PEŠTAN
we build trust

PIPING SOLUTIONS

Water and heating

PP-R & PP-RCT

PP-R & PP-RCT

Pressure piping systems

POLYPROPYLENE RANDOM COPOLYMER (PP-R) AND POLYPROPYLENE RANDOM CRYSTALLINE TEMPERATURE (PP-RCT)

With more than twenty years of proven performance, Polypropylene Random Copolymer (PP-R) pipe and fittings have been used throughout the world in plumbing, mechanical and industrial applications. Pipes made from PP-R are lightweight, do not corrode, rust, or scale and they are joined via heat fusion for permanent, leak-free joints.
These pipes are designed primarily for use inside the building but may be installed outside. (See section on UV Protection)
Applications include but are not limited to the following systems: Hot and cold potable water, Food grade, Hydronics, Geothermal, Industrial, Compressed air and vacuum Rain, Gray and Reclaimed water.

Based on the success of PP-R, the next generation of Polypropylene- Random Copolymer was developed with a special crystalline structure that exhibits an improved pressure rating at elevated temperatures. It is called Polypropylene-Random Crystalline Temperature (PP-RCT). Its enhanced crystalline structure is created through a special nucleation process that enables the pipe to operate at higher pressures at elevated temperatur ses. This advanced resin is used in PEŠTAN'S MECHANICAL Pipes and Fittings.

In long-term pressure tests, the outstanding performance characteristics of PP-RCT vs. standard PP-R is apparent:
PP-RCT : 50 year strength at 70 0C (158 0F) = 5.00 MPa (725 psi)
PP-R : 50 year strength at 70 0C (158 0F) = 3.21 MPa (464 psi)

Offering more than 50% improved long-term strength, PP-RCT enables designers to achieve higher pressure ratings than with traditional PP-R pipes of the same wall thickness, or they can utilize PP-RCT's higher pressure rating and down-gauge to a thinner wall pipe offering higher hydraulic capacities and cost savings.

For more information on applications please contact our Technical Support at
tech.support@pestan.net

Material Stability

Integrity of the PP-R(CT) raw material is not affected during processing and fabrication. More importantly, the material is engineered to withstand long-term service life even at high temperatures.

Corrosion Resistance

Unlike metal piping systems that have to be upsized due to corrosion, PP-R(CT) systems do not corrode, rust or scale. No corrosion means long-term consistent flow, no decrease in pipe inside diameter, lower pumping costs and a beker quality of water

Chemical Resistance and Special Applications

PP-R(CT) is safe for the transport of drinking water and any food-grade fluids. Because of the non-polar characteristics of polypropylene and a specially designed additive package, PP-R(CT) systems are also suitable for the distribution of most chemicals*. Although PPR(CT) is resistant to a wide variety of chemicals, it is very important to select appropriate “transition” fittings (fittings with metal inserts).
To determine if PEŠTAN piping is suitable for your desired application, please contact our Technical Department.

Hydrolysis

PEŠTAN PP-R(CT) pipes are completely resistant to hydrolysis meaning they will not react with water. The pipe will not break down and no chemicals will leach into the water throughout its lifecycle Additionally, these pipes do not impart any taste or odor into the fluids they convey. This makes them ideal for the transport of water and food grade liquids.
*for more information please contact our Technical Support at support@pestanpipes.com

UV Protection Indoor vs. Outdoor

PP-R(CT) pipe and fittings are designed for indoor use. They are not stabilized for direct Ultraviolet (UV) exposure. Over Tme, UV exposure causes degradation, resulting in decreases in the pipe’s physical and chemical properties and long-term performance.
If the pipes are to be used outdoors, they should be buried or encased in a protective wrap or coating. Note: Coating of the system can be achieved by using PP-R(CT) safe paint, which must be properly applied and maintained.
Axermarket alteration of the product, such as painting, is not covered by PEŠTAN warranty.
For more information on protective coatings, please visit: PestanPipes.com/UV-Protection or contact our Technical Department.

Warning: Peštan does not recommend PP-R(CT) being used in installations where copper and highly aggressive water are present. The water akacks the copper and releases free ions that negatively affect water and any material it contacts in the system. Even inert materials such as polypropylene can be affected.
To avoid the erosion/corrosion of the copper piping systems, please follow recommended design instructions from The Copper Tube Handbook, by Copper Development Association (page 11).

Note: According to the ANSI/ASME B31.3 Process Piping Code, thermoplastic piping should not be used in flammable fluid service above ground, in nominal sizes above 1 inch (32 mm). With sizes 1 inch and below, secondary containment should be provided.

