As one of the most trusted valves in the petroleum industry, the CAMERON fully welded ball valve combines the strength of forged components with a lightweight and compact spherical design.

CAMERON fully welded ball valves satisfy ASME/ANSI 150 to 2500 (PN 20 to PN 420) and API 2000 to 5000 standards. Made of forged steel to ensure uniform fine grain structure and toughness, they can be specified in sizes from 2" to 56" (50 mm to 1400 mm).

The distinctive design of the CAMERON fully welded ball valve gives it strength at reduced weight, as well as resistance to both pipeline pressures and stresses. The compact, spherical design also eliminates body flanges, reducing overall size and potential leak paths.

# **FEATURES AND BENEFITS**

### REPLACE STEM SEAL

In the unlikely event of a stem seal needing replacement, it can be accomplished safely with the valve in service.

With the body cavity vented, all line pressure to the stem area also is vented. Please contact your sales representative to obtain maintenance procedures.

### SAFEGUARD DOWNSTREAM WORK

With the valve closed and the vent fitting open, the possibility of the line media reaching a work area is reduced.

### FIRE-TESTED FOR SAFETY

CAMERON fully welded ball valves can be supplied to API 6FA, API 607 and ISO 10497 standards. If industry standards change or you have different requirements, please contact your sales representative.



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### APPLICATIONS

Engineered for heavy-duty, maintenancefree performance, the CAMERON fully welded ball valve is commonly selected for a number of applications, including:

- Gas transmission
- Product pipelines
- Measurement skids
- Dehydration systems
- Gas separation systems
- Natural gas storage
- Dryer service
- Natural gas liquids plants
- Natural gas liquids (NGL) pipeline
- Compressor stations
- CO2 services
- Offshore
- Subsea

### STANDARDS AND SPECIFICATIONS

### Sizes

2 to 56 in. (50 to 1400 mm) full, reduced and venturi bore

### Pressure Classes

ASME/ANSI Class 150 to 2500 (PN 20 to PN 420), API 2000 to 5000 psi

*Operating Temperatures* From -50° to 375° F (-46° to 190° C)

*End Connections* Flanged, weld and weld-by-flange and more

**Body Styles** Fully welded

**Standard Material** Forged carbon steel

**Optional Materials** Seat/seal trim options include: regular, corrosion-resistant and sour service (NACE MR0175)

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### STEM SEALS

Delta seals and lip seals made of PTFE are incorporated in the upper stem area. PTFE is a lowfriction, non-deteriorating material that is not subject to rapid decompression explosion. Most valve sizes have a provision for sealant injection to establish a secondary seal.

### TRUNNION MOUNTED BALL ALLOWS LOW-TORQUE OPERATION

Regardless of size or pressure rating, every CAMERON fully welded ball valve is trunnion mounted. High-strength forged stems are located in PTFE impregnated stainless steels bearings for smooth operation. Trunnion mounted stems absorb the thrust from line pressure, preventing excess friction between the ball and seats, so even at full rated working pressure, operating torque stays low.

### DOUBLE BLOCK-AND-BLEED

Whether in the fully open or fully closed position, pressure on each side of the ball is blocked from the body cavity by the seat ring. The body cavity can then be bled down or drained through the body port.

When you block-and-bleed a CAMERON fully welded ball valve, the following can be accomplished:

### Test valve Integrity

When the valve body is vented, the seat seal's integrity is verified. This test can be performed with the valve open or closed prior to facility maintenance. By verifying valve integrity, unforeseen valve leakage can be prevented.

### Secondary Seat Seal

The sealant injection system provides a fast, simple way of restoring tight shutoff if any foreign object should damage the sealing surfaces. The injection system also can be used for routine flushing of the seat ring area in services where this may be required.



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### **STANDARD SEAT DESIGN**

In service since the early 1960s, the standard seat arrangement has proven to be of sound design. This arrangement is available in all CAMERON fully welded ball valves and includes all features and benefits indicated on the preceding pages.

### **UPSTREAM SEALING**

At low pressure, seat-to-ball contact is maintained by Belleville springs. At higher pressures, seat contact is reinforced by line pressure.

### AUTOMATIC INTERNAL RELIEF OF BODY PRESSURE

Relief of excess body cavity pressure is automatic, avoiding dangerous pressure buildup. Any pressure exceeding downstream line pressure by approximately 200 psi pushes the downstream seat away from the ball, allowing the pressure to relieve into the pipeline.

### **ROTATING SEAT RINGS**

The exclusive rotating seat feature is standard in the CAMERON fully welded ball valve sizes 14 in. (350 mm) and larger. Both seats rotate 15 degrees each time the valve is closed, exposing a new pinch point and evenly distributing seat wear.

### DISTRIBUTED SEAT WEAR

The pinch point is the area of the seat insert that experiences an increased velocity when the valve is seated closed and unseated open. This is where the seat seal experiences the most wear, and in most valves, where a leak path begins. By rotating the seat ring, the pinch point wear is distributed throughout the seat seal, providing an increase in seat life.

### PREVENTS BUILDUP

In some services, a valve can experience harmful sediment buildup around the seat ring. This can cause the seat to stick and not seal properly. The CAMERON fully welded ball valves, with exclusive rotating seat, can handle these harsher services. As the seat rotates, it will prevent any buildup, or breaks up existing buildup.





Upstream sealing.



Automatic internal relief of body pressure.



Rotating seat rings distribute wear and prevent sediment buildup.

## **ALTERNATE SEAT DESIGN**

The valve is available with double-acting and metal-to-metal seats to accommodate a variety of applications and customer preferences.

### **DOUBLE-ACTING**

### CONVENTIONAL UPSTREAM SEALING

With the upstream pressure, the bi-directional body-to- seat seal is pushed toward the front sealing face of its retaining pocket. This creates an unbalanced pressure annulus between the body seal and the ID of the seat insert, forcing the seat insert against the ball.

### DOWNSTREAM SEALING

With the downstream pressure, the bi-directional body- to-seat seal is pushed toward the back sealing face of its retaining pocket. This creates an unbalanced pressure annulus between the OD of the seat insert and the body seal diameter, also forcing the seat insert against the ball

### STANDARDS AND SPECIFICATIONS DOUBLE-ACTING-T-32

Sizes 8 to 48 in. (200 to 1200 mm)

**Pressure Classes** ASME/ANSI Class 150 to 900 (PN 20 to PN 150)

**Operating Temperatures** 50° to 250° F (-46° to 121° C)



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Conventional upstream sealing.



Downstream sealing.



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