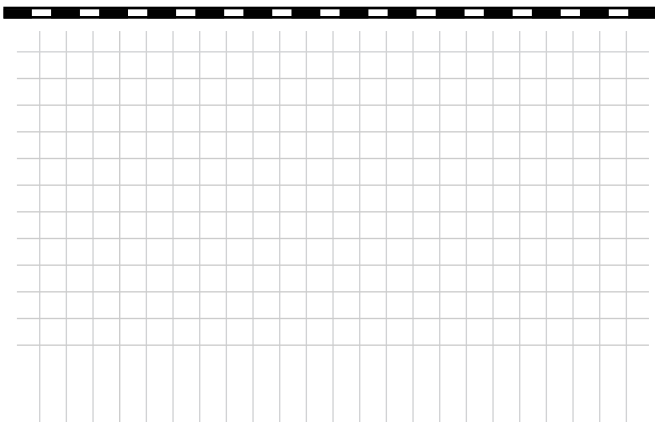


Pure Tech Piping Systems

Polypropylene Socket Fusion Dimensional Data

*Corrosion Resistant Fluid and
Air Handling Systems.*

SIMTECH



PureTech Piping Systems - Dimensional Data

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SIMTECH GUIDE SPECIFICATION ALPHAPLUS POLYPROPYLENE PIPING SYSTEM

1.0 PIPE

1.1 Material

Pipe shall be extruded from Group 1, Class 2, Alpha nucleated homopolymer pigmented material in accordance with ASTM D-4101. AP polypropylene resin shall achieve a minimum tensile strength of 300 bar when tested at 23°C according to ASTM D 638. Material shall allow continuous operating temperatures to 95° C. AP resin shall comply with relevant food substance regulation, US FDA guidelines as specified in Code of Federal Regulators (CFR), Title 21, Chapter 1: Section 177.1520 and Section 178.3297 suitable for contact with foodstuff, pharmaceutical use and potable water.

1.2 Stress Relieved

Pipe shall be stress relieved by post-extrusion annealing to eliminate inherent stresses in the pipe wall created by the extrusion process.

1.3 Pressure Rating

Pipe shall be pressure rated in accordance with ASTM D-2837 and Din 8077 for hydrostatic design basis. Pipe shall be manufactured to an SDR (standard dimension ratio) in order to provide the same pressure rating in all diameters. Pipe shall be:

$$\text{SDR 11} = 150 \text{ PSI (PN10)*}$$

*PN = Nominal Pressure Rating in Bar

2.0 FITTINGS

2.1 Material

See material under PIPE section 1.0

2.2 Pressure Fittings

All pressure pattern fittings from 1/2" (20 mm) through 4" (110 mm) shall be injection molded and shall have the same pressure rating as the pipe. Fittings 1/2" (20mm) through 2 1/2" (75mm) shall be injection molded socket fusion type. Fittings larger than 2 1/2" shall be butt fusion type.

2.4 Dimensions and Tolerances

Socket fusion fittings dimension are in accordance with ISO 7279 and DIN 16962. Butt fusion conform to SDR (standard dimension ratio) series that defines the wall thickness and outer diameter

2.4 Joining

All joints 1/2" (20 mm) through 2 1/2" (75 mm) shall be interference fit socket fusion type. Butt fusion joints may be used on pipe and fittings above 2 1/2". All fusion-welded joints to be performed in accordance with ASTM D-2657 and piping manufacturers recommendations. All installers shall be factory certified by a representative of the manufacturer.

3.0 MANUFACTURER

SIMTECH

877-777-2467

www.SimtechUSA.com

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Material Information

Material Type - Polypropylene (PP)

SIMTECH'S SR Series Polypropylene piping is extruded from A Group 1. Class 1, Grade 0 Polypropylene Homopolymer material per ASTM-D4101, Federal Specifications L-P-39413 and Military Spec Mil P 461096. PP material to be heat stabilized UV stabilized and pigmented to RAL 7032. Temperature stabilizers are added to provide the material with enhanced resistance to aggressive media at elevated temperatures.

Stress Relieved

SIMTECH'S SR Series pipe is Stress Relieved, through a post extrusion annealing process. This process allows the pipe to perform to its fullest potential. SR Series pipe possess higher impact strength, higher quick burst pressures, improved resistance to oxidizing acids and longer service life expectancy, compared to pipe that is not subject to a post extrusion annealing process.

Material Characteristics, PP

| Properties | Test Standard | Test Method Test Specimen | Dimension | PP Type 1 |
|---|----------------------|--|-------------------|------------------------|
| Mechanical Properties | | | | |
| Density | DIN 53479 | Method C | g/cm ³ | 0.91 |
| Melting Index Group | DIN 16776 | MFI 190-5 | Group | 006 |
| Tensile Test | DIN 53455 | Test Bar 3 | — | — |
| Yield Stress | — | Test Speed 50 mm/min | N/mm ² | 33 |
| Elongation At Yield Stress | — | — | % | 15 |
| Elongation At Rupture | — | — | % | 70 |
| Bending Test | DIN 53457 | Test Bar | — | — |
| Bending Modulus E | 1 min. | 120 x 10 x 4 mm | N/mm ² | 1200 |
| Impact Bending Test | DIN 53453 | Charpy | — | — |
| Impact Strength | — | Standard Miniature Bar | kJ/m ² | Without Break |
| Notched Bar Impact Strength | — | Standard Miniature Bar With U-Notch | kJ/m ² | 7 |
| Surface Hardness | | | | |
| Ball Impression Hardness | DIN 53456 | H 358/30 | N/mm ² | 70 |
| Shore Hardness | DIN 53505 | D | — | 72 |
| Thermal Properties | | | | |
| Crystallite Melting Range | — | Polarization Microscope | K (°C) | 160 - 165 |
| Mean Thermal Coefficient Of Linear Expansion | DIN 53752 | — | K (°C) | 1.6 x 10 ⁻⁴ |
| Thermal Conductivity | DIN 52612 | Two-Plate Method | W/m x K | 0.22 |
| Electrical Properties | | | | |
| Dielectric Strength | DIN 53481 | K 20/P 50 | kV/mm | 52 |
| Impedance | DIN 53482 | Annular Electrode | Ohm x cm | > 10 ¹⁶ |
| Surface Resistance | DIN 53482 | Electrode A | Ohm | 10 ¹⁴ |
| Leakage Path Resistance | DIN 53480 | Method KC | Step | > 600 |
| Other Properties | | | | |
| Flammability | DIN 4102 | — | Class | B2 |
| Water Absorption | DIN 53495 | Method C | % / 24h | < 0.01 |
| Physiologically Harmless | Recommendation | BGA/KTW | — | YES |
| Chemical Resistance | DIN 8078 Addendum | — | — | Complies |

