



CLEVERFIT



EXPERIENCE  
THE MAGIC OF  
THE NEW  
**PURMO SYSTEM**

# CHOOSE CLEVERFIT FOR A **PERFECT MATCH**







CLEVERFIT

## 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*



*underfloor  
heating*

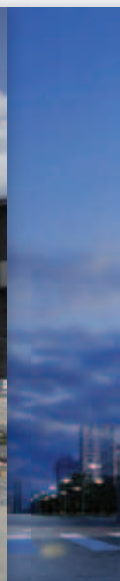
# SYSTEM MATCHING EVERY INSTALLATION

## 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”







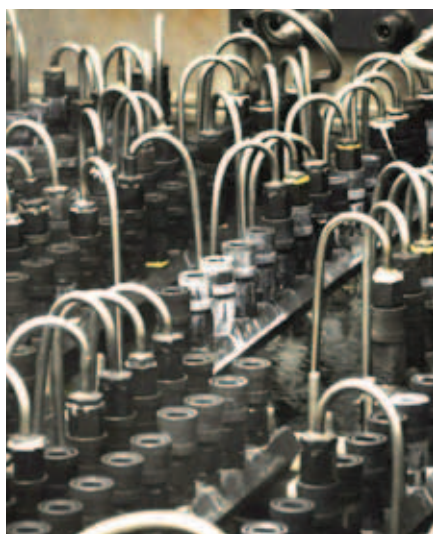
## PIPES

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.



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# LEADING PIPE PRODUCER



**High pressure and temperature endurance tests**

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



**Monitoring at every production stage**

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 go through the number of various tests. The oxygen diffusion test is a standard.

