



CLEVERFIT



EXPERIENCE
THE MAGIC OF
THE NEW
PURMO SYSTEM

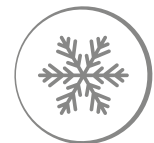
CHOOSE CLEVERFIT FOR A **PERFECT MATCH**

DISCOVER NEW CRAFTMANSHIP – DISCOVER CLEVERFIT

Purmo CLEVERFIT is a system designed especially for installers. It's not only a new generation of pipes, but a full range of brass and PPSU fittings as well. Last but not least are the tools, which speed up and simplify an installation process. Compatibility of all system components is crucial since all Purmo pipes, fittings and tools perfectly fit one another.



tap water



cooling



radiators
connection



floor heating

SYSTEM MATCHING EVERY INSTALLATION

PURMO CLEVERFIT SYSTEM

Purmo Cleverfit is a complete system made up of modern products that comply with the highest quality standards. Its primary advantage is its versatility. The system can be used in both heating and cooling installations (e.g. floor heating or radiators connection). It is also ideal for cold and hot domestic water installations, including potable water, a proof of which is the DVGW certificate and the hygienic approval issued by the National Institute of Hygiene. The Purmo Cleverfit system can be used for new installations as well as for renovated ones in existing buildings. With the wide range of diameters, it is possible to implement the system in single-family and multi-family houses and in public buildings. Durability of Purmo Cleverfit components is also of crucial importance - it has been confirmed by many tests as well as careful and precise monitoring at every step of the production process.

“Discover a system
that fits different
kind of buildings”





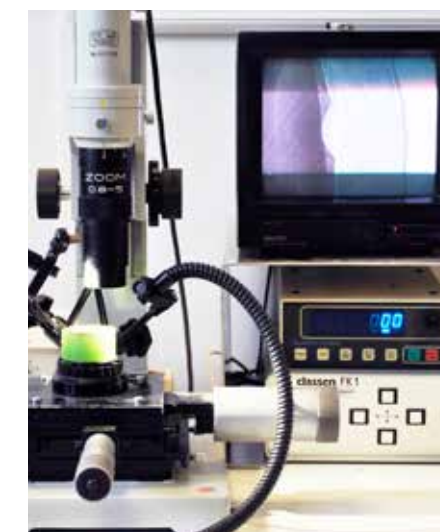
LEADING PIPE PRODUCER



High pressure and temperature
endurance tests



Monitoring at every
production stage



Analyses of materials
and the final product

To guarantee the top quality and reliability of use, all Purmo pipes are subject to constant inspections throughout the production process. The monitoring starts with verification of the raw material quality from which pipes are produced. Then the extruded pipes go through a series of tests starting with

ultrasound control of wall thickness followed the 8-point diameter measurement. Moreover, at the production stage, the pipe diameter is continuously laser-controlled. At the research and development centre, Purmo pipes goes through the number of various tests. The oxygen diffusion test is a standard What is worth

mentioning is the helium-penetration test, which detects even the tiniest faults in pipe walls. Moreover, material resistance to creeping and fatigue is verified. All these tests show that pipe durability exceeds the required minimum of 50 years of operation in sanitary and heating systems.

PIPES

The Rettig ICC pipe plant was established in 1974, in Ochtrup, Germany. It is now one of the leading producers of plastic pipes, and its production lines have manufactured more than 2 billion meters of pipes. Since the very start of its operation the plant has been strengthening its position through professionalism and trust. It is known primarily for innovative production methods and the most modern quality standards. As one of very few plants in the world, it has an advanced dedicated research and development centre, where every pipe is checked and inspected, a millimetre by millimetre.

