



# LDA

*Solutions for Life*

**ATEX certified products**



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## Level Switches

Design and produce level sensors with on / off signal, SPDT and with signal continuously.

Float level sensors, electromagnetic, electromechanical, resistive, analog. Applications for the hydraulic sector, food-vending, appliance, medical, automotive, rail etc



## Pressure & Vacuum Switches

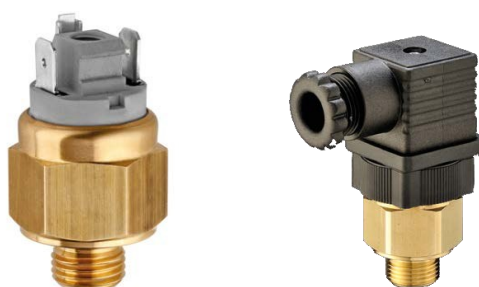
Pressure and vacuum switches with adjustable set point and fixed-pressure switches.

Pressure switch with changeover contacts (SPDT), Mini pressure. Setting ranges from -1 to 400 bar. Differential pressure, electrical and visual alarm for filter clogging.



## Temperature Sensors

Thermostats and temperature sensors. Bimetal thermostat with NO, NC or SPDT. Temperature sensors NTC, PTC, PT100 and PT1000. Solutions with materials, fasteners and electrical connections, developed for specific customer needs.





## ATEX Switches

**Proximity Switch – Magnetic (ES Series):** requires an external magnet to operate. Globally certified and proven in hazardous, high-demand environments. Delivers reliable performance at a competitive cost.

**Proximity Switch – Ferrous (FS Series):** Senses carbon steel using an internal magnet array. Built for durability and precision in extreme conditions. Certified for global use and offers a cost-effective sensing solution.

**Flow Switch (FL Series):** Compact and efficient, designed to monitor flow of liquids, gases, and air. Features a non-mechanical design for long-term accuracy and reliability.

**Vibration Sensors (VS Series):** Engineered with a high-precision annular shear design. Offers options for acceleration or velocity output. Certified worldwide and ideal for demanding vibration monitoring applications.

**Explosion Proof:** Zone 1, IECEx & ATEX Exd (Zone 1 & Zone 21), UL/CSA (Class I, Div 1)

**Intrinsically Safe:** Zone 0, IECEx & ATEX Exia (Zone 0 & Zone 20), UL/CSA (Zone 0)

**Other Regional Approvals Include:** TRCU, INMETRO & KOSHA



## Pressure Switch:

The Euroswitch PS range of pressure switches and clogging indicators are available for reliable indication in general industrial applications and are approved for use in ATEX, IECEx, UL/CSA, TRCU and INMETRO hazardous zones.

Pressure sensing ranges upto 1035 bar

- Multi approved, ATEX, IECEx, UL CSA, INMETRO, TRCU
- Zone 0, 1, 2, 20, 21, 22
- UL/CSA Class 1 & 2 Division 1 & 2 Groups A-G
- Integral 360° Adjustable Wireable Connection Head / Junction Box

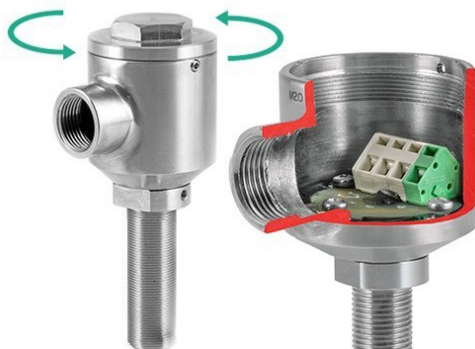


### Static/Differential Pressure Sensing:

Benefiting from a 316 stainless steel construction and compact dimensions, the PS range provides tangible benefits over the market competition, whilst offering unique benefits such as the integral wireable connection head allowing the user to terminate directly at the switch, thereby negating the need for an additional junction box and associated mounting kit. There are versions available for indication of static or differential pressure. Differential switches are best suited to high pressure applications such as well pump and compressor pressure control, filter condition monitoring, and high static pressure control.

