



DW-8501BO0049

METALLVERBUNDROHR
MULTILAYER PIPE
TUBO MULTISTRATO

COMISA®



BESCHREIBUNG DES COMISA-ROHRES

Das COMISA -
Mehrschichtverbundrohr ist ein
Produkt der neuesten Generation,
das unter Einsatz modernster
Fertigungstechnologien in der
Polymer - Bearbeitung aus
Polyethylen hergestellt wird und das
die Vorteile eines Kunststoffrohres mit
denen eines Metallrohres vereinigt.
Das COMISA -
Mehrschichtverbundrohr ist flexibel,
robust und äußerst druck- und
hitzebeständig.



DESCRIPTION OF COMISA MULTILAYER PIPE

The COMISA multilayer pipe is
a product of the latest generation
produced with advanced
technology in the treatment of
polyethylene polymers and unites
the advantages of a plastic pipe
and those of a metal pipe.
The COMISA multilayer pipe is
flexible and robust, resistant to high
pressure and high temperatures.



DESCRIZIONE DEL TUBO COMISA

Il tubo multistrato COMISA è un
prodotto di ultima generazione
realizzato con avanzate tecnologie
nel trattamento dei polimeri di
polietilene e riunisce i vantaggi di
un tubo plastico e quelli di un tubo
metallico.
Il tubo multistrato COMISA è
flessibile e robusto, resistente
ad elevate pressioni e ad alte
temperature.





Herstellungsverfahren

Das COMISA - Mehrschichtverbundrohr wird in einem aufwändigen und technologisch ausgereiften Verfahren hergestellt.

1. Extrusion des aus Polyethylen bestehenden Innenrohrs (**A**);
2. Anbringen einer dünnen Haftvermittlerschicht (Primer) im Coextrusionsverfahren (**B**);
3. Im nächsten Arbeitsschritt wird eine je nach Anforderung unterschiedlich dicke Aluminiumfolie um das Rohr gelegt, stumpfgeschweißt und auf das Innenrohr kalibriert (**C**);
4. Auftragen einer weiteren Primerschicht mittels Überzugextrusion (**B**);
5. Auftragen der äußeren Deckschicht in Polyethylen (**D**);

Der gesamte Herstellungsprozess geschieht bei konstanter und kontrollierter Temperatur, er ist voll automatisiert und durchläuft 5 aufeinander folgende und unabhängige Kontrollstellen. Vor der Lagerung wird das Produkt erneut von Fachpersonal geprüft, um den höchst möglichen Qualitätsstandard garantieren zu können.



Production procedure

The COMISA multilayer pipe is produced using a state of the art technological production process.

1. The internal layer in polyethylene is extruded (**A**);
2. A first adhesive layer (Primer) is applied to the external surface (**B**);
3. During the subsequent phase, an aluminium sheet is wound around the pipe, butt-welded and calibrated (**C**);
4. A second adhesive layer is applied to the external surface of the aluminium layer (**B**);
5. A new external polyethylene layer is applied (**D**);

The entire production cycle occurs at constant and controlled temperatures, is totally automated and includes five subsequent and independent control points. Before the storage phase the product is again controlled by specialised technicians to guarantee the total qualitative level of the product.

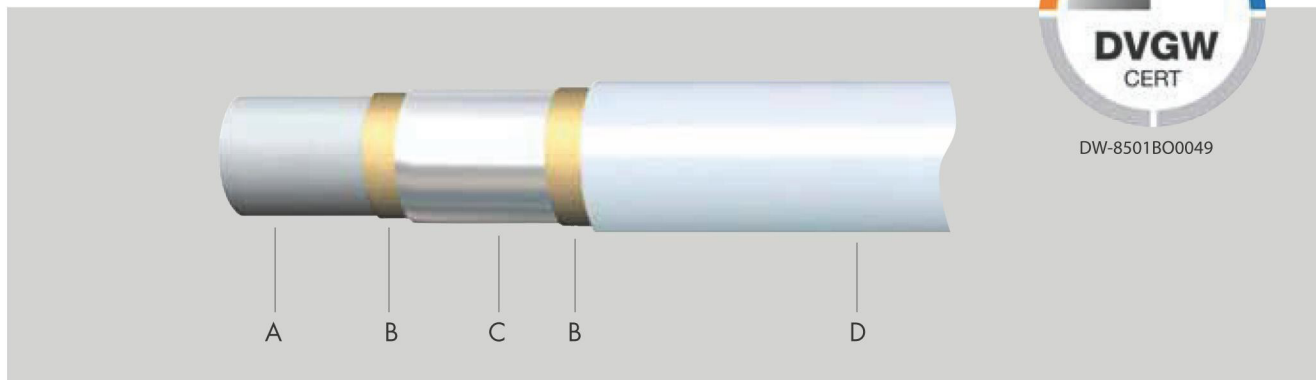


Procedimento produttivo

Il tubo multistrato COMISA è realizzato attraverso un processo produttivo tecnologicamente evoluto.

