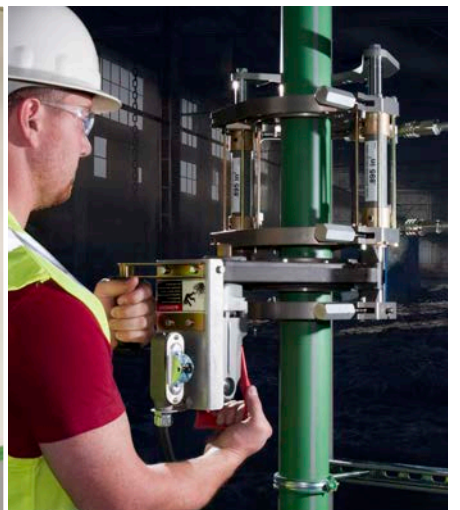


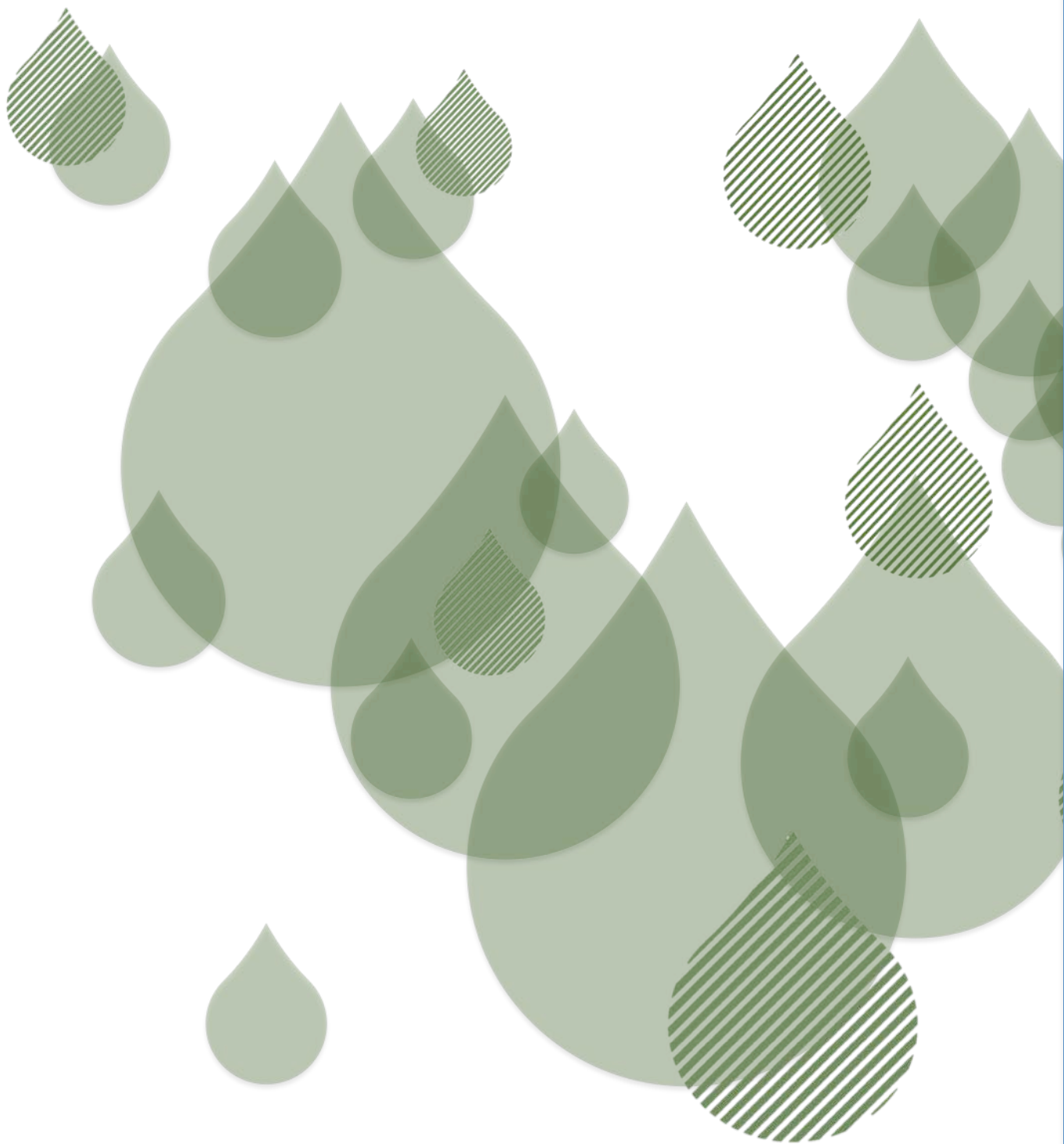


# PP-R AND PP-RCT PRESSURE PIPE SYSTEMS



 **PESTAN**  
*Reliability. Quality. Innovation.*





# PESTAN WORLDWIDE

PESTAN consistently produces the most advanced plastic piping systems made from Polypropylene (PP-R and PP-RCT), Polyethylene (PE) and Poly Vinyl Chloride (PVC).

Founded in 1989, PESTAN is a privately held company that takes enormous pride in employing 750 people locally and an additional 200 employees worldwide. Utilizing an in-house logistics system and transportation fleet, our products are shipped to over 5,000 distribution centers in 50 countries around the world.

PESTAN's production facilities are located in Central Europe on the banks of the Pestan River. To preserve and protect this environment, we developed and implemented an environmental management system which is certified to ISO 14001. The guiding principals of this environmental protection management system are deeply rooted in all of PESTAN's operations.

Innovation is at the core of PESTAN's ideology and is apparent throughout every phase of the operation. In addition to the environmental management system, the PESTAN team utilizes technologically advanced compounding, extrusion, injection molding and testing equipment to produce piping systems that are used throughout the world. As the industry leader, PESTAN pipes set the standard for quality and performance.

Now, PESTAN products are available through our North American partner, CT Piping Solutions, Inc.

Based in Titusville, PA, CT Piping Solutions is affiliated with Charter Plastics, Inc., a 28 year leader in the PE pipe market. CT Piping Solutions and Charter Plastics share the same core values of Quality, Customer Service, Integrity and Innovation. At CT, our focus is to provide premium quality PP-R and PP-RCT piping solutions which is why we partnered with PESTAN. We stock an extensive inventory of polypropylene products in our Distribution Center for prompt, on-time deliveries. In addition, we offer fusion training as well as customer service and technical support.





# MATERIAL PROPERTIES AND APPLICATIONS

With more than 20 years of proven performance, Polypropylene Random Copolymer (PP-R) and the newest generation, PP-RCT (Random Crystalline Temperature) pipe and fittings have been used throughout the world in plumbing, mechanical and industrial applications. Pipes made from PP-R and PP-RCT do not corrode, rust, or scale. Furthermore, their lightweight components are easily joined via heat fusion for permanent, leak-free joints.

