

General Specification for
Uponor LHD (Local Heat Distribution) Systems
To be read in conjunction with the preliminary and general conditions

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Approvals



Standards

All Uponor pre-insulated systems have been manufactured and tested to BS EN 15632

This standard details the pipe and insulation material properties and the methods of test required to demonstrate fitness for purpose of the product for its intended use and intended operational lifetime. BS EN 15632 has been prepared in three parts:

- BS EN 15632 – 1: Classification, general requirements and test methods
- BS EN 15632 – 2: Bonded plastic service pipes – requirements and test methods
- BS EN 15632 – 3: Non-bonded system with plastic service pipes; requirements and test methods

Operational life

All Uponor pipework adheres to (and surpasses) the requirement of BS EN 15632 which stipulates all polymer pipe system must operate with a continuous operational temperature of 80°C for 30 years (for heating services).

Fire Classification

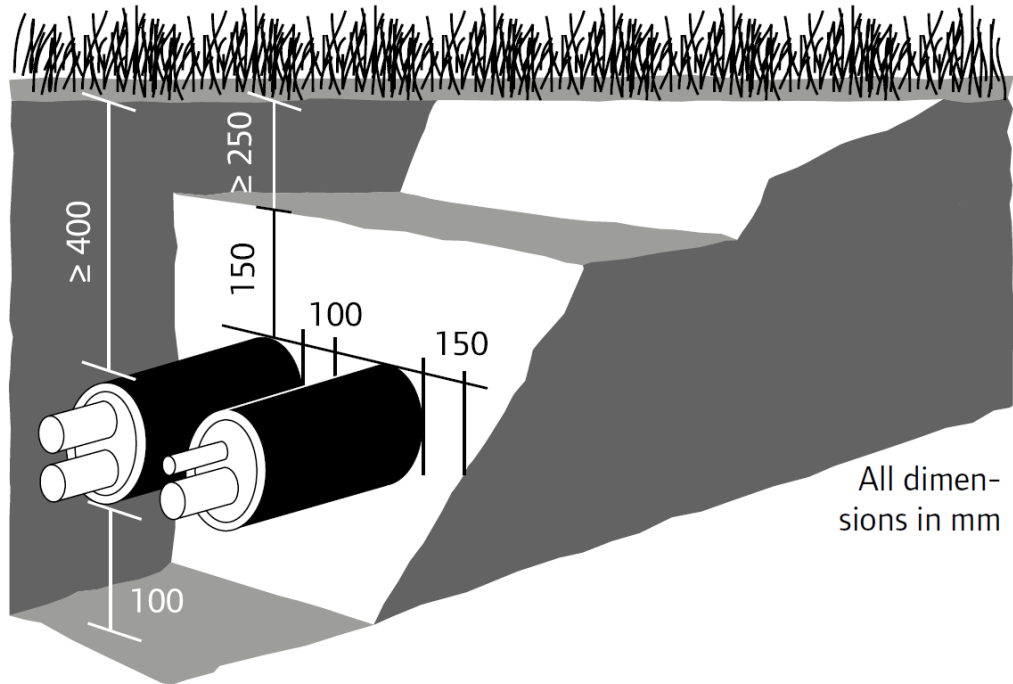
All Uponor Pre-insulated pipework systems (including jacket, pipe and insulation) are fire rated under EN13501-1 to Class E

Environmental Impact

The materials and processes used to manufacture Uponor pre-insulated pipe have zero ozone depleting impact, in accordance with European Regulation (EC) No 2037/2000. Uponor pre-insulated pipe has a Global Warming Potential (GWP) coefficient of 3.

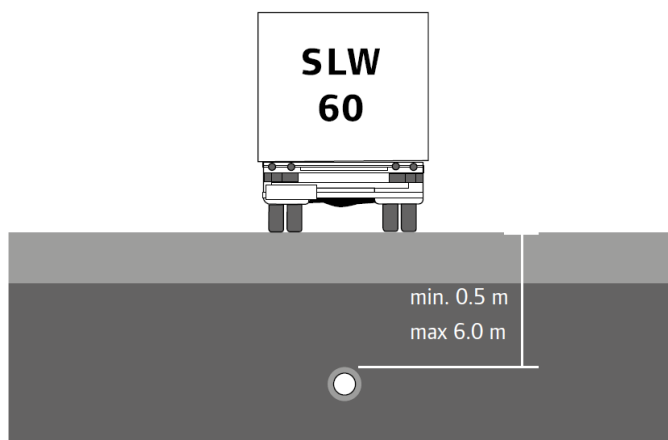
Trench depth

All Uponor Pre-insulated pipework's conform to BS EN 15632 to ensure superior thermal resistance, however below sets out minimum trench depths that need to be adhered to. These depths have been given to ensure the risk of damage is minimised. If heavy traffic loads are to be used a further trench depth is required please see 'Trench depth with heavy traffic' below. Please note all minimum trench depths are given a guidance and are subject to local frost limits.



