



Innovative and Integrated Solutions
 **C_Fluid Control**

Industrial Solutions





Camozzi: innovation, competence and passion

A commitment to excellence

FOCUS ON MAXIMISING
CUSTOMER BENEFITS

CONSTANT COMMITMENT
TO IMPROVING PERFORMANCE

PRODUCTION PLANTS IN ITALY, USA,
RUSSIA, UKRAINE, CHINA AND INDIA

BRANCHES, DISTRIBUTORS
AND SUPPORT CENTRES IN MORE
THAN 75 COUNTRIES

Since its incorporation in 1964, Camozzi has specialised in the field of pneumatic automation. Our product range has been constantly evolving over the last 40 years and we now design and manufacture a comprehensive range of highly advanced components and systems. Our objective is to satisfy our customers' needs through the provision of innovative and high quality solutions, which are produced using optimised production processes and supported by excellent pre and post sales assistance. The passion and enterprising nature of the company's founders, the Camozzi

brothers, has always guided the business, leading to sustained growth and a global presence. One of our guiding philosophies is to be close to our customers throughout the world as we believe this is fundamental in the building of successful partnerships. It is through these close customer partnerships that we provide quality components which are in accordance with local regulations and standards. Every product and solution offered is fully supported through our global infrastructure, which ensures we are proactive in providing solutions and quick to meet the needs of every customer.



Innovative and Integrated Solutions

C_Fluid Control

*C_Fluid Control
a division born from
the experience and
innovation of Camozzi*



In addition to the continuous development of our range of pneumatic components, we are also investing heavily in the fluid control market. The FLUID CONTROL division of the Camozzi Group provides solutions to meet the needs of this increasingly complex and innovative market. The new FLUID CONTROL division expands our range of solutions available and enables us to serve even more sectors.

- Innovation**
 Camozzi has received global recognition for the development of its miniaturised solenoid valves used to control liquid and gases in scientific applications.
- Quality**
 Camozzi continuously pursues "Total Quality" and each Group company receives substantial investment to ensure conformity with recognised international standards.
- Experience**
 Camozzi has a wide range of high specification fluid control solutions which have been designed to meet the specific requirements of individual industrial sectors.
- Customer Focus**
 Our design engineers work closely with customers to understand their requirements, leading to the delivery of customised solutions using the most appropriate and innovative components.

*Polpenazze production
facility - Italy*

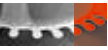


*In-house
laboratory testing*



*In-house test area
simulating the most diverse
working conditions*





C_Fluid Control encompasses the design, development and production of innovative solutions

The Fluid Control division of Camozzi designs, develops and assembles solutions which integrate mechanical, pneumatic and electronic components to control fluids, liquid and gas.

The expertise and experience of our technicians allow us to offer fully customised solutions in terms of functionality, dimensions and the overall configuration of the components to be assembled.

Our internal laboratories are fully equipped with the most modern instruments to conduct application and customer specific tests.

For example, load tests, mechanical resistance tests (at variable pressures), tests for explosive atmospheres and climatic chamber tests can all be conducted in-house.

C_Fluid Control

- ① *Micro_controls*
- ② *General purpose*
- ③ *Process: control & regulation*

- **Integrated automation**
- **Integration of intelligent functions**
- **High speed**
- **High flow**
- **High pressure**
- **High vacuum**
- **Miniaturisation**
- **High precision and repeatability**
- **Separation membrane**
- **Proportional**
- **Bistable**
- **PWM systems**
- **Compatible and bio-compatible materials**
- **According to standards and regulations**



① *Micro_controls*

*Miniaturised
fluid control used
in the main
application sectors*

The technology used on miniaturised components for fluid control with on-off operation and proportional or total isolation function, is suitable for the manufacturing industry because of its low power consumption, light weight, small dimensions and ergonomic design, these being the main characteristics of the instruments, devices and machines used in a multitude of industrial and medical application sectors. With the devices integrated in control and command systems for the industrial automation or for the handling of fluids in general, the trend is towards even smaller dimensions. With the use of portable instruments that require low power consumption there is the opportunity and in many cases the need to study fluid dynamic solutions with more and more miniaturised and performing components.

The proportional technology with low power consumption along with fluid isolation functions applied on miniaturised solenoid valves handling and controlling gases and liquids allow the construction of for example portable and pocket devices for analysis or taking measurements. The progress in the field of biotechnology and electronics has enabled the miniaturisation of previously very bulky and expensive equipment and we are now able to perform complex chemical and mechanical operations on the surface of a single, specifically functionalized chip. The Micro-dosing or dispensing applications involve the use of micro-components, but with high precision in implementing its function. Of particular importance is the possibility to apply a defined quantity of fluid of low and medium viscosity exactly where required, in a quick, constant and repeatable way.

