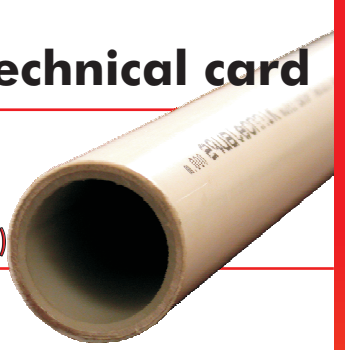
MULTI-CALOR PIPES

PE-X/Al/PE-X - PN 10 - 95°C

in rods (Ø from 16 to 63 - 18 not included) and in rolls (Ø from 14 to 32)



DESCRIPTION

The structure of the **multi-calor** pipes is constituted by 5 layers of integral materials that intensify thequalities of the metal-plastic binomial. The internal layer on which fluids are conveyed is made of cross linked polyethylene, a polymer resistant to high temperatures and hydrostatic pressures, whose resistance has been confirmed by thirty years of use in the process plant engineering with excellent results. Also for the organoleptic factor, the material is universally known, even by authoritative European and Worldwide institutions, as one of the nest for the conveyance of drinking water and liquids for human consumption.

During these 12 years, with the design and the accomplishment of the **safety** fittings, **aquatechnik** gave a big hand for the improvement of the multilayer technology. Improvements involved in all construction stages starting from the application of new adhesives that are more resistant to mechanical stress, aluminium alloy plates easy to weld and with high performance, up to the synchronization of the entire process in order to guarantee utmost quality standards, up to the point that the **multi-calor** pipes can be belled and therefore coupled with the fittings, which is currently the most innovative system throughout Europe.

The entire range of diameters meets the requirements of the Italian Standards UNI 10954, class 1 and the European ones UNI EN 21003.

PRODUCT SPECIFICATIONS

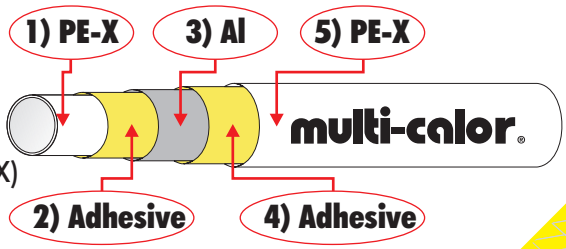
DIMENSIONS

Item	Description	Ø nom.	Thick.	Alumi-nium	Ø Internal	Water content	Package	Weight per meter	Package Weight
		mm	mm	mm	mm	l/m	m	Kg	Kg
74002	Multi-calor pipes in rolls	14	2	0,30	10,0	0,077	100	0,090	9,0
74004	Multi-calor pipes in rolls	16	2	0,30	12,0	0,113	100	0,120	12,0
74005	Multi-calor pipes in rolls	16	2	0,30	12,0	0,113	250	0,120	30,0
74006	Multi-calor pipes in rolls	18	2	0,30	14,0	0,154	100	0,135	13,5
74008	Multi-calor pipes in rolls	20	2	0,40	16,0	0,201	100	0,150	15,0
74009	Multi-calor pipes in rolls	20	2	0,40	16,0	0,201	150	0,150	22,5
74010	Multi-calor pipes in rolls	26	3	0,58	20,0	0,314	50	0,300	15,0
74012	Multi-calor pipes in rolls	32	3	0,75	26,0	0,531	50	0,410	20,5
74154	Multi-calor pipes in rods	16	2	0,30	12,0	0,113	40	0,120	4,8
74156	Multi-calor pipes in rods	20	2	0,40	16,0	0,201	40	0,150	6,0
74158	Multi-calor pipes in rods	26	3	0,58	20,0	0,314	40	0,300	12,0
74160	Multi-calor pipes in rods	32	3	0,75	26,0	0,531	40	0,410	16,4
74162	Multi-calor pipes in rods	40	3,5	0,80	33,0	0,960	20	0,590	11,8
74164	Multi-calor pipes in rods	50	4	1,00	42,0	1,385	20	0,835	16,7
74166	Multi-calor pipes in rods	63	4,5	1,20	54,0	2,289	20	1,325	26,5

TECHNICAL FEATURES

Name: PE-X + Al + PE-X *(cross linked polyethylene + aluminium + cross linked polyethylene)*

Material:
- *1) internal layer* cross linked polyethylene (PE-X)
- *2) intermediate layer* adhesive
- *3) middle layer* aluminium (Al)
- *4) intermediate layer* adhesive
- *5) external layer cross linked polyethylene (PE-X)*



Colour: white

MULTI-CALOR PIPES

PE-X/Al/PE-X - PN 10 - 95°C

in rods (Ø from 16 to 63 - 18 not included) and in rolls (Ø from 14 to 32)

Aluminium welding: butt with TIG method (with control camera)
Chemical cross linking of internal layer (1): *PE-Xb with silane, minimum value 65% according to standards*
Chemical cross linking of external layer (5): PE-Xb with silane, minimum value 65% according to standards
Aluminium alloy (3):
- *treatment* annealing
- *yielding* minimum 50 MPa
- *lengthening to rupture* minimum value 30%
- *ductility/malleability* supports bending to 180°
- *enlargement after welding* more than 20%

Adhesive (2-4): adhesion value always over 80 N/cm²
Oxygen permeability: (according standards DIN 4726) % mg/l 0,00
Maximum temperature:
- *in continuous operation* 95°C
- *peak* 100°C

