

## Soft Seat Options for Ball Valves

These parameters are guidelines, and customers are responsible for materials of construction being compatible with their valve application. ANSI/ASME B16.34 should be considered when selecting valve materials of construction (for example, ASTM A216 Grade WCB is not recommended in services above 797°F). Please note other materials present in the valve will be affected by higher temperatures/pressures, such as o-rings, joint gaskets, and pyramidal stem seals. MAST (Maximum Allowable Stem Torque) should be considered when using seat materials that require added torque. Frequency of operation is also a factor that should be investigated when selecting a seat material. Pressure vs. Temperature charts for individual valves series should also be considered when selecting the correct seat material. Applications that involve process media that is prone to thermal expansion (Ammonia, water/steam, Chlorine, etc.) require a vented ball to improve seat durability. Room temperature is defined as 72°F. Please note that low/high temperature ratings are for transient use only and not continual operation:

## PTFE (100% Virgin Polytetrafluoroethylene)

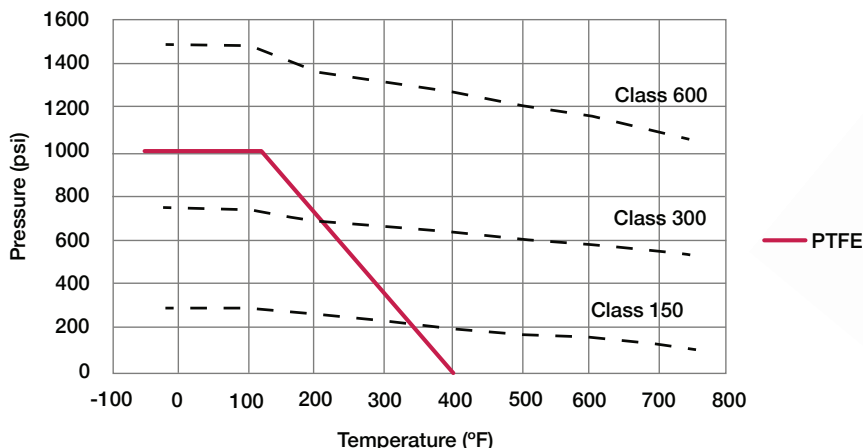
Commonly referred to as DuPont's Teflon®, PTFE is a thermoplastic fluoropolymer that consists of Carbon and Fluorine. This structure allows PTFE to be non-reactive to many chemicals and applied to severe chemical environments. PTFE is ideal for low cycle life applications. Do not use in molten alkali metal and molten Fluorine applications.

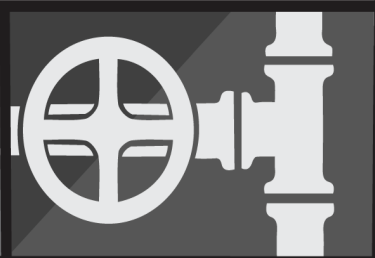
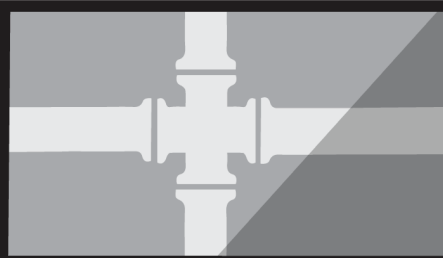
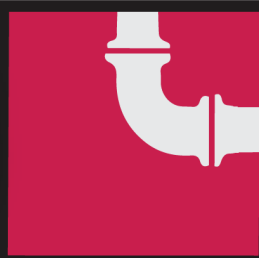
**Temperature Range:** -50°F to 400°F

**Max Pressure at Room Temperature:** 1000 psi

**Color:** White

**PTFE Pressure vs. Temperature**





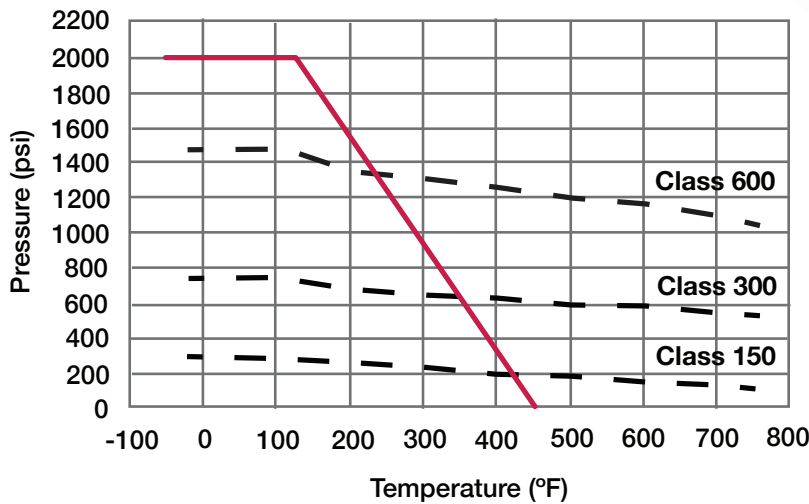
**RTFE (Reinforced Teflon®: 85% PTFE, 15% Glass Fiber)**

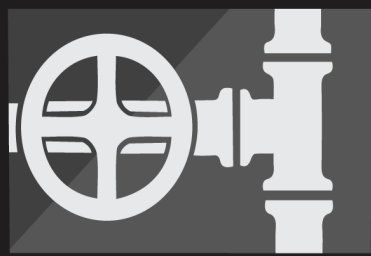
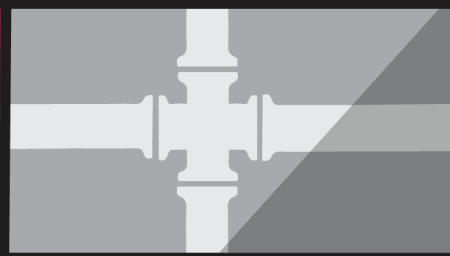
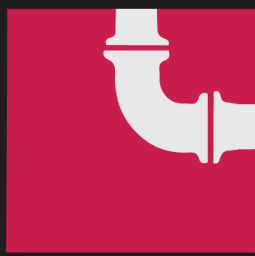
RTFE has improved wear and abrasion resistance over PTFE while maintaining its chemical compatibility. Its versatile temperature characteristics allow RTFE to be used in saturated steam applications. This seat should not be used in caustic (sodium hydroxide, potassium hydroxide, etc.) service.

