

Oil & Gas Cryogenic

An unforgiving industry. Valves for gas processing and blowdown must hold from -50°F to -320°F and below. There is no room for failure.



TEMPERATURE

Cornerstone cryogenic valves are built and tested to operate continuously from -450°F to $+450^{\circ}\text{F}$ – liquid nitrogen service to high temperature, in the same valve.

CORNERSTONE PRODUCTS FOR OIL & GAS CRYOGENIC

Top Entry Ball Valves
End Entry Ball Valves
Rotary Control Valves

Leakage

A symmetrical component design lets the valve expand and contract uniformly. Live-loaded seals absorb intense dimensional change and still assure closure tightness.

Extended Bonnet

Where space is at a premium, strategically placed live-loaded cryogenic seals reduce the need for a long extended bonnet.

Reliability

Tested by an independent inspection facility, Cornerstone valves were called the tightest the facility had ever tested – in many years of cryogenic testing.

Flexibility

Metal-seated and soft-seated options are both available for high pressure service, with fugitive emissions certified to ISO 15848.

CASE STUDY

WESTERN AUSTRALIA

A major IOC came to Cornerstone with a critical cryogenic problem: they needed ANSI 900 floating ball valves rated from -200°C to $+200^{\circ}\text{C}$, and a competitor's valves were failing repeatedly in the field. Cornerstone designed, manufactured, cryogenic tested, fugitive-emission tested and delivered to Australia in six weeks. **Nicknamed "the silver bullet" by the end user, it has run with zero issues since.**



Cryogenic Floating Ball Valve
with extended bonnet

-200°C to $+200^{\circ}\text{C}$

Sizes 1/2" to 12", ANSI 150 to 1500,
full or reduced port, bi-directional,
cavity relieving, bubble tight shut-off.

Two Piece End Entry Ball Valves

Model FBC — Cryogenic Series

Full or reduced port,
bi-directional, cavity relieving,
bubble tight shut-off.

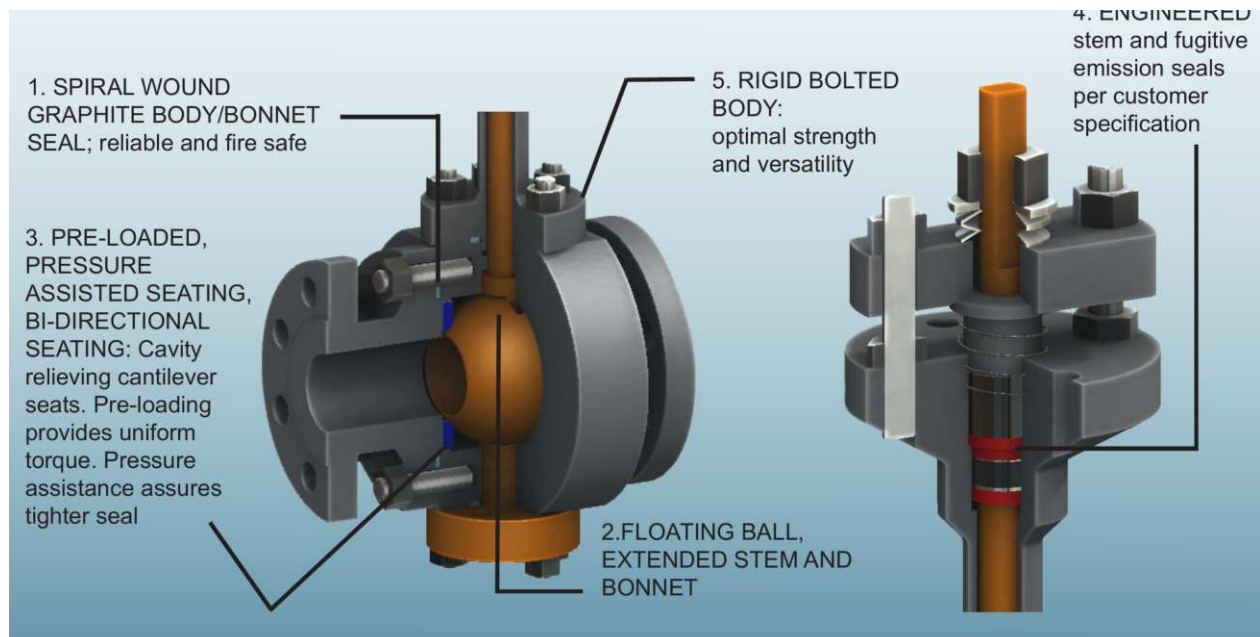


Cryogenic test — liquid nitrogen bath

SPECIFICATION

Sizes	1/2" to 12"
Pressure Class	ANSI / ASME 150 – 1500; B16.34, API 6A, API 6D, BPVC; API 2000 – 5000
Temperature	–450°F (cryogenic) to +450°F (high temperature)
End Connections	SW, BW, RF, RTJ, hub end, threaded; special ANSI B16.5 / API 6A / ANSI B16.25
Leakage Class	Meets or exceeds BS6364 and ISO 28921; API 6D and API 6A PSL 1–3G; API 598; bubble tight (soft seated) at ambient
Fugitive Emissions	ISO 15848 certified
Actuation	Manual, pneumatic, hydraulic, electric

STANDARD FEATURES



PARTS LIST

A/R = as required

ITEM	QTY	DESCRIPTION
1	1	Body
2	1	Tailpiece
3	1	Bonnet
4	1	Ball
5	2	Seat
6	1	Spring Set
7	1	Stop Plate
8	A/R	Bonnet Stud
9	A/R	Bonnet Hex Nut
10	A/R	Trunnion Stud
11	A/R	Trunnion Hex Nut
12	A/R	Tailpiece Stud
13	A/R	Tailpiece Hex Nut
14	A/R	Packing Stud
15	A/R	Packing Hex Nut
16	1	Stem Hex Nut
17	1	Body Gasket
18	1	Tailpiece Gasket
19	1	Trunnion Gasket
20	1	Stem
21	1	Packing Follower
22	1	Stem Washer
23	1	Packing Washer
24	4	Graphite Packing
25	1	Thrust Washer
26	1	Packing Flange
27	1	Trunnion Plug
28	10	PTFE Packing
29	2	Stem Anti X Ring
30	1	Valve Tag
31	1	Drip Plate
32	1	Static Spring
33	1	Trunnion Ring
34	1	Bonnet Ring



Materials

- Stainless steel, Monel, beryllium copper
- Nickel and titanium based alloys
- Other exotic alloys available on request

Available Options

- Secondary and tertiary stem seals
- Soft seated or metal seated
- Fire safe
- Materials to NACE standards

Applications

- LNG storage, distribution and liquefaction
- Liquid oxygen and liquid nitrogen service
- Low temperature processing
- Petroleum refining

CASE STUDY NORTH AFRICA

A producer processing natural gas in North Africa needed consistent shut-off at -150°F in a fractionating plant. The valves were engineered for the duty and tested by an independent testing company, with the customer's engineer witnessing the full sequence in a submerged liquid nitrogen bath. The 6-inch valves were the tightest that facility had ever tested.