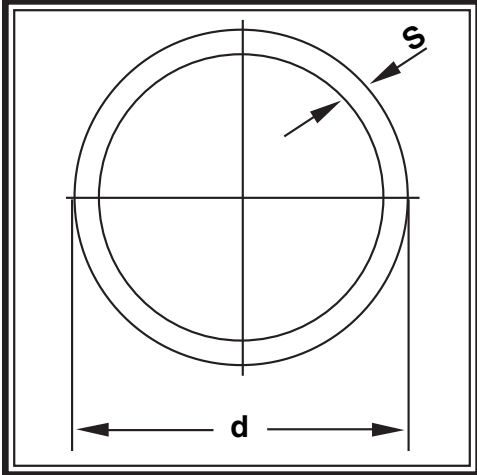
PureTech Piping Systems - Dimensional Data

Permissible Gauge Pressure For SIMTECH Homopolymer Polypropylene Depending Upon Temperature and Time

| Temperature | | Operation Years | PN10 / SDR 11 PSI |
|-------------|-----|-----------------|----------------------|
| F | C | | |
| 68° | 20° | 1 | 222 |
| | | 5 | 203 |
| | | 10 | 194 |
| | | 25 | 184 |
| | | 50 | 180 |
| 86° | 30° | 1 | 175 |
| | | 5 | 165 |
| | | 10 | 158 |
| | | 25 | 151 |
| | | 50 | 145 |
| 104° | 40° | 1 | 144 |
| | | 5 | 129 |
| | | 10 | 123 |
| | | 25 | 115 |
| | | 50 | 110 |
| 122° | 50° | 1 | 117 |
| | | 5 | 106 |
| | | 10 | 100 |
| | | 25 | 94 |
| | | 50 | 88 |
| 140° | 60° | 1 | 96 |
| | | 5 | 84 |
| | | 10 | 78 |
| | | 25 | 71 |
| | | 50 | 65 |
| 158° | 70° | 1 | 78 |
| | | 5 | 68 |
| | | 10 | 64 |
| | | 25 | 51 |
| | | 50 | 46 |
| 176° | 80° | 1 | 64 |
| | | 5 | 49 |
| | | 10 | 38 |
| | | 25 | 30 |
| | | 50 | 22 |
| 203° | 95° | 1 | 42 |
| | | 5 | 24 |
| | | 10 | 17 |

NOTE: The continuous permissible operating pressures shown above are reflective of the improved properties of the Stress Relieved Homopolymer Resin Pipe produced by SIMTECH. Ratings include a safety factor of 1.7 at 50 years service life.

PureTech Piping Systems - Dimensional Data



PRESSURE PIPE

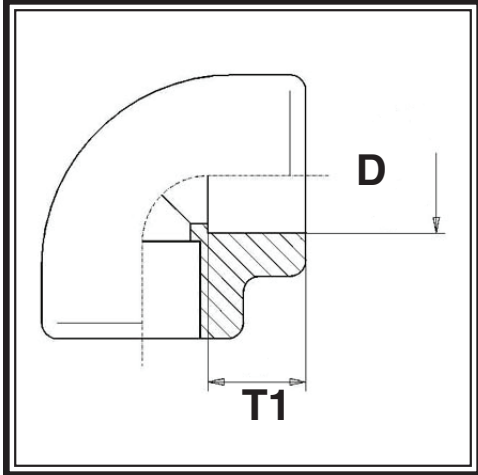
Description: Pressure Pipe
PN10 / SDR 11 - 150psi

Material: AlphaPlus® Polypropylene

Connection: Butt Fusion

| Nominal Size | Actual OD Size | d in | S in | Weight (lbs./ m) | Weight Lbs. Foot | Part Number |
|--------------|----------------|-------|-------|------------------|------------------|-------------|
| 3/8" | 0.630 (16mm) | 0.630 | 0.087 | 0.209 | 0.065 | PP05000016 |
| 1/2" | 0.787 (20mm) | 0.787 | 0.075 | 0.235 | 0.074 | PP05000020 |
| 3/4" | 0.984 (25mm) | 0.984 | 0.091 | 0.361 | 0.113 | PP05000025 |
| 1" | 1.260 (32mm) | 1.260 | 0.114 | 0.574 | 0.179 | PP05000032 |
| 1 1/4" | 1.575 (40mm) | 1.575 | 0.146 | 0.906 | 0.283 | PP05000040 |
| 1 1/2" | 1.969 (50mm) | 1.969 | 0.181 | 1.404 | 0.439 | PP05000050 |
| 2" | 2.480 (63mm) | 2.480 | 0.228 | 2.222 | 0.694 | PP05000063 |
| 2 1/2" | 2.953 (75mm) | 2.953 | 0.268 | 3.102 | 0.969 | PP05000075 |
| 3" | 3.543 (90mm) | 3.543 | 0.323 | 4.466 | 1.396 | PP05000090 |
| 4" | 4.331 (110mm) | 4.331 | 0.394 | 6.622 | 2.069 | PP05000110 |

