD	CODE	L (mm.)	LARGEUR WIDTH (mm.)	UNITES x ML UNITS x ML	KG.
		Fonte DUCTIL IRON	NERV. / SLOT.	C 250 C 250	FNX100KCCM (1) FNH100KCCM (2)	500 500	123 123	2 2	3,4 3,7
		ACIER GALVANISÉ GALVANISED STEEL	PASS. / SLOT.	A 15	GN100KCA	1000	123	1	1,7
			PERF.	A 15	GP100KCA	1000	123	1	1,7
			CAIL. / MESH	A 15	GEX100KOA	1000	123	1	2,4
			CAIL. / MESH	B 125	GE100KCB	1000	123	1	2,9
		INOXYDABLE STAINLESS STEEL	PASS. / SLOT.	A 15	IN100KCA	1000	123	1	1,7
			PERF.	A 15	IP100KCA	1000	123	1	1,7
			CAIL. / MESH	B 125	IE100KCB	1000	123	1	3
		POLYPROPYLENE POLYPROPYLENE	NERV. / SLOT.	A 15	PNH100KCAM (2)	500	123	2	0,6
			NERV. / SLOT.	A 15	PNH100KCAM GRIS (2)	500	123	2	0,6

(1) Disponible avec système antidébordement (Voir la photographie à la page 8) / Also Available with non-flooding system (See photograph on page. 8).

(2) Grille antitalon. / Heelproof.

The information contained in the brochure was up to date at the time of going to print. Photographs, drawings, sizes and reference numbers are given as an indication only and can be changed without notice. Killeshal Precast Concrete Ltd reserves the right to modify product specification without notice.



CODE	L (mm.)	HAUTEUR / HEIGHT (mm.)		LARGEUR / WIDTH (mm.)		Ø SORTIE / OUTLET (mm.)		HYDRAUL SECTION (cm ²)	KG.	UNITES x PALETTE PCS x PALLET
		h	H	Z	X	VERT.	HORIZ.			
U100.00R	1000	130	130	130	100	110	—	97	12,1	90
U100.01	1000	130	135	130	100	—	—	97	—	—
U100.02	1000	135	140	130	100	—	—	101	—	—
U100.03	1000	140	145	130	100	—	—	106	—	—
U100.04	1000	145	150	130	100	—	—	111	—	—
U100.05	1000	150	155	130	100	—	—	116	—	—
U100.05R	1000	155	155	130	100	110	—	120	14,3	78
U100.06	1000	155	160	130	100	—	—	120	—	—
U100.07	1000	160	165	130	100	—	—	125	—	—
U100.08	1000	165	170	130	100	—	—	130	—	—
U100.09	1000	170	175	130	100	—	—	135	—	—
U100.10	1000	175	180	130	100	—	—	140	—	—
U100.10R	1000	180	180	130	100	110	110	145	15,9	65
U100.11	1000	180	185	130	100	—	—	145	—	—
U100.12	1000	185	190	130	100	—	—	150	—	—
U100.13	1000	190	195	130	100	—	—	155	—	—
U100.14	1000	195	200	130	100	—	—	159	—	—
U100.15	1000	200	205	130	100	—	—	164	—	—
U100.15R	1000	205	205	130	100	110	110	169	17,51	65
U100.16	1000	205	210	130	100	—	—	169	—	—
U100.17	1000	210	215	130	100	—	—	174	—	—
U100.18	1000	215	220	130	100	—	—	178	—	—
U100.19	1000	220	225	130	100	—	—	183	—	—
U100.20	1000	225	230	130	100	—	—	188	—	—
U100.20R	1000	230	230	130	100	110	110	193	19,3	52
U100.25R	1000	255	255	130	100	110	110	240	21,5	—
U100.30R	1000	280	280	130	100	110	110	288	23,5	—

* Sortie vert. et horiz. Sur commande. / Vert. and horiz. Outlets on order.










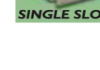



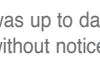




DESCRIPTIF TECHNIQUE

Caniveau en Béton polymère de type ULMA, modèle U100, avec ou sans pente intégrée, largeur extérieure 130mm, largeur intérieure 100mm, hauteur extérieure disponible de 130mm à 230mm, pente intégrée de 0,5% pour récupérer les eaux de pluie, en modules de 1 ML de longueur, clavettes de sécurité CS100 et vis correspondantes, adapté pour les grilles suivantes:

TECHNICAL DESCRIPTION

Ulma Linear Drainage Channel type U100: External width 130mm; Internal Width 100mm; Available with overall heights between 130mm and 230mm, 0,5% pre-slopped channels to collect rain water in 1 metre long units. Locking system consists of locking bar CS100 and screws. Suitable for the following gratings:

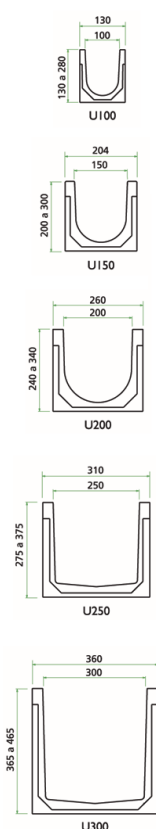
GRILLES / GRATINGS

NIERVURÉE	PASSERELLE	MATIERE MATERIAL	DESSIN DESIGN	RESIST. LOAD	CODE	L (mm.)	LARGEUR WIDTH (mm.)	ÉPAISSEUR THICKNESS (mm.)	UNITES x ML UNITS x ML	KG.
		FONTE DUCTIL IRON	NERV. / SLOT.	C 250	FNX100UCCM(1)	500	130	7	2	2,3
		ACIER GALVANISÉ GALVANISED STEEL	PASS. / SLOT.	A 15	GN100UCA	1000	130	3	1	1,8
			PASS. / SLOT.	A 15	GN100UOA(2)	1000	127	3	1	1,5
			PASS. / SLOT.	A 15	GNH100UCA(3)	1000	130	3	1	1,8
			PERF.	A 15	GP100UCA	1000	130	3	1	1,9
			CAIL. / MESH.	A 15	GEX100UOA(2)	1000	130	2	1	2,8
		INOXYDABLE STAINLESS STEEL	CAIL. / MESH.	B 125	GE100UCB	1000	130	3	1	3,5
			FEN. / S. SLOT	C 250	GR100UOC(2)	1000	130	70	1	5,4
			FENTE / DOUBLE / SLOT	C 250	GDR100UOC(2)	1000	130	3	1	3,7
		INOXYDABLE STAINLESS STEEL	PASS. / SLOT.	A 15	IN100UCA	1000	130	3	1	1,9
			PERF.	A 15	IP100UCA	1000	130	3	1	1,9
			CAIL. / MESH.	B 125	IE100UCB	1000	130	3	1	3,2

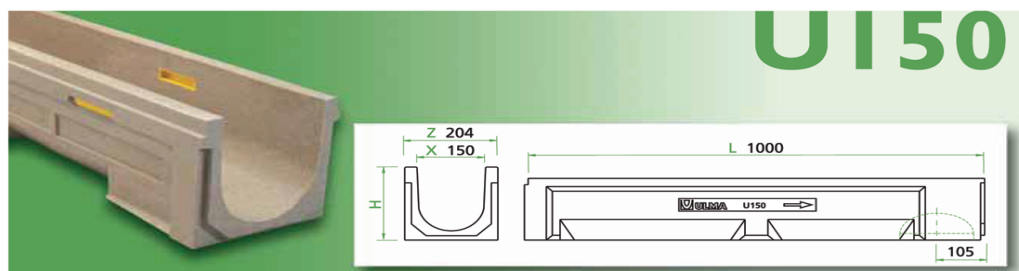
(1) Disponible avec système antidéboîtement (Voir la photographie à la page 8) / Also Available with non-flooding system (See photograph on page. 8).

