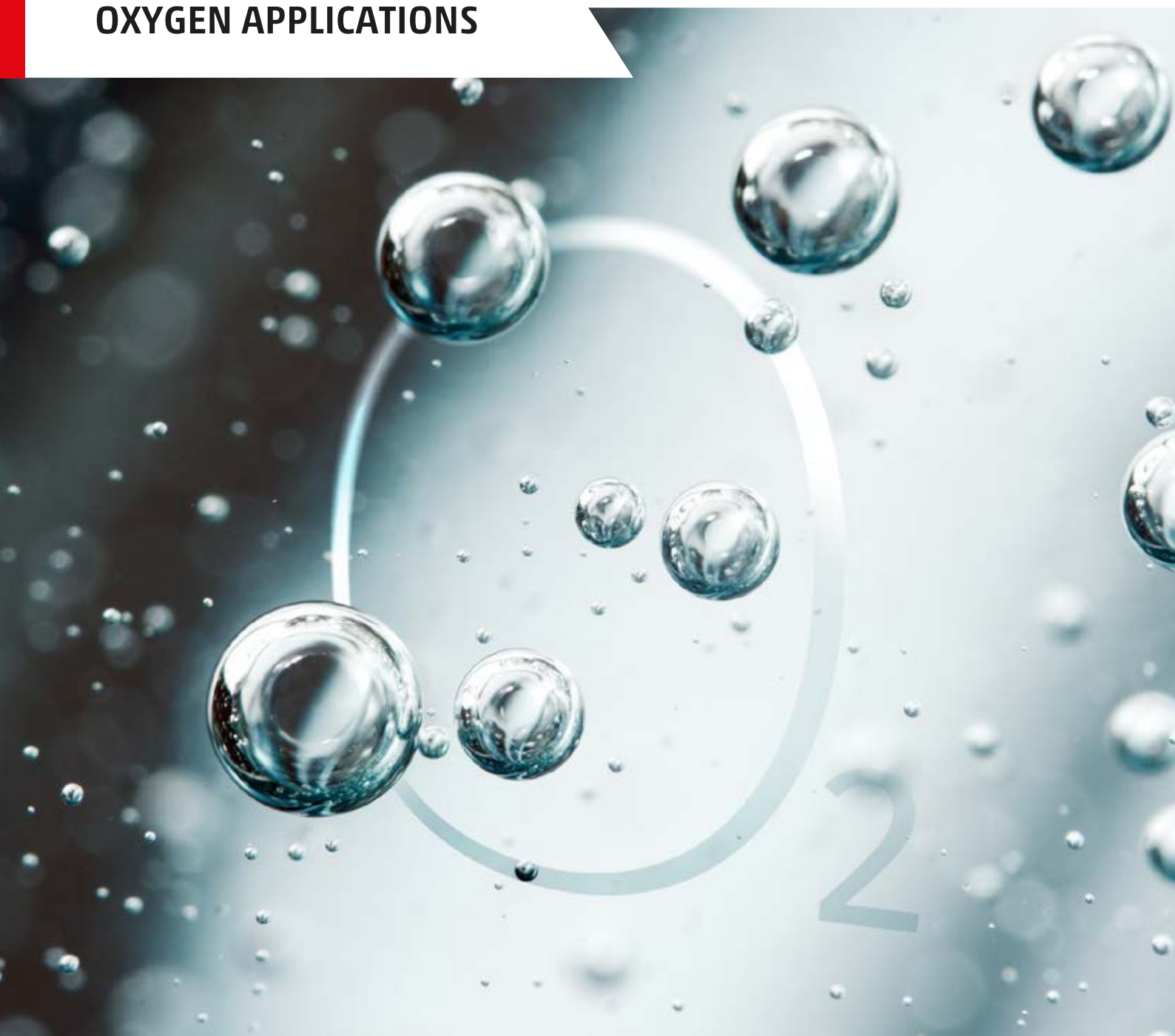


## SOLUTIONS FOR OXYGEN APPLICATIONS



# FLUID CONTROL SOLUTIONS

Handling oxygen requires specific skills as well as the implementation of dedicated production procedures.