PureTech Piping Systems - Dimensional Data



90° Elbow

Description: 90° Elbow
PN10 / SDR 11 - 150psi

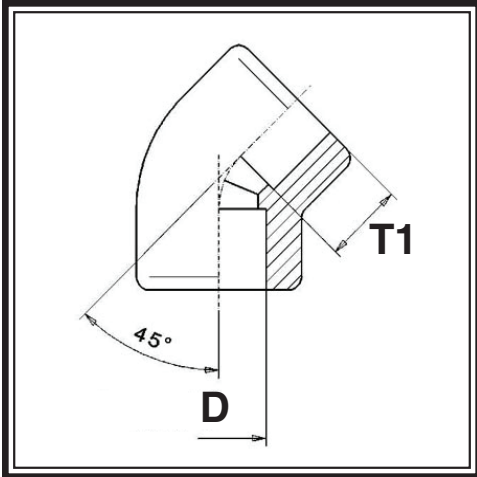
Material: AlphaPlus® Polypropylene

Connection: Socket Fusion

| Nominal Size | Actual ID Size | D in | T1 in | Weight lbs | Part Number |
|--------------|----------------|-------|-------|------------|-------------|
| 3/8" | 0.630 (16mm) | 0.630 | 0.512 | 0.033 | PP07010016 |
| 1/2" | 0.787 (20mm) | 0.787 | 0.591 | 0.046 | PP07010020 |
| 3/4" | 0.984 (25mm) | 0.984 | 0.630 | 0.068 | PP07010025 |
| 1" | 1.260 (32mm) | 1.260 | 0.709 | 0.108 | PP07010032 |
| 1 1/4" | 1.575 (40mm) | 1.575 | 0.827 | 0.198 | PP07010040 |
| 1 1/2" | 1.969 (50mm) | 1.969 | 0.945 | 0.295 | PP07010050 |
| 2" | 2.480 (63mm) | 2.480 | 1.063 | 0.552 | PP07010063 |
| 2 1/2" | 2.953 (75mm) | 2.953 | 1.220 | 0.616 | PP07010075 |
| 3" | 3.543 (90mm) | 3.543 | 1.417 | 1.100 | PP07010090 |
| 4" | 4.331 (110mm) | 4.331 | 1.654 | 1.903 | PP07010110 |

PureTech Piping Systems - Dimensional Data

45° Elbow



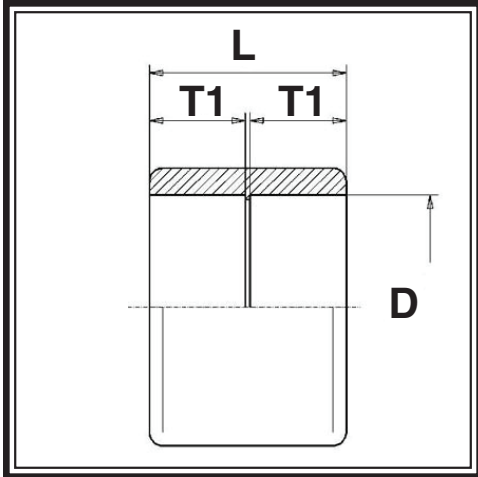
Description: 45° Elbow
PN10 / SDR 11 - 150psi

Material: AlphaPlus® Polypropylene

Connection: Socket Fusion

| Nominal Size | Actual ID Size | D in | T1 in | Weight lbs | Part Number |
|--------------|----------------|-------|-------|------------|-------------|
| 3/8" | 0.630 (16mm) | 0.630 | 0.512 | 0.009 | PP07020016 |
| 1/2" | 0.787 (20mm) | 0.787 | 0.591 | 0.042 | PP07020020 |
| 3/4" | 0.984 (25mm) | 0.984 | 0.630 | 0.059 | PP07020025 |
| 1" | 1.260 (32mm) | 1.260 | 0.709 | 0.088 | PP07020032 |
| 1 1/4" | 1.575 (40mm) | 1.575 | 0.827 | 0.165 | PP07020040 |
| 1 1/2" | 1.969 (50mm) | 1.969 | 0.945 | 0.242 | PP07020050 |
| 2" | 2.480 (63mm) | 2.480 | 1.063 | 0.403 | PP07020063 |
| 2 1/2" | 2.953 (75mm) | 2.953 | 1.220 | 0.473 | PP07020075 |
| 3" | 3.543 (90mm) | 3.543 | 1.417 | 0.781 | PP07020090 |
| 4" | 4.331 (110mm) | 4.331 | 1.654 | 1.342 | PP07020110 |

PureTech Piping Systems - Dimensional Data



Coupling

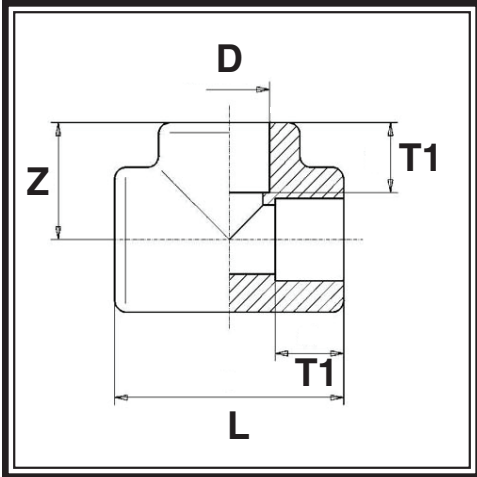
Description: Coupling
PN10 / SDR 11 - 150psi

