

SLOPE

The system:

- it supports 4 load classes (C250, D400, E600, F900) in compliance with Standard EN 1433
- it is made up of a HD-PE channel with a strengthening frame
- **News:** the range can be enlarged with the possibility of assembling the **“Slope Drainage frame”**
- it is very compact, since the frame is perfectly anchored to the channel body. The frame is made from materials able to resist corrosion due to contact with the surrounding environment and the gratings. The anchoring system was designed to withstand any deformation due shearing or torsional stress
- it is wearproof and very solid thanks to the frame, which ensures a 2.5 mm - thick drive-over edge and a 1.2 mm - thick contact surface
- easy and accurate installation is ensured
- it comprises 3 different types of gratings (with slots, anti-heel mesh, square mesh) made from galvanised steel, stainless steel and ductile iron.
- the fixing system for the grating is guaranteed by the innovative system hook- lock, the fixing system through the kit tie rods is necessary for the E600 grating
- for a better anchoring between concrete and channel a kit 8 clamps is available on request
- it comes equipped with a classic tie-rod fixing system and a convenient drain gate available in two versions Ø 100 e Ø 110
- it is ideal for private car parks, footways, canalisation systems in roads and parking areas, road crossings with moderate speed vehicular traffic
- it includes models with small sizes (H 55 and H 80) which are perfect for installation into covered industrial pavings whenever the channel edge needs to be protected during polishing
- it comes complete with drain boxes with siphon
- the range is made up of 9 channels with 3 widths and 5 heights (100/55, 100/80, 100/100, 100/160, 150/100, 150/160, 200/100, 200/160, 200/250)



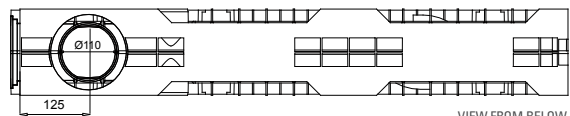


100

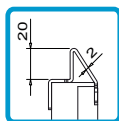


CHANNELS

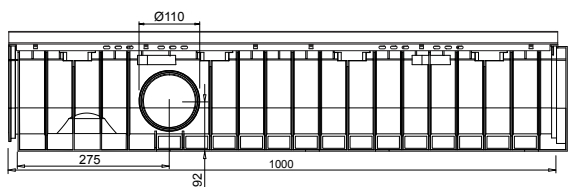
SLOPE
100



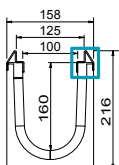
VIEW FROM BELOW



DETAIL SECTION



SIDE VIEW

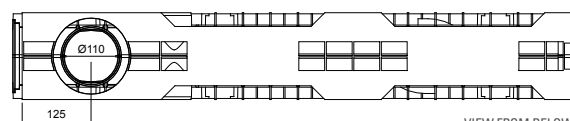


SECTION

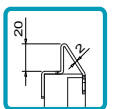


SLOPE 100/160

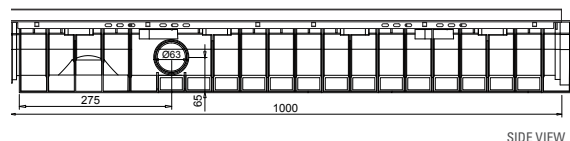
CODE	PRICE €	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS L x l x h mm	INTERNAL DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SECTION cm ²	CAPACITY dm ³	PREINSTALLED DRAIN mm	
709022		galvanised steel DX51D ³	PE-HD	1000 x 158 x 216	1000 x 100 x 160	5,00	145,28	14,52	side	2 x Ø 110
709008		stainless steel AISI 304 ²							bottom ¹	1 x Ø 110



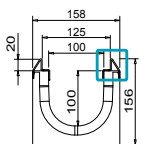
VIEW FROM BELOW



DETAIL SECTION



SIDE VIEW



SECTION



SLOPE 100/100

CODE	PRICE €	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS L x l x h mm	INTERNAL DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SECTION cm ²	CAPACITY dm ³	PREINSTALLED DRAIN mm	
709023		galvanised steel DX51D ³	PE-HD	1000 x 158 x 156	1000 x 100 x 100	4,50	89,56	8,95	side	2 x Ø 63
709009		stainless steel AISI 304 ²							bottom ¹	1 x Ø 110

1- For drainage purposes use the drain gate with outlet kit (available in two versions Ø100 and Ø110).

2- Classification according to American Standard ASTM.

3- Classification according to Standard EN 10142 (2002) and symbolic designation according to EN 10027-1 (-2) (2006).

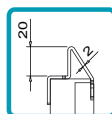
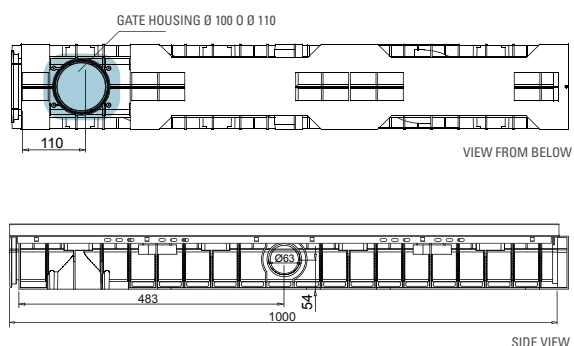
N.B. Waterproofing: in order to ensure the channels are waterproof, a bituminous adhesive sealant should be used. Heat-sealing the channel joints makes sure there will be no leakages through said joints for a very long time. For further information please contact MufleSystem's Technical Department.

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

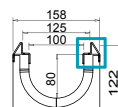


CHANNELS

**SLOPE
100**



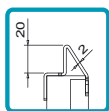
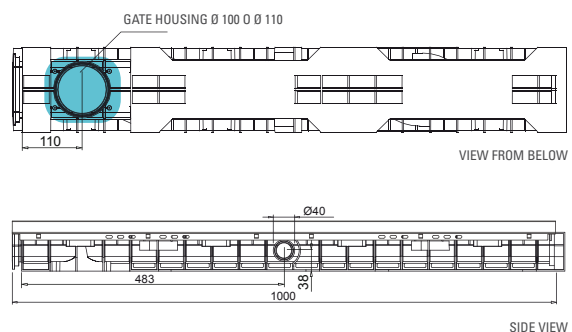
DETAIL SECTION



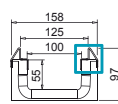
SECTION



SLOPE 100/80									
CODE	PRICE	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS	INTERNAL DIMENSIONS	WEIGHT	DRAINAGE SECTION	CAPACITY	PREINSTALLED DRAIN
	€			L x l x h mm	L x l x h mm	kg	cm ²	dm ³	mm
709025		galvanised steel DX51D ³	PE-HD	1000 x 158 x 122	1000 x 100 x 80	4,20	69,28	6,92	side 2 x Ø 63 bottom ¹ 1 x Ø 100; 1 x Ø 110
709011		stainless steel AISI 304 ²							



DETAIL SECTION



SECTION



SLOPE 100/55									
CODE	PRICE	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS	INTERNAL DIMENSIONS	WEIGHT	DRAINAGE SECTION	CAPACITY	PREINSTALLED DRAIN
	€			L x l x h mm	L x l x h mm	kg	cm ²	dm ³	mm
709024		galvanised steel DX51D ³	PE-HD	1000 x 158 x 97	1000 x 100 x 55	4,00	54,44	5,44	side 2 x Ø 40 bottom ¹ 1 x Ø 100; 1 x Ø 110
709010		stainless steel AISI 304 ²							

1- For drainage purposes use the drain gate with outlet kit (available in two versions Ø100 and Ø110).

2- Classification according to American Standard ASTM.

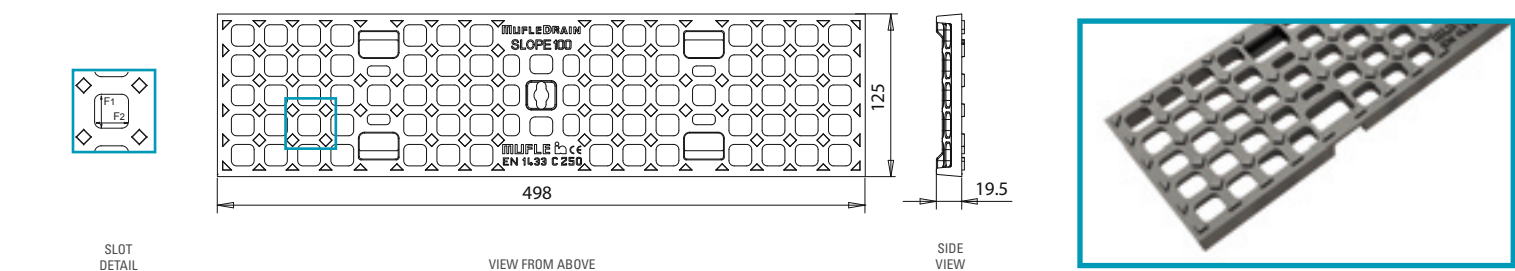
3- Classification according to Standard EN 10142 (2002) and symbolic designation according to EN 10027-1 (-2) (2006).

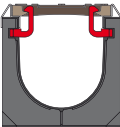
N.B. Waterproofing: in order to ensure the channels are waterproof, a bituminous adhesive sealant should be used. Heat-sealing the channel joints makes sure there will be no leakages through said joints for a very long time. For further information please contact MufleSystem's Technical Department.

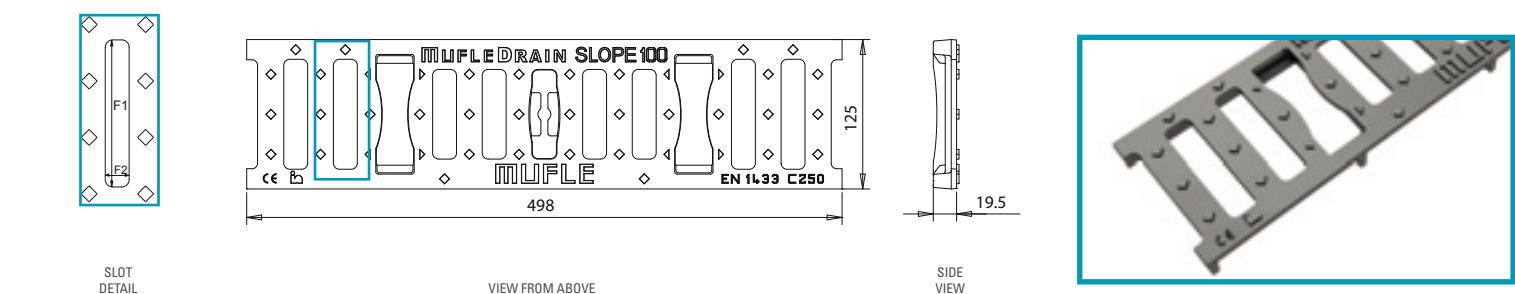
N.B. Sizes and weights are subject to usual manufacturing tolerance values.

