

OXYGEN

VALVES FOR OXYGEN SERVICE "O" SERIES

General

Habonim's "O" Series Oxygen Service ball valves are ideally suited for use with both liquid and gaseous oxygen. All valves designated for Oxygen Service are expertly prepared and cleaned to standards required for the safe operation of Oxygen Service equipment and product purity.

Oxygen

Oxygen content in air is approximately 21% by volume. Oxygen is an odorless, colorless gas, with many industrial uses, mainly in the manufacture of steel and chemicals. Oxygen itself is nonflammable, however materials that are flammable in air, burn far more vigorously mixed with oxygen. Oxygen is shipped as a non liquefied gas at pressures of 2000 psig (138 bar) or above, also as a cryogenic liquid at pressures and temperatures below 200 psig (13.8 bar) and -232 OF (-146.5 OC). Air-separation plants produce pure Oxygen via liquefaction of atmospheric air and separation of the Oxygen by fractionation. Also minute quantities of Oxygen can be produced by electrolysis of water.

Oxygen Uses

Oxygen is used extensively in medicine, high altitude flying, deep sea diving and as rocket fuel. Industrial applications include utilization with acetylene, propane, hydrogen and other fuel gases for metal cutting, welding, hardening and scarfing. In steel and iron manufacturing, oxygen helps increase the capacity and efficiency of furnaces. Another major use of Oxygen is in the making of 'Synthesis Gas' for production of gasoline, methanol and ammonia. Oxygen is also used in the manufacture of nitric acid, ethylene and other compounds.

Valve Component Materials

Gaseous oxygen is non corrosive and may be contained in systems constructed of any common metal. Stainless steel, MONEL, Bronze and Brass are the preferred materials for all metal components coming into contact with gaseous Oxygen. In the extreme low temperatures of cryogenic liquid Oxygen, ordinary carbon steels, and most alloy steels lose their ductility, and are therefore unsatisfactory materials for use in liquid Oxygen Service.

Oxygen Hazards

Never permit oil, grease or other combustible substances to come in contact with Oxygen Service valves or components. Oxygen combined with these substances can result in explosions.

Design

Habonim carries a wide selection of valves suitable for Oxygen Service. Valves are available with screwed, socket weld, butt-weld, ANSI Class 150 and ANSI Class 300, DIN PN16 and DIN PN40 flanged ends. Flanged valves range from 1/2" to 8", and three piece valves from 1/4" to 6". Body materials include 316 Stainless Steel, Monel 400 and Bronze. Standard ball and stem material is 316 stainless steel. TFM, PTFE or glass filled PTFE are inert in Oxygen and are considered standard seat and seal materials for Oxygen Service. Acetal Resin (Delrin) seats and Nylatron stem thrust seals **MUST NOT BE USED IN OXYGEN SERVICE**. All Habonim Oxygen Service Valves may be used with both liquid and gaseous Oxygen. For temperatures below -60°C, we recommend using Habonim's special Cryogenic Valves



VALVES FOR OXYGEN SERVICE

Preparation

All valve components used for Oxygen Service, in gaseous or liquid state, are de-burred to a high standard and specifically cleaned to remove any traces of oil, grease or hydrocarbon materials prior to assembly. Oxygen Service Valve assembly is carried out in a high quality 'clean room' by technicians using lint free gloves, to assure no ingress of grease or dust. Only lubricants compatible with Oxygen are used. Valve seat and external leakage pressure tests are conducted in a 'clean room' environment, using pure Nitrogen. Only special 'clean tools' are used in the valve assembly.

Cleaning

Habonim's standard practice for cleaning methods and cleanliness levels of material and equipment used in Oxygen-enriched environments is made according to standards CGA G-4.1 and ASTM G93.

Packing

After successful testing, valves are once again restored to the "open" position. Each valve is packed with a 'Silica-gel pack'. The valve is clearly labeled 'Prepared for Oxygen Service', and sealed in a polyethylene bag. Valves for Oxygen Service are identified by a letter "O" before the series number.

Accessories

Locking devices are available, including the unique design for "Locked in Last Position" (LLP). Valves with a stem extension are provided for insulated pipelines. Valves can be used with the Habonim Compact II Actuator for automation and remote control.

Physical Constants Table

Chemical Symbol:	O ₂
Specific Gravity:	1.105 @ 21.10C
Specific Volume:	0.7541 m ³ /kg @ 21.10C
Critical Temperature:	-118.570C
Critical Pressure:	50.43 bar
Molecular weight:	31.9988
Heat Ratio:	1.40 (C _p /C _v)

In accordance with our policy to strive for continuous improvement of the product, we reserve the right to alter the dimensions, technical data and information included in this catalogue when required.

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