**Temperature Range:** -50°F to 450°F  
**Max Pressure at Room Temperature:** 2000 psi  
**Color:** Off-White



**RTFE Pressure vs. Temperature**





**50/50 (50% SST Powder, 50% PTFE)**

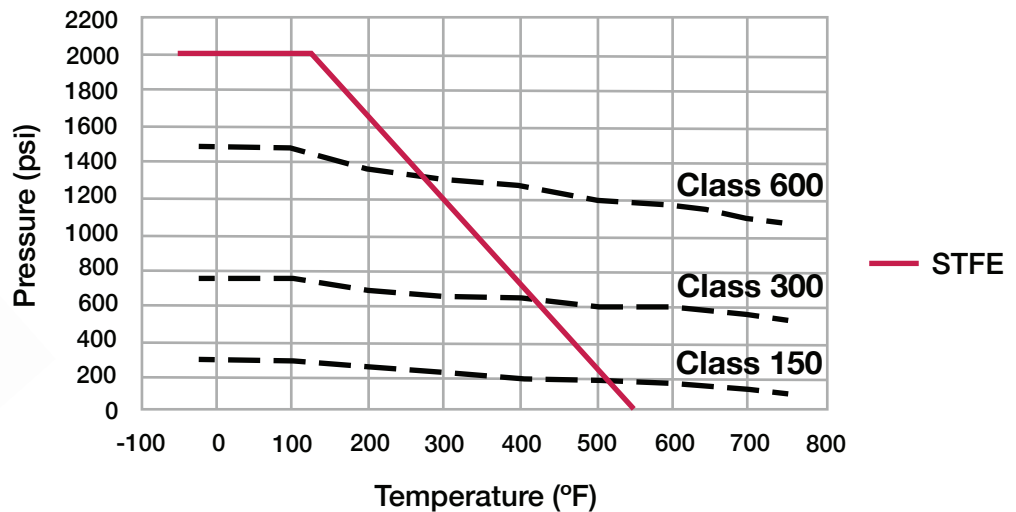
50/50 has improved temperature resistant properties over PTFE and RTFE, as well as improved abrasion resistance and a higher density. 50/50 seats are often used in saturated steam applications because of these characteristics. 50/50 seats are the standard in our V-ball valves.

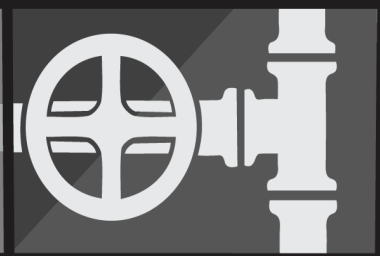
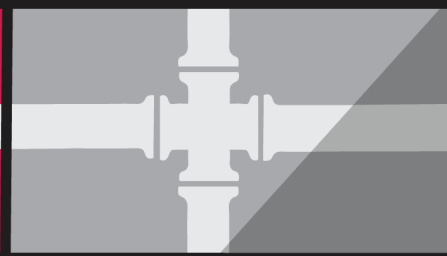
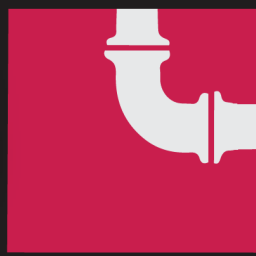
**Temperature Range:** -50°F to 550°F

**Max Pressure at Room Temperature:** 2000 psi

**Color:** Dark Grey

**STFE Pressure vs. Temperature**





## TFM™-1600

TFM™-1600 is second generation PTFE. TFM™-1600 has a lower coefficient of friction that provides better creep resistance than PTFE. TFM™-1600 is ideal for high purity applications such as semi-conductor, and also in lower temperature applications. TFM™-1600 resists “popcorning” in monomer and polymer services, such as Butadiene because of its lower porosity and permeability compared to PTFE. TFM™-1600 is FDA 21 CFR 177.1550 and 3A compliant.

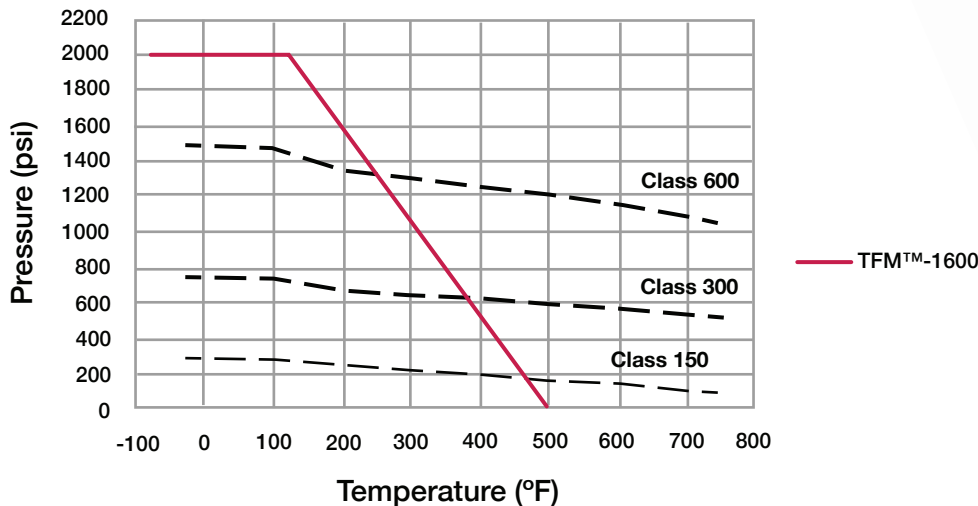
**Temperature Range:** -75°F to 500°F

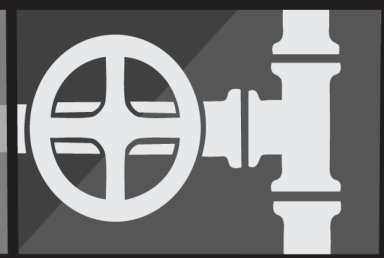
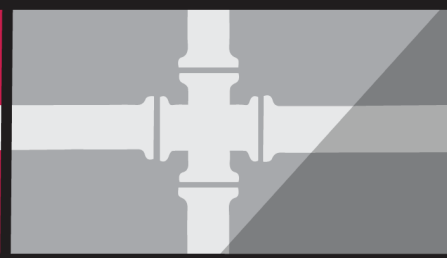
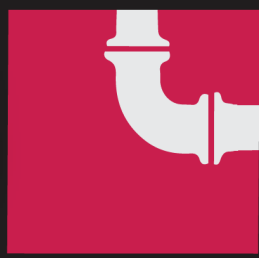
**Max Pressure at Room Temperature:** 2000 psi

**Color:** Transparent White



**TFM™-1600 Pressure vs. Temperature**





**CTFE (25% Carbon Graphite, 75% PTFE)**

CTFE is used for low pressure steam applications, abrasive, and slurry services. It offers comparable chemical resistance to PTFE.

