

## Ball Valve Design Features

Flow-Tek's technologically advanced ball valve design is the product of an extensive research and development program. As a result of this program we produce valves of the highest quality and performance. All Flow-Tek valves incorporate premium components, are manufactured to industry standards, and are thoroughly inspected before shipment from the factory.

**Ball** Flow-Tek valves offer a precision machined, solid, stainless steel ball that is polished to a surface finish of 8 Ra or better for bubble-tight shut off and reduced operating torque. The critical ball edge has blended curvatures to reduce seat wear and provide a high cycle life. As an added safety feature, a hole in the stem slot of each ball equalizes pressure between the body cavity and the line media flow.

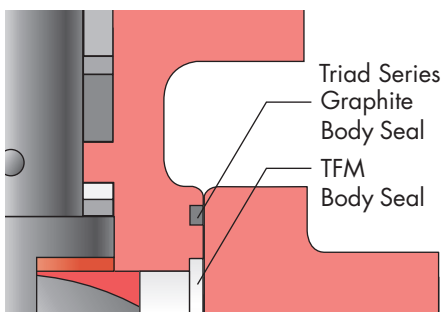
**Body** Valve bodies are investment cast and solution annealed/normalized for the highest quality and added strength. Each body casting is marked with a foundry heat number for full traceability. Body walls are designed to meet ASME B16.34. Valves are available in a full range of styles, sizes, end connections and pressures.



Cutaway of 2"  
Model 7000  
Body



Innovation,  
Safety,  
Performance



**Body Seals** A variety of body seal materials are available for reliable, bubble-tight body joint sealing. The Triad Series ball valves feature a redundant graphite body seal for additional protection making them ideal for fire safe and hazardous media applications. Flow-Tek's Series 7000

and 8000 valves incorporate a two piece seat and body seal, a very effective and simple design.

### **Materials**

Flow-Tek offers a wide selection of body and seat materials to meet almost any service requirement.

# Stem & Seat Design

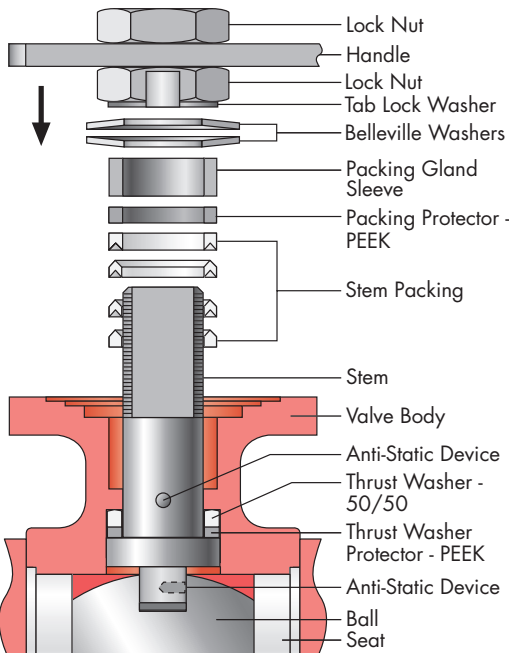
## Stem Assemblies

Flow-Tek manufactures heavy duty, high quality stem designs with double "D" connections to ball and operator mounting. This connection simplifies mounting and indicates direction of flow. Stems are mated with the ball to ensure positive contact. All Flow-Tek stems are internal entry and blowout proof for maximum safety. The stems are blow-out proof in accordance with ASME B16.34.

## Smart Stem

### Valve Sizes 1/4" through 2 1/2"

Models 7000/8000, Triads, F15/F30, RF15/RF30 (1/4"-2") and S85, Flow-Tek's Interchangeable Family of valves feature strong, large diameter stems with live-loaded, self-adjusting sealing utilizing belleville washers that automatically adjust to compensate for changes in temperature and wear. Manual adjustments that can cause damage to the seal are not required. The assembly is secured by a saddle-type lock washer that prevents stem nuts from unthreading in high cycle automation applications.