- **Integrated and light**
- **Automation**
- **Handling**
- **Micro-dosing**
- **Dispensation**
- **Mobile electronics**
- **Printers**
- **Coating applicators**
- **Semiconductors**
- **Laser devices**
- **Aerospace**



② *General purpose*

Solenoid valves and systems for fluid control applications

The integration of the use of fluid-dynamic components with equipments for pneumatic automation is essential for the realization of machines and instruments. Many specific sectors need advanced applications that require innovative components and technologies. It is the single component inserted in a control and actuation system that determines the effective technical and quality level of the machines, instruments or devices inserted in a technologically new and winning context. The fluid-dynamic components, called in this way as they were built to control and handle all types of liquid and gaseous fluids, but also identified as valves and solenoid valves, are often inserted in an automated pneumatic or electro-pneumatic system.

The integrated use of valves and solenoid valves, that in most of the cases are with 2 or 3 ways, complete an automated machine, a system or an instrument that for their intrinsic functions need, besides the movement by means of actuators and solenoid valves for the relative control and handling of liquid fluids different than compressed air. Today, in many sectors we can find examples of integrated components for fluids and pneumatic components, one serving the other or vice versa. Typical examples can be frequently found in the Packaging and Textile sector, in Sterilization or Pasteurization machines, in Machine Tools, in commercial vehicles, in plastic injection machinery, in food processing systems, in conditioning machines, etc.

- **Air treatment**
- **Cleaning machines and equipment**
- **Sterilisation**
- **Textiles**
- **Packaging and printing**
- **Moulding**
- **Automotive**
- **Food&Beverage**
- **Renewable energy and tool machinery**
- **Waste and paint processes**
- **Air-conditioning, heating and cooling**
- **Humidification**



③ *Process: control & regulation*

*Controlling
and regulating
components
for fluid control
applications*

The control and regulation of fluids, either liquid or gaseous, demand increasingly more sophisticated and technologically advanced components as their application needs are ever more sophisticated and modern. The sectors that require a greater use of solenoid valves, for example, are in continuous evolution and expansion. The use of solenoid valves is often determined by factors such as safety, ecology or the durability of machines, instruments and equipment operating in the most diverse sectors, as the fluids to be controlled can be toxic or aggressive or require high speed interventions. Fluid dynamics is the field of mechanics that studies the laws of the dynamics of liquids and gases. The solenoid valves are the elements that intercept, control or regulate within a circuit or a system - the flow of fluids automatically to transmit power, but above all to supply equipments with a low power consumption.

An industrial process is made up of a series of units integrated among themselves in a rational way with the global aim to convert and/or manipulate, in the most economic way, certain raw materials or items in a finished product.

The automation, the control and the regulation of the process are essential for the safe and profitable functioning of petrochemical equipment, equipment in the food and pharmaceutical industry, and equipment for water treatment and purification.

The solenoid valves operating in an integrated and retroactive system with flow sensors, pressure sensors and measuring instruments have an essential role in order to:

- Stabilize the process
- Assure the regularity of the process
- Minimize the environmental impact
- Obtain the requested quality of the finished product
- Obtain the desired production rate
- Optimize the functioning of the process

- **Water and wastewater treatment**
- **Water supply facilities**
- **Peripheral process for food and pharmaceutical industries**
- **Sanitary appliances**
- **Biogas and fuel cell**
- **Chemical and petrochemical equipment**
- **Water purification and osmosis**
- **Filling and PET process**



Technology

C_Fluid Control applies high technology for the most reliable solutions

Our experience, as demonstrated by the miniaturised solenoid valves we have developed for the automation, medical and analytical sector, ensure only high precision and reliable components are supplied to each customer. The expertise of the engineers at the Camozzi Research Center enables us to provide solutions specifically for the "Industrial" and

"Life Science" markets which use the most innovative technology platform available. A wide range of high quality and modular products are available which are fully tested in accordance with customer specifications. Each product benefits from a combination of modern and customer focused design, leading to the highest standards of performance.

Miniaturisation

In the Medical devices and the Diagnostic-Analytical instruments the current prevailing trends involve the miniaturisation of the components. Camozzi can provide individual components, for example 8, 10 or 15 mm miniature size pilot as well as complete systems incorporating separation membrane valves, proportional valves, servo-valves, regulators and pneumatic actuators.

The wide range of miniaturised components facilitates the choice of the most suitable solution based on the application needs.

The research and design of new components, also in fluid dynamics, is heading towards a greater miniaturisation whilst maintaining the same flow characteristics, especially with regard to solenoid valves. The devices and instruments used in the industrial sector are

regarded as more advanced, competitive and efficient if they are equipped with components such as sensors, motors, pumps, accessories, miniaturised or sub-miniaturised solenoid valves. The use of miniaturised and silenced solenoid valves is essential for the application in machines or instruments that, being used in studies or laboratories, have to present extremely narrow dimensions.