Fiber Composite Pipes Integrated Expansion and Contraction Control

Temperature changes cause thermoplastic pipes to expand and contract in the linear direction. With PEŠTAN's PP-R(CT) Fiber Composite pipes, expansion and contraction is controlled in the linear direction. This is achieved by the addititon of a fiber layer co- extruded into the mid-wall of the pipe. The middle layer is comprised of oriented fibers encapsulated in PP-RCT, which does not expand when exposed to temperature changes. Therefore, overall expansion of the pipe is minimized. Not only does it reduce the need for additional expansion control, it also provides rigidity and stability.
PEŠTAN MECHANICAL pipes with the Fiber Composite layer are joined via heat fusion and use standard PEŠTAN PP-RCT fignqs.

Heat Fusion Connections

PEŠTAN piping systems use the Heat Fusion process to create the homogeneous connections between the pipe and the fittings. The connections use no added solders, solvents, glues or similar products. When heat fusing PP-R(CT) components, extra material is collected at the joint which makes fusion joints the strongest points of the system. Properties of the material do not change when heat fused, so connections between pipes and fignqs are strong and safe.

Premium Quality

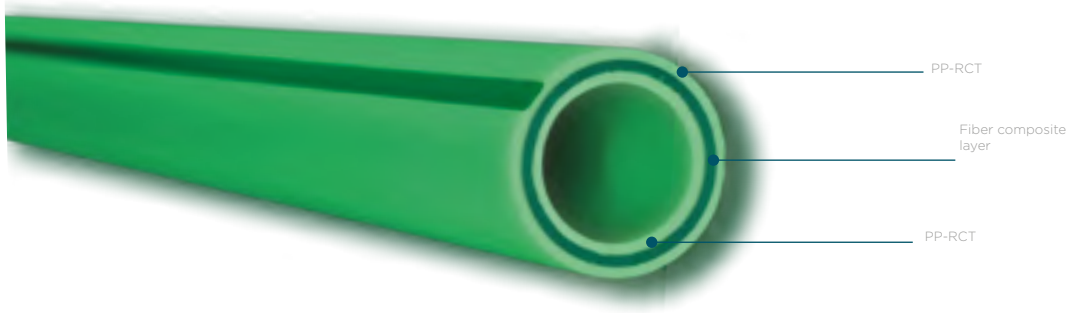
PEŠTAN'S strict policy on quality control requires the use of premium PP-R(CT) resins produced by the world's premier resin manufacturers. Material formulations are continuously monitored for compliance and consistency insuring the long-term performance of your PEŠTAN piping system.

50+ Year Lifetime

PEŠTAN has developed long-lasting, low maintenance piping systems. Our products are produced from
proprietary resin formulations insuring long term performance. The pipes are resistant to scaling and corrosion; the walls of the pipes are extremely smooth and therefore have a low friction coefficient eliminating abrasion. Furthermore, mechanical joints, the weakest point of a traditional piping system, are eliminated by using heat fusion as the joining method. With heat fused joints, physical stresses will not damage the integrity of the joints.

Insulation and Energy Savings

A 50% improvement in heat loss or heat gain can be realized when comparing non insulated metal pipe to non insulated PEŠTAN PP-R(CT) pipe. Before starting installation, always check code requirements to make sure that your installation complies. Both past and current ICC and ASHRAE energy codes support insulation savings when using PEŠTAN pipes (see Section 4).



Low Thermal Conductivity

The value of Thermal conductivity of PP-R(CT) material is 1.67 BTU(in/hr x2 °F). This low conductivity value, combined with the thickness of the pipe and fitting wall, acts as a natural insulator. Traditional metal piping systems have much higher Thermal Conductivity values. Under normal operating conditions, non-insulated PP-R(CT) pipes have less heat loss or gain and greater resistance to condensation as compared with metal and other types of plastic piping systems.
One of the objectives of Energy and Building codes is to improve operating efficiencies. They make recommendations for the required amount of insulation for piping systems. Because PEŠTAN piping systems have much lower heat losses and heat gains than traditional metal systems, our piping system is capable of operating at an equal or in most cases a more efficient level than other metal systems under the same code. If there is a need for insulation, both space and material can be saved using PP-R(CT) systems. Further details on this are given in Section 5.

Fittings Insulation Advantage

The socket fusion fittings vary from 1/2" to 4" (20 mm – 125 mm). When pipes are inserted into the socket of the figng, thickness of the PP-R(CT) material is increased at the joint. When thickness of the over-engineered fittings and pipe are added in conjunction with natural thermal resistance of the material, need for fitting insulation is eliminated in certain applications.

Prevention of Biological Growth

Light transmission through PP-R(CT) pipe is less than 0.2%. Therefore, algae and other biofilm attachment
is not supported. This benefit makes it an ideal piping system for health care facilities and food grade applications.