**Temperature Range:** -50°F to 480°F

**Max Pressure at Room Temperature:** 2000 psi

**Color:** Black

**MG1241 (5% Graphite, 20% Glass Fiber, 75% PTFE)**

MG1241 is a thermoplastic that is ideal for high cycle applications and abrasive services. Chemical compatibility is also comparable to PTFE.

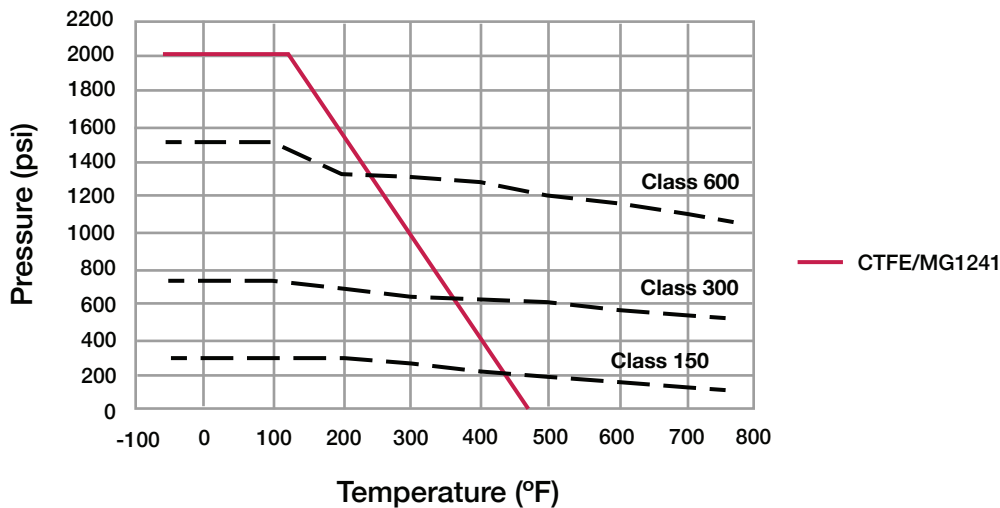
**Temperature Range:** -50°F to 400°F

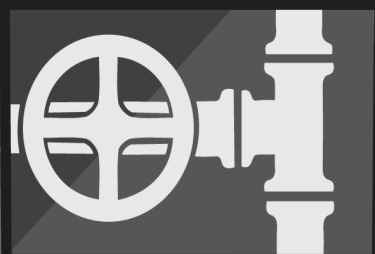
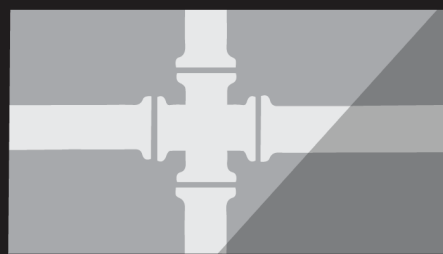
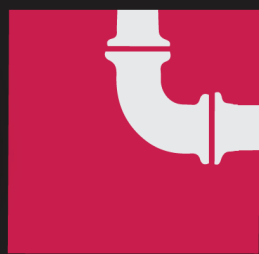
**Max Pressure at Room Temperature:** 2000 psi

**Color:** Dark Gray



**CTFE/MG1241 Pressure vs. Temperature**





## PCTFE (Polychlorotrifluoroethylene)

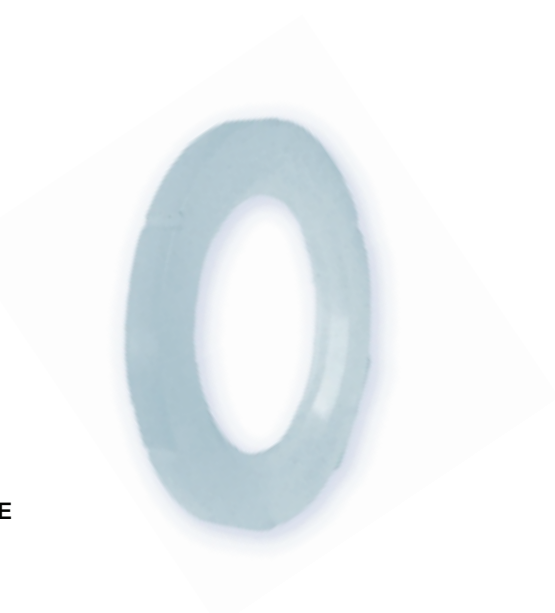
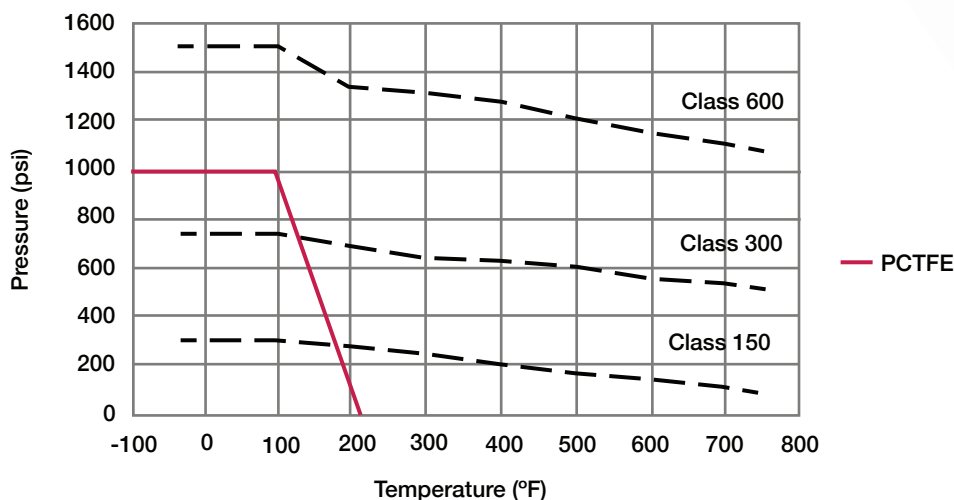
PCTFE is ideal in applications with low and cryogenic temperatures. It offers comparable chemical compatibility to PTFE, with few differences (should not be used for Ethylene Oxide applications, for example).

