# The complete PP-RCT Piping System available in Sizes 20 to 500 mm offering significant Advantages

**New possibilities for chemical and industrial applications, air conditioning and water treatment**



www.baenninger.de

B-R Bänninger

# The complete Bänninger PP-RCT System – Higher Performance when using aggressive media



PP-RCT is a new generation polypropylene raw material. Nucleation of the PP-RCT material leads to more and smaller crystals compared to standard PP-R. The finer structure combined with improved homogeneity results in a considerably higher strength at higher temperatures.

### Bänninger High-Technology

The PP-RCT pipe system is based on continuous development of raw material and pipes and fittings. Owing to the specific properties PP-RCT pipelines are suitable for a variety of applications and meet highest demands for nearly all liquid and aggressive media.

The PP-RCT pipe system provides pipes and fittings from diameter 20 on for all applications. PP-RCT pipes are available in three versions:

- PP-RCT pressure pipes
- PP-RCT multilayer pipes “Climatec”
- PP-RCT multilayer pipes “Watertec”

PP-RCT multilayer pipes consist of an outer and inner pipe of PP-RCT and a middle layer of PP-RCT/PP-fibre glass which is patented. They are a high quality alternative for traditional piping systems and are suitable for cooling and air conditioning, potable water and water treatment systems as well as for industrial applications. Operation and welding systems have been developed for easy handling and usability.

### Application

Chemical devices and plants
Pressure pipe line
Geothermics
Heating systems
Industrial applications: Pickling plants, electroanalysis
Ship building
Water treatment
HVAC Systems

**Chemical industry**



**Ship building**



**Industrial applications**

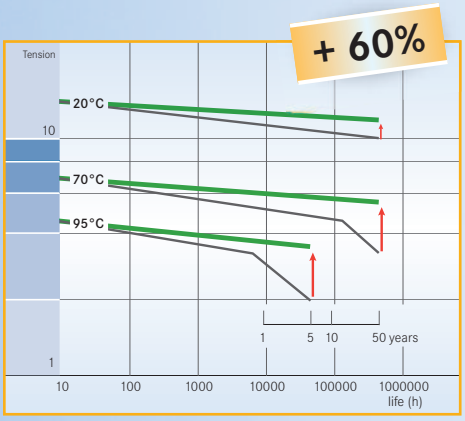


# Four significant Advantages owing to optimized Raw Material

Bänninger makes use of the extraordinary properties of PP-RCT raw material for the installation of high-tech pipe lines.

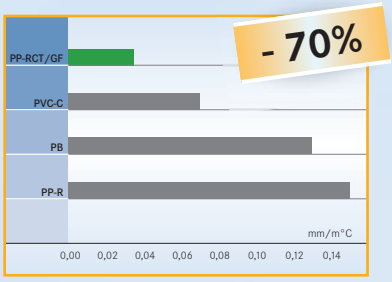
## Higher pressure resistance at higher temperatures

The pressure resistance of PP-RCT pipes is much higher than that of standard PP-R pipes allowing higher temperatures. **This allows higher system pressures or temperatures.**




## Lower thermal expansion of multilayer pipes

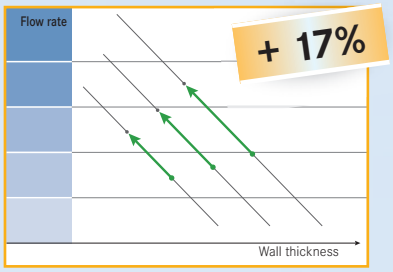
Thermal expansion has to be compensated depending on different temperature, longitudinal elongation and type of pipe. PP-RCT multilayer pipes have an expansion coefficient of $\Delta l$ = 0,035 to 0,045 mm/(K·m) which approx. makes up a quarter of the value of standard PP-R pipes.
**Compensation is much easier.**




## High safety during long life time

Safety and liefetime of PP-RCT pipes are much higher resp. longer at higher temperatures compared to standard PP-R pipes considerably lowering the costs for revision.
**The costs for revision are much lower, accordingly.**




## Higher flow rate

Compared to PP-R resp. PP-H pipes PP-RCT pipes have a lower wall thickness at equal and higher pressure rates resulting in a higher flow rate of approx. 17% leading to a reduction of one SDR class. This means: reduced raw material costs.
**Material costs are reduced.**

**Air-conditioning**



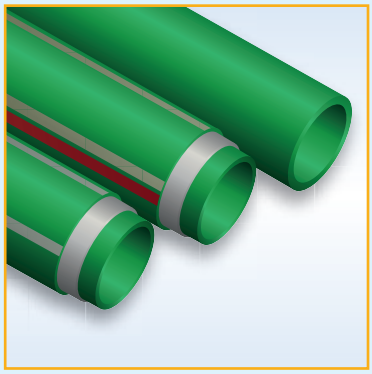
**Water/Water treatment**



# Pipes and fittings in all sizes – the full range of PP-RCT products



Bänninger manufactures the full range of types and sizes of pipes and fittings for all connections. We are continuously working on increasing the availability of bigger sizes. Recently a dozen of pipes of big dimensions up to dia 500 and 28 types of big size fittings have been added to our production programme.