**Applications include but are not limited to the following systems:**

Hot and Cold Potable Water  
Food Grade Installations  
Hydronics  
Geothermal Systems  
Industrial Applications  
Compressed Air and Vacuum  
Rain, Grey and Reclaimed Water





## ADVANTAGES OF PP-R AND PP-RCT

### Peace of Mind

PESTAN PP-R and PP-RCT piping systems are joined with heat fusion so there are no mechanical fittings or gaskets to fail. The pipe is resistant to corrosion and scaling so no additional chemical treatments are required. And, PP-R and PP-RCT pipes have a lower friction factor than metal resulting in lower pumping costs.

### Tolerant to Freezing

Although not designed to be repeatedly frozen and thawed, PP-R and PP-RCT pipes resist bursting when the fluid inside the pipe freezes.

### Extended Service Life

PESTAN PP-R and PP-RCT Pipes are both chemically and physically durable and offer advanced performance over other piping systems. They can provide building owners with a long, low maintenance service life of 50+ years.

### Product Warranty

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

### Environmental

- ✓ NO toxic substances
- ✓ NO heavy metals
- ✓ NO risk from fire, turns into CO<sub>2</sub> and water vapor
- ✓ Service life of 50+ years
- ✓ Natural thermal and sound insulation
- ✓ Ideal for Rain, Grey and Reclaimed water systems
- ✓ Reduced pumping energy
- ✓ Low pressure losses because of the smooth surface, which prevents deposits on the pipe walls eliminating turbulence and keeping ID same
- ✓ Minimal condensation
- ✓ Completely recyclable material



# ENVIRONMENTAL COMPARISON

## PP-RCT and PP-R vs. OTHER PIPING

	PP-RCT PP-R	Stainless Steel	Copper	Steel	PEX	CPVC
Zero impact on taste	✓	O	O	X	O	O
Zero impact on smell	✓	O	O	X	O	O
Opaque, microorganism free	✓	✓	✓	✓	O	O
No leaching into water	✓	✓	O	X	✓	O

### Longevity and performance

Resistant to abrasion and corrosion	✓	✓	O	X	✓	✓
Resistant to chemical breakdown	✓	✓	O	X	✓	X
Resistant to fitting leaks and failures	✓	O	O	O	X	X
Strong structural integrity	✓	✓	✓	✓	X	X
Resistant to scaling	✓	O	X	X	✓	✓
Tolerant to freezing	✓	X	X	X	✓	X
Engineered for 50 year life cycle	✓	X	X	X	X	X

### Low production impact

Does not require extraction	✓	X	X	X	✓	X
Does not require steel or copper mills	✓	X	X	X	O	✓
Does not require chlorine	✓	✓	✓	✓	✓	X

### Toxic-free material

No lead	✓	O	X	✓	O	X
No copper	✓	✓	X	O	O	✓
No iron	✓	X	✓	X	✓	✓
No PVC	✓	✓	✓	✓	✓	X
No dioxins	✓	✓	✓	✓	✓	X
No BPA	✓	✓	✓	✓	O	O
No VOCs	✓	O	O	O	✓	X

### Minimum foreign materials

No toxic glues or solders	✓	✓	O	✓	✓	X
No gaskets	✓	O	O	O	O	O
No corrosion inhibitors for pipe	✓	O	O	X	✓	✓

### Environmental responsibility

Recyclable	✓	✓	✓	✓	X	X
No hazardous waste	✓	✓	✓	✓	✓	X
Safe combustion by-products	✓	✓	✓	✓	✓	X

✓ Excellent  
O Sometimes  
X Not Recommended



# MATERIAL COMPARISON

## PP-RCT and PP-R vs. OTHER PIPING

### PIPE MATERIAL

	PP-RCT PP-R	Stainless Steel	Copper	Steel	PEX	CPVC
Impact resistant	✓	✓	✓	✓	X	X
Chemically resistant	✓	✓	O	O	O	X
Abrasion resistant	✓	✓	X	X	O	✓
Scale resistant	✓	✓	X	X	O	O
No toxic metals or plastics	✓	O	X	X	O	X
Corrosion resistant	✓	✓	X	X	O	O
Non-toxic	✓	O	X	X	O	O
Non-toxic combustion products	✓	✓	✓	✓	X	X
Resists chemical leaching into water	✓	✓	✓	✓	X	X
50-year system rating	✓	O	X	X	X	X
Controlled thermal expansion	✓	✓	✓	✓	X	X
Recyclable	✓	✓	✓	✓	O	X
Opaque to block algae and bacteria	✓	✓	✓	✓	O	O
Self insulating	✓	X	X	X	O	O
Quiet	✓	X	X	X	✓	✓
Condensation resistance	✓	X	X	X	O	O
Stable competitive pricing	✓	X	X	X	✓	✓
Environmentally friendly system	✓	X	X	X	O	X
Potential LEED Innovation Credits	✓	X	X	X	X	X

### CONNECTIONS AND FITTINGS

	Fusion	Weld	Mechanical	Solder	Mechanical	Weld	Mechanical	Crimp / Compression	Glue
Leak-proof connections	✓	O	X	O	X	O	X	X	X
Monolithic	✓	O	X	X	X	O	X	O	X
Joints stronger than pipe	✓	O	X	O	X	O	X	X	X
Saddle or other low cost branches	✓	✓	X	O	X	✓	X	X	X
Low Cost Connections	✓	X	X	X	X	X	X	X	O
Non-toxic connections	✓	✓	O	O	O	X	X	O	X
No open flames	✓	X	✓	X	✓	X	✓	✓	✓
Connections usable in < 1 hour	✓	✓	✓	✓	✓	✓	✓	✓	X
Full Range 1/2" to 6"	✓	✓	X	O	X	✓	X	X	X

- ✓ Excellent
- O Sometimes
- X Not Recommended



## INSTALLER BENEFITS

### Compatible Piping Systems

PESTAN 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 and PP-RCT are 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 create a seamless, permanent leak-free bond. No open flames are required and no toxic volatile organic compounds (VOC's) are emitted during the process. Heat fusion is a safe joining method than can be utilized in occupied buildings.

### Lightweight Material

PESTAN pipes weigh up to 80% less than traditional metal pipes. Their light weight makes them easier to handle and assemble making for a safer and less tiring installation.

### Non-Shattering

PESTAN PP-R and PP-RCT pipes are non-shattering, allowing pressure testing with air, water or a mixture of both.

### Pre-fabrication and Transport

PESTAN PP-R and PP-RCT pipes and fittings are ideal for prefabrication and transport without the risk of pre-fab joints failing. Heat fusion also prevents damage from seismic activity or from environments exposed to vibrations, such as cruise ships, trains and manufacturing facilities.

### Saddle Outlet Fusion Joints

Even after the mains are set, branch lines can be easily added to by using saddle outlet joints. With saddle fusion, the branch is fused directly onto the wall of the main. It is a time saver and provides lower pressure drop as compared to a traditional tee fitting.

### Uniform Appearance

Because of rigidity and strength, PESTAN PP-R and PP-RCT piping systems maintain a clean professional look, both in wall mounted vertical and horizontal installations as well as when suspended on hangers.

