

UPONOR Ltd
Specification
For
UPONOR MLCP Systems June 09

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Uponor MLCP (Multi-Layer Composite Pipework)

Multi-Layer composite pipe consisting of a lap-welded aluminum (100% oxygen proof) diffusion barrier; with an inner layer of polyethylene with a minimum roughness $K=0.0004\text{mm}$ ensuring a lower pressure loss and an outer layer of polyethylene all having high temperature resistant polyethylene in accordance with DIN 16883 and diffusion tight exceeding the requirements of DIN 4726.

All UPONOR MLCP has full WRAS scheme approval 0605106 and 0512118.

UPONOR MLC pipe is supplied in coils in sizes from 12-32mm or pipe is supplied in straight lengths in sizes from 16-110mm as necessary to job requirements.

Operating Conditions

The guarantee above covers domestic and commercial building services applications for UPONOR MLC pipe and fittings, including:

- Heating systems and fan coil installations where the water temperature does not continuously exceed 85°C , or momentarily exceed 95°C , and maximum operating pressure of 6 bar. Also, the system must be installed with room and water temperature controls in accordance with the current Building Regulations Parts L1 (Energy – Dwellings) and L2 (Energy – Non Dwellings) for England and Wales, or an equivalent national standard for Scotland or Republic of Ireland.
- Hot water services installations where the water temperature does not continuously exceed 70°C , or momentarily exceed 95°C , and maximum operating pressure of 10 bar.
- Cold water services installations, including riser pipe work, where the maximum operating pressure does not exceed 10 bar. Boosted cold water systems should incorporate adequate surge suppression equipment where there is a risk of damage caused by hydraulic surges or water hammer.
- Chilled water applications to a minimum temperature of -40°C . Subject to the system being installed with a Glycol mixture when working at sub-zero temperatures and that adequate insulation and bracketing systems are used.

All the above subject to the system and equipment being installed in accordance with current good practice standards. The pipe and fittings should be installed in accordance with the manufacturer's installation instructions and comply with the relevant local and national regulations.

Fittings Range

12-32mm fitting range to be metal press type with profile aluminum sleeve or, 16-32mm composite press fitting made of PPSU with fixed stainless steel press sleeve, or 16-25mm compression fittings made of plated brass used with UPONOR compression adaptors. For larger diameter pipework 12-75mm metal press fittings with stainless steel pressure sleeves will be used.

Modular System – WRAS System Approval pending on new Modular Fittings

For pipe sizes of 63-110mm the Modular Riser range will be used with unique locking pin assembly. Precision Engineered in Plated Brass, a comprehensive range of key components utilize the minimum of space to achieve most pipework connotations by means of key components. ie Base Fittings, Adaptors and Locking Pins. The Press-Fitting of components in this system can normally be undertaken at floor level giving a safer site environment.

Radiator Heating Systems NV Manifold

UPONOR 'NV' Manifold includes chrome plated flow and return headers pre-mounted on nickel plated brackets with fill and drain points. Primary connections are 1" BSP and the nickel plated outlet connections are 3/4" Eurocone. Supplied in 2-8 Port options.

Note: A 1 port extension set is available.

Radiator Heating Systems LS Manifold - with Actuator Control

UPONOR 2-8 port 'LS' Manifold includes lock shield valves on the flow manifold for balancing the system. The manifold includes chrome plated flow and return headers, pre-mounted on nickel plated brackets with fill and drain points. Primary connections are 1" BSP and the nickel plated outlet connections are 3/4" Eurocone. Supplied in 2-8 Port options.

Note: A 1 port extension set is available.

Hot and Cold Water Systems L Manifold – with Manual Control

UPONOR "L" type supplied as a single manifold made from plated brass, 3/4" MT x 3/4" FT with 1/2" MT outlets. Valves allow each circuit to be isolated. Complete with loop labeling discs to identify hot and cold water supply to appliances.

A larger version 1" x 1" with 3/4" outlets is available. Both items have 2, 3 or 4 port options. L manifolds can be joined together to provide the required number of ports.

Pipe Expansion

UPONOR MLCP has a thermal expansion rate which is significantly lower than other plastic pipework systems. The thermal expansion coefficient is (0.025mm/ (m x K)).

Connection to Boilers

UPONOR MLCP should not be directly connected to boilers. A minimum of 1000mm of copper pipe should always be used before changing to UPONOR MLCP.

Bending Radii

UPONOR MLCP pipework 12-32 can be formed into a bend by hand with a bending spring or a bending tool. Minimum bending radii must not be less than those specified below.

OD = Outer Diameter

s = Wall Thickness

Pipe dimension OD x s (mm)	Bending radius by hand (mm)	Bending radius with internal bending spring (mm)	Bending radius with external bending spring (mm)	Bending radius with bending tool (mm)
12 x 1.6	(5 x OD) 60	(4 x OD) 48	-	-
16 x 2.0	(5 x OD) 80	(4 x OD) 64	(4 x OD) 64	46
20 x 2.25	(5 x OD) 100	(4 x OD) 80	(4 x OD) 80	80
25 x 2.5	(5 x OD) 125	(4 x OD) 100	(4 x OD) 100	83
32 x 3	(5 x OD) 160	(4 x OD) 128	-	111

Fixings

Fitting and equipment connections as well as the connection of measuring and control devices are to be installed torsion-free. All pipes are to be installed in such a manner that the thermal

Pipe Dimensions OD x s (mm)	Maximum mounting distance between pipe clips L.			Pipe weight with 10°C water filling/ without insulation	
	Horizontal		Vertical (m)	Coil (kg/m)	Straight Length (kg/m)
	Coil (mm)	Straight (mm)			
12 x 1.6	1.20	-	1.70	0.128	-
16 x 2.0	1.20	1.60	1.70	0.218	0.231
20 x 2.25	1.30	1.60	1.70	0.338	0.368
25 x 2.5	1.50	1.80	2.00	0.529	0.557
32 x 3.0	1.60	1.80	2.10	0.854	0.854
40 x 4.0	1.70	2.00	2.20	-	1.310
50 x 4.5	2.00	2.00	2.60	-	2.062
63 x 6.0	2.20	2.20	2.85	-	3.265
75 x 7.5	2.40	2.40	3.10	-	4.615
90 x 8.5	2.40	2.40	3.10	-	6.741
110 x 10.0	2.40	2.40	3.10	-	9.987

length variation (temperature change) is not obstructed.

No trays may be used if UPONOR MLC pipes are installed open on the ceiling with clips. The following table represents the maximum mounting distance "L" between the individual pipe clips for different pipe dimensions.

Type and distance between the pipe fastenings is dependant on the pressure, temperature and medium. Dimensioning of the pipe supports is to be determined from the total mass (pipe weight + medium weight + insulation weight) in accordance with generally accepted rules of technology. It is recommended to set the pipe supports, if possible, in the proximity of the fitting and connections.

Fire

UPONOR MLCP complies with Class B2 of DIN 4102. It will burn but is inherently flame retardant.

Trace Heating

Trace heating can be used in conjunction with MLCP pipework. The internal aluminum pipe guarantees an even heat distribution throughout the pipe; the temperature limit is usually 60°C. The heater band is to be mounted as per the manufacturer's instructions; UPONOR MLCP is rated as plastic pipework.