Miniaturising a solenoid valve means:

- Reduced dimensions for use in compact machines and instruments
- Reduced moving volumes to enable higher speed and longer life of the internal parts of the valve
- Reduced consumption of the coils to save energy and enable direct operation from a PLC
- Reduced weight for use in manipulators or portable instruments
- Reduced insertion noise for use in closed or silent environments or operating rooms

Proportional control

Precision, repeatability and sensitivity are the main characteristics being pursued by our technical teams involved in the development of Series K8P and LRP (for pressure control) and Series AP and LRP (for flow control). Today there are many scientific applications requiring proportional valves to control pressure or flow, for example in dispensing or dosing or for the regulation of power or speed. The need for instruments to control microflow and the use of components at very low power has allowed us to study new technologies that offer 'Energy-saving Piezo-solutions'.

General characteristics

- High flow performance
- High insertion speed
- Resistant to aggressive fluids
- Self-cleaning
- A life of more than 50 million cycles
- Low void volume
- High repeatability
- High precision
- Sensitivity in the control of low flows

Technical characteristics:

- Flow performance: from 0.5 l/min to 250 l/min
- Operating pressure: vacuum - 10 bar
- Connections: M5 - 1/8 - 1/4
- Nominal diameter: from 0.2 mm to 6.5 mm
- Materials in contact with the fluid: PPS, Delrin, AISI 303 and 430, Brass, Polyamide, Kalrez, FKM
- Operating temperatures: -10°C to +120°C
- Assembly positions: any



Solenoid valves for the handling and control of aggressive and aseptic fluids. Total isolation technology

The research, design, realization and production of these components follows a structured process with input from sector experts who are investigating the use of new materials, functional parameters and construction techniques. Our considerable expertise in the handling of liquids and gases enables us to develop new and increasingly innovative components. Camozzi therefore positions itself as a manufacturer of sophisticated products for markets requiring solutions for the measurement and control of fluids where solenoid valves with a **separation membrane** are required. In clinical diagnostics, where reliability is key, solenoid valves with a separation membrane are used in the analysis of blood, serum and urine and in the handling of samples and reagents as well as the washing and treatment of waste material.

General characteristics

- High flow performance
- High insertion speed
- Resistant to aggressive fluids
- Self-cleaning
- A life of more than 20 million cycles
- Low void volume
- High repeatability
- High precision
- Sensitivity in the control of low flows

Technical characteristics:

- Fluid: biological and aggressive liquids and gases
- Flow performance: from 0.5 l/min to 5000 l/min
- Operating pressure: vacuum - 20 bar
- Connections : flange - M5 - 1/8 - from 1/4 to 2"
- Nominal diameter: from 0.2 mm to 50 mm
- Materials in contact with the fluid: PPS, Delrin, AISI 316, brass, aluminium, Peek, Polyamide 6/6, Kalrez, Polyurethane, FKM, NBR
- Operating temperatures: -10°C to +120°C
- Assembly positions: any



Customised solutions

C_Fluid Control provides solutions which are designed, developed and tested in exact accordance with customer specifications

A wide range of high quality and modular products are available which are fully tested in accordance with customer specifications. Each product benefits from a combination of modern and customer focused design techniques, leading to the highest standards of performance. Our technicians provide support during the development of project solutions and after sales services throughout the world, making us the ideal partner for demanding and high added value projects.

Compact technical solutions

When designing components our focus is always on performance and on the optimisation of dimensions. It is this focus that enables us to deliver compact pneumatic modules and circuits that guarantee high speed, excellent flows, low consumption, reduced weight and clean design.

Integrated technical solutions

With Camozzi's experience, pre-assembled solutions can be provided which reduce installation time. Maintenance time and costs are also reduced due to the high reliability of each solution.

Special

Integrated and customised technical solutions

Our "Lean Philosophy" enables us to ensure production flexibility whilst the extensive technical knowledge residing at the Camozzi Research Center means we are fully equipped to deliver customised solutions, combining electronics and mechanics, which are developed by working closely with each customer.

Standard

A range of components that can be integrated and assembled to cover a wide variety of requirements



Micro-solenoid valves Series K8 + Booster Cartridge



Micro-solenoid valves Series KN HF



Micro-solenoid valves Series MSF



Micro-solenoid valves Series PD



Micro-solenoid valves Series PL



Micro-solenoid valves Series AP



Solenoid valves Series CFB



Solenoid valves Series A



Solenoid valves Series 6

What makes us different

Global vision, local service
and a commitment to excellence

- Innovative New Generation Products
- Optimisation of Internal Processes and Successful Relationships with Customers and Suppliers
- Complete and Customised Solutions
- Focus on Product Quality and Customer Service

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