Trench depth with heavy traffic

All Uponor pipework's have been certified to ATV DVWK-A127 and is suitable for loading by heavy traffic up to SWL 60 = 60 t according to worksheet ATV-A 127. The ring stiffness of the jacket pipe is approved according EN ISO 9969 to be able to withstand 4 kN/m² (class SN4). In the case of heavy traffic loading the minimum trench depth is revised to 500mm from the top of the pipe.



Pipe construction

Thermo VIP

Uponor Thermo VIP is a multi-layer pre-insulated pipework, consisting of a PEX outer foam layer for added flexibility and a foil layer for reduction of degassing effects and a VIP insulated Panel. The core pipework contained is a SD11 (6 BAR) EVOH diffusion barrier pipe ideal for use in Heating systems. This pipe conforms to BS EN 15632-3 (unbonded plastic pipework).

Thermo PRO

Uponor Thermo PRO is a multi-layer pre-insulated pipework, consisting of a cylopentane blown PUR foam and PEX outer foam layer for added flexibility and a foil layer for reduction of degassing effects. The core pipework contained is a SD11 (6 BAR) EVOH diffusion barrier pipe ideal for use in Heating systems. This pipe conforms to BS EN 15632-2 (bonded plastic pipework).

Thermo

Uponor Thermo is a multi-layer pre-insulated pipework, consisting of a multiple layers of PEX foam insulation for added flexibility and on twin pipeworks a split colour foam to help in identification of pipe services each end. The core pipework contained is a SD11 (6 BAR) EVOH diffusion barrier pipe ideal for use in Heating systems. This pipe conforms to BS EN 15632-3 (un-bonded plastic pipework).

Aqua VIP

Uponor VIP Aqua is a multi-layer pre-insulated pipework, consisting of a multiple layers of PEX foam insulation for added flexibility with a VIP insulated Panel and on twin pipeworks a split colour foam to help in identification of pipe services each end. The core pipework contained is a SD7.4 (10 BAR) pipe ideal for use in hot water systems. This pipe conforms to BS EN 15632-3 (un-bonded plastic pipework).

Aqua

Uponor Aqua is a multi-layer pre-insulated pipework, consisting of a multiple layers of PEX foam insulation for added flexibility and on twin pipeworks a split colour foam to help in identification of pipe services each end. The core pipework contained is a SD7.4 (10 BAR) pipe ideal for use in hot water systems. This pipe conforms to BS EN 15632-3 (un-bonded plastic pipework).

Quattro

Uponor Quattro is a 4 pipe multi-layer pre-insulated pipework, consisting of a multiple layers of PEX foam insulation for added flexibility. The split colour foam helps in identification of pipe services each end. The core pipeworks contained are 2x SD7.4 (10 BAR) pipe ideal for use in hot F&R water systems and 2xSD11 (6 BAR) EVOH diffusion barrier pipe ideal for use in Heating systems. This pipe conforms to BS EN 15632-3 (un-bonded plastic pipework).

Please note: this pipework is not suitable for carrying cold water services.

Supra

Uponor Supra is a multi-layer pre-insulated pipework, consisting of a multiple layers of PEX foam insulation for added flexibility. The core pipework contained is a PE100 (16 BAR) blue HDPE pipework this pipe is ideal for use in cold and chilled water systems. This pipe conforms to BS EN 15632-3 (un-bonded plastic pipework).

Supra Plus

Uponor Supra Plus is a multi-layer pre-insulated pipework, consisting of a multiple layers of PEX foam insulation for added flexibility. The core pipework contains a PE100 (16 BAR) blue HDPE pipework also a 10w/m heating cable (see cable specification for more details) and sensor tube. This pipe is ideal for use in cold and chilled water systems in harsh external environment and can be frost protected to -25oC. This pipe conforms to BS EN 15632-3 (unbonded plastic pipework).

Frost protection cable

Contained in the Supra Plus Pre-insulated pipework is 10w/m self-regulating frost protection cable. In which up to 150m for Supra Plus pipe can be served on a standard 13amp 230v single phase circuit. The self-regulating function will allow a higher temperature in localised zones where the temperature is colder. This does not however turn completely off the cable and will require a separate time/temperature controller which can be provided as part of the Uponor offering.