### Clogging Indicators:

Clogging indicators are a type of differential pressure switch used in hydraulic systems to provide notification to the user when a filter element needs replacing due to the increased differential pressure measured across the filter element. The user is then able to make the system safe and change the filter element.



### Wireable Connection Heads - Technology Overview

The Euroswitch Wireable Connection Head is unique in the hazardous area market and offers the benefits of a micro junction box integrated directly within the sensor. This patented technology is available on the majority of our instrumentation in one of three designs, namely W, WL or WLR. All designs are certified to the latest global protection standards.

## Hazardous Locations

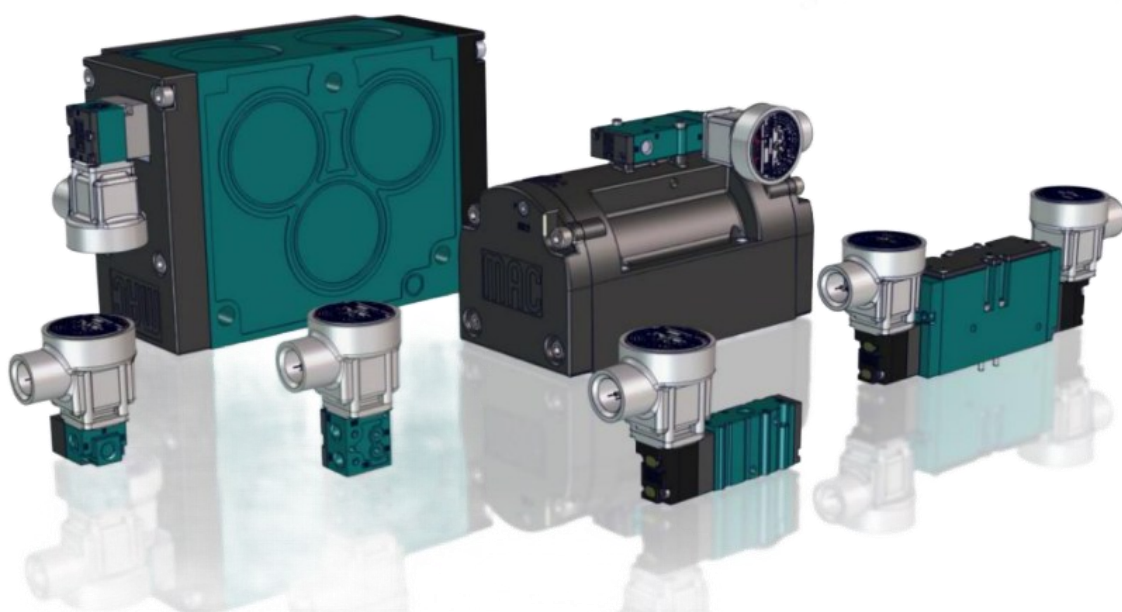
Available in 2-way, 3-way and 4-way configurations, with flows up to 175Cv and having globally recognized approvals, MAC has a valve solution that will bring value to your application.

### Namur Solenoid Valve Spacers

Namur valve spacers are designed to create a physical gap between the solenoid valve and the actuator, which is sometimes required in hazardous or special mounting applications. These spacers ensure compatibility with Namur interface standards and accommodate unique system requirements, such as clearance for valve operation, temperature considerations, or environmental conditions.

ATEX available on:

- 35A Series
- 45A Series
- 52A Series
- 67A Series
- 92B Series
- 93A Series
- MV-X1A
- MV-X2A
- MV-X3A



## Pulse Valves

ATEX certified Pulse Valves are available since mid 2019.

Two operating modes are covered by the ATEX certification: one version with remote bleed pilot and the other one with electrical bleed pilot. The electrical pilot is an ATEX certified solenoid operated 200 series valve mounted on a remote valve.

Each valve (remote bleed and 200 series operated valves) has its own identification plate mentioning the certification class and the protection mode. This new ATEX certification is resulting from an important demand for that kind of certified products.

MAC's vastly improved technology is changing dust collection methodology.