(2) Posée, sans vis. / Without screws.

(3) Grille antitaton / Heelproof.



SYSTEM U



CODE	L (mm.)	H (mm.)	LARGEUR / WIDTH (mm.)		Ø SORTIE / OUTLET (mm.)		HYDRAUL. SECTION (cm²)	KG.	UNITES x PALETTE PCS x PALLET
			Z	X	VERT.	HORIZ.			
U150.00R	1000	200	204	150	160	110	230	23,0	45
U150.10R	1000	250	204	150	160	160	305	29,5	36
U150.20R	1000	300	204	150	160	160	380	34,5	27

* Sortie vert. et horiz. Sur commande. / Vert. and horiz. Outlets on order.

DESCRIPTIF TECHNIQUE

Caniveau en Béton polymère de type ULMA, modèle U150, largeur extérieure 204mm, largeur intérieure 150mm, hauteur extérieure disponible entre 200mm et 300mm, possibilité de pente en cascade, pour récupérer les eaux de pluie, en modules de 1 ML de longueur, clavettes de sécurité CS150 et vis correspondantes, adapté pour les grilles suivantes:

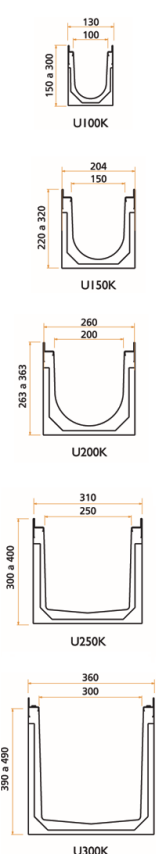
TECHNICAL DESCRIPTION

Ulma Linear Drainage Channel type U100: External width 130mm; Internal Width 100mm; Available with overall heights between 130mm and 230mm, 0,5% pre-sloped channels to collect rain water in 1 metre long units. Locking system consists of locking bar CS100 and screws. Suitable for the following gratings:

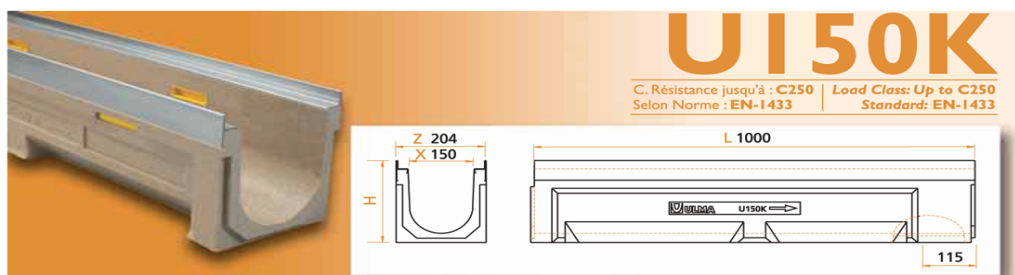
GRILLES / GRATINGS

NERVURÉE	PASSERELLE	MATIERE MATERIAL	DESSIN DESIGN	RESIST. LOAD	CODE	L (mm.)	LARGEUR WIDTH (mm.)	ÉPAISSEUR THICKNESS (mm.)	UNITES x ML UNITS x ML	KG.
SLOTTED	SLOTTED	FONTES DUCTIL IRON	NERV. / SLOT.	C 250	FNX150UCCM(1)	500	200	7	2	3,5
PERFORÉE	CAILLEBOTIS	ACIER GALVANISÉ GALVANISED STEEL	PASS. / SLOT. PERF. CAIL. / MESH.	A 15 A 15 B 125 C 250 C 250	GN150UCA GP150UCA GEX150UCA GE150UCB GDR150UOC GR150UOC	1000 1000 1000 1000 1000	200 200 200 200 200	3 3 2 3 3	I I I I I	2,7 3,7 4,7 6,3 4,7
PERFORÉE	MESH	INOXYDABLE STAINLESS STEEL	PERF. CAIL. / MESH.	A 15 B 125	IP150UCA IE150UCB	1000 1000	200 200	3 3	I I	3,0 6,0
FENTE	FENTE DOUBLE		FENTE / SLOT FENTE / SLOT							
SINGLE SLOT	DOUBLE SLOT									

(1) Disponible avec système antidébordement (Voir la photographie à la page 8) / Also Available with non-flooding system (See photograph on page. 8).



SYSTEM UK



CODE	L (mm.)	H (mm.)	LARGEUR / WIDTH (mm.)		Ø SORTIE / OUTLET (mm.)		HYDRAUL. SECTION (cm²)	KG.	UNITES x PALETTE PCS x PALLET
			Z	X	VERT.	HORIZ.			
U150K00R	1000	220	204	150	160	—	230	26	45
U150K10R	1000	270	204	150	160	—	305	32,5	36
U150K20R	1000	320	204	150	160	160	380	37,5	27

* Sortie vert. et horiz. Sur commande. / Vert. and horiz. Outlets on order.

DESCRIPTIF TECHNIQUE

Caniveau en Béton polymère de type ULMA, modèle U150K, largeur extérieure 204mm, largeur intérieure 150mm, possibilité de pente en cascade, hauteurs extérieures disponibles de 220mm à 320mm, pour récupérer les eaux de pluie, en modules de 1 ML de longueur, feuillures en acier galvanisé* pour protection latérale, clavettes de sécurité CS150 et vis correspondantes, adapté pour les grilles suivantes :

* Disponible également en acier inoxydable. / Also available with Stainless Steel edge protection.

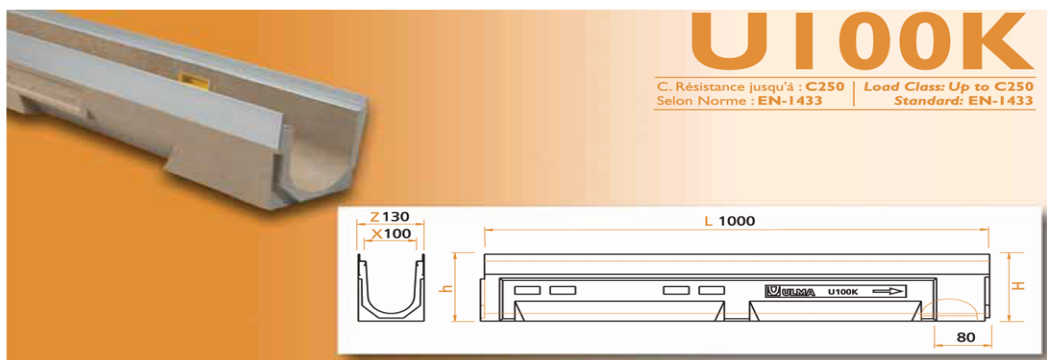
TECHNICAL DESCRIPTION

Ulma Linear Drainage Channel type U150K: External width 204mm; Internal Width 150mm; Suitable for cascade type slope and available with overall heights between 220mm and 320mm to collect rain water in 1 metre long units; Integrated Galvanised Steel* edges for lateral protection. Locking System consists of CS150 locking bar and screws. Suitable for the following gratings:

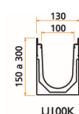
GRILLES / GRATINGS

NERVURÉE	PERFORÉE	MATIERE MATERIAL	DESSIN DESIGN	RESIST. LOAD	CODE	L (mm.)	LARGEUR WIDTH (mm.)	UNITES x ML UNITS x ML	KG.
SLOTTED	PERFORATED	FONTES DUCTIL IRON	NERV. / SLOT.	C 250	FNX150KCCM(1)	500	195	2	5,2
CAILLEBOTIS		ACIER GALVANISÉ GALVANISED STEEL	PERF. CAIL. / MESH.	A 15 B 125	GP150KCA GE150KCB	1000 1000	195 195	I I	3,5 5,1
		INOXYDABLE STAINLESS STEEL	PERF. CAIL. / MESH.	A 15 B 125	IP150KCA IE150KCB	1000 1000	195 195	I I	2,8 5,2
	MESH								

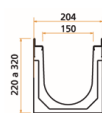
(1) Disponible avec système antidébordement (Voir la photographie à la page 8) / Also Available with non-flooding system (See photograph on page. 8).



