

# smart

## The system:

- it supports 2 load classes (B125, C250) in compliance with Standard EN 1433
- it is made up of a HD-PE channel with a strengthening 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
- since the edge shows the exact dimensions for the paving, easy and accurate installation is ensured
- it comprises 3 different types of gratings (with slots, square mesh, anti-heel mesh) made from galvanised steel, stainless steel and ductile iron
- it comes equipped with a classic tie-rod fixing system and a convenient drain gate
- it is ideal for private car parks, footways, canalisation systems in roads and parking areas, transversal canalisation systems (road crossings) with low - speed vehicular traffic (max 15 km/h – in this case the system can support D400 - class gratings, although not in compliance with Standard EN 1433)
- 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 8 channels with 3 widths and 4 heights (100/55, 100/80, 100/100, 100/160, 150/100, 150/160, 200/100, 200/160)



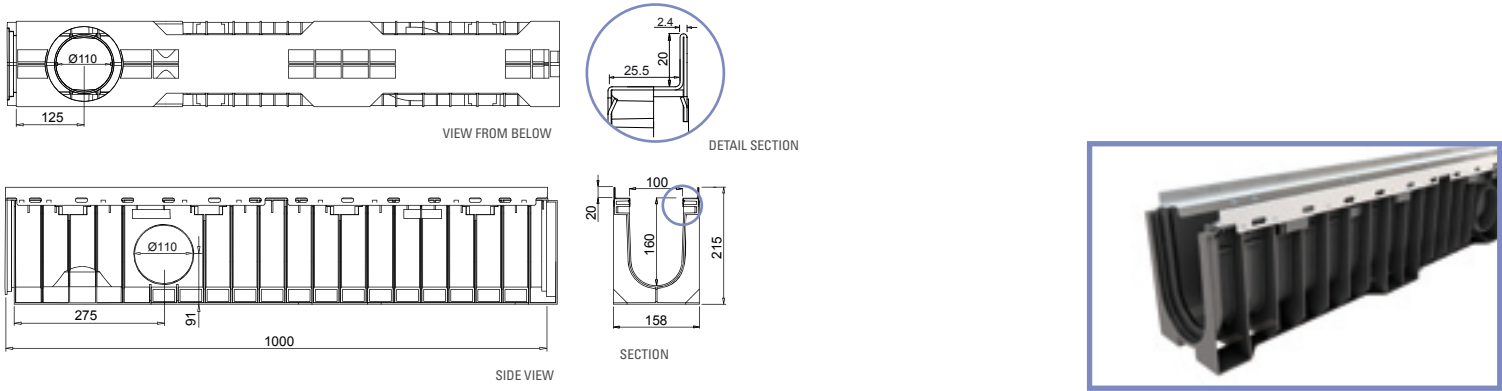


100

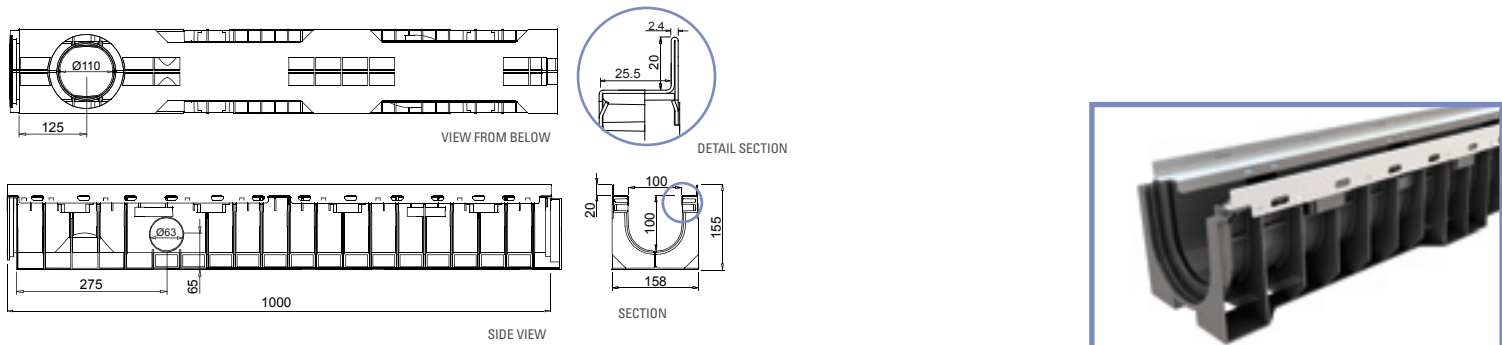


# CHANNELS

smart  
100



SMART 100/160										
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 <sup>2</sup>	dm <sup>3</sup>	mm	
701000		galvanised steel DX51D <sup>3</sup>	PE-HD	1000 x 158 x 215	1000 x 100 x 160	4,10	145,28	14,52	side bottom <sup>1</sup>	2 x Ø 110 1 x Ø 110
701008		stainless steel AISI 304 <sup>2</sup>								



SMART 100/100										
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 <sup>2</sup>	dm <sup>3</sup>	mm	
701001		galvanised steel DX51D <sup>3</sup>	PE-HD	1000 x 158 x 155	1000 x 100 x 100	3,60	89,56	8,95	side bottom <sup>1</sup>	2 x Ø 63 1 x Ø 110
701009		stainless steel AISI 304 <sup>2</sup>								

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).

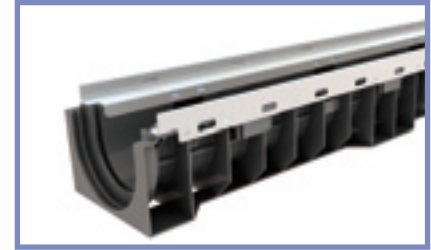
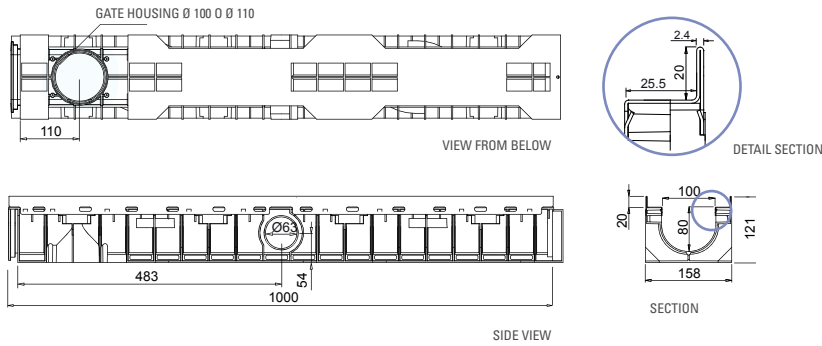
N.B. Waterproofing: in order to ensure the channels are waterproof, a bituminous adhesive sealant should be used. Heat-sealing the channel joints makes sure there will be no leakages through said joints for a very long time. For further information please contact MufleSystem's Technical Department.

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

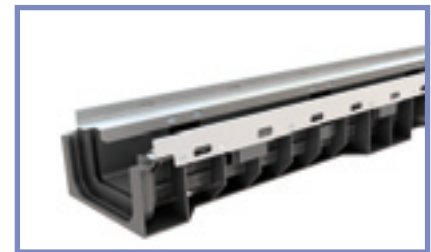
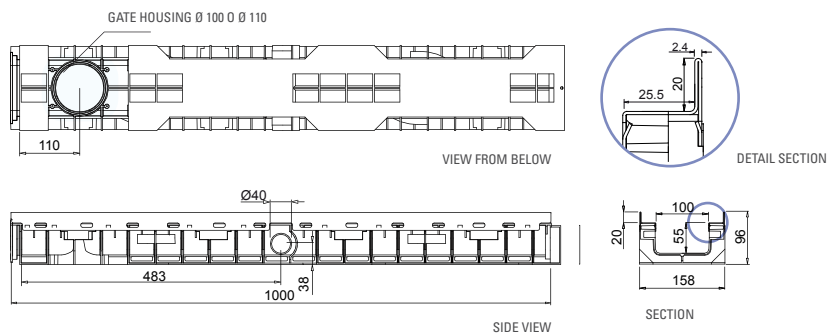


# CHANNELS

smart  
100



SMART 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 <sup>2</sup>	dm <sup>3</sup>	mm
701002		galvanised steel DX51D <sup>3</sup>	PE-HD	1000 x 158 x 121	1000 x 100 x 80	3,30	69,28	6,92	side 2 x Ø 63 bottom <sup>1</sup> 1 x Ø 100; 1 x Ø 110
701010		stainless steel AISI 304 <sup>2</sup>							



SMART 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 <sup>2</sup>	dm <sup>3</sup>	mm
701003		galvanised steel DX51D <sup>3</sup>	PE-HD	1000 x 158 x 96	1000 x 100 x 55	3,10	54,44	5,44	side 2 x Ø 63 bottom <sup>1</sup> 1 x Ø 100; 1 x Ø 110
701011		stainless steel AISI 304 <sup>2</sup>							

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.

