






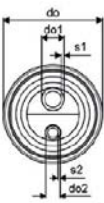


<p>1</p>	<p>Unique identification code of the product-type</p>	<p>FLEXIBLE, PRE-INSULATED PIPE SYSTEM ECOFLEX THERMO VIP and ECOFLEX AQUA VIP WITH PLASTIC MEDIUM PIPES FROM PE-X (CROSS-LINKED POLYETHYLENE), 6 + 10 BAR NOMINAL PRESSURE, AND MECHANICAL CONNECTION FITTINGS WIPEX and Quick & Easy.</p> <p>Item number / Nominal outer diameter / wall thickness of the medium pipe / Nominal diameter of jacket pipe:</p> <p><u>Uponor Ecoflex Thermo VIP Single:</u></p>   <table border="1" data-bbox="853 593 1220 862"> <thead> <tr> <th>Item no.</th> <th>Dimension</th> <th>do mm</th> <th>do1 mm</th> <th>s1 mm</th> </tr> </thead> <tbody> <tr> <td>1095714</td> <td>40X3,7/140</td> <td>140</td> <td>40</td> <td>3,7</td> </tr> <tr> <td>1095715</td> <td>50X4,6/140</td> <td>140</td> <td>50</td> <td>4,6</td> </tr> <tr> <td>1095716</td> <td>63X5,8/140</td> <td>140</td> <td>63</td> <td>5,8</td> </tr> <tr> <td>1095717</td> <td>75X6,8/140</td> <td>140</td> <td>75</td> <td>6,8</td> </tr> <tr> <td>1095718</td> <td>90X8,2/175</td> <td>175</td> <td>90</td> <td>8,2</td> </tr> <tr> <td>1095719</td> <td>110X10,0/175</td> <td>175</td> <td>110</td> <td>10</td> </tr> <tr> <td>1095720</td> <td>125X11,4/200</td> <td>200</td> <td>125</td> <td>11,4</td> </tr> </tbody> </table> <p><u>Uponor Ecoflex Thermo VIP Twin:</u></p>   <table border="1" data-bbox="845 907 1236 1131"> <thead> <tr> <th>Item no.</th> <th>Dimension</th> <th>do mm</th> <th>do1 mm</th> <th>do2 mm</th> <th>s1 mm</th> <th>s2 mm</th> </tr> </thead> <tbody> <tr> <td>1118580</td> <td>2x25x2,3/140</td> <td>140</td> <td>25</td> <td>25</td> <td>2,3</td> <td>2,3</td> </tr> <tr> <td>1118581</td> <td>2x32x2,9/140</td> <td>140</td> <td>32</td> <td>32</td> <td>2,9</td> <td>2,9</td> </tr> <tr> <td>1118582</td> <td>2x40x3,7/175</td> <td>175</td> <td>40</td> <td>40</td> <td>3,7</td> <td>3,7</td> </tr> <tr> <td>1118583</td> <td>2x50x4,6/175</td> <td>175</td> <td>50</td> <td>50</td> <td>4,6</td> <td>4,6</td> </tr> <tr> <td>1118584</td> <td>2x63x5,8/200</td> <td>200</td> <td>63</td> <td>63</td> <td>5,8</td> <td>5,8</td> </tr> <tr> <td>1118585</td> <td>2x75x6,8/250</td> <td>250</td> <td>75</td> <td>75</td> <td>6,8</td> <td>6,8</td> </tr> </tbody> </table> <p><u>Uponor Ecoflex Aqua VIP Single:</u></p>   <table border="1" data-bbox="869 1288 1252 1534"> <thead> <tr> <th>Item no.</th> <th>Dimension</th> <th>do mm</th> <th>do1 mm</th> <th>s1 mm</th> </tr> </thead> <tbody> <tr> <td>1119047</td> <td>40x5,5/140</td> <td>140</td> <td>40</td> <td>5,5</td> </tr> <tr> <td>1119048</td> <td>50x6,9/140</td> <td>140</td> <td>50</td> <td>6,9</td> </tr> <tr> <td>1119049</td> <td>63x8,6/140</td> <td>140</td> <td>63</td> <td>8,6</td> </tr> <tr> <td>1119050</td> <td>75x10,3/140</td> <td>140</td> <td>75</td> <td>10,3</td> </tr> <tr> <td>1119051</td> <td>90x12,3/175</td> <td>175</td> <td>90</td> <td>12,3</td> </tr> <tr> <td>1119052</td> <td>110x15,1/175</td> <td>175</td> <td>110</td> <td>15,1</td> </tr> </tbody> </table> <p><u>Uponor Ecoflex Aqua VIP Twin:</u></p>   <table border="1" data-bbox="845 1680 1260 1836"> <thead> <tr> <th>Item no.</th> <th>Dimension</th> <th>do mm</th> <th>do1 mm</th> <th>do2 mm</th> <th>s1 mm</th> <th>s2 mm</th> </tr> </thead> <tbody> <tr> <td>1119053</td> <td>25x3,5-20x2,8/140</td> <td>140</td> <td>25</td> <td>20</td> <td>4,4</td> <td>2,8</td> </tr> <tr> <td>1119054</td> <td>32x4,4-20x2,8/140</td> <td>140</td> <td>32</td> <td>20</td> <td>4,4</td> <td>2,8</td> </tr> <tr> <td>1119055</td> <td>40x5,5-25x3,5/140</td> <td>140</td> <td>40</td> <td>25</td> <td>5,5</td> <td>3,5</td> </tr> <tr> <td>1119056</td> <td>50x6,9-32x4,4/175</td> <td>175</td> <td>50</td> <td>32</td> <td>6,9</td> <td>4,4</td> </tr> </tbody> </table>	Item no.	Dimension	do mm	do1 mm	s1 mm	1095714	40X3,7/140	140	40	3,7	1095715	50X4,6/140	140	50	4,6	1095716	63X5,8/140	140	63	5,8	1095717	75X6,8/140	140	75	6,8	1095718	90X8,2/175	175	90	8,2	1095719	110X10,0/175	175	110	10	1095720	125X11,4/200	200	125	11,4	Item no.	Dimension	do mm	do1 mm	do2 mm	s1 mm	s2 mm	1118580	2x25x2,3/140	140	25	25	2,3	2,3	1118581	2x32x2,9/140	140	32	32	2,9	2,9	1118582	2x40x3,7/175	175	40	40	3,7	3,7	1118583	2x50x4,6/175	175	50	50	4,6	4,6	1118584	2x63x5,8/200	200	63	63	5,8	5,8	1118585	2x75x6,8/250	250	75	75	6,8	6,8	Item no.	Dimension	do mm	do1 mm	s1 mm	1119047	40x5,5/140	140	40	5,5	1119048	50x6,9/140	140	50	6,9	1119049	63x8,6/140	140	63	8,6	1119050	75x10,3/140	140	75	10,3	1119051	90x12,3/175	175	90	12,3	1119052	110x15,1/175	175	110	15,1	Item no.	Dimension	do mm	do1 mm	do2 mm	s1 mm	s2 mm	1119053	25x3,5-20x2,8/140	140	25	20	4,4	2,8	1119054	32x4,4-20x2,8/140	140	32	20	4,4	2,8	1119055	40x5,5-25x3,5/140	140	40	25	5,5	3,5	1119056	50x6,9-32x4,4/175	175	50	32	6,9	4,4
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Declaration of Performance