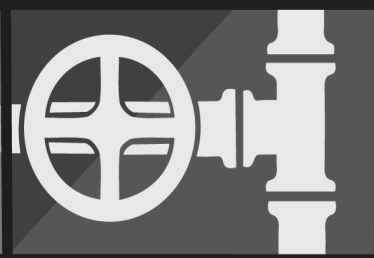
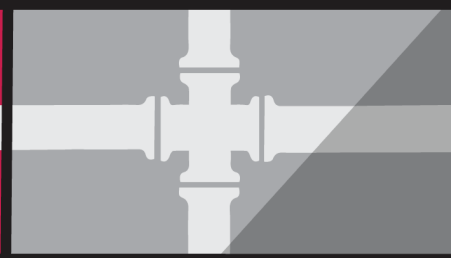
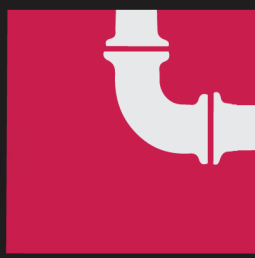
**Temperature Range:** -320°F to 212°F

**Max Pressure at Room Temperature:** 1000 psi

**Color:** Transparent White

### PCTFE Pressure vs. Temperature





## PEEK (Polyether Ether Ketone)

PEEK has good chemical resistance, and also high temperature tolerance. Ideal for high pressure applications. Other thermoplastics should be used for low pressure applications. Use of PEEK seats require the use of a 17-4 PH® stem. Do not use in applications prone to thermal shock, or in Chlorine and Sulfuric Acid applications.

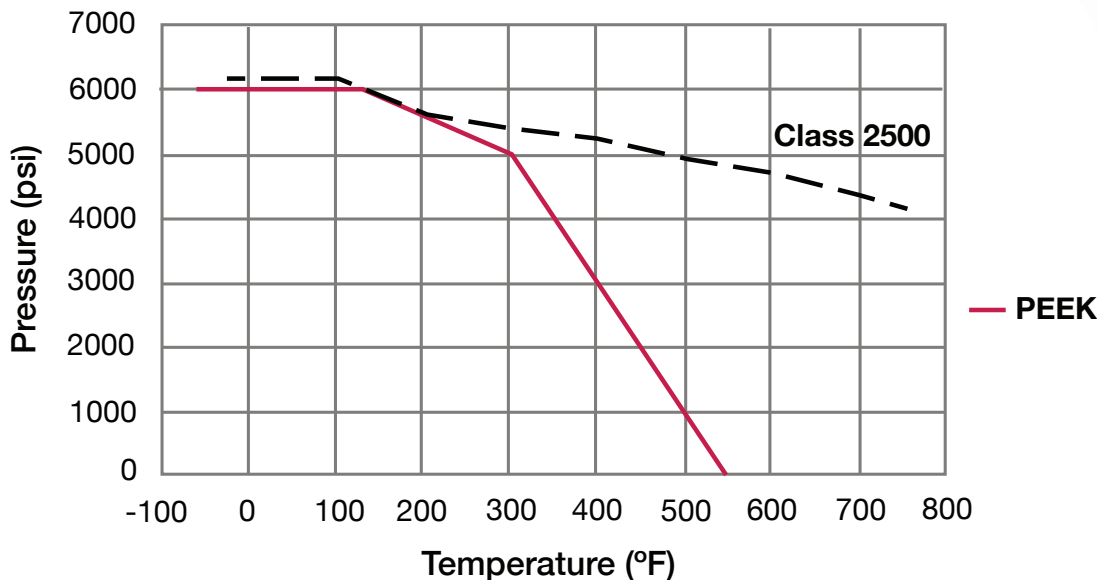
**Temperature Range:** -50°F to 550°F

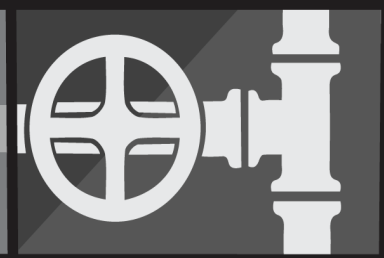
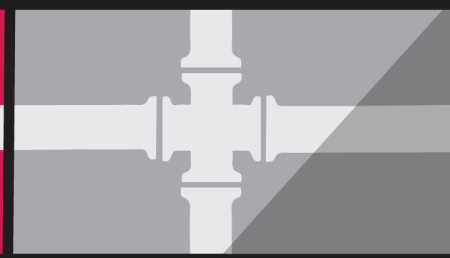
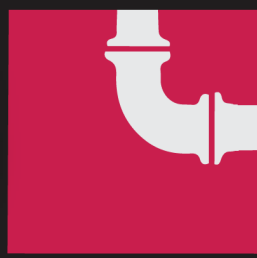
**Max Pressure at Room Temperature:** 6000 psi

**Color:** Beige



**PEEK Pressure vs. Temperature**





## UHMWPE (Ultra High Molecular Weight Polyethylene)

UHMWPE has good abrasion resistance for abrasive and slurry services. UHMWPE is ideal for applications such nuclear, tobacco, and low temperature applications that require no PTFE.

**Temperature Range:** -40°F to 180°F

**Max Pressure at Room Temperature:** 2000 psi

**Color:** Transparent White

## Delrin® (DuPont™ Polyoxymethylene)

Delrin® has decent chemical resistance, and is ideal for high pressure characteristics. Do not use in Oxygen service.