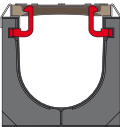
APPLICATIONS OF DUCTILE IRON

Kerbs
Historical town centres (slow traffic)
Parking areas
Parking decks



SQUARE MESH GRATING							
CODE	PRICE	MATERIAL	DIMENSIONS L x l x h	WEIGHT	DRAINAGE SURFACE	OPENINGS F1 x F2	FIXING SYSTEM
	€		mm	kg	dm²	mm	hook lock
509109		GJS 500/7 ⁶ ductile iron water based paint coated	498 x 125 x 19,5	3,40	2,60	16,5 x 17,5	

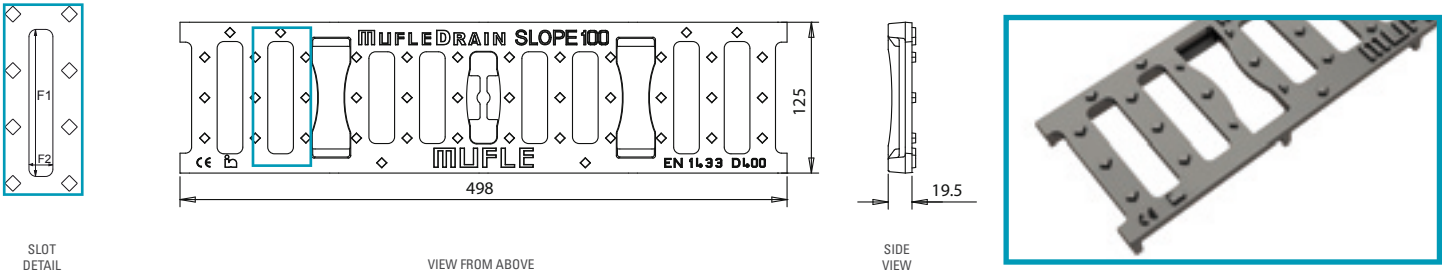



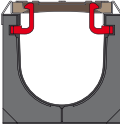
SLOTTED GRATING 20 mm							
CODE	PRICE	MATERIAL	DIMENSIONS L x l x h	WEIGHT	DRAINAGE SURFACE	OPENINGS F1 x F2	FIXING SYSTEM
	€		mm	kg	dm²	mm	hook lock
509100		GJS 500/7 ⁶ ductile iron water based paint coated	498 x 125 x 19,5	2,80	2,70	93 x 21	

2- Classification according to American Standard ASTM.
5- Classification according to Standard EN 10111 (2008) and symbolic designation according to EN 10027-1 (-2) (2006).
6- Classification according to Standard EN 1563 (2009).
N.B. Sizes and weights are subject to usual manufacturing tolerance values.

APPLICATIONS OF DUCTILE IRON

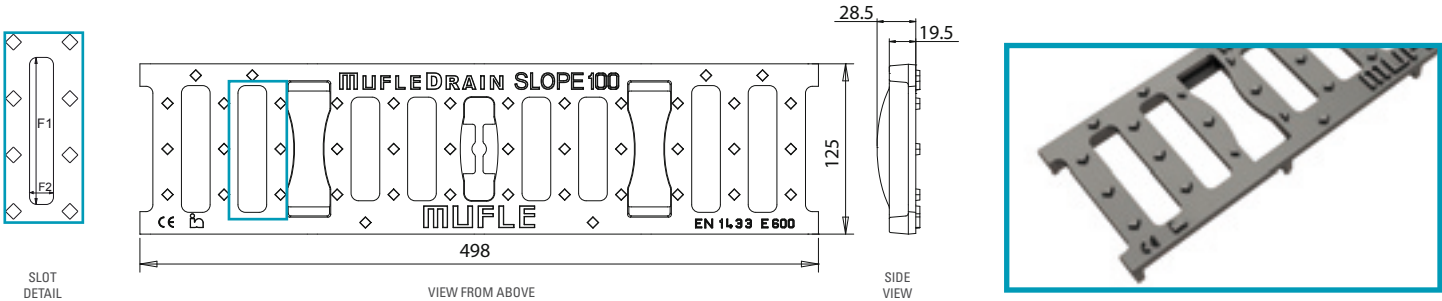
Road carriageways (not transversal)
Hard shoulders
Lay-bys with thick and heavy-goods traffic
Petrol stations

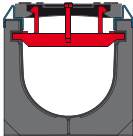


SLOTTED GRATING 20 mm							 19,5 mm
CODE	PRICE	MATERIAL	DIMENSIONS L x l x h	WEIGHT	DRAINAGE SURFACE	OPENINGS F1 x F2	FIXING SYSTEM
	€		mm	kg	dm²	mm	hook lock
509103		GJS 500/7 ⁶ ductile iron water based paint coated	498 x 125 x 19,5	3,00	2,10	93 x 21	

6- Classification according to Standard EN 1563 (2009).
N.B. Sizes and weights are subject to usual manufacturing tolerance values.

APPLICATIONS OF DUCTILE IRON
 Transversal canalisation systems in carriageways of roads with thick and heavy-goods traffic
 Industrial areas with passage of forklift trucks (high axle loads)
 Underpasses



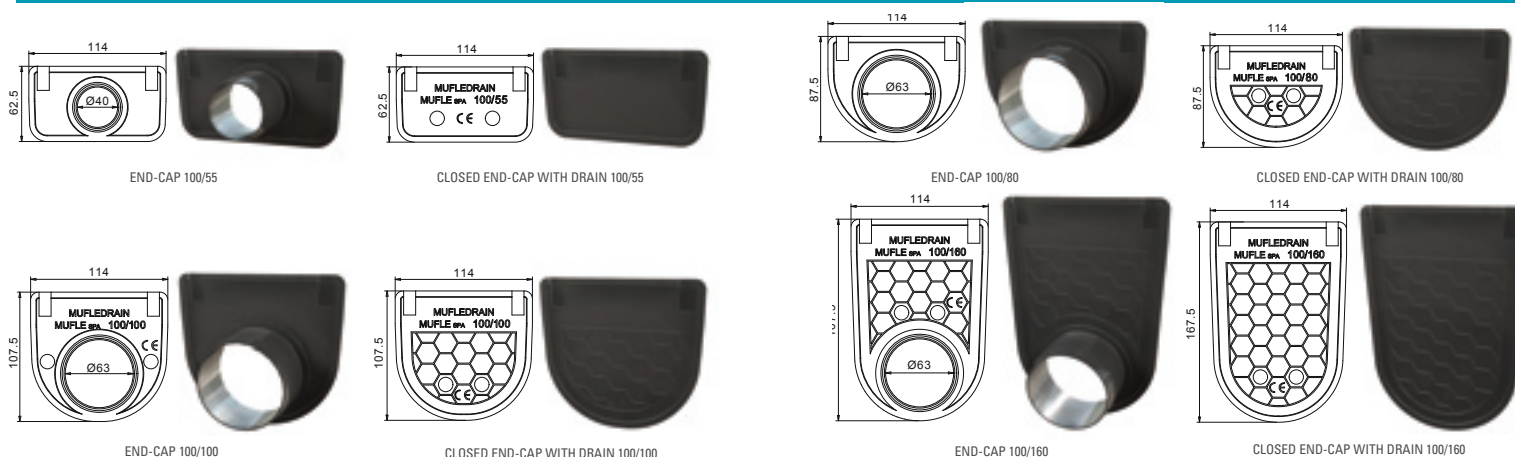
SLOTTED GRATING 20 mm							
CODE	PRICE	MATERIAL	DIMENSIONS L x l x h	WEIGHT	DRAINAGE SURFACE	OPENINGS F1 x F2	FIXING SYSTEM
	€		mm	kg	dm²	mm	hook lock + tie-tod
509106		GJS 500/7 ⁶ ductile iron water based paint coated	498 x 125 x 19,5	3,30	2,10	93 x 20	

6- Classification according to Standard EN 1563 (2009).
 N.B. Sizes and weights are subject to usual manufacturing tolerance values.



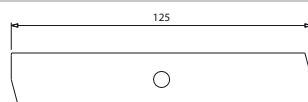
ACCESSORIES

**SLOPE
100**

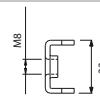


END CAPS

CODE	PRICE	TYPE	MATERIAL	VALID FOR CHANNELS	PREINSTALLED DRAIN
€					
700500		end-cap with drain	PE-HD	100/55	1 x Ø 40
700508		closed end-cap	PE-HD	100/55	-
700501		end-cap with drain	PE-HD	100/80	1 x Ø 63
700509		closed end-cap	PE-HD	100/80	-
700502		end-cap with drain	PE-HD	100/100	1 x Ø 63
700510		closed end-cap	PE-HD	100/100	-
700503		end-cap with drain	PE-HD	100/160	1 x Ø 63
700511		closed end-cap	PE-HD	100/160	-



VIEW FROM ABOVE

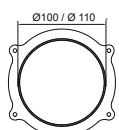


SIDE VIEW

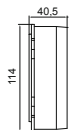


KIT TIE-ROD + SCREWS

CODE	PRICE	MATERIAL	VALID FOR GRATINGS	SCREW	KIT FOR 1ml
€					
500421		galvanised steel	SLOPE galvanised steel	M8 x 55 TBL combi	2 tie-rods + 2 screws
500422		stainless steel	SLOPE stainless steel	M8 x 55 TBL combi stainless steel	2 tie-rods + 2 screws
500423		black galvanised steel	SLOPE ductile iron	M8 x 55 black with hexagonal head	2 tie-rods + 2 screws



VIEW FROM ABOVE



SIDE VIEW



KIT OUTLET + SCREWS

CODE	PRICE	MATERIAL	VALID FOR CHANNELS	DIAMETER	KIT FOR 1 ml
€					
				mm	
506114		PE-HD	100/55 - 100/80	Ø 100	1 outlet Ø 100 + 4 screws
506115		PE-HD	100/55 - 100/80	Ø 110	1 outlet Ø 110 + 4 screws

KIT 8 CLAMPS FOR ANCHORING

CODE	PRICE	MATERIAL	KIT FOR 1 ml
€			
509300		galvanised steel	Kit 8 clamps for anchoring g/s

CONNECTOR FOR STEP-SLOPE

CODE	PRICE	VALID FOR CHANNELS	FAMILIES
€			
700526		from 100/100 to 100/160	EASY - VIP - SMART - SLOPE - WING - PLUS

Utilising Mufle's distinctive step connector system, it is possible to connect drainage channels of differing heights to create greater efficiencies in hydraulic velocity and channel capacity. These efficiencies create benefits in increased drainage performance, outlet number reduction for longer continuous drainage runs, increased self cleansing ability and lower installation costs. Stepped channel are typically recognised by structured increases in neutral channel depths towards a nominated outlet along a specific drainage channel run/length.