1. Lo strato interno in polietilene viene estruso (**A**);
2. Sulla superficie esterna viene applicato un primo strato connettivo (Primer) (**B**);
3. Durante la fase successiva, un foglio di alluminio è avvolto intorno al tubo, saldato e calibrato (**C**);
4. Sulla superficie esterna dello strato di alluminio viene applicato altro strato connettivo (**B**);
5. Viene applicato un nuovo strato in polietilene (**D**);

L'intero ciclo produttivo avviene a temperatura costante e controllata, è totalmente automatizzato e prevede cinque punti di controllo successivi ed indipendenti. Prima della fase di stoccaggio il prodotto viene nuovamente controllato da tecnici specializzati per garantire l'assoluto livello qualitativo del prodotto.





WERKSTOFF / ROHRAUFBAU

- A Inneres Rohr PE-RT
(hitzebeständiges Polyethylen)
Ursprünglich vernetzt gemäß
DIN 16833
-
- B Haftschicht
-
- C Aluminium
-
- B Haftschicht
-
- D Außenschicht/Schutzmantel
aus PE-RT (gegenüber hohen
Temperaturen beständiges
Polyethylen). UV behandelt.



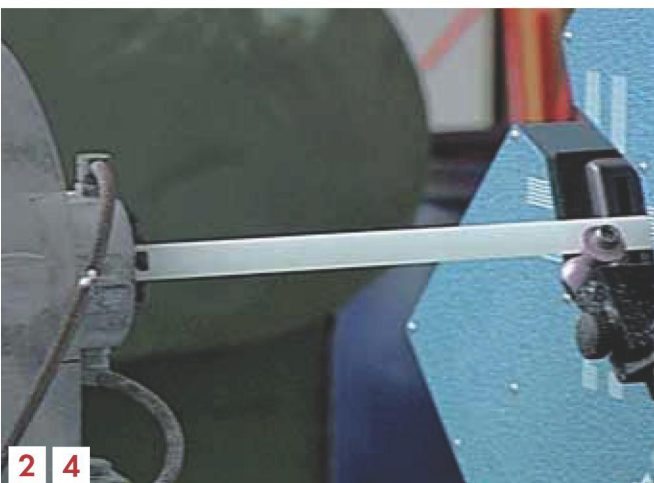
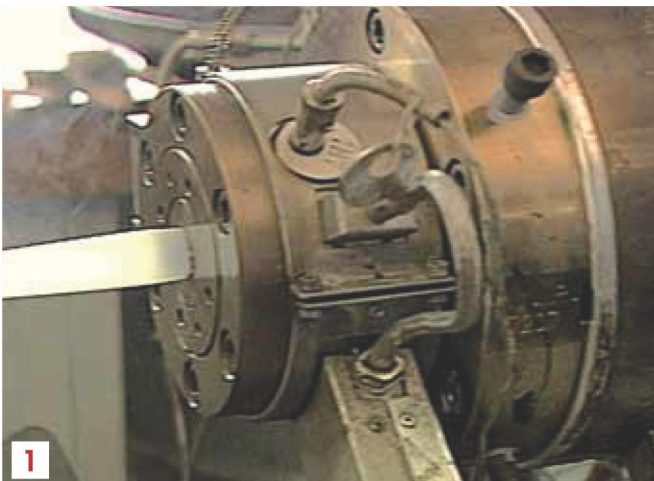
USED MATERIALS

- A PE-RT internal pipe
(polyethylene, raised temperature
resistant) Reticulated at origin
according to DIN 16833
-
- B Adhesive layer
-
- C Aluminium
-
- B Adhesive layer
-
- D PE-RT external layer
(polyethylene, raised
temperature resistant).
Anti UV treatment.



MATERIALI IMPIEGATI

- A Tubo interno PE-RT
(polietilene resistente alle
alte temperature)
Reticolato all'origine secondo
la DIN 16833
-
- B Strato connettivo
-
- C Alluminio
-
- B Strato connettivo
-
- D Rivestimento esterno PE-RT
(polietilene resistente alle
alte temperature).