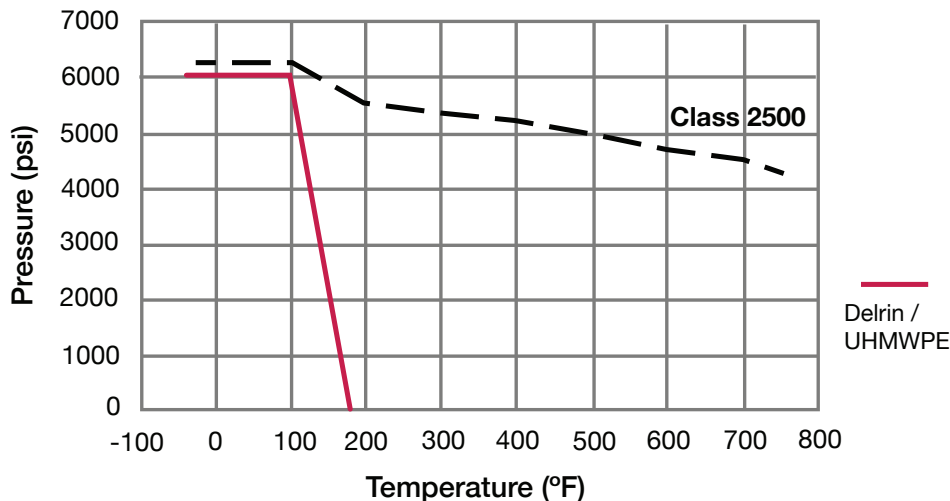
**Temperature Range:** -40°F to 180°F

**Max Pressure at Room Temperature:** 6000 psi

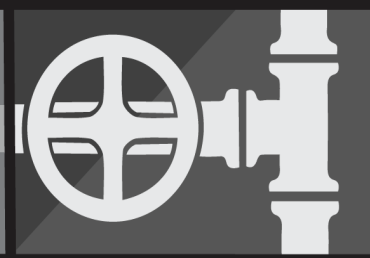
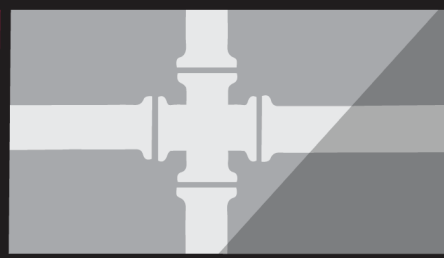
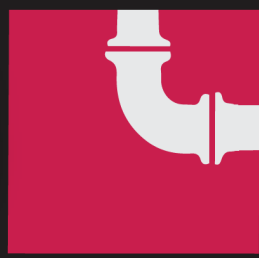
**Color:** White



**Delrin/UHMWPE Pressure vs. Temperature**







## Devlon® V-API

Devlon® V-API is a polyamide that has mechanical properties that are comparable to PEEK, but does not share its high temperature characteristics. It is able to withstand high pressures, and is standard on our Class 150/300 (larger than 12") and Class 600 trunnion ball valves. Avoid using with alcohols, amines, and acids.

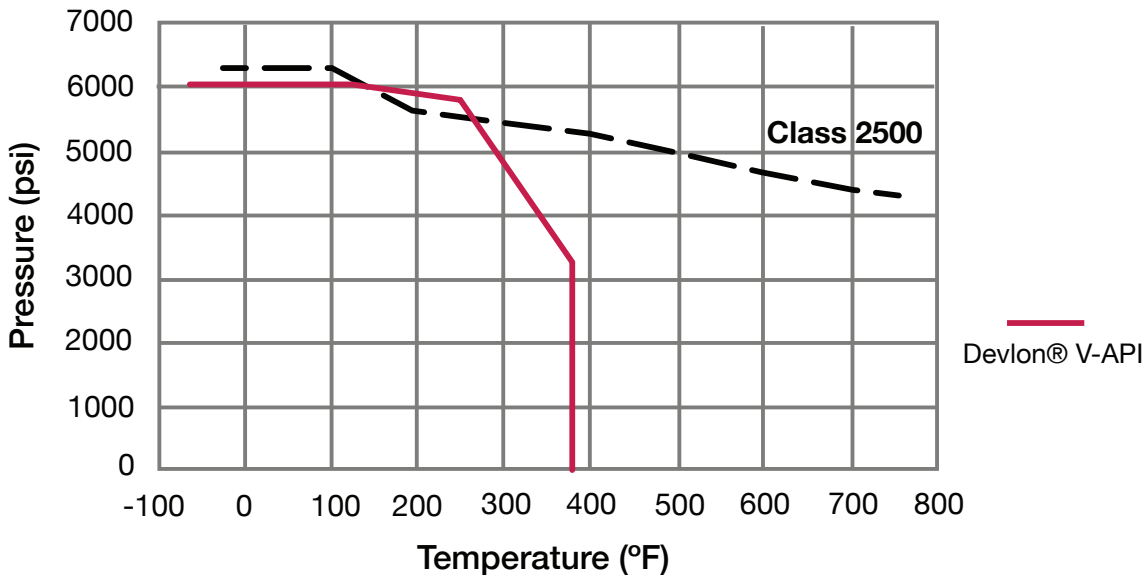
**Temperature Range:** -58°F to 375°F

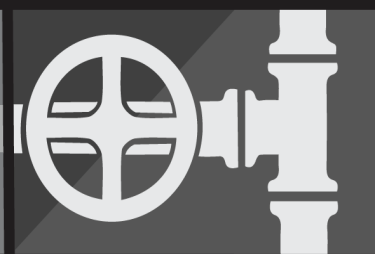
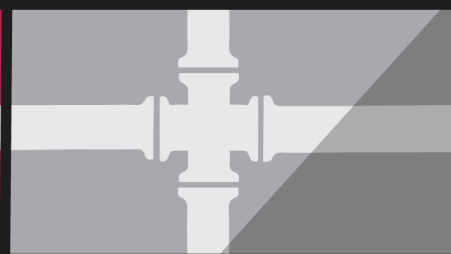
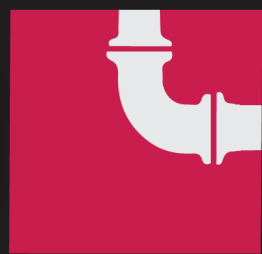
**Max Pressure at Room Temperature:** 6000 psi