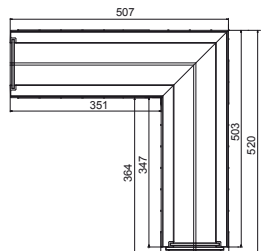
N.B. Sizes and weights are subject to usual manufacturing tolerance values.



SPECIAL PIECES AND DRAIN BOX WITH SYPHON

**SLOPE
100**

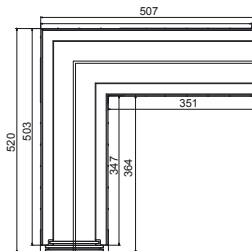
LEFT CORNER



SLOPE 100

CODE	PRICE €	MODEL
709100		100/160
709101		100/100
709102		100/80
709103		100/55

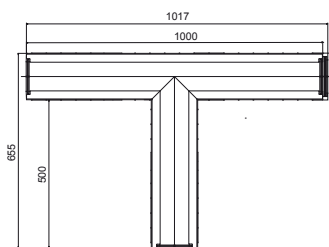
RIGHT CORNER



SLOPE 100

CODE	PRICE €	MODEL
709108		100/160
709109		100/100
709110		100/80
709111		100/55

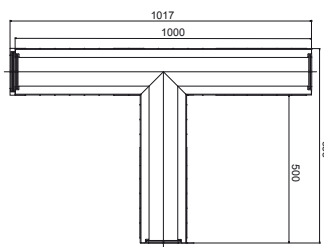
LEFT TI



SLOPE 100

CODE	PRICE €	MODEL
709116		100/160
709117		100/100
709118		100/80
709119		100/55

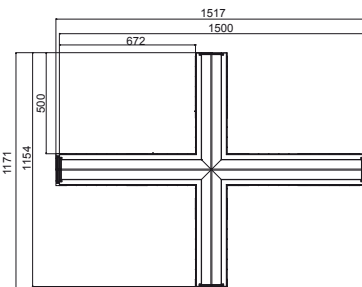
RIGHT TI



SLOPE 100

CODE	PRICE €	MODEL
709124		100/160
709125		100/100
709126		100/80
709127		100/55

CROSS

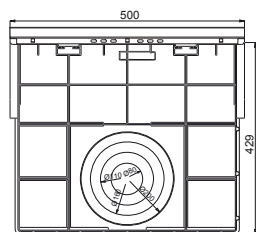


SLOPE 100

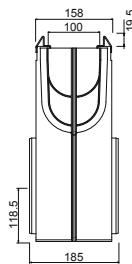
CODE	PRICE €	MODEL
709132		100/160
709133		100/100
709134		100/80
709135		100/55

Special pieces, corners, Ti, crosses in stainless steel are available upon request. For further information please contact our Technical Department.

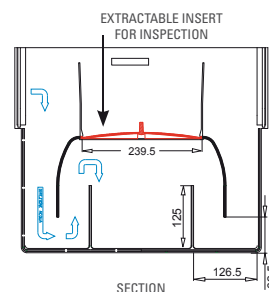
DRAIN BOX WITH SYPHON



FRONT VIEW



SIDE VIEW



SECTION

SLOPE 100

CODE	PRICE €	MATERIAL OF FRAME	MATERIAL OF OUTLET	EXTERNAL DIMENSIONS L x l x h mm	INTERNAL DIMENSIONS L x l x h mm	MAXIMUM LARGE mm	HEIGHT OF OUTLETS mm	WEIGHT kg	PREINSTALLED DRAIN mm
709030		galvanised steel DX51D ³	PE-HD	500 x 158 x 429	500 x 100 x 400	185	118,5	3,90	2 x Ø 80; 2 x Ø 110; 2 x Ø 160; 2 x Ø 200
709017		stainless steel AISI 304 ²	PE-HD	500 x 158 x 429	500 x 100 x 400	185	118,5	3,90	2 x Ø 80; 2 x Ø 110; 2 x Ø 160; 2 x Ø 200

2- Classification according to American Standard ASTM.

3- Classification according to Standard EN 10142 (2002) and symbolic designation according to EN 10027-1 (-2) (2006).

N.B. Waterproofing: in order to ensure the channels are waterproof, a bituminous adhesive sealant should be used. Heat-sealing the channel joints makes sure there will be no leakages through said joints for a very long time. For further information please contact MufleSystem's Technical Department.

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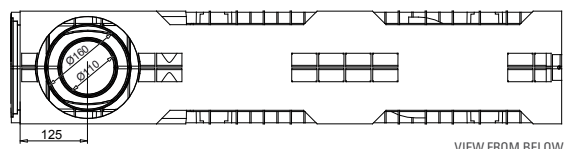


150

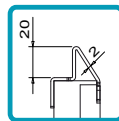


CHANNELS

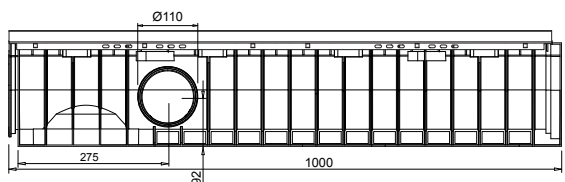
SLOPE
150



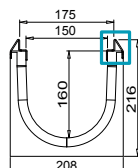
VIEW FROM BELOW



DETAIL SECTION



SIDE VIEW

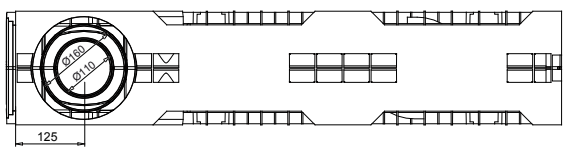


SECTION

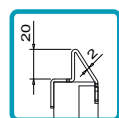


SLOPE 150/160

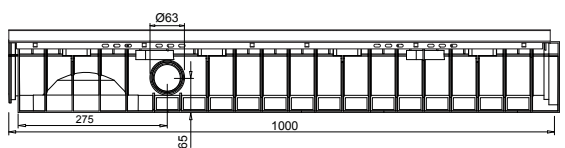
CODE	PRICE €	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS L x l x h mm	INTERNAL DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SECTION cm ²	CAPACITY dm ³	PREINSTALLED DRAIN mm
709026		galvanised steel DX51D ³	PE-HD	1000 x 208 x 216	1000 x 150 x 160	5,45	213,04	21,30	side 2 x Ø 110 bottom 1 x Ø 110; 1 x Ø 160
709012		stainless steel AISI 304 ²							



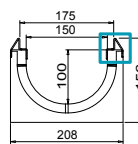
VIEW FROM BELOW



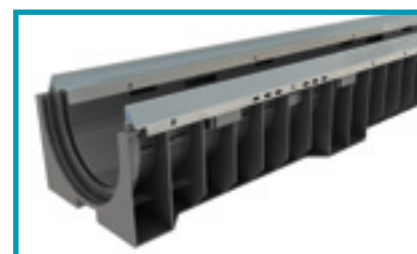
DETAIL SECTION



SIDE VIEW



SECTION



SLOPE 150/100

CODE	PRICE €	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS L x l x h mm	INTERNAL DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SECTION cm ²	CAPACITY dm ³	PREINSTALLED DRAIN mm
709027		galvanised steel DX51D ³	PE-HD	1000 x 208 x 156	1000 x 150 x 100	4,90	127,32	12,73	side 2 x Ø 63 bottom 1 x Ø 110; 1 x Ø 160
709013		stainless steel AISI 304 ²							

2- Classification according to American Standard ASTM.

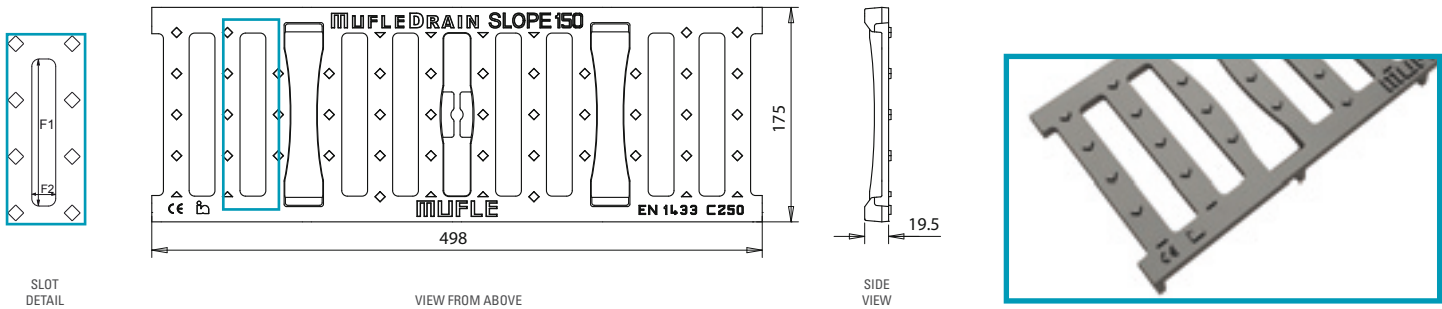
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N.B. Sizes and weights are subject to usual manufacturing tolerance values.