### Easy to Identify

Installers and inspectors can easily identify pipe by color of the stripe permanently extruded into the pipe. Furthermore, PESTAN PP-R and PP-RCT pipes have a print line that is repeated every three feet and include information required by the standard.





# ADVANCED TECHNOLOGY

## PP-RCT MATERIAL AND FIBER COMPOSITE

### PP-RCT ADVANTAGES

Based on the success of PP-R, the next generation of Polypropylene-Random Copolymer was developed with a special crystalline structure improving pressure resistance at elevated temperatures. It is called Polypropylene-Random Crystalline Temperature (PP-RCT). It's enhanced crystalline structure is created through a special nucleation process that enables the pipe to operate at higher pressures at elevated temperatures. This advanced resin is used in PESTAN's pipes and fittings.

In long term pressure tests, the outstanding performance characteristics of PP-RCT vs. standard PP-R is apparent:

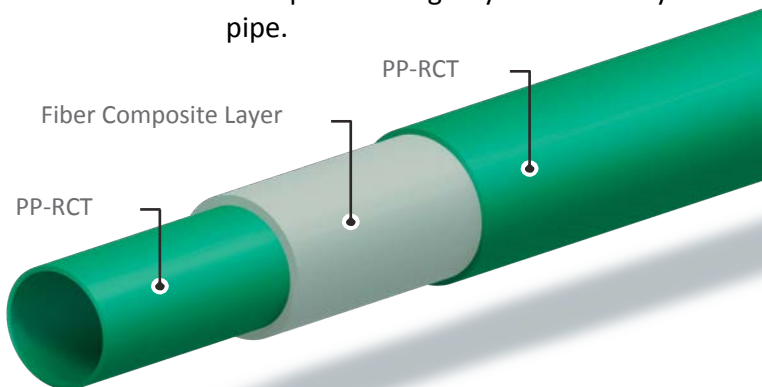
PP-RCT = 5.00 MPa (725 psi)  
vs.  
PP-R = 3.21 MPa (464 psi)

Note: Values are based on required strength during the 50 year life expectancy at the operating temperature of 158°F (70°C).

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. Designers can utilize PP-RCT's higher pressure rating and down-gauge to a thinner wall pipe, offering higher hydraulic capacities and cost savings.

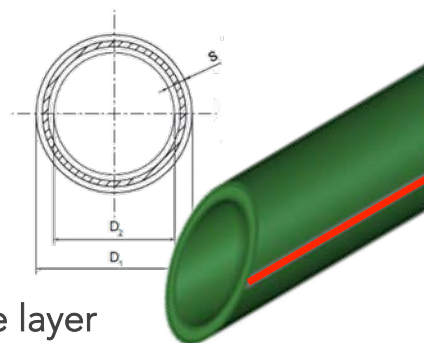
### INTEGRATED EXPANSION AND CONTRACTION CONTROL

Temperature changes cause thermoplastic pipes to expand and contract linearly. With PESTAN's PP-RCT Fiber composite pipe, expansion and contraction control is achieved by the addition of a fiber layer. The fiber layer is co-extruded into the mid-wall of the pipe and is comprised of oriented fibers encapsulated in PP-RCT. Not only does it eliminate the need for additional expansion control when compared to traditional piping system, it also provides rigidity and stability to the pipe.





# HOT DRINKING WATER PIPE



**Material:** PP-RCT with composite fiber middle layer

**Identification:** SDR7.4 and SDR9 Green with 4 red stripes.

**Applications:** Potable hot water, heating and cooling systems, compressed air and vacuum, direct burial, industrial, geothermal and chemical applications.

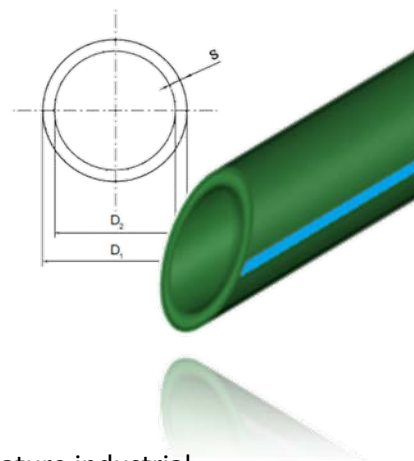
**In accordance with following standards:** NSF/ANSI -61, NSF/ANSI -14, CSA-B137.11, ASTM F 2389, ICC-ES LC 1004, PMG – 1104, IAMPO R&T 8358



	Part Number [CODE]	Dimension N.D.- O.D [in -mm]	Allowed Pressure (psi) for Service Life of 50+ years				
SDR 7.4	18002300	½" - 20	Wall Thickness	SDR7.4		SDR9	
	18002301	¾" - 25	Safety Factor	1.25	1.5	1.25	1.5
SDR 9	18002302	1" - 32	50° F	487	406	387	322
	18002303	1 ¼" - 40	68° F	423	352	335	280
	18002304	1½" - 50	73° F	400	335	324	270
	18002305	2" - 63	86° F	364	303	289	241
	18002306	2 ½" - 75	104° F	312	260	248	206
	18002307	3" - 90	122° F	265	221	211	176
	18002308	4" - 125	140° F	223	186	177	148
	18002309	6" - 160	160° F	187	155	147	123
			180° F	100*	100*	100*	100
				(149)	(120)	(120)	

\*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 100psi, it has been arbitrarily lowered to 100psi to conform with U.S. plumbing codes.

# COLD DRINKING WATER PIPE



Material: PP-RCT

**Identification:** SDR7.4 and SDR11 Green with 4 blue stripes.

**Applications:** Potable cold water, lower pressure and temperature industrial, chemical, compressed air and vacuum applications and direct burial.

**In accordance with following standards:** NSF/ANSI -61, NSF/ANSI -14, CSA-B137.11, ASTM F 2389, ICC-ES LC 1004, PMG – 1104, IAMPO R&T 8358

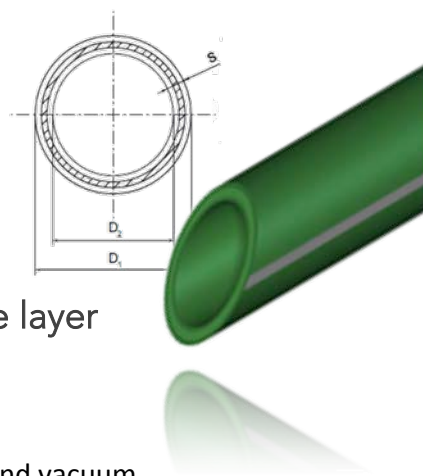


	Part Number [CODE]	Dimension N.D.- O.D [in -mm]	Allowed Pressure (psi) for Service Life of 50+ years				
SDR 7.4	18002400	½" - 20	Wall Thickness	SDR7.4		SDR11	
	18002401	¾" - 25	Safety Factor	1.25	1.5	1.25	1.5
SDR 11	18002402	1" - 32	50° F	487	406	308	257
	18002403	1 ¼" - 40	68° F	423	352	266	222
	18002404	1½" - 50	73° F	400	335	252	210
	18002405	2" - 63	86° F	364	303	230	192
	18002406	2 ½" - 75	104° F	312	260	197	164
	18002407	3" - 90	122° F	265	221	167	140
	18002408	4" - 125	140° F	223	186	141	118
	18002409	6" - 160	160° F	187	155	117	97
			180° F	100* (149)	100* (120)	100	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 100psi, it has been arbitrarily lowered to 100psi to conform with U.S. plumbing codes.