Jacket

Impact-proof, black HDPE corrugated pipe. Corrugations provide stiffness and flexibility. Contains 2% carbon black additive to provide UV resistance. Fire behaviour class B2 according to DIN 4102. Pipe stiffness conforms to ISO 9969: 2007. Jacket diameters 68mm, 140mm, 145mm, 175mm, 200mm or 250mm to suit core pipe(s). All jackets are independently tested to ATV-DVWK-A 127 to withstand a load limit of 60tons at a minimum trench depth of 500mm.

Insulation

PEX foam

Age resistant PEX foam in multi-layers to aid flexibility. Thermal properties independently certified by FIW Munich under DIN Certo [6V046 + 6V047] at 0.04w/mK. Water absorption < 1% vol due to closed cell foam structure.

PUR foam

(For Thermo PRO pipe range only) a halogen free polyurethane foam insulation, tested to DIN52612 giving a K value of 0.0219w/mK. Closed cell structure ensures minimal water absorption. The material is free of CFC / HCFC and HFC. All pipework's contain a PE foil layer to limit the effects of degassing extending the life time of the insulation.

VIP

VIP (Vacuuminsulated Panel) uses a multilayer aluminium diffusion barrier which ensures the long-term performance of the insulation tested to REACH directive 1907/2006 (REACH), article 3, 1-3

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Pipe

SDR11 (6 Bar PEX-a Pipe)

PEX made in accordance to DIN 16892/16893, coated with EVOH barrier layer in accordance with DIN 4726 to prevent oxygen ingress. Uponor PEX-a is manufactured using the Engel crosslinking process. For conveyance of heating water. Maximum rating 95°C at 6 bar (100 hours). Operating temperature 80°C 6 Bar 30 years as per BS EN 15632-3 (miners rule) Diameter to wall thickness ratio is designated SDR 11.

SDR 7.4 (10 Bar PEX-a Pipe)

This approved PEX pipes is suitable for carrying hot water services up to 95° C (100 hours)/ Normal operating temperature not to exceed 70°C as per BS EN 15632-3 and at a maximum pressure of 10 bar. The Uponor PE-Xa pipe is manufactured using the Engel crosslinking process and in accordance with DIN EN 15875-2, with a diameter/wall thickness ratio SDR of 7.4.

PE100 (16 Bar Pipe)

This approved PE pipe is suitable for carrying cold and chilled water services between to - 10- 20°C at a maximum pressure of 16 bar. The Uponor PE pipe is manufactured, in accordance with DIN EN 15875-2, with a diameter/wall thickness ratio SDR of 7.4.

Joining

Wipex Fittings

Brass (CW602) clamp fittings that seal on the bore with EPDM 'O'-rings and allow adaption from pre-insulated core pipes to Uponor MLCP or PEX plumbing systems, or third party pipework, via a male BSP thread. Sizes 25x1", 32x1", 40x1¼", 50x1¼", 63x2", 75x2", 90x3", 110x3", 125x4" Fittings are designated either 6 bar (PN6) for use with Thermo pipes or 10 bar (PN10) for use with Aqua pipes. Female threaded brass fittings (reducers, 90° elbows, T pieces and flanges) allow more complex pipe configurations. This is classified as a mechanical fitting, which no special tooling required to make a joint.

RS MODULAR Fittings

- Fittings are Tin coated brass body 4MS approved CW617N, cast brass CC754S suitable to connect to the Uponor RS Modular range of fitting bodies. This is classified as a mechanical fitting, which no special tooling required to make a joint.

Q&E Fittings

Uponor Q&E fittings utilises an O-ring and mechanical free fitting covering sizes from 25mm – 63mm. It uses the PEX pipe memory and special tooling to make to joint. All fitting are inside fitting but oversized for good internal bore. Please note: This is a non-demountable fitting.

PPSU type – Q&E fittings are manufactured from Polyphenylsulfone Radel R 5100 (PPSU).

Brass fittings (threaded connections) – All brass fittings are manufactured from 4MS approved material CW617N

Pipe properties

Thermo Single

Code:	Pipe (mm)	Jacket (mm)	DN number	Pipe weight (kg/m)	Water Volume (l/m)	Bend radii (m)	Coil length (m)	U-value
1018109	25x2.3	140	DN20	1.1	0.327	0.25	200	0.148
1018110	32x2.9	140	DN25	1.2	0.539	0.3	200	0.174
1018111	40x3.7	175	DN32	2.2	0.835	0.35	200	0.172
1018112	50x4.6	175	DN40	2.43	1.307	0.45	200	0.203
1018113	63x5.8	175	DN50	2.73	2.075	0.55	200	0.249
1018114	75x6.8	200	DN63	3.74	2.961	0.8	100	0.257
1018115	90 x8.2	200	DN80	4.2	4.254	1.1	100	0.315
1018116	110x10	200	DN100	5.24	6.362	1.2	100	0.421
1083868	125x11.4	250	DN125	7.3	8.203	1.4	80	0.378