“State-of-the-art
technology”

PEXPENTA AND SD4+ PIPES MADE OF PE-Xc CROSS-LINKED POLYETHYLENE

The CLEVERFIT system includes the highest quality high-density polyethylene plastic pipes. These are created using electron beam crosslinking technology (the physical method). This method produces pipes with equal strength parameters and characteristics to those of PE-Xa pipes (cross-linked using a chemical method). The key advantage of the physical method is that CLEVERFIT pipes are free from the chemical additives that are required in the case of chemical cross-linking. This means that if you are installing pipes for drinking water, there is no need to use an oxidant-removing process (mandatory if you use pipes made by the chemical method).

CLEVERFIT SYSTEM PIPES:

- are absolutely sterile and environment-friendly.
- have a shape memory;
- are highly flexible;
- are corrosion and incrustation resistant;

- are freeze resistant;
- are resistant to various chemicals, including many acids and bases;
- do not affect the quality of drinking water;
- have smooth inner surfaces, which minimize pressure losses.

ANTI-DIFFUSION

In heating systems (radiator heating, floor heating, and wall heating), the pipes have a special anti-diffusion barrier (EVOH) compliant with the DIN 4726 standard which prevents diffusion of oxygen into the heating system. As a result, all metal parts of the system are protected against corrosion.

There are two versions of PE-X pipes in the CLEVERFIT system (in the diameter range from 16 to 32 mm):

- SD4+ 10 bar pipes for heating and sanitary systems (working temperatures up to 95°C).
- PexPenta 6 bar pipes for radiator, floor

and wall heating systems (working temperatures up to 95°C). Most manufacturers put an anti-diffusion barrier only on the surface of pipes, which can suffer mechanical damage during installation or operation. CLEVERFIT pipes have a unique 5-layer structure, the first to have an anti-diffusion barrier which is protected on both sides by strong layers of PE-Xc cross-linked polyethylene. In the manufacturing process of PexPenta pipes, all layers are bonded at a pressure of 150 bars. The resulting material guarantees reliability and safety during installation and many years of service life.

30 YEAR WARRANTY

The pipes and CLEVERFIT system have passed the highest testing standards of EN-ISO 21003 and EN-ISO 15875. This enables us to supply PexPenta pipes with a 30 year warranty and SD4+ pipes with 10 year warranty. Further, the service life of CLEVERFIT pipes has been proven to be at least 50 years.

“The pipes and CLEVERFIT system have passed the highest testing standards.”

- 1

PE-Xc layer
- 2

Adhesive layer
- 3

EVOH layer
- 4

Adhesive layer
- 5

PE-Xc layer

- 1

PE layer
- 2

EVOH layer
- 3

Adhesive layer
- 4

PE-Xc layer

Type	pipes dimensions	outer diameter	wall thickness	inner diameter	heat conductivity	linear expansion	max. operating temp.	max. temporary temp.	max. operating pressure	min. bend radius
PEXPENTA	16 x 2	mm	mm	mm	0,41	0,15	95	110	6	5xdz
	20 x 2	16	2	12						
	25 x 2,3	20	2	16						
	32 x 2,9	25	2,3	20,4						
PEXSD4+	16 x 2,2	32	2,9	26,2	0,41	0,15	95	110	10	5xdz
	20 x 2,8	16	2,2	11,6						
	25 x 3,5	20	2,8	14,4						
	32 x 4,4	25	3,5	18						
		32	4,4	23,2						



FITTINGS IN THE CLEVERFIT SYSTEM

CLEVERFIT features a unique system of “sliding sleeve” fittings. Because the system uses pipes made of PE-Xc cross-linked polyethylene, they offer strength and reliability, as well as flexibility and shape memory. This is at the heart of the unique system of “sliding sleeve” fittings. The first step in making a connection is to expand the pipe end to be able to use a fitting with a larger outside diameter. This significantly reduces flow resistance and pressure loss in the system.