Material: AlphaPlus® Polypropylene

Connection: Socket Fusion

| Nominal Size | Actual ID Size | D in | T1 in | L in | Weight lbs | Part Number |
|--------------|----------------|-------|-------|-------|------------|-------------|
| 3/8" | 0.630 (16mm) | 0.630 | 0.512 | 1.142 | 0.220 | PP07110016 |
| 1/2" | 0.787 (20mm) | 0.787 | 0.591 | 1.260 | 0.031 | PP07110020 |
| 3/4" | 0.984 (25mm) | 0.984 | 0.630 | 1.378 | 0.046 | PP07110025 |
| 1" | 1.260 (32mm) | 1.260 | 0.709 | 1.535 | 0.062 | PP07110032 |
| 1 1/4" | 1.575 (40mm) | 1.575 | 0.827 | 1.732 | 0.103 | PP07110040 |
| 1 1/2" | 1.969 (50mm) | 1.969 | 0.945 | 1.969 | 0.174 | PP07110050 |
| 2" | 2.480 (63mm) | 2.480 | 1.063 | 2.283 | 0.290 | PP07110063 |
| 2 1/2" | 2.953 (75mm) | 2.953 | 1.220 | 2.598 | 0.370 | PP07110075 |
| 3" | 3.543 (90mm) | 3.543 | 1.417 | 2.992 | 0.662 | PP07110090 |
| 4" | 4.331 (110mm) | 4.331 | 1.654 | 3.465 | 0.935 | PP07110110 |

PureTech Piping Systems - Dimensional Data



Tee

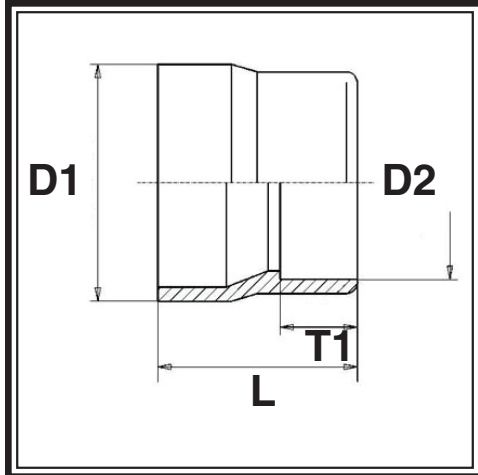
Description: Tee
PN10 / SDR 11 - 150psi

Material: AlphaPlus® Polypropylene

Connection: Socket Fusion

| Nominal Size | Actual ID Size | D in | L in | T1 in | Z in | Weight lbs | Part Number |
|--------------|----------------|-------|-------|-------|-------|------------|-------------|
| 3/8" | 0.630 (16mm) | 0.630 | 1.693 | 0.512 | 0.866 | 0.044 | PP07030016 |
| 1/2" | 0.787 (20mm) | 0.787 | 2.008 | 0.591 | 1.004 | 0.064 | PP07030020 |
| 3/4" | 0.984 (25mm) | 0.984 | 2.323 | 0.630 | 1.161 | 0.099 | PP07030025 |
| 1" | 1.260 (32mm) | 1.260 | 2.756 | 0.709 | 1.378 | 0.141 | PP07030032 |
| 1 1/4" | 1.575 (40mm) | 1.575 | 3.268 | 0.827 | 1.634 | 0.246 | PP07030040 |
| 1 1/2" | 1.969 (50mm) | 1.969 | 3.898 | 0.945 | 1.949 | 0.370 | PP07030050 |
| 2" | 2.480 (63mm) | 2.480 | 4.724 | 1.102 | 2.362 | 0.684 | PP07030063 |
| 2 1/2" | 2.953 (75mm) | 2.953 | 5.472 | 1.220 | 2.736 | 0.770 | PP07030075 |
| 3" | 3.543 (90mm) | 3.543 | 6.417 | 1.417 | 3.209 | 1.320 | PP07030090 |
| 4" | 4.331 (110mm) | 4.331 | 7.677 | 1.654 | 3.839 | 2.266 | PP07030110 |