APPLICATIONS OF DUCTILE IRON

Kerbs
Historical town centres (slow traffic)
Parking areas
Parking decks

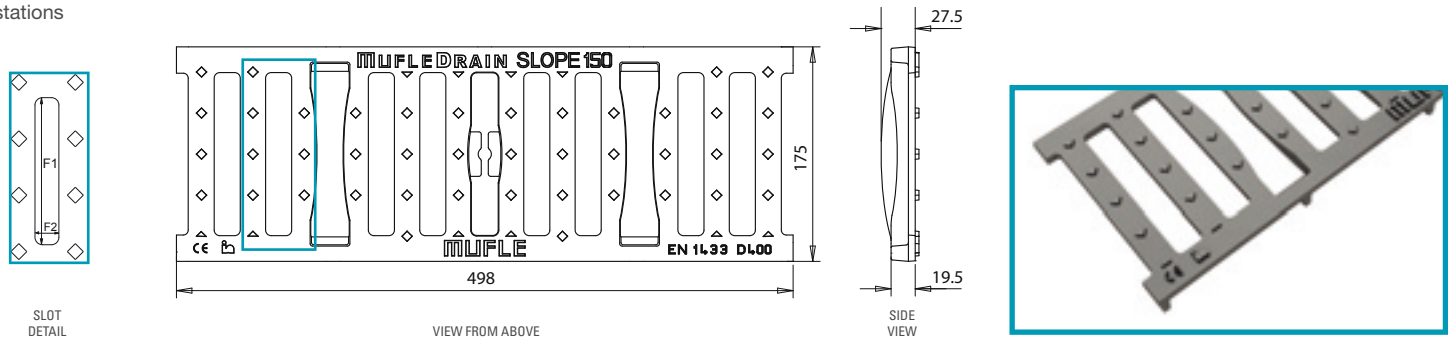



SLOTTED GRATING 20 mm							
CODE	PRICE	MATERIAL	DIMENSIONS L x l x h	WEIGHT	DRAINAGE SURFACE	OPENINGS F1 x F2	FIXING SYSTEM
	€		mm	kg	dm²	mm	hook lock
509101		GJS 500/7 ⁶ ductile iron water based paint coated	498 x 175 x 19,5	3,90	3,90	133 x 21	

2- Classification according to American Standard ASTM.
5- Classification according to Standard EN 10111 (2008) and symbolic designation according to EN 10027-1 (-2) (2006).
6- Classification according to Standard EN 1563 (2009).
N.B. Sizes and weights are subject to usual manufacturing tolerance values.

APPLICATIONS OF DUCTILE IRON

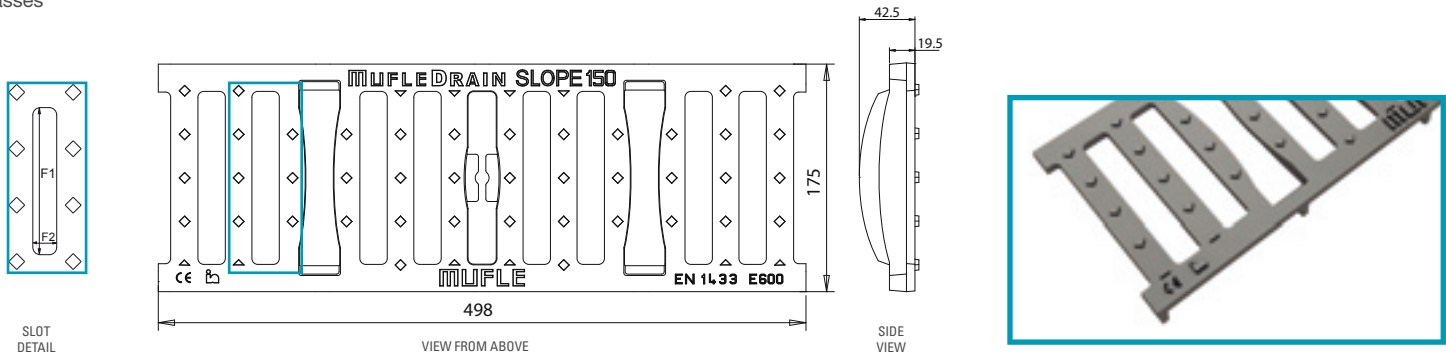
Road carriageways (not transversal)
Hard shoulders
Lay-bys with thick and heavy-goods traffic
Petrol stations

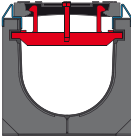


SLOTTED GRATING 20 mm							
CODE	PRICE	MATERIAL	DIMENSIONS L x l x h	WEIGHT	DRAINAGE SURFACE	OPENINGS F1 x F2	FIXING SYSTEM
	€		mm	kg	dm²	mm	hook lock
509104		GJS 500/7 ⁶ ductile iron water based paint coated	498 x 175 x 19,5	4,50	5,00	133 x 21	

6- Classification according to Standard EN 1563 (2009).
N.B. Sizes and weights are subject to usual manufacturing tolerance values.

APPLICATIONS OF DUCTILE IRON
 Transversal canalisation systems in carriageways of roads with thick and heavy-goods traffic
 Industrial areas with passage of forklift trucks (high axle loads)
 Underpasses



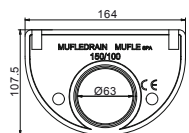
SLOTTED GRATING 20 mm							
CODE	PRICE	MATERIAL	DIMENSIONS L x l x h	WEIGHT	DRAINAGE SURFACE	OPENINGS F1 x F2	FIXING SYSTEM
	€						
			mm	kg	dm²	mm	hook lock + tie-tod
509107		GJS 500/7 ⁶ ductile iron water based paint coated	498 x 175 x 19,5	6,00	3,29	132 x 20	

6- Classification according to Standard EN 1563 (2009).
 N.B. Sizes and weights are subject to usual manufacturing tolerance values.

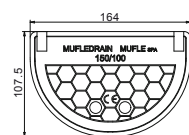


ACCESSORIES

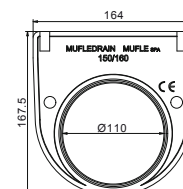
SLOPE
150



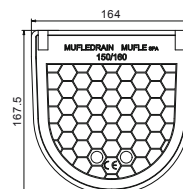
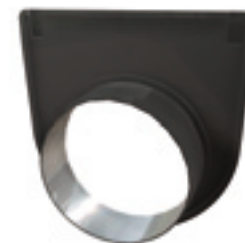
END-CAP 150/100



CLOSED END-CAP WITH DRAIN 150/100



END-CAP 150/160

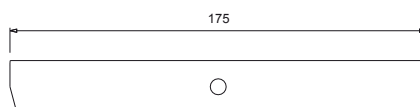


CLOSED END-CAP WITH DRAIN 150/160



END CAPS

CODE	PRICE €	TYPE	MATERIAL	VALID FOR CHANNELS	PREINSTALLED DRAIN
700504		end-cap with drain	PE-HD	150/100	1 x Ø 63
700512		closed end-cap	PE-HD	150/100	-
700505		end-cap with drain	PE-HD	150/160	1 x Ø 110
700513		closed end-cap	PE-HD	150/160	-



VIEW FROM ABOVE



SIDE VIEW



KIT TIE-ROD + SCREWS

CODE	PRICE €	MATERIAL	VALID FOR GRATINGS	SCREW	KIT FOR 1ml
500424		galvanised steel	SMART galvanised steel	M8 x 55 TBL combi	2 tie-rods + 2 screws
500425		stainless steel	SMART stainless steel	M8 x 55 TBL combi	2 tie-rods + 2 screws
500426		black galvanised steel	SMART ductile iron	M8 x 55 black with hexagonal head	2 tie-rods + 2 screws

KIT CLAMPS FOR ANCHORING

CODE	PRICE €	MATERIAL	KIT FOR 1 ml
509300		galvanised steel	Kit 8 clamps for anchoring g/s



CONNECTOR FOR STEP-SLOPE

CODE	PRICE €	VALID FOR CHANNELS	FAMILIES
700517		from 150/100 to 150/160	EASY - VIP - SMART - SLOPE - WING - PLUS

Utilising Mufle's distinctive step connector system, it is possible to connect drainage channels of differing heights to create greater efficiencies in hydraulic velocity and channel capacity. These efficiencies create benefits in increased drainage performance, outlet number reduction for longer continuous drainage runs, increased self cleansing ability and lower installation costs. Stepped channel are typically recognised by structured increases in neutral channel depths towards a nominated outlet along a specific drainage channel run/length.



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

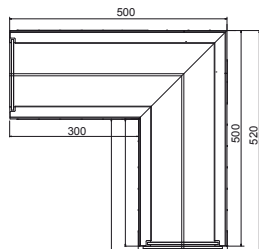


SPECIAL PIECES AND DRAIN BOX WITH SYPHON

**SLOPE
150**

LEFT CORNER

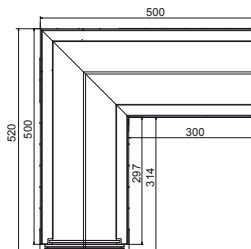
SLOPE 150



CODE	PRICE €	MODEL
709104		150/160
709105		150/100

RIGHT CORNER

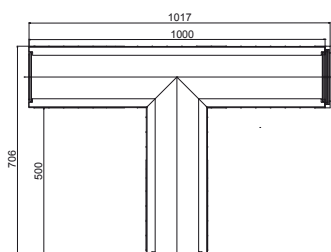
SLOPE 150



CODE	PRICE €	MODEL
709112		150/160
709113		150/100

LEFT TI

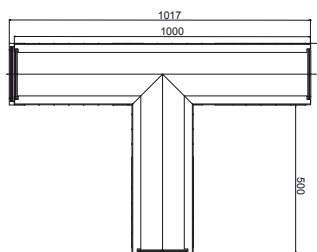
SLOPE 150



CODE	PRICE €	MODEL
709120		150/160
709121		150/100

RIGHT TI

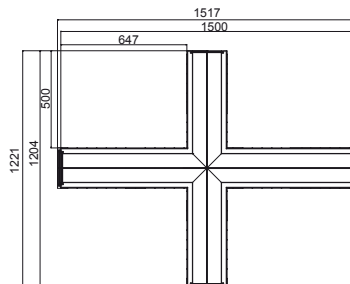
SLOPE 150



CODE	PRICE €	MODEL
709128		150/160
709129		150/100

CROSS

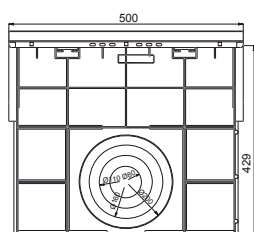
SLOPE 150



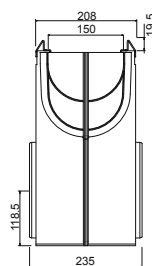
CODE	PRICE €	MODEL
709136		150/160
709137		150/100

Special pieces, corners, Ti, crosses in stainless steel are available upon request. For further information please contact our Technical Department.

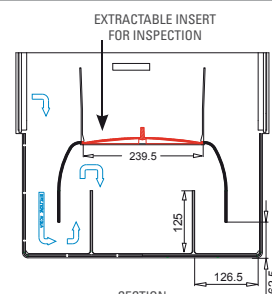
DRAIN BOX WITH SYPHON



FRONT VIEW



SIDE VIEW



SECTION

SLOPE 150

CODE	PRICE €	MATERIAL OF FRAME	MATERIAL OF OUTLET	EXTERNAL DIMENSIONS L x l x h mm	INTERNAL DIMENSIONS L x l x h mm	MAXIMUM LARGE mm	HEIGHT OF OUTLETS mm	WEIGHT kg	PREINSTALLED DRAIN mm
709031		galvanised steel DX51D ³	PE-HD	500 x 208 x 429	500 x 100 x 400	185	118,5	4,20	2 x Ø 80; 2 x Ø 110; 2 x Ø 160; 2 x Ø 200
709019		stainless steel AISI 304 ²	PE-HD	500 x 208 x 429	500 x 100 x 400	185	118,5	4,20	2 x Ø 80; 2 x Ø 110; 2 x Ø 160; 2 x Ø 200

2- Classification according to American Standard ASTM.