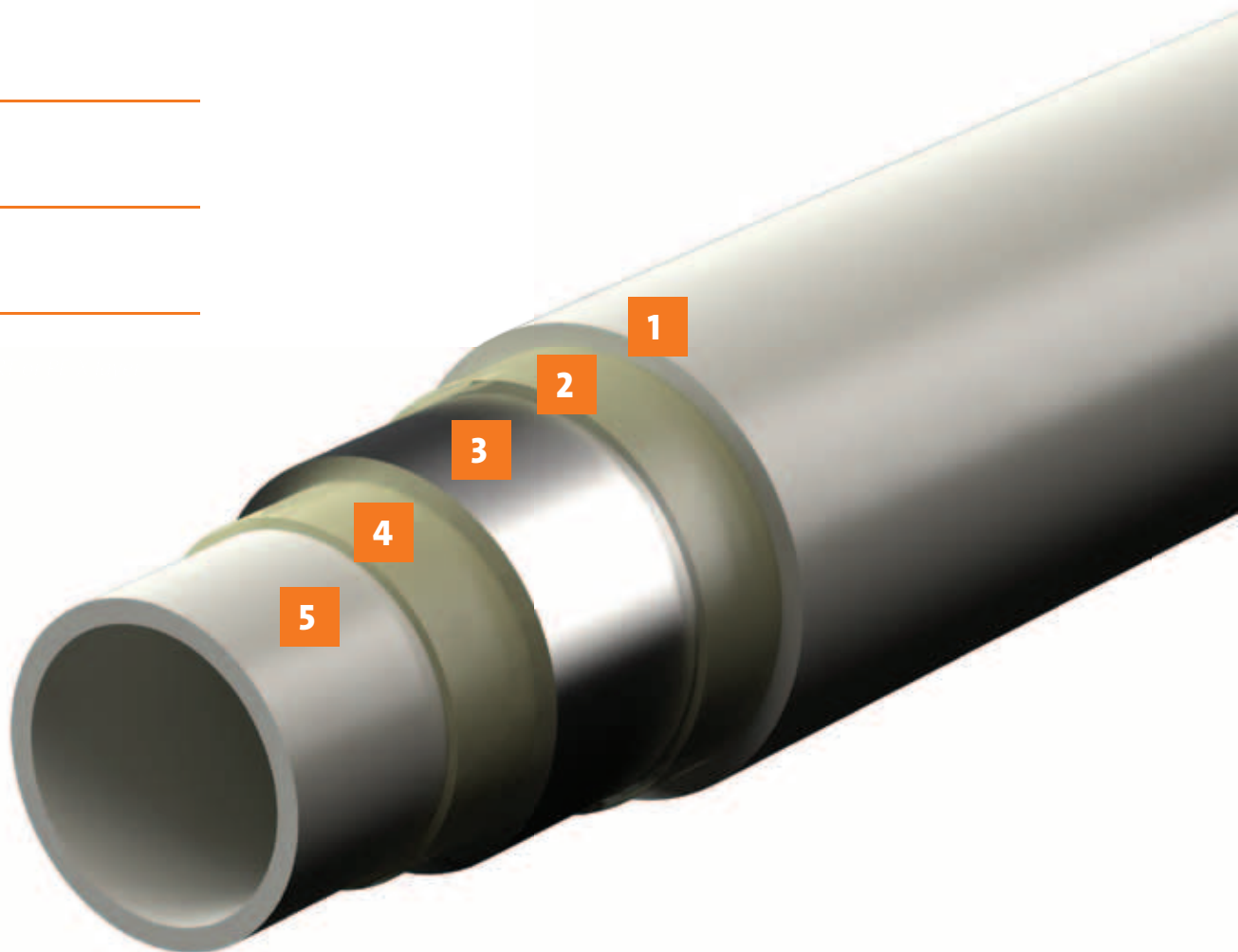


**Analyses of materials and the final product**

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.

“State-of-the-art technology”

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- 2
- 3
- 4
- 5



type	pipe dimensions	external diameter	wall thickness	internal diameter	thermal conductivity coefficient	expansion coefficient	operational parameters	minimum bend radius
		mm	mm	mm	W/mK	mm/mK		
PE-RT/AL/PE-RT	16x2	16	2	12	0,4	0,025	Tmax = 95 °C (for 10 bar T = 70 °C)	5xdz
	20x2	20	2	16				
	26x3	26	3	20				
	32x3	32	3	26				
PE-X/AL/PE-X	40x3,5	40	3,5	33	0,43	0,024	T = 95 °C for 10 bar	5xdz
	50x4	50	4	42				
	63x4,5	63	4,5	54				





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## PE-RT/AL/PE-RT OR PE-X/AL/PE-X

There are two types of multi-layer pipes in the CLEVERFIT system:

PE-RT/Al/PE-RT (diameters: 16-32 mm) and PE-X/Al/PE-X (diameters: 40-63 mm).

The strong, flexible and thinner external layer is made of polyethylene PE-RT with increased resistance to temperature, or cross-linked PE-X.

Inside the wall, there is a laser butt-welded aluminium strip which guarantee the same pipe characteristics across its entire cross section.

The thicker internal layer is again polyethylene PE-RT or cross-linked PE-X. The use of adhesive glue permanently bonds the layers together.

With the use of PE-RT II and a special aluminium alloy, the features and

parameters of PE-RT/Al/PE-RT pipes ( $T_{max} = 95^{\circ}\text{C}$ , for 10 bar  $T = 70^{\circ}\text{C}$ ) are similar to PE-X/Al/PE-X ( $T = 95^{\circ}\text{C}$  for 10 bar). Durability of both types of pipes in standard operation conditions in heating systems and sanitary systems is at least 50 years.

How can we be sure of that? Our pipes and the entire CLEVERFIT system have passed a number of tests compliant with PN-EN 21003 standard. The most destructive was the Thermo Cycling Test. Installation is being heated up to  $95^{\circ}\text{C}$  and then cooled down to  $20^{\circ}\text{C}$ .

System is under pressure of 10 bars during whole test, temperature switch every 30 minutes, while two changes form a full cycle, i.e. one hour. For a system to pass the TCT test successfully

it must withstand at least 5,000 cycles, i.e. over 3 months, keeping 100% tightness.

The CLEVERFIT pipes combine the advantages of both plastic and metal ones. Aluminium layer prevent oxygen penetration through the pipe wall, which offers effective protection against corrosion of metal components. Linear expansion is being reduced as well up to 5 times in comparison to a homogenous pipes. Besides pipes are flexible and stay in formed shape, which reduce the number of used fittings. Polyethylene is not a chemically reactive material, so it does not affect the quality of potable water. Pressure losses are significantly reduced due to a smooth internal surface of the pipes, which are also incrustation free.

“CLEVERFIT pipes combine the advantages of pipes made from plastic and from metal.”



# LEAK BEFORE PRESS FUNCTION

## FITTINGS

**Brass press fittings** differentiate with a wide range of diameters 16–63 mm, which makes it possible to perform installations in larger facilities as well. A major advantage of the fittings is the **Leak Before Press** function. This is how it works: an unpressed pipe - fitting connection generates a controlled leak, at a pressure higher than 1 bar.

The function protects installers from making unintended errors and expensive consequences.

The fittings have a unique design.