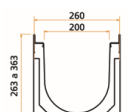
C. Résistance jusqu'à : C250 Load Class: Up to C250
 Selon Norme : EN-1433 Standard: EN-1433



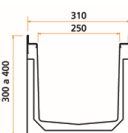
U100K



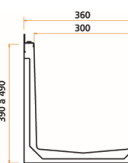
U150K



U200K



U250K



U300K

SYSTEM UK

CODE	L (mm.)	HAUTEUR / HEIGHT (mm.)		LARGEUR / WIDTH (mm.)		Ø SORTIE / OUTLET (mm.)		HYDRAUL. SECTION (cm²)	KG.	UNITES x PALETTE
		h	H	Z	X	VERT.	HORIZ.			PCS x PALLET
U100K00R	1000	150	150	130	100	110	—	97	15,1	90
U100K01	1000	150	155	130	100	—	—	97	—	—
U100K02	1000	155	160	130	100	—	—	101	—	—
U100K03	1000	160	165	130	100	—	—	106	—	—
U100K04	1000	165	170	130	100	—	—	111	—	—
U100K05	1000	170	175	130	100	—	—	116	—	—
U100K05R	1000	175	175	130	100	110	—	120	17,3	78
U100K06	1000	175	180	130	100	—	—	120	—	—
U100K07	1000	180	185	130	100	—	—	125	—	—
U100K08	1000	185	190	130	100	—	—	130	—	—
U100K09	1000	190	195	130	100	—	—	135	—	—
U100K10	1000	195	200	130	100	—	—	140	—	—
U100K10R	1000	200	200	130	100	110	110	145	18,9	65
U100K11	1000	200	205	130	100	—	—	145	—	—
U100K12	1000	205	210	130	100	—	—	150	—	—
U100K13	1000	210	215	130	100	—	—	155	—	—
U100K14	1000	215	220	130	100	—	—	159	—	—
U100K15	1000	220	225	130	100	—	—	164	—	—
U100K15R	1000	225	225	130	100	110	110	169	20,5	65
U100K16	1000	225	230	130	100	—	—	169	—	—
U100K17	1000	230	235	130	100	—	—	174	—	—
U100K18	1000	235	240	130	100	—	—	178	—	—
U100K19	1000	240	245	130	100	—	—	183	—	—
U100K20	1000	245	250	130	100	—	—	188	—	—
U100K20R	1000	250	250	130	100	110	110	193	22,3	52
U100K25R	1000	275	275	130	100	110	110	240	24,5	—
U100K30R	1000	300	300	130	100	110	110	288	26,5	—

* Sortie vert. et horiz. Sur commande. / Vert. and horiz. Outlets on order.

DESCRIPTIF TECHNIQUE

Caniveau en Béton Polymère de type ULMA, modèle U100K, de dimension extérieure de 130mm, dimension intérieure de 100mm, avec la possibilité d'une pente incorporée de 0,5% ou d'une pente en cascade, avec une hauteur extérieure disponible de 150 à 250mm pour récupérer les eaux de pluie, en modules de IML de long, feuillures en acier galvanisé* pour protection latérale, grille de sécurité et fixation correspondante, adapté suivant le modèle de grille :

* Disponible également en acier inoxydable. / Also available with Stainless Steel edge protection.

TECHNICAL DESCRIPTION

Ulma Linear Drainage Channel type U100K: External width 130mm; Internal Width 100mm; Available with overall heights between 150mm and 250mm; 0.5% pre-sloped channels to collect rain water in 1 metre long units; Integrated Galvanised Steel* edges for lateral protection. Locking System consists of CS100 locking bar and screws. Suitable for the following gratings:

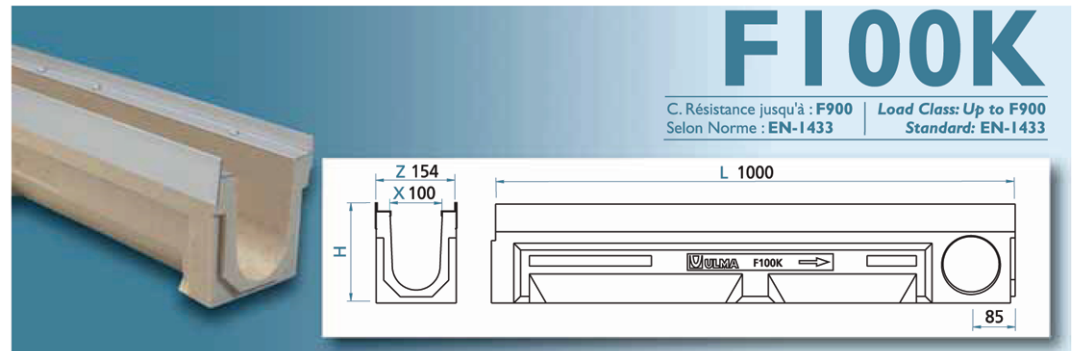
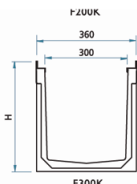
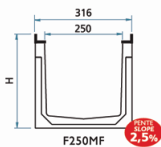
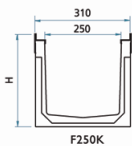
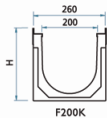
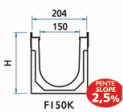
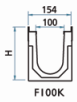
GRILLES / GRATINGS

NERVURÉE	NERVURÉE	MATIERE MATERIAL	DESSIN DESIGN	RESIST. LOAD	CODE	L (mm.)	LARGEUR WIDTH (mm.)	UNITES x ML UNITS x ML	KG.
SLOTTED	SLOTTED	FONTE DUCTIL IRON	NERV. / SLOT.	C 250	FNX100KCCM (1)	500	123	2	3,4
				C 250	FNH100KCCM (2)	500	123	2	3,7
PASSERELLE	PERFORÉE	ACIER GALVANISÉ GALVANISED STEEL	PASS. / SLOT.	A 15	GN100KCA	1000	123	1	1,7
			PERF.	A 15	GP100KCA	1000	123	1	1,7
SLOTTED	PERFORÉE		CAIL. / MESH	A 15	GEX100KOA	1000	123	1	2,4
			CAIL. / MESH	B 125	GE100KCB	1000	123	1	2,9
CAILLEBOTIS	NERVURÉE	INOXYDABLE STAINLESS STEEL	PASS. / SLOT.	A 15	INI100KCA	1000	123	1	1,7
			PERF.	A 15	IP100KCA	1000	123	1	1,7
			CAIL. / MESH	B 125	IE100KCB	1000	123	1	3,0
MESH	SLOTTED	POLYPROPYLENE POLYPROPYLENE	NERV. / SLOT.	A 15	PNH100KCAM (2)	500	123	2	0,6
			NERV. / SLOT.	A 15	PNH100KCAM GRIS (2)	500	123	2	0,6
NERVURÉE			PERF.	A 15	PP100KOAM	500	123	2	0,5
SLOTTED			PERF.	A 15	PP100KCAM	500	123	2	0,5

(1) Disponible avec système antidébordement (Voir la photographie à la page 8) / Also Available with non-flooding system (See photograph on page. 8).
 (2) Grille anticalzon. / Heelproof.