3- Classification according to Standard EN 10142 (2002) and symbolic designation according to EN 10027-1 (-2) (2006).

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



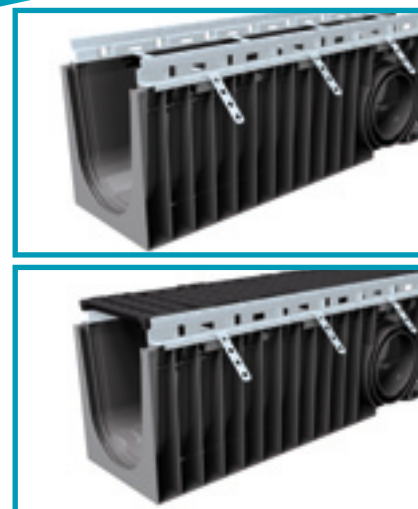
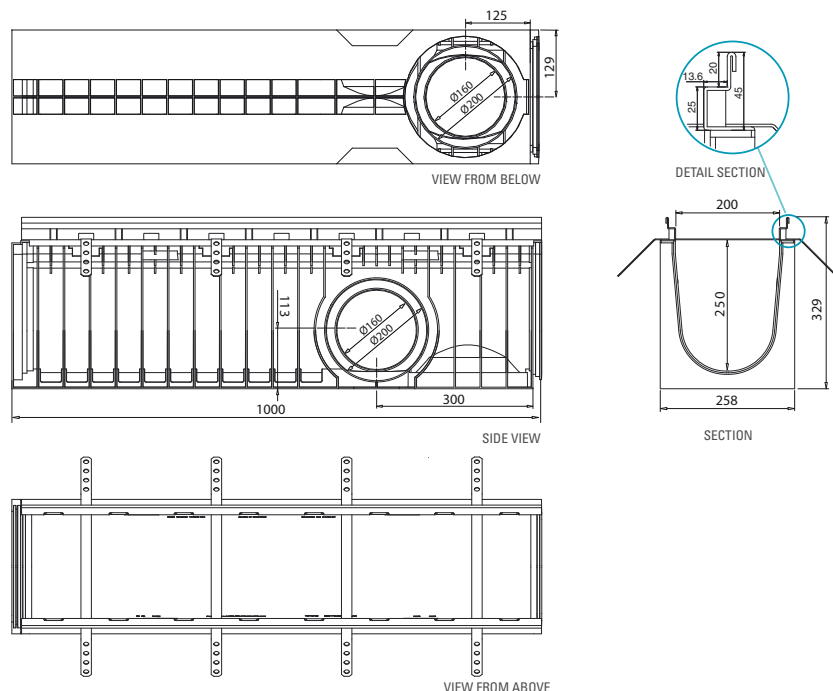
m



SLOPE DRAINAGE CHANNEL

**SLOPE
200**

NEW



SLOPE FRAME FOR DRAINING ASPHALT

This product has been conceived in order to receive and to flow the liquids from the road surface absorbed by the draining asphalt which the modern highways and large- scale roads have been paved with.

The **Slope drainage frame** is completely realized in galvanized steel of 2 mm thickness and replaced the standard Slope frame. The total height is 45 mm that is equivalent to the thickness of standard wearing course: 20 mm are needed for inserting the grating that is the same used for standard Slope frame; 21 mm is the height of the vertical wall, that, duly drilled, receives the water flow from the asphalt layer. The structure of vertical wall has been realized in order to assure the resistance to vehicles traffic crossing over (D400 loading class according to EN 1433). The SLOPE drainage system is certified by the third part IGQ up to the D400 load class and its CE declaration of conformity is available.

The system is equipped with **8 clamps** (4 per each side) in galvanized steel for a better anchoring between concrete and channel and for centering the grating and joining it perfectly to the frame. The grating is assembled to channel with fixing system through **tie-rods**.

* The channel can be realized in flame- retardant polyolefin on request.

DRAINING SLOPE 200/250										
CODE	PRICE	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS	INTERNAL DIMENSIONS	WEIGHT	DRAINAGE SECTION	DRAINAGE SECTION SIDE HOLES	CAPACITY	PREINSTALLED DRAIN
	€			L x l x h mm	L x l x h mm	kg	cm ²	cm ²	dm ³	mm
709035		galvanised steel DX51D ³	PE-HD	1000 x 258 x 329	1000 x 200 x 250	8,00	430,00	86,2	43,00	side 2 x Ø 160; 2 x Ø 200 bottom 1 x Ø 160; 1 x Ø 200

3- Classification according to Standard EN 10142 (2002) and symbolic designation according to EN 10027-1 (-2) (2006).

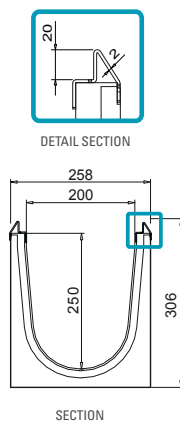
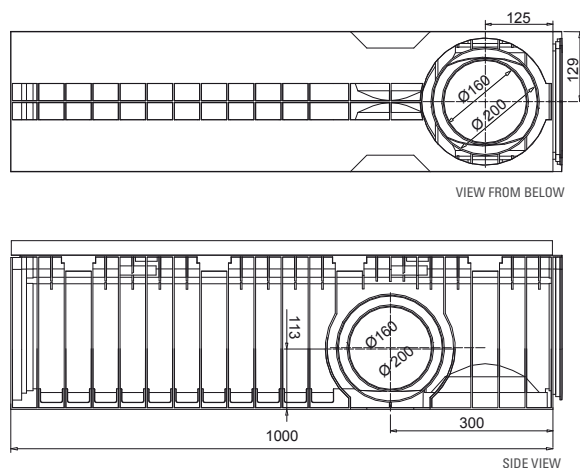
N.B. Waterproofing: in order to ensure the channels are waterproof, a bituminous adhesive sealant should be used. Heat-sealing the channel joints makes sure there will be no leakages through said joints for a very long time. For further information please contact MufleSystem's Technical Department.

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

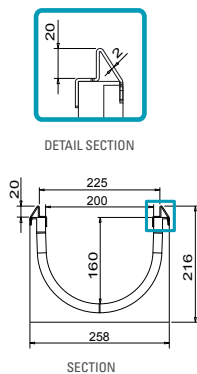
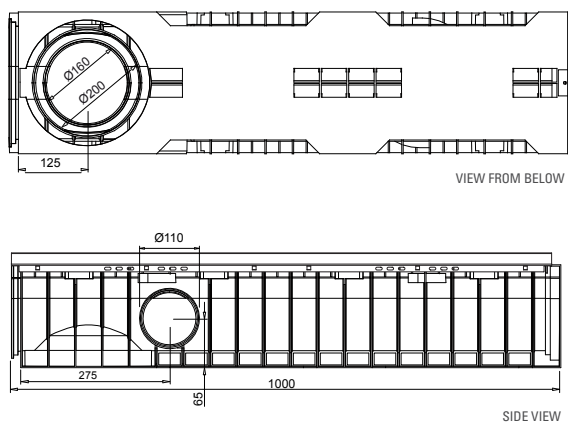


CHANNELS

**SLOPE
200**



SLOPE 200/250									
CODE	PRICE	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS	INTERNAL DIMENSIONS	WEIGHT	DRAINAGE SECTION	CAPACITY	PREINSTALLED DRAIN
	€			L x l x h mm	L x l x h mm	kg	cm ²	dm ³	mm
709033		galvanised steel DX51D ³	PE-HD	1000 x 258 x 306	1000 x 200 x 250	7,30	430,00	43,00	side 2 x Ø 160; 2 x Ø 200 bottom 1 x Ø 160; 1 x Ø 200
709034		stainless steel AISI 304 ²							



SLOPE 200/160									
CODE	PRICE	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS	INTERNAL DIMENSIONS	WEIGHT	DRAINAGE SECTION	CAPACITY	PREINSTALLED DRAIN
	€			L x l x h mm	L x l x h mm	kg	cm ²	dm ³	mm
709028		galvanised steel DX51D ³	PE-HD	1000 x 258 x 216	1000 x 200 x 160	5,85	275,87	27,58	side 2 x Ø 110 bottom 1 x Ø 160; 1 x Ø 200
709014		stainless steel AISI 304 ²							

2- Classification according to American Standard ASTM.

3- Classification according to Standard EN 10142 (2002) and symbolic designation according to EN 10027-1 (-2) (2006).

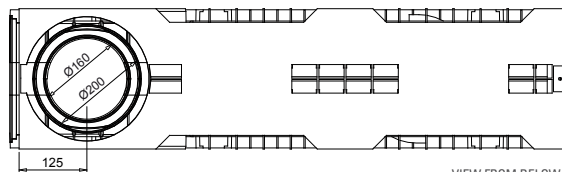
N.B. Waterproofing: in order to ensure the channels are waterproof, a bituminous adhesive sealant should be used. Heat-sealing the channel joints makes sure there will be no leakages through said joints for a very long time. For further information please contact MufleSystem's Technical Department.

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

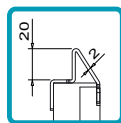


CHANNELS

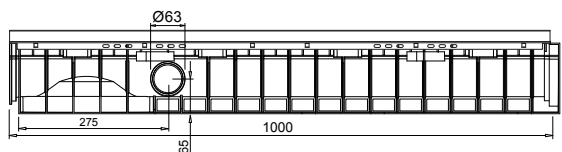
**SLOPE
200**



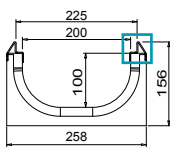
VIEW FROM BELOW



DETAIL SECTION



SIDE VIEW



SECTION



SLOPE 200/100

CODE	PRICE €	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS L x l x h mm	INTERNAL DIMENSIONS L x l x h mm	WEIGHT Kg	DRAINAGE SCETION cm ²	CAPACITY	PREINSTALLED DRAIN mm
709029		galvanised steel DX51D ³	PE-HD	1000 x 258 x 156	1000 x 200 x 100	5,25	178,73	17,87	side 2 x Ø 63 bottom 1 x Ø 160; 1 x Ø 200
709015		stainless steel AISI 304 ²							

2- Classification according to American Standard ASTM.