CLICKHIT FUNCTION:

- Connection is tight without any O-rings.
- An absolutely unique feature is a special lock - the patent - protected “Clickhit”. While making the connection, the sleeve is pulled over the fitting, locking permanently onto it. This function ensures the connection tightness, even in the case of multiple water hammers.
- Another unique feature is the hybrid compression sleeve, combining the best properties of metal and plastic. The inner part of the sleeve is plastic, which makes it easy to pull the sleeve onto the fitting (especially at low temperatures). This also makes the sleeve lighter and less expensive. The outer metal part keeps the sleeve from expansion when exposed to high temperatures. This prevents the reduction of connection force at high temperatures, which could result in the

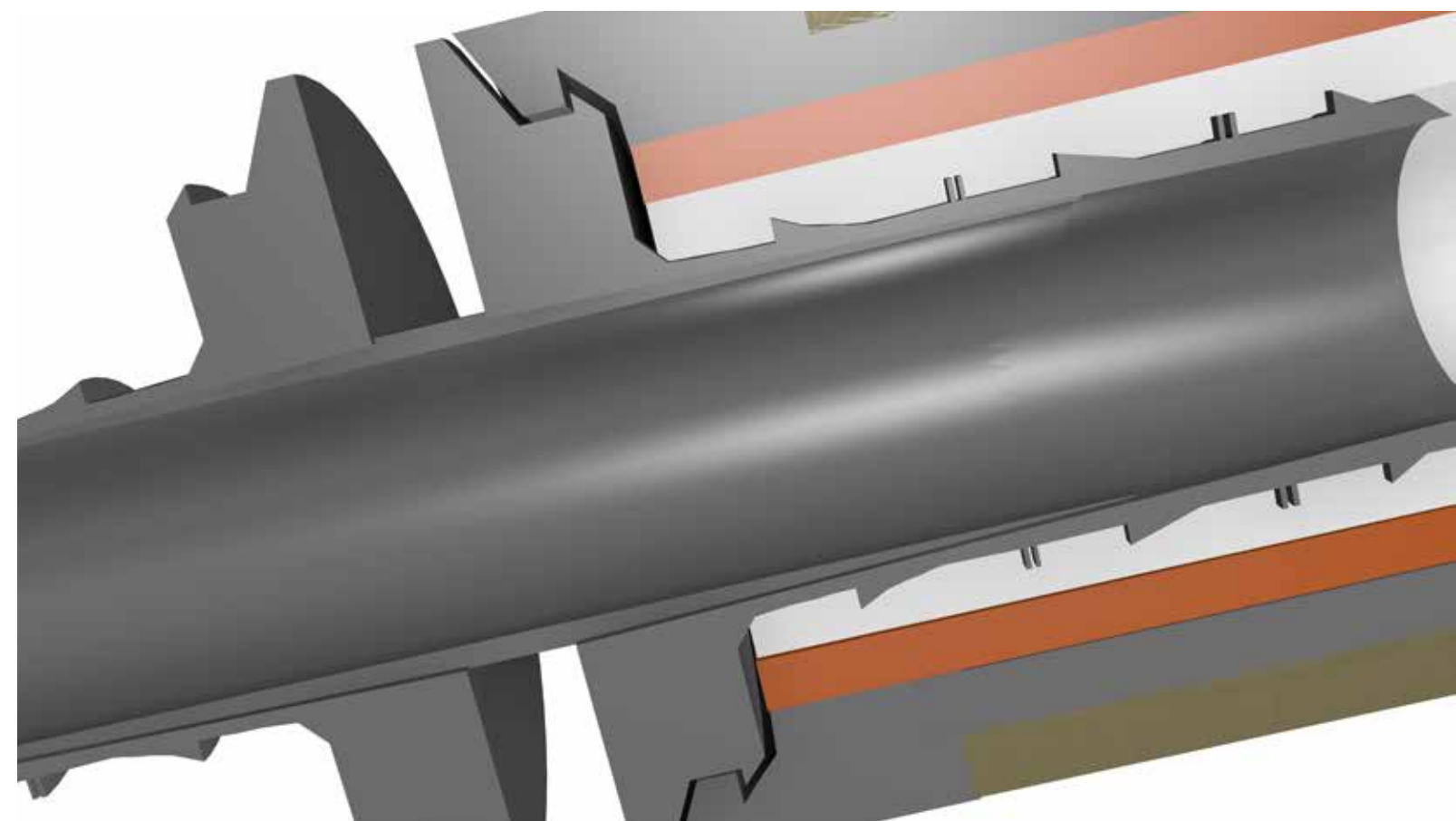
compression sleeve sliding off (in the CLEVERFIT system, the sleeve is also secured with the “Clickhit” function). The system ensures the long service life and reliability of the connections.