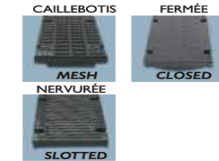
Scan for up-to-date Catalogue



C. Résistance jusqu'à : F900 Load Class: Up to F900
Selon Norme : EN-1433 Standard: EN-1433

CODE	L (mm.)	H (mm.)	LARGEUR / WIDTH (mm.)		Ø SORTIE / OUTLET (mm.)		HYDRAUL. SECTION (cm ²)	KG.	UNITES x PALETTE PCS x PALLET
			Z	X	VERT.	HORIZ.			
F100K000R	1000	130	154	100	110	-	68	23,0	52
F100K00R	1000	190	154	100	110	110	126	27,5	52
F100K10R	1000	250	154	100	110	110	184	30,0	39
F100K20R	1000	310	154	100	110	110	242	36,1	39

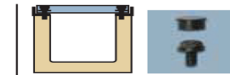
GRILLES / GRATINGS



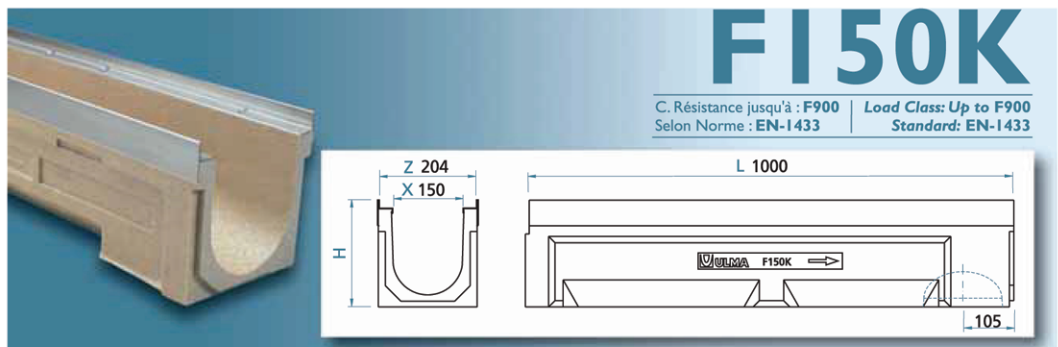
MATIERE MATERIAL	DESSIN DESIGN	RESIST. LOAD	CODE	L (mm.)	LARGEUR WIDTH (mm.)	UNITES x ML UNITS x ML	KG.
FONTE DUCTIL IRON	CAIL / MESH	D400	FE100FTDM	500	145	2	3,4
	FER. / CLO.	F900	FC100FTFM	500	145	2	7,4
	NERV. / SLOT.	F900	FN100FTFM (1)	500	145	2	6,9

(1) Disponible avec système antidébordement (Voir la photographie à la page 8) / Also Available with non-flooding system (See photograph on page. 8).

SYSTÈME DE FIXATION / LOCKING SYSTEM



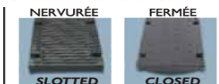
8 POINTS. 8 boulons par mètre linéaire avec capuchons de protection.
8 BOLT LOCKING SYSTEM. 8 screws with protection cap, per liner metre.



C. Résistance jusqu'à : F900 Load Class: Up to F900
Selon Norme : EN-1433 Standard: EN-1433

CODE	L (mm.)	H (mm.)	LARGEUR / WIDTH (mm.)		Ø SORTIE / OUTLET (mm.)		HYDRAUL. SECTION (cm ²)	KG.	UNITES x PALETTE PCS x PALLET
			Z	X	VERT.	HORIZ.			
F150K00R	1000	220	204	150	160	110	230	30,0	45
F150K10R	1000	270	204	150	160	110	305	36,5	36
F150K20R	1000	320	204	150	160	160	345	41,5	27

GRILLES / GRATINGS



MATIERE MATERIAL	DESSIN DESIGN	RESIST. LOAD	CODE	L (mm.)	LARGEUR WIDTH (mm.)	UNITES x ML UNITS x ML	KG.
FONTE DUCTIL IRON	NERV. / SLOT.	D 400	FNX150FTDM (1)	500	195	2	6,4
	NERV. / SLOT.	F 900	FN150FTFM (1)	500	195	2	12,1
	FER. / CLO.	F 900	FC150FTFM	500	195	2	12,9

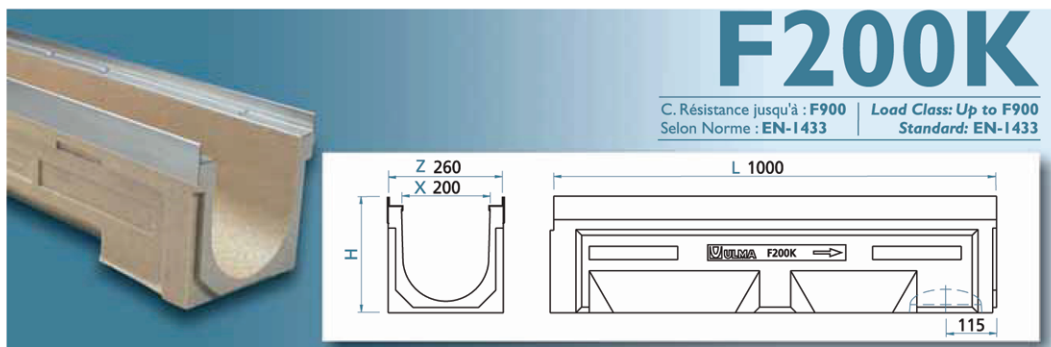
(1) Disponible avec système antidébordement (Voir la photographie à la page 8) / Also Available with non-flooding system (See photograph on page. 8).

SYSTÈME DE FIXATION / LOCKING SYSTEM



8 POINTS. 8 boulons par mètre linéaire avec capuchons de protection.
8 BOLT LOCKING SYSTEM. 8 screws with protection cap, per liner metre.

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CODE	L (mm.)	H (mm.)	LARGEUR / WIDTH (mm.)		Ø SORTIE / OUTLET (mm.)		HYDRAUL SECTION (cm²)	KG.	UNITES x PALETTE PCS x PALLET
			Z	X	VERT.	HORIZ.			
F200K00R	1000	263	260	200	200	160	374	42,0	28
F200K10R	1000	313	260	200	200	160	473	49,0	28
F200K20R	1000	363	260	200	200	160	571	54,5	21

GRILLES / GRATINGS

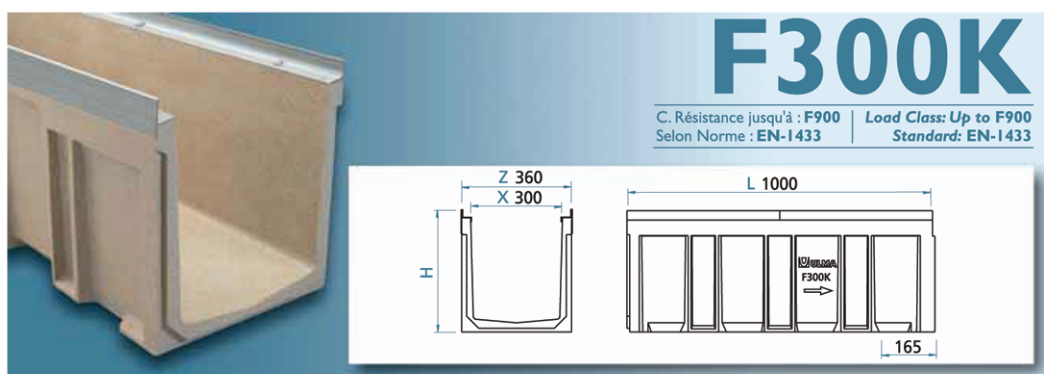
NERVURÉE SLOTTED	FERMÉE CLOSED	MATIERE MATERIAL	DESSIN DESIGN	RESIST. LOAD	CODE	L. (mm.)	LARGEUR WIDTH (mm.)	UNITES x ML UNITS x ML	KG.
		FONTE DUCTIL IRON	NERV. / SLOT.	D 400	FNX200FTDM (1)	500	251	2	9,7
			NERV. / SLOT.	F 900	FN200FTFM (1)	500	251	2	13,0
			FER. / CLO.	F 900	FC200FTFM	500	251	2	14,5

(1) Disponible avec système antidébordement (Voir la photographie à la page 8) / Also Available with non-flooding system (See photograph on page. 8).