## MECHANICAL PIPE



**Material:** PP-RCT with composite fiber middle layer

**Identification:** SDR7.4 and SDR9 Green with 4 grey stripes.  
SDR11 Solid Green

**Applications:** Heating and cooling systems, compressed air and vacuum, direct burial, industrial, geothermal and chemical applications.

**In accordance with following standards:** NSF/ANSI -14, CSA-B137.11, ASTM F 2389, ICC LC 1004, PMG – 1104, IAMPO R&T 8358



	Part Number [CODE]	Dimension N.D.- O.D [in -mm]	Allowed Pressure (psi) for Service Life of 50+ years						
SDR 7.4	18002150	½" - 20	Wall Thickness	SDR7.4		SDR9		SDR11	
	18002151	¾" - 25		Safety Factor	1.25	1.5	1.25	1.5	1.25
SDR 9	18002170	1" - 32	50° F		487	406	387	322	308
	18002171	1 ¼" - 40	68° F	423	352	335	280	266	222
	18002172	1½" - 50	73° F	400	335	324	270	252	210
	18002173	2" - 63	86° F	364	303	289	241	230	192
	18002174	2 ½" - 75	104° F	312	260	248	206	197	164
	18002175	3" - 90	122° F	265	221	211	176	167	140
	18002177	4" - 125	140° F	223	186	177	148	141	118
	18002180	6" - 160	160° F	187	155	147	123	117	97
SDR 11	18002190	1" - 32	180° F	100*	100*	100*	100	100	85
	18002191	1 ¼" - 40	(149)	(120)	(120)				
	18002192	1½" - 50							
	18002193	2" - 63							
	18002194	2 ½" - 75							
	18002195	3" - 90							
	18002197	4" - 125							
	18002198	6" - 160							

\*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 100psi, it has been arbitrarily lowered to 100psi to conform with U.S. plumbing codes.

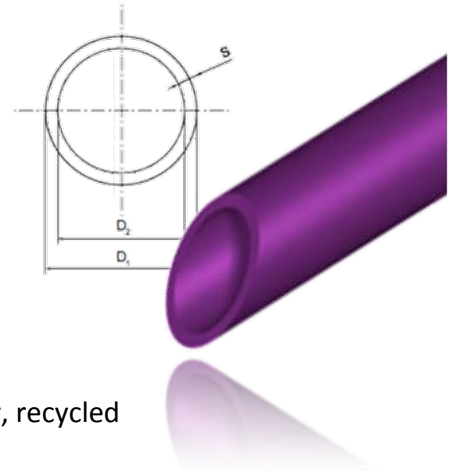
# PURPLE PIPE

Material: PP-R(100)

**Identification:** Purple.

**Applications:** For collection and transportation of rain, gray, recycled and reclaimed water systems, irrigation and direct burial.

**In accordance with following standards:** NSF/ANSI -14, CSA-B137.11, ASTM F 2389, ICC LC 1004, PMG – 1144, IAMPO R&T 8358



	Part Number [CODE]	Dimension N.D.- O.D [in -mm]	Allowed Pressure (psi) for Service Life of 50+ years				
SDR 7.4	18002200	½" - 20	Wall Thickenss	SDR7.4		SDR11	
	18002201	¾" - 25	Safety Factor	1.25	1.5	1.25	1.5
SDR 11	18002250	1" - 32	50° F	419	349	264	220
	18002251	1 ¼" - 40	68° F	355	296	223	186
	18002252	1½" - 50	73° F	348	290	216	180
	18002253	2" - 63	86° F	300	250	189	157
	18002254	2 ½" - 75	104° F	252	210	160	133
	18002255	3" - 90	122° F	213	178	133	111
	18002257	4" - 125	140° F	178	149	112	93
	18002260	6" - 160	158° F	118	98	74	62












PP-R AND PP-RCT PRESSURE SYSTEMS

# FITTINGS





Products range from ½" to 6"


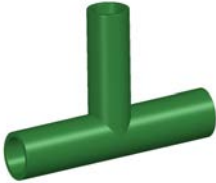

Item Description	Picture	Part Number	ND - OD
COUPLING (injection molded)		18000001	½" - 20 mm
		18000002	¾" - 25 mm
		18000003	1" - 32 mm
		18000004	1¼" - 40 mm
		18000005	1½" - 50 mm
		18000006	2" - 63 mm
		18000007	2½" - 75 mm
		18000008	3" - 90 mm
		18000010	4" - 125 mm
BUSHING / REDUCER (injection molded)		18000030	¾" to ½" - 25 to 20 mm
		18000031	1" to ½" - 32 to 20 mm
		18000032	1" to ¾" - 32 to 25 mm
		18000033	1¼" to ½" - 40 to 20 mm
		18000034	1¼" to ¾" - 40 to 25 mm
		18000035	1¼" to 1" - 40 to 32 mm
		18000037	1½" to ¾" - 50 to 25 mm
		18000038	1½" to 1" - 50 to 32 mm
		18000039	1½" to 1¼" - 50 to 40 mm
		18000041	2" to ¾" - 63 to 25 mm
		18000042	2" to 1" - 63 to 32 mm
		18000043	2" to 1¼" - 63 to 40 mm
		18000044	2" to 1½" - 63 to 50 mm
		18000045	2½" to 1¼" - 75 to 40 mm
		18000046	2½" to 1½" - 75 to 50 mm
		18000047	2½" to 2" - 75 to 63 mm
		18000048	2½" to 1½" - 75 to 20 mm
		18000049	2½" to ¾" - 75 to 25 mm
		18000050	2½" to 1" - 75 to 32 mm
		18000051	3" to 1½" - 90 to 50 mm
		18000052	3" to 2" - 90 to 63 mm
		18000053	3" to 2½" - 90 to 75 mm
		18000056	4" to 2½" - 125 to 75 mm
		18000057	4" to 3" - 125 to 90 mm
		18000058	6" to 4" - 160 to 125 mm SDR9 (Butt to Socket Fusion)
		18000059	6" to 4" - 160 to 125 mm SDR11 (Butt to Socket Fusion)
END CAP (injection molded)		18000250	½" - 20 mm
		18000251	¾" - 25 mm
		18000252	1" - 32 mm
		18000253	1¼" - 40 mm
		18000254	1½" - 50 mm
		18000255	2" - 63 mm
		18000256	2½" - 75 mm
		18000257	3" - 90 mm
		18000259	4" - 125 mm
		18000260	6" - 160 mm SDR9
		18000261	6" - 160 mm SDR11