Through business development and dedicated production facilities, Camozzi Automation can supply customers with a wide range of standard and customised solutions for oxygen applications.

The Camozzi Fluid Control department manages the design and manufacture of valves, fittings, pressure regulators, manifolds and sub-bases intended for use in oxygen-enriched environments.



## OXYGEN PROPERTIES AND CHARACTERISTICS

Oxygen is one of the basic chemical elements. In its most common form, oxygen is an odourless, colourless gas found in air. It is one of the life-sustaining elements on Earth and is needed by all animals. Oxygen makes up 21% of the earth's atmosphere and in a pure state, is used in medical facilities and patients' homes. Because of these characteristics oxygen is used in medical applications, fish farming and industrial applications such as metal cutting, metal cleaning, welding, hardening and scarfing, furnaces operations and chemical applications. Oxygen itself is non-flammable but causes combustible materials to burn vigorously and is a highly oxidising gas. Being heavier than air, it can accumulate in low lying areas such as pits, trenches or underground rooms.

## HAZARDS OF OXYGEN ENRICHED ATMOSPHERES

Only certain materials are suitable for use with oxygen. An incorrect choice of materials used may cause rapid ageing of the component or a fire hazard. Further, the choice of lubrication and the cleanliness of surfaces exposed to oxygen-enriched environments are essential for safety, oil and grease may become highly combustible in contact with oxygen. In essence, nearly all materials are combustible in oxygen. Safe equipment for use in oxygen-rich environments is achieved by careful selection of suitable materials or combination of materials and their use in a particular manner.



## THE CAMOZZI CLEAN ROOM

In Camozzi all materials chosen for oxygen-enriched environments are carefully selected. Gaskets and non-metallic materials used for oxygen applications are designed to be compatible with oxygen. No organic sealants, adhesives or lubricants are used in the manufacturing process. An accurate level of cleanliness is guaranteed by qualified personnel and by rigorous cleaning procedures. Both organic and inorganic contaminants such as particulate matter and Hydrocarbon oils are removed by careful ultrasonic cleaning. The process is periodically monitored through ASTM G93.



Valves, fittings, pressure regulators, manifolds and sub-bases can be supplied with two levels of cleanliness:

### OX 1

Non-volatile residue equal to or less than 550 mg/m<sup>2</sup>  
 Level OX1: ultrasonic cleaning of components, inspection with UV black light, lubrication (only if necessary for the product's operation) with a specific grease suitable to be used with oxygen. Assembly, testing and packaging outside the clean room.

### OX 2

Non-volatile residue equal to or less than 33 mg/m<sup>2</sup>  
 Level OX2: ultrasonic cleaning of components, inspection with UV black light, lubrication (only if necessary for the product's operation) with a specific grease suitable to be used with oxygen. Assembly, testing and packaging inside a clean room with ISO 7 classification according to ISO 14644-1.

Class	Maximum number of particles/m <sup>3</sup>			FED STD 209E
	≥ 0.5 μm	≥ 1 μm	≥ 5 μm	
ISO 7	352,000	83,200	2,930	Class 10,000



UV Black light provides evidence of eventual traces of hydrocarbons, grease or particulate.

