VELAN SPECIAL SERVICES

CAST STEEL CRYOGENIC VALVES





CAST CRYOGENIC GATE, GLOBE, AND CHECK VALVES AUSTENITIC STAINLESS STEEL, NPS 2–30 (DN 50–750)

PRESSURE CLASSES: 150–1500

The production, transport, and storage of liquefied gases such as oxygen, nitrogen, argon, natural gas, hydrogen, or helium (down to -425°F/-253.9°C) presents several technical problems. Velan specially-adapted extended bonnet cast valves offer safe and efficient service.

Materials

- Body and bonnet: Austenitic stainless steel castings used for bodies and bonnets offer excellent impact strength, minimal heat loss, and protection against corrosion.
- Stem: Austenitic stainless steel. To reduce galling, stems are also offered in A479 grade XM-19 with high toughness even at extreme low temperatures, excellent low friction, and galling-free movement at points of stem contact.
- Wetted parts: all Austenitic stainless steel and CoCr alloy.
- Stem nut/yoke bushing: Austenitic ductile iron Gr. D-2C.
- Packing: PTFE or graphite packing protected from freezing by a column of insulating gas.
- Seating faces: CoCr alloy is used to prevent seizing and galling. When extremely tight shutoff is required, globe and check valves are supplied with Neoflon, PTFE, or other soft inserts.
- Bolting: Strain-hardened Austenitic stainless steel.
- Lubrication of stem nut: Exxon Nebula Lubriplate No. 930-AA or Shell Darina EPI or equivalent.

Design features

- Extended bonnets with sufficient gas column length, usually specified by customer, are supplied for all valves to keep the stem packing at sufficient distance away from the cold fluid to remain functional.
- Flexible wedges with CoCr alloy seating faces for cryogenic service.
- Neoflon inserts are available for globe, piston, and swing check discs.
- Cleaning: All cryogenic valves are thoroughly degreased and cleaned and pipe ends are sealed to prevent contamination.

For more information on cryogenic valves see our on-line catalog (VEL-CRYO) at www.velan.com.

TABLE OF LIQUEFIED GASES

Туре	Boiling point		Liquid		Boiling point		Liquid
	°C	۰F	density lb / ft. ³	Туре	°C	°F	lb / ft.3
Natural gas (LNG)	-168	-270	26	Air	-194.4	-318	57.87
Methane (CH₄)	-161.5	-258	26.20	Nitrogen (N ₂)	-195.8	-320	50.45
Oxygen (02)	-182.9	-296	71.20	Hydrogen(H2)	-252.7	-423	4.43
Argon (Ar)	-185.9	-303	87.40	Helium (He)	-268.9	-452	7.82
Carbon dioxide (CO2)	-78.5	-109	50.60	Absolute zero	-273.16	-460	12