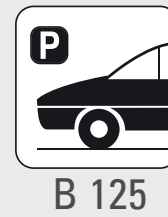
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# GRATINGS



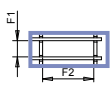
smart  
100

## APPLICATIONS OF GALVANISED STEEL

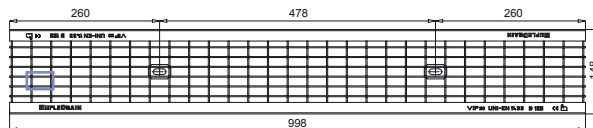
Pavements  
Lay-bys and private car parks

## APPLICATIONS OF STAINLESS STEEL

Pavements  
Lay-bys and private car parks  
Food factories  
Chemically aggressive environments



DETAIL OF  
HOOKING  
SYSTEM



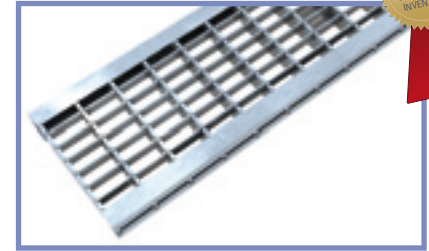
VIEW FROM ABOVE




SIDE  
VIEW



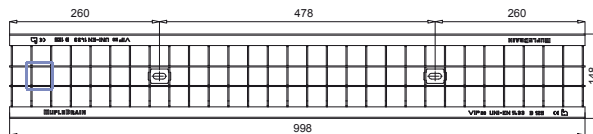
DETAIL OF  
UPRIGHT  
BEND



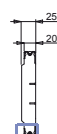
ANTI-HELL MESH GRATING								25 mm	
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM		
							tie-tod	no fixing	
502126		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	998 x 148 x 20	3,60	8,82	15,2 x 32,2		up to Class C250 as per Standard EN 1433	
502150		pickled stainless steel AISI 304 <sup>2</sup>							
502138		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	498 x 148 x 20	1,80	4,41				
502162		pickled stainless steel AISI 304 <sup>2</sup>							



DETAIL OF  
SQUARE  
MESH



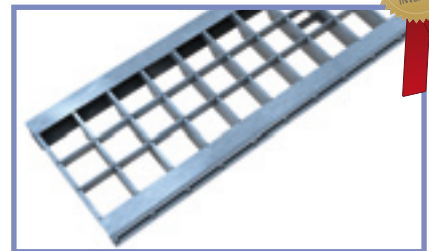
VIEW FROM ABOVE

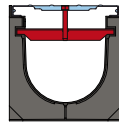


SIDE  
VIEW



DETAIL OF  
UPRIGHT  
BEND



SQUARE MESH GRATING								25 mm	
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM		
							tie-tod	no fixing	
502127		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	998 x 148 x 20	2,90	9,00	32,2 x 32,2		up to Class C250 as per Standard EN 1433	
502157		pickled stainless steel AISI 304 <sup>2</sup>							
502139		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	498 x 148 x 20	1,45	4,50				
502163		pickled stainless steel AISI 304 <sup>2</sup>							

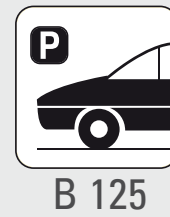
2- Classification according to American Standard ASTM.

5- Classification according to Standard EN 10111 (2008) and symbolic designation according to EN 10027-1 (-2) (2006).

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



# GRATINGS



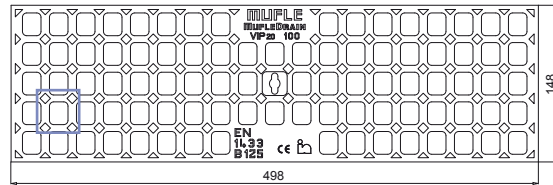
**smart  
100**

## APPLICATIONS OF DUCTILE IRON

Pavements  
Lay-bys and private car parks



SLOT DETAIL




VIEW FROM ABOVE



SIDE VIEW



MESH GRATING								20 mm	
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM		
							tie-tod	no fixing	
502112		GJS 500/7 <sup>6</sup> ductile iron water based paint coated	498 x 148 x 20	3,40	3,31	21,5 x 17,5		up to Class C250 as per Standard EN 1433	

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



# GRATINGS



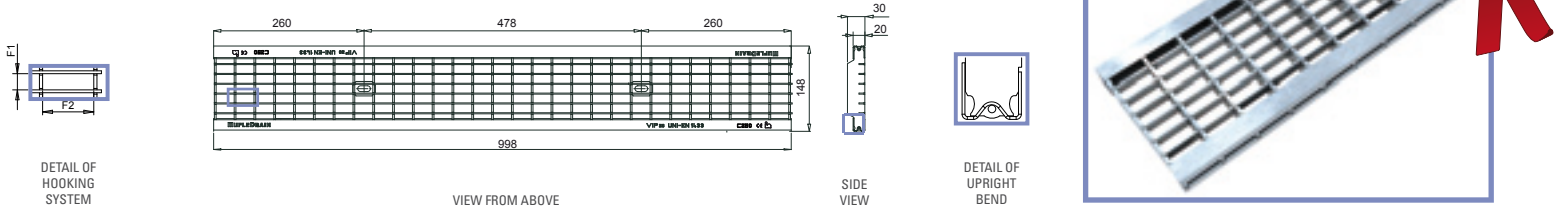
smart  
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## APPLICATIONS OF GALVANISED STEEL

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


## APPLICATIONS OF STAINLESS STEEL

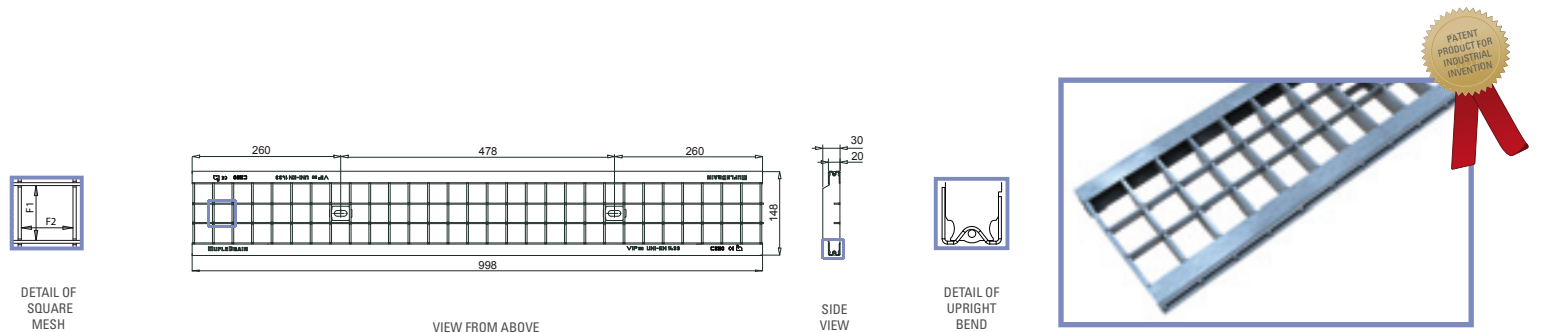
Kerbs  
Historical town centres (slow traffic)  
Parking areas  
Parking decks  
Areas with low-load transit in food factories  
Areas with low-load transit in chemically aggressive environments



### ANTI-HELL MESH GRATING

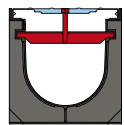


CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-tod	no fixing
502152		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	998 x 148 x 20	5,10	8,82	15,2 x 31,2		up to Class C250 as per Standard EN 1433
502175		pickled stainless steel AISI 304 <sup>2</sup>						
502169		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	498 x 148 x 20	2,55	4,41			
502187		pickled stainless steel AISI 304 <sup>2</sup>						



### SQUARE MESH GRATING



CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-tod	no fixing
502151		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	998 x 148 x 20	4,60	8,50	31,2 x 31,2		up to Class C250 as per Standard EN 1433
502174		pickled stainless steel AISI 304						
502168		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	498 x 148 x 20	2,30	4,25			
502188		pickled stainless steel AISI 304 <sup>2</sup>						

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).

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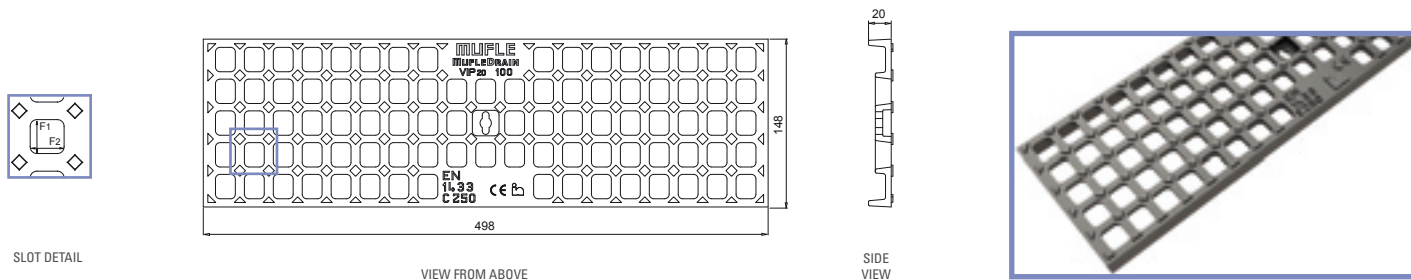
# GRATINGS