Natural Sound Insulation

Because of the integrated natural sound insulation, pressure bellow and water flow noise are lessened by PP-R(CT) pipes, enhancing the quality of living for the occupants of the buildings.

Safe Handling and Installations

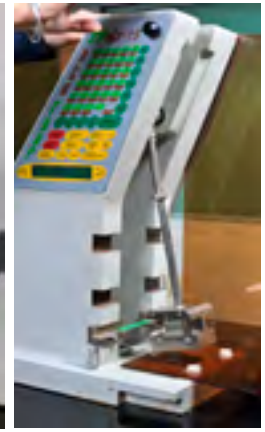
Installation of PP-R(CT) piping system is preferred over other piping systems because they weigh less and are joined using heat fusion, instead of solders or glues (eliminating VOC's during the process). Installers should follow all safety recommendations established by PEŠTAN as well as all project, local, state and federal (OSHA) safety guidelines when working with PEŠTAN PP-R(CT) piping systems.

PP-R(CT) pipes will burn, but are not classified as flammable. The NFPA classifies these products as a 1 (slow burning) on a scale of 0 to 4 with 4 being the quickest to burn. When burning, these pipes emit C02 and H2O vapor. In an underdeveloped combustion situation, small amounts of CO can be emitted, just as it is from wood or wood-based products.
PP-R(CT) pipes require special wrapping when installed in plenums or other spaces where the Code requires the pipe to meet a Flame Spread Index (FSI) of 25 and a Smoke Development Index (SDI) of 50. You may use ASTM E84 OR CAN/ULC S-102.2 approved materials to comply with the code. Always be sure to review project and local code requirements before beginning an installation.

FIBER COMPOSITE PIPES INTEGRATED EXPANSION AND CONTRACTION CONTROL

PEŠTAN products are listed with ICC and IAMPO for following Standards:

- ASTM F 2389 Standard Specification for Pressure Rated Polypropylene (PP) Piping System
- NSF/ANSI 14 Plastic Piping Systems Components and Related Materials
- CSA B137.11 Polypropylene (PP-R) Pipe and Fittings for Pressure Applications
- ICC-LC1004, PP, PEX, PEX-AL-PEX and PP-AL-PP Piping, Tube and Fittings used in Radiant Heating and Water Supply



PEŠTAN products are listed with ICC and IAMPO for following Codes:

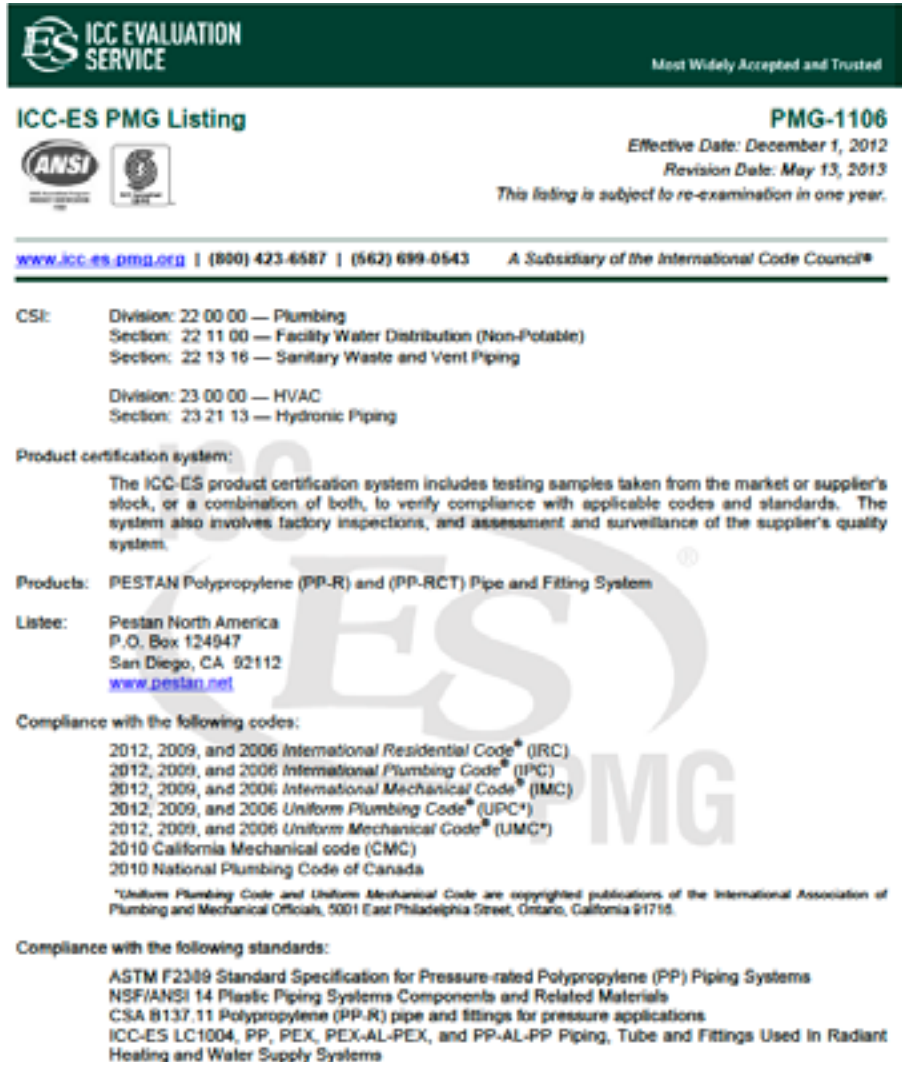
- 2012, 2009 and 2006 International Residence Code (IRC)
- 2012, 2009 and 2006 International Plumbing Code (IPC)
- 2012, 2009 and 2006 International Mechanical Code (IMC) - 2012, 2009 and 2006 Uniform Plumbing Code (UPC)
- 2012, 2009 and 2006 Uniform Mechanical Code (UMC)
- 2010 California Mechanical Code (CMC)
- 2010 National Plumbing Code of Canada
  PEŠTAN manufacturing plant is listed with TUV for the following Standards:

  - ISO 9001:2007 for Quality Management

  - ISO 14001 for Environmental Management

  - OHSA 18001:2007 for Occupational Health and Safety Management

CERTIFICATES



ICC EVALUATION SERVICE

Most Widely Accepted and Trusted

ICC-ES PMG Listing

PMG-1106

Effective Date: December 1, 2012
Revision Date: May 13, 2013
This listing is subject to re-examination in one year.

www.icc-es-pmg.org | (800) 423-6587 | (562) 699-0543 *A Subsidiary of the International Code Council®*

CSI: Division: 22 00 00 — Plumbing
Section: 22 11 00 — Facility Water Distribution (Non-Potable)
Section: 22 13 16 — Sanitary Waste and Vent Piping

Division: 23 00 00 — HVAC
Section: 23 21 13 — Hydronic Piping

Product certification system:

The ICC-ES product certification system includes testing samples taken from the market or supplier's stock, or a combination of both, to verify compliance with applicable codes and standards. The system also involves factory inspections, and assessment and surveillance of the supplier's quality system.

Products: PESTAN Polypropylene (PP-R) and (PP-RCT) Pipe and Fitting System

Listee: Pestan North America
P.O. Box 124947
San Diego, CA 92112
www.pestan.net

Compliance with the following codes:

2012, 2009, and 2006 *International Residential Code®* (IRC)
2012, 2009, and 2006 *International Plumbing Code®* (IPC)
2012, 2009, and 2006 *International Mechanical Code®* (IMC)
2012, 2009, and 2006 *Uniform Plumbing Code®* (UPC*)
2012, 2009, and 2006 *Uniform Mechanical Code®* (UMC*)
2010 California Mechanical code (CMC)
2010 National Plumbing Code of Canada

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Compliance with the following standards:

ASTM F2389 Standard Specification for Pressure-rated Polypropylene (PP) Piping Systems
NSF/ANSI 14 Plastic Piping Systems Components and Related Materials
CSA B137.11 Polypropylene (PP-R) pipe and fittings for pressure applications
ICC-ES LC1004, PP, PEX, PEX-AL-PEX, and PP-AL-PP Piping, Tube and Fittings Used In Radiant Heating and Water Supply Systems

IAPMO RESEARCH AND TESTING, INC.

CERTIFICATE OF LISTING

OWNER BENEFITS

No Maintenance

PESTAN PP-R(CT) piping systems are more cost effective to operate and maintain as compared to traditional metal piping systems. It is joined with heat fusion so there are no mechanical fittings or gaskets to fail. The absence of mechanical fignge substantially minimize the chance of damage related to leaks.

The pipe is resistant to corrosion and scaling so no additional chemical treatments are required. PP-R(CT) pipes have a beker coefficient of friction than metal pipes resulting in lower pumping costs. No Toxic Elements

PEŠTAN pipes and fittings do not contain toxic materials and do not emit VOC's or other dangerous compounds even when exposed to fire.