PureTech Piping Systems - Dimensional Data



Reducer Bushing

Description: Reducer Bushing
PN10 / SDR 11 - 150psi

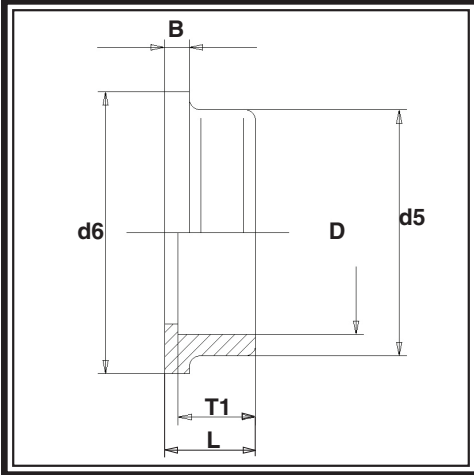
Material: AlphaPlus® Polypropylene

Connection: Socket Fusion

| Nominal Size | Actual ID Size | D1 in | D2 in | T1 in | L in | Weight lbs | Part Number |
|--------------|------------------------------|-------|-------|-------|-------|------------|--------------|
| ½" x ⅜" | 0.787 (20mm) x 0.630 (16mm) | 0.787 | 0.630 | 0.512 | 1.063 | 0.022 | PP0704020016 |
| ¾" x ⅜" | 0.984 (25mm) x 0.630 (16mm) | 0.984 | 0.630 | 0.512 | 1.220 | 0.022 | PP0704025016 |
| ¾" x ½" | 0.984 (25mm) x 0.787 (20mm) | 0.984 | 0.787 | 0.591 | 1.220 | 0.024 | PP0704025020 |
| 1" x ½" | 1.260 (32mm) x 0.787 (20mm) | 1.260 | 0.787 | 0.551 | 1.693 | 0.044 | PP0704032020 |
| 1" x ¾" | 1.260 (32mm) x 0.984 (25mm) | 1.260 | 0.984 | 0.630 | 1.457 | 0.040 | PP0704032025 |
| 1¼" x ½" | 1.575 (40mm) x 0.787 (20mm) | 1.575 | 0.787 | 0.551 | 1.890 | 0.044 | PP0704040020 |
| 1¼" x ¾" | 1.575 (40mm) x 0.984 (25mm) | 1.575 | 0.984 | 0.630 | 1.890 | 0.057 | PP0704040025 |
| 1¼" x 1" | 1.575 (40mm) x 1.260 (32mm) | 1.575 | 1.260 | 0.709 | 1.732 | 0.068 | PP0704040032 |
| 1½" x ½" | 1.969 (50mm) x 0.787 (20mm) | 1.969 | 0.787 | 0.551 | 2.126 | 0.088 | PP0704050020 |
| 1½" x ¾" | 1.969 (50mm) x 0.984 (25mm) | 1.969 | 0.984 | 0.630 | 2.067 | 0.066 | PP0704050025 |
| 1½" x 1" | 1.969 (50mm) x 1.260 (32mm) | 1.969 | 1.260 | 0.709 | 2.067 | 0.081 | PP0704050032 |
| 1½" x 1¼" | 1.969 (50mm) x 1.575 (40mm) | 1.969 | 1.575 | 0.827 | 2.142 | 0.117 | PP0704050040 |
| 2" x ¾" | 2.480 (63mm) x 0.984 (25mm) | 2.480 | 0.984 | 0.630 | 2.520 | 0.132 | PP0704063025 |
| 2" x 1" | 2.480 (63mm) x 1.260 (32mm) | 2.480 | 1.260 | 0.709 | 2.500 | 0.130 | PP0704063032 |
| 2" x 1¼" | 2.480 (63mm) x 1.575 (40mm) | 2.480 | 1.575 | 0.807 | 2.500 | 0.220 | PP0704063040 |
| 2" x 1½" | 2.480 (63mm) x 1.969 (50mm) | 2.480 | 1.969 | 0.945 | 2.500 | 0.194 | PP0704063050 |
| 2½" x 2" | 2.953 (75mm) x 2.480 (63mm) | 2.953 | 2.480 | 1.063 | 2.776 | 0.246 | PP0704075063 |
| 3" x 2" | 3.543 (90mm) x 2.480 (63mm) | 3.543 | 2.480 | 1.063 | 3.287 | 0.396 | PP0704090063 |
| 3" x 2½" | 3.543 (90mm) x 2.953 (75mm) | 3.543 | 2.953 | 1.220 | 3.287 | 0.343 | PP0704090075 |
| 4" x 3" | 4.331 (110mm) x 3.543 (90mm) | 4.331 | 3.543 | 1.417 | 3.957 | 0.603 | PP0704110090 |

PureTech Piping Systems - Dimensional Data

Stub End



Description: Stub End
PN10 / SDR 11 - 150psi

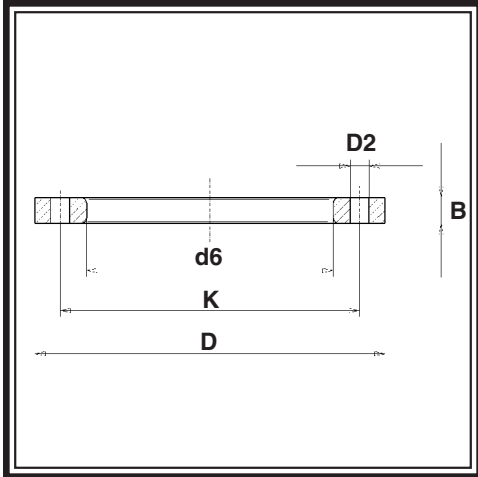
Material: AlphaPlus® Polypropylene

Connection: Socket Fusion

| Nominal Size | Actual ID Size | D in | d5 in | d6 in | B in | L in | T1 in | Weight lbs | Part Number |
|--------------|----------------|-------|-------|-------|-------|-------|-------|------------|-------------|
| ½" | 0.787 (20mm) | 0.787 | 1.024 | 1.732 | 0.394 | 0.846 | 0.591 | 0.040 | PP07060020 |
| ¾" | 0.984 (25mm) | 0.984 | 1.260 | 2.126 | 0.394 | 0.858 | 0.630 | 0.055 | PP07060025 |
| 1" | 1.260 (32mm) | 1.260 | 1.535 | 2.480 | 0.394 | 0.974 | 0.709 | 0.070 | PP07060032 |
| 1¼" | 1.575 (40mm) | 1.575 | 1.890 | 2.874 | 0.433 | 1.102 | 0.827 | 0.143 | PP07060040 |
| 1½" | 1.969 (50mm) | 1.969 | 2.362 | 3.248 | 0.472 | 1.280 | 0.945 | 0.213 | PP07060050 |
| 2" | 2.480 (63mm) | 2.480 | 2.835 | 3.976 | 0.551 | 1.447 | 1.102 | 0.334 | PP07060063 |
| 2½" | 2.953 (75mm) | 2.953 | 3.346 | 4.173 | 0.394 | 1.388 | 1.220 | 0.352 | PP07060075 |
| 3" | 3.543 (90mm) | 3.543 | 4.173 | 4.921 | 0.433 | 1.722 | 1.417 | 0.473 | PP07060090 |
| 4" | 4.331 (110mm) | 4.331 | 4.882 | 5.906 | 0.472 | 1.811 | 1.634 | 0.792 | PP07060110 |

