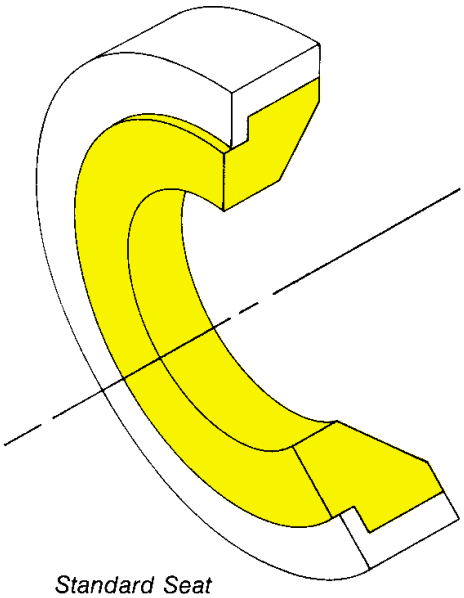
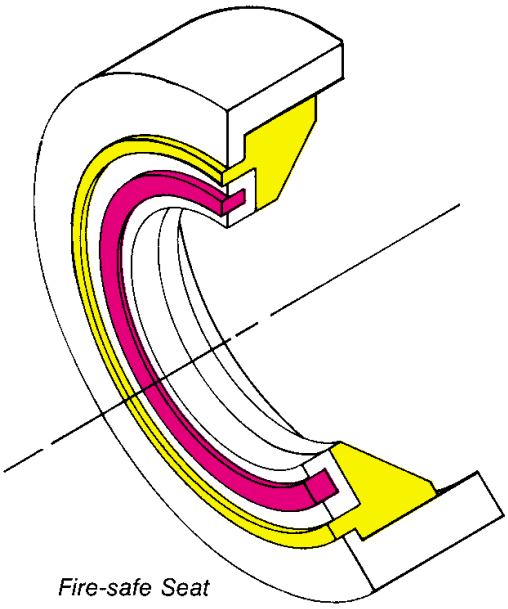
Cam-Tite Seat Design

Refer to pages 14-15 for pressure/temperature data.



Standard Seat



Fire-safe Seat

PTFE Seats and Seals

All standard PTFE seats and seals are manufactured using unfilled, unpigmented PTFE. Virgin PTFE provides excellent resistance to the most aggressive chemicals and can handle media at both elevated and semi cryogenic temperatures. Having no filler material, PTFE components are commonly specified for applications where attack of an added filler could occur. Typical applications would be fluorine based chemicals which would attack glass or highly oxidizing media which would deteriorate graphite. Virgin PTFE is commonly used in Cam-Tite Ball Valves specified for hydrofluoric acid and fluorine gas service.
Cam-Tite Ball Valves utilizing virgin PTFE seats and seals have a temperature range of -50°F to 450°F (-45°C to 232°C).

Reinforced PTFE Seats and Seals

For applications that require higher temperature resistance and improved hardness, the Cam-Tite can be supplied with reinforced PTFE (RTFE) seats and stem seals. These components are glass reinforced and offer a temperature range of -60°F to 520°F (-51°C to 271°C), dependent upon process pressure conditions.

Firesafe Seats and Seals

For applications involving flammable fluids, the Cam-Tite Ball Valve is available with seat and seals designated Firesafe. Most commonly supplied as reinforced PTFE, Firesafe seats incorporate secondary metal-to-metal seat rings and a special back seal for normal seat operation. Stem seals combine the fire resistance of graphite with a reinforced PTFE bearing. Cam-Tite Ball Valves equipped with these components meet the requirements of API 607 (3rd or 4th edition depending on valve configuration).

UHMWP Seat and Seal Components

Ultrahigh molecular weight (high density) polyethylene offers abrasion resistance and wear resistance far superior to that of PTFE. Seats and seals of UHMWP provide exceptional service in high cycle applications. The material has a practical temperature limit of 200 degrees F (93°C).

PEEK Seat and Seal Components

PEEK is a tough high temperature engineered thermoplastic offering broad chemical resistance, excellent recovery from deformation, a high degree of dimensional stability, and exceptional resistance to hydrolysis. PEEK has outstanding abrasion resistance and is not sensitive to dynamic fatigue.

G2000 PEEK

Chemical

Since G2000 PEEK is a virgin crystalline polymer, its resistance to chemical attack is excellent. G2000 PEEK is recommended for most environments other than strong oxidizers. It is compatible with numerous acids, bases, and aliphatic and aromatic hydrocarbons.

Steam

Unlike most thermoplastics, G2000 PEEK will not hydrolize and is recommended for use in steam service and other high-temperature aqueous processes.

Nuclear

G2000 PEEK offers excellent resistance to embrittlement when exposed to gamma radiation. This resistance is maintained in both acid and alkali media.

G3000 PEEK

G3000 PEEK combines the basic properties of the G2000 PEEK with that of carbon graphite and PTFE fillers, yielding a seating material with greater stability at higher temperatures and significantly reduced seating torque. Due to its filled content, G3000 PEEK is an excellent choice for high temperature applications, having a maximum temperature capability of 550°F (288°C).

Table 1

Comparison of typical physical properties

Property	G3000 PEEK	G2000 PEEK	PTFE	PTFE Filled
Specific Gravity	1.48	1.32	2.20	2.19
Hardness (Shore) ▲	D85	D85	D50-55	D50-60
Tensile Strength (psi)	17,000	14,500	4000	2000
Tensile Elongation(%)	5	35	300	200
Flexural Strength (psi)	30,500	16,000	No break	-
Flexural Modulus (psi)	1.45M	550,000	90,000-100,000	-
Shear Strength (psi)				
@ 100F	-	12,000	2800	3400
@ 200F	-	11,000	1900	2750
@ 300F	7,750	9,000	1700	2500
@ 400F	-	6,500	-	-
@ 500F	-	3,800	-	-
Impact Strength				
Notched IZOD	9	1.6	-	2.7
Tensile (ft-lbs/in)	-	-	30-200	-

▲ Rockwell "D" Scale