SYSTÈME DE FIXATION / LOCKING SYSTEM



8 POINTS. 8 boulons par mètre linéaire avec capuchons de protection.
8 BOLT LOCKING SYSTEM. 8 screws with protection cap, per liner metre.



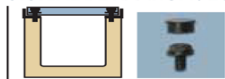
CODE	L (mm.)	H (mm.)	LARGEUR / WIDTH (mm.)		Ø SORTIE / OUTLET (mm.)		HYDRAUL SECTION (cm²)	KG.	UNITES x PALETTE PCS x PALLET
			Z	X	VERT.	HORIZ.			
F300K00R	1000	390	360	300	250	-	975	60,0	15
F300K10R	1000	440	360	300	250	-	1110	70,4	10
F300K20R	1000	490	360	300	250	-	1255	75,7	10
F300K60R	1000	600	360	300	-	-	1525	91,0	10

GRILLES / GRATINGS

NERVURÉE SLOTTED	FERMÉE CLOSED	MATIERE MATERIAL	DESSIN DESIGN	RESIST. LOAD	CODE	L. (mm.)	LARGEUR WIDTH (mm.)	UNITES x ML UNITS x ML	KG.
		FONTE DUCTIL IRON	NERV. / SLOT.	D 400	FN300FTDM (1)	500	351	2	14,4
			NERV. / SLOT.	F 900	FN300FTFM (1)	500	351	2	25,2
			FER. / CLO.	F 900	FC300FTFM	500	351	2	27,5

(1) Disponible avec système antidébordement (Voir la photographie à la page 8) / Also Available with non-flooding system (See photograph on page. 8).

SYSTÈME DE FIXATION / LOCKING SYSTEM



8 POINTS. 8 boulons par mètre linéaire avec capuchons de protection.
8 BOLT LOCKING SYSTEM. 8 screws with protection cap, per liner metre.

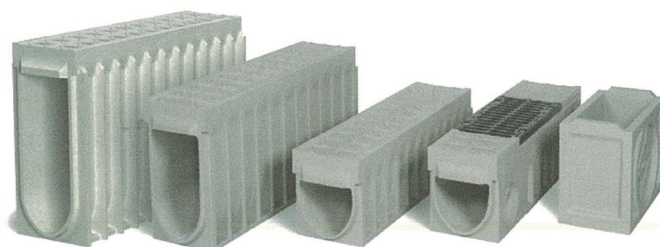
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Compact Channel **KOMPAQDRAIN®** with **Max Flow®** system

ULMA ARCHITECTURAL SOLUTIONS

Specially designed for areas with high traffic density by **ULMA Architectural Solutions**, specialists in drainage system, this novel compact channel made of polymer concrete, is suitable up to load class F900, according to standard EN-1433.

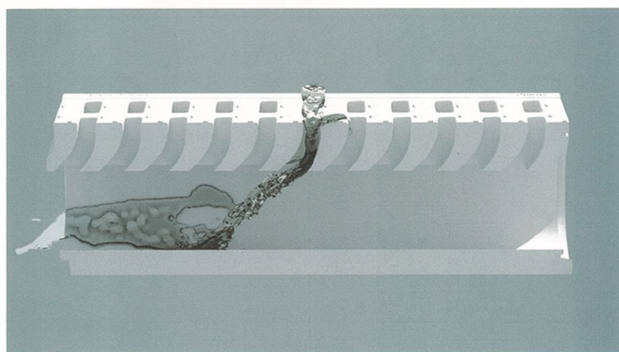
Motorways, airports, service stations and other intense traffic areas require high drainage and maximum safety, requirements to which **KOMPAQDRAIN®** responds with a combination of features that make it unique on the market.



ADVANTAGES OF THE SYSTEM

1. COMPACT
2. LONG-LASTING AND RESISTANT
3. SELF-CLEANING
4. MAXIMUM SECURITY
5. QUICK INSTALLATION

Max Flow® SYSTEM



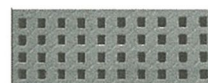
GRATING DESIGNS



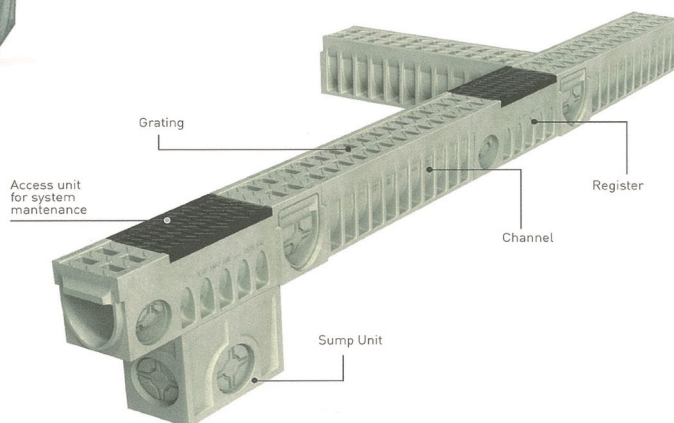
CIVIL / TRAFFIC



CITY



INDUSTRY

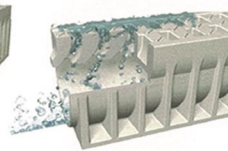


The original curved design of the inlets, together with the non-slip surface and water router, achieve the novel **Max Flow®** effect, **increasing the water speed and the drainage capacity**. Moreover, the progressive widening of the orifices helps the waste pass through more easily. Therefore **KOMPAQDRAIN®** can drain the same volume of water with a smaller channel.

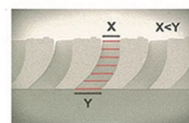
KOMPAQDRAIN® meets all requirements of the EN-1433 international standard of quality and reliability.