- Designed for high efficiency
- Eliminates common failure points
- Lowers maintenance costs
- Reduces safety risks, downtime and potential liability
- Makes conversion quick and easy with a bolt-on design
- Optimized for harsh environments
- Significantly decreases energy costs





M&M International UK offers a comprehensive range of ATEX-certified solenoid valves designed for use in potentially explosive atmospheres, adhering to Directive 2014/34/EU. These valves are engineered to meet stringent safety standards, making them suitable for hazardous areas classified as Zone 1 and Zone 2, and are compatible with gas groups IIA, IIB, and IIC.



N204/205/206/222



N204/205/206/222 – Stainless Steel



N262/263



N298/299



N362/363



N398/399

Series	Type	Size Range	Orifice Size	Cv (gpm)	Features
N204/205/206/222	Pilot Operated	3/8"–2"	13–50 mm	3.86–37.91	Robust construction, explosion-proof design
N262/263	Direct Acting	1/4"	1.5–3.0 mm	0.09–0.32	Compact design, suitable for precise control
N298/299	Direct Acting	1/4"	1.5–3.0 mm	0.08–0.32	Wide range of orifices, explosion-proof operator
N362/363	Direct Acting	1/4"	1.5–3.0 mm	0.09–0.32	3/2 Normally Closed configuration
N398/399	Direct Acting	1/4"	1.5–3.0 mm	0.09–0.32	3/2 Normally Closed configuration



## Hydrogen Valves

The reduced port EX40 is great for a wide range of media. This pilot operated valve has become a popular

and effective choice in the emerging Hydrogen Dispensing market. The EX40 is also an excellent valve to control the flow of high pressure air, water, hydrogen, nitrogen, and other gases or light liquids compatible with materials of construction. The EX40 is the highest pressure valve in our collection and offers a cartridge design that alleviates your demanding maintenance requirements. The EX40 requires a 100 PSIG minimum pressure differential between inlet and outlet for operation. The valve's simple design with few moving components have made it a great choice for inlet pressures as high as 15,000 PSIG. The Normally Closed EX40 must be mounted upright and vertical.



The EX30 is great for a wide range of pressures and many different fluids and gases. This direct acting valve offers a solution to a variety of applications to control the flow of high pressure air, water, hydrogen, nitrogen and other gases or light liquids compatible with materials of construction. Suitable for cryogenic applications, this low flow, high pressure valve packages great versatility in a compact design for pressures up to 10,000 PSIG. No minimum pressure is required for opening, and it will not "burp" due to any rapid spikes in inlet pressure. Both the Normally Closed and Normally Open versions can be universally mounted, as a standard. They both may be mounted in any orientation.

## ATEX coils

The ATEX coils are designed for explosive atmospheres and comply with European directive 94/9/EC and standards IEC/EN 60079 for gases and IEC/EN 61241 for dust.

The coil offering includes either :

Ex d mb IIC T4/T5, Flameproof & Encapsulation per IEC 60079-1 & -18

Ex mb II T4/T5, Encapsulation, IEC 60079-18

### ATEX (IECEx) Coils





**ATEX**

**certified**

**pneumatic**

**compo-**

## Cylinders

The wide range of A.P.I.'s cylinders includes a full line of compact cylinder. The Series CI and CIN conform to ISO 21287 with bores from 16 to 125 mm. The Series CS, CD and CDN are UNITOP standard with bores from 12 to 100mm. All according to ATEX 2014/34/UE Directive. The Series DU and DUN are redesigned for space-saving with bores from 6 to 32 mm. The Series CIX and CIXN conform to ISO 21287 standard, fully made of Stainless Steel and in available on request according to ATEX 2014/34/UE Directive.



## Namur valves

The Namur valves of this series are available in size 1/4" G with function 3/2 and 5/2 both solenoid/spring and solenoid/solenoid. The series is available in accordance to ATEX 2014/34/UE in classification II 2Gc IIB T5 / II 2Dc T100°C. The valves supplied with special coils, directly supplied in accordance to ATEX 2014/34/UE in various classifications: Non-sparking coil Ex nA, Intrinsic Safety Ex ia, Encapsulated Coil Ex dm, Flameproof Coil Ex db and Encapsulated Coil Ex mb.