3- Classification according to Standard EN 10142 (2002) and symbolic designation according to EN 10027-1 (-2) (2006).

N.B. Waterproofing: in order to ensure the channels are waterproof, a bituminous adhesive sealant should be used. Heat-sealing the channel joints makes sure there will be no leakages through said joints for a very long time. For further information please contact MufleSystem's Technical Department.

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



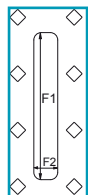
GRATINGS



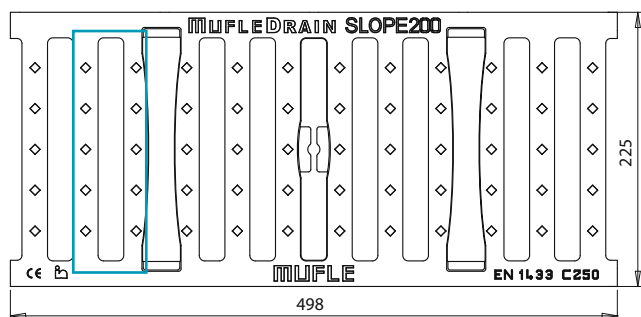
**SLOPE
200**

APPLICATIONS OF DUCTILE IRON

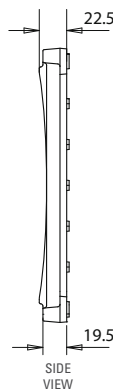
Kerbs
Historical town centres (slow traffic)
Parking areas
Parking decks



SLOT
DETAIL


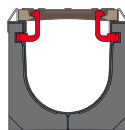



VIEW FROM ABOVE



SIDE
VIEW



SLOTTED GRATING 20 mm							 22,5 mm	
CODE	PRICE	MATERIAL	DIMENSIONS L x l x h	WEIGHT	DRAINAGE SURFACE	OPENINGS F1 x F2	FIXING SYSTEM	
	€		mm	kg	dm²	mm	hook lock	tie-tod
509102		GJS 500/7 ⁶ ductile iron water based paint coated	498 x 225 x 19,5	5,00	4,00	183 x 21		 For Slope drainage channel only

2- Classification according to American Standard ASTM.
5- Classification according to Standard EN 10111 (2008) and symbolic designation according to EN 10027-1 (-2) (2006).
6- Classification according to Standard EN 1563 (2009).
N.B. Sizes and weights are subject to usual manufacturing tolerance values.



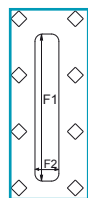
GRATINGS



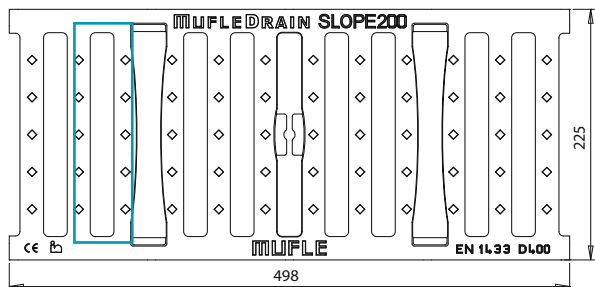
**SLOPE
200**

APPLICATIONS OF DUCTILE IRON

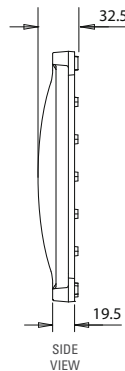
Road carriageways (not transversal)
Hard shoulders
Lay-bys with thick and heavy-goods traffic
Petrol stations



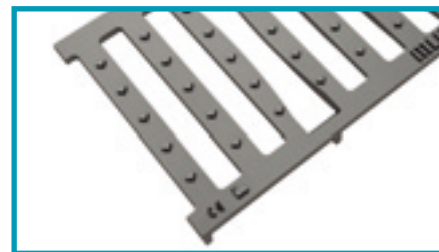
SLOT
DETAIL



VIEW FROM ABOVE

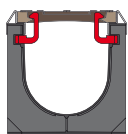



SIDE
VIEW



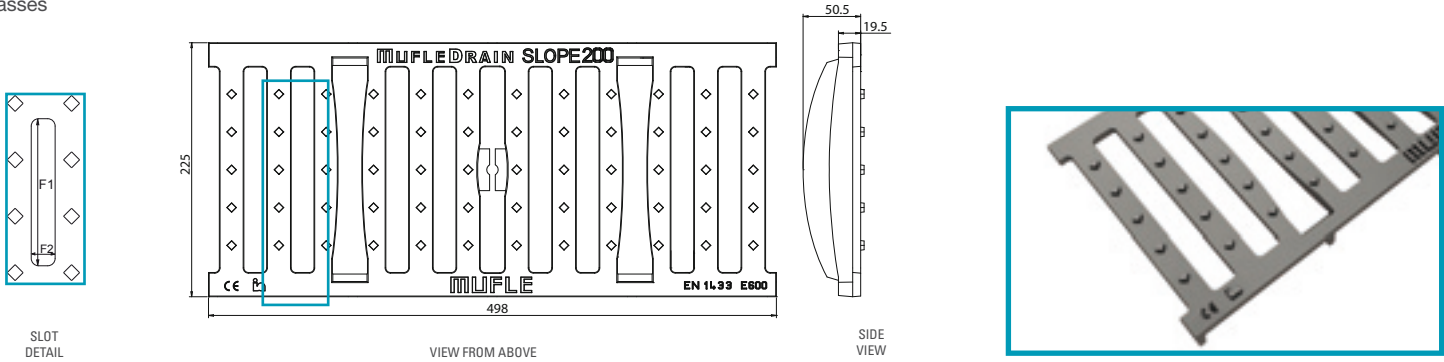
SLOTTED GRATING 20 mm

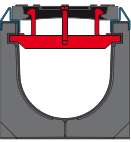
32,5 mm

CODE	PRICE	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm ²	OPENINGS F1 x F2 mm	FIXING SYSTEM	
	€						hook lock	tie-tod
509105		GJS 500/7 ⁶ ductile iron water based paint coated	498 x 225 x 19,5	6,40	4,50	183 x 21		 For Slope drainage channel only

6- Classification according to Standard EN 1563 (2009).
N.B. Sizes and weights are subject to usual manufacturing tolerance values.

APPLICATIONS OF DUCTILE IRON
 Transversal canalisation systems in carriageways of roads with thick and heavy-goods traffic
 Industrial areas with passage of forklift trucks (high axle loads)
 Underpasses



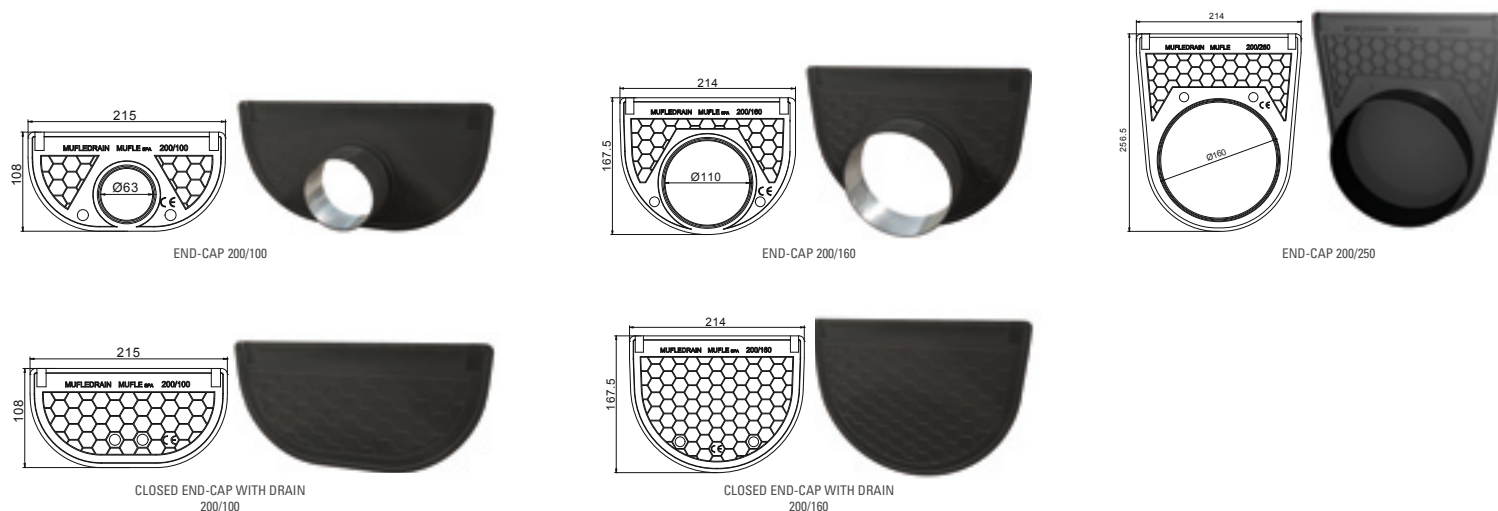
SLOTTED GRATING 20 mm							
CODE	PRICE	MATERIAL	DIMENSIONS L x l x h	WEIGHT	DRAINAGE SURFACE	OPENINGS F1 x F2	FIXING SYSTEM
	€		mm	kg	dm²	mm	hook lock + tie-tod
509108		GJS 500/7 ⁶ ductile iron water based paint coated	498 x 225 x 19,5	7,70	4,50	182 x 20	

6- Classification according to Standard EN 1563 (2009).
 N.B. Sizes and weights are subject to usual manufacturing tolerance values.

