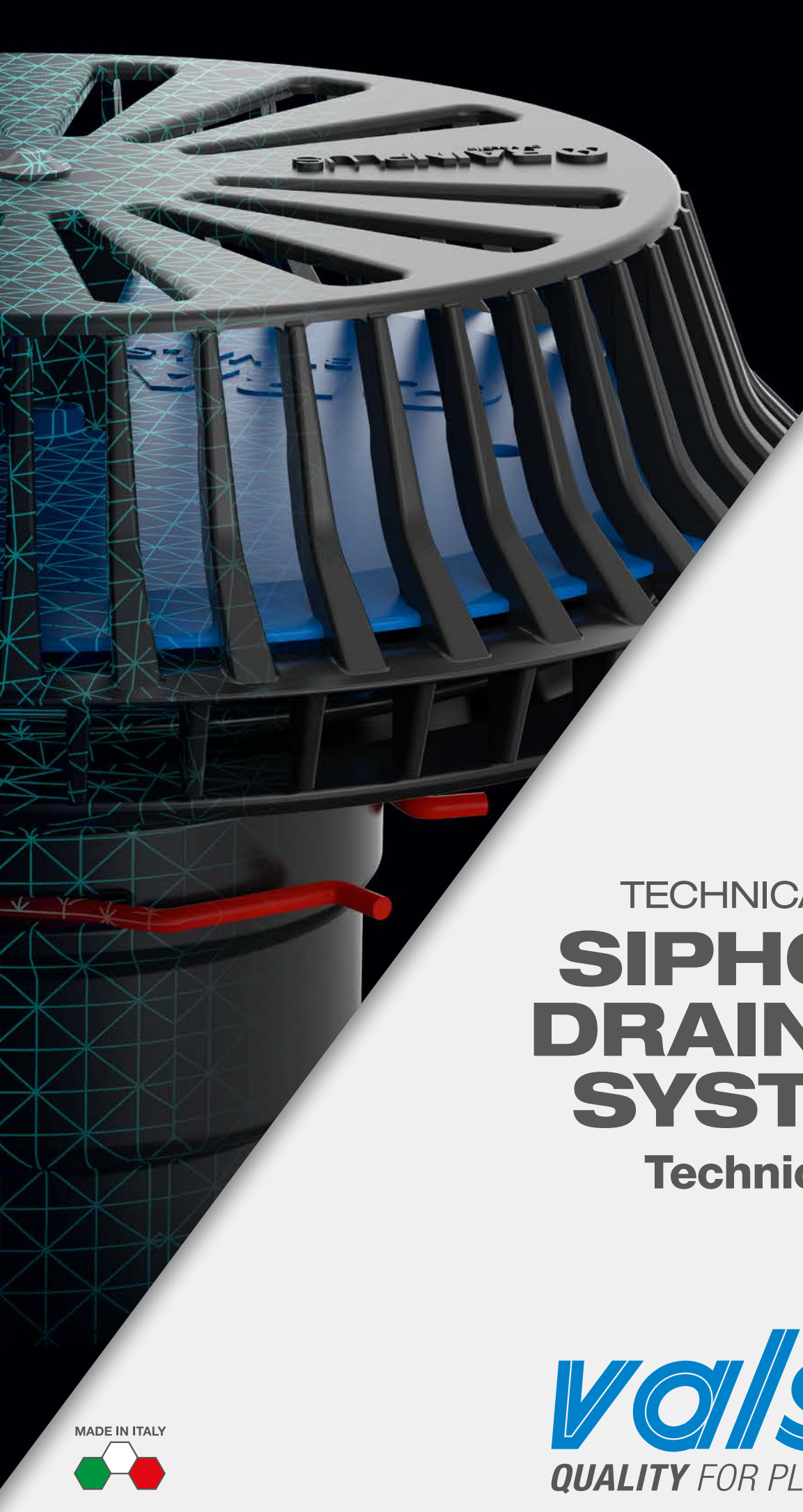


8

TECHNICAL MANUAL

SIPHONIC DRAINAGE SYSTEMS

Technical sheets

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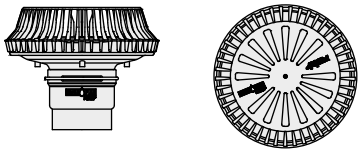
8

TECHNICAL SHEETS

8 TECHNICAL SHEETS

8.1 Rainplus® 110 outlet

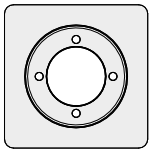
Table 8.1 Rainplus® 110 outlet.