All the valves Series AXI are manufactured in accordance with ATEX 2014/34/EU Directive, in 5 different classifications (including intrinsic safety Ex ia, encapsulated coil Ex dm, and encapsulated flameproof coil Ex db) and therefore can operate in potentially explosive environments. These features make those pneumatic components good for applications in the Food&Beverage, in the chemical pharmaceutical and medical sectors, but particularly suitable for Oil & Gas and Mining industry



## Chemical, Process and Industrial

Rotork creates value by partnering with our customers in the chemical, process and industrial markets to deliver intelligent flow and process automation solutions that maximises their operational reliability and efficiency.

- 1500 Series Pilot-Operated Spool Valves
- 1750 Series Poppet Valves
- 67 Series Direct Acting Solenoid Valves



## Power Generation

Rotork provides solutions for managing control valves and dampers, steam and water isolation valves in order to meet the most stringent requirements and keep our customer's power generation facilities running smoothly, safely and efficiently.

- 1500 Series Pilot-Operated Spool Valves
- 1750 Series Poppet Valves
- 4500 Series Quick Exhaust Valves



## Pharmaceuticals

In the pharmaceutical industry, equipment used in production and processing often operates in environments where flammable solvents or vapors are present. In these settings, ATEX-certified valves are essential to ensure safety and compliance with hazardous area regulations.

- 67 Series Direct Acting Solenoid Valves
- 70 Series Solenoid Operated Valves



# HYDRAULIC & PNEUMATIC LOCAL CONTROL PANELS

Local Control Panels for hydraulic and pneumatic actuators can be supplied to meet project requirements, be it for a simple On/Off actuator, a control system for the accurate positioning of Choke or Globe control valves, or ESD actuator local control panels with partial stroking facilities.

- Made from 316 stainless steel with IP66/67 protection for harsh and corrosive environments
- Available in hydraulic or pneumatic versions with optional manifold design
- Manifold design reduces pipework, saves space and cut installation costs



# SAPELEM ATEX certified venturi pumps

## Ejecto-Connector 21

**Product Codes:** 2EJR21.L14.08xy0 – 2EJR21.L14.10xy0 – 2EJR21.L14.12xy0 – 2EJR21.L14.16x00

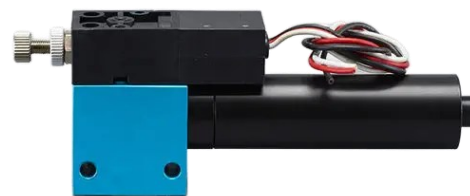
- Vacuum: -810 mbar
- Suction Flow: From 26 to 115 NI/min
- Consumption: From 34 to 150 NI/min



## Mini Venturi

**Product Codes:** 2EJ.MI.80.08xy0 – 2EJ.MI.80.10xy0 – 2EJ.MI.80.12xy0 – 2EJ.MI.80.16xB0

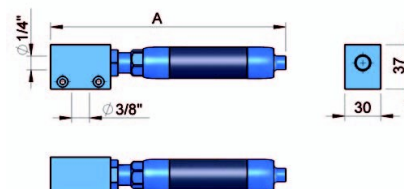
- Vacuum Level: -810 mbar
- Suction Flow: 26 – 115 NI/min
- Weight: 103 – 165 g



## Venturi Plus Series

**Product Codes:** 2EJ.PL.78.09x00 – 2EJ.PL.78.12x00 – 2EJ.PL.78.16x00 – 2EJ.PL.78.20x00 – 2EJ.PL.78.27x00

- Vacuum Level: -860 mbar
- Suction Flow: 32 – 242 NI/min
- Noise Level: 58 – 66 dBA



## Turbo Ejector Series

**Product Codes:** 2T114.xy002 – 2T214.xy002 – 2T314.xy002 – 2T414.xy002 – 2T614.Hy002 – 2T814.Hy002

- Vacuum Level: -900 mbar
- Suction Flow: 333 – 2664 NI/min
- Air Consumption: 116 – 928 NI/min



## Air Motor – Type 100

Compact air motor designed for precision tasks like light tooling in ATEX zones. ATEX Certification: II 2 GD c T4–T6

- Power: 0.22 kW
- Torque: 1.1 Nm nominal, 2.1 Nm starting
- Speed: Up to 2020 rpm



## Air Motor – Type 200

Medium-speed motor with strong starting torque.