Reduced Heat Transfer Values

PEŠTAN PP-R(CT) pipes have a lower thermal conductivity value than traditional metal pipes:

1.67 BTU(in/hr x2 °F),
0.139 BTU(x hr °F),
0.241 waks/m °K).

This provides several advantages:

» Minimized loss or gain of heat improves energy savings
» Less insulation is required
» Less condensation when used in chilled water applications
» Reduced chance of injury around exposed hot water piping

Extended Service Life

PEŠTAN offers a 10 year warranty that covers product replacement, incidental and property damages caused by product failure due to manufacturing defects. Systems must be installed and successfully tested by PEŠTAN Certified Installers and a properly recorded Pressure Test Form must be submited.

INSTALLER BENEFITS

Compatible Piping Systems

PEŠTAN offers a full line of PP-RCT fittings keeping installation simple and providing an easy transition to other piping systems and equipment.

Heat Fusion

During installation, there are no solders, solvents or glues required. PP-R(CT) is joined via a process known as heat fusion. During the fusion process, the pipe and fittings are heated under controlled temperatures and then joined. The molecules of the polymer flow together creating a seamless, permanent leak-free bond. No open flames are required and no toxic Volatile Organic Compounds (VOC's) are emiked during the process. Heat fusion is a quick, safe joining method that can be utilized in occupied buildings.

Freezing Conditions

Although not designed to be installed in applications repeatedly frozen and thawed, if the fluid inside the pipe
freezes, it will not damage PP-R(CT) material. PESTAN recommends the use of anti-freeze such as glycol or glycerin, the use of plastic safe heating cables/tapes or to simply keep the minimum constant flow through pipes to protect proper function and integrity of the system.

Product Warranty

PEŠTAN offers a 10 year warranty that covers product replacement, incidental and property damages caused by product failure due to manufacturing defects. Systems must be installed and successfully tested by PEŠTAN Certified Installers and a properly recorded Pressure Test Form must be submited.

Lightweight Material

Weighing up to 80% less than traditional metal pipes PEŠTAN pipes are easy to handle and more cost- effective to transport. Their light weight makes them easier to assemble making for a safe and less tiring installation.

Non-Shattering

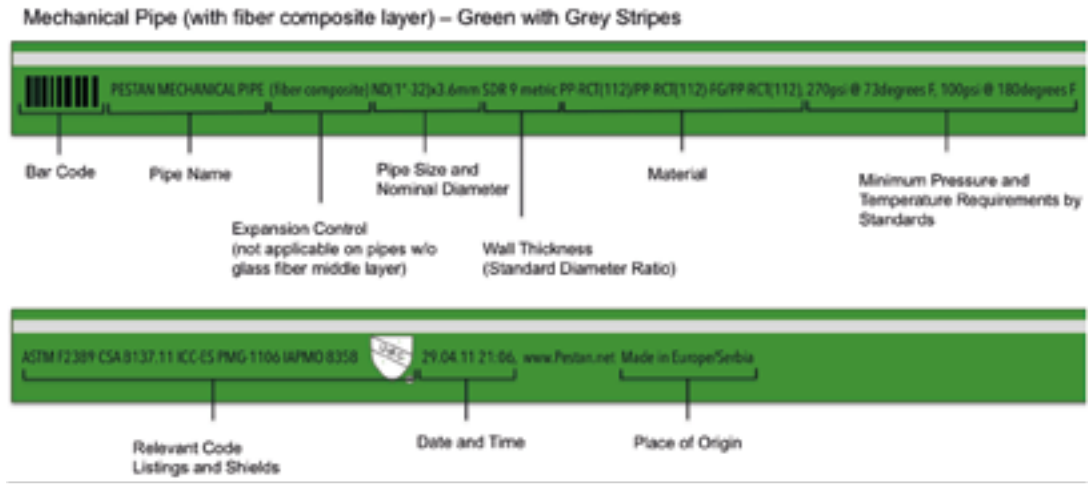
Under normal operating temperatures, the pipes will not shatter when impacted or crushed. When temperatures fall to or below freezing, the impact resistance of the pipes decreases so the installers must use caution when handling.

Saddle Outlet Fusion Joints

Even axer the mains are set, branch lines can be easily added using saddle fusion joints. With saddle fusion, the branch is fused directly into the wall of the main. Furthermore, saddle outlets are great solution for easy fabrication and modification of manifols. It is a time saver and provides lower pressure drop as compared to traditional reducing tee fittings.

Prefabrication and Transport

PEŠTAN PP-R(CT) pipes and fittings are ideal for prefabrication and transport without the risk of the
pre-fab joints failing. The unique properties of PP-R(CT) pipe combined with the permanent, leak-free bonds (created by joining with heat fusion),



creates a monolithic system. These characteristics also help prevent damage from seismic activity or from exposure to vibrations, such as on cruise ships, trains and in manufacturing facilities.

