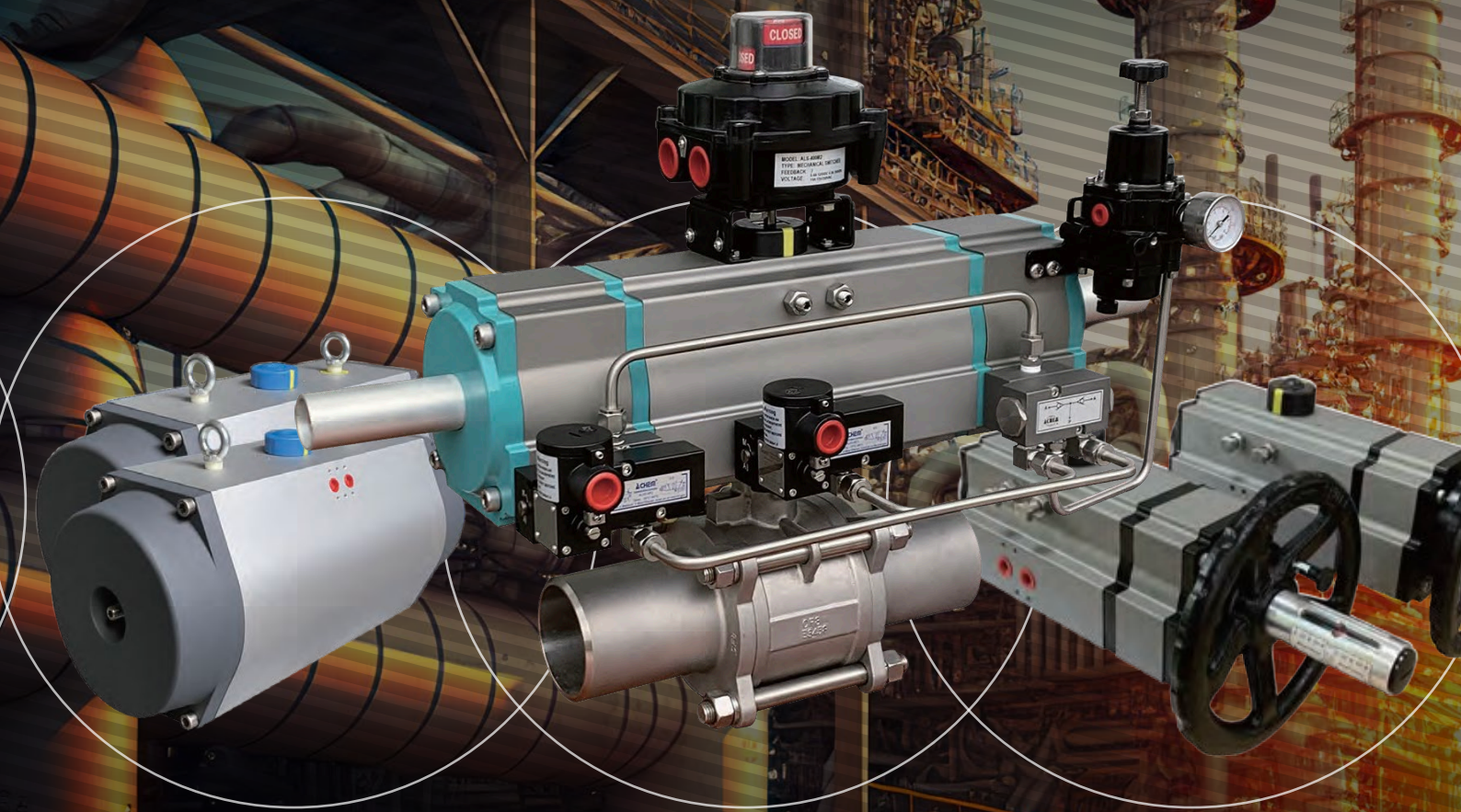


# ALPHA<sup>®</sup> CONTROLS

ALPHA CONTROLS LTD



## ACTUATOR AND SOLENOID VALVES

[www.alphacontrols.co.uk](http://www.alphacontrols.co.uk)



# Standard Type Pneumatic Actuator

## Stainless Steel Pneumatic Actuator

### ACHEM A series stainless steel pneumatic actuator

is our classic product. In 1995, the senior engineer of our company cooperated with the American Omega Company, and introduced the technology to take the lead in the development and production of pneumatic actuator in China.

With nearly 25 years of careful manufacturing, our company has become one of the few manufacturers worldwide to supply a full range of stainless steel pneumatic actuators.

The A-series stainless steel pneumatic actuator has 16 sizes and can be selected in the range of 15 - 8,000 Nm.



## ACHEM C Series Pneumatic Actuator

### The story behind C series actuator

**ACHEM C series** rack and pinion pneumatic actuator is our classic product. Since the production of stainless steel pneumatic actuator in 1996, our engineer team has continuously accumulated the design and production experience, and in 2003, we solemnly launched the C series pneumatic actuator.