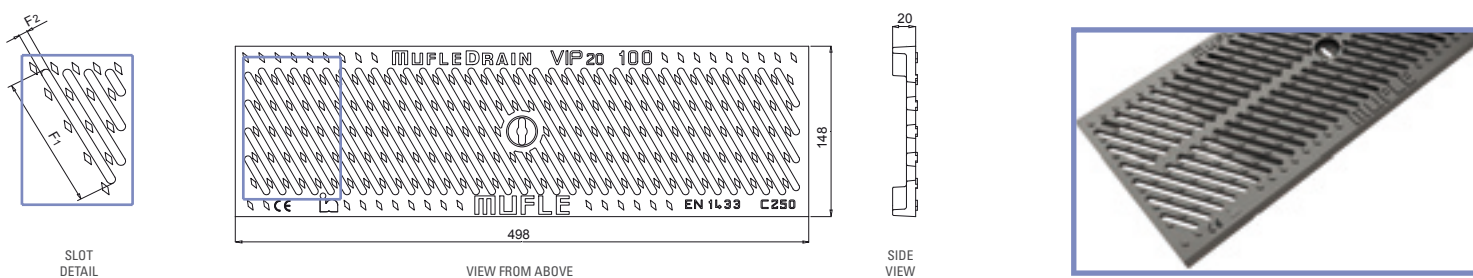
smart  
100


## APPLICATIONS OF DUCTILE IRON

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



MESH GRATING								20 mm	
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM		
							tie-tod	no fixing	
502115		GJS 500/7 <sup>6</sup> ductile iron water based paint coated	498 x 148 x 20	3,80	3,31	21,5 x 17,5		up to Class C250 as per Standard EN 1433	



SLOTTED GRATING 6 mm								20 mm	
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM		
							tie-tod	no fixing	
502114		GJS 500/7 <sup>6</sup> ductile iron water based paint coated	498 x 148 x 20	4,00	2,10	91,5 x 6,0		up to Class C250 as per Standard EN 1433	

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





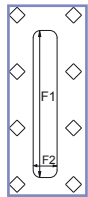
# GRATINGS



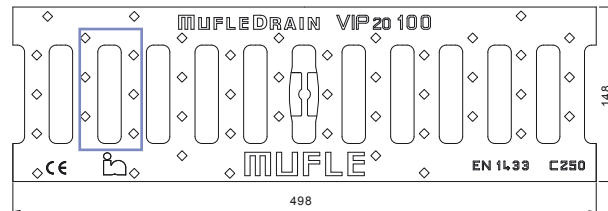
**smart  
100**

## APPLICATIONS OF DUCTILE IRON

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



SLOT  
DETAIL





VIEW FROM ABOVE



SIDE  
VIEW

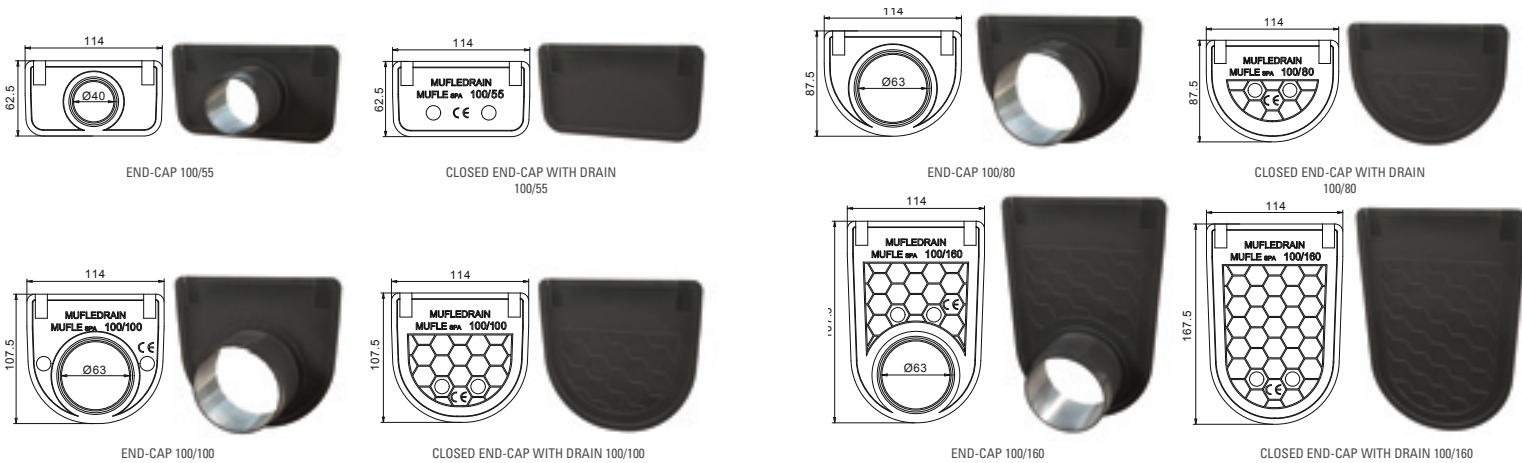


SLOTTED GRATING 20 mm								 20 mm	
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT Kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM		
							tie-tod	no fixing	
502113		GJS 500/7 <sup>6</sup> ductile iron water based paint coated	498 x 148 x 20	3,60	1,97	82,0 x 20,0		up to Class C250 as per Standard EN 1433	



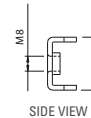
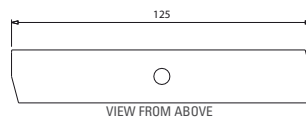
# ACCESSORIES

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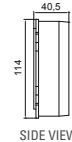
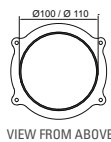
## END CAPS

CODE	PRICE	TIPO	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	-



## KIT TIE-ROD + SCREWS

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



## 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

## 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.



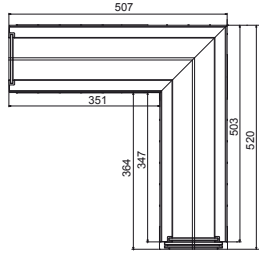
N.B. Sizes and weights are subject to usual manufacturing tolerance values.



# SPECIAL PIECES AND DRAIN BOX WITH SYPHON

**smart  
100**

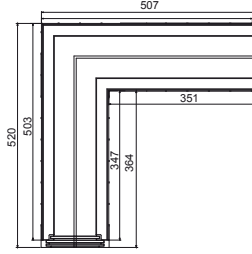
## LEFT CORNER



## SMART 100

CODE	PRICE €	MODEL
701100		100/160
701101		100/100
701102		100/80
701103		100/55

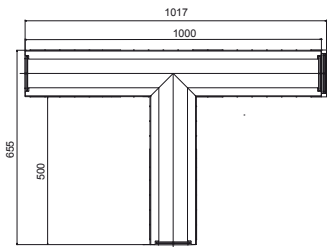
## RIGHT CORNER



## SMART 100

CODE	PRICE €	MODEL
701108		100/160
701109		100/100
701110		100/80
701111		100/55

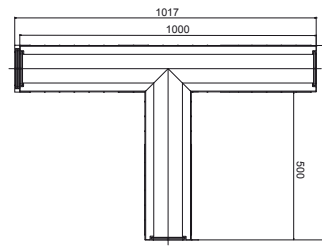
## LEFT TI



## SMART 100

CODE	PRICE €	MODEL
701116		100/160
701117		100/100
701118		100/80
701119		100/55

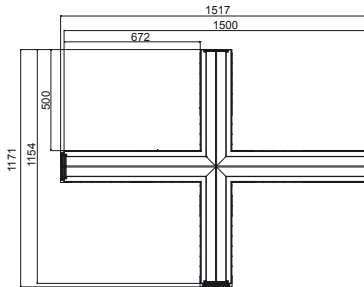
## RIGHT TI



## SMART 100

CODE	PRICE €	MODEL
701124		100/160
701125		100/100
701126		100/80
701127		100/55

## CROSS

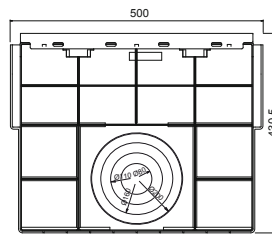


## SMART 100

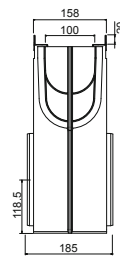
CODE	PRICE €	MODEL
701132		100/160
701133		100/100
701134		100/80
701135		100/55

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

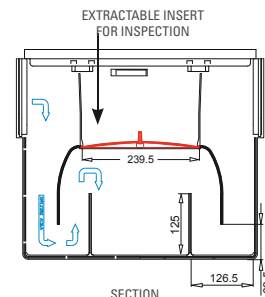
## DRAIN BOX WITH SYPHON



FRONT VIEW



SIDE VIEW



SECTION

## SMART 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 OUTLETS mm
701016		galvanised steel DX51D <sup>3</sup>	PE-HD	500 x 158 x 434	500 x 100 x 400	185	118,5	3,35	2 x Ø 110; 2 x Ø 160; 2 x Ø 200
701019		stainless steel AISI 304 <sup>2</sup>	PE-HD	500 x 158 x 434	500 x 100 x 400	185	118,5	3,35	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.