THE MAIN FEATURES OF THE COMISA MULTI-LAYER PIPE



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LOW THERMAL EXPANSION

(See chart PG. 19)

Thermal expansions, high for plastic pipes, are minimal for the multi-layer pipe due to the two layers of adhesive which keep the PE-RT/AL/PE-RT pipes perfectly joined.

EASY INSTALLATION

To install the multilayer pipe with the entire series of COMISA press and compression fittings, only a few operations are necessary and welding, threading or gluing are not required. Simply it is cut, calibrated and the pipe is placed into the fitting.

EASY TO BEND AND KEEPS ITS SHAPE

It can be bent by hand with extreme ease without hardening, it accepts very reduced curve radii maintaining the section constant and remains in the desired position without the "memory effect".



HOMOLOGATED FOR DRINKING WATER

In line with what is prescribed by the **Decree of the Ministry of Health dated 6th April 2004 no. 174** (Regulation concerning the materials and objects which can be used in fixed systems of collection, treatment, feeding and distribution of water for human consumption). Naturally the same conformity is given for the other European countries according to the directives of the DVGW W534, conforming to the KTW requests for use with drinking water W270.

TOTAL IMPERMEABILITY TO OXYGEN

The internal layer of aluminium, carried out by butt-welding for the entire length of the pipe, prevents total passage of oxygen, steam and other gaseous molecules. Such impermeability protects from possible transmissions of odours, sedimentation, pollution and corrosion which could cause, over time, damage to the components of the plant.

RESISTANCE TO AGEING

The tests performed by the DVGW, highest European certification body for multi-layer piping, certify the COMISA multi-layer pipe has passed the ageing tests equal to 50 years of continuous use of both hot and cold water: the combination between plastic and aluminium makes the system lasting and reliable.

RESISTANCE TO CORROSION

The internal layer is unassailable from elements commonly present in water by way of the very smooth surfaces which do not offer the water any point of attrition avoiding incrustations which could lead to corrosion.

AREAS OF USE: A SINGLE PIPE, MULTIPLE APPLICATIONS

HEATING WITH RADIATORS

SANITARY USE

UNDERFLOOR HEATING

COMPRESSED AIR SUPPLY

INDUSTRIAL SYSTEMS

WALL HEATING SYSTEM

REFRIGERATED WATER SUPPLY

PERFORMANCE

MAXIMUM WORKING PRESSURE **10 BAR**

MAXIMUM WORKING TEMPERATURE **95°C**

MAXIMUM PEAK TEMPERATURE
(1 HOUR) **110°C**

BURST PRESSURE **80 BAR**

TECHNISCHE EIGENSCHAFTEN DES COMISA ROHRES

Rohrinnenmaß		14x2	16x2	18x2	20x2	26x3	32x3	40x3,5	50x4	63x6
Typologie des Werkstoffes	u.m.	PE-RT	PE-RT	PE-RT	PE-RT	PE-RT	PE-RT	PE-RT	PE-RT	PE-RT
Außendurchmesser	mm	14	16	18	20	26	32	40	50	63
Innendurchmesser	mm	10	12	14	16	20	26	33	42	51
Dicke	mm	2	2	2	2	3	3	3,5	4	6
Stärke der Aluminiumschicht	mm	0,2	0,2	0,2	0,24	0,3	0,7	0,7	0,7	0,7
Wasserinhalt	l/m	0,079	0,113	0,154	0,201	0,314	0,535	0,855	1,385	2,042
Leergewicht	kg/m	0,090	0,104	0,123	0,143	0,266	0,403	0,581	0,876	1,224
Rollenlänge	m	200	100/200/250/500	100	100	50	50	-	-	-
Stangenlänge	m	-	5	5	5	5	5	5	5	5
Biegeradius von Hand	mm	70	80	90	100	130	-	-	-	-
Biegeradius mit Biegefeder innen	mm	45	45	50	60	95	-	-	-	-
Wärmeleitfähigkeit	w/mk	0,43	0,43	0,43	0,43	0,43	0,43	0,43	0,43	0,43
Koeffizient lineare Ausdehnung	mm/mx	0,026	0,026	0,026	0,026	0,026	0,026	0,026	0,026	0,026
Rohrrauigkeit	mm	0,007	0,007	0,007	0,007	0,007	0,007	0,007	0,007	0,007
Sauerstoffsperre DIN 4726, 40°C	mg/d	0	0	0	0	0	0	0	0	0
Maximale Betriebstemperatur	°C	95	95	95	95	95	95	95	95	95
Minimale Betriebstemperatur	°C	-10	-10	-10	-10	-10	-10	-10	-10	-10
Spitztemperatur (maximal 1h)	°C	110	110	110	110	110	110	110	110	110
Maximaler Betriebsdruck	bar	10	10	10	10	10	10	10	10	10