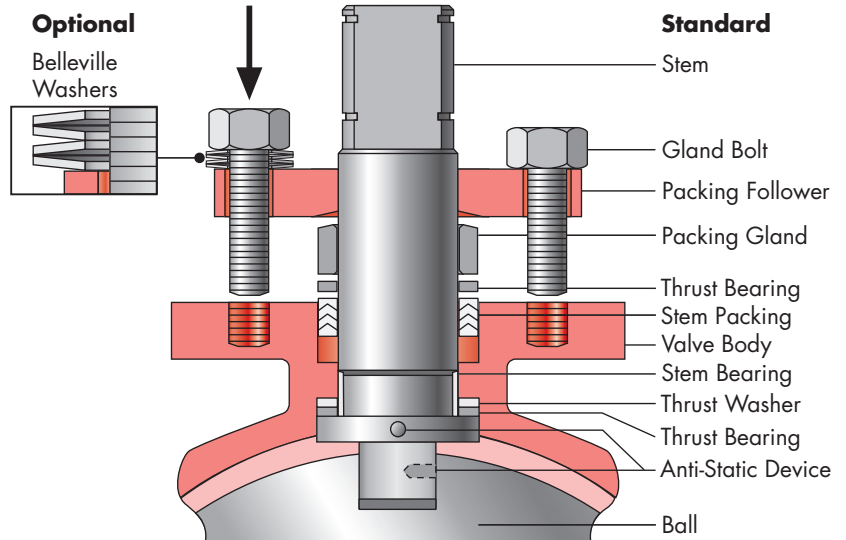


**Double Lock Nut Design** Standard on all Flow-Tek Series 7000/8000, Flanged, Triad and Series S85 valves, the double lock nut design allows handles to be easily and safely removed while the valve is under full line pressure.



**Stem Packing** An adjustable V-ring design creates a multiple seal between the stem and body. Each stem assembly is composed of three or four (dependent on valve size) rings providing a very high cycle life by resisting creep and cold flow. The Thrust Washer and the Thrust Washer Protector combine to provide a primary seal, reduce torque and prevent galling. This arrangement is a Flow-Tek exclusive.

**Anti-Static Protection** All Flow-Tek stems feature anti-static grounding devices as standard. These devices ensure electrical continuity between valve ball, stem and body, thus eliminating the possibility of static electrical charges creating sparks within the valve.

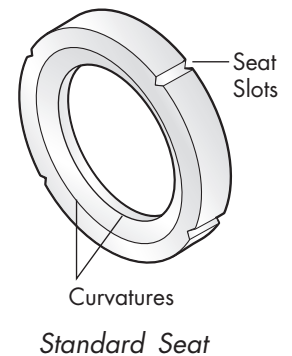


## Stem Design: Valve Sizes 3" through 12"

The stem is guided by the valve body and the gland, ensuring smooth operation even in high torque service. The independent packing gland can be easily adjusted without removing mounting hardware or operator. The user-friendly packing gland and packing follower are V-slotted to more equally distribute the load in the event one side is over tightened. All stems are polished to reduce torque. For severe applications, optional belleville washers can be added for a self-adjusting live load, providing a continuous compression seal and anti-vibration protection.

## Seat Design

Flow-Tek valves are offered as standard with resilient seats which ensure bi-directional, bubble-tight sealing while providing the lowest possible torque. These specially designed resilient seats feature relief slots or seat O.D. clearance to relieve pressure past the upstream seat. This design reduces friction, minimizes seat wear and lowers operating torque. Flow-Tek seats feature optimally designed curvatures to minimize contact forces between the ball and seat when the valve is in the open position. This design prevents cold flow, lowers torque and reduces wear.