Thermo Twin

Code:	Pipe (mm)	Jacket (mm)	DN number	Pipe weight (kg/m)	Water Volume (l/m)	Bend radii (m)	Coil length (m)	U-value
1018134	(2x) 25x2.3	175	2x DN20	2.09	0.327	0.5	200	0.201
1018135	(2x) 32x2.9	175	2x DN25	2.16	0.539	0.6	200	0.241
1018136	(2x) 40x3.7	175	2x DN32	2.5	0.835	0.8	200	0.293
1018137	(2x) 50x4.6	200	2x DN40	3.59	1.307	1.0	100	0.314
1018138	(2x) 63x5.8	200	2x DN50	4.49	2.075	1.2	100	0.42

Thermo PRO Single

Code:	Pipe (mm)	Jacket (mm)	DN number	Pipe weight (kg/m)	Water Volume (l/m)	Bend radii (m)	Coil length (m)	U-value
1087378	40x3.7	145	DN32	1.99	0.835	0.25	240	0.112
1087379	40x3.7	175	DN32	3.07	0.835	0.3	150	0.097
1087383	50x4.6	145	DN40	2.27	1.307	0.35	240	0.137
1087384	50x4.6	175	DN40	2.96	1.307	0.45	150	0.116
1087385	63x5.8	175	DN50	3.26	2.075	0.55	150	0.144
1087386	63x5.8	200	DN50	3.84	2.075	0.8	100	0.128
1087387	75x6.8	175	DN63	3.6	2.961	1.1	150	0.176
1087388	75x6.8	200	DN63	4.18	2.961	1.2	100	0.152
1087389	90x8.2	200	DN80	4.7	4.254	1.4	100	0.195
1087390	110x10	200	DN100	5.51	6.362	0.5	100	0.265

Thermo PRO Twin

Code:	Pipe (mm)	Jacket (mm)	DN number	Pipe weight (kg/m)	Water Volume (l/m)	Bend radii (m)	Coil length (m)	U-value
1087392	(2x) 25x2.3	145	2x DN20	1.97	0.327	0.6	240	0.135
1087393	(2x) 25x2.3	175	2x DN20	2.71	0.327	0.7	150	0.115
1087394	(2x) 32x2.9	145	2x DN25	2.15	0.539	0.6	240	0.171
1087395	(2x) 32x2.9	175	2x DN25	2.87	0.539	0.8	150	0.138
1087396	(2x) 40x3.7	175	2x DN32	3.13	0.835	0.8	150	0.173
1087397	(2x) 40x3.7	200	2x DN32	3.7	0.835	1.0	100	0.149
1087398	(2x) 50x4.6	200	2x DN40	4.08	1.307	1.1	100	0.193
1087399	(2x) 63x5.8	200	2x DN50	4.69	2.075	1.2	100	0.263

Thermo VIP Single

Code:	Pipe (mm)	Jacket (mm)	DN number	Pipe weight (kg/m)	Water Volume (l/m)	Bend radii (m)	Coil length (m)	U-value
1095713	40x3.7	140	DN40	1.67	0.835	0.35	200	0.104
1095714	50x4.6	140	DN50	1.93	1.307	0.40	200	0.122
1095715	63x5.8	140	DN63	2.35	2.075	0.50	200	0.146
1095716	75x6.8	140	DN75	2.73	2.961	0.60	200	0.171
1095717	90x8.2	175	DN90	4.00	4.254	0.70	100	0.176
1095718	110x10	175	DN110	5.08	6.362	0.90	100	0.221
1095719	125x11.4	200	DN125	6.65	8.20	1.30	100	0.227

Thermo VIP Twin

Code:	Pipe (mm)	Jacket (mm)	DN number	Pipe weight (kg/m)	Water Volume (l/m)	Bend radii (m)	Coil length (m)	U-value
1118580	(2x) 25x2.3	140	2x DN25	1.70	0.327	0.4	200	0.120
1118581	(2x) 32x2.9	140	2x DN32	1.91	0.539	0.5	200	0.141
1118582	(2x) 40x3.7	175	2x DN40	2.90	0.835	0.6	200	0.150
1118583	(2x) 50x4.6	175	2x DN50	3.44	1.307	0.9	200	0.179
1118584	(2x) 63x5.8	200	2x DN63	4.88	2.075	1.2	100	0.204
1118585	(2x) 75x6.8	250	2x DN75	6.77	2.075	1.2	100	0.218