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

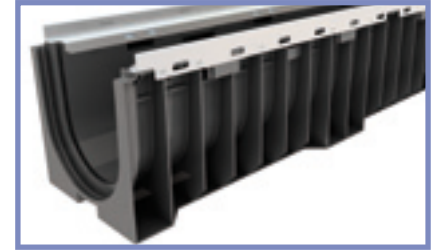
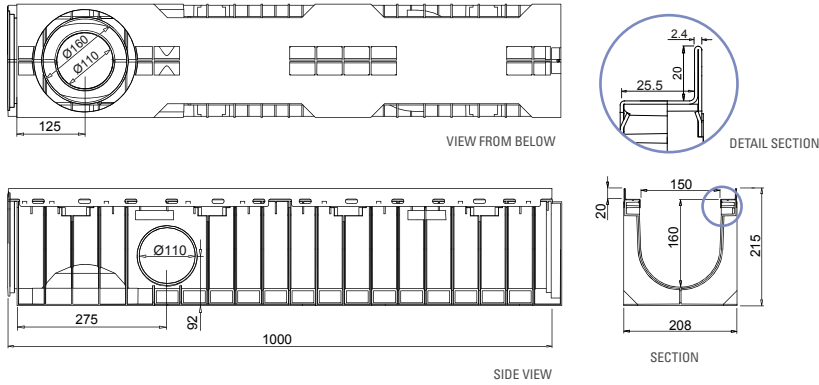


150



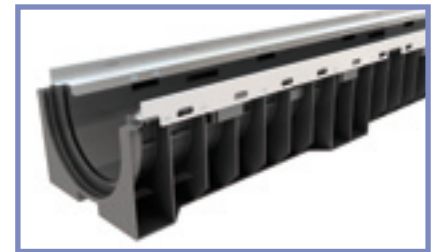
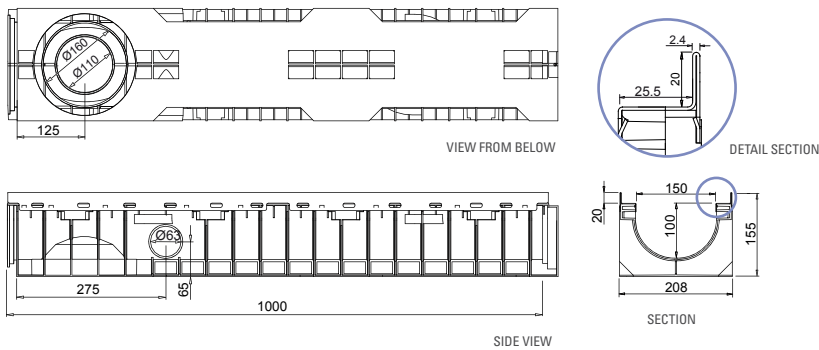
# CHANNELS

**smart**  
**150**



## SMART 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 <sup>2</sup>	CAPACITY dm <sup>3</sup>	PREINSTALLED DRAIN mm
701004		galvanised steel DX51D <sup>3</sup>	PE-HD	1000 x 208 x 215	1000 x 150 x 160	4,55	213,04	21,30	side 2 x Ø 110 bottom 1 x Ø 110; 1 x Ø 160
701012		stainless steel AISI 304 <sup>2</sup>							



## SMART 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 <sup>2</sup>	CAPACITY dm <sup>3</sup>	PREINSTALLED DRAIN mm
701005		galvanised steel DX51D <sup>3</sup>	PE-HD	1000 x 208 x 155	1000 x 150 x 100	4,00	127,32	12,73	side 2 x Ø 63 bottom 1 x Ø 110; 1 x Ø 160
701013		stainless steel AISI 304 <sup>2</sup>							

2- Classification according to American Standard ASTM.

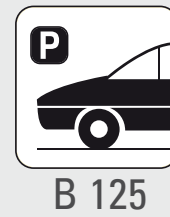
3- Classification according to Standard EN 10142 (2002) and symbolic designation according to EN 10027-1 (-2) (2006).

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



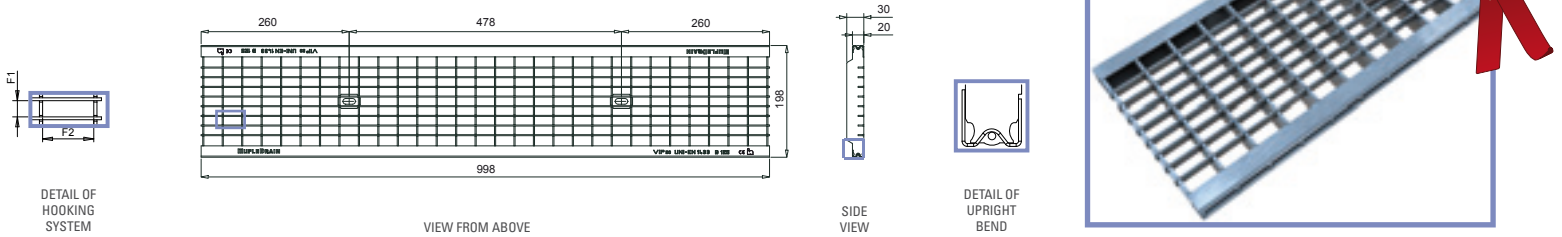
smart  
150

## APPLICATIONS OF GALVANISED STEEL

Pavements  
Lay-bys and private car parks


## APPLICATIONS OF STAINLESS STEEL

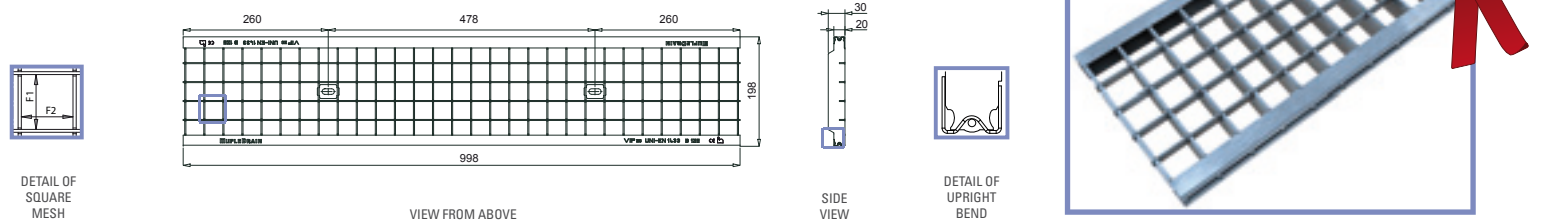
Pavements  
Lay-bys and private car parks  
Food factories  
Chemically aggressive environments



### ANTI-HELL MESH GRATING




CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-tod	no fixing
502130		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	998 x 198 x 20	5,00	13,08	15,2 x 32,2		up to Class C250 as per Standard EN 1433
502158		pickled stainless steel AISI 304 <sup>2</sup>						
502142		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	498 x 198 x 20	2,50	6,54			
502164		pickled stainless steel AISI 304 <sup>2</sup>						



### SQUARE MESH GRATING



CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-tod	no fixing
502131		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	998 x 198 x 20	4,10	13,74	32,2 x 32,2		up to Class C250 as per Standard EN 1433
502159		pickled stainless steel AISI 304 <sup>2</sup>						
502143		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	498 x 198 x 20	2,05	6,87			
502165		pickled stainless steel AISI 304 <sup>2</sup>						

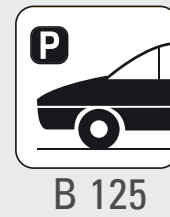
2- Classification according to American Standard ASTM.

5- Classification according to Standard EN 10111 (2008) and symbolic designation according to EN 10027-1 (-2) (2006).

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



# GRATINGS



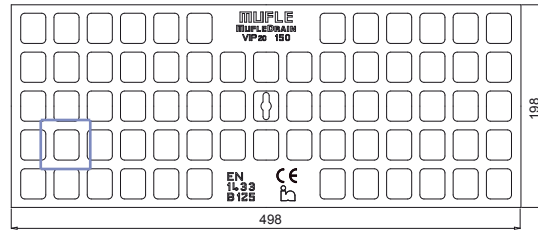
**smart**  
**150**

## APPLICATIONS OF DUCTILE IRON

Pavements  
Lay-bys and private car parks



SLOT DETAIL



VIEW FROM ABOVE



SIDE VIEW



MESH GRATING								20 mm	
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM		
							tie-tod	no fixing	
502118		GJS 500/7 <sup>6</sup> ductile iron water based paint coated	498 x 198 x 20	4,90	3,77	29,0 x 24,5		up to Class C250 as per Standard EN 1433	

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



# GRATINGS



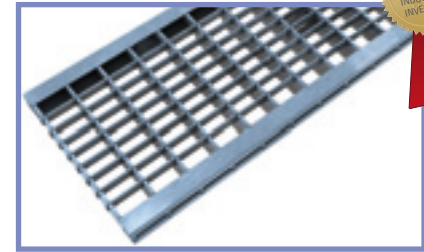
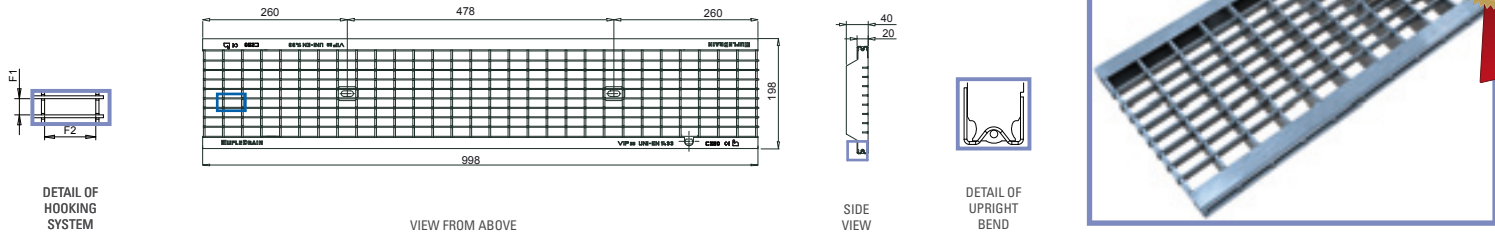
smart  
150