PureTech Piping Systems - Dimensional Data

Backing Ring



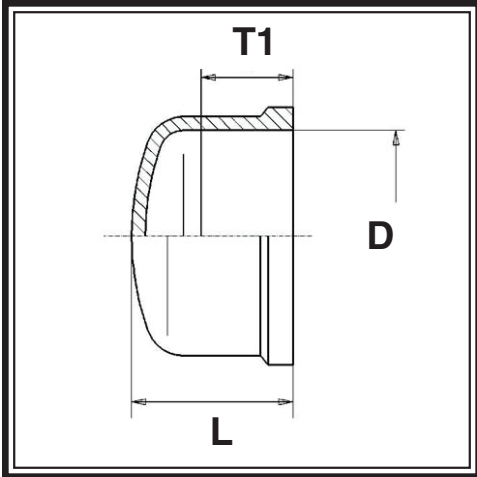
Description: Backing Ring
150 lbs. ANSI Drilling

Material: Glass Filled Polypropylene with Steel Core

| Nominal Size | Actual ID Size | B in | D in | D2 in | d6 in | K in | # Holes | Weight lbs | Part Number |
|--------------|----------------|------|------|-------|-------|------|---------|------------|-------------|
| ½" | 0.787 (20mm) | 0.47 | 3.50 | 0.63 | 1.24 | 2.36 | 4 | 0.48 | PP99070020 |
| ¾" | 0.984 (25mm) | 0.47 | 3.86 | 0.63 | 1.32 | 2.76 | 4 | 0.66 | PP99070025 |
| 1" | 1.260 (32mm) | 0.63 | 4.25 | 0.63 | 1.63 | 3.11 | 4 | 0.97 | PP99070032 |
| 1¼" | 1.575 (40mm) | 0.63 | 4.61 | 0.63 | 1.99 | 3.50 | 4 | 1.19 | PP99070040 |
| 1½" | 1.969 (50mm) | 0.71 | 5.00 | 0.63 | 2.42 | 3.86 | 4 | 1.25 | PP99070050 |
| 2" | 2.480 (63mm) | 0.71 | 5.98 | 0.75 | 3.05 | 4.76 | 4 | 1.78 | PP99070063 |
| 2½" | 2.953 (75mm) | 0.71 | 7.01 | 0.75 | 3.48 | 5.51 | 4 | 2.42 | PP99070075 |
| 3" | 3.543 (90mm) | 0.71 | 7.48 | 0.75 | 4.25 | 5.98 | 4 | 2.33 | PP99070090 |
| 4" | 4.331 (110mm) | 0.71 | 9.02 | 0.75 | 5.04 | 7.52 | 8 | 4.05 | PP99070110 |

PureTech Piping Systems - Dimensional Data

End Cap



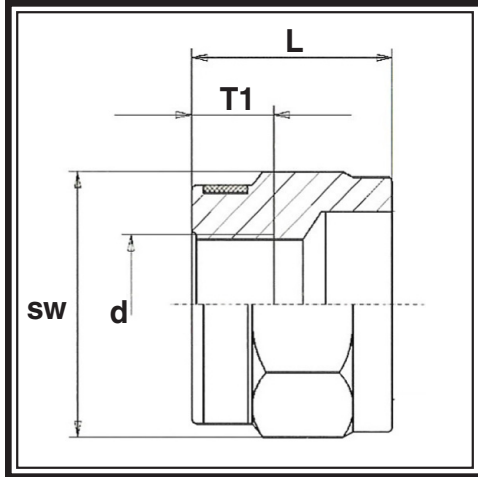
Description: End Cap
PN10 / SDR 11 - 150psi

Material: AlphaPlus® Polypropylene

Connection: Socket Fusion

| Nominal Size | Actual ID Size | D in | L in | T1 in | Weight lbs | Part Number |
|--------------|----------------|-------|-------|-------|------------|-------------|
| ½" | 0.787 (20mm) | 0.787 | 0.886 | 0.591 | 0.024 | PP07090020 |
| ¾" | 0.984 (25mm) | 0.984 | 1.063 | 0.630 | 0.037 | PP07090025 |
| 1" | 1.260 (32mm) | 1.260 | 1.220 | 0.709 | 0.057 | PP07090032 |
| 1¼" | 1.575 (40mm) | 1.575 | 1.417 | 0.827 | 0.086 | PP07090040 |
| 1½" | 1.969 (50mm) | 1.969 | 1.693 | 0.945 | 0.141 | PP07090050 |
| 2" | 2.480 (63mm) | 2.480 | 2.047 | 1.063 | 0.207 | PP07090063 |
| 2½" | 2.953 (75mm) | 2.953 | 2.323 | 1.220 | 0.306 | PP07090075 |
| 3" | 3.543 (90mm) | 3.543 | 2.717 | 1.417 | 0.554 | PP07090090 |
| 4" | 4.331 (110mm) | 4.331 | 3.228 | 1.654 | 0.906 | PP07090110 |

