10” Cryogenic Butterfly Prevalve

V0E11000-01

SPACE

VACCO’s 10” Cryogenic Prevalve is a pneumatically actuated, normally open butterfly valve element. A dual offset configuration pulls off the butterfly valve element away from spring-energized seals prior to rotation to maximize seal life and improve leakage.

The butterfly prevalve supports a propellant system chill down and controls propellant flow—preventing inadvertent bypass to the Main Propulsion System. It also facilitates the propellant system drain in the event of a scrub. VACCO’s butterfly prevalve leverages Space Shuttle qualified design.

Features

- Dual motion mechanism
  - Maximizes seal life
  - Improves leakage
- Pneumatic actuator
  - Closes valve
  - Removable from valve housing
- Normally open valve holds neutral position without applying pneumatic actuation pressures
- Robust rack and pinion mechanism rotates butterfly valve element
- Removable electrical position indicator device signifies open or closed positions
- Two relief valves prevent excessive pressure on the downstream (outlet) side when valve is closed
- Butterfly support roller bearings capable of high loads

Operating Parameters

Main Valve
- Operating Pressures ..... 0 to 100 psig
- Proof Pressures ..... 175 psig max
- Burst Pressures ..... 275 psig max

Actuator
- Operating Pressure ..... 500 psig min
- Operating Pressure ..... 750 psig norm
- Operating Pressure ..... 880 psig max
- Proof Pressure ..... 1,715 psig max
- Burst Pressure ..... 3,425 psig max

Response Time
- Opening ..... 1.5 sec max when actuator vented to 14.7 psid
- Closing ..... 1.7 sec max when actuator pressurized to 750 psig

Internal Leakage
- Inlet-to-Outlet (LH_2) ..... 2,000 SCIM (from -423°F to +170°F) 5 to 50 psid
- Outlet-to-Inlet (LH_2) ..... 2,500 SCIM (from -150°F to +170°F) 0 to 5 psid
- Outlet-to-Inlet (LH_2) ..... 2,500 SCIM (from -423°F to +170°F) 0 to 15 psid

External Leakage
- Combined static and primary or secondary shaft ..... 5 SCIM (-423°F to +170°F) from 4 to 50 psid
- Static Seals Only ..... 0.01 SCCS (-423°F to +170°F) from 4 to 50 psid

Flow Rate ..... 10,761 gal/min, LH_2, at 15 psig min

Pressure Drop ..... 1.5 psid, max

Weight ..... 75 lb (est)

Performance characteristics are based on customer requirements. As such, they are not representative of component capabilities or limitations.

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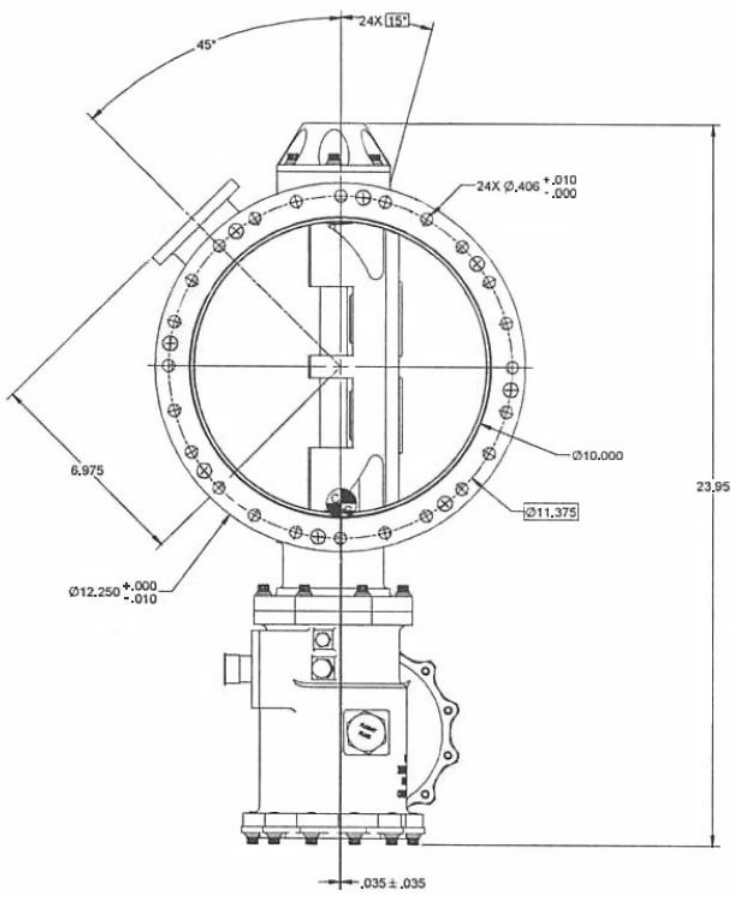

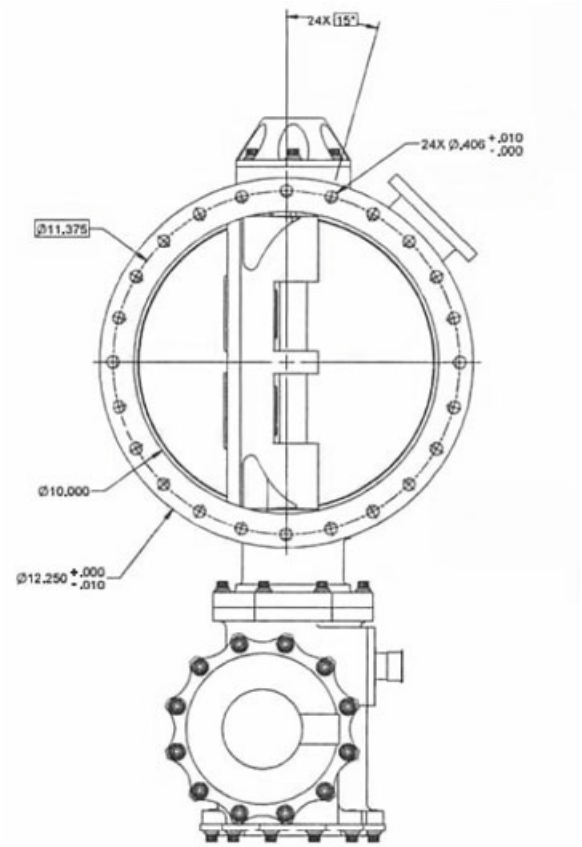

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