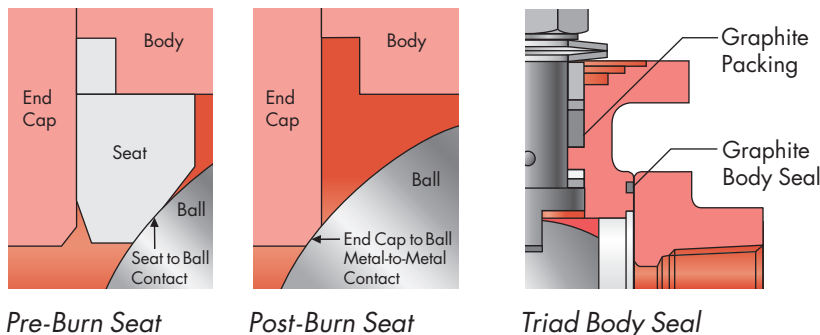


## Seat Selection

A wide range of seat materials are available to meet most applications. The standard seats are TFM1600 or RPTFE, depending on the valve series. Options include Stainless Steel/PTFE (50/50), UHMWPE, Virgin PTFE, PEEK, Tek-Fil® (carbon/graphite filled TFM), full metal seats and Cavity Fillers. PEEK seats offer high pressure/temperature capability. Tek-Fil® seats offer reduced torque in high temperature, high cycle, and steam service applications.

## Fire Safe Valves

Flow-Tek Fire Safe valves have been tested and certified to API 607 4th Edition. Flow-Tek's standard fire safe design features metal to metal ball to body contact during and after a fire, graphite stem packing and body seals.



## Interchangeable Parts

To meet customer needs for reduced parts inventory, Flow-Tek has designed a system of interchangeable parts between valve series. Valves in this system are members of the **Interchangeable Family**. Not only are parts interchangeable between valve series, but also between valve sizes. Many sizes have been engineered to use common parts. Additionally, parts are interchangeable between reduced and full port valve styles. For example a reduced ported valve uses the same repair kit as the full port, but one valve size smaller.

Valve Model	Ball	Stem	Seat	Stem Packing	Bracket	Coupler	Handle
7000	•	•	—	•	•	•	•
8000	•	•	—	•	•	•	•
F15	•	•	•	•	•	•	•
F30	•	•	•	•	•	•	•
RF15	•	•	•	•	•	•	•
RF30	•	•	•	•	•	•	•
TK7000	•	•	—	•	•	•	•
S85					•	•	•

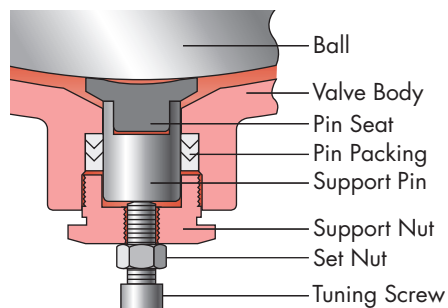
## Low Pressure / Vacuum Services

Flow-Tek valves are leak free in gravity fed applications due to the live loading of the stem and a seat preload designed into the valve. The valves are suitable for vacuum service down to 29.9 inches Hg. gauge.

## Features & Options

### Ball Support

For larger valve sizes, Flow-Tek's unique trunnion-like mounting supports the free-floating ball. This support maintains a constant seat profile, preventing seat damage and blow-by. The results are less seat wear and lower torque providing longer service life. The Flow-Tek ball support dramatically improves valve performance. This is a standard feature in Models F15 (10"-12"), RF15 (12"), F30 (6"-12") and RF30 (12").



### Media Containment Unit

In the event of a stem leak that cannot be corrected, Flow-Tek offers a Media Containment Unit which easily mounts to standard valves. These units prevent costly downtime and allow maintenance to be scheduled when convenient. The M/C unit can be provided with a button-head check valve for injection of a sealing agent. Also, this unit is an excellent, cost effective way to provide double stem sealing to address emission control requirements.

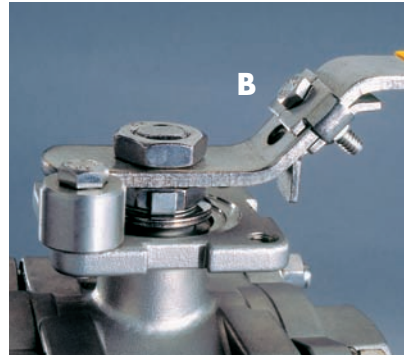
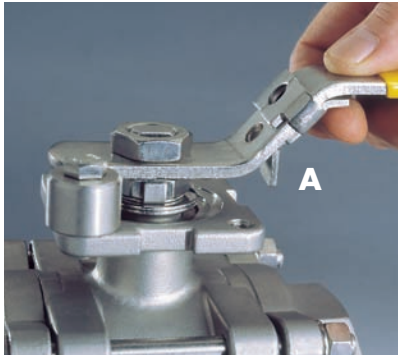