Property	Value
Item code	VS0420001
Connection type	Vertical
Connection outer diameter	110 mm
Outlet body diameter	286 mm
Maximum flow rate	65 l/s
Leaf guard material	PP (polypropylene) + additive for UV resistance
Maximum load on leaf guard	200 kg
Anti-vortex plate material	Aluminium painted with blue epoxy paint
Flange material	Aluminium painted with black epoxy paint
Outlet body material	Aluminium painted with black epoxy paint
Connection socket material	HDPE (high density polyethylene)
Safety clip material	Stainless steel painted with red epoxy paint
O-ring material	EPDM (2 O-rings)
Material of outlet fastening screws	Stainless steel AISI 304
Protection cap material	Yellow PP (polypropylene)
Standards	ASME A112.6.9 DIN EN 1253

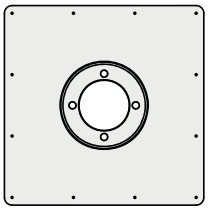
8.1.1 Optional accessories

Table 8.2 Plate for connection with metal gutters - Rainplus® 110.



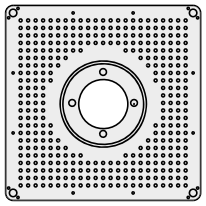
Property	Value
Item code	VS0420151
Material	Stainless steel AISI 304
Dimensions	320x320 mm
Thickness	1 mm
Material of gaskets	EPDM (2 gaskets)

Table 8.3 Plate for connection with waterproofing membranes - Rainplus® 110.



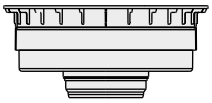
Property	Value
Item code	VS0420150
Material	Galvanised steel
Dimensions	520x520 mm
Thickness	1 mm
Material of gaskets	EPDM (2 gaskets)

Table 8.4 Pre-drilled plate for connection with waterproofing membranes - Rainplus® 110.



Property	Value
Item code	VS0420158
Material	Galvanised steel
Dimensions	520x520 mm
Thickness	1 mm
Material of gaskets	EPDM (2 gaskets)

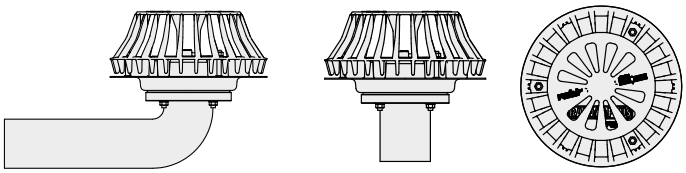
Table 8.5 Overflow Kit - Rainplus® 110.



Property	Value
Item code	VS0420059
Material	PP (polypropylene)
Possible set levels	6 positions (35 mm to 85 mm)
Clamp material	EPDM
O-ring material	EPDM
Material of screws and stud bolts	Stainless steel AISI 304

8.2 Rainplus® 56 - Ø 180 mm outlet

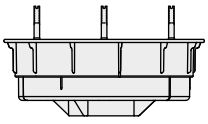
Table 8.6 Rainplus® 56 - Ø 180 mm outlet.