TECHNICAL FEATURES OF THE COMISA MULTI-LAYER PIPE

		14x2	16x2	18x2	20x2	26x3	32x3	40x3,5	50x4	63x6
Type of Plastic Materials	u.m.	PE-RT	PE-RT	PE-RT	PE-RT	PE-RT	PE-RT	PE-RT	PE-RT	PE-RT
External Diameter	mm	14	16	18	20	26	32	40	50	63
Internal Diameter	mm	10	12	14	16	20	26	33	42	51
Thickness	mm	2	2	2	2	3	3	3,5	4	6
Thickness AL Layer	mm	0,2	0,2	0,2	0,24	0,3	0,7	0,7	0,7	0,7
Volume of water Contained	l/m	0,079	0,113	0,154	0,201	0,314	0,535	0,855	1,385	2,042
Weight Empty	kg/m	0,090	0,104	0,123	0,143	0,266	0,403	0,581	0,876	1,224
Ring Length	m	200	100/200/250/500	100	100	50	50	-	-	-
Bar Length	m	-	5	5	5	5	5	5	5	5
Manual Bend Radius	mm	70	80	90	100	130	-	-	-	-
Bend Radius with Internal Spring	mm	45	45	50	60	95	-	-	-	-
Coefficient of Thermal Conduction	w/mk	0,43	0,43	0,43	0,43	0,43	0,43	0,43	0,43	0,43
Coefficient of Linear expansion	mm/mx	0,026	0,026	0,026	0,026	0,026	0,026	0,026	0,026	0,026
Roughness of Surface Internal Pipe	mm	0,007	0,007	0,007	0,007	0,007	0,007	0,007	0,007	0,007
Oxygen Diffusion DIN 4726, 40°C	mg/d	0	0	0	0	0	0	0	0	0
Max Working Temperature	°C	95	95	95	95	95	95	95	95	95
Min Working Temperature	°C	-10	-10	-10	-10	-10	-10	-10	-10	-10
Peak working Temperature (max duration 1 hr)	°C	110	110	110	110	110	110	110	110	110
Max Working Pressure	bar	10	10	10	10	10	10	10	10	10

CARATTERISTICHE TECNICHE DEL TUBO MULTISTRATO COMISA

		14x2	16x2	18x2	20x2	26x3	32x3	40x3,5	50x4	63x6
Tipologia dei Materiali Plastici	u.m.	PE-RT	PE-RT	PE-RT	PE-RT	PE-RT	PE-RT	PE-RT	PE-RT	PE-RT
Diametro Esterno	mm	14	16	18	20	26	32	40	50	63
Diametro Interno	mm	10	12	14	16	20	26	33	42	51
Spessore	mm	2	2	2	2	3	3	3,5	4	6
Spessore Strato Al	mm	0,2	0,2	0,2	0,24	0,3	0,7	0,7	0,7	0,7
Volume d'acqua Contenuta	l/m	0,079	0,113	0,154	0,201	0,314	0,535	0,855	1,385	2,042
Peso a Vuoto	kg/m	0,090	0,104	0,123	0,143	0,266	0,403	0,581	0,876	1,224
Lunghezza Rotolo	m	200	100/200/250/500	100	100	50	50	-	-	-
Lunghezza Verga	m	-	5	5	5	5	5	5	5	5
Raggio di Curvatura Manuale	mm	70	80	90	100	130	-	-	-	-
Raggio di Curvatura con Molla Interna	mm	45	45	50	60	95	-	-	-	-
Coefficiente di Conduzione Termica	w/mk	0,43	0,43	0,43	0,43	0,43	0,43	0,43	0,43	0,43
Coefficiente di Dilatazione Lineare	mm/mx	0,026	0,026	0,026	0,026	0,026	0,026	0,026	0,026	0,026
Ruvidezza Superficie Tubo Interno	mm	0,007	0,007	0,007	0,007	0,007	0,007	0,007	0,007	0,007
Diffusione Ossigeno DIN 4726, 40°C	mg/d	0	0	0	0	0	0	0	0	0
Temperatura Max di Esercizio	°C	95	95	95	95	95	95	95	95	95
Temperatura Min di Esercizio	°C	-10	-10	-10	-10	-10	-10	-10	-10	-10
Temperatura di Picco (durata max 1 h)	°C	110	110	110	110	110	110	110	110	110
Pressione Max di Esercizio	bar	10	10	10	10	10	10	10	10	10