Pressure Testing

PEŠTAN PP-R(CT) pipes can not be dry fitted. Final pressure testing must be done on a completed
installation and documented according to pre-set guidelines established by PEŠTAN. These steps enable the installer to identify potential leaks before the system becomes operational.
The installer may use water, air or a mixture of air and water as the pressure test medium. Strict adherence to safety and pressure testing procedures should be followed, especially when the test is performed using air.

Uniform and Rigid Appearance

Because of rigidity and strength, PEŠTAN PP-R(CT) piping systems maintain a uniform, professional
appearance in all types of installations including wall mounted vertical and horizontal installations as well as when suspended from hangers.

Easy to Identify

PEŠTAN PP-R(CT) pipes are available in 13x straight lengths. The pipe is color coded for ease of identification.
Green Pipe with four gray stripes is the MECHANICAL pipe with Fiber Composite layer.
PURPLE Pipe is for Reclaim, Gray and Rainwater.
The pipe has a permanent print line that is repeated at least every 5x for easy identification and inspection on the jobsite.

The straight lengths of pipe are bundled by size and packaged in UV resistant bags. If pipe is temporarily stored outside, bags will protect pipe from UV exposure up to 6 months. The content of the bundles is clearly identified with labels specifying the type of pipe, size, dimension and number of pipes per bundle.
Fittings are packaged in clear plastic bags. The bags are labeled with the product description, part number and total number of fittings per bag. Both pipe bundles and figng labels have barcodes for easy identification when shipping and receiving.

Integrated Expansion Control

Unlike other plastic piping systems, the integrated linear expansion control of PEŠTAN PP-RCT Fiber Composite Piping Systems do not require any additional expansion control when compared to metal piping systems.
Additionally thrust blocking is not required on buried PP-RCT piping systems. The exception to this is if the PP-R(CT) is connected to another type of piping product. Thrust blocking is required at the transition point.

The Environmental Advantages

- Contain NO toxic substances (BPA's or dioxins)
- Contain NO heavy metals
- Has an extended service life (50+ years depending on application)
- 100% recyclable
- Non-corrosive with a low friction factor meaning less pumping energy is required
- Lightweight (8 Tmes lighter than steel) facilitating easier transportaTon, handling and installation
- Heat fusible joints providing No-Leak systems
- No VOC's are released during production or fusion.

Engineer/designer benefits

PESTAN PP-R(CT) piping systems provide mulTple benefits for Engineers/Designers including:

- Efficient System that will not corrode and will not reduce inner diameter
- Minimal heat transfer values as compared to metal pipes
- The natural sound insulaTon of water flow and pressure effects
- Complete piping system components readily available
- Easy to transiTon to and from exisTng piping systems
- Cooler boiler rooms

PESTAN and LEED Credits

An important part of "Green" building involves designing "LEED" approved projects. Designing a "LEED" approved building not only helps insure energy efficiency and lower operating costs, it helps promote sustainability of our resources while balancing the environmental and economic impact of the project.
Although there are no established LEED credits for using a particular piping material. However, installations using PEŠTAN PP-R(CT) can still help qualify for up to a maximum of 18 LEED points from various categories, such as innovation, sustainability, energy savings, etc.

For more information, visit our website at **www.pestanpipes.com**

Because PESTAN PP-R(CT) pipes offer so many advantages for the engineers, project owners, the installers and the end users, it is no surprise this product has gained acceptance throughout the world.

APPLICATIONS

Choose ideal piping system for required application

OWNER BENEFITS

No Maintenance

PEŠTAN PP-R(CT) piping systems are more cost effective to operate and maintain as compared to traditional metal piping systems. It is joined with heat fusion so there are no mechanical fittings or gaskets to fail. The absence of mechanical fittings substantially minimize the chance of damage related to leaks.
The pipe is resistant to corrosion and scaling so no additional chemical
treatments are required. PP-R(CT) pipes have a beker coefficient of friction than metal pipes resulting in lower pumping costs.

No Toxic Elements

PEŠTAN pipes and fittings do not contain toxic materials and do not emit VOC's or other dangerous compounds even when exposed to fire.