Property	Value
Item code / Connection type	VS0420005 / Vertical VS0420007 / Horizontal
Connection outer diameter	56 mm
Maximum flow rate	14 l/s
Leaf guard material	PP (polypropylene) + additive for UV resistance
Maximum load on leaf guard	200 kg
Anti-vortex plate material	Aluminium painted with blue epoxy paint
Outlet body material	Stainless steel AISI 304
Outlet body dimensions	Ø 180 mm
Outlet body thickness	1 mm
Connection socket material	HDPE (high density polyethylene)
Gasket material	EPDM
Material of outlet fastening screws and nuts	Stainless steel AISI 304
Protection cap material	Yellow PP (polypropylene)
Standards	ASME A112.6.9 DIN EN 1253

8.2.1 Optional accessories

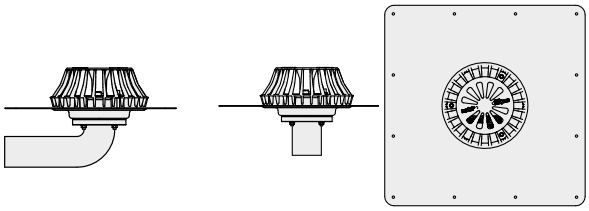
Table 8.7 Overflow Kit - Rainplus® 56.



Property	Value
Item code	VS0420057
Material	PP (polypropylene)
Possible set levels	3 positions (35 mm to 55 mm)
O-ring material	EPDM (2 O-rings)
Material of screws and stud bolts	Stainless steel AISI 304

8.3 Rainplus® 56 - 420x420 mm outlet

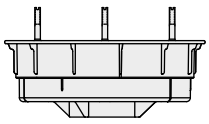
Table 8.8 Rainplus® 56 - 420x420 mm outlet.



Property	Value
Item code / Connection type	VS0420015 / Vertical VS0420017 / Horizontal
Connection outer diameter	56 mm
Maximum flow rate	14 l/s
Leaf guard material	PP (polypropylene) + additive for UV resistance
Maximum load on leaf guard	200 kg
Anti-vortex plate material	Aluminium painted with blue epoxy paint
Flange material	Stainless steel AISI 304
Outlet body material	Stainless steel AISI 304
Outlet body dimensions	420x420 mm
Outlet body thickness	1 mm
Connection socket material	HDPE (high density polyethylene)
Gasket material	EPDM
Material of outlet fastening screws and nuts	Stainless steel AISI 304
Protection cap material	Yellow PP (polypropylene)
Standards	ASME A112.6.9 DIN EN 1253

8.3.1 Optional accessories

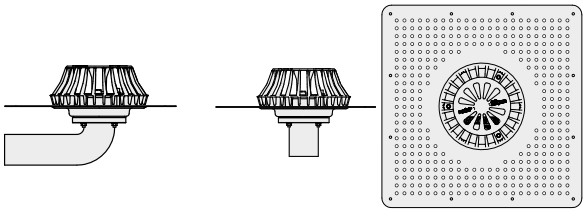
Table 8.9 Overflow Kit - Rainplus® 56.



Property	Value
Item code	VS0420057
Material	PP (polypropylene)
Possible set levels	3 positions (35 mm to 55 mm)
O-ring material	EPDM (2 O-rings)
Material of screws and stud bolts	Stainless steel AISI 304

8.4 Pre-drilled Rainplus® 56 - 420x420 mm outlet

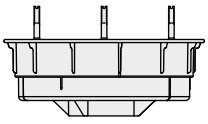
Table 8.10 Pre-drilled Rainplus® 56 - 420x420 mm outlet.



Property	Value
Item code / Connection type	VS0420016 / Vertical VS0420018 / Horizontal
Connection outer diameter	56 mm
Maximum flow rate	14 l/s
Leaf guard material	PP (polypropylene) + additive for UV resistance
Maximum load on leaf guard	200 kg
Anti-vortex plate material	Aluminium painted with blue epoxy paint
Flange material	Stainless steel AISI 304
Outlet body material	Stainless steel AISI 304
Outlet body dimensions	420x420 mm
Outlet body thickness	1 mm
Connection socket material	HDPE (high density polyethylene)
Gasket material	EPDM
Material of outlet fastening screws and nuts	Stainless steel AISI 304
Protection cap material	Yellow PP (polypropylene)
Standards	ASME A112.6.9 DIN EN 1253

8.4.1 Optional accessories

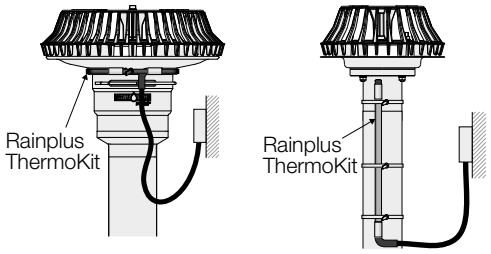
Table 8.11 Overflow Kit - Rainplus® 56.