# Fittings



## Series 6000 super-rapid fittings for plastic tubes



- » Material: nickel-plated brass
- » Tube external diameters: 3, 4, 5, 6, 8, 10, 12, 14, 16mm
- » Fittings threads: M3, M5, M6, M7, G1/8, G1/4, G3/8, G1/2, G3/4, R1/8, R1/4, R3/8, R1/2
- » Seals: PTFE or FKM/EPDM on the threaded connection, and FKM/EPDM inside the super-rapid fitting

## Series 7000 super-rapid Compact fittings



- » Tube external diameters: 4, 6, 8, 10, 12, 16mm
- » Fittings threads: M5, M7, G1/8, G1/4, G3/8, G1/2, G3/4
- » Seals: FKM/EPDM on the threaded connection and inside the super-rapid fitting

## Series 8000 dual seal super-rapid fittings



- » Material: nickel-plated brass
- » Tube external diameters: 4, 6, 8, 10, 12mm
- » Fittings threads: G1/8, G1/4, G3/8, G1/2
- » Seals: FKM/EPDM on the threaded connection and the super-rapid fitting

## Series H8000 fittings with double tightening for harsh environments



- » Material: nickel-plated brass
- » Diameters: 4, 6, 8, 10, 12, 14, 16mm
- » Fittings threads: Gas cylindrical ISO-228 (BSP)
- » Seals: FKM/EPDM on the threaded connection and the super-rapid fitting

## Series 5000 quick-release couplings



- » Nominal diameters: 5, 7mm
- » Couplings threads: G1/8, G1/4, G3/8, G1/2
- » Plastic tubes: 6/4, 8/6, 10/8
- » Rubber hoses: 6x14, 8x17, 10x19, 13x23
- » Seals: FKM

## Series 1000 rapid push-in fittings for plastic tubes



- » Material: nickel-plated brass
- » Tube external diameters: 5/3, 6/4, 8/6, 10/8, 12/10, 15/12.5mm
- » Fittings threads: M5, M6, M12 x1, M12 x1.25, G1/8, G1/4, G3/8, G1/2, R1/8, R1/4, R3/8, R1/2
- » Seals: PTFE or FKM/EPDM on the threaded connection

## Series 2000 nickel-plated brass pipe fittings



- » Materials: nickel-plated brass
- » Threads: BSP (G1/8, G1/4), BSPT (R1/8, R1/4)

## Series VNR unidirectional valves



- » Materials: brass body, stainless steel spring
- » Dimensions tube version: Ø 4, 6, 8 mm
- » Seals: FKM

The complete catalogue of our products is available on the website [www.catalogue.camozzi.com](http://www.catalogue.camozzi.com)  
General terms and conditions of sale are available on [www.camozzi.com](http://www.camozzi.com)

## Unidirectional and Bidirectional Flow Regulators - Unidirectional Valves



### Series SCU, MCU, SVU, MVU, SCO, MCO flow control valves



- » Unidirectional and bidirectional banjo flow control regulators
- » Ports: M5, G1/8, G1/4, G3/8, G1/2
- » Seals: FKM/EPDM

### Series PSCU, PMCU, PSVU, PMVU, PSCO, PMCO flow control valves



- » Unidirectional and bidirectional flow regulators with banjo in brass (M5) or in technopolymer (G1/8, G1/4, G3/8)
- » Ports: M5, G1/8, G1/4, G3/8
- » Seals: FKM/EPDM

### Series GSCU, GMCU, GSVU, GMVU, GSCO, GMCO flow control valves



- » Unidirectional and bidirectional banjo flow controllers
- » Nominal diameter: 1.5mm - 3.5mm - 5mm
- » Ports: M5, G1/8 and G1/4
- » Seals: FKM/EPDM

## Proportional Solenoid Valves



### Series AP direct acting proportional valves



- » 2/2-way proportional valves, NC
- » Sizes: 16 - 22mm
- » Nominal diameters from 0.8 to 2.4 mm
- » Seals: FKM

### Series CP direct acting and pressure compensated proportional solenoid valves



- » Function: 2/2-way NC
- » Sizes:
  - 16 mm (orifices 1 - 1.5 - 2 mm and 4.4 pressure compensated)
  - 20 mm (orifices 3 - 3.5 and 4.4 mm pressure compensated)
- » Seals: FKM