Aqua VIP Single

Code:	Pipe (mm)	Jacket (mm)	DN number	Pipe weight (kg/m)	Water Volume (l/m)	Bend radii (m)	Coil length (m)	U-value
1119047	40x5.5	140	DN40	1.84	0.661	0.40	200	0.103
1119048	50x6.9	140	DN50	2.19	1.029	0.45	200	0.121
1119049	63x8.7	140	DN63	2.76	1.633	0.55	200	0.145
1119050	75x10.3	140	DN75	3.33	2.324	0.7	100	0.170
1119051	90 x12.3	175	DN90	4.88	3.359	0.8	100	0.174
1119052	110x15.1	175	DN110	6.33	5.001	1.0	100	0.219

Aqua VIP Twin

Code:	Pipe (mm)	Jacket (mm)	DN number	Pipe weight (kg/m)	Water Volume (l/m)	Bend radii (m)	Coil length (m)	U-value
1119053	(2x) 25x3.5-20x2.8	140	TWIN 25/20	1.74	0.254	0.45	200	0.114
1119054	(2x) 32x4.4-20x2.8	140	TWIN 32/20	1.68	0.423	0.55	200	0.1222
1119055	(2x) 40x5.5-25x3.5	140	TWIN 40/25	2.18	0.661	0.7	200	0.143
1119056	(2x) 50x6.9-32x4.4	175	TWIN 50/32	3.36	1.029	0.8	200	0.153

Aqua Single

Code:	Pipe (mm)	Jacket (mm)	DN number	Pipe weight (kg/m)	Water Volume (l/m)	Bend radii (m)	Coil length (m)
1018109	25x3.5	140	DN20	1.1	0.254	0.25	200
1018110	32x4.4	140	DN25	1.2	0.423	0.3	200
1018111	40x5.5	175	DN32	2.2	0.661	0.35	200
1018112	50x6.9	175	DN40	2.43	1.029	0.45	200
1018113	63x8.7	175	DN50	2.73	1.633	0.55	200
1018114	75x10.3	200	DN50	3.74	2.324	0.8	100
1018115	90 x12.3	200	DN65	4.2	3.359	1.1	100
1018116	110x15.1	200	DN80	5.24	5.001	1.2	100

Aqua Twin

Code:	Pipe (mm)	Jacket (mm)	DN number	Pipe weight (kg/m)	Water Volume (l/m)	Bend radii (m)	Coil length (m)
1018134	(2x) 25x2.3	175	2x DN20	2.09	0.254	0.5	200
1018135	(2x) 32x2.9	175	2x DN25	2.16	0.423	0.6	200
1018136	(2x) 40x3.7	175	2x DN32	2.5	0.661	0.8	200
1018137	(2x) 50x4.6	200	2x DN40	3.59	1.029	1.0	100
1018138	(2x) 63x5.8	200	2x DN50	4.49	1.633	1.2	100

Supra

Code:	Pipe (mm)	Jacket (mm)	DN number	Pipe weight (kg/m)	Water Volume (l/m)	Bend radii (m)	Coil length (m)
1018109	25x2.3	140	DN20	1.1	0.327	0.25	200
1018110	32x2.9	140	DN25	1.2	0.539	0.3	200
1018111	40x3.7	175	DN32	2.2	0.835	0.35	200
1018112	50x4.6	175	DN40	2.43	1.307	0.45	200
1018113	63x5.8	175	DN50	2.73	2.075	0.55	200
1018114	75x6.8	200	DN63	3.74	2.961	0.8	100
1018115	90 x8.2	200	DN80	4.2	4.254	1.1	100
1018116	110x10	200	DN100	5.24	6.362	1.2	100

Quattro

Code:	Pipe (mm)	Jacket (mm)	DN number	Pipe weight (kg/m)	Water Volume (l/m)	Bend radii (m)	Coil length (m)
1018147	(2x) 25x2.3 - 6 bar (2x) 25x3.5 -10 bar	175	(2x) DN20 (2x) DN20	2.4	6 bar: 0.327 10bar: 0.254	0.8	200
1018148	(2x) 32x2.9 - 6 bar (2x) 25x3.5 -10 bar	175	(2x) DN25 (2x) DN20	2.6	6 bar: 0.539 10bar: 0.254	0.8	200
1018149	(2x) 32x2.9 - 6 bar 32x4.4 -10 bar 25x3.5 -10 bar	175	(2x) DN25 DN25 DN20	2.7	6 bar: 0.539 32mm 10bar: 0.423 25mm 10bar: 0.254	0.8	200

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