Property	Value
Item code	VS0420057
Material	PP (polypropylene)
Possible set levels	3 positions (35 mm to 55 mm)
O-ring material	EPDM (2 O-rings)
Material of screws and stud bolts	Stainless steel AISI 304

8.5 ThermoKit

Table 8.12 Thermokit.



Property	Value
Item code	VS0420198
Thermal power	25 W/m a -10°C
Surface temperature	45°C a -20°C
Minimum ambient temperature	-40°C
Supply voltage	220 V
Protection degree	IP65

8.6 HDPE

Table 8.13 HDPE technical data.

Property	Value	Test method
Pipe material	High density polyethylene PE 80	-
Fitting material	High density polyethylene PE 80	-
Colour	Black	-
Dimensions	40÷315 mm	-
Application areas	Inside buildings, anchored to the building structure (application area B), or installed inside the building basement or inside the structure (application area D) and/ or for both solutions (application area BD).	-
Connections	Butt-welding, electro-fusion welding with electrofusion coupling, mechanical joint with flange.	-
Minimum operating temperature(1)	-40°C	-
Minimum pressure(2)	-800 mbar (SDR 26) -450 mbar (SDR 33)	-
Maximum pressure(2)	+5 bar (SDR 26) +4 bar (SDR 33)	-
Composition of the drainage system	pH 0÷14	-
Density at 23°C	> 945 kg/m^3	UNI EN ISO 1183-2
Elastic modulus	1000 MPa	ISO 527-2
Yield strength	22 MPa	ISO 527-2
Elongation at break	≥ 350%	ISO 625-3
Thermal stability (OIT) at 200°C	≥ 20 min	EN 728
Crystal melting temperature	≥ 130°C	ISO 11357-3
Coefficient of thermal linear expansion	0.2 mm/m·K	-
Carbon Black content	2.0÷2.5%	S 14476-1
UV resistance	Suitable for both outdoor storage and applications exposed to sunlight.	-
Halogen levels	Halogen-free	-
Fire performance	Class M4 Class B2 Euroclass E	NF P 92-505 DIN 4102-1 EN 13501-1
Reference construction standards	EN 1519-1 - AS/NZS 5065 - AS/NZS 4001 - SN S92010 SN S92012 - DIN 19537-2 - DIN 19535-10 - NBK 8 SI 4479-1 - SANS 8770	-
Packaging	Pipes in strapped wooden frame Fittings in cardboard boxes	-

(1) For connections made by both butt-welding and electro-fusion with electrofusion coupling, the minimum allowed temperature is -5°C.
(2) Operating conditions at 20°C.

8.6.1 Dimensions

The diameters, thicknesses and relative tolerances of the pipes are shown in the table below. These values comply with those defined in current standards.

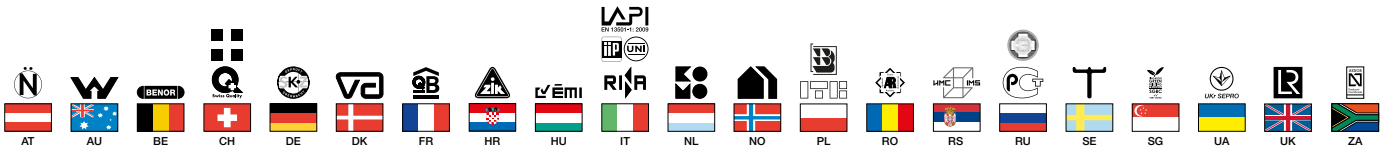
Table 8.14 Dimensional characteristics of HDPE pipes.