## APPLICATIONS OF GALVANISED STEEL

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

## APPLICATIONS OF STAINLESS STEEL

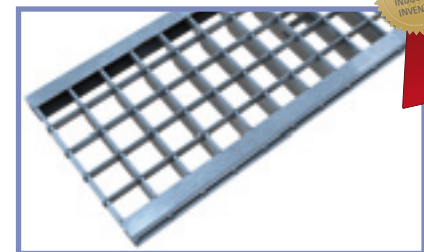
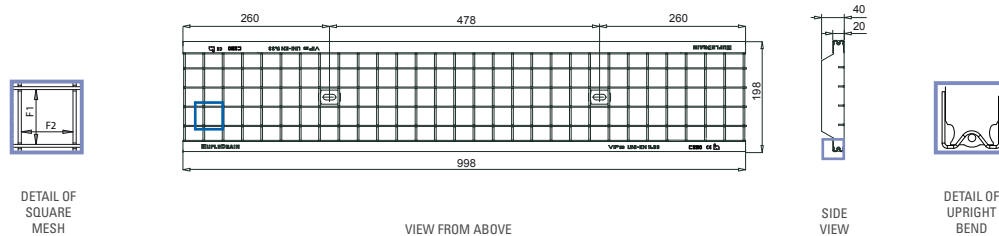
- Kerbs
- Historical town centres (slow traffic)
- Parking areas
- Parking decks
- Areas with low-load transit in food factories
- Areas with low-load transit in chemically aggressive environments



### ANTI-HEEL MESH GRATING



CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-tod	no fixing
502154		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	998 x 198 x 20	7,50	13,08	15,2 x 31,2		up to Class C250 as per Standard EN 1433
502177		pickled stainless steel AISI 304 <sup>2</sup>						
502171		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	498 x 198 x 20	3,75	6,54			
502190		pickled stainless steel AISI 304 <sup>2</sup>						



### SQUARE MESH GRATING



CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-tod	no fixing
502153		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	998 x 198 x 20	7,00	13,47	31,2 x 31,2		up to Class C250 as per Standard EN 1433
502176		pickled stainless steel AISI 304 <sup>2</sup>						
502170		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	498 x 198 x 20	3,50	6,73			
502189		pickled stainless steel AISI 304 <sup>2</sup>						

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).

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





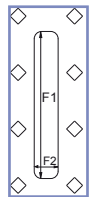
# GRATINGS



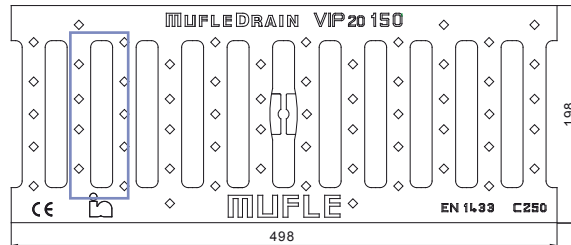
smart  
150

## APPLICATIONS OF DUCTILE IRON

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



SLOT  
DETAIL




VIEW FROM ABOVE



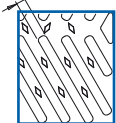
SIDE  
VIEW



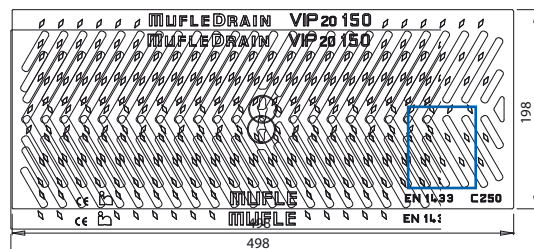
SLOTTED GRATING 20 mm								25 mm	
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM		
							tie-tod	no fixing	
502120		GJS 500/7 <sup>6</sup> ductile iron water based paint coated	498 x 198 x 20	5,20	3,16	132,0 x 20,0		up to Class C250 as per Standard EN 1433	

## APPLICATIONS OF DUCTILE IRON

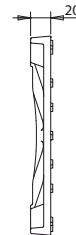
- Parking
- Parking decks
- Kerb side areas
- Historical town centres



SLOT  
DETAIL




VIEW FROM ABOVE



SIDE  
VIEW



SLOTTED GRATING 7 mm								20 mm	
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM		
							tie-tod	no fixing <sup>11</sup>	
502196		GJS 500/7 <sup>6</sup> ductile iron water based paint coated	498 x 198 x 20	6,00	3,00	81,0 x 7,0		up to Class C250 as per Standard EN 1433	

6- Classification according to Standard EN 1563 (2009).

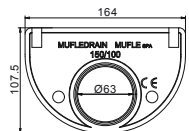
11- It is forecasted no fixing system for the channel 150/40 and 200/40.

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

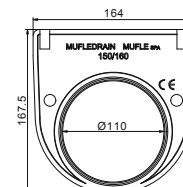


# ACCESSORIES

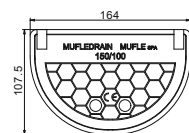
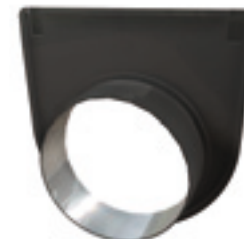
smart  
150



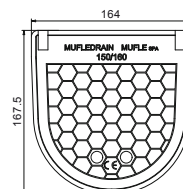
END-CAP 150/100



END-CAP 150/160



CLOSED END-CAP WITH DRAIN 150/100

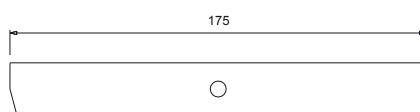


CLOSED END-CAP WITH DRAIN 150/160



## 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

## 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.



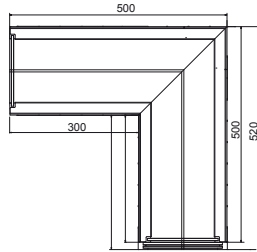
N.B. Sizes and weights are subject to usual manufacturing tolerance values.



# SPECIAL PIECES AND DRAIN BOX WITH SYPHON

**smart  
150**

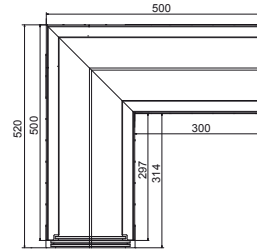
## LEFT CORNER



## SMART 150

CODE	PRICE €	MODEL
701104		150/160
701105		150/100

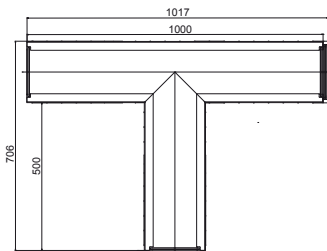
## RIGHT CORNER



## SMART 150

CODE	PRICE €	MODEL
701112		150/160
701113		150/100

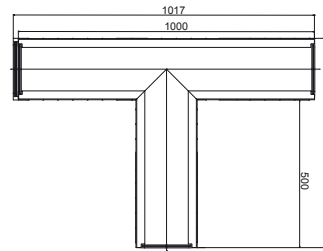
## LEFT TI



## SMART 150

CODE	PRICE €	MODEL
701120		150/160
701121		150/100

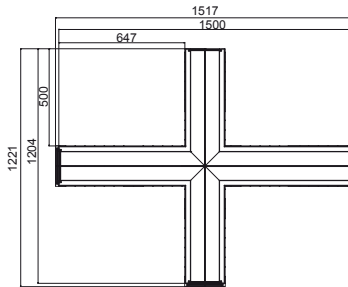
## RIGHT TI



## SMART 150

CODE	PRICE €	MODEL
701128		150/160
701129		150/100

## CROSS

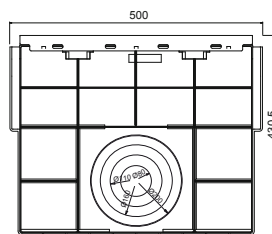


## SMART 150

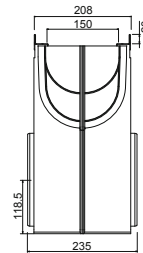
CODE	PRICE €	MODEL
701136		150/160
701137		150/100

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

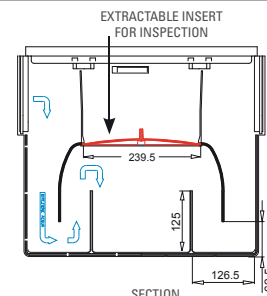
## DRAIN BOX WITH SYPHON



FRONT VIEW



SIDE VIEW



SECTION

## SMART 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 OUTLETS mm
701017		galvanised steel DX51D <sup>3</sup>	PE-HD	500 x 208 x 427	500 x 100 x 400	185	118,5	3,70	2 x Ø 110; 2 x Ø 160; 2 x Ø 200
701020		stainless steel AISI 304 <sup>2</sup>	PE-HD	500 x 208 x 427	500 x 100 x 400	185	118,5	3,70	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.