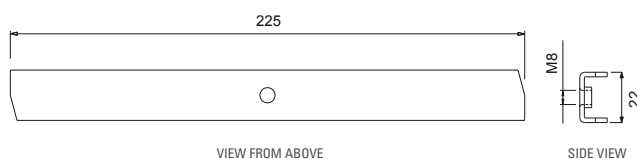


ACCESSORIES

**SLOPE
200**



END CAPS					
CODE	PRICE	MATERIAL	VALID FOR GRATINGS	SCREW	KIT FOR 1ml
€					
700506		end-cap with drain	PE-HD	200/100	1 x Ø 63
700514		closed end-cap	PE-HD	200/100	-
700507		end-cap with drain	PE-HD	200/160	1 x Ø 110
700515		closed end-cap	PE-HD	200/160	-
502416		closed end cap with preformed outlet	PE-HD	200/250	1 x Ø 160



KIT TIE-ROD + SCREWS					
CODE	PRICE	MATERIAL	VALID FOR GRATINGS	SCREW	KIT FOR 1ml
€					
500427		galvanised steel	SLOPE galvanised steel	M8 x 55 TBL combi	2 tie-rods + 2 screws
500428		stainless steel	SLOPE stainless steel	M8 x 55 TBL combi	2 tie-rods + 2 screws
500429		black galvanised steel	SLOPE ductile iron	M8 x 55 black with hexagonal head	2 tie-rods + 2 screws
500430		black galvanised steel	SLOPE ductile iron + Draining Frame	M8 x 90 black with hexagonal head	2 tie-rods + 2 screws

KIT CLAMPS FOR ANCHORING			
CODE	PRICE	MATERIAL	KIT FOR 1 ml
€			
509300		galvanised steel	Kit 8 clamps for anchoring g/s



CONNECTOR FOR STEP-SLOPE			
CODE	PRICE	VALID FOR CHANNELS	FAMILIES
€			
700518		from 200/160 to 200/250	VIP - SLOPE - WING
700519		from 200/100 to 200/160	EASY - VIP - SMART - SLOPE - WING - PLUS

Utilising Mufle's distinctive step connector system, it is possible to connect drainage channels of differing heights to create greater efficiencies in hydraulic velocity and channel capacity. These efficiencies create benefits in increased drainage performance, outlet number reduction for longer continuous drainage runs, increased self cleansing ability and lower installation costs. Stepped channel are typically recognised by structured increases in neutral channel depths towards a nominated outlet along a specific drainage channel run/length.



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

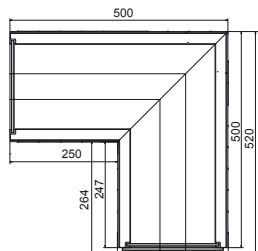


SPECIAL PIECES AND DRAIN BOX WITH SYPHON

**SLOPE
200**

LEFT CORNER

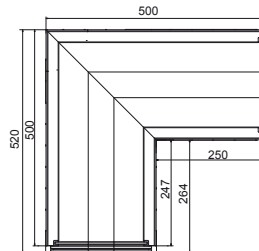
SLOPE 200



CODE	PRICE €	MODEL
709140		200/250
709106		200/160
709107		200/100

RIGHT CORNER

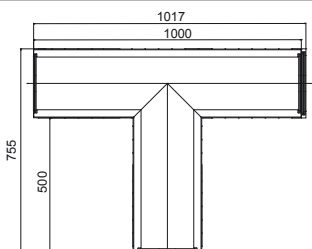
SLOPE 200



CODE	PRICE €	MODEL
709141		200/250
709114		200/160
709115		200/100

LEFT TI

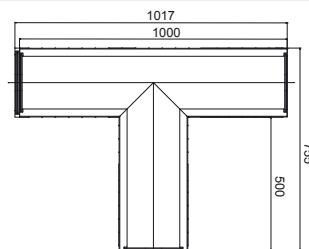
SLOPE 200



CODE	PRICE €	MODEL
709142		200/250
709122		200/160
709123		200/100

RIGHT TI

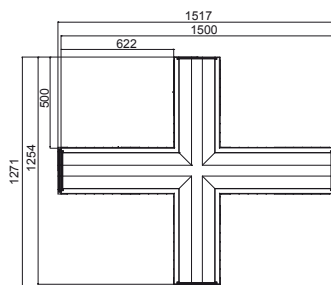
SLOPE 200



CODE	PRICE €	MODEL
709143		200/250
709130		200/160
709131		200/100

CROSS

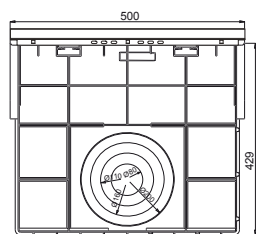
SLOPE 200



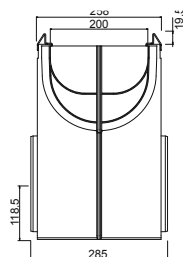
CODE	PRICE €	MODEL
709144		200/250
709138		200/160
709139		200/100

Special pieces, corners, Ti, crosses in stainless steel are available upon request. For further information please contact our Technical Department.

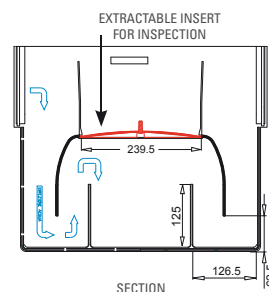
DRAIN BOX WITH SYPHON¹⁷



FRONT VIEW



SIDE VIEW



SECTION

SLOPE 200

CODE	PRICE €	MATERIAL OF FRAME	MATERIAL OF OUTLET	EXTERNAL DIMENSIONS L x l x h mm	INTERNAL DIMENSIONS L x l x h mm	MAXIMUM LARGE mm	HEIGHT OF OUTLETS mm	WEIGHT kg	PREINSTALLED DRAIN mm
709032		galvanised steel DX51D ³	PE-HD	500 x 258 x 429	500 x 200 x 400	285	118,5	4,60	2 x Ø 80; 2 x Ø 110; 2 x Ø 160; 2 x Ø 200
709021		stainless steel AISI 304 ²	PE-HD	500 x 258 x 429	500 x 200 x 400	285	118,5	4,60	2 x Ø 110; 2 x Ø 160; 2 x Ø 200

2- Classification according to American Standard ASTM.

3- Classification according to Standard EN 10142 (2002) and symbolic designation according to EN 10027-1 (-2) (2006).

17- The drain box Easy, Vip, Smart, Slope and Wing 200 are not prearranged to be connected to the correspondent channels EASY, VIP, SMART, SLOPE and WING 200/250
N.B. Sizes and weights are subject to usual manufacturing tolerance values.



INSTALLATION

slope

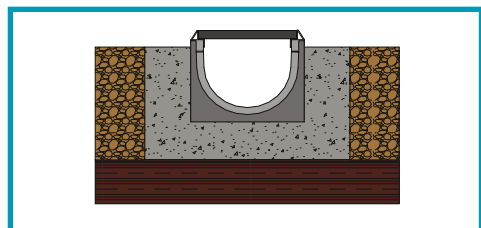
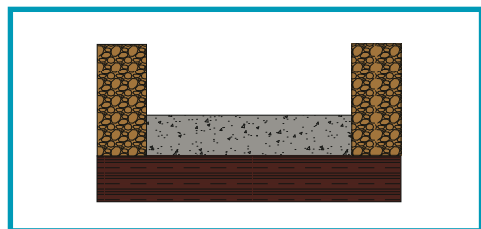
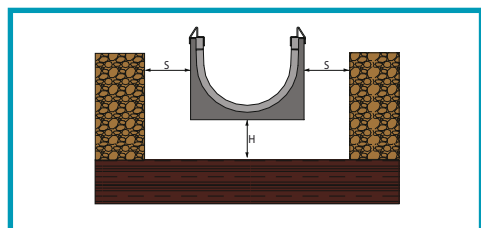
“For all the drainage channels the manufacturer shall supply written instructions for general installation” (Ref. § 7.17 EN 1433)

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.

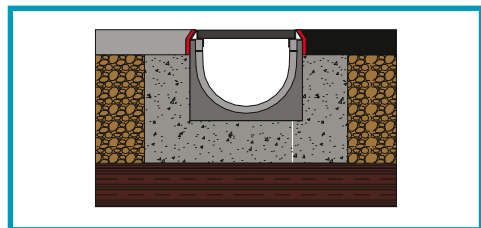
Any particular installation must be evaluated/ agreed between MufleSystem srl and the project maker.

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



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

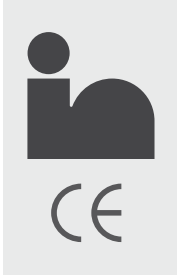
When applying the final coating, make sure its upper profile reaches up to minimum 3/5 mm above the grating's flow plane.

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.



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.

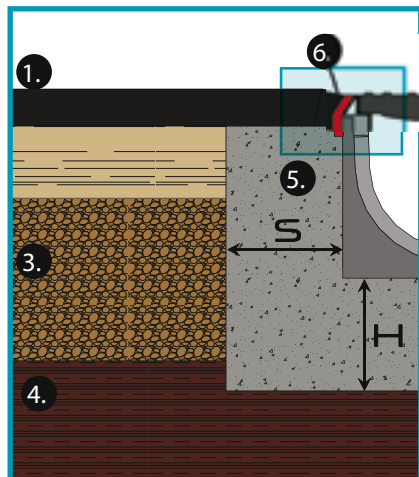


INSTALLATION

slope

Case 1

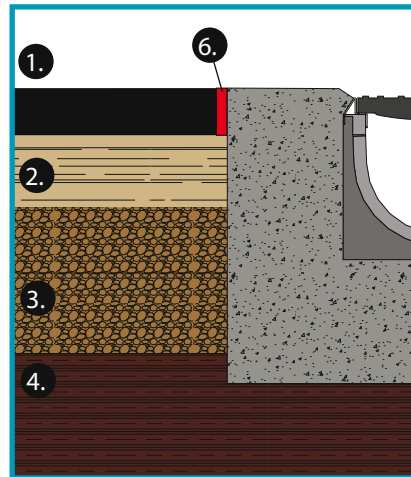
Asphalt
(C250)



1. Sheet asphalt
2. Lower layer
3. Bearing layer
4. Subfloor
5. Concrete reinforcement layer
6. Bitumen joint

Case 2

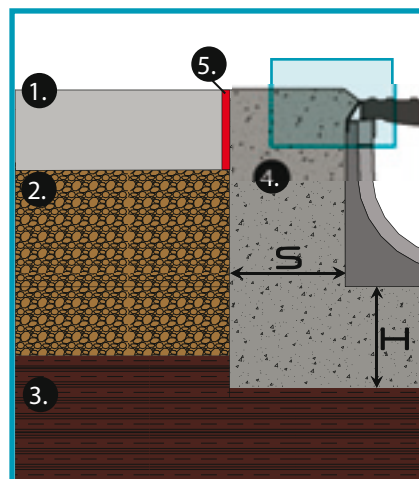
Asphalt
(D400)



1. Sheet asphalt
2. Lower layer
3. Bearing layer
4. Subfloor
5. Concrete reinforcement layer
6. Bitumen joint

Case 3

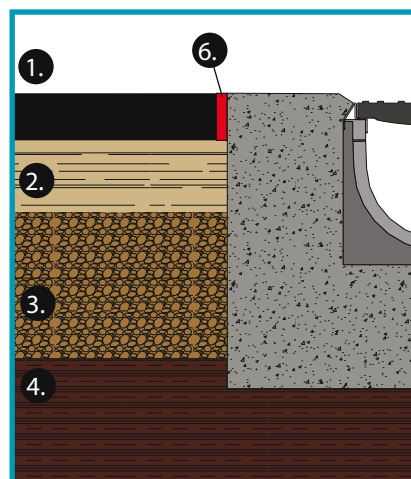
Concrete screed for streets and roads
(da C250 a D400)



1. Concrete flooring
2. Bearing layer
3. Subfloor
4. Concrete reinforcement layer
5. Expanded joint

Case 4

Flooring
(C250)



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

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
- use class S4 (EN 206-1) and stone aggregate with maximum diameter 8mm.
- comply with the height of the installation surface and the thickness of the prop as specified according to the load classes.