Nominal diameter DN [mm]	Outside diameter OD [mm]	Thickness s [mm]	Series S	SDR	Application area
40	40 $^{+0.4}_{0}$	3.0 $^{+0.5}_{0}$	12.5/16	26/33	BD
50	50 $^{+0.5}_{0}$	3.0 $^{+0.5}_{0}$	12.5/16	26/33	BD
56	56 $^{+0.5}_{0}$	3.0 $^{+0.5}_{0}$	12.5/16	26/33	BD
60	63 $^{+0.6}_{0}$	3.0 $^{+0.5}_{0}$	12.5/16	26/33	BD
70	75 $^{+0.7}_{0}$	3.0 $^{+0.5}_{0}$	12.5/16	26/33	BD
90	90 $^{+0.9}_{0}$	3.5 $^{+0.6}_{0}$	12.5	26	BD
100	110 $^{+1.0}_{0}$	4.2 $^{+0.7}_{0}$	12.5	26	BD
125	125 $^{+1.2}_{0}$	4.8 $^{+0.7}_{0}$	12.5	26	BD
150	160 $^{+1.5}_{0}$	6.2 $^{+0.9}_{0}$	12.5	26	BD
200	200 $^{+1.8}_{0}$	6.2 $^{+0.9}_{0}$	16	33	B
200	200 $^{+1.8}_{0}$	7.7 $^{+1.0}_{0}$	12.5	26	BD
250	250 $^{+2.3}_{0}$	7.7 $^{+1.0}_{0}$	16	33	B
250	250 $^{+2.3}_{0}$	9.6 $^{+1.2}_{0}$	12.5	26	BD
300	315 $^{+2.9}_{0}$	9.7 $^{+1.2}_{0}$	16	33	B
300	315 $^{+2.9}_{0}$	12.1 $^{+1.5}_{0}$	12.5	26	BD

Note: The indicated tolerances are specified in the reference standard EN 1519.

8.6.2 Certifications

The quality marks concerning the construction of Valsir high density polyethylene pipes and fittings are as follows:



8.6.3 Marking

Figure 8.1 Pipe marking.

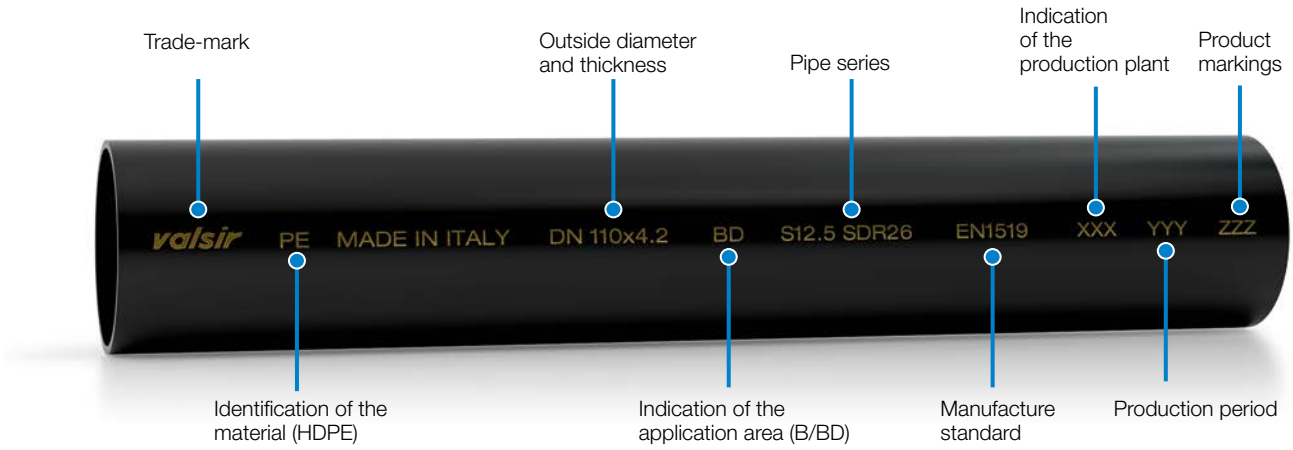
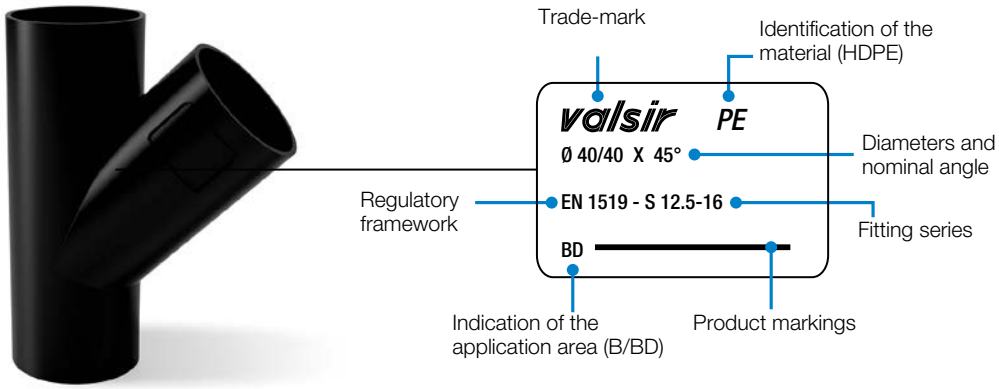
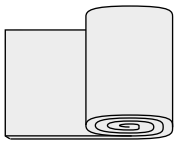