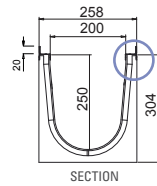
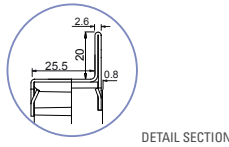
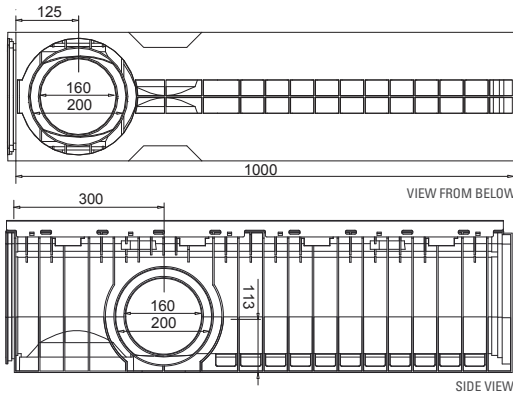


200



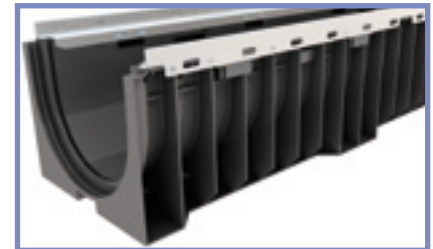
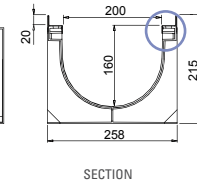
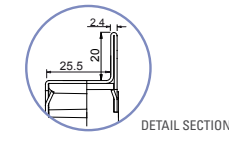
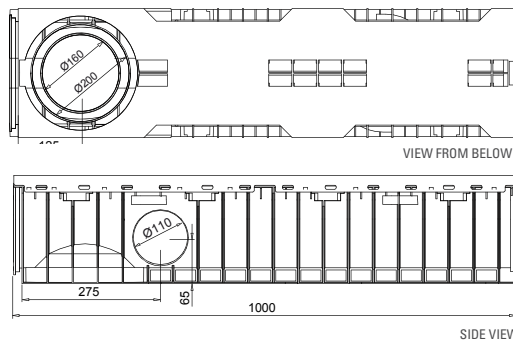
# CHANNELS

smart  
200



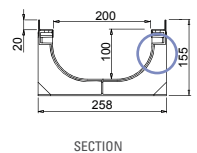
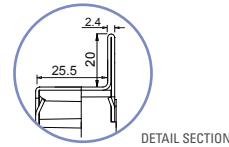
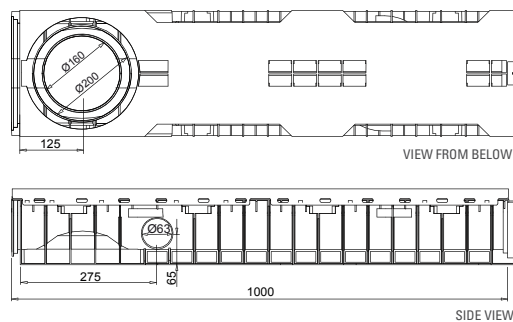
## SMART 200/250

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 <sup>2</sup>	CAPACITY dm <sup>3</sup>	PREINSTALLED DRAIN mm
701022		galvanised steel DX51D <sup>3</sup>	PE-HD	1000 x 258 x 304	1000 x 200 x 250	6,3	430,00	43,00	side 2 x Ø 160; 2 x Ø 200 bottom 1 x Ø 160; 1 x Ø 200
701023		stainless steel AISI 304 <sup>2</sup>							



## SMART 200/160

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 <sup>2</sup>	CAPACITY dm <sup>3</sup>	PREINSTALLED DRAIN mm
701006		galvanised steel DX51D <sup>3</sup>	PE-HD	1000 x 258 x 215	1000 x 200 x 160	4,95	275,87	27,58	side 2 x Ø 110 bottom 1 x Ø 160; 1 x Ø 200
701014		stainless steel AISI 304 <sup>2</sup>							



## SMART 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 SECTION cm <sup>2</sup>	CAPACITY dm <sup>3</sup>	PREINSTALLED DRAIN mm
701007		galvanised steel DX51D <sup>3</sup>	PE-HD	1000 x 258 x 155	1000 x 150 x 100	4,35	178,73	17,87	side 2 x Ø 63 bottom 1 x Ø 160; 1 x Ø 200
701015		stainless steel AISI 304 <sup>2</sup>							

2- Classification according to American Standard ASTM.

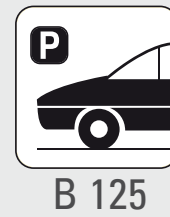
3- Classification according to Standard EN 10142 (2002) and symbolic designation according to EN 10027-1 (-2) (2006).

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



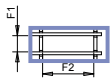
smart  
200

## APPLICATIONS OF GALVANISED STEEL

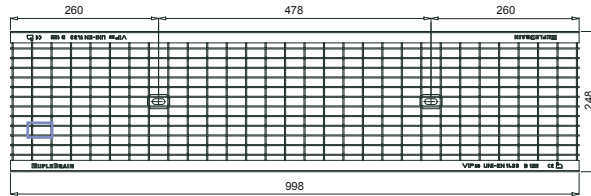
Pavements  
Lay-bys and private car parks

## APPLICATIONS OF STAINLESS STEEL

Pavements  
Lay-bys and private car parks  
Food factories  
Chemically aggressive environments



DETAIL OF  
HOOKING  
SYSTEM



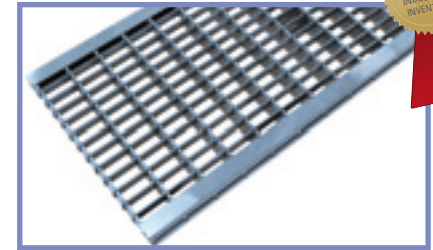
VIEW FROM ABOVE



SIDE  
VIEW




DETAIL OF  
UPRIGHT  
BEND



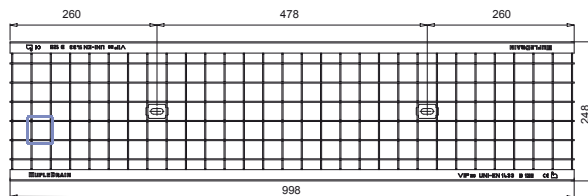
## ANTI-HELL MESH GRATING



CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-tod	no fixing
502134		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	998 x 248 x 20	6,20	16,98	15,2 x 32,2		up to Class C250 as per Standard EN 1433
502160		pickled stainless steel AISI 304 <sup>2</sup>						
502146		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	498 x 248 x 20	3,10	8,49			
502166		pickled stainless steel AISI 304 <sup>2</sup>						



DETAIL OF  
SQUARE  
MESH



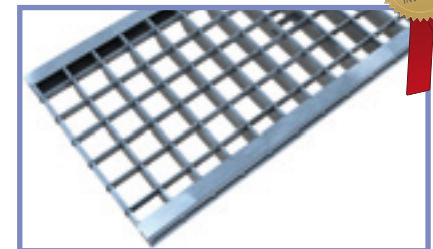
VIEW FROM ABOVE



SIDE  
VIEW



DETAIL OF  
UPRIGHT  
BEND



## SQUARE MESH GRATING



CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-tod	no fixing
502135		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	998 x 248 x 20	5,20	18,00	32,2 x 32,2		up to Class C250 as per Standard EN 1433
502161		pickled stainless steel AISI 304 <sup>2</sup>						
502147		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	498 x 248 x 20	2,60	9,00			
502167		pickled stainless steel AISI 304 <sup>2</sup>						

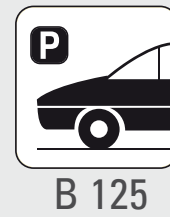
2- Classification according to American Standard ASTM.

5- Classification according to Standard EN 10111 (2008) and symbolic designation according to EN 10027-1 (-2) (2006).

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



# GRATINGS



**smart  
200**

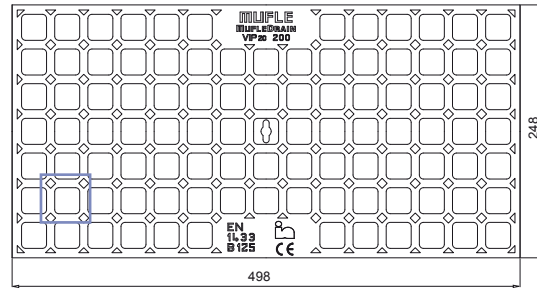
B 125

## APPLICATIONS OF DUCTILE IRON

Pavements  
Lay-bys and private car parks



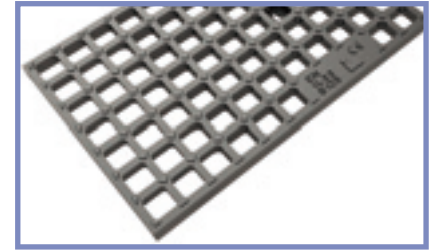
SLOT DETAIL




VIEW FROM ABOVE



SIDE VIEW



MESH GRATING								20 mm	
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM		
							tie-tod	no fixing	
502122		GJS 500/7 <sup>6</sup> ductile iron water based paint coated	498 x 248 x 20	6,25	6,12	25,5 x 24,5		up to Class C250 as per Standard EN 1433	

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



# GRATINGS



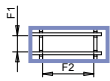
smart  
200

## APPLICATIONS OF GALVANISED STEEL

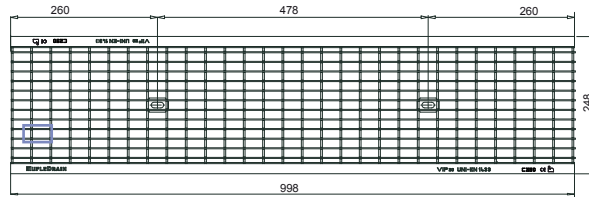
Kerbs  
Historical town centres (slow traffic)  
Parking areas  
Parking decks

## APPLICATIONS OF STAINLESS STEEL

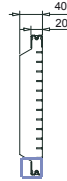
Kerbs  
Historical town centres (slow traffic)  
Parking areas  
Parking decks  
Areas with low-load transit in food factories  
Areas with low-load transit in chemically aggressive environments