Two o-rings are hidden in the fitting body, so they cannot get damaged while sliding the pipe. A plastic ring prevents galvanic corrosion on the point of contact between the aluminium layer and brass; TH conthur jaws can be easily positioned thanks to it as well.

**PPSU press fittings**, are being offered in a range of 16–32 mm. Due to the application of **polyphenylsulfone**.

in the production process, their main appeal is the attractive price, which does not affect their outstanding quality. Furthermore, the material is resistant to high temperatures and stress. Since there is no corrosion or incrustation, PPSU fittings are perfect solution for water with poor physico-chemical parameters. The material is also chemically neutral and can be used in potable water systems. The fittings feature a special collar, which helps to place TH conthur jaws on the right position.

Both types of described fittings are being pressed with the same TH conthur jaws in whole diameters range. Both types of fittings may be used alternately in one system. Moreover, all fittings feature the so-called vision checkpoints, i.e. holes in the sleeve to assess whether a pipe has been well positioned in the fitting.



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“Discover professionalism,  
discover CLEVER**FIT**”





Mini-pressing tool



Powered pressing tool 230 V



Calibrator

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

To be able to make CLEVERFIT connections, you need professional tools. The pressing tools are crucial; however, calibrators and cutters are important as well. The pressing tools being part of the Purmo CLEVERFIT system are robust and reliable machines made by renowned German producers.

In the Purmo CLEVERFIT system we use, e.g., a battery-powered mini-pressing tool. The tool has been designed to be user-friendly for installers. First of all it's very light and has ergonomic shape. Moreover, it is equipped with a rotating head and a LED diode, providing additional light. The whole pressing process takes several seconds at most. The tool has a built-in microprocessor to monitor its operation. It can detect to low pressing force and notifies the user when the tool needs to be sent for service. The tool is delivered in a set with special mini jaws (16, 20, 26 and 32 mm) of TH conthur, a Li-Ion battery and charger, as well as a manual in English and a toolbox.

For large installations,, Purmo recommends Rems pressing tools. They can be used for 16-63 mm connections. Their compact structure, small size and smooth shape make them a good solution on every construction site. They are available in the 230 V powered version or battery-powered version. They are delivered in a metal toolbox. There is a manual pressing tool for 16-26 mm diameter connections as an alternative solution.. It is very light and handy, which makes it suitable for in the most inaccessible places.

It would be impossible to make correct CLEVERFIT connections without calibration. Purmo offers a unique pipe calibrator. It restores the pipe's circular shape and deburr its edges, so the pipe can smoothly slide into the fitting.



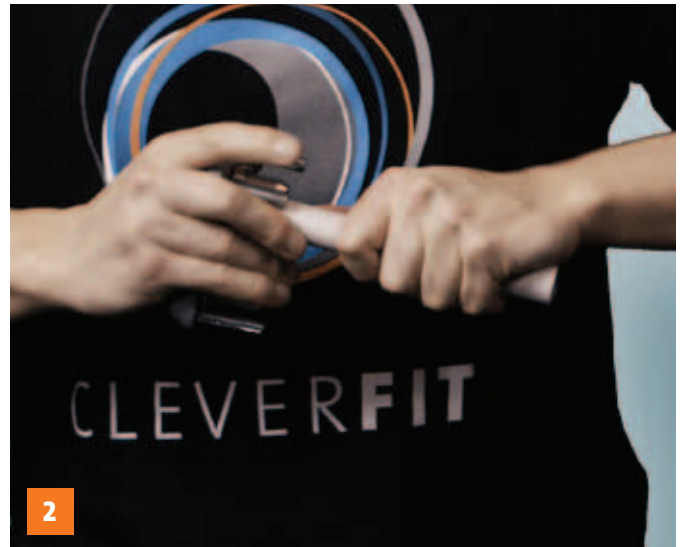
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“This tool is  
very cool!”