**Color:** Yellow

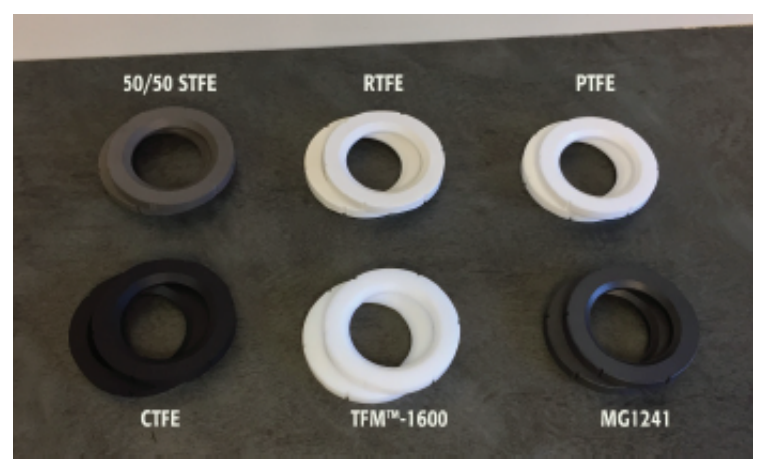
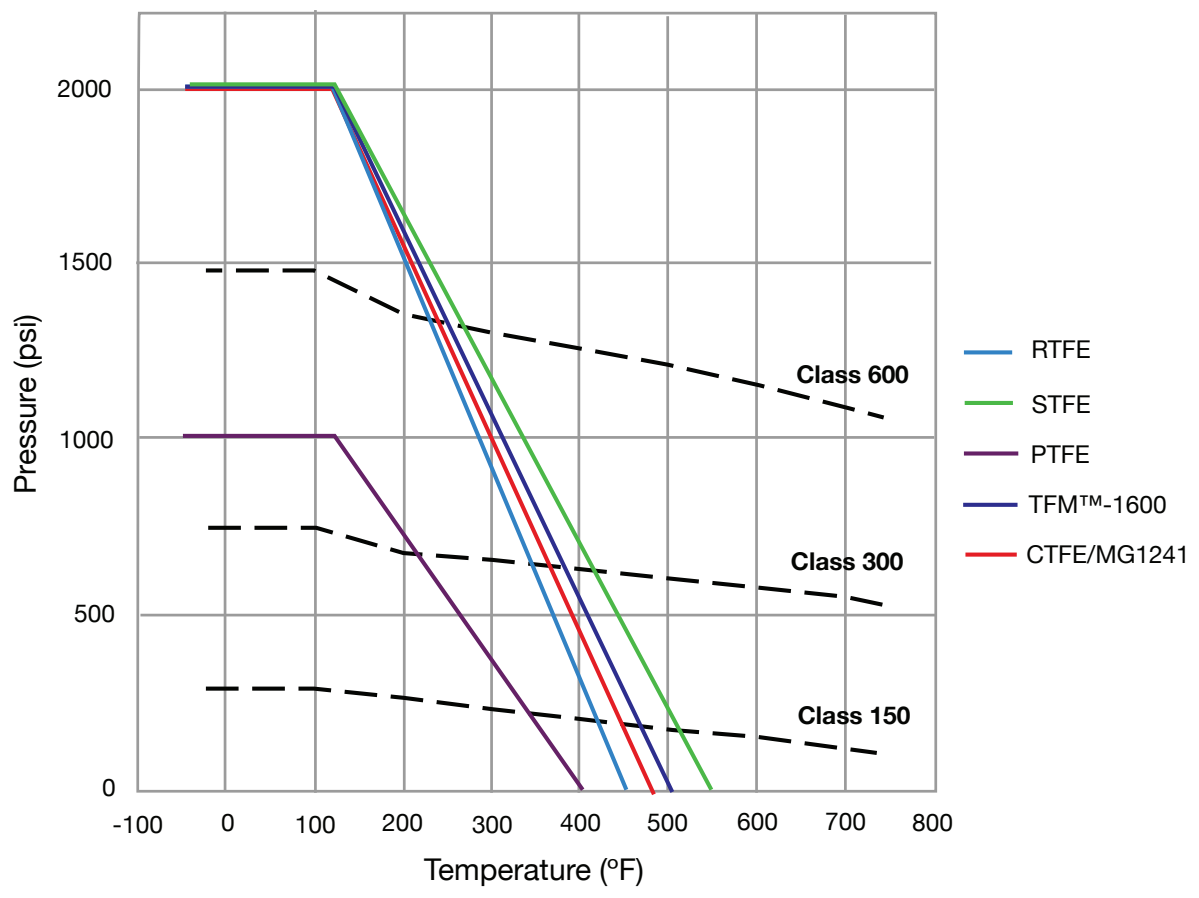


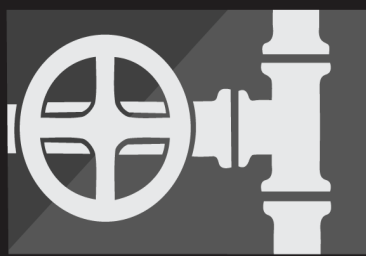
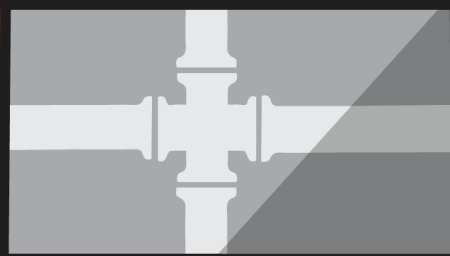
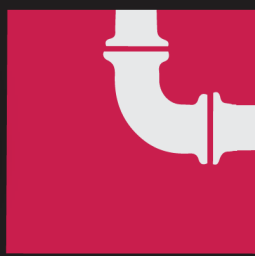
**Devlon® V-API Pressure vs. Temperature**