Fittings

Color: Green
Nominal ID Sizes: 1⁄2"– 4"

PEŠTAN fittings are made with a greater safety factor and are compatible with all PEŠTAN's PP-R and PP-RCT pipes*. Designed with a heavy wall, the fittings are the strongest part of the system and are pressure rated higher than the compatible pipe. The heat transfer of the fittings is reduced and the need to insulate them may be eliminated in certain applications.
Because of the many fittings offered, PEŠTAN piping systems are compatible and easily connected to other systems and equipment. There are two main groups of fittings, one for connections with other PP-R and/or PP-RCT components and one for connections with different materials, called "transition fittings" and/or flanges. Transition fittings are made of injection molded PP-RCT with integrated brass or stainless steel threads, depending on the designed system needs

Purple pipe

Mechanical pipe

Pestan mechanical pipe

Material: PP-RCT with a Fiber Composite layer
Available in different wall thicknesses for following Nominal ID Sizes:

» 12"– 3⁄4" SDR7.4 Green with Four Gray Stripes (335psi at 73°F and 100psi at 180°F)
» 1" – 4" SDR9 Green with Four Gray Stripes (270psi at 73°F and 100psi at 180°F)
» 1"-4" SDR11 Solid Green (210psi at 73°F and 85psi at 180°F)

Designed for use in pressure applications with temperatures up to 180° F. Applications: Heating and cooling systems, compressed air and vacuum, industrial, geothermal and transportation of variety of chemicals**. Note: PESTAN MECHANICAL pipe is not rated for transportation of drinking water nor food grade fluids.

PEŠTAN MECHANICAL pipe is made of the most advanced material known as PP-RCT and the unique middle fiber layer technology. PP-RCT (Polypropylene Random Crystalline Temperature) is the newest generation of High Performance Polypropylene resins. Its enhanced crystalline structure is achieved by a special nucleation process giving the material improved temperature resistance for long term, superior performance. PEŠTAN pipe remains ductile throughout its service life.

The middle layer of PEŠTAN MECHANICAL Pipe is made of oriented fibers encapsulated in PP-RCT resin. When this special fiber composite layer is co-extruded, the outer and inner layers of PP-RCT remain unaltered. When exposed to heat, the fibers prevent the PP-RCT material from expanding in a linear direction. Therefore, the overall expansion and contraction of the pipe is reduced by 75% to 80% compared with non-fiber plastic pipes. The fiber layer improves properties of the pipe when exposed to higher heat and as a result, less support is required in comparison with other plastics.

PEŠTAN's MECHANICAL Pipes do not require any additional expansion control when compared to traditional metal piping systems. Furthermore, the pipe absorbs its own stresses and does not require thrust blocking.

**Note: for informaTon on chemical resistance properTes of PESTAN PP-R and PP-RCT product, please contact our Technical Department.

Pestan purple pipe

Material: PP-R(100)
Color: Purple
Nominal ID Sizes:
12"– 3⁄4" SDR7.4 and 1" – 4" SDR11
PEŠTAN PURPLE is designed for pressure applications at lower temperatures. Applications: Collection and transportation of recycled, gray, reclaimed and rain water systems. For non-pressure systems, PEŠTAN PURPLE may be used as vent piping.

Note: PEŠTAN PURPLE pipe is not rated for transportation of drinking water or food grade fluids.

Conservation of water is becoming a major focus throughout North America. Rainwater collection systems, recycled, gray and reclaimed water systems are being installed in both new construction and in retrofits.
PEŠTAN PURPLE is rapidly becoming the pipe of choice for these applications. With leak free joints, corrosion and scaling resistance and outstanding chemical resistance, this pipe provides energy savings and pumping efficiencies throughout it's service life. This is also beneficial for the project owner as the efficiencies gained by installing PEŠTAN PURPLE can help the project achieve or increase LEED credits.

UNDERSTANDING PP-R(CT) PIPE DIMENSIONS

Standard Dimension Ratio (SDR)

Standard Dimension Ratio is defined as the outside diameter of a pipe divided by the pipe's wall thickness.

$$SDR = D / S$$

Where d = pipe outside diameter, s = pipe wall thickness.

The SDR of the pipe is important as it is used as a design parameter of the pipe. The lower the SDR number, the thicker the pipe wall. A thicker wall increases the pipe's ability to hold pressure.

Nominal Imperial Sizing

PEŠTAN PP-R(CT) piping systems are based on metric units of measurement. We have converted each of our metric pipe sizes to Imperial nominal diameters for the North American market.

The standard nominal diameter for each metric size of pipe is shown in the following table.