The exquisite appearance and super-long cycle life of the actuator are deeply favored by the market. In the past two decades, more than 1.5 million C series pneumatic actuators have been successfully sold to North America, Europe, South America, Oceania and Southeast Asia markets.

So far, the C series pneumatic actuator has been strictly tested and certified by international professional authorities of SIL3, ATEX, IECEx, CE and so on.



# Standard Type Pneumatic Actuator

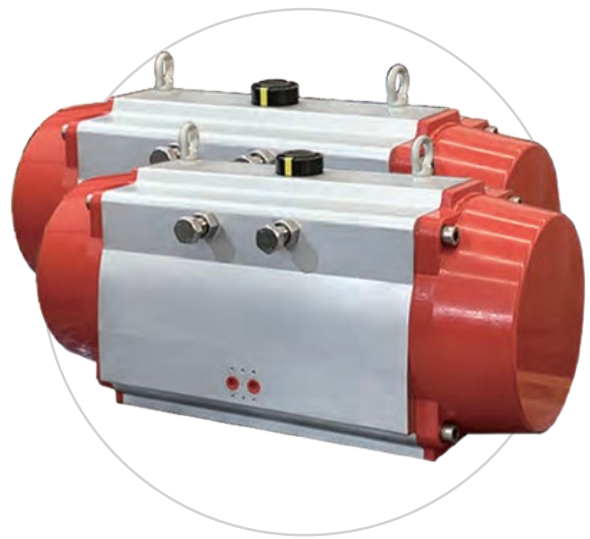
## ACHEM Large Torque Pneumatic Actuator

### Definition of large-torque pneumatic actuator

**Large-torque pneumatic actuator** is a large rack and pinion pneumatic actuator with an output torque of 4000 to 10000Nm (@ 5.5 Bar).

Since the cylinders of such actuators can be made by extruded aluminum technology, which cost less than scotch yoke pneumatic actuators with the same output torque.

Our company is one of the few manufacturers of large torque pneumatic actuators in China, mainly supplying B series large torque pneumatic actuators and C series large torque pneumaticactuators.



# Multi-function Pneumatic Actuator

## Large Stroke Pneumatic Actuator

Traditionally, the actuator with a rotation working stroke over 120 degrees is called as the large stroke pneumatic actuator.

The body, piston of the large stroke pneumatic actuator is longer compared with the standard stroke (90 degrees) actuator, and the limit cam also is customized, but the working principle is the same.

Our **C series large stroke pneumatic actuator** can be selected between 120 degrees and 240 degrees, where less than 180 degrees actuator is standard, and more than 180 degrees actuator is customized.



## Three Position Pneumatic Actuator

**ACHEM C series three-position actuator** is mainly used for the process control of three-way or four way valve or other three-position rotating device.

We can provide two types of three-position pneumatic actuators. one is 90° three-position actuator which can perform stroke operation in three positions within the range of 90°, such as 0°, midway and 90°, midway = (20°, 80°), and the other one is 180° three-position actuator which can perform stroke operation in three positions within the range of 180°, such as 0°, midway and 180°, midway = (90°, 170°).



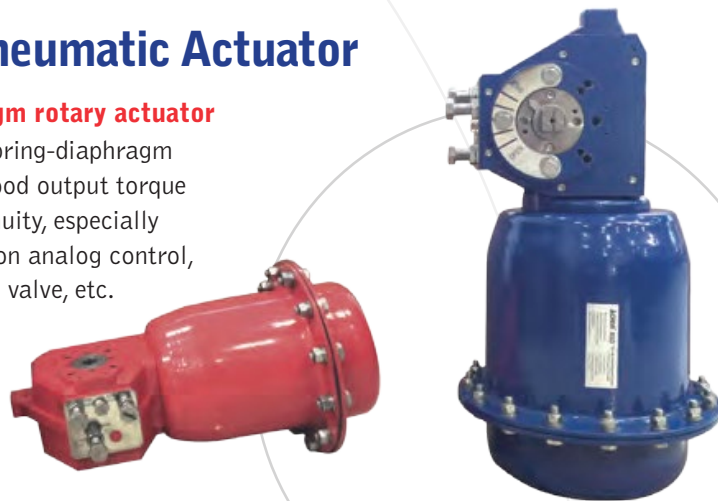
# Standard Type Pneumatic Actuator

## Spring-diaphragm Pneumatic Actuator

### ACHEM ASD series spring-diaphragm rotary actuator

is designed and manufactured using spring-diaphragm technology and crank link principle, good output torque stability and high output torque continuity, especially suitable for high precision valve position analog control, such as V-type ball valve, segment ball valve, etc.

The actuator is able to be driven by gas, water, or mineral-based hydraulic fluid media, even at a low supply pressure (1Bar). The actuator operates normally at a temperature range of  $-60^{\circ}\text{C}$  ( $-76$ ) to  $200^{\circ}\text{C}$  ( $392^{\circ}\text{F}$ ).