// CURVED DESIGN OF THE INLETS



// IT INCREASES THE WATER ENTRY SPEED AND THE DRAINAGE CAPACITY



// PROGRESSIVE WIDENING TO PREVENT DIRT BLOCKAGE

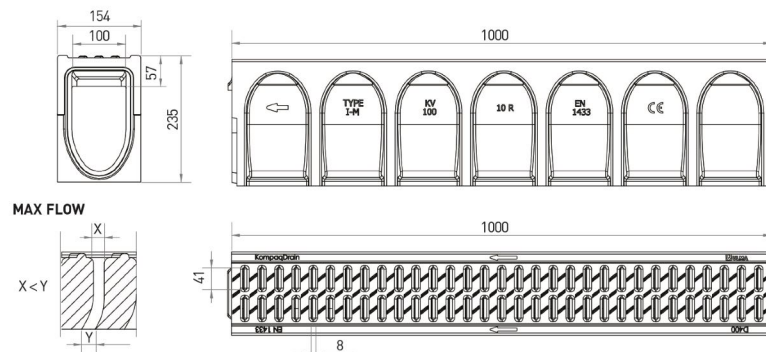
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KOMPAQ100 CITY

Also available for other sizes and applications (150, 200)
Contact us for more information

Linear Drainage Channel model **ULMA KompaqDrain® City KVFDH100**, with an integral grating, presented in one-piece and manufactured by high resistant Polymer Concrete. Vandal – proof and corrosion resistant. Load class up to D-400, for all types' vehicles crossing and with reduced capture holes of 8mm. With "V" optimized shaped and capture holes with MAX-FLOW® geometry: self-cleaning effect at a low flow, increase at maximum flow and positive opening in order to avoid dirt blockage, for areas

without slope. Active surface for cutting of water sheet and for its driving to uptake holes and with non-slippery protuberances. Male and female horizontal and vertical alignment and perimetral preformed Groove to facilitate joint sealing in 360°. The register and the sump unit include: cast iron grating FNX100FTDM, lateral preforms for horizontal outlets on each side and lateral preforms for connections in T, L and in cross.



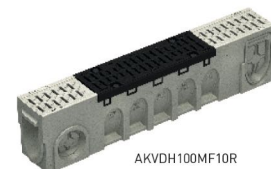
CHANNELS

Channel Code	Length (mm)	Height (mm)	Channel width (mm)		Weight (Kg)	Hydraul. Section (cm²)	Pcs. (x pallet)
			External	Internal			
KVDH100.10R	1000	235	154	100	32,6	139,5	28

REGISTERS

Channel Code	L. (mm)	Height (mm)	Channel width (mm)		Lateral Outlet (mm)	Vertical Outlet (mm)	T and + channel connection	Weight (Kg)	Hydraul. Section (cm²)	Pcs. (x pallet)
			Ext.	Int.						
AKVDH100MF10R	1000	235	154	100	110	110	YES	40	139,5	28

* Standard cast iron edges, galvanized and stainless steel edges available.



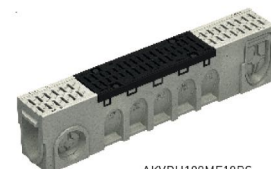
AKVDH100MF10R

SUMP UNITS

Sump Unit Code	L. (mm)	Height (mm)	Channel width (mm)		Frontal Outlet (mm)	Lateral Outlet (mm)	Galvanized steel bucket	Weight (Kg)	Hydraul. Section (cm²)	Pcs. (x pallet)
			Ext.	Int.						
AKVDH100MF10RS	1000	235	154	100	-	110	110	-	139,5	28
AKVD100I	500	260	154	100	110	160	110	CKV100	-	24
AKVD100B	500	260	154	100	110	160	110	CKV100	-	24

** The Sump unit can be higher incorporating an intermediate unit of 260 mm. AKVF200I.

*** More info about sump units and registers on page 8.



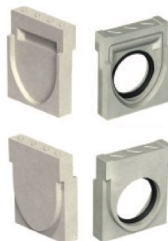
AKVDH100MF10RS



AKVD100B

END CAPS

Channel	Code
KVDH100.10R	TKVDH100.10RAJ
	TKVDH100.10RC



CONNECTORS

Channel	Code
KVDH100.10R	TCKVDH100.10RFFA
	TCKVDH100.10RMMA



BUCKET

Code
CKV100



STEP UNIT

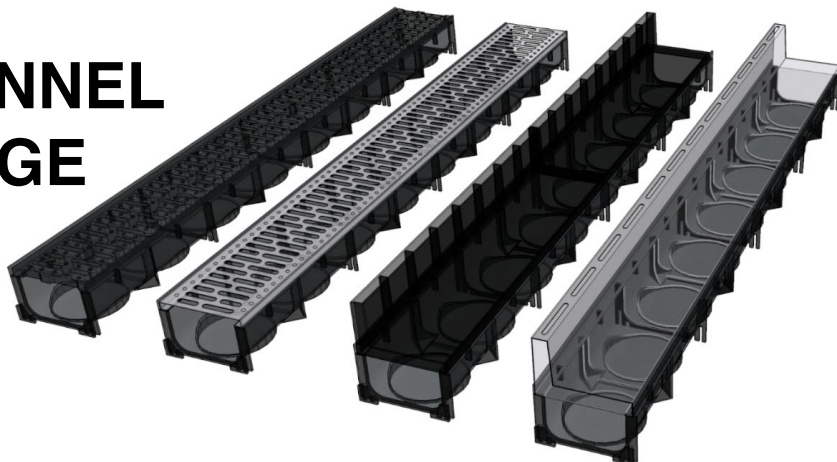
Code
CEKV100



DOMESTIC CHANNEL DRAINAGE RANGE



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up-to-date
Catalogue



SEE OUR FULL RANGE OF PRODUCTS

Visit Killeshal.com or scan the QR code or scan the QR code

Killeshal offers a full range of domestic channel drains complete with accessories giving you a versatile and cost effective solution to drain away problem surface water.

Our new & improved design provides the following features & benefits;

- 8 Outlet points on base of channel allows outlets to be positioned along the length
- One metre length channel with anti-slip finish to surface
- Tested to loading classification in accordance with BS EN 1422:2002 and meets minimum requirements of Class A15 (15kN) loading; ultimate test load achieved of 98kN
- More durable design
- Channels interlock to provide ease of fixing and robustness once installed
- Narrow/slim slot polypropylene grating as standard
- Galvanised steel, stainless steel & ductile iron gratings are available
- Self-locking gratings with anti-shunt mechanism

POLYPROPYLENE CHANNEL

LENGTH:	1000 mm	INTERNAL WIDTH:	100 mm
OVERALL WIDTH:	125 mm	INTERNAL HEIGHT:	70 mm
OVERALL HEIGHT:	80 mm	WEIGHT:	740 g



SLOTTED GRATE (POLYPROPYLENE)

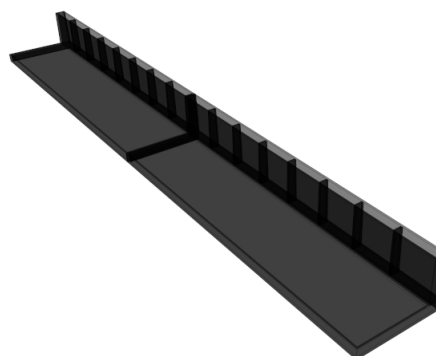
LENGTH:	1000 mm	SLOT SIZE:	6 x 45 mm
			6 x 30 mm
WEIGHT:	625 g		

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SLOTTED GRATE (GALVANISED)

LENGTH:	1000 mm	SLOT SIZE:	6 x 45 mm
			6 x 30 mm
WEIGHT:	1200 g		



PAVE SLOT GRATE (POLYPROPYLENE)

LENGTH:	2 x 500 mm	SLOT SIZE:	10 x 60 mm
WEIGHT:	2 x 300 g	UPSTAND HEIGHT:	60 mm

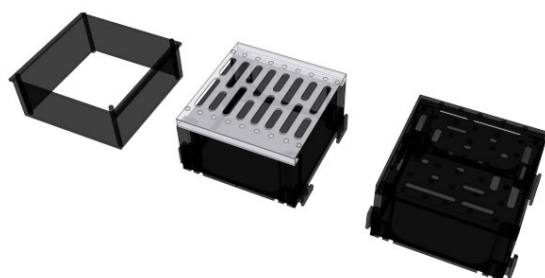
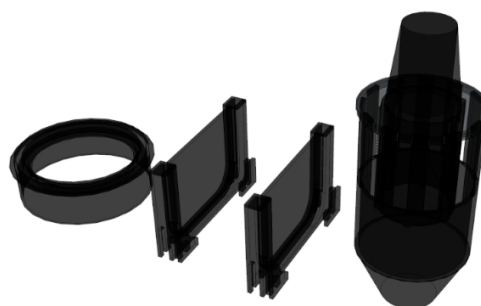