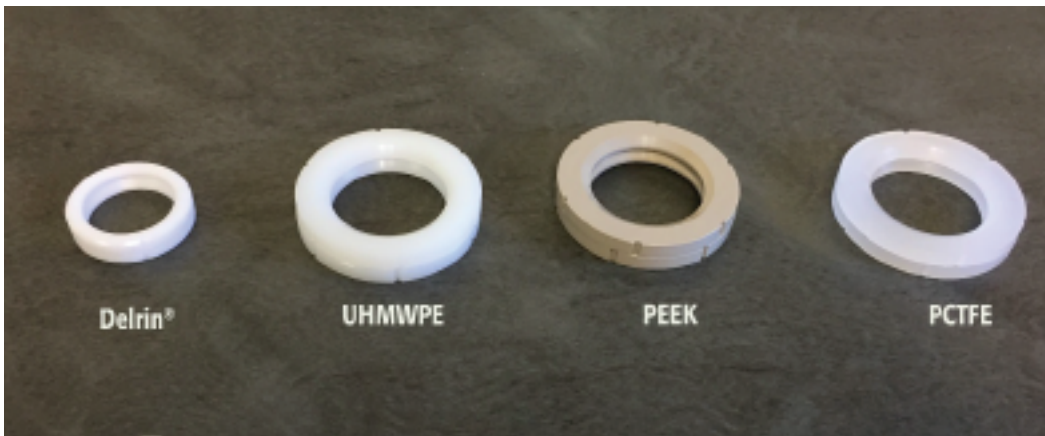
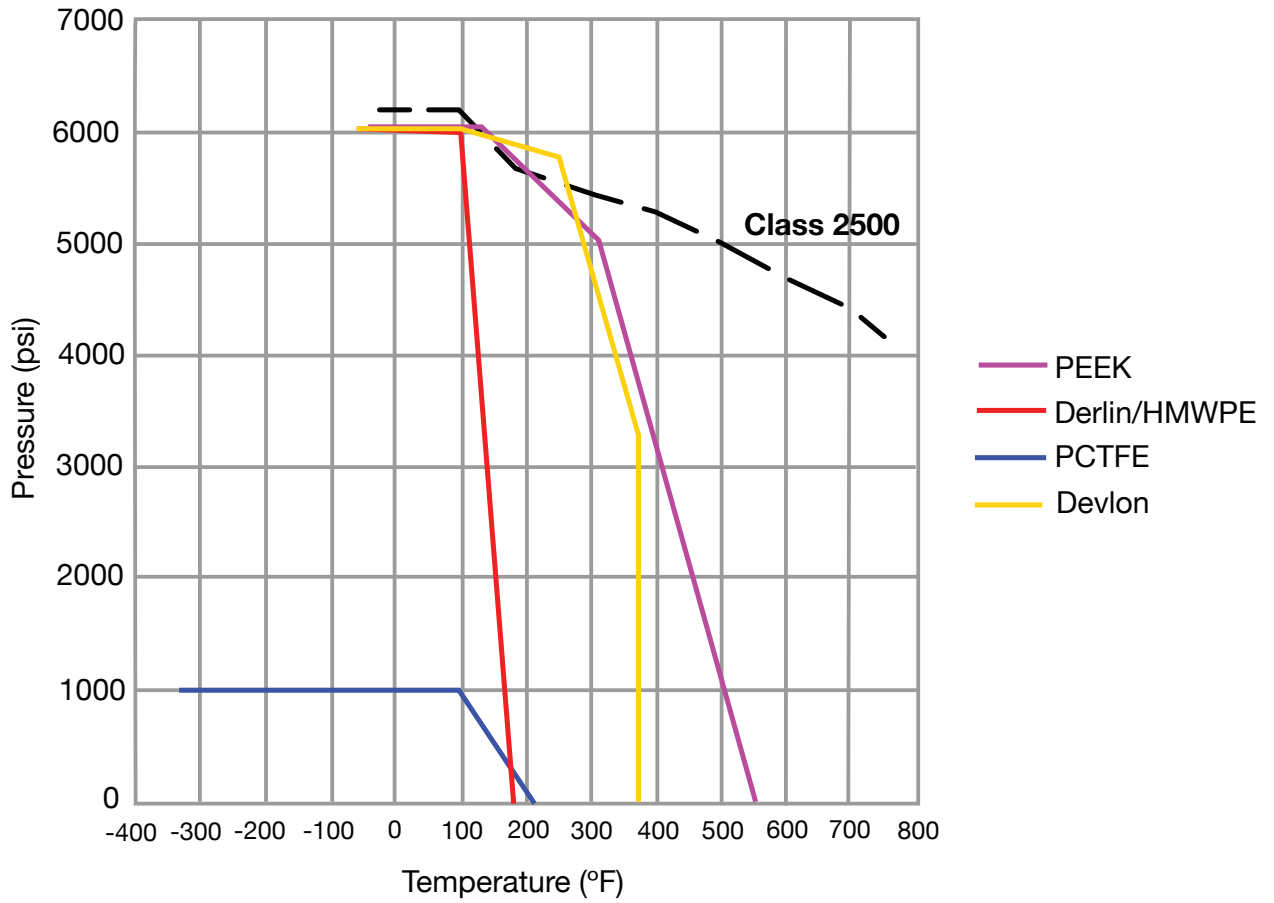


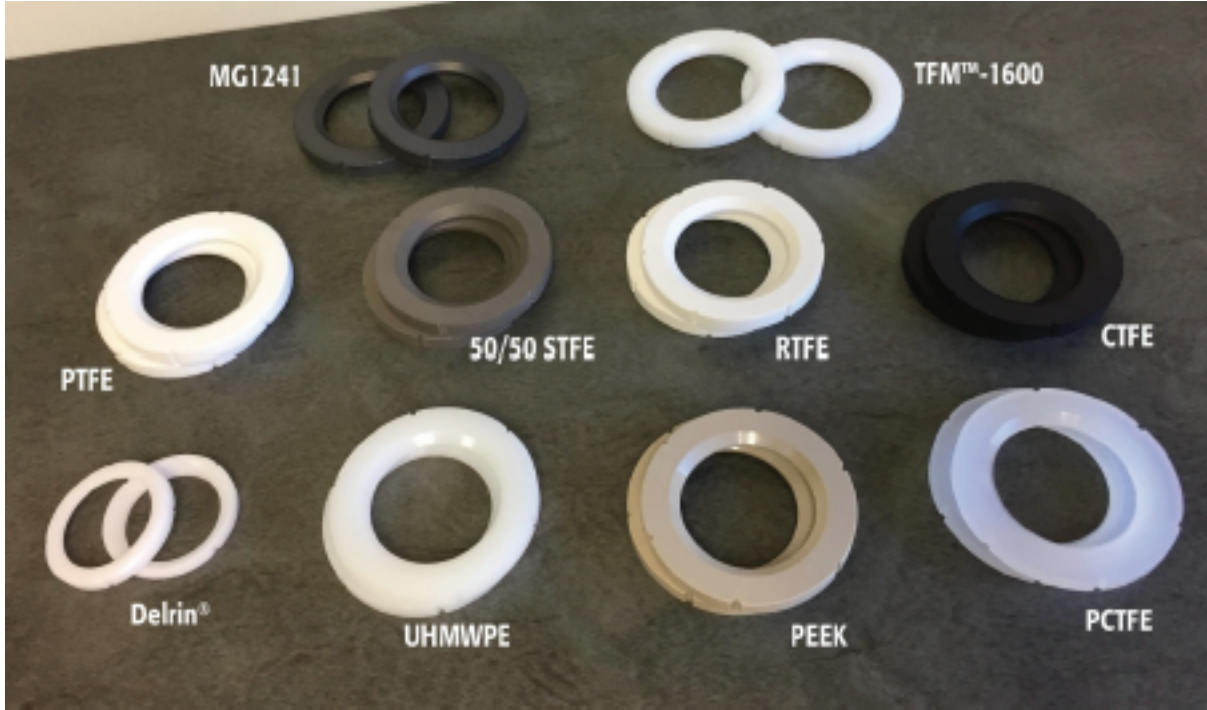
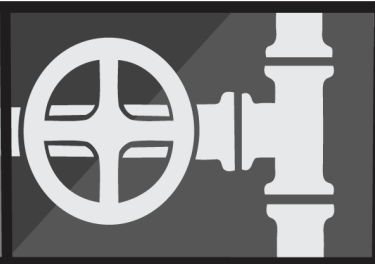
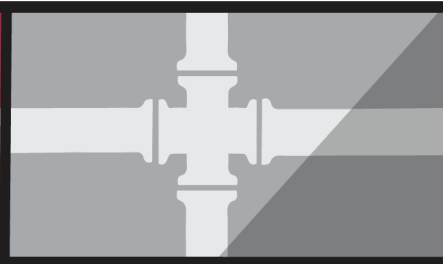
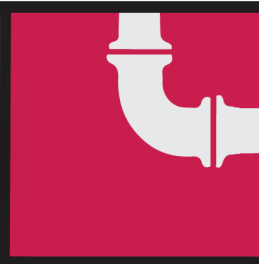
**PTFE - Based Seats Pressure vs. Temperature**