Item Description	Picture	Part Number	ND - OD
STREET 90° (injection molded)		18000100	½" - 20 mm
		18000101	¾" - 25 mm
		18000102	1" - 32 mm
ELBOW 90° (injection molded)		18000070	½" - 20 mm
		18000071	¾" - 25 mm
		18000072	1" - 32 mm
		18000073	1¼" - 40 mm
		18000074	1½" - 50 mm
		18000075	2" - 63 mm
		18000076	2½" - 75 mm
		18000077	3" - 90 mm
		18000079	4" - 125 mm
ELBOW 90° (fabricated)		18000110	6" - 160 mm (MECHANICAL SDR9)
		18000112	6" - 160 mm (MECHANICAL SDR11)
		18000114	6" - 160 mm (POTABLE HOT SDR9)
		18000116	6" - 160 mm (POTABLE COLD SDR11)
ELBOW 90° SHORT RADIUS (fabricated)		18000120	6" - 160 mm (MECHANICAL SDR9)
		18000122	6" - 160 mm (MECHANICAL SDR11)
		18000124	6" - 160 mm (POTABLE HOT SDR9)
		18000126	6" - 160 mm (POTABLE COLD SDR11)


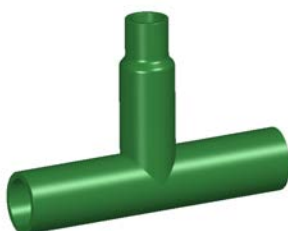
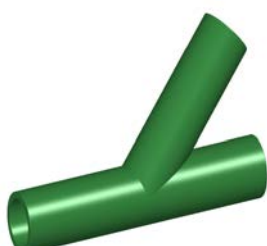







Item Description	Picture	Part Number	ND - OD
STREET 45° (injection molded)		18000150	½" - 20 mm
		18000151	¾" - 25 mm
		18000152	1" - 32 mm
ELBOW 45° (injection molded)		18000130	½" - 20 mm
		18000131	¾" - 25 mm
		18000132	1" - 32 mm
		18000133	1¼" - 40 mm
		18000134	1½" - 50 mm
		18000135	2" - 63 mm
		18000136	2½" - 75 mm
		18000137	3" - 90 mm
		18000139	4" - 125 mm
ELBOW 45° (fabricated)		18000160	6" - 160 mm (MECHANICAL SDR9)
		18000162	6" - 160 mm (MECHANICAL SDR11)
		18000164	6" - 160 mm (POTABLE HOT SDR9)
		18000166	6" - 160 mm (POTABLE COLD SDR11)
ELBOW 45° SHORT RADIUS (fabricated)		18000190	6" - 160 mm (MECHANICAL SDR9)
		18000192	6" - 160 mm (MECHANICAL SDR11)
		18000194	6" - 160 mm (POTABLE HOT SDR9)
		18000196	6" - 160 mm (POTABLE COLD SDR11)

Item Description	Picture	Part Number	ND - OD
TEE (injection molded)		18000170	1/2" - 20 mm
		18000171	3/4" - 25 mm
		18000172	1" - 32 mm
		18000173	1 1/4" - 40 mm
		18000174	1 1/2" - 50 mm
		18000175	2" - 63 mm
		18000176	2 1/2" - 75 mm
		18000177	3" - 90 mm
		18000179	4" - 125 mm
TEE (fabricated)		18001200	6" - 160 mm (MECHANICAL SDR9)
		18001202	6" - 160 mm (MECHANICAL SDR11)
		18001204	6" - 160 mm (POTABLE HOT SDR9)
		18001206	6" - 160 mm (POTABLE COLD SDR11)
REDUCING TEE (injection molded)		18000200	1/2" x 1/2" x 3/4" - 20 x 20 x 25 mm
		18000202	3/4" x 3/4" x 1/2" - 25 x 25 x 20 mm
		18000203	1" x 1/2" x 1/2" - 32 x 20 x 20 mm
		18000204	1" x 1" x 1/2" - 32 x 32 x 20 mm
		18000205	1" x 3/4" x 3/4" - 32 x 25 x 25 mm
		18000206	1" x 1" x 3/4" - 32 x 32 x 25 mm
		18000207	1 1/4" x 1 1/4" x 1/2" - 40 x 40 x 20 mm
		18000208	1 1/4" x 1 1/4" x 3/4" - 40 x 40 x 25 mm
		18000209	1 1/4" x 1 1/4" x 1" - 40 x 40 x 32 mm
		18000211	1 1/2" x 1 1/2" x 3/4" - 50 x 50 x 25 mm
		18000212	1 1/2" x 1 1/2" x 1" - 50 x 50 x 32 mm
		18000213	1 1/2" x 1 1/2" x 1 1/4" - 50 x 50 x 40 mm
		18000215	2" x 2" x 3/4" - 63 x 63 x 25 mm
		18000216	2" x 2" x 1" - 63 x 63 x 32 mm
		18000217	2" x 2" x 1 1/4" - 63 x 63 x 40 mm
		18000218	2" x 2" x 1 1/2" - 63 x 63 x 50 mm
		18000220	2 1/2" x 2 1/2" x 3/4" - 75 x 75 x 25mm
		18000221	2 1/2" x 2 1/2" x 1" - 75 x 75 x 32 mm
		18000222	2 1/2" x 2 1/2" x 1 1/4" - 75 x 75 x 40 mm
		18000223	2 1/2" x 2 1/2" x 1 1/2" - 75 x 75 x 50 mm
		18000224	2 1/2" x 2 1/2" x 2" - 75 x 75 x 63 mm
		18000225	3" x 3" x 1" - 90 x 90 x 32 mm
		18000226	3" x 3" x 1 1/4" - 90 x 90 x 40 mm
		18000227	3" x 3" x 1 1/2" - 90 x 90 x 50 mm
		18000228	3" x 3" x 2" - 90 x 90 x 63 mm
		18000229	3" x 3" x 2 1/2" - 90 x 90 x 75 mm
		18000233	4" x 4" x 2 1/2" - 125 x 125 x 75 mm
		18000234	4" x 4" x 3" - 125 x 125 x 90 mm