Figure 8.2 Fitting marking.



8.7 Thermoacoustic insulation

Table 8.15 Thermoacoustic insulation technical data.



Property	Value	Test method
Item code	VS0399252	-
Total thickness	14 mm	-
Polyurethane thickness	12 mm	-
Rubber thickness	2 mm	-
Polyurethane density	30 kg/m^3	UNI 6394 ISO 1855 DIN 53420
Rubber surface weight	4 kg/m^2	-
Rubber hardness	65±5 SHORE A	-
Polyurethane elongation at break	200%	DIN 53571
Rubber elongation at break	400%	DIN 53571
Thermal conductivity	0.035 W/ m·K	ISO 2581
Self-extinguishing capacity	HF1 D_L - s2, d0	UL 94 EN 13501-1
Sound reduction index (Rw)	27 dB	ISO 717-1
Noise classification	A2	ISO 15665
Operating temperature range	-70°C ÷ +110°C	-
Maximum temperature (short periods)	140°C	-
Roll dimensions	2x1 m	-
Type of packaging	Cardboard box	-

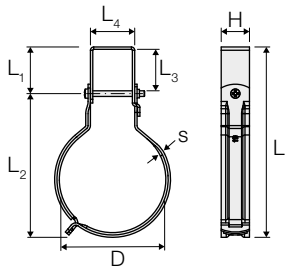
8.8 Brackets

8.8.1 Rainplus-S clips

Table 8.16 Rainplus-S clips technical data.

Property	Value	Test method
Clip material	Steel for cold-molding DX51D	EN 10346
Screw material	Steel Class 4.8	EN 898-1:2009
Galvanization	Cold electro-galvanization 6÷9 µm	UNI ISO 2081:2009

Table 8.17 Dimensional data of Rainplus-S clips.



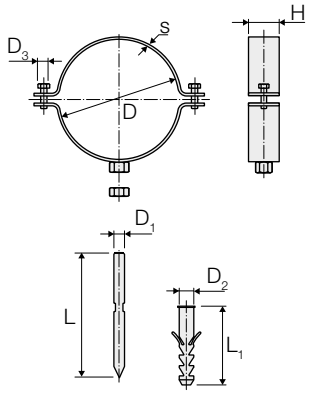
D	L	L_1	L_2	L_3	L_4	H	s	kg
40	137	50	87	44	47	30	2.5	0.219
50	142	50	92	44	47	30	2.5	0.240
56	148	50	98	44	47	30	2.5	0.250
63	155	50	105	44	47	30	2.5	0.258
75	167	50	118	44	47	30	2.5	0.290
90	182	50	133	44	47	30	2.5	0.306
110	202	50	153	44	47	30	2.5	0.338
125	217	50	168	44	47	30	2.5	0.367
160	252	50	203	44	47	30	2.5	0.426
200	292	50	243	44	47	30	3	0.496
250	340	52	288	46	47	30	3	0.690
315	405	52	353	46	47	30	3	0.821

8.8.2 M10, G1/2” and G1” clips

Table 8.18 Technical data of M10, G1/2” and G1” clips.