PureTech Piping Systems - Dimensional Data



Female Adapter

Description: Threaded Female Adapter
PN10 / SDR 11 - 150psi

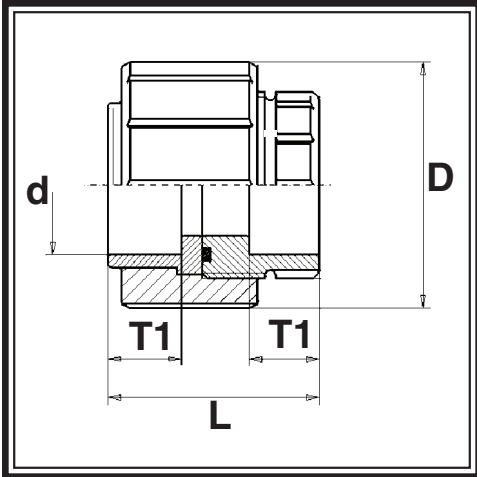
Material: AlphaPlus® Polypropylene

Connection: Butt Fusion

| Nominal Size | Actual ID Size | d in | L in | SW in | T1 in | Weight lbs | Part Number |
|--------------|----------------|-------|-------|-------|-------|------------|-------------|
| ½" | 0.787 (20mm) | 0.787 | 1.378 | 1.260 | 0.512 | 0.040 | PP07140020 |
| ¾" | 0.984 (25mm) | 0.984 | 1.535 | 1.417 | 0.591 | 0.068 | PP07140025 |
| 1" | 1.260 (32mm) | 1.260 | 1.772 | 1.811 | 0.630 | 0.088 | PP07140032 |
| 1¼" | 1.575 (40mm) | 1.575 | 2.087 | 2.165 | 0.709 | 0.119 | PP07140040 |
| 1½" | 1.969 (50mm) | 1.969 | 2.126 | 2.559 | 0.827 | 0.264 | PP07140050 |
| 2" | 2.480 (63mm) | 2.480 | 2.441 | 3.150 | 0.945 | 2.640 | PP07140063 |

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Union with EPDM



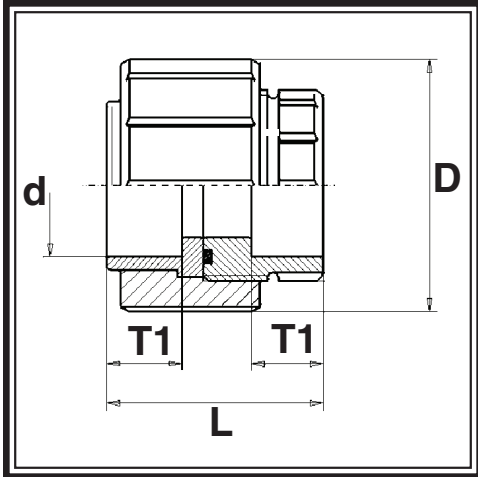
Description: Union with EPDM O-Ring
PN10 / SDR 11 - 150psi

Material: AlphaPlus® Polypropylene

Connection: Butt Fusion

| Nominal Size | Actual ID Size | d in | D in | L in | T1 in | Weight lbs | Part Number |
|--------------|----------------|-------|-------|-------|-------|------------|-------------|
| ½" | 0.787 (20mm) | 0.787 | 0.512 | 1.870 | 0.591 | 0.150 | PP07100020 |
| ¾" | 0.984 (25mm) | 0.984 | 0.709 | 1.949 | 0.630 | 0.200 | PP07100025 |
| 1" | 1.260 (32mm) | 1.260 | 0.984 | 2.087 | 0.709 | 0.297 | PP07100032 |
| 1¼" | 1.575 (40mm) | 1.575 | 1.220 | 2.323 | 0.827 | 0.438 | PP07100040 |
| 1½" | 1.969 (50mm) | 1.969 | 1.535 | 2.638 | 0.945 | 0.576 | PP07100050 |
| 2" | 2.480 (63mm) | 2.480 | 1.929 | 3.150 | 1.063 | 0.913 | PP07100063 |

PureTech Piping Systems - Dimensional Data



Union with VITON

Description: Union with VITON O-Ring
PN10 / SDR 11 - 150psi

Material: AlphaPlus® Polypropylene

Connection: Butt Fusion

| Nominal Size | Actual ID Size | d in | D in | L in | T1 in | Weight lbs | Part Number |
|--------------|----------------|-------|-------|-------|-------|------------|-------------|
| ½" | 0.787 (20mm) | 0.787 | 0.512 | 1.870 | 0.591 | 0.150 | PP07270020 |
| ¾" | 0.984 (25mm) | 0.984 | 0.709 | 1.949 | 0.630 | 0.200 | PP07270025 |
| 1" | 1.260 (32mm) | 1.260 | 0.984 | 2.087 | 0.709 | 0.297 | PP07270032 |
| 1¼" | 1.575 (40mm) | 1.575 | 1.220 | 2.323 | 0.827 | 0.438 | PP07270040 |
| 1½" | 1.969 (50mm) | 1.969 | 1.535 | 2.638 | 0.945 | 0.576 | PP07270050 |
| 2" | 2.480 (63mm) | 2.480 | 1.929 | 3.150 | 1.063 | 0.913 | PP07270063 |

PureTech Piping Systems - Dimensional Data

Support Spacing

Support spacing for plastic pipe is dependent on the pipe material, mean pipe wall temperature, the pipe size and the density of the medium being transported. For simplicity, we have assumed a maximum deflection of:

- $f_{\max} = 1\text{cm}$ — PP Type 1 and Type 2
- $f_{\max} = 0.5\text{cm}$ — PVDF

The resulting distances for supporting the pipes apply when the pipes are laid horizontally. When the pipes are installed vertically, the distances between pipe shackles can be multiplied by the factor 1.3.

The distances for supporting the pipes under other condition, i.e. when the wall thickness is thinner, when the medium has a different density or when very low sag is required, other factors should be taken into consideration.