PAVE SLOT GRATE (GALVANISED)

LENGTH:	1000 mm	SLOT SIZE:	10 x 60 mm
WEIGHT:	2,265 g	UPSTAND HEIGHT:	60 mm

ACCESSORY PACK

1 x	BOTTOM OUTLET
2 x	END CAP (STOP ENDS)
1 x	LEAF TRAP / ODOUR SEAL



CORNER UNITS

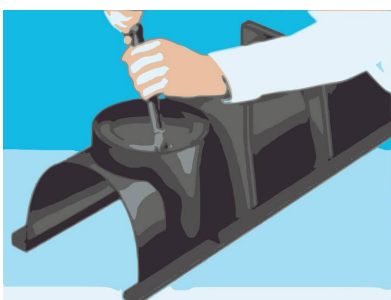
CORNER ADAPTOR (RISER)	132 x 132 mm	57 mm depth
CORNER c/w GALV. GRATE	132 x 132 mm	78 mm depth (incl. grate)
CORNER c/w POLY. GRATE	132 x 132 mm	78 mm depth (incl. grate)

STEP 1

Prepare a trench of sufficient depth.

To ensure reliable drainage into the channel, the finished ground surface level, including paving, should be 2-3mm higher than the upper edge of the grating.

Use a stretched line to assist accurate workmanship. Fill with as even bed of good quality concrete 80-100mm depth.



STEP 2

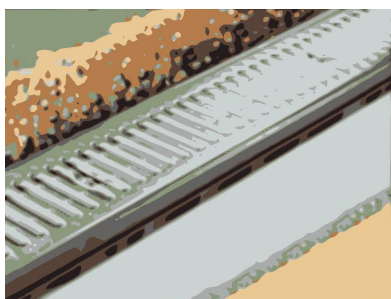
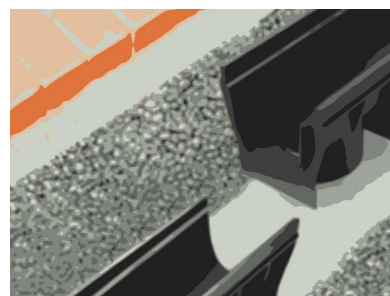
Remove the Tap-Out.

Before installation, tap out the preformed outlet on the channel as required.

STEP 3

Assemble, interlock & align channels.

Assemble, interlock & align channels on concrete bed, & either connect to underground drainage system or soak-away. Ensure gratings are placed in channels during installation. To protect the grating's finished surface of during installation we recommend that at this stage the gratings are placed upside down in the channels.



STEP 4

Fill trench.

When the channels are in position fill the trench either side of the channel with good quality concrete 80 – 100mm width. Ensure correct depth of concrete so that finished ground surface, incl. paving, is 2 -3 mm higher than top of grating.

STEP 5

Fix gratings.

Once concrete has set, remove gratings & place into channel the right way up, firmly tapping to ensure lugs on gratings properly locate into slots on channel. Locking bars can be supplied as an optional extra with metal gratings that locate into slots in wall of channel.



SCS INEGRA 70mm | 1.9kg Porous Paving

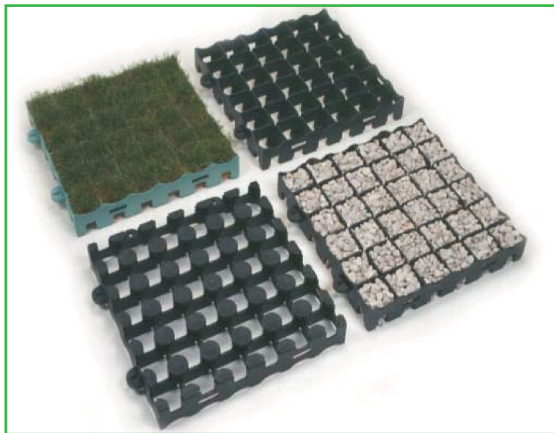
The Concept

SCS INEGRA is a key product within a sustainable urban drainage system (SUDS), whereby the porous paving effects the efficient attenuation, infiltration and treatment of stormwater runoff at or near its source - in accordance with current Best Management Practices (BMP's). It is also an ideal product for grass and gravel reinforcement.

The Product

Made in the EU from recycled high/low density polyethylene SCS INEGRA is a modular unit which works in conjunction with its neighbouring units to create an exceptionally durable, permanently porous, high load bearing structure.

Infilled with either grass or natural aggregate in completed form, SCS INEGRA remains in harmony with current environmental considerations whilst complying with increased governing legislation.



Applications

SCS INEGRA is a heavy duty grass and gravel reinforcement system and is therefore ideal for:

- Emergency Access Roads
- Car Parks
- Pedestrian areas
- Grass verges
- Vehicular hard-standings
- Cycle ways
- Helicopter Landing Pads
- Sport & Leisure Facilities
- Holiday Complexes
- Sheltered accommodation
- Domestic driveways
- Caravan sites

Product Data

NOMINAL SIZE	500mm x 500mm x 70mm
COVERAGE RATE	4 blocks / m ²
UNIT WEIGHT	1.9kg
INFILTRATION RATE	> 5,000 mm/hour
RUN OFF COEFFICIENT RANGE	0.05 - 0.25
LATERAL DRAINAGE VOID RATIO	20.8%
INFILL SURFACE AREA	> 90%
COMPRESSIVE STRENGTH (FILLED)	2,240 kN/m ²

The above data indicates typical values - further details of structural and hydraulic properties of the system are available on request.



The SCS INEGRA system has the unique benefit of full scale independent physical hydraulic modelling, providing the necessary data for developing validated porous paving designs on a scientific basis.

SUDS - The Principle

SUDS are physical structures built to receive water runoff, being located as close as possible to where the rainwater falls, providing the option of infiltration and attenuation stormwater source control solutions. They also provide treatment for surface water using the natural processes of sedimentation, filtration, absorption and bio-degradation.

Recent research shows that typically up to 80% of sediment; 60% of phosphorous; and 80% of nitrogen can be removed from rainwater through porous paving, together with substantial levels of heavy metals and hydrocarbons. This natural treatment provides the ideal opportunity for rainwater conservation and re-use for a variety of non-potable applications e.g. toilet/urinal flushing, irrigation, laundry, process water, vehicle washing, refrigeration, coolant use, etc.

Such source control principles and techniques are now inherent within best practice and are increasingly becoming the norm within development projects.

Design Details - SUDS

Within the concept of porous paving there exists two, more commonly specified, system constructions:

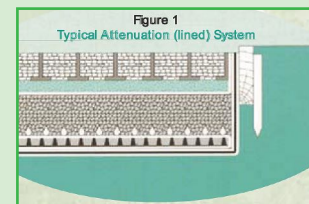
The Attenuation System

- utilised when direct infiltration is not appropriate and when water storage is required.

Figure 1 shows SCS INEGRA, containing either grass or natural aggregate, installed on a layer of clean stone overlying an appropriate SCS GT geotextile separation/filtration layer.

Beneath this is a voided sub-base which is encased within an appropriate SCS GM geomembrane.

Collected runoff is discharged via an appropriate SCS storage device (SCS Aquavoid®) positioned within or below the sub-base and sealed where it exits the geomembrane storage reservoir.