### Cavity Filler Seats

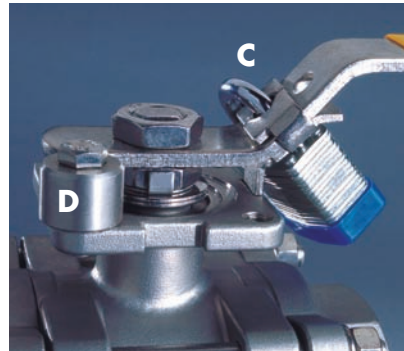
Available as an option, Cavity Filler Seats reduce the possibility of contamination due to entrapment of line media fluids in the void between the ball and the valve body wall. These seats also minimize the possibility of entrapped media that can cause unusually high operating torque.



## Operators/Actuators



**Handles** Flow-Tek 1/4"–2 1/2" valve handles feature a Safety Trigger (A) to prevent accidental movement of ball position. The trigger locks the handle in the open or closed position. Operation is easily made with one hand by lifting the trigger and rotating the handle. The handle lock can be bypassed, if needed, with a small bolt through the handle in the bypass (B) position. An Anti-Tamper Padlock (C) can be used to secure the handle in position, preventing unwanted movement of the valve. On valve sizes 3"–12" a padlock is installed through the stop housing and the travel stop.



Flow-Tek valves feature a Travel Stop (D) that limits the movement of the handle to set 90° intervals, preventing over-travel of the ball.

### Gear Operators

The FTG Series of heavy duty gear operators are suitable for on-off and throttling service. The FTG Series operators are self lubricated for smooth, trouble-free operation and long service life. The ductile iron body is weatherproof to IP65. Features include a valve position indicator and mechanical travel stops which permit field adjustment of valve movement.

### Manufacturing Standards

All Flow-Tek valves are manufactured in strict compliance with internationally recognized standards and specifications, including ASME, API, ASTM, CE/PED, BS, ISO, MSS and NACE.

Most Flow-Tek valve designs conform to requirements necessary to carry the CE mark.

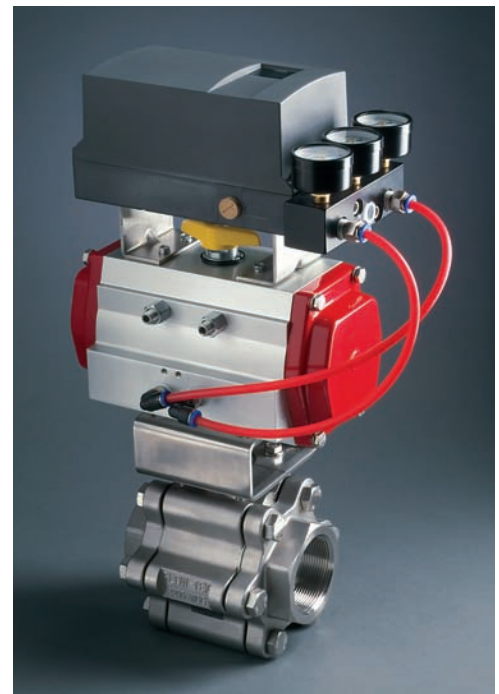


### Actuators/Control Accessories

Flow-Tek offers a full line of Automator pneumatic and electric actuators and control accessories. Some accessories include pneumatic positioners, digitally controlled electro-pneumatic positioners, analog and digital servo boards, solenoids and valve position monitors.

### Secure Mount

Flow-Tek's Secure Mount integrally cast top flange is designed for ease of actuator mounting. The Secure Mount provides positive mounting and eliminates unwanted actuator movement during high cycle or continuous duty applications. Actuators and accessories can be easily and safely removed while the valve is under full line pressure. The top flange meets ISO 5211 bolting pattern.



Precision engineered mounting hardware is designed to interchange between many different valve series and sizes.



# Flow-Tek®

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