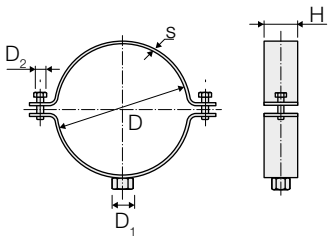
Property	Value	Test method
Clip material	Steel for cold-molding DD11	EN 10111
Nut material	Steel Class 8	EN 898-2:2012
Screw material	Steel Class 4.8	EN 898-1:2009
Galvanization	Cold electro-galvanization 6÷9 µm	UNI ISO 2081:2009

Table 8.19 Dimensional data of M10 clips with expansion dowel.



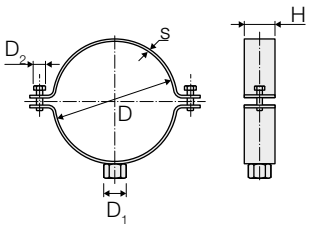
D	H	D_1xL	D_2xL_1	D_3	s	kg
40	30	M10x120	12x60	M6	2.5	0.216
50	30	M10x120	12x60	M6	2.5	0.234
56	30	M10x120	12x60	M6	2.5	0.242
63	30	M10x120	12x60	M6	2.5	0.256
75	30	M10x120	12x60	M6	2.5	0.276
90	30	M10x120	12x60	M6	2.5	0.305
110	30	M10x120	12x60	M6	2.5	0.339
125	30	M10x120	12x60	M6	2.5	0.370
160	30	M10x120	12x60	M6	2.5	0.423

Table 8.20 Dimensional data of M10 clips.



D	D_1	D_2	H	s	kg
40	M10	M6	30	2.5	0.158
50	M10	M6	30	2.5	0.177
56	M10	M6	30	2.5	0.184
63	M10	M6	30	2.5	0.199
75	M10	M6	30	2.5	0.220
90	M10	M6	30	2.5	0.250
110	M10	M6	30	2.5	0.286
125	M10	M6	30	2.5	0.309
160	M10	M6	30	2.5	0.376

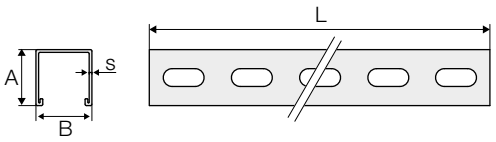
Table 8.21 Dimensional data of G1/2” and G1” clips.



D	D_1	D_2	H	s	kg
40	G1/2”	M6	30	2.5	0.176
50	G1/2”	M6	30	2.5	0.194
56	G1/2”	M6	30	2.5	0.208
63	G1/2”	M6	30	2.5	0.215
75	G1/2”	M6	30	2.5	0.240
90	G1/2”	M6	30	2.5	0.268
110	G1/2”	M6	30	2.5	0.308
125	G1/2”	M6	30	2.5	0.329
160	G1/2”	M6	30	2.5	0.394
200	G1”	M8	40	4	0.651
250	G1”	M8	40	4	1.270
315	G1”	M8	40	4	1.564

8.8.3 Support bar

Table 8.22 Support bar technical data.



Property	Value	Test method
Item code	VS0420180	-
Support bar material	Steel for cold-molding DD11	EN 10111
Galvanization	Cold electro-galvanization 6÷9 µm	UNI ISO 2081:2009
Dimensions A x B	41x41 mm	-
Length L	5 m	-
Thickness s	2 mm	-

WASTE SYSTEMS

SUPPLY SYSTEMS

GAS SYSTEMS

FLUSHING SYSTEMS

BATHROOM SYSTEMS

TRAPS

RADIANT SYSTEMS

DRAINAGE SYSTEMS

HRV SYSTEM

ACADEMY

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