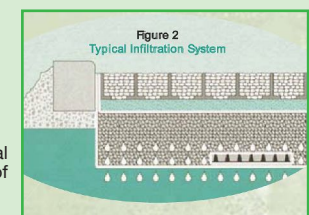
The Infiltration System

- utilised whenever possible, subject to appropriate soil conditions and environmental considerations.

Figure 2 shows SCS INEGRA, containing either grass or natural aggregate, installed on a layer of clean stone overlying an appropriate SCS GT geotextile separation/filtration layer.

Beneath this is a sub-base which is encapsulated within an appropriate SCS GT geotextile separation/filtration layer.

Collected runoff is allowed to permeate naturally, through the geotextile separation/filtration layer, into the sub-grade obviating the need for a positive discharge facility.



PAVING SURFACES - INSTALLATION

Subgrade

Excavate to formation level as indicated on the drawing, providing a minimal (1: 30 - 1: 100) fall to the drainage system. Compact subgrade, using either a vibrating roller or plate, making good soft spots with suitable material.

Sub-base for Infiltration Surfaces

Use granular material (crushed gravel, rock or concrete) as specified - for SUDS schemes this must be free draining. Install the designed depth of sub-base as specified, in 200mm layers compacting each layer (vibratory plate, type DVP 75/22"). Overlay the sub-base with the specified SCS GT 1900 geotextile (essential to prevent migration), overlapping joints by 200mm.

Bedding Layer

Lay, screed and compact to a 30mm depth of appropriate bedding layer material (sharp sand or 5mm grit). Selection of the bedding layer material is dependant upon the application. For grass reinforcement mix the bedding layer 4:1 with a good quality top soil to ensure good root growth.

Wearing Course

SCS INTEGRA & AGRABLOCK should be laid on a 45 degree face such that each modular unit abuts its neighbouring units, with the triangular locating lugs fitting within the corresponding slots. As laying progresses each unit should be pinned (4 per unit) together with the pins supplied and the specified root zone/grass seed infill material or natural aggregate should be used to infill each cell such that a continuous, permanently porous, high load bearing structure is created.

Infill Materials (sand and soil mix/aggregate)

The selected infill material should be specified on a project specific basis based on the application and design, but the following could act as a guide:

For Sand Bed: A good quality compacted silica sharp sand should be used, of approximately 30mm thickness after compaction; alternatively a 5mm grit is also suitable if required.

For Gravel Fill: Aggregate size should be 5 - 15mm angular gravel and if adjacent to schools should ideally be 10mm single sized crushed rock. The use of an angular gravel rather than a river washed gravel will aid compaction and prevent migration from the units.

For Grass Fill: A good quality topsoil should be used to infill the units to the top and allowed to settle (5 - 7 mm); grass seeding followed by a top dressing of a good quality fertiliser should ensure adequate grass growth. Seeded areas must be watered regularly for a period of 6 weeks following installation and traffic kept off the area until grass growth is established.

Maintenance: For gravel areas; an occasional sweeping of any overfill back into the units. If gravel appears to be sinking check for the installation of the geotextile.

For grass areas; once grass is established the area can be trafficked and a normal mowing regime resumed. If infill appears to be sinking top up with loam mix and check for presence of geotextile.



Overflow & Temporary Parking



Driveways and Gravel Areas



Park & Rides & General Parking

TURFSTONE

Turfstone is a ground reinforcement grass paving system ideally suited to projects where a hard surface capable of supporting vehicles is required within a grass area or other space where a naturalistic appearance is preferred. It functions as a SUDS permeable pavement, controlling surface water at source by directing it to the sub-layers.

Turfstone provides a low cost paving option with minimum visual impact. Its honeycombed cavities are designed to facilitate the growth of grass within a supporting concrete matrix, allowing grass to be cut in the conventional manner.

Each element weighs approximately 25kg and so we recommend machine-aided installation to comply with manual handling regulations. Special lifting aids that can be attached to excavators, tele-handlers and cranes are readily available.

Product Specifications

Product type	Concrete paving block
Manufactured to	BS EN 1338:2003
Efflorescence	Minimum 12 hour vapour curing to significantly reduce the possibility of efflorescence
Strength	> 3.5MPa
Slip/Skid resistance	Extremely Low (>75 USRV)
Installed to	BS 7533-3:2005
NS Plus	Q25 800
Applications	Residential and Commercial when used in conjunction with the correct sub-base design in accordance with the latest British standard.
Energy used	100% renewable energy
Water used	100% water used from rainwater harvesting system
Carbon Footprint (Approved by the Carbon Trust)	24kgCo ₂ e/m ²
Recyclable	100% of this product can be recycled
Manufacturing location	Produced in the UK with locally sourced materials
Breem rating	A (In accordance with the Green Guide to Specification, 2nd edition 2009) A+ (can be achieved when used with recycled sub-base, in accordance with the Green Guide to Specification, 2nd edition 2009) www.bre.co.uk
Complementary kerbs	Country Kerb, Half Battered



Typical uses include:

- Off street residential parking
- Vehicular access for occasional usage, ie. fire lanes, utility access
- Overspill commercial or retail parking
- Occasional parking for cricket clubs, schools, churches, caravan parks, cemeteries, etc
- Nature reserves, sensitive heritage sites and country parks
- Environmental erosion control areas, such as riverbanks and waterways
- Road verges
- Field entrances and farm tracks
- SUDS schemes

For installation guidelines please go online or contact the Tobermore Sales Office.

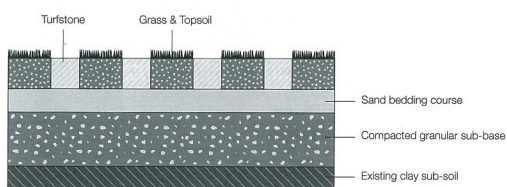
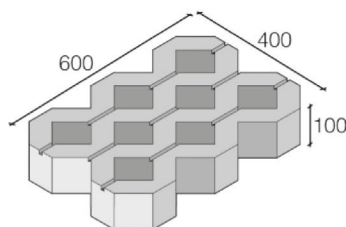
product	size (mm)	colours available	in stock	m ² per bale	m ² per slice	no. per m ²	no. per bale	weight (kg) per bale
TURFSTONE	600 x 400 x 100	Natural	YES	7.68	3.84	4.17	32	1070

PRECAST GRASS BLOCKS Ref: M113 | 33kg

600x400x89mm

Killeshal's Grass Block Provides

- hard standing
- erosion control
- ground armouring
- access paths and parking in environmentally sensitive areas.



Application

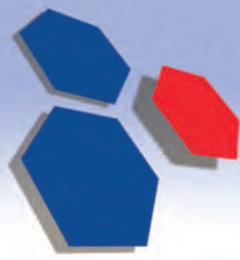
Turfstone can be used in caravan parks, cemeteries, carparks etc. in addition to typical environmental erosion control areas such as riverbanks and waterways.

Tobermore Turfstone is laid as a normal paving unit but with the honeycombed areas filled with quality topsoil and suitable grass seed.

Installation

- 1 Lay 100-150mm of compacted granular sub-base.
- 2 Screed uncompacted sand over granular sub-base to depth of 30-50mm to form bedding course.
- 3 Lay Turfstone on sand bedding course.
- 4 Fill Turfstone voids with quality topsoil to approximately 30mm from surface. Sow suitable grass seed when soil is still loose and cover with thin layer of soil. Top soil should be approximately 12mm below the top surface of the slab. This level ensures that emerging shoots of grass can fully develop.

The information contained in the brochure was up to date at the time of going to print. Photographs, drawings, sizes and reference numbers are given as an indication only and can be changed without notice. Killeshal Precast Concrete Ltd reserves the right to modify product specification without notice.



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Concrete Built **is** Better Built



QUALITY
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