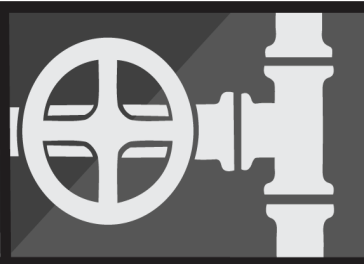
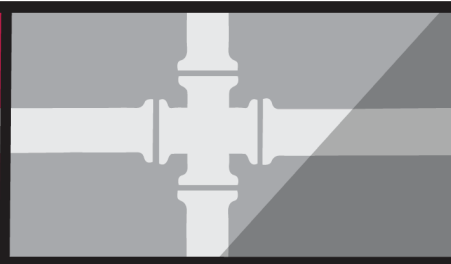
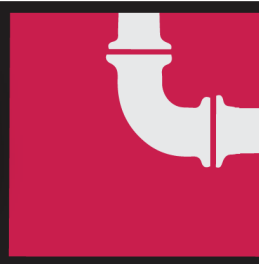


## Other Materials Pressure vs. Temperature





**If you need answers on Valve seat options and availability contact us at [sales@coylesupply.com](mailto:sales@coylesupply.com) or by phone at 618-797-1760.**



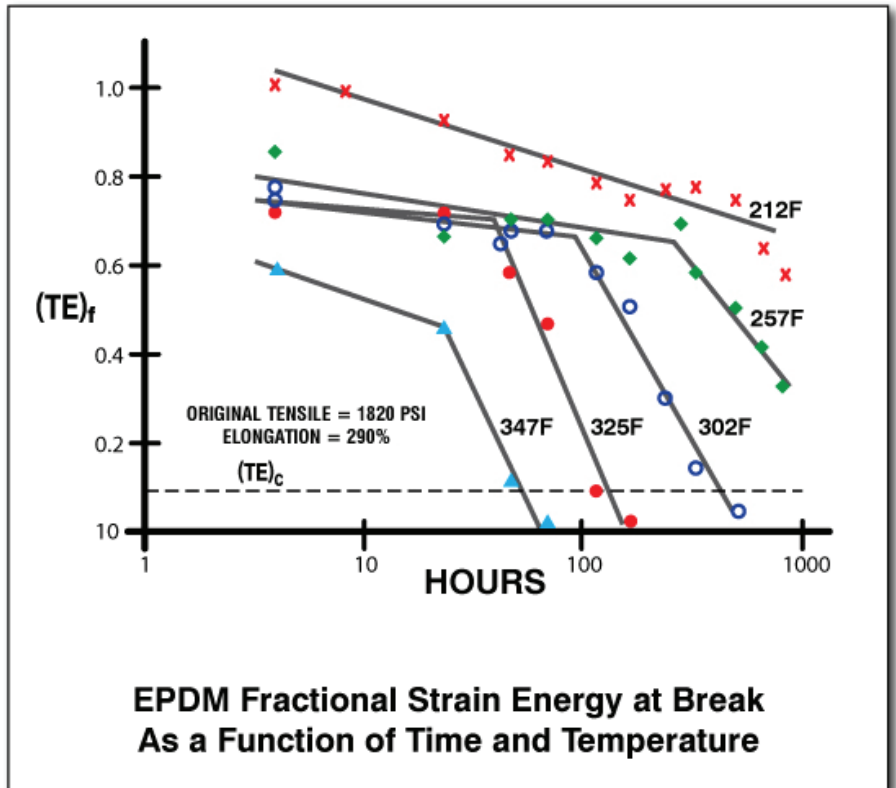
## EPDM (Ethyl-Propylene)

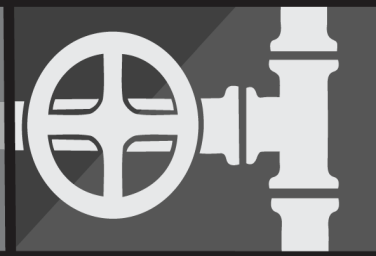
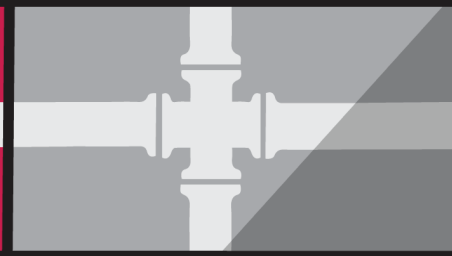
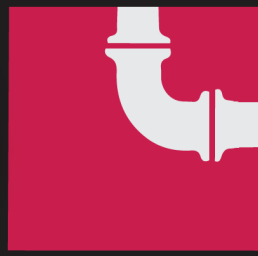
EPDM is an abbreviation of a compound called Ethylene Propylene Diene Monomer. It is also commonly called EPT, Nordel, and EPR. EPDM is used extensively in the HVAC industry due to its resistance to polar compounds such as water, phosphate, esters, ketones, alcohols, and glycols. EPDM should not be used for compressed air lines. The EPDM material is also applicable for handling concentrated sulfuric acid, 20% sodium hypochlorite (bleach), chlorinated water for swimming pools, and other alkaline solutions. EPDM is not resistant to hydrocarbon solvents and oils, chlorinated hydrocarbons, turpentine, or any other petroleum based oils.

**Temperature Range:** -40°F to 250°F

**Color:** Black

### Ethylene Propylene Elastomer Technology Retention of the Integrity and Extensibility





## VITON® (Fluorocarbon, FKM, or FPM)

Viton is an E.I. DuPont trademark. Flourel is 3M's trademark for the equivalent fluorocarbon elastomer. This material offers higher temperature resistance and outstanding chemical resistance. It is resistant to hydrocarbon products and mineral acids, both dilute and concentrated solutions. However, it is never to be used in steam applications and is relatively poor in water service.

**Temperature Range:** -20°F to 400°F

**Color:** Gray, Black or Red