Item Description	Picture	Part Number	ND - OD
REDUCING TEE (fabricated)		18000470	6" x 6" x 2½"-160 x 160 x 75 mm (MECHANICAL SDR9)
		18000471	6" x 6" x 3"-160 x 160 x 90 mm (MECHANICAL SDR9)
		18000472	6" x 6" x 2½"-160 x 160 x 75 mm (MECHANICAL SDR11)
		18000473	6" x 6" x 3"-160 x 160 x 90 mm (MECHANICAL SDR11)
		18000474	6" x 6" x 2½"-160 x 160 x 75 mm (POTABLE HOT SDR9)
		18000475	6" x 6" x 3"-160 x 160 x 90 mm (POTABLE HOT SDR9)
		18000476	6" x 6" x 2½"-160 x 160 x 75 mm (POTABLE COLD SDR11)
		18000477	6" x 6" x 3"-160 x 160 x 90 mm (POTABLE COLD SDR11)
REDUCING TEE (fabricated)		18000370	6" x 6" x 4"-160 x 160 x 125 mm (MECHANICAL SDR9)
		18000373	6" x 6" x 4"-160 x 160 x 125 mm (MECHANICAL SDR11)
		18000376	6" x 6" x 4"-160 x 160 x 125 mm (POTABLE HOT SDR9)
		18000379	6" x 6" x 4"-160 x 160 x 125 mm (POTABLE COLD SDR11)
TEE WYE (fabricated)		18001180	4" - 125 mm (MECHANICAL SDR9)
		18001181	6" - 160 mm (MECHANICAL SDR9)
		18001183	4" - 125 mm (MECHANICAL SDR11)
		18001184	6" - 160 mm (MECHANICAL SDR11)
		18001186	4" - 125 mm (POTABLE HOT SDR9)
		18001187	6" - 160 mm (POTABLE HOT SDR9)
		18001189	4" - 125 mm (POTABLE COLD SDR11)
		18001190	6" - 160 mm (POTABLE COLD SDR11)



Item Description	Picture	Part Number	ND - OD
SADDLE (injection molded)		18000270	1¼" x ½" - 40 x 20 mm
		18000271	1¼" x ¾" - 40 x 25 mm
		18000272	1½" x ½" - 50 x 20 mm
		18000273	1½" x ¾" - 50 x 25 mm
		18000274	2" x ½" - 63 x 20 mm
		18000275	2" x ¾" - 63 x 25 mm
		18000276	2" x 1" - 63 x 32 mm
		18000277	2½" x ½" - 75 x 20 mm
		18000278	2½" x ¾" - 75 x 25 mm
		18000279	2½" x 1" - 75 x 32 mm
		18000280	2½" x 1¼" - 75 x 40 mm
		18000281	3" x ½" - 90 x 20 mm
		18000282	3" x ¾" - 90 x 25 mm
		18000283	3" x 1" - 90 x 32 mm
		18000284	3" x 1¼" - 90 x 40 mm
		18000290	4" x ½" - 125 x 20 mm
		18000291	4" x ¾" - 125 x 25 mm
		18000292	4" x 1" - 125 x 32 mm
		18000293	4" x 1¼" - 125 x 40 mm
		18000294	4" x 1½" - 125 x 50 mm
		18000295	4" x 2" - 125 x 63 mm
		18000296	6" x ½" - 160 x 20 mm
		18000297	6" x ¾" - 160 x 25 mm
		18000298	6" x 1" - 160 x 32 mm
		18000299	6" x 1¼" - 160 x 40 mm
		18000300	6" x 1½" - 160 x 50 mm
		18000301	6" x 2" - 160 x 63 mm
		18000302	6" x 2½" - 160 x 75 mm
		18000303	6" x 3" - 160 x 90 mm
CROSS (injection molded)		18000930	(½" - 20 mm) x (½" - 20 mm) x (½" - 20 mm) x (½" - 20 mm)
		18000931	(¾" - 25 mm) x (¾" - 25 mm) x (¾" - 25 mm) x (¾" - 25 mm)
3 WAY ELBOW (injection molded)		18000950	(½" - 20 mm) x (½" - 20 mm) x (½" - 20 mm)
		18000951	(¾" - 25 mm) x (¾" - 25 mm) x (¾" - 25 mm)



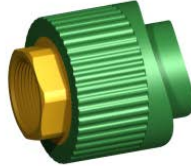
Item Description	Picture	Part Number	ND - OD
CROSS OVER (injection molded)		18001070	(1/2" - 20 mm) x (1/2" - 20 mm)
		18001071	(3/4" - 25 mm) x (3/4" - 25 mm)
		18001072	(1" - 32 mm) x (1" - 32 mm)
CROSS OVER (extruded)		18000850	1/2" - 20 mm
		18000851	3/4" - 25 mm
		18000852	1" - 32 mm
PPR-CT NUT (injection molded)		18000350	1/2" - 20 mm
		18000351	3/4" - 25 mm
		18000352	1" - 32 mm
		18000353	1 1/4" - 40 mm
		18000354	1 1/2" - 50 mm
		18000355	2" - 63 mm
PLASTIC - PLASTIC NUT CONNECTOR (injection molded)		18000790	1/2" - 20 mm
FLANGE ADAPTER		18000330	1" - 32 mm
		18000331	1 1/4" - 40 mm
		18000332	1 1/2" - 50 mm
		18000333	2" - 63 mm
		18000334	2 1/2" - 75 mm
		18000335	3" - 90 mm
		18000337	4" - 125 mm (Butt Fused or Socket Fused w/ Coupling)
		18000340	6" - 160 mm SDR9
		18000341	6" - 160 mm SDR11
FLANGE RINGS		20501032	Flange Ring (ANSI) to 1" - 32 mm
		20501040	Flange Ring (ANSI) 1 1/4" - 40 mm
		20501050	Flange Ring (ANSI) 1 1/2" - 50 mm
		20501063	Flange Ring (ANSI) 2" - 63 mm
		20501075	Flange Ring (ANSI) 2 1/2" - 75 mm
		20501090	Flange Ring (ANSI) 3" - 90 mm
		20501125	Flange Ring (ANSI) 4" - 125 mm
		20501160	Flange Ring (ANSI) 6" - 160 mm

Item Description	Picture	Part Number	ND - OD
TRANSITION PIECE (FEMALE THREADS)		18000450	(1/2" - 20 mm) x 1/2"F
		18000451	(1/2" - 20 mm) x 3/4"F
		18000452	(3/4" - 25 mm) x 1/2"F
		18000453	(3/4" - 25 mm) x 3/4"F
		18000454	(1" - 32 mm) x 3/4"F
LEAD-FREE BRASS		18000520	(1/2" - 20 mm) x 1/2"F (lead-free)
		18000521	(1/2" - 20 mm) x 3/4"F (lead-free)
		18000522	(3/4" - 25 mm) x 1/2"F (lead-free)
		18000523	(3/4" - 25 mm) x 3/4"F (lead-free)
		18000524	(1" - 32 mm) x 3/4"F (lead-free)
		18000525	(1" - 32 mm) x 1"F (lead-free)
		18000526	(1 1/4" - 40 mm) x 1"F (lead-free)
		18000527	(1 1/4" - 40 mm) x 1 1/4"F (lead-free)
		18000528	(1 1/2" - 50 mm) x 1 1/2"F (lead-free)
		18000529	(2" - 63 mm) x 2"F (lead-free)
TRANSITION PIECE (HEX FEMALE THREADS)		18000500	(1/2" - 20 mm) x 1/2"F HEX
		18000501	(3/4" - 25 mm) x 1/2"F HEX
		18000502	(3/4" - 25 mm) x 3/4"F HEX
		18000503	(1" - 32 mm) x 3/4"F HEX
		18000504	(1" - 32 mm) x 1"F HEX
		18000505	(1 1/4" - 40 mm) x 1"F HEX
		18000506	(1 1/4" - 40 mm) x 1 1/4"F HEX
		18000507	(1 1/2" - 50 mm) x 1 1/2"F HEX
		18000508	(2" - 63 mm) x 2"F HEX
TRANSITION PIECE (MALE THREADS)		18000530	(1/2" - 20 mm) x 1/2"M
		18000531	(3/4" - 25 mm) x 1/2"M
		18000532	(3/4" - 25 mm) x 3/4"M
		18000533	(1" - 32 mm) x 3/4"M
LEAD-FREE BRASS		18000540	(1/2" - 20 mm) x 1/2"M (lead-free)
		18000541	(3/4" - 25 mm) x 1/2"M (lead-free)
		18000542	(3/4" - 25 mm) x 3/4"M (lead-free)
		18000543	(1" - 32 mm) x 3/4" M (lead-free)
		18000544	(1" - 32 mm) x 1"M (lead-free)
		18000545	(1 1/4" - 40 mm) x 1 1/4"M (lead-free)
		18000546	(1 1/2" - 50 mm) x 1 1/2"M (lead-free)
		18000547	(2" - 63 mm) x 2"M (lead-free)
TRANSITION PIECE (HEX MALE THREADS)		18000550	(1/2" - 20 mm) x 1/2"M HEX
		18000551	(3/4" - 25 mm) x 3/4"M HEX
		18000552	(1" - 32 mm) x 1"M HEX
		18000554	(1 1/4" - 40 mm) x 1 1/4"M HEX
		18000555	(1 1/2" - 50 mm) x 1 1/2"M HEX
		18000556	(2" - 63 mm) x 2"M HEX