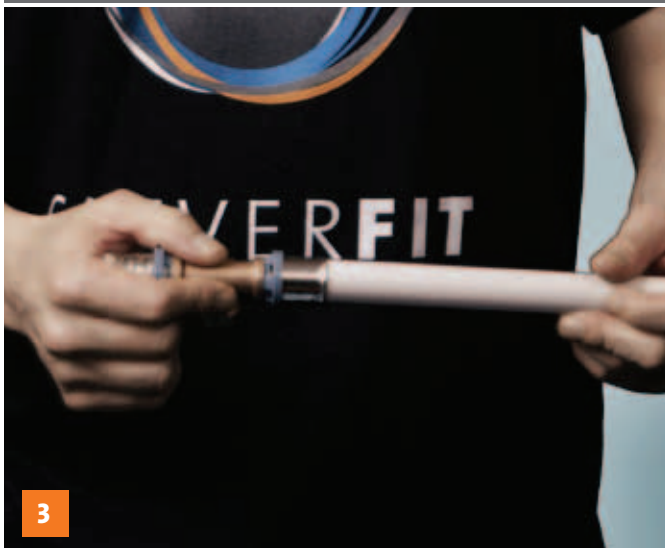




Proper pipe cutting with a cutter



Pipe calibration



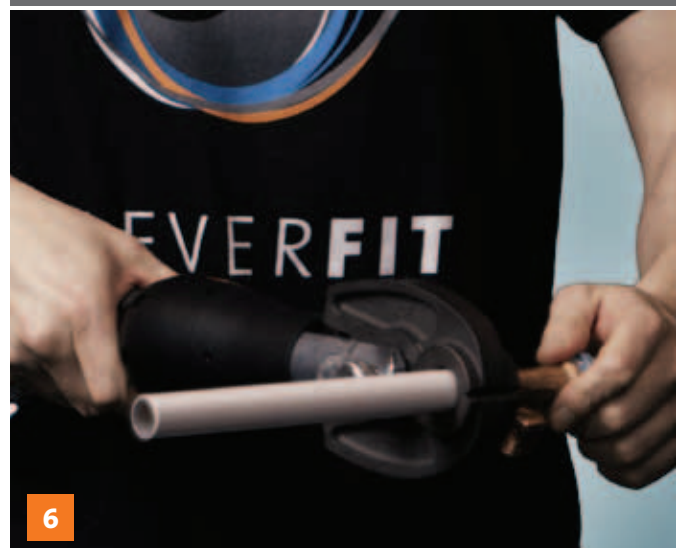
Sliding the pipe into the fitting



Control by the vision checkpoints



Adjusting the fitting to TH conthur jaw



Pressing the connection

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





CLEVERFIT

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



**PURMO**

**PURMO Underfloor heating and pipe system**

WARRANTY No. 00/2015 ORIGINAL COPY

for investors and realization companies goods

Investor	Name	JAN KOWALSKI
	Street	00-000 KOWALEWO
	Postcode/city	KOWALSKA 00
Investment address	Street	00-000 KOWALEWO
	Postcode/city	NOWAK / INSTALATORSTWO SANITARNE
System contractor	Name/company	NOWAKA 00
	Street	00-001 NOWAKOWO
	Postcode/city	JAN KOWALSKI

165 m<sup>2</sup> of PURMO floor heating. Realization finished 12.11.2015

We hereby grant the following warranty for plastic pipes and other elements of underfloor heating system and CLEVERFIT system from Rettig Heating Sp. z o.o. company, delivered for the above investment:

- 1.1. In warranty period:  
**10 years**  
counting from the installation date we assure free of charge replacement of heating pipes and other elements of PURMO system, in which the failures occur, resulting from production defects.  
In case of using Purmo PexPenta PE-Xc pipes, the warranty period is extended to 30 years counting from the installation date.
- 1.2. Warranty does not include electric and electronic elements of PURMO system (1 year of warranty).
- 1.3. In warranty period:  
**10 years**  
counting from the installation date we also assure refund of costs connected with:  
• damages occurring in property of third persons and resulting from them further damages, or  
• costs of third persons, connected with removal, disassembly and verification of defective elements and replacing them with operational elements.
- 1.4. Warranty considerations value is limited to:  
**1 000 000 EURO**  
and the condition of payment is proper contractor statement, presented according to warranty conditions.
- 1.5. In order to protect the above risk the contract has been signed with reknown insurance company, referring to extended, obligatory damages insurance for damages resulting from product defects, for amount to 1 000 000 EURO.
- 1.6. Lump sum for covering personal and material damages, resulting from above contract is: 1 000 000 EURO
- 1.7. In other cases our general trade terms and conditions are used.

RETTIG HEATING Sp. z o.o.  
92-777 Warsaw, Ciszewskiego 16  
KEN Center

Warsaw 12.12.2015

Signature: \_\_\_\_\_

\* This warranty is valid only in case of presenting it by the contractor on original form in 3 months from realization date.  
In this form the contractor declares, that the installation instructions have been followed and only original elements of PURMO system have been used.

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.

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**Rettig Heating Sp. z o.o.**

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