DETAIL OF  
HOOKING  
SYSTEM



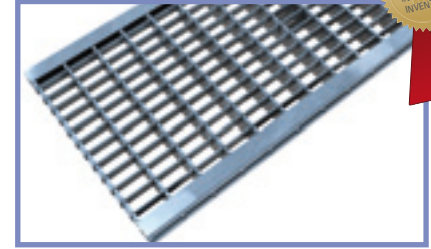
VIEW FROM ABOVE



SIDE  
VIEW




DETAIL OF  
UPRIGHT  
BEND



PATENT  
PRODUCT FOR  
INDUSTRIAL  
INVENTION

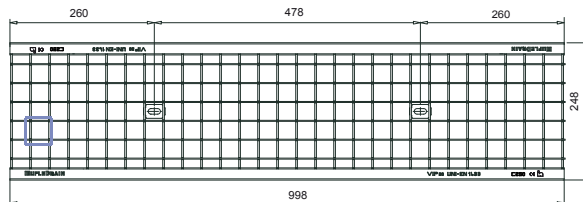
## ANTI-HELL MESH GRATING



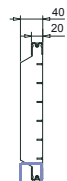
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-tod	no fixing
502156		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	998 x 248 x 20	9,50	16,98	31,0 x 15,0		up to Class C250 as per Standard EN 1433
502179		pickled stainless steel AISI 304 <sup>2</sup>						
502173		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	498 x 248 x 20	4,75	8,49			
502192		pickled stainless steel AISI 304 <sup>2</sup>						



DETAIL OF  
SQUARE  
MESH



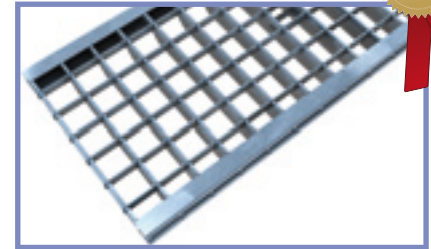
VIEW FROM ABOVE



SIDE  
VIEW




DETAIL OF  
UPRIGHT  
BEND



PATENT  
PRODUCT FOR  
INDUSTRIAL  
INVENTION

## SQUARE MESH GRATING



CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-tod	no fixing
502155		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	998 x 248 x 20	8,70	18,00	31,0 x 31,0		up to Class C250 as per Standard EN 1433
502178		pickled stainless steel AISI 304 <sup>2</sup>						
502172		hot dip galvanised steel DD11 (1.0332) <sup>5</sup>	498 x 248 x 20	4,35	9,00			
502191		pickled stainless steel AISI 304 <sup>2</sup>						

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).

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





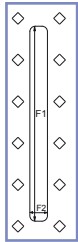
# GRATINGS



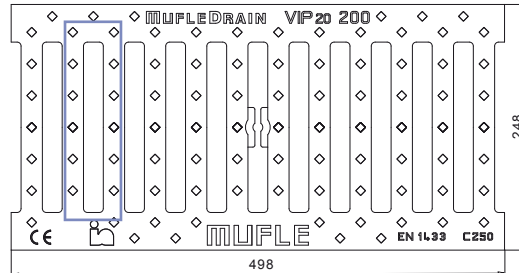
smart  
200

## APPLICATIONS OF DUCTILE IRON

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



SLOT DETAIL



VIEW FROM ABOVE




SIDE VIEW



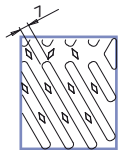
### SLOTTED GRATING 20 mm



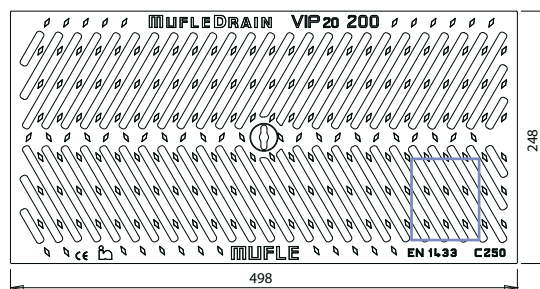
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-tod	no fixing
502124		GJS 500/7 <sup>6</sup> ductile iron water based paint coated	498 x 248 x 20	7,00	4,32	180,0 x 20,0		up to Class C250 as per Standard EN 1433

## APPLICATIONS OF DUCTILE IRON

- Parking
- Parking decks
- Kerb side areas
- Historical town centres



SLOT DETAIL



VIEW FROM ABOVE




SIDE VIEW



### SLOTTED GRATING 7 mm



CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-tod	no fixing <sup>11</sup>
502195		GJS 500/7 <sup>6</sup> ductile iron water based paint coated	498 x 248 x 20	7,70	4,00	107,0 x 7,0		up to Class C250 as per Standard EN 1433

6- Classification according to Standard EN 1563 (2009).

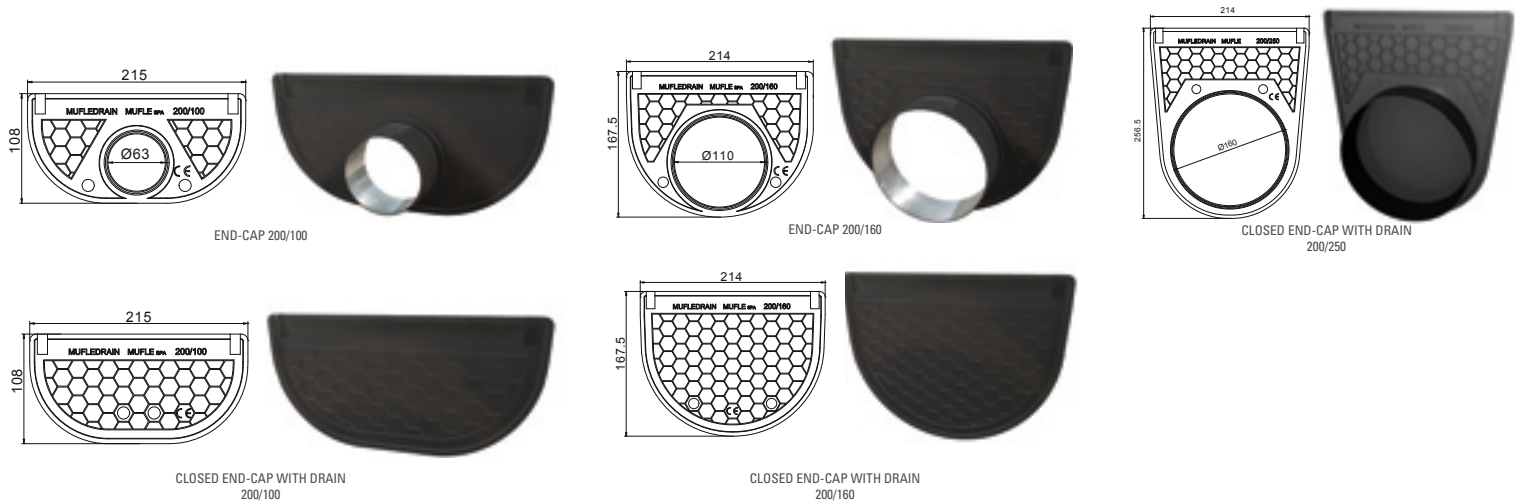
11- It is forecasted no fixing system for the channel 150/40 and 200/40.

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

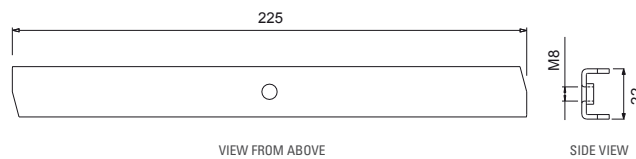


# ACCESSORIES

smart  
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	SMART galvanised steel	M8 x 55 TBL combi	2 tie-rods + 2 screws
500428		stainless steel	SMART stainless steel	M8 x 55 TBL combi	2 tie-rods + 2 screws
500429		black galvanised steel	SMART ductile iron	M8 x 55 black with hexagonal head	2 tie-rods + 2 screws

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.



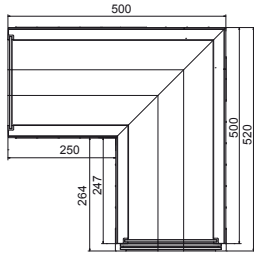
N.B. Sizes and weights are subject to usual manufacturing tolerance values.



# SPECIAL PIECES AND DRAIN BOX WITH SYPHON

**smart  
200**

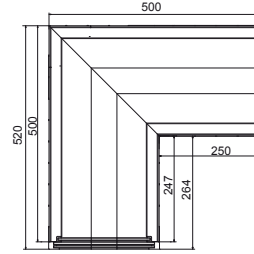
## LEFT CORNER



## SMART 200

CODE	PRICE €	MODEL
701142		200/250
701106		200/160
701107		200/100

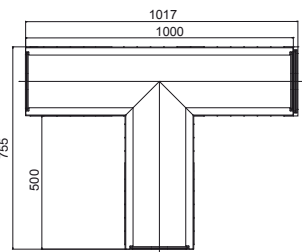
## RIGHT CORNER



## SMART 200

CODE	PRICE €	MODEL
701143		200/250
701114		200/160
701115		200/100

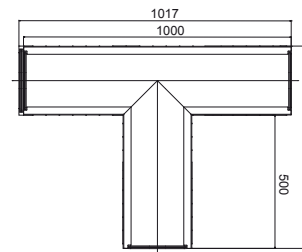
## LEFT TI



## SMART 200

CODE	PRICE €	MODEL
701144		200/250
701122		200/160
701123		200/100

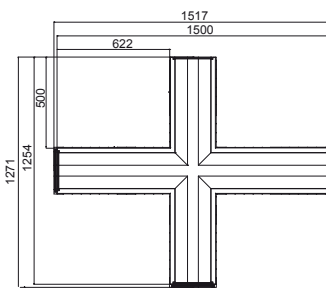
## RIGHT TI



## SMART 200

CODE	PRICE €	MODEL
701145		200/250
701130		200/160
701131		200/100

## CROSS

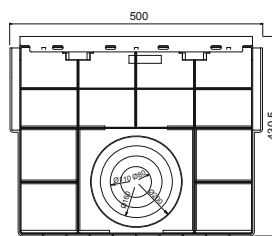


## SMART 200

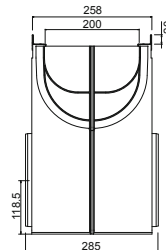
CODE	PRICE €	MODEL
701146		200/250
701138		200/160
701139		200/100

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

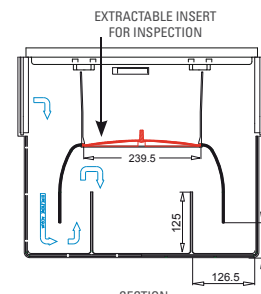
## DRAIN BOX WITH SYPHON<sup>17</sup>



FRONT VIEW



SIDE VIEW



SECTION

## SMART 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 OUTLETS mm
701018		galvanised steel DX51D <sup>3</sup>	PE-HD	500 x 258 x 427	500 x 200 x 400	285	118,5	3,85	2 x Ø 110; 2 x Ø 160; 2 x Ø 200
701021		stainless steel AISI 304 <sup>2</sup>	PE-HD	500 x 258 x 427	500 x 200 x 400	285	118,5	3,85	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.



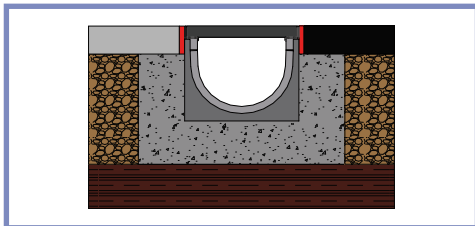
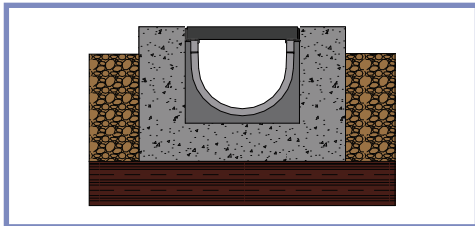
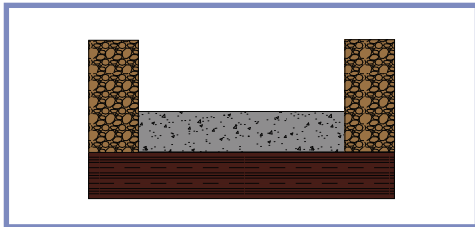
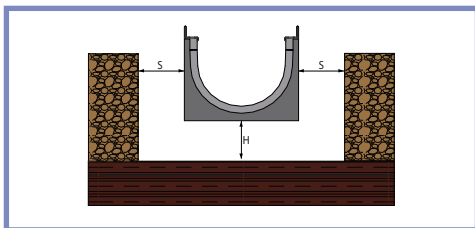
## “For all the drainage channels the manufacturer shall supply written instructions for general installation” (Ref. § 7.17 EN 1433)

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.

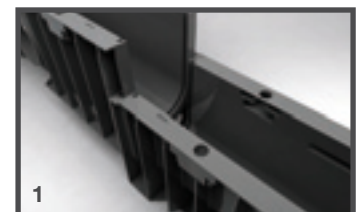
As well as the step 2, also for the side prop concrete arrange the reinforcement.

### 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.



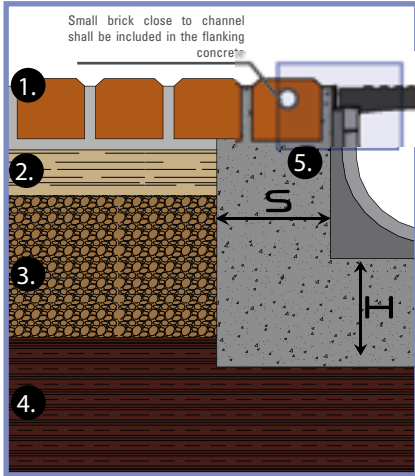
N.B. MufleSystem srl reserves the right to change the technical characteristics herein specified without prior notice. Said technical characteristics are given for information purposes only and are subject to changes as our products are developed.



# INSTALLATION

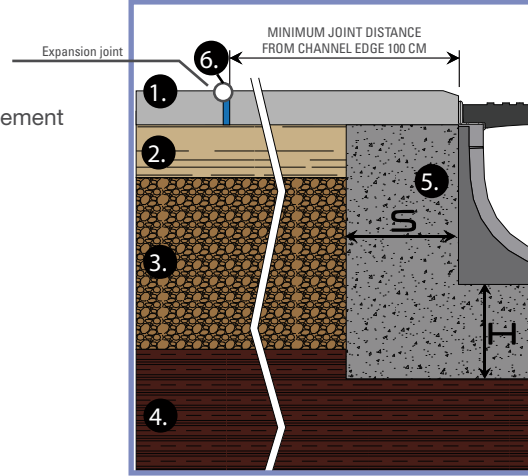
smart

**Case 1**  
Flooring  
(A15-B125-C250-D400<sup>14</sup>)



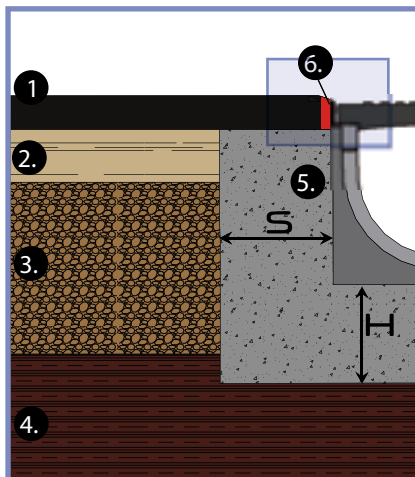
1. Flooring
2. Lower bed layer
3. Bearing layer
4. Subfloor
5. Concrete reinforcement layer

**Case 2**  
Concrete flooring  
(A15-B125-C250-D400<sup>14</sup>)

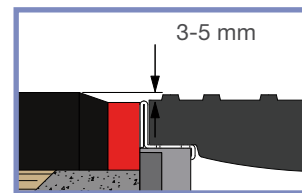


1. Flooring
2. Lower bed layer
3. Bearing layer
4. Subfloor
5. Concrete reinforcement layer
6. Expansion joint

**Case 3**  
Asphalt  
(A15-B125-C250-D400<sup>14</sup>)



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



This Sheet is only aimed to give advice on the installation of channels mod. MufleDrain. In any case, always:

- check the carrying capacity characteristics of the underlying layer
- we recommend using Class S4 concrete (EN 206-1) and stone aggregate with maximum diameter 8 mm.
- comply with the height of the installation surface and the thickness of the prop as specified according to the load classes.

## SUMMARY TABLE

Load class (EN 1433)		B 125	C 250
Applicable load (EN 1433)	kN	125	250
Minimum height H of concrete laying bed	mm	100	150
Minimum thickness S of the concrete flanking	mm	100	150
Concrete compression strength class (EN 206-1)		C 25/30	C 25/30
Concrete compression strength class <sup>7</sup> (EN 206-1)		C 30/37 XF4	C 30/37 XF4

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

N.B. MufleSystem srl reserves the right to change the technical characteristics herein specified without prior notice. Said technical characteristics are given for information purposes only and are subject to changes as our products are developed.

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



## SPECIFICATIONS

smart

1. Supply and installation of MufleDrain SMART 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, 2.4 mm-thick drive-over edge, 1.2 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 SMART 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, 2.4 mm-thick drive-over edge, 1.2 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 ductile iron GJS 500/7 covering gratings according to EN 1563-2004 for MufleDrain SMART drainage channels with bar fixing system, load class C250 according to EN 1433-2008, slot width 20 mm, length 498 mm, width \_\_\_mm.
4. Supply and installation of ductile iron GJS 500/7 covering gratings according to EN 1563-2004 for MufleDrain SMART drainage channels with bar fixing system, load class C250 according to EN 1433-2008, slot inclined 30° to the longitudinal axis, width 6 mm, length 498 mm, width 148 mm.
5. Supply and installation of ductile cast-iron GJS 500/7 covering gratings according to EN 1563-2004 for MufleDrain SMART drainage channels with screw fixing system, load classes C250 according to EN 1433-2008 with 7 mm slot 30° inclined with respect to longitudinal axis, length 498 mm, width \_\_\_\_ mm.
6. Supply and installation of ductile iron GJS 500/7 covering gratings according to EN 1563-2004 with mesh for MufleDrain SMART drainage channels with bar fixing system, load class B125 (C250) according to EN 1433-2004, length 498 mm, width \_\_\_mm (148 mm).
7. Supply and installation of galvanised (stainless) steel square-mesh or anti-heel covering gratings for MufleDrain SMART drainage channels with bar fixing system, load class B125 according to EN 1433-2004, length 998 mm, width \_\_\_mm. A similar grating will be available upon request with length 498 mm. The dimensions will be 33 x 33 mm in the square mesh and 33 x 15 mm in the anti-heel mesh.
8. Supply and installation of HD-PE end caps for MufleDrain drainage channel with coupling system into the special channel housing.
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 boxes with siphon for MufleDrain SMART drainage channels with external stiffening ribs and coupling system. Galvanised (stainless) steel upper profile, 2.4 mm-thick drive-over edge, 1.2 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.