Item Description	Picture	Part Number	ND - OD
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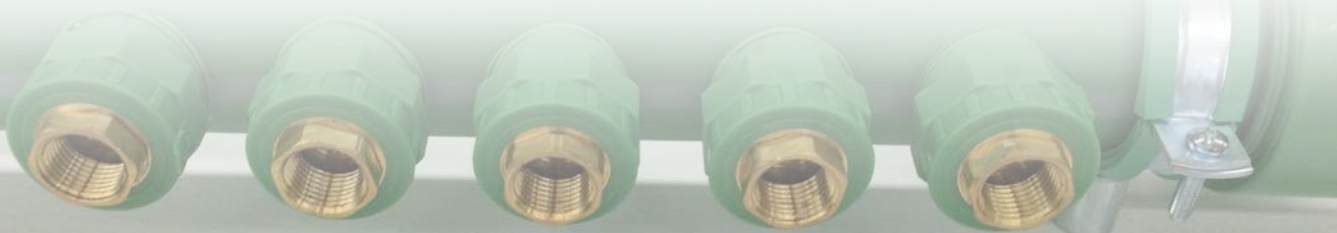
SADDLE TRANSITION PIECE  
(HEX FEMALE THREADS)






18000650	(1½" / ¾" - 50 / 25 mm) x ½"F HEX
18000651	(2" / ¾" - 63 / 25 mm) x ½"F HEX
18000652	(2½" / ¾" - 75 / 25 mm) x ½"F HEX
18000653	(3" / ¾" - 90 / 25 mm) x ½"F HEX
18000654	(4" / ¾" - 125 / 25 mm) x ½"F HEX
18000663	(6" / ¾" - 160 / 25 mm) x ½"F HEX
18000655	(1½" / ¾" - 50 / 25 mm) x ¾"F HEX
18000656	(2" / ¾" - 63 / 25 mm) x ¾"F HEX
18000657	(2½" / ¾" - 75 / 25 mm) x ¾"F HEX
18000658	(3" / ¾" - 90 / 25 mm) x ¾"F HEX
18000659	(4" / ¾" - 125 / 25 mm) x ¾"F HEX
18000664	(6" / ¾" - 160 / 25 mm) x ¾"F HEX
18000660	(2½" / 1" - 75 / 32 mm) x 1"F HEX
18000661	(3" / 1" - 90 / 32 mm) x 1"F HEX
18000662	(4" / 1" - 125 / 32 mm) x 1"F HEX
18000665	(6" / 1" - 160 / 32 mm) x 1"F HEX

LEAD-FREE BRASS





18001350	(1½" / ¾" - 50/25 mm) x ½"F (lead-free)
18001351	(2" / ¾" - 63 /25 mm) x ½"F (lead-free)
18001352	(2½" / ¾" - 75/25 mm) x ½"F (lead-free)
18001353	(3" / ¾" - 90/25 mm) x ½"F (lead-free)
18001354	(4" / ¾" - 125/25 mm) x ½"F (lead-free)
18001355	(6" / ¾" - 160/25 mm) x ½"F (lead-free)
18001356	(1½" / ¾" - 50/25 mm) x ¾"F (lead-free)
18001357	(2" / ¾" - 63/25 mm) x ¾"F (lead-free)
18001358	(2½" / ¾" - 75/25 mm) x ¾"F (lead-free)
18001359	(3" / ¾" - 90/25 mm) x ¾"F (lead-free)
18001360	(4" / ¾" - 125/25 mm) x ¾"F (lead-free)
18001361	(6" / ¾" - 160/25 mm) x ¾"F (lead-free)
18001362	(2½" / 1" - 75/32 mm) x 1"F (lead-free)
18001363	(3" / 1" - 90/32 mm) x 1"F (lead-free)
18001364	(4" / 1" - 125/32 mm) x 1"F (lead-free)
18001365	(6" / 1" - 160/32 mm) x 1"F (lead-free)



Item Description	Picture	Part Number	ND - OD
SADDLE TRANSITION PIECE (HEX MALE THREADS)		18000690	(1½" / ¾" - 50 / 25 mm) x ½"M HEX
		18000691	(2" / ¾" - 63 / 25 mm) x ½"M HEX
		18000692	(2½" / ¾" - 75 / 25 mm) x ½"M HEX
		18000693	(3" / ¾" - 90 / 25 mm) x ½"M HEX
		18000694	(4" / ¾" - 125 / 25 mm) x ½"M HEX
		18000700	(6" / ¾" - 160 / 25 mm) x ½"M HEX
		18000695	(1½" / ¾" - 50 / 25 mm) x ¾"M HEX
		18000696	(2" / ¾" - 63 / 25 mm) x ¾"M HEX
		18000697	(2½" / ¾" - 75 / 25 mm) x ¾"M HEX
		18000698	(3" / ¾" - 90 / 25 mm) x ¾"M HEX
		18000699	(4" / ¾" - 125 / 25 mm) x ¾"M HEX
		18000701	(6" / ¾" - 160 / 25 mm) x ¾"M HEX
LEAD-FREE BRASS		18001380	(1½" / ¾" - 50/25 mm) x ½"M (lead-free)
		18001381	(2" / ¾" - 63/25 mm) x ½"M (lead-free)
		18001382	(2½" / ¾" - 75/25 mm) x ½"M (lead-free)
		18001383	(3" / ¾" - 90/25 mm) x ½"M (lead-free)
		18001384	(4" / ¾" - 125/25 mm) x ½"M (lead-free)
		18001385	(6" / ¾" - 160/25 mm) x ½"M (lead-free)
		18001386	(1½" / ¾" - 50/25 mm) x ¾"M (lead-free)
		18001387	(2" / ¾" - 63/25 mm) x ¾"M (lead-free)
		18001388	(2½" / ¾" - 75/25 mm) x ¾"M (lead-free)
		18001389	(3" / ¾" - 90/25 mm) x ¾"M (lead-free)
		18001390	(4" / ¾" - 125/25 mm) x ¾"M (lead-free)
		18001391	(6" / ¾" - 160/25 mm) x ¾"M (lead-free)
TRANSITION ELBOW 90° (FEMALE THREADS)		18000570	(½" - 20 mm) x ½"F
		18000571	(¾" - 25 mm) x ¾"F
		18000572	(¾" - 25 mm) x ½"F
		18000574	(1" - 32 mm) x 1"F
LEAD-FREE BRASS		18001250	(½" - 20 mm) x ½"F (lead-free)
		18001251	(¾" - 25 mm) x ¾"F (lead-free)
		18001252	(¾" - 25 mm) x ½"F (lead-free)
		18001253	(1" - 32 mm) x 1"F (lead-free)
TRANSITION ELBOW 90° (MALE THREADS)		18000590	(½" - 20 mm) x ½"M
		18000591	(½" - 20 mm) x ½"M
		18000592	(½" - 20 mm) x ½" M