Uponor DoP ECOFLEX THERMO VIP SYS EN 1120772_20210310



2	Intended use or uses of the construction product, in accordance with the applicable technical specification, as foreseen by the manufacturer :	The european standard provides classification, general requirements and test methods for flexible, pre-insulated directly buried district heating pipe systems. PRE-INSULATED FLEXIBLE PIPE SYSTEMS – PART 1 and 3: CLASSIFICATION, GENERAL REQUIREMENTS AND TEST METHODS, ACCORDING TO DIN EN 15632-1+3:2009+A1:2015		
3	Name, registered trade name or registered trade mark and contact address of the manufacturer :	Uponor GmbH, Franklinstr. 61-63 60486 Frankfurt, Germany		
4	System or systems of assessment and verification of constancy of performance of the construction product:	SYSTEM 2		
5	Conformity to standards:	DIN EN 15632-1:2009+A1:2015 DIN EN 15632-3:2010+A1:2015		
6	Approvals:	CSTB (ECOFLEX THERMO VIP)		
7	Declared performance			
	Characteristics	performance	Test Method	Requirement
	Flexibility	< 10% ovality, no cracks in medium pipe, PE insulation material and jacket pipe	DIN EN 15632-1+ A1, τ. 6.2	DIN EN 15632-1+ A1, 5.2. - Without breaking of the medium pipe and the jacket pipe; - Bending of the jacket pipe ≤ 30%; - Width of cracks in the insulation material ≤ 5 mm.
	Resistance to external influences: - Pipe ring stiffness	> 4 kN/m ²	EN ISO 9969	Declared level ≥ 4 kN/m ² DIN EN 15632-1+ A1, 5.3
- Ring stiffness / creep ratio	> 0,8	EN ISO 9967	Declared level ≥ 0,8 DIN EN 15632-1+ A1, 5.3	

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Characteristics	performance	Test Method	Requirement
Insulation layer of cross-linked PE-foam :			
Thermal conductivity	λ 10°C =0,037 W/m λ 50°C =0,041 W/m	DIN EN 15632-1+ A1, Annex A + B	DIN EN 15632-1+ A1, 5.1.
Density	30 kg/m ³ Tolerance +-3kg/m ³	Product- specification	Product specification
Tensile strength: - parallel direction - vertical direction	23 N/cm ³ 28 N/cm ³	ISO1798	ISO1798
Elongation: - parallel direction - vertical direction	103% 101%	ISO 1798	ISO 1798
Compressive strength, deflection	25% 45kPa, 50% 105kPa	ISO 3386	ISO 3386
Creeping resistance	< 10 %	EN 1606 DIN EN 15632-1+ A1, 6.3.	Declared level ≤ 10 % DIN EN 15632-1+ A1, 5.4.1.
Water absorption at elevated temperatures	< 1 % at 80°C	EN 489	Declared level 100 °C - ≤ 10 % 80 °C - ≤ 1 % DIN EN 15632-1+ A1, 5.4.2, table 5
Operating temperature	-50°C to + 95°C	Product- specification	Productspecification
Fire behaviour:	Class F	EN 13501-1	EN 13501-1