- CLEVERFIT comprises fittings made from plastic (PPSU) and brass, as well as hybrid threaded fittings combining both plastic and brass. PPSU fittings are resistant to corrosion and incrustation. Their performance is also excellent in areas where physico-chemical water characteristics are less than ideal. The material is chemically neutral and does not affect the quality of water.

Fittings are offered in two versions: 6 bar (grey) for PexPenta pipes and 10 bar (black) for SD4+ pipes. This is a result of differentiation in pipe wall thickness, since SD4+ pipe must withstand higher pressure conditions (as described in norms for sanitary applications).

NOTE: Pipes and fittings cannot be used in unmatched configuration (for instance 10 bar fittings with 6 bar pipes). This will result in a leak from the connection, which would **NOT** be covered by system warranty.

Regardless of the type and diameter of the fittings, connections can be made using - professional manual and battery-powered tools.



“Discover professionalism,
discover CLEVERFIT”



Expanding tool



Pressing tool



Spare forks and cutter

ALL THE TOOLS YOU NEED TO BUILD **A PERFECT INSTALLATION**

To be able to make CLEVERFIT connections, you will need professional tools. The expanding and pressing tools are crucial. Expanding heads, pressing forks and cutters are also important. The pressing equipment included in the Purmo CLEVERFIT system are robust and reliable tools produced by renowned German manufacturers.

In the Purmo CLEVERFIT system we use battery-powered tools, designed to be user-friendly for installers. First of all they are very light and ergonomically shaped, with battery level indication. Furthermore, the pressing tool is equipped with a rotating head. Pressing forks have been designed to cover two diameters in one fork (i.e. 16-20 and 25-32 mm). The whole pressing process takes several seconds at most. The tools are delivered in a set with two special forks (16- 20, 25-32 mm), four expanding heads (16-32), two Li-Ion batteries and charger, as well as a manual in various languages and all of it packed in a handy toolbox. With proper care and maintenance they will serve you for many many years.

There are also manual expanding and pressing tools for 16-32 diameter connections as an alternative solution. They are very light and handy, which makes them suitable for use in the most inaccessible places or for smaller installations. These are supplied separately. The expanding tool is suitable for the same expanding heads, although different pressing forks are required for the pressing tool.





CLEVERFIT

Rettig Heating extends
a 10-year guarantee for
the complete system.



1

Proper pipe cutting with a cutter



2

Sliding on the sleeve



3

Expanding the pipe



4

Inserting the fitting



5

Pulling the sleeve onto the fitting



6

Sleeve locked on the fitting - connection is ready



Quality of all the CLEVERFIT system components is strictly monitored as well as being proofed by many tests and controls. As a consequence Rettig Heating is ready to offer a 10-year guarantee if only original CLEVERFIT system elements (pipes, fittings, tools) are used. If, despite proper operation and installation, the system fails.

Rettig Heating shall provide a compensation of up to EUR 1,000,000 to cover all the costs of replacing defective system elements and eliminating damage resulting from the product defect. The guarantee is issued in a form of a certificate with a data's of investor, contractor and investment.

Always use original Purmo tools and follow the connection guidelines. This will protect you against expensive consequences of failures.
Purmo shall not be liable for damage resulting from improper assembly of the system.

This document has been developed with due diligence. Fragments hereof may not be copied without written consent of Rettig ICC. Rettig ICC shall not be liable for any negative consequences of observing or improper observance of the content herein.

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