**PP-RCT Pressure Pipes**

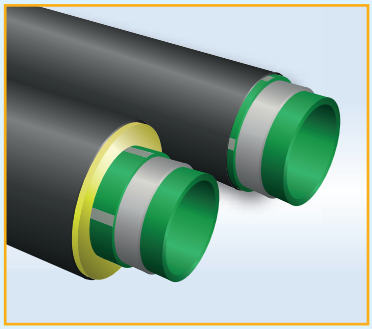
Application areas: Potable water and sanitary installation

**PP-RCT "Climatec" Multilayer Pipes**

Applications: Cooling and air conditioning, industrial plants

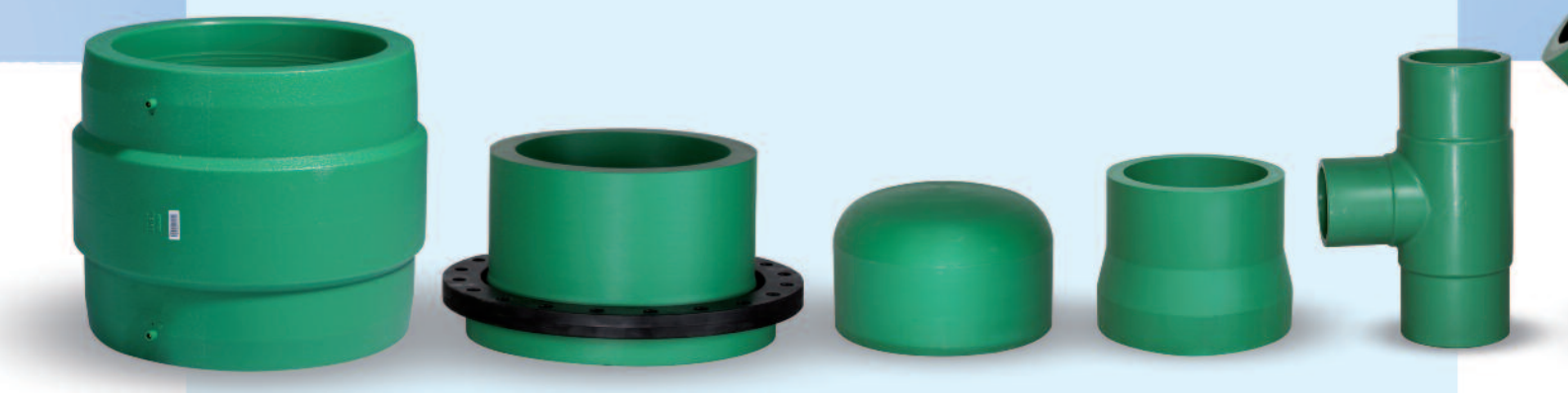
**PP-RCT "Watertec" Multilayer Pipes**

Application: Potable water and sanitary installation



**Customized PP-RCT Pipes**

Customized pipes with thermal insulation or coated pipes resistant against UV rays available on request.



## PP-RCT Pipes

| | 20 | 25 | 32 | 40 | 50 | 63 | 75 | 90 | 110 | 125 | 160 | 200 | 250 | 315 | 355 | 400 | 450 | 500 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PP-RCT pressure pipes** | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **PP-RCT multilayer pipes “Climatec”** | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **PP-RCT multilayer pipes “Watertec”** | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

● Standard product range ● New items

NEW

## PP-RCT Fittings

| | 20 | 25 | 32 | 40 | 50 | 63 | 75 | 90 | 110 | 125 | 160 | 200 | 250 | 315 | 355 | 400 | 450 | 500 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Electrofusion socket** | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Elbow 90°** | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Elbow 45°** | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Tee** | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Reduced Tee** | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | |
| **Cap** | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Flange adaptor** | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Reducer** | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

Further fittings see catalogue ● Standard product range ● New items

NEW

### We offer the full range of small and big size fittings

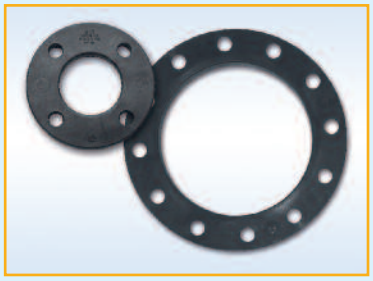
Injection moulded fittings do not have any seams. Big sizes offer a perfect alternative for segmented bends, Tees etc. A 30 – 40% higher pressure resistance guarantees a consistent resilience of the complete piping system, long enough for butt welding and electrofusion welding. They offer considerable advantages in planning and handling as well as related to transport costs and operation.



# Accessories and welding methods

## Accessories

Bänninger offers the complete product range including flanges and gaskets up to dia 500 mm as well as flow control technology up to PN16.







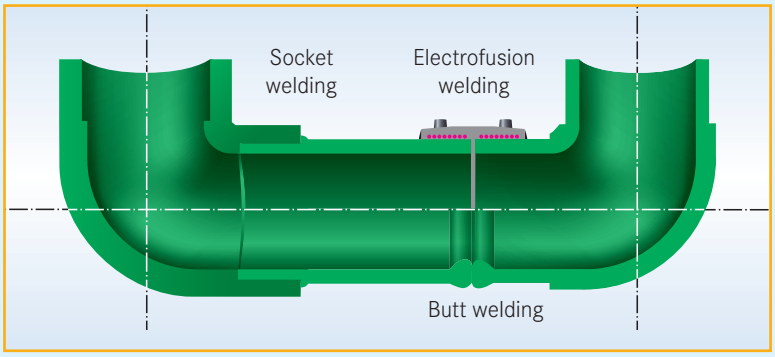

| | 20 | 25 | 32 | 40 | 50 | 63 | 75 | 90 | 110 | 125 | 160 | 200 | 250 | 315 | 355 | 400 | 450 | 500 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Flange with steel insert** | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Flat gasket for flange adaptor** | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

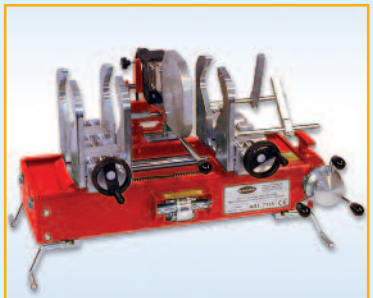
NEW

● Standard product range ● New items

## Welding methods

Fittings and pipes up to a diameter of 125 mm are butt welded. Injection moulded big size fittings from diameter 160 mm on can be joined with two different welding methods. Long fittings are suitable for electrofusion as well as for butt welding. Short fittings have to be butt welded.



**Welding machines for socket welding**



**Welding machines for butt welding**




**Electrofusion welding machines**

# Approvals

# Applications

PP-RCT piping systems of Bänninger meet all requirements of chemical industry, industrial application, air conditioning as well as water treatment.

- Bänninger is a high quality manufacturer of pipes and injection moulded fittings in diameters from 20 to 500 mm.
- PP-RCT raw material, outer diameter of the products and wall thickness meet the existing standards.
- Bänninger pipes and fittings are produced of approved raw materials and are subject to continuous quality controls supervised by the quality assurance management of Bänninger and external test institutes.
- Our products are being manufactured on high quality injection moulding machinery. Products made in Germany – approved according to ISO 9001.




**Approvals for PP-RCT and PP-RCT multilayer fibre pipes**

- DIN CERTCO–Germany
- ÖVGW–Austria
- AENOR–Spain
- TIN–Poland
- GHOST–Russia
- Bulgarkontrola–Bulgaria
- Agreementtechnique–Romania
- NSF–USA











Shopping mall and hotel in Bogotá, Columbia:
Cooling

Santiago Bernabeu Stadium, Madrid, Spain:
Cooling and sanitary installation

Reykjavik opera, Iceland:
Air-conditioning and cooling

Sugar refining, Ukraine:
Industrial application

# Quality Made in Germany

### Availability ex stock

All our products are being produced in Reiskirchen/Hessen where also our central warehouse and the headquarter of Bänninger Kunststoff Produkte GmbH are located. Our products are stored in a 10,000 square meter warehouse and an outside area of 20,000 square meters. Flexible manufacturing and a large warehouse combined with a skilled logistic system guarantee short delivery times.

### Distributor network

A tight network of domestic and international distributors is willing to support you and to provide you with our products.

### Service for proper installation

Planning, handling and installation of pipe lines is a technical challenge. We support you with consulting, seminars and assistance at site.

### Information

We provide you with catalogues, flyers and further product brochures– either printed or online on our homepage. For standard formats we can also offer 3D data. All these are necessary for an exact planning and application of our products for any pipe line projects.

### Approvals

Bänninger is approved according to DIN EN ISO 9001:2008. All our products are certified and we can provide international approvals, warranties and certificates for all applications.







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