Declaration of Performance

Uponor DoP ECOFLEX THERMO VIP SYS EN 1120772_20210310



Characteristics	performance	Test Method	Requirement
Insulation layer of vacuum insulation panel (VIP) :			
Thermal conductivity Thermal conductivity for cut panel	λ 50°C = 0,0042 W/m λ 50°C = 0,021 W/m	DIN EN 12667	DIN EN 12667
Density	195 +/-35 kg/m ³	Product-specification	Productspecification
Compressive strength:	10% 120kPa,	DIN EN 826	DIN EN 826
Compressive creep:	< 10 %	DIN EN 1606	DIN EN 1606 Dimension stability ≤ 10 % (1000 h, 70 °C), ≤ 10 % (300 h, 95 °C)
Water absorption at elevated temperatures:	<10,0 vol-% (100 °C, for flat VIP)	EN 489 option A	DIN EN 15632-1 Declared level 100 °C - ≤ 10 % 80 °C - ≤ 1 %
Operating temperature:	-70°C to + 90°C continuously; briefly max. 100 °C	Product-specification	Productspecification
Fire behaviour:	Film - flammable, Class B3, Powder - not flammable, Class A2	DIN 4102-1	DIN 4102-1

Declaration of Performance

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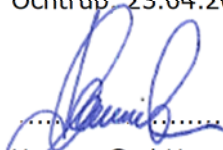
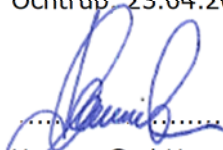
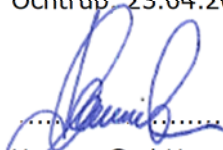


Characteristics	performance	Test Method	Requirement
Jacket pipe			
- <i>UV resistance</i>	> 2%	ISO 6964; EN ISO 16871	Declared level ≥ 2 % DIN EN 15632-1+ A1, 5.5.1
- <i>Thermal resistance</i>	at 210°C > 20 minutes	EN 728	Declared level > 20 min at 210 °C DIN EN 15632-1+ A1, 5.5.2
- <i>Stress crack resistance</i>	according to PE-HD material requirements (100 hours/4 MPa/ 80 °C)	ISO 16770 EN 60811-4-1:2004, Proc. B	DIN EN 15632-1+ A1, 5.5.3; <u>PE-HD materials:</u> 100 hours/4 MPa/ 80 °C <u>PE-LD и PE-LLD material:</u> ≤ F20
Service pipe			
Oxygen tightness	≤ 1,8 mg/m ² d	ISO 17455	Declared level ≤1,8 mg/m ² d DIN EN 15632-2+ A1, 5.2.2
Quality	Cross-linked polyethylene (PE-X) passed required tests	EN ISO 15875, additional 15 000 hours at 110°C	DIN EN 15632-3, 4.4.1
Sealing in a linear direction	Pipe ends sealed with rubber end caps are tight up to 0,3bar at 30°C.	EN 489	Water tight / Not tight DIN EN 15632-3+ A1, 4.5
Water vapour permeability	Till now, the water vapour permeability was not recognized during operation time.	EN 15632-3+ A1, 4.6	Water tight / Not tight DIN EN 15632-3+ A1, 4.6.

Declaration of Performance

Uponor DoP ECOFLEX THERMO VIP SYS EN 1120772_20210310



8	<p>Statement:</p> <p>The performance of the product identified in point 1 is in conformity with the declared performance in point 7. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 3.</p> <p>Signed for and on behalf of the manufacturer by:</p>						
	<table><tr><td data-bbox="245 539 512 568">Frankfurt, 23.04.2021</td><td data-bbox="948 539 1198 568">Ochtrup, 23.04.2021</td></tr><tr><td data-bbox="245 600 679 680"></td><td data-bbox="938 555 1362 703"></td></tr><tr><td data-bbox="261 696 608 815">Uponor GmbH Thomas Raadts VP Product Marketing BLD-E</td><td data-bbox="948 696 1390 860">Uponor GmbH Jürgen Hanneken Manager Quality, Health, Safety and Environment, BLD-E</td></tr></table>	Frankfurt, 23.04.2021	Ochtrup, 23.04.2021			Uponor GmbH Thomas Raadts VP Product Marketing BLD-E	Uponor GmbH Jürgen Hanneken Manager Quality, Health, Safety and Environment, BLD-E
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