

TFM 1600 PTFE SEATS

APV floating and trunnion ball valves are optionally available with TFM 1600 PTFE seats. The advantages of TFM 1600 over regular PTFE and Teflon® are as follows:-

TFM-PTFE is a second-generation modified polytetra-fluoro-ethylene (PTFE) that maintains the exceptional chemical and heat resistance properties of first generations PTFE, but with significantly lower melt viscosity. This property results in better particle fusion during sintering and much smoother ball-to-seat sealing surfaces.

TFM 1600 PTFE is the blend chosen by APV as it exhibits properties that are ideal for ball valves in a wide range of applications. In addition, TFM complies with FDA and 3A requirements.

TFM is a chemically modified PTFE that fills the gap between conventional PTFE and melt-processable PFA. According to ASTM D 4894 and ISO Draft WDT 539-1.5, TFM is classified as a PTFE. Compared to conventional PTFE, TFM has the following enhanced properties:

- Much lower deformation under pressure (cold flow) at room and elevated temperature
- Lower permeability
- May be used at higher pressures
- TFM 1600 is a modified PTFE that maintains the exceptional chemical and heat resistance properties of PTFE, but has a significantly lower melt viscosity. Features reduced cold flow, lower porosity and permeability, and lower void content. TFM offers the advantage of smoother surfaces, reduce deformation under load and improved design flexibility.

Properties

- Lower Porosity and Permeability contamination
- Reduced 'cold-flow' and Deformation Under Load
- Lower Void Contact
- Smoother Surfaces
- Temperature Rating
- Pressure Rating

Benefits

- Improved Seal
- Greater Pressure and Temperature capabilities without the need for fillers
- Improves Wear Resistance
- Less Operating Torque and Reduced Particle Generation
- -56°C to 246.1°C (-70°F to 475°F)

Why use TFM 1600?

In order to increase PTFE pressure and temperature range ball valve manufacturers use glass or carbon/graphite reinforced PTFE. The problem is that eventually glass can delaminate and carbon/graphite may react to the media. Also by reinforcing the seat, it becomes less flexible and affects the seal at very low pressures as well as reducing its resilience and memory in resisting damage from foreign particulates. Also using reinforced PTFE in larger sizes requires a tighter seal increasing torque. Using TFM 1600 also means APV can supply PTFE seats in sizes and classes where others use nylon, which has far less resilience, higher torque, narrower temperature range and a narrower chemical resistance range. Furthermore, TFM can be ordered in carbon filled to further increase strength and temperature range.

TFM1600 - TFM1600 is a modified version of PTFE that maintains the exceptional chemical and heat resistance properties of PTFE, but has a significantly lower melt viscosity. The result is reduced cold flow, porosity, permeability and void content. Surfaces are smoother and reduce torques. The theoretical service range for TFM1600 is -328°F to 500°F.

TFM1600+GF - TFM1600+20%GF is a fibre glass reinforced version of TFM1600. Similar to RTFE, but with the benefits of TFM1600, the glass filled version provides greater abrasion resistance and improves stability at higher pressures.

TFM4215 - TFM4215 is an electro graphitised carbon filled TFM material. The added carbon improves stability for higher pressure and temperature combinations.