



Polypropylene Fittings & Valves Technical Information



ENGINEERING GUIDE

Contact Spears® for any Information not found.



Wide Selection of Configurations

High Grade Natural or Black

Featuring Spears® Special Reinforced (SR) Thread

Full 150 psi Pressure Rating at 73°F

180°F Maximum Service Temperature

• Patented Special Reinforced (SR) Thread Design

Spears® patented Special Reinforced (SR) thread design is one of the most significant advancements in the use of plastic threaded fittings. More than just an added metal ring, this unique precompression design compensates for expansion forces generated from tapered pipe thread joint make-up. Radial stress is reduced in normal installations and contained in severe over tightening situations. SR style fittings use type 316 Stainless Steel reinforcement.

• Full 150 psi Pressure Rating For Threaded Systems Using SR Threaded Fittings

Spears® SR threaded Schedule 80 Polypropylene fittings provide the reinforcement necessary to provide threaded systems with full 150 psi pressure rating for water @ 73°F, typically found only in fusion welded systems.

• High Grade Homopolymer Compound - Excellent Chemical Resistance

Spears® selection of a premium polypropylene homopolymer provides improved purity with excellent chemical resistance to many solvents, caustic solutions and mixed chemicals for a wide variety of applications. Available in natural or black materials.

• Wide Range of Threaded Configurations - IPS Sizes 1/2" Through 2"

Spears® offers a wide assortment of Schedule 80 SR threaded Polypropylene fittings, including:

90° Elbows	Couplings	Flanges
45° Elbows	Caps	Blind Flanges
Tees	Bushings	Unions w/EPDM or FKM Seals

• Supplemental Line of Polypropylene Valves Available

Spears® also offers a broad line of Polypropylene, Diaphragm Valves and Butterfly Valves.



Polypropylene Technical Polypropylene SR Product Overview

Spears® Patented SR Technology Boosts Threaded Polypropylene Fitting Performance

Improved Pressure Handling Performance

Due to the highly ductile nature of Polypropylene, most threaded PP fittings are rated for system pressures of 25 psi @ 73°F. Pressure applications of up to 150 psi generally require more costly fusion weld jointing methods or use of a glass-filled material which limits chemical resistance for some applications. Spears® Special Reinforced (SR) thread design boosts threaded PP fitting performance by containment of expansion forces generated both during threaded joint make-up and higher system pressure operation. Laboratory test assemblies of Spears® Schedule 80 SR Polypropylene threaded fittings have been subjected to ASTM D 1598 sustained pressure test for 1000 hours at 320 psi without failure or loss of joint integrity.

Sound PP Threaded Connections

Spears® recommends use of Spears® **BLUE 75™** Thread Sealant for all SR threaded PP system connections to ensure chemical compatibility and joint integrity. Tape-type thread sealant can cause unwanted wedging action between threads. Choice of an appropriate thread sealant is at the discretion and responsibility of the installer. Spears® Schedule 80 SR Polypropylene fittings are assembled with an adhesive to position the reinforcing ring. If ring is loose, simply check that it is seated against the face of the fitting when assembling joint. A loose or spinning ring does not reduce its function upon installation. 1 to 2 turns beyond finger tight are generally sufficient to make a sound joint. Unnecessary over tightening can result in stripping of threads or other pipe and fitting damage.



Polypropylene Technical
Polypropylene Valve & Gauge Guard Selection Ratings



Large Diameter Butterfly Valves

Maximum Service Temperature
 PP = 180°F (82°C)
 Temperature/Pressure De-ratings Apply
 Contact Spears® for Custom Produced Valve Sizes 30" to 60"
 Pressure Rating @ 73°F (23°C), Water

Size	Psi
14	100
16	85
18	70
20	50
24	50

Industrial Swing Check Valves

Pressure Rating @73°F (23°), water
 3/4" - 4" 150 psi
 6" 100 psi
 8" 70 psi
 Maximum Service Temperature
 PP = 180°F (82°)
 Temperature/Pressure De-ratings Apply
 All Valves Assembled with Silicone-Free Lubricants

Threaded Bonnet on Sizes 3/4", 1" & 1-1/4"

Bolted Bonnet on Sizes 1-1/2" & Up

Diaphragm Valves

Contact Spears® for Pricing on Additional Specialty Diaphragms

- Hypalon®
- Hypalon® backed PTFE
- PTFE Encapsulated O-rings (for True Union Style Valves)

Pressure Rating @ 73°F (23°), Water

1/2" - 2"	235 psi
1/2" - 4" Flanged & Valves w/PTFE Diaphragms	150 psi
6"	100 psi
8"	75 psi

Maximum Service Temperatures
 PP = 180°F (82°C)
 Temperature/Pressure De-ratings Apply
 No Lubricants in Media Contact Area
 See Diaphragm Valve Repair Kits Section for Additional Options and Features

Butterfly Valves

Lever Handle Style
 Pressure Rating @ 73°F (23°), water
 1-1/2" - 12" 150 psi
 Maximum Service Temperature
 PP = 180°F (82°)
 Temperature/Pressure De-ratings Apply
 See Butterfly Valve Accessories & Repair Kits Section for Additional Options and Features

PP Thread Style

PP GAUGE GUARDS

Connection use Spears® Patented Special Reinforced (SR) Female Threads on Pressure Inlet (1/4" or 1/2")

Pressure Rating
 235 psi @ 73°F
 16 BAR @ 22°C
 Maximum Service Temperature
 PP = 180°F (82°C)
 Temperature/Pressure De-ratings Apply
 Rated for Full Vacuum Service

Gauge Guards are pre-filled with glycerin-water on units with Factory Installed Gauges.
 "No Gauge" units are to be filled by end user.

PP Needle Valve

Pressure Rating @ 73°F (23°C), Water
 150 psi
 Maximum Service Temperature
 PP = 180°F (82°)
 Solid PTFE Stem Seals
 No Elastomer or Lubricants used
 Valves include Panel Mounting Nut

General Installation Information: Swing check valves are designed for horizontal installations, but may be installed in up-flow only vertical position. Check valves MUST be installed with the valve's FLOW arrow pointing in the direction of the flow. Do not install valve upside down. Flow velocity should not exceed 5 ft/sec.