PP Support Spacing

| Nominal Diameter (inches) | 68° F/ 20° C | 86° F/ 30° C | 104° F/ 40° C | 122° F/ 50° C | 140° F/ 60° C | 158° F/ 70° C | 176° F/ 80° C |
|---------------------------|-----------------|-----------------|------------------|------------------|------------------|------------------|------------------|
| 1/2 | 3 | 2.5 | 2.5 | 2 | 2 | 2 | 2 |
| 3/4 | 3 | 3 | 2.5 | 2.5 | 2.5 | 2.5 | 2 |
| 1 | 3.5 | 3 | 3 | 3 | 3 | 2.5 | 2.5 |
| 1 1/2 | 4 | 3.5 | 3 | 3 | 3 | 3 | 3 |
| 2 | 4.5 | 4 | 4 | 3.5 | 3 | 3 | 3 |
| 2 1/2 | 5 | 4.5 | 4 | 4 | 3.5 | 3 | 3 |
| 3 | 5.5 | 5 | 4 | 4 | 4 | 3.5 | 3.5 |
| 4 | 6 | 5 | 5 | 4 | 4 | 4 | 4 |
| 6 | 7 | 6 | 6 | 5 | 5 | 4.5 | 4.5 |
| 8 | 7.5 | 7 | 6 | 6 | 5.5 | 5 | 5 |
| 10 | 8.5 | 7.5 | 7 | 6.5 | 6 | 6 | 5.5 |
| 12 | 9.5 | 8.5 | 8 | 7 | 7 | 6.5 | 6 |
| 14 | 10 | 8.5 | 8 | 7.5 | 7 | 6.5 | 6.5 |
| 16 | 10.5 | 9.5 | 8.5 | 8 | 7.5 | 7 | 6.5 |
| 18 | 11.5 | 10 | 9 | 8.5 | 8 | 7.5 | 7 |

Distance in Feet

PureTech Piping Systems - Dimensional Data

HANGING PRACTICES

Hanging any thermoplastic system is not that much different than hanging a metal system. Typically the spacing between hangers is shorter, due to the flexibility of plastic. In addition, the type of hanger is important.

Hanging Distances

Hangers should be placed based on the spacing requirements. Since thermoplastic materials vary in strength and rigidity, it is important to select hanging distances based on the material you are hanging. Also, operating conditions must be considered. If the pipe is operated at a higher temperature, then the amount of hangers will be increased. Finally, if the system is exposed to thermal cycling, the placement of hangers, guides, and anchors is critical. In these cases, the hanger locations should be identified by the system engineer and laid out to allow for expansion and contraction of the pipe over its life of operation.

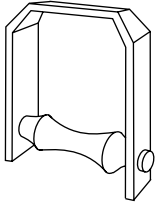
Hanger Types

When selecting hangers for a system, it is important to avoid using a hanger that will place a pinpoint load on the pipe when tightened. For example, a U-bolt hanger is not recommended for thermoplastic piping.

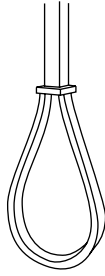
Hangers that secure the pipe 360° around the pipe are preferred. Thermoplastic clamps are also recommended over metal clamps, as they are less likely to scratch the pipe in the event of movement. If metal clamps are specified for the project, they should be inspected for rough edges that could damage the pipe. Ideally, if a metal clamp is being used, an elastomeric material should be used in between the pipe and the clamp. This is a must for PVDF and E-CTFE systems, which are less tolerant to scratching. Figure 2 illustrates some recommended hanger types.

PureTech Piping Systems - Dimensional Data

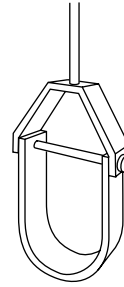
Typical Plastic Piping Restraints / Hangers



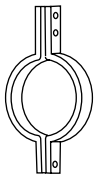
Roller Hanger



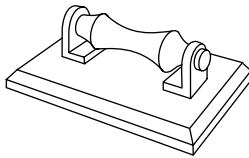
Adjustable Solid Ring
(swivel type)



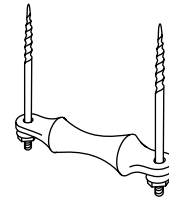
Clevis Hanger



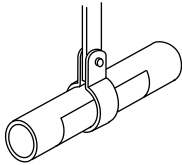
Double-Bolt Clamp



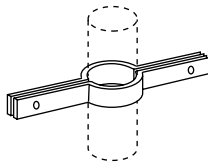
Pipe Roller and Plate



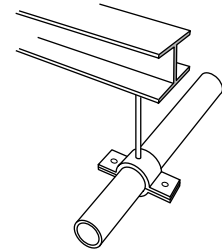
Single Pipe Roller



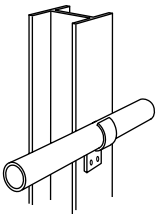
Band Hanger with
Protective Sleeve



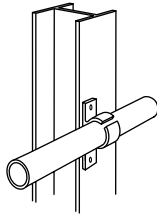
Riser Clamp



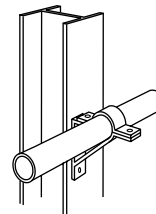
Suspended Ring Clamp



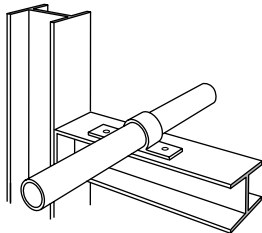
Vertical Clamp



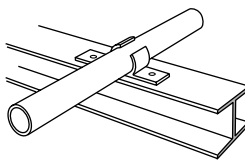
Vertical Pipe Clip



Vertical Offset Clamp



U-Type Clamp



Horizontal Pipe Clip

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