ATEX Certification: II 2 GD c T4–T6

- Power: 0.53 kW
- Torque: 20.7 Nm nominal, 31.5 Nm starting
- Speed: Up to 245 rpm

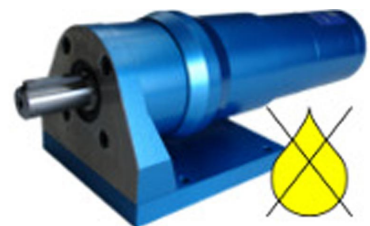


## Air Motor – Type 300

Balanced design for general industrial use in explosive environments.

ATEX Certification: II 2 GD c T4–T6

- Power: 1.3 kW
- Torque: 1.55 – 142 Nm
- Speed: 25 – 11,000 rpm



## Air Motor – Type 400

High torque motor ideal for heavy-duty industrial tasks within ATEX zones.

ATEX Certification: II 2 GD c T4–T6

- Power: 2.15 kW
- Torque: 3.6 – 98,290 Nm
- Speed: 380 – 11,000 rpm





## Air Motor – Type 500

Robust motor for large scale industrial applications requiring explosion protection.

ATEX Certification: II 2 GD c T4–T6

- Power: 3.15 kW
- Torque: 5.4 – 144,370 Nm
- Speed: 55 – 7,000 rpm



## Air Motor – Type 600

Powerful motor designed for demanding tasks in hazardous zones.

ATEX Certification: II 2 GD c T4–T6

- Power: 4.1 kW
- Torque: 9.9 – 243,530 Nm
- Speed: 40 – 5,500 rpm



## Air Motor – Type 700

- Heavy-duty motor with extended torque range for critical operations.

ATEX Certification: II 2 GD c T4–T6

- Power: 5 – 10 kW
- Torque: 12 – 297,670 Nm
- Speed: 40 – 5,500 rpm



## Air Motor – Type 800

Highest power and torque motor in the range for extreme industrial conditions.

ATEX Certification: II 2 GD c T4–T6

- Power: 8.6 kW
- Torque: 27 – 180,110,000 Nm
- Speed: 150 – 4,000 rpm





# ATEX certified Antistatic hose

**Flexible triple layer tube** for low plasticized pressure, stabilized in light and heat. Its **multilayer structure** consists of an **inner and outer layer of dissipative** (antistatic) **Polyamide 12 PHL** with **surface electrical resistivity**  $<10^6$  Ohm according to ISO 8031:2009(E) and an intermediate layer of polyamide 12 PHL with **excellent gas barrier properties**.

Suitable for use in **ATEX** environment, group 2, 2/3 G&D category, installation zones 1, 21, 2, 22. Electrically conductive outer and inner layers are able to dissipate the accumulation of electrostatic charges by avoiding the formation of sparks that can trigger explosions in potentially explosive environments. The middle layer gives barrier properties to **reduce the particle permeation** of the transported fluid.



## GRADE ALTERNATIVES

Polyamide 12 colourable with surface resistivity of  $10^9$  Ohm

## STANDARD LENGTHS

25-50-100 m

Part Number	Inner Diameter (iø)	Outer Diameter (oø)	Wall Thickness	Min. Bending Radius	Operating Pressure (23°C)
12RA2.5X4	2.5 mm	4 mm	0.75 mm	20 mm	24 BAR
12RA4X6	4 mm	6 mm	1 mm	30 mm	21 BAR
12RA6X8	6 mm	8 mm	1 mm	55 mm	15 BAR
12RA8X10	8 mm	10 mm	1 mm	85 mm	11 BAR
12RA10X12	10 mm	12 mm	1 mm	120 mm	9 BAR
12RA12X14	12 mm	14 mm	1 mm	170 mm	8 BAR
12RA12.5X15	12.5 mm	15 mm	1.25 mm	150 mm	9 BAR





## Stay in contact!

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