# Solenoid Valves



**Series K8-K8X direct acting solenoid valve**  
**Series K8B pilot operated solenoid valves**  
**Size: 8mm**



- » Orifices: 0.5mm - 3.6mm
- » Functions: 2/2 NC - 3/2 NC - 2/2 NO - 3/2 NO 3/2 UNI
- » Flows up to 130NL/min
- » Seals: FKM

**Series K, KL - KLE direct acting solenoid valve**  
**Size: 10mm**



- » Orifices: 0.6mm - 1.6mm
- » Functions: 2/2 NC - 3/2 NC - 3/2 NO - 3/2 UNI
- » Seals: FKM

**Series P, PL, W direct acting solenoid valve**  
**Size: 15mm**



- » Orifices: 0.8mm - 1.6mm
- » Functions: 2/2 NO - 3/2 NC - 3/2 NO
- » Seals: FKM

**Series PD direct acting solenoid valve**  
**Size: 15mm**



- » Orifices: 0.8mm - 2.5mm
- » Function: 2/2 NC
- » Seals: FKM

**Series A direct acting solenoid valve**  
**Size: 22mm**



- » Orifices: 1.2mm - 2.5mm
- » Functions: 2/2 NC - 3/2 NC - 2/2 NO - 3/2 NO
- » Seals: FKM

**Series 6 direct acting solenoid valve**  
**Size: 32mm**



- » Orifices: 2mm - 4mm
- » Functions: 2/2 NC - 3/2 NC - 3/2 NO
- » Seals: FKM

**Series 8 pneumatic operated cartridge valves**



- » Flow: 420NL/min ÷ 1480NL/min
- » Functions: 2/2 NC - 3/2 NC
- » Seals: FKM

**Series K8DV, PDV fluid separated solenoid valves**



- » Sizes: 8mm and 15mm
- » Orifices: 0.7mm - 2mm (size 15mm)
- » Function: 2/2 NC
- » Seals: FKM - EPDM - FFKM

## Treatment and Pressure Regulators



### Series TC1-V pneumatic shut-off micro valves



- » Material PPS - Stainless steel
- » Ports: Cartridge version or G1/8 - 1/8 NPT threads
- » Inlet pressure: 0 ÷ 10 bar
- » Seals: FKM

### Series TC1-R pressure micro regulators OX2 Compliant



- » Material PPS - Stainless steel
- » Ports: Cartridge version or G1/8 - 1/8 NPT threads
- » Regulated pressure: 0.03 ÷ 0.5 - 0.1 ÷ 2 - 0.15 ÷ 3 - 0.2 ÷ 4 bar
- » Seals: FKM

### Series K8P electronic proportional micro regulator



- » Compact design
- » High precision
- » Analogical input: 0-10V DC or 4-20 mA
- » Regulated pressure: 0.15 ÷ 3 bar - 0.35 ÷ 7 bar - 0.05 ÷ 1 bar
- » Seals: FKM

### Series M pressure micro regulators



- » Material: brass
- » Ports: G1/8 - G1/4
- » Nominal flow: 480 l/min
- » Seals: FKM/EPDM

### Series N filter

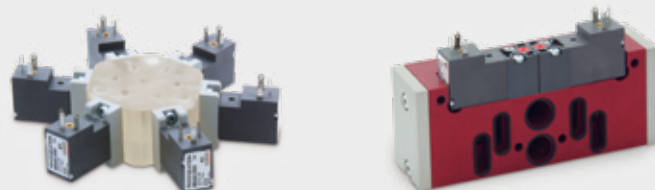


- » Surface filter
- » Filtering element (Bronze): 5 µm
- » Ports: G1/8 or G1/4
- » Seals: FKM/EPDM

## Customised solutions



Camozzi can provide  
Manifold and integrated systems.



The complete catalogue of our products is available on the website [www.catalogue.camozzi.com](http://www.catalogue.camozzi.com)  
General terms and conditions of sale are available on [www.camozzi.com](http://www.camozzi.com)

## Contacts

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