Maximum pressure:
- *at 95°C*: 10 bar
- *at 20°C*: 30 bar

Operating conditions:
- *hot (heating)* at +95°C - 10 bar minimum 50 year last
- *cold (air conditioning)* at +5°C - 20 bar - minimum 50 year last

Thermal conductivity at 20°C: W/mK 0,430
Dilatation ratio: mm/mK 0,026
Internal roughness: mm 0,007
Bend radius at 90°C: 6 times the diameter
Drinkability and organoleptic features: in conformity with the European Union Directives, for the National territory cfr. Decree no. 174 dd. 06 April 2004

REFERENCE STANDARD (CONFORMITY)

The **multi-calor** pipes meet all the requirements of the Italian Standard UNI 10954-1 and of the European Standard UNI EN 21003 for conveyance of drinking fluids, hot and cold, for human consumption, for radiator heating, low temperature conditioning, panel floor heating and systems compatible with the basic material.
The manufacturer is certified, and produces in compliance with the quality management system UNI EN ISO 9001:2000 (certificate IIP no. 640 - IQNET IT-16323) and works under the supervision of the Laboratory and Testing Manager, with the control system by means of internal testing laboratory.
The **multi-calor** pipes are also certified by the most important national and foreign institutions, among which : IIP and RINA (Italy), DVGW, SKZ and HY (Germany), KIWA (Holland), AENOR (Spain), LNEC (Portugal), SVGW (Switzerland), CSTB (France), PCT (Russia), ITB (Poland), BYGGFORSK (Norway) and NSF (USA).

FIELD OF USE

Multi-calor pipes are the most advanced solution in the following fields of application: hydro-thermal sanitary, floor heating, air conditioning, irrigation, conveyance of drinkable and alimentary fluids and compressed air, for civil and industrial buildings. In particular the utilization fields are:
- **civil buildings**: distribution nets, hygiene-sanitary services, heating, cooling, garden irrigation;
- **industrial:** hydro-sanitary systems, heating and air conditioning, compressed air, hydraulic circuits for machinery, stock farming, greenhouses and all other fields compatible with the basic material;
- **service-producing sector:** shops, laboratories, medical doctor's offices, schools, gyms, restaurants, public places, religious buildings, stock farming, greenhouses, etc.

MULTI-CALOR PIPES
PE-X/Al/PE-X - PN 10 - 95°C
in rods (Ø from 16 to 63 - 18 not included) and in rolls (Ø from 14 to 32)

PRESSURE DROPS

The mirror-like surface of the internal section of the **multi-calor** pipes facilitates the flow of the fluids with very limited loss of flow resistance values.
For details concerning the flow resistance of the **multi-calor** pipes refer to the relevant tables with analytical data on the catalogue and technical guides available on the website **www.aquatechnik.it**.

LAYING/INSTALLATION

During the installation of the **multi-calor** pipes, we recommend to pay attention to the following factors:
- ***storage, transport and laying:*** prevent the pipe from impacts and banging, in particular with low room temperatures (from +5°C down) and from all damages (i.e. use of shears); prevent irregularities and tension in positioning; do not heat pipes with free flames; anchor with brackets protected (or walled in) near terminal and threading;
- ***pipe head cutting:*** make sure that the shears that are going to be used to cut the pipes have well sharpened blades and with no defect;
- ***UVA rays:*** protect all piping subject to direct radiation using suitable water based paint;
- ***hydraulic testing:*** in order to prevent accidents that cannot be found while pipes are empty, we recommend to wall-in while the pipes are still pressurised.

NOTES

- **Multi-calor** pipes must be stored indoors or however covered and protected from direct sunrays. Exposure for long periods causes decay of the product.
- Thermoplastic materials are particularly sensitive to low temperatures in work areas (under 5°C): this causes more stress and vulnerability of the products. Violent impacts caused by objects or other building yard situations may cause damage and rupture for which the manufacturer cannot be held liable. During the winter season and in the areas with periods in which fluids freeze, it is essential to empty the pipes completely or add antifreeze fluid.
- Each system accomplished (water supply, sanitary, heating or of any other type) must be tested according to Law Regulations (cfr. DIN 1988) before definite walling. The lack or partial performance of testing causes the loss of warranty.
- We recommend to test the pipes with a total length that does not exceed 100 m; for networks with longer lengths, proceed by sections.
- Do not install damaged pipes, with indentations or ruined by carelessness.

For further details refer to the catalogues and to the technical guides that are available on the website **www.aquatechnik.it.**

SPECIFICATION ITEMS

5-layer pipe, internal and external layer in cross-linked polyethylene (PE-X), the middle in aluminium alloy longitudinally welded with the TIG method and two intermediate layers of adhesive that assure perfect adhesive with the other layers.
This special conformation allows to enlarge the head of the pipe (coupling) for the connection of the **safety** fittings, assuring the hydraulic tightness.
The product complies with the requirements of the Italian Standards UNI 10954-1 (Class 1) and the European Standards UNI EN 21003 for conveyance of drinking fluids, hot and cold, for human consumption, for radiator heating, low temperature air conditioning, panel floor heating and certified by the most important Italian and foreign institutions.
For more details concerning specification items, get in touch with the technical office.

aquatechnik®

ADMINISTRATIVE SEAT, PRODUCTION, WAREHOUSES
20020 Magnago (MI) - Via P.F. Calvi, 40 - ITALY
Tel. 0039 (0)331 307015 - Fax 0039 (0)331 306923
E-mail: aquatechnikexp@aquatechnik.it
www.aquatechnik.it