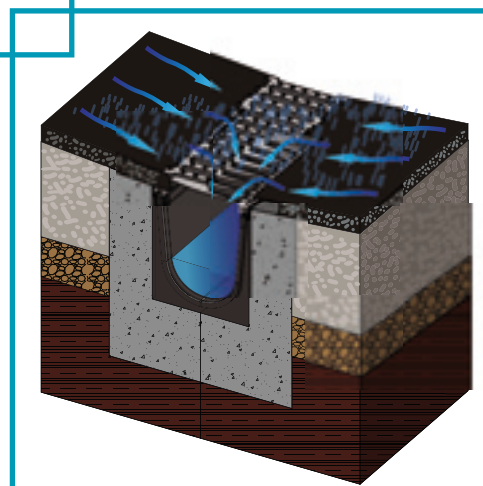
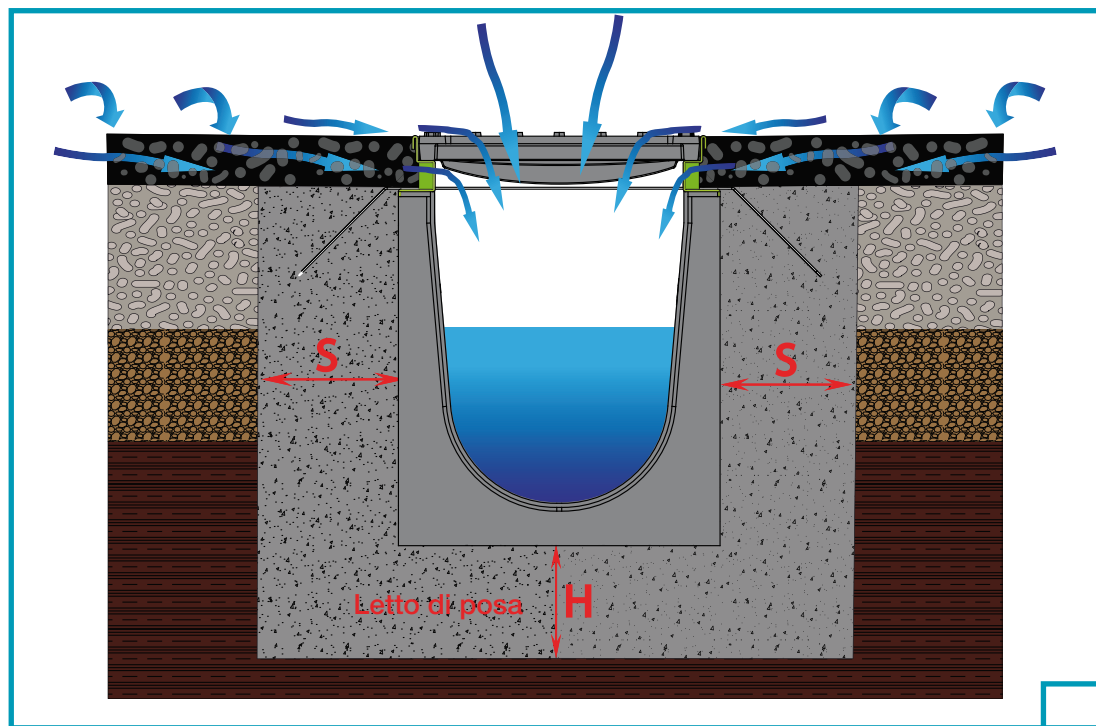
SUMMARY TABLE

Load class (EN 1433)		C 250	D 400	E 600
Applicable load (EN 1433)	kN	250	400	600
Minimum height H of concrete laying bed	mm	150	200	200
Minimum thickness S of the concrete fl anking	mm	150	200	200
Concrete compression strength class (EN 206-1)		C 25/30	C 25/30	C 30/37
Concrete compression strength class ⁷ (EN 206-1)		C 30/37 XF4	C 30/37 XF4	C 35/45 XF4

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

N.B. Muflesystem reserves the right to modify the technical characteristics on this document without prior notice, these are only informative data that can be changed in the development of our products range.

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



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
- use class S4 (EN 206-1) and stone aggregate with maximum diameter 8mm.
- comply with the height of the installation surface and the thickness of the prop as specified according to the load classes.

SUMMARY TABLE

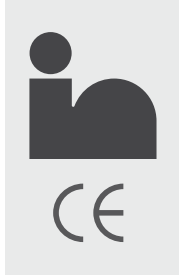
Load class (EN 1433)		C 250	D 400
Applicable load (EN 1433)	kN	250	400
Minimum height H of concrete laying bed	mm	150	200
Minimum thickness S of the concrete flanking	mm	150	200
Concrete compression strength class (EN 206-1)		C 25/30	C 25/30 ¹⁵
Concrete compression strength class ⁷ (EN 206-1)		C 30/37 XF4	C 30/37 XF4

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

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

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



SPECIFICATIONS

SLOPE

1. Supply and installation of MufleDrain SLOPE 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 3/4 drainage diaphragms at pre-determined points. Galvanised (stainless) steel upper profile, 4 mm-thick drive-over edge, 2 mm-thick contact surface with height not smaller than 20 mm, connection through prearranged coupling to the channel structure. The channel surface will be perfectly smooth and have a low roughness coefficient to allow the best water flow. It will also be perfectly water-tight and devoid of any connection points with the outside. The channel will have the following dimensions: length 1,000 mm, internal net gap ____mm, internal height ____ mm
2. Supply and installation of MufleDrain SLOPE 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. Galvanised (stainless) steel upper profile, 4 mm-thick drive-over edge, 2 mm-thick contact surface with height not smaller than 20 mm, connection through prearranged coupling to the channel structure. The channel surface will be perfectly smooth and have a low roughness coefficient to allow the best water flow. It will also be perfectly water-tight and devoid of any connection points with the outside. The channel will have the following dimensions: length 1,000mm, internal net gap 100 mm, internal height ____ mm.
3. Supply and installation of MufleDrain SLOPE 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 3/4 drainage diaphragms at pre- determined points. Galvanized (stainless) steel upper profile, 4 mm-thick drive-over edge, 2 mm-thick contact surface with height not lower than 20 mm, connection through prearranged coupling to the channel structure. The channel is equipped with 8 hooks for the fixing system hook – lock that are pre-installed and cannot be dismantled. The channel surface will be perfectly smooth and have a low roughness coefficient to allow the best water flow. It will also be perfectly water-tight and devoid of any connection points with the outside. The channel will have the following dimensions: length 1000 mm, internal net gap ____ mm, internal height ____ mm.
4. Supply and installation of MufleDrain SLOPE 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 drainage diaphragms at pre- determined points and a prearranged 100 (110) mm diameter bottom outlet that can be fixed through 4 screws. Galvanized (stainless) steel upper profile, 4 mm-thick drive-over edge, 2 mm-thick contact surface with height not lower than 20 mm, connection through prearranged coupling to the channel structure. The channel is equipped with 8 hooks for the fixing system hook – lock that are pre-installed and cannot be dismantled. The channel surface will be perfectly smooth and have a low roughness coefficient to allow the best water flow. It will also be perfectly water-tight and devoid of any connection points with the outside. The channel will have the following dimensions: length 1000 mm, internal net gap 100 mm, internal height ____ mm.
5. Supply and installation of MufleDrain SLOPE type HD-PE drainage channel that is characterized by a special geometry on the external surface consisting in wall with stiffening ribs. There are 21 equidistant primary ribs meeting on a flat surface and 12 shorter secondary ribs, all of them perpendicular to the upper edge. The male-female coupling system allows the assembly between one channel and the next with the relevant pre- assembled gratings. The channel surface will be perfectly smooth and have a low roughness coefficient to allow the best water flow. It will also be perfectly water-tight and devoid of any connection points with the outside. Galvanized (stainless) steel upper profile, 4 mm-thick drive-over edge, 2 mm-thick contact surface with height not lower than 45 mm. The profile will be shaped in order to let the grating fit in and its flat wall, that, duly drilled, allows the water absorbed by the drainage wearing surface of road asphalt to flow into the channel. This drainage wall shall be high not lower than 25 mm and shall be properly flanked in order to avoid crushing under loads. Every channel will be equipped with 2 profiles as above- described, one per each side, while the drainage section assured by side holes of frames shall be not lower than 86 cm². The frames shall be fixed to the channel through 4 tie-rods, 4 nuts and 4 lock washers to avoid unscrewing and make the whole system "channel + frame" solid and monolithic. The channel shall be equipped with 8 clamps, that, once made the concrete side flanking, will serve as reinforcement for the whole system. The channel complies with the essential requirements specified by the EN 1433-2008 and is applied with the CE- mark. The channel dimensions will be the following: length 1.000 mm, internal net gap 200 mm, internal height 250 mm.
6. Supply and installation of ductile with mesh GJS 500/7 covering gratings according to EN 1563-2004 for MufleDrain SLOPE drainage channels with "hook-lock" fixing system, load class C250 (D400) according to EN 1433-2008, slit width 20 mm, length 498 mm, width 125 mm.
7. Supply and installation of ductile with mesh GJS 500/7 covering gratings according to EN 1563-2004 for MufleDrain SLOPE drainage channels with "hook-lock" fixing system, load class C250 (D400) according to EN 1433-2008, with mesh, length 498 mm, width 125 mm.
8. Supply and installation of ductile iron GJS 500/7 covering gratings according to EN 1563-2004 for MufleDrain SLOPE drainage channels with "hook-lock" fixing system + bar, load class E 600 according to EN 1433-2008, slit width 20 mm, length 498 mm, width ____mm.
9. 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.
10. 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.
11. Supply and installation of HD-PE boxes with siphon for MufleDrain SLOPE drainage channels with external stiffening ribs and coupling system. Galvanised (stainless) steel upper profile, 4 mm-thick drive-over edge, 2 mm-thick contact surface with height not smaller than 20 mm, connection through prearranged coupling to the gully structure. The upper section of the siphon built in the gully may be removed in order to allow inspection and cleaning work. The gully will have preformed drains on both sides with diameter up to 200 mm. The gully dimensions will be as follows: length 534 mm, net gap ____ mm, internal height 400 mm.