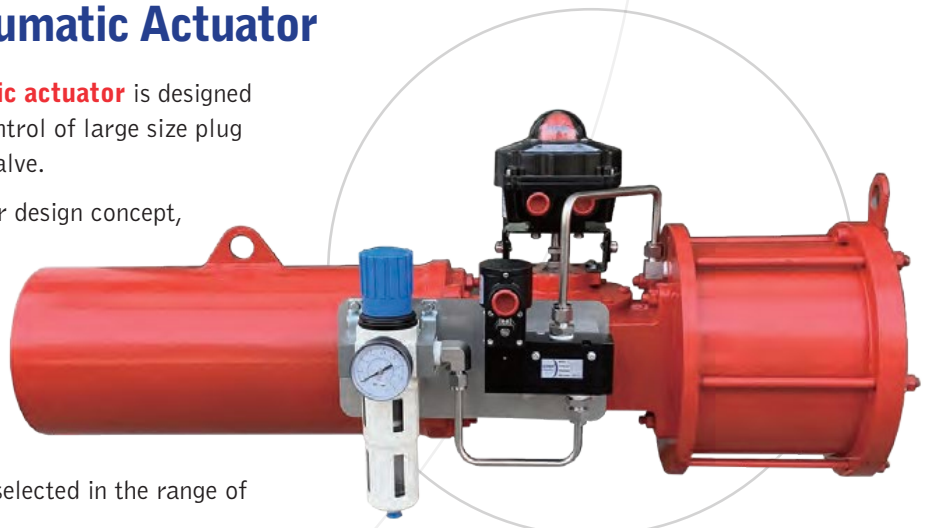


# High-Performance Pneumatic Actuator

## Scotch Yoke Pneumatic Actuator

**ACHEM ASY series pneumatic actuator** is designed and produced for automatic control of large size plug valve, butterfly valve and ball valve.

The product introduces modular design concept, implement ISO5211, Namur and VDI / VDE3485 standards, with wide output torque range, its double acting output torque can be selected in the range of 100Nm to 226,000Nm; the single action actuator output torque can be selected in the range of 200Nm to 48,000Nm.



# Direct Acting Explosion-proof Solenoid Valve

## Stainless Steel Ex d Direct Acting Solenoid Valve

This series of products are 3/2NC explosion-proof **direct acting solenoid valve**, use 316 stainless steel material flexible installation, high explosion-proof grade, can be used in hazardous areas and high corrosion environment.

Since 2016, this series of products have been tested and certified for use in hazardous areas (Zone 1) by CSA \ ATEX \ IECEx \ CCC.



## Aluminum Ex d Direct Acting Solenoid Valve

This series of products are 3/2NC explosion-proof **direct acting solenoid valve**, use high-quality aluminum alloy material, flexible installation, high explosion-proof grade, can be used in hazardous areas.

Since 2016, this series of products have been tested and certified for use in hazardous areas (Zone 1) by CSA \ ATEX \ IECEx \ CCC.



## Aluminum Low Temp. Ex d Direct Acting Solenoid Valve

This series of products is 3/2NC low-temperature explosion-proof **direct acting solenoid valve**, made of high-quality aluminum material, flexible installation, strong cold resistance, high explosion-proof grade.

Since 2021, the solenoid valve has passed the strict performance tests, and has successively won the explosion-proof certificate issued by CSA ATEX, IECEx and CCC institutions.



# Pilot Acting Explosion-proof Solenoid Valve

## Pilot Acting Ex d High Performance Solenoid Valve

This series of products is 1/4" **pilot acting explosion-proof solenoid valve**, high performance spool valve available both for 3/2 and 5/2 without external breathing hole, CV value of 1.10. The coil is protected by aluminum alloy enclosure with an explosion-proof grade of Ex d IIC T6 Gb, and can be used in hazardous areas (zone 1).

Since 2016, the solenoid valve has passed the strict performance tests, and has successively won the explosion-proof certificate issued by CSA, ATEX, IECEx and CCC and other institutions.



## Pilot Acting Ex d Stainless Steel Solenoid Valve

This series of products is a 3/2, 5/2 **pilot acting stainless steel explosion-proof solenoid valve**, stainless steel spool valve with large flow rate, and the CV value can be selected in the range of 1.40 to 6.00.

The coil is protected by stainless steel enclosure with an explosion-proof rating of Ex d IIC T6 Gb and can be used in hazardous areas in zone 1.

Since 2016, the solenoid valve has passed the strict performance tests, and has successively won the explosion-proof certificate issued by CSA, ATEX, IECEx and CCC and other institutions.



# Pilot Acting Explosion-proof Solenoid Valve

## 1/4" Pilot Acting Ex d Solenoid Valve

This series of products is a 3/2, 5/2, or 5/3 **pilot acting explosion-proof solenoid valve**, available for Namur or in-line connection with large flow rate spool valve (1/4"), CV value of 1.40. The coil is protected by aluminum alloy enclosure with an explosion-proof grade of Ex d IIC T6 Gb, and can be used in hazardous areas (zone 1). Since 2016, the solenoid valve has passed the strict performance tests, and has successively won the explosion-proof certificate issued by CSA, ATