

# 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 cast-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 gullies 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)



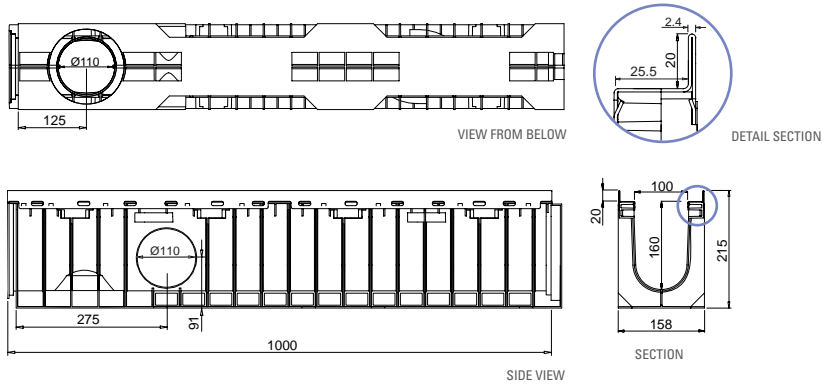


100

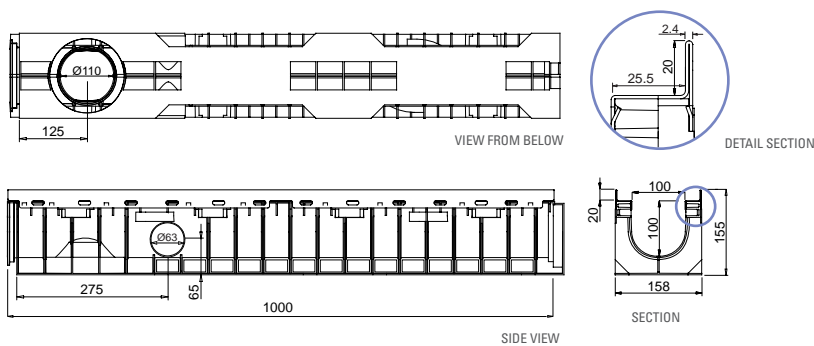


# CHANNELS

## SMART 100



SMART 100/160										
CODE	PRICE	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS L x l x h	INTERNAL DIMENSIONS L x l x h	WEIGHT	DRAINAGE SECTION	CAPACITY	PREINSTALLED DRAIN OUTLETS	
	€			mm	mm	kg	cm <sup>2</sup>	dm <sup>3</sup>	mm	
701000		galvanised steel DX51D**	HD-PE	1000 x 158 x 215	1000 x 100 x 160	4,10	145,28	14,52	side	2 x Ø 110
701008		stainless steel AISI 304*								



SMART 100/100										
CODE	PRICE	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS L x l x h	INTERNAL DIMENSIONS L x l x h	WEIGHT	DRAINAGE SECTION	CAPACITY	PREINSTALLED DRAIN OUTLET	
	€			mm	mm	kg	cm <sup>2</sup>	dm <sup>3</sup>	mm	
701001		galvanised steel DX51D**	HD-PE	1000 x 158 x 155	1000 x 100 x 100	3,60	89,56	8,95	side	2 x Ø 63
701009		stainless steel AISI 304*								

\* Classification according to American Standard ASTM.

\*\* Classification according to Standard EN 10142 (issued in July 2002) and symbolic designation according to EN 10027-1 (-2) (issued in September 1993).

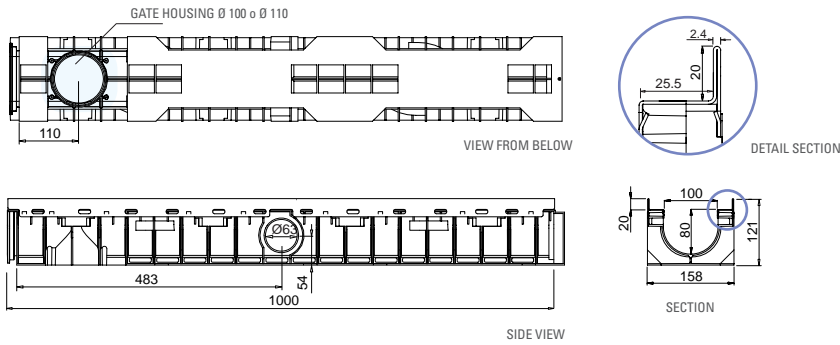
§ Waterproofing: in order to ensure the channels are waterproof, a bituminous adhesive sealant should be used. Heat-sealing the channel joints makes sure there will be no leakages through said joints for a very long time. For further information please contact Mufle's Technical Department.

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

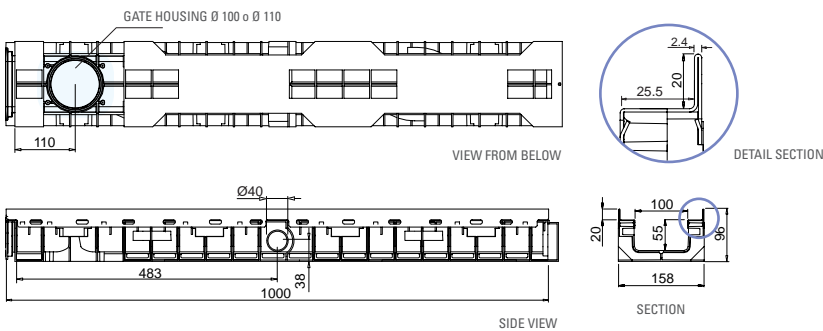


# CHANNELS

## SMART 100



SMART 100/80									
CODE	PRICE	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS L x l x h	INTERNAL DIMENSIONS L x l x h	WEIGHT	DRAINAGE SECTION	CAPACITY	PREINSTALLED DRAIN OUTLETS
	€			mm	mm	kg	cm <sup>2</sup>	dm <sup>3</sup>	mm
701002		galvanised steel DX51D**	HD-PE	1000 x 158 x 121	1000 x 100 x 80	3,30	69,28	6,92	side bottom
701010		stainless steel AISI 304*							



SMART 100/55									
CODE	PRICE	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS L x l x h	INTERNAL DIMENSIONS L x l x h	WEIGHT	DRAINAGE SECTION	CAPACITY	PREINSTALLED DRAIN OUTLETS
	€			mm	mm	kg	cm <sup>2</sup>	dm <sup>3</sup>	mm
701003		galvanised steel DX51D**	HD-PE	1000 x 158 x 96	1000 x 100 x 55	3,10	54,44	5,44	side bottom
701011		stainless steel AISI 304*							

\* Classification according to American Standard ASTM.

\*\* Classification according to Standard EN 10142 (issued in July 2002) and symbolic designation according to EN 10027-1 (-2) (issued in September 1993).

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

§ 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 Mufle's Technical Department.

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



# GRATINGS



B 125

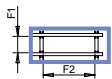
SMART 100

## APPLICATIONS OF GALVANISED STEEL

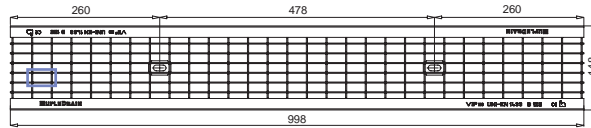
Pavements  
Lay-bys and private car parks

## 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



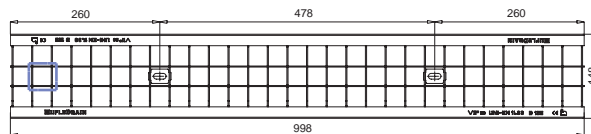
### MESH GRATING (11 x 33)



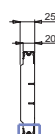
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-rod	no fixing
502126		hot dip galvanised steel DD11 (1.0332)**	998 x 148 x 20	3,60	8,82	15,2 x 32,2		up to Class C250 as per Standard EN 1433
502150		pickled stainless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



DETAIL OF SQUARE MESH



VIEW FROM ABOVE



SIDE VIEW



DETAIL OF UPRIGHT BEND



### MESH GRATING (33 x 33)



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-rod	no fixing
502127		hot dip galvanised steel DD11 (1.0332)**	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*						
502139		hot dip galvanised steel DD11 (1.0332)**	498 x 148 x 20	1,45	4,50			
502163		pickled stainless steel AISI 304*						

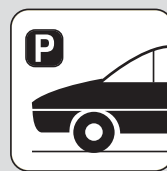
\* Classification according to American Standard ASTM.

\*\* Classification according to Standard EN 10111 (issued in March 2000) and symbolic designation according to EN 10027-1 (-2) (issued in September 1993).

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



# GRATINGS



B 125

SMART 100

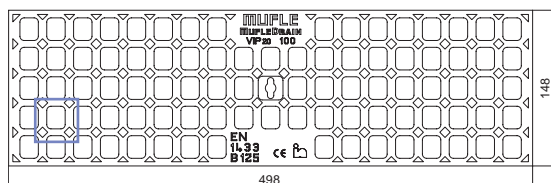
## APPLICATIONS OF DUCTILE IRON

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-rod	no fixing	
502112		GJS 500/7* 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	

\* Classification according to Standard EN 1563 (issued in March 2004).  
N.B. Sizes and weights are subject to usual manufacturing tolerance values.



# GRATINGS



C 250

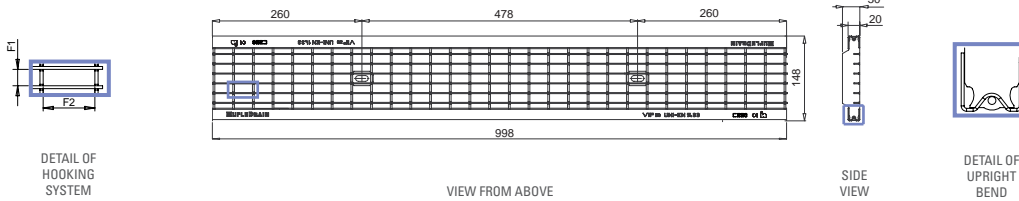
SMART 100

## APPLICATIONS OF GALVANISED STEEL

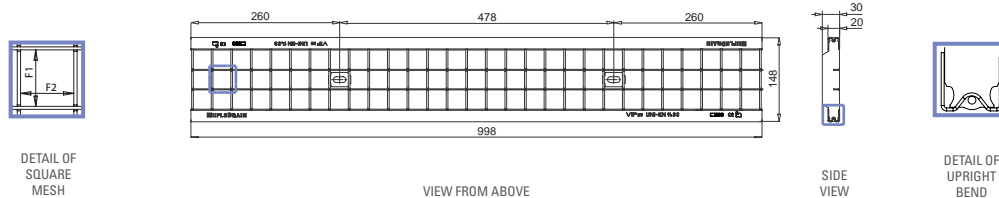
- Kerbs
- Historical town centres (slow traffic)
- Parking areas
- Parking decks

## 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



MESH GRATING (11 x 33)								30 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-rod	no fixing	
502152		hot dip galvanised steel DD11 (1.0332)**	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*							
502169		hot dip galvanised steel DD11 (1.0332)**	498 x 148 x 20	2,55	4,41				
502187		pickled stainless steel AISI 304*							



MESH GRATING (33 x 33)								30 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-rod	no fixing	
502151		hot dip galvanised steel DD11 (1.0332)**	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)**	498 x 148 x 20	2,30	4,25				
502188		pickled stainless steel AISI 304*							

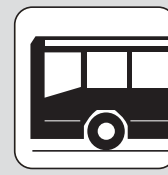
\* Classification according to American Standard ASTM.

\*\* Classification according to Standard EN 10111 (issued in March 2000) and symbolic designation according to EN 10027-1 (-2) (issued in September 1993).

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



# GRATINGS



C 250

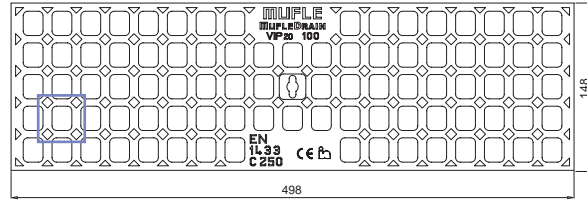
SMART 100

## APPLICATIONS OF DUCTILE IRON

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



SLOT  
DETAIL

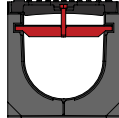


VIEW FROM ABOVE



SIDE  
VIEW

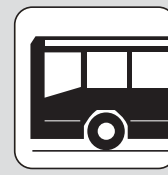


MESH GRATING								20 mm	
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM		
							tie-rod	no fixing	
502115		GJS 500/7* ductile iron water based paint coated	498 x 148 x 20	3,80	3,31	21,5 x 17,5		up to Class C250 as per Standard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

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# GRATINGS

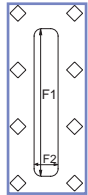


C 250

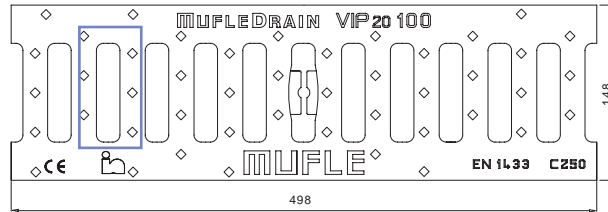
SMART 100

## APPLICATIONS OF DUCTILE IRON

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



SLOT  
DETAIL



VIEW FROM ABOVE

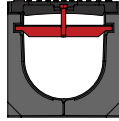


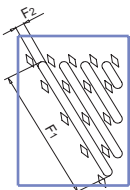
SIDE  
VIEW



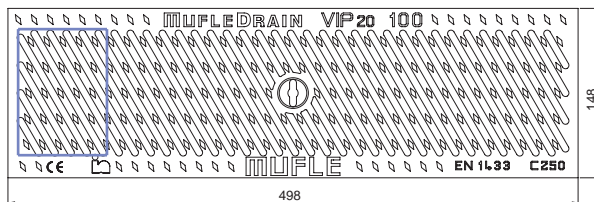
### SLOTTED GRATING 20 mm



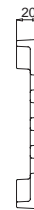
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-rod	no fixing
502113		GJS 500/7* ductile iron water based paint coated	498 x 148 x 20	3,60	1,97	82,0 x 20,0		up to Class C250 as per Standard EN 1433



SLOT  
DETAIL



VIEW FROM ABOVE

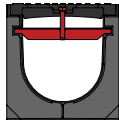


SIDE  
VIEW



### SLOTTED GRATING 6 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-rod	no fixing
502114		GJS 500/7* 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

\* Classification according to Standard EN 1563 (issued in March 2004).  
N.B. Sizes and weights are subject to usual manufacturing tolerance values.



# GRATINGS

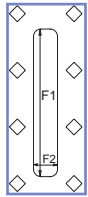


D 400

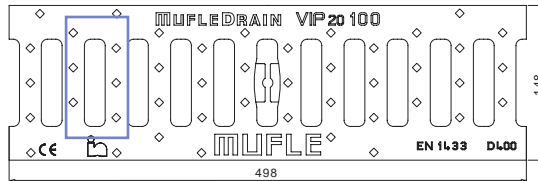
SMART 100

## 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



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-rod
502116		GJS 500/7* ductile iron water based paint coated	498 x 148 x 20	4,50	1,97	82,0 x 20,0	



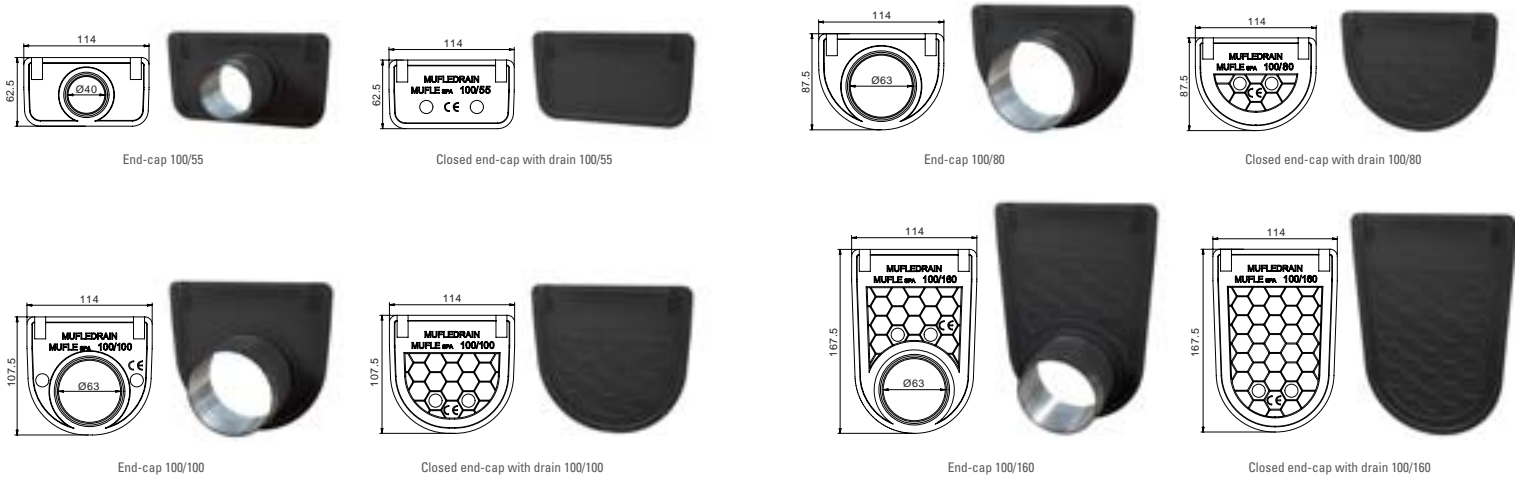
Class - D400 ductile iron gratings for SMART channels cannot be certified according to Standard EN 1433 because of the thickness of the edge subject to traffic and the contact surface, which on the contrary is suitable up to Class C250. Nevertheless the gratings passed the load tests specified for Class D400. We recommend using the combination "SMART channel + D400 - Class ductile iron grating" for transversal canalisation systems (road crossings) with low-speed vehicular traffic (max 15 km/h).

\* Classification according to Standard EN 1563 (issued in March 2004).  
N.B. Sizes and weights are subject to usual manufacturing tolerance values.



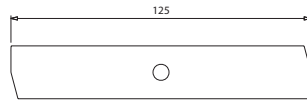
# ACCESSORIES

SMART 100

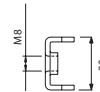


## END CAPS

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



VIEW FROM ABOVE

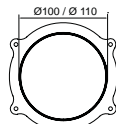


SIDE VIEW

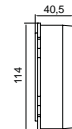


## KIT TIE-ROD + SCREWS

CODE	PRICE	MATERIAL	VALID FOR GRATINGS	SCREW	KIT FOR 1 ml
	€				
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



VIEW FROM ABOVE



SIDE VIEW



## KIT OUTLET + SCREWS

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

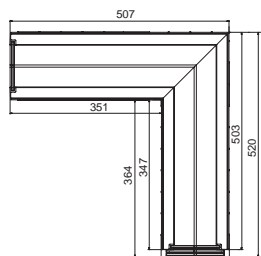
N.B. Sizes and weights are subject to usual manufacturing tolerance values.



# SPECIAL PIECES AND DRAIN BOX WITH SYPHON

SMART 100

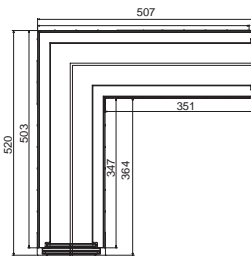
## LEFT CORNER



## SMART 100

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

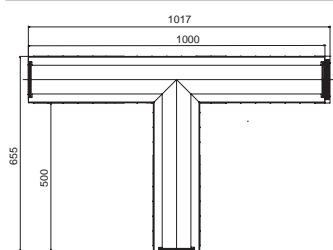
## RIGHT CORNER



## SMART 100

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

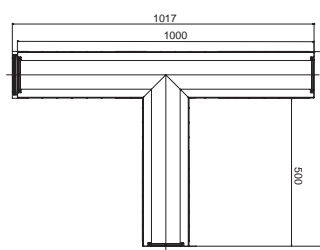
## LEFT TI



## SMART 100

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

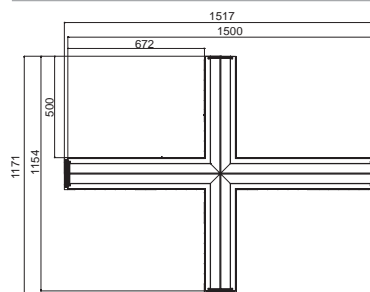
## RIGHT TI



## SMART 100

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

## CROSS

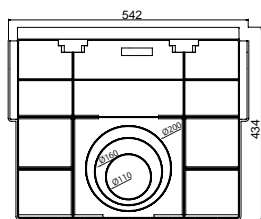


## SMART 100

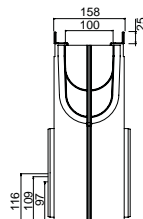
CODE	PRICE €	MODEL
701132		100/160
701133		100/100
701134		100/80
701135		100/55

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

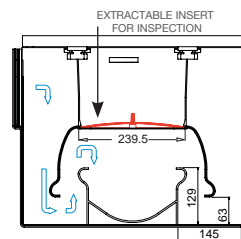
## DRAIN BOX WITH SYPHON



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**	HD-PE	542 x 158 x 434	500 x 100 x 400	185	116 - 109 - 97	3,35	2 x Ø 110; 2 x Ø 160; 2 x Ø 200
701019		stainless steel AISI 304*	HD-PE	542 x 158 x 434	500 x 100 x 400	185	116 - 109 - 97	3,35	2 x Ø 110; 2 x Ø 160; 2 x Ø 200

\* Classification according to American Standard ASTM.

\*\* Classification according to Standard EN 10142 (issued in July 2002) and symbolic designation according to EN 10027-1 (-2) (issued in September 1993).

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

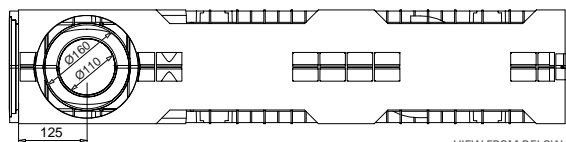


150

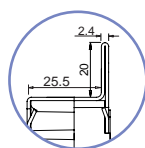


# CHANNELS

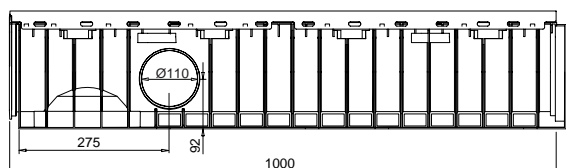
## SMART 150



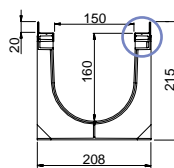
VIEW FROM BELOW



DETAIL SECTION



SIDE VIEW

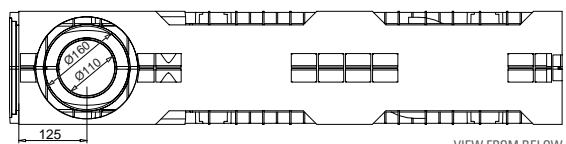


SECTION

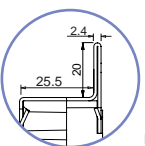


### SMART 150/160

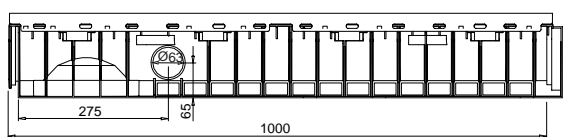
CODE	PRICE	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS L x l x h	INTERNAL DIMENSIONS L x l x h	WEIGHT	DRAINAGE SECTION	CAPACITY	PREINSTALLED DRAIN OUTLET
	€			mm	mm	kg	cm <sup>2</sup>	dm <sup>3</sup>	mm
701004		galvanised steel DX51D**	HD-PE	1000 x 208 x 215	1000 x 150 x 160	4,55	213,04	21,30	side bottom
701012		stainless steel AISI 304*							



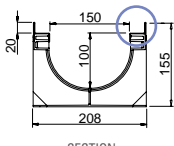
VIEW FROM BELOW



DETAIL SECTION



SIDE VIEW



SECTION



### SMART 150/100

CODE	PRICE	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS L x l x h	INTERNAL DIMENSIONS L x l x h	WEIGHT	DRAINAGE SECTION	CAPACITY	PREINSTALLED DRAIN OUTLET
	€			mm	mm	kg	cm <sup>2</sup>	dm <sup>3</sup>	mm
701005		galvanised steel DX51D**	HD-PE	1000 x 208 x 155	1000 x 150 x 100	4,00	127,32	12,73	side bottom
701013		stainless steel AISI 304*							

\* Classification according to American Standard ASTM.

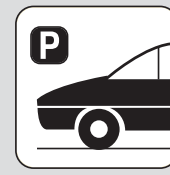
\*\* Classification according to Standard EN 10142 (issued in July 2002) and symbolic designation according to EN 10027-1 (-2) (issued in September 1993).

§ 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 Mufle's Technical Department.

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



# GRATINGS



B 125

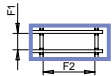
SMART 150

## APPLICATIONS OF GALVANISED STEEL

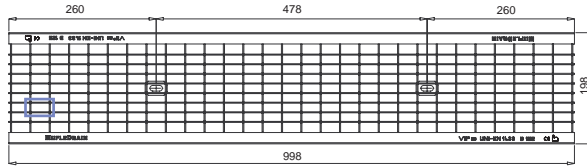
Pavements  
Lay-bys and private car parks

## APPLICATIONS OF STAINLESS STEEL

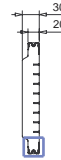
Pavements  
Lay-bys and private car parks  
Food factories  
Chemically aggressive environments



DETAIL OF HOOKING SYSTEM



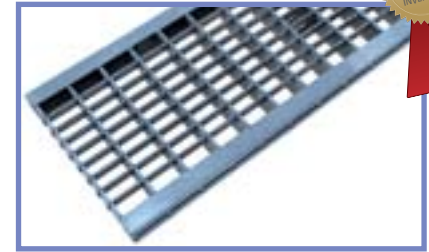
VIEW FROM ABOVE



SIDE VIEW



DETAIL OF UPRIGHT BEND



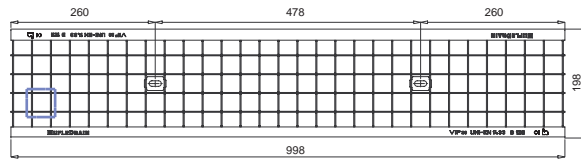
### MESH GRATING (11 x 33)



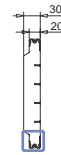
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-rod	no fixing
502130		hot dip galvanised steel DD11 (1.0332)**	998 x 198 x 20	5,00	13,08	15,2 x 32,2		up to Class C250 as per Standard EN 1433
502158		pickled stainless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



DETAIL OF SQUARE MESH



VIEW FROM ABOVE



SIDE VIEW



DETAIL OF UPRIGHT BEND



### MESH GRATING (33 x 33)



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-rod	no fixing
502131		hot dip galvanised steel DD11 (1.0332)**	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*						
502143		hot dip galvanised steel DD11 (1.0332)**	498 x 198 x 20	2,05	6,87			
502165		pickled stainless steel AISI 304*						

\* Classification according to American Standard ASTM.

\*\* Classification according to Standard EN 10111 (issued in March 2000) and symbolic designation according to EN 10027-1 (-2) (issued in September 1993).

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



# GRATINGS



B 125

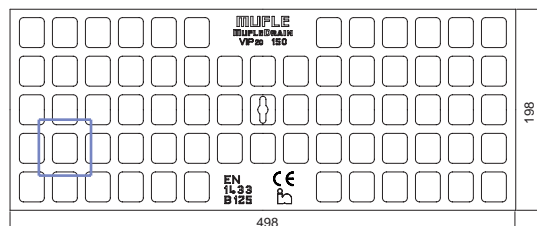
SMART 150

## APPLICATIONS OF DUCTILE IRON

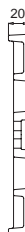
Pavements  
Lay-bys and private car parks



SLOT  
DETAIL



VIEW FROM ABOVE




SIDE  
VIEW



### MESH GRATING

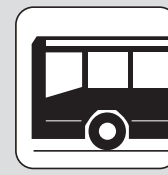


CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-rod	no fixing
502118		GJS 500/7* ductile iron water based paint coated	498 x 198 x 20	4,90	3,77	29,0 x 24,5		up to Class C250 as per Standard EN 1433

\* Classification according to Standard EN 1563 (issued in March 2004).  
N.B. Sizes and weights are subject to usual manufacturing tolerance values.



# GRATINGS



C 250

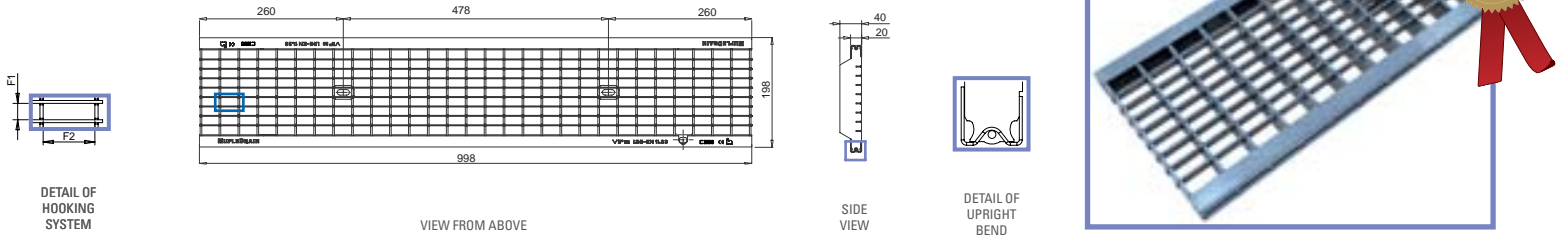
SMART 150

## APPLICATIONS OF GALVANISED STEEL

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

## APPLICATIONS OF STAINLESS STEEL

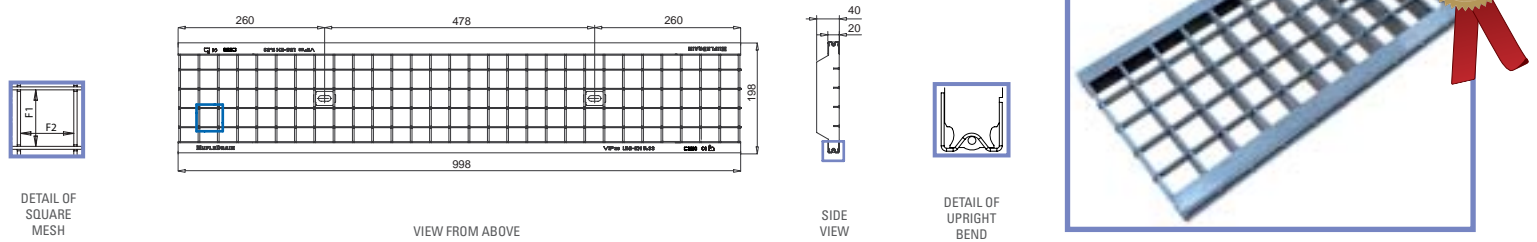
- Kerbs
- Historical town centres (slow traffic)
- Parking areas
- Parking decks
- Areas with low-load transit in food factories
- Areas with low-load transit in chemically aggressive environments



### MESH GRATING (11 x 33)



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-rod	no fixing
502154		hot dip galvanised steel DD11 (1.0332)**	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*						
502171		hot dip galvanised steel DD11 (1.0332)**	498 x 198 x 20	3,75	6,54			
502190		pickled stainless steel AISI 304*						



### MESH GRATING (33 x 33)



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-rod	no fixing
502153		hot dip galvanised steel DD11 (1.0332)**	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*						
502170		hot dip galvanised steel DD11 (1.0332)**	498 x 198 x 20	3,50	6,73			
502189		pickled stainless steel AISI 304*						

\* Classification according to American Standard ASTM.

\*\* Classification according to Standard EN 10111 (issued in March 2000) and symbolic designation according to EN 10027-1 (-2) (issued in September 1993).

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



# GRATINGS

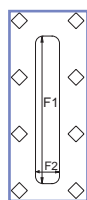


C 250

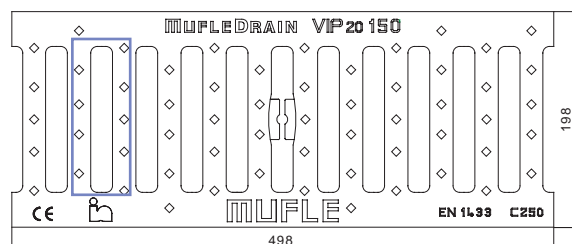
SMART 150

## 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



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-rod	no fixing
502120		GJS 500/7* 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

\* Classification according to Standard EN 1563 (issued in March 2004).  
N.B. Sizes and weights are subject to usual manufacturing tolerance values.



# GRATINGS

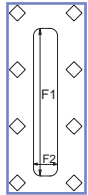


D 400

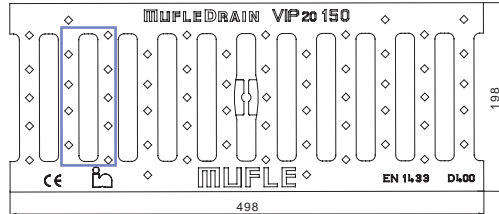
SMART 150

## 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



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-rod
502121		GJS 500/7* ductile iron water based paint coated	498 x 198 x 20	5,90	3,16	132,0 x 20,0	



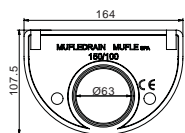
Class - D400 ductile iron gratings for SMART channels cannot be certified according to Standard EN 1433 because of the thickness of the edge subject to traffic and the contact surface, which on the contrary is suitable up to Class C250. Nevertheless the gratings passed the load tests specified for Class D400. We recommend using the combination "SMART channel + D400 - Class ductile iron grating" for transversal canalisation systems (road crossings) with low-speed vehicular traffic (max 15 km/h).

\* Classification according to Standard EN 1563 (issued in March 2004).  
N.B. Sizes and weights are subject to usual manufacturing tolerance values.

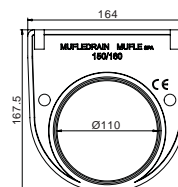


# ACCESSORIES

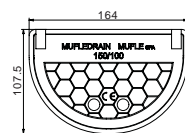
## SMART 150



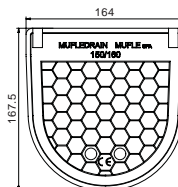
End-cap 150/100



End-cap 150/160



Closed end-cap with drain 150/100

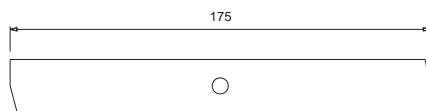


Closed end-cap with drain 150/160



### END CAPS

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



VIEW FROM ABOVE



SIDE VIEW



### KIT TIE-ROD + SCREWS

CODE	PRICE	MATERIAL	VALID FOR GRATINGS	SCREW	KIT FOR 1 ml
	€				
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

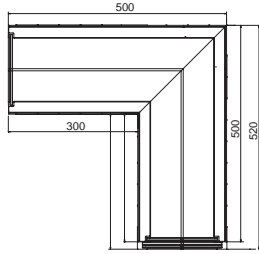
N.B. Sizes and weights are subject to usual manufacturing tolerance values.



# SPECIAL PIECES AND DRAIN BOX WITH SYPHON

SMART 150

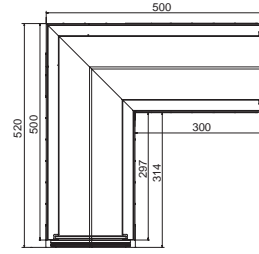
## LEFT CORNER



## SMART 150

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

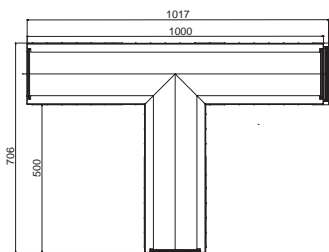
## RIGHT CORNER



## SMART 150

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

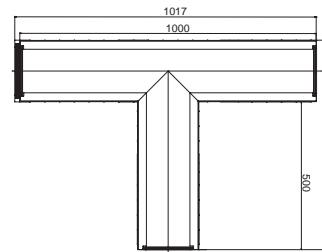
## LEFT TI



## SMART 150

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

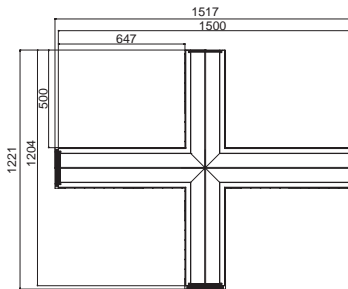
## RIGHT TI



## SMART 150

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

## CROSS

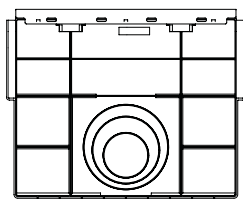


## SMART 150

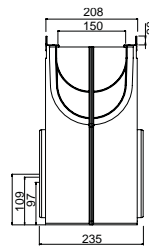
CODE	PRICE €	MODEL
701136		150/160
701137		150/100

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

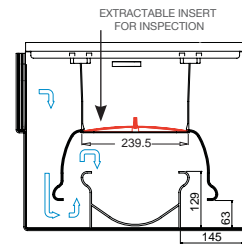
## DRAIN BOX WITH SYPHON



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**	HD-PE	542 x 208 x 427	500 x 100 x 400	185	116 - 109 - 97	3,70	2 x Ø 110; 2 x Ø 160; 2 x Ø 200
701020		stainless steel AISI 304*	HD-PE	542 x 208 x 427	500 x 100 x 400	185	116 - 109 - 97	3,70	2 x Ø 110; 2 x Ø 160; 2 x Ø 200

\* Classification according to American Standard ASTM.

\*\* Classification according to Standard EN 10142 (issued in July 2002) and symbolic designation according to EN 10027-1 (-2) (issued in September 1993).

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

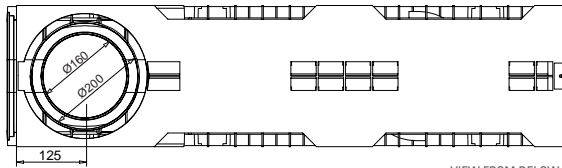


200

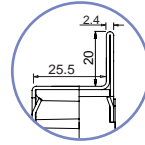


# CHANNELS

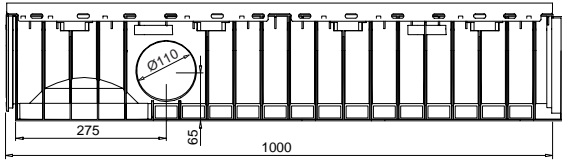
## SMART 200



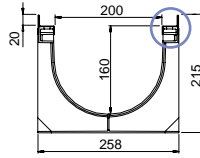
VIEW FROM BELOW



DETAIL SECTION



SIDE VIEW

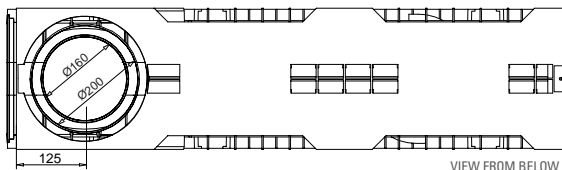


SECTION

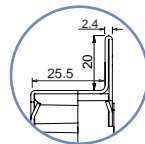


### SMART 200/160

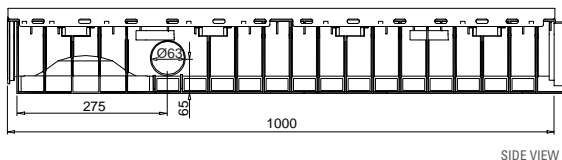
CODE	PRICE	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS L x l x h	INTERNAL DIMENSIONS L x l x h	WEIGHT	DRAINAGE SECTION	CAPACITY	PREINSTALLED DRAIN OUTLET
	€			mm	mm	kg	cm <sup>2</sup>	dm <sup>3</sup>	mm
701006		galvanised steel DX51D**	HD-PE	1000 x 258 x 215	1000 x 200 x 160	4,95	275,87	27,58	side bottom
701014		stainless steel AISI 304*							



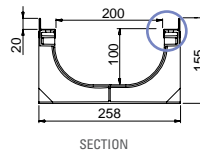
VIEW FROM BELOW



DETAIL SECTION



SIDE VIEW



SECTION



### SMART 200/100

CODE	PRICE	MATERIAL OF FRAME	MATERIAL OF CHANNEL	EXTERNAL DIMENSIONS L x l x h	INTERNAL DIMENSIONS L x l x h	WEIGHT	DRAINAGE SECTION	CAPACITY	PREINSTALLED DRAIN OUTLET
	€			mm	mm	kg	cm <sup>2</sup>	dm <sup>3</sup>	mm
701007		galvanised steel DX51D**	HD-PE	1000 x 258 x 155	1000 x 150 x 100	4,35	178,73	17,87	side bottom
701015		stainless steel AISI 304*							

\* Classification according to American Standard ASTM.

\*\* Classification according to Standard EN 10142 (issued in July 2002) and symbolic designation according to EN 10027-1 (-2) (issued in September 1993).

§ 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 Mufle's Technical Department.

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



# GRATINGS



B 125

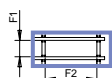
SMART 200

## APPLICATIONS OF GALVANISED STEEL

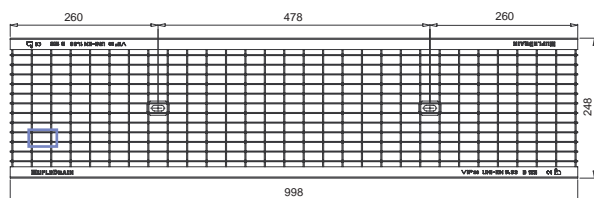
Pavements  
Lay-bys and private car parks

## APPLICATIONS OF STAINLESS STEEL

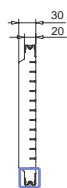
Pavements  
Lay-bys and private car parks  
Food factories  
Chemically aggressive environments



DETAIL OF HOOKING SYSTEM



VIEW FROM ABOVE



SIDE VIEW



DETAIL OF UPRIGHT BEND



PATENT PRODUCT FOR INDUSTRIAL INVENTION

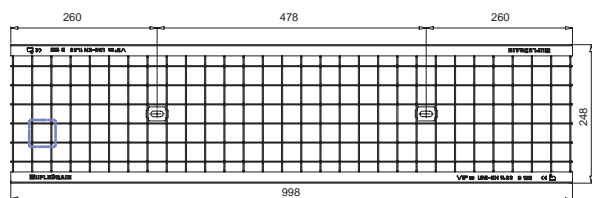
### MESH GRATING (11 x 33)



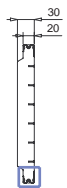
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-rod	no fixing
502134		hot dip galvanised steel DD11 (1.0332)**	998 x 248 x 20	6,20	16,98	15,2 x 32,2		up to Class C250 as per Standard EN 1433
502160		pickled stainless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



DETAIL OF SQUARE MESH



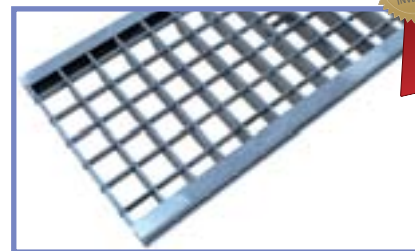
VIEW FROM ABOVE



SIDE VIEW



DETAIL OF UPRIGHT BEND



PATENT PRODUCT FOR INDUSTRIAL INVENTION

### MESH GRATING (33 x 33)



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-rod	no fixing
502135		hot dip galvanised steel DD11 (1.0332)**	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*						
502147		hot dip galvanised steel DD11 (1.0332)**	498 x 248 x 20	2,60	9,00			
502167		pickled stainless steel AISI 304*						

\* Classification according to American Standard ASTM.

\*\* Classification according to Standard EN 10111 (issued in March 2000) and symbolic designation according to EN 10027-1 (-2) (issued in September 1993).

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



# GRATINGS



B 125

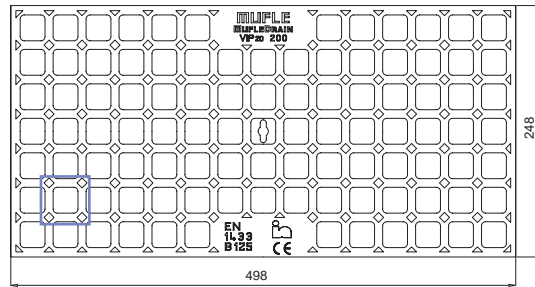
SMART 200

## APPLICATIONS OF DUCTILE IRON

Pavements  
Lay-bys and private car parks



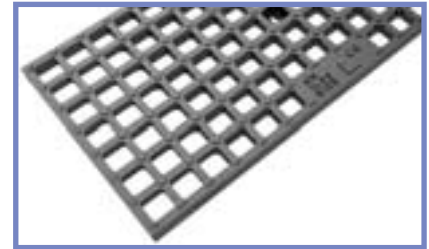
SLOT  
DETAIL

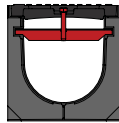


VIEW FROM ABOVE



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-rod	no fixing	
502122		GJS 500/7* ductile iron water based paint coated	498 x 248 x 20	7,30	6,12	25,5 x 24,5		up to Class C250 as per Standard EN 1433	

\* Classification according to Standard EN 1563 (issued in March 2004).  
N.B. Sizes and weights are subject to usual manufacturing tolerance values.



# GRATINGS



C 250

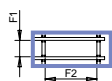
SMART 200

## APPLICATIONS OF GALVANISED STEEL

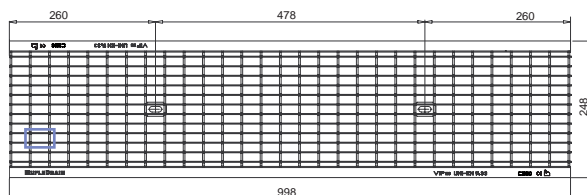
- Kerbs
- Historical town centres (slow traffic)
- Parking areas
- Parking decks

## APPLICATIONS OF STAINLESS STEEL

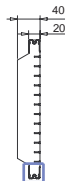
- Kerbs
- Historical town centres (slow traffic)
- Parking areas
- Parking decks
- Areas with low-load transit in food factories
- Areas with low-load transit in chemically aggressive environments



DETAIL OF HOOKING SYSTEM



VIEW FROM ABOVE



SIDE VIEW



DETAIL OF UPRIGHT BEND



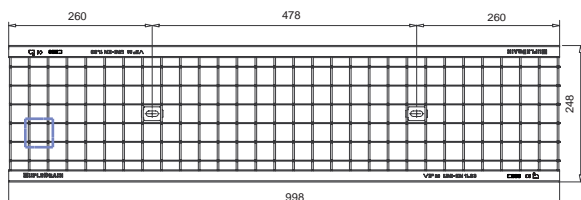
### MESH GRATING (11 x 33)



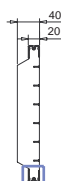
CODE	PRICE €	MATERIAL	DIMENSIONS L x l x h mm	WEIGHT kg	DRAINAGE SURFACE dm <sup>2</sup>	OPENINGS F1 x F2 mm	FIXING SYSTEM	
							tie-rod	no fixing
502156		hot dip galvanised steel DD11 (1.0332)**	998 x 248 x 20	9,50	16,98	31,0 x 15,0		up to Class C250 as per Standard EN 1433
502179		pickled stainless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



DETAIL OF SQUARE MESH



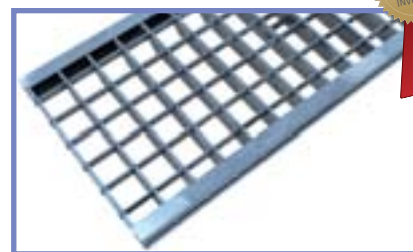
VIEW FROM ABOVE



SIDE VIEW



DETAIL OF UPRIGHT BEND



### MESH GRATING (33 x 33)



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-rod	no fixing
502155		hot dip galvanised steel DD11 (1.0332)**	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*						
502172		hot dip galvanised steel DD11 (1.0332)**	498 x 248 x 20	4,35	9,00			
502191		pickled stainless steel AISI 304*						

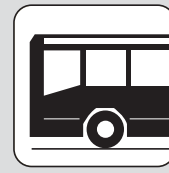
\* Classification according to American Standard ASTM.

\*\* Classification according to Standard EN 10111 (issued in March 2000) and symbolic designation according to EN 10027-1 (-2) (issued in September 1993).

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



# GRATINGS

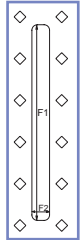


C 250

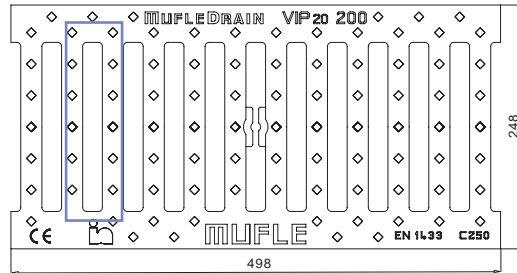
SMART 200

## 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-rod	no fixing
502124		GJS 500/7* 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

\* Classification according to Standard EN 1563 (issued in March 2004).  
N.B. Sizes and weights are subject to usual manufacturing tolerance values.



# GRATINGS

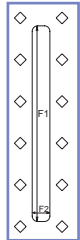


D 400

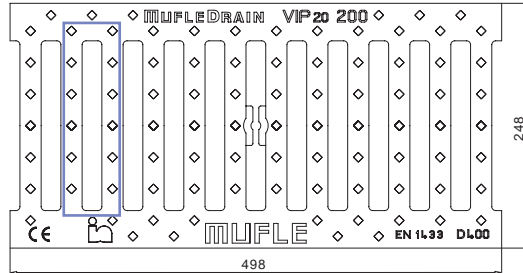
SMART 200

## 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



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-rod
502125		GJS 500/7* ductile iron water based paint coated	498 x 248 x 20	7,70	4,32	180,0 x 20,0	



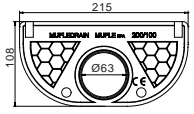
Class - D400 ductile iron gratings for SMART channels cannot be certified according to Standard EN 1433 because of the thickness of the edge subject to traffic and the contact surface, which on the contrary is suitable up to Class C250. Nevertheless the gratings passed the load tests specified for Class D400. We recommend using the combination "SMART channel + D400 - Class ductile iron grating" for transversal canalisation systems (road crossings) with low-speed vehicular traffic (max 15 km/h).

\* Classification according to Standard EN 1563 (issued in March 2004).  
N.B. Sizes and weights are subject to usual manufacturing tolerance values.

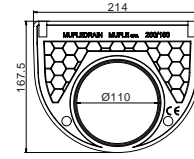


# ACCESSORIES

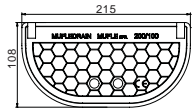
SMART 200



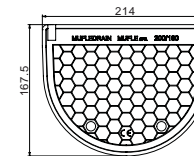
End-cap 200/100



End-cap 200/160



Closed end-cap with drain 200/100

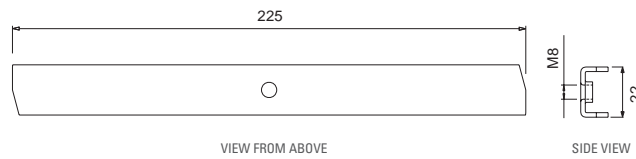


Closed end-cap with drain 200/160



## END CAPS

CODE	PRICE	TYPE	MATERIAL	VALID FOR CHANNELS	PREINSTALLED DRAINS
	€				mm
700506		end-cap with drain	HD-PE	200/100	1 x Ø 63
700514		closed end-cap	HD-PE	200/100	-
700507		end-cap with drain	HD-PE	200/160	1 x Ø 110
700515		closed end-cap	HD-PE	200/160	-



## KIT TIE-ROD+SCREWS

CODE	PRICE	MATERIAL	VALID FOR GRATINGS	SCREW	KIT FOR 1 ml
	€				
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

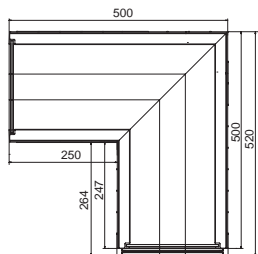
N.B. Sizes and weights are subject to usual manufacturing tolerance values.



# SPECIAL PIECES AND DRAIN BOX WITH SYPHON

SMART 200

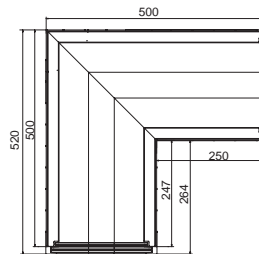
## LEFT CORNER



## SMART 200

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

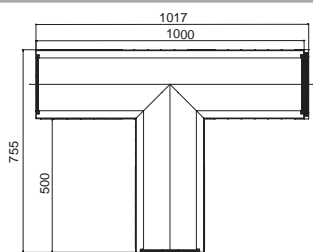
## RIGHT CORNER



## SMART 200

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

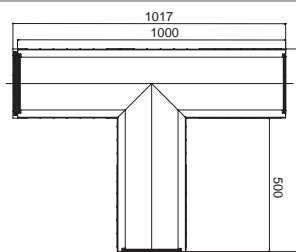
## LEFT TI



## SMART 200

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

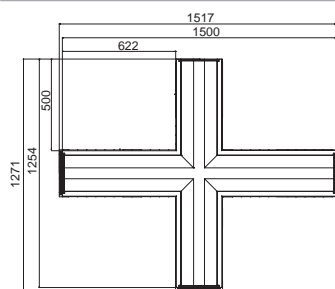
## RIGHT TI



## SMART 200

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

## CROSS

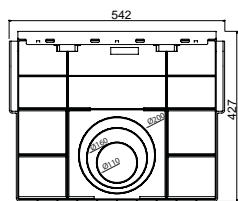


## SMART 200

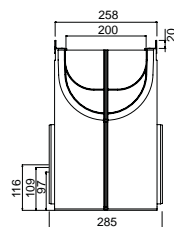
CODE	PRICE €	MODEL
701138		200/160
701139		200/100

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

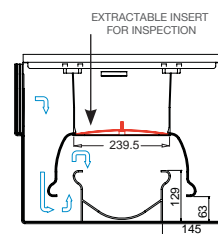
## DRAIN BOX WITH SYPHON



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**	HD-PE	542 x 258 x 427	500 x 200 x 400	285	116 - 109 - 97	3,85	2 x Ø 110; 2 x Ø 160; 2 x Ø 200
701021		stainless steel AISI 304*	HD-PE	542 x 258 x 427	500 x 200 x 400	285	116 - 109 - 97	3,85	2 x Ø 110; 2 x Ø 160; 2 x Ø 200

\* Classification according to American Standard ASTM.

\*\* Classification according to Standard EN 10142 (issued in July 2002) and symbolic designation according to EN 10027-1 (-2) (issued in September 1993).

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