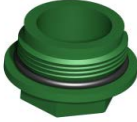







Item Description	Picture	Part Number	ND - OD
TRANSITION ELBOW 90° WITH 3 POINT BACK PLATE (FEMALE THREADS)		18000400	(1/2" - 20 mm) x 1/2"F
		18000401	(3/4" - 25 mm) x 3/4"F
		18000402	(3/4" - 25 mm) x 1/2"F
LEAD-FREE BRASS		18000410	(1/2" - 20 mm) x 1/2"F (lead-free)
		18000411	(3/4" - 25 mm) x 3/4"F (lead-free)
		18000412	(3/4" - 25 mm) x 1/2"F (lead-free)
TRANSITION ELBOW 90° WITH 3 POINT BACK PLATE (FEMALE THREADS)		18000430	(3/4" - 25 mm) x 3/4"F
LEAD-FREE BRASS		18000440	(3/4" - 25 mm) x 3/4"F (lead-free)
TRANSITION ELBOW 90° WITH BACK PLATE (FEMALE THREADS)		18000970	(1/2" - 20 mm) x 1/2"F
		18000971	(1/2" - 20 mm) x 3/4"F
LEAD-FREE BRASS		18000980	(1/2" - 20 mm) x 1/2"F (lead-free)
		18000981	(1/2" - 20 mm) x 3/4"F (lead-free)
TRANSITION ELBOW 90° WITH BACK PLATE (MALE THREADS)		18000990	(1/2" - 20 mm) x 1/2"M
		18000991	(1/2" - 20 mm) x 3/4"M
LEAD-FREE BRASS		18001420	(1/2" - 20 mm) x 1/2"M (lead-free)
		18001421	(1/2" - 20 mm) x 3/4"M (lead-free)

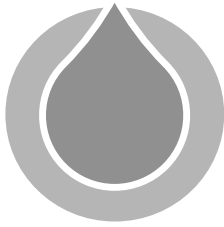
Item Description	Picture	Part Number	ND - OD
TRANSITION TEE (FEMALE THREADS)		18000630	(1/2" - 20 mm) x (1/2" - 20 mm) x 1/2"F
		18000631	(3/4" - 25 mm) x (3/4" - 25 mm) x 1/2"F
		18000632	(3/4" - 25 mm) x (3/4" - 25 mm) x 3/4"F
LEAD-FREE BRASS		18001290	(1/2" - 20 mm) x (1/2" - 20 mm) x 1/2"F (lead-free)
		18001291	(3/4" - 25 mm) x (3/4" - 25 mm) x 1/2"F (lead-free)
		18001292	(3/4" - 25 mm) x (3/4" - 25 mm) x 3/4"F (lead-free)
TRANSITION ELBOW 90° FOR GYPSUM WALL MOUNTING (FEMALE THREADS)		18000890	(1/2" - 20 mm) x 1/2"F
TRANSITION TEE BACK PLATE (FEMALE THREADS)		18000830	(1/2" - 20 mm) x (1/2" - 20 mm) x 1/2"F
		18000831	(3/4" - 25 mm) x (3/4" - 25 mm) x 1/2"F
LEAD-FREE BRASS		18000840	(1/2" - 20 mm) x (1/2" - 20 mm) x 1/2"F (lead-free)
		18000841	(3/4" - 25 mm) x (3/4" - 25 mm) x 1/2"F (lead-free)
PEX ADAPTER (CRIMP / ASTM F1807) LEAD-FREE BRASS		18001020	(1/2" - 20 mm) x 1/2" (lead-free)
		18001021	(3/4" - 25 mm) x 3/4" (lead-free)



Item Description	Picture	Part Number	ND - OD
BALL VALVE		18000730	1/2" - 20 mm
		18000731	3/4" - 25 mm
		18000732	1" - 32 mm
		18000733	1 1/4" - 40 mm
		18000734	1 1/2" - 50 mm
		18000735	2" - 63 mm
STOP VALVE BODY		18001030	(1/2" - 20 mm) x 1/2"
		18001031	(3/4" - 25 mm) x 3/4"
		18001032	(1" - 32 mm) x 1"
CONCEALED VALVE (CHROMIUM PLATED)		18001090	1/2" - 20 mm
		18001091	3/4" - 25 mm
		18001092	1" - 32 mm
SCREW-DOWN STOP-GLOBE VALVE		18001100	1/2" - 20 mm
		18001101	3/4" - 25 mm
		18001102	1" - 32 mm
DRAINING BRANCH		18001120	1/2" - 20 mm
		18001121	3/4" - 25 mm
REPAIR PLUG		18001150	(1/4" - 7 mm) x (7/16" - 11mm)
MARKING GUIDE		18001160	

Item Description	Picture	Part Number	ND - OD
LONG PLUG FOR PRESSURE TEST		18000750	1/2" - 20 mm
		18000751	3/4" - 25 mm
SHORT PLUG FOR PRESSURE TEST		18001050	1/2" - 20 mm
		18001051	3/4" - 25 mm
CLAMPS		18000870	1/2" - 20 mm
		18000871	3/4" - 25 mm
		18000872	1" - 32 mm
		18000873	1 1/4" - 40 mm
PAD		18001000	
ELBOW MASK		18001010	
TRANSITION ASSEMBLY		18000770	1/2" - 20 mm F
DRILL BITS (for saddle outlet)		20620025	1/2" - 20 mm and 3/4" - 25 mm
		20620032	1" - 32 mm
		20620040	1 1/4" - 40 mm
		20620050	1 1/2" - 50 mm
		20620063	2" - 63 mm





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