MANUFACTURED OUTSIDE DIAMETER (METRIC)	NOMINAL PIPE DIAMETER (IMPERIAL)
20mm	.50"
25mm	.75"
32mm	1"
40mm	1.25"
50mm	1.50"
63mm	2"
75mm	2.50"
90mm	3"
125mm	4"

DIMENSIONS OF PEŠTAN MECHANICAL PIPE

MECHANICAL PIPE (PP-RCT WITH FIBER COMPOSITE LAYER)								
N.D. (IN)	O.D. (MM)	SDR	O.D. (IN)	O.D. (MM)	I.D. (IN)	I.D. (MM)	WALL THICKNESS (IN)	WALL THICKNESS (MM)
.50"	20mm	7.4	0.787	20mm	0.567	14.40	0.110	2.80
.75"	25mm	7.4	0.984	25mm	0.709	18.00	0.138	3.50
1"	32mm	9	1.260	32mm	0.976	24.80	0.142	3.60
1.25"	40mm	9	1.575	40mm	1.220	31.00	0.177	4.50
1.50"	50mm	9	1.969	50mm	1.528	38.80	0.220	4.50
2"	63mm	9	2.480	63mm	1.921	48.80	0.280	5.60
2.5"	75mm	9	2.953	75mm	2.291	58.20	0.331	7.10
3"	90mm	9	3.543	90mm	2.748	69.80	0.398	8.40
4"	125mm	9	4.921	125mm	3.819	97.00	0.551	10.10
1"	32mm	11	1.260	32mm	1.032	26.2	0.114	14.00
1.25"	40mm	11	1.575	40mm	1.283	32.6	0.146	2.9
1.50"	50mm	11	1.969	50mm	1.607	40.8	0.181	3.7
2"	63mm	11	2.480	63mm	2.024	51.4	0.228	4.6
2.5"	75mm	11	2.953	75mm	2.417	61.4	0.268	6.8
3"	90mm	11	3.543	90mm	2.897	73.6	0.323	8.2
4"	125mm	11	4.921	125mm	4.023	102.2	0.449	11.4

DIMENSIONS OF PEŠTAN PURPLE PIPE

PURPLE PIPE (PP-R)								
N.D. (IN)	O.D. (MM)	SDR	O.D. (IN)	O.D. (MM)	I.D. (IN)	I.D. (MM)	WALL THICKNESS (IN)	WALL THICKNESS (MM)
.50"	20mm	7.4	0.787	20mm	0.567	14.40	0.110	2.80
.75"	25mm	7.4	0.984	25mm	0.709	18.00	0.138	3.50
1"	32mm	11	1.260	32mm	1.031	26.20	0.114	2.90
1.25"	40mm	11	1.575	40mm	1.283	32.60	0.146	3.70
1.50"	50mm	11	1.969	50mm	1.606	40.80	0.181	4.60
2"	63mm	11	2.480	63mm	2.024	51.40	0.228	5.80
2.5"	75mm	11	2.953	75mm	2.417	61.40	0.268	6.80
3"	90mm	11	3.543	90mm	2.898	73.60	0.323	8.20
4"	125mm	11	4.921	125mm	4.024	102.20	0.449	11.40

PERMISSIBLE OPERATING PRESSURES

Determine the permissible system pressures for water based on the constant operating temperatures and the desired service life.
The following values are derived from an extrapolation method and are based on the conveyance of water at a constant temperature and pressure. Shown are the permissible operating pressures for each of the pipes based on temperature and the desired service life.
The permissible operating pressures of the pipes are shown with safety factors of 1.50 (per ASTM F2389) and 1.25 (typically used when designing systems for lower temperatures).
In the case of short term increases in temperature and/or pressure, PEŠTAN assumes no responsibility.
The following tables are designed for water. When transporting chemicals, you must consider the effects that pressure and temperature have on the pipe.
For conveyance of chemicals or compressed air, please contact Technical Support for additional information.

DIMENSIONS OF PEŠTAN PURPLE PIPE

SERVICE LIFE	SDR	SAFETY FACTOR	50˚ F	68˚ F	73˚ F	86˚ F	104˚ F	122˚ F	140˚ F	160˚ F	180˚ F
FOR PIPE SIZE ½ AND ¾ PERMISSIBLE OPERATING PRESSURES (PSI)											
50 years	SDR 7.4	1.25	487	423	400	364	312	265	223	187	100* (149)
		1.5	406	352	335	303	260	221	186	155	100* (120)
FOR PIPE SIZE 1” TROUGH 4”!PERMISSIBLE OPERATING PRESSURES (PSI)											
50 years	SDR 9	1.25	387	335	324	289	248	211	177	147	100* (149)
		1.5	322	280	270	241	206	176	148	123	100
50 years	SDR 9	1.25	300	266	252	230	197	167	141	117	100
		1.5	257	222	210	192	164	140	118	91	85

*ASTM F2389 X1.1.4 requires the pressure rating at 180°F to be calculated based on an application class 5 from ISO 15874-2, but if the calculated pressure exceeds 100 psi, it has been arbitrarily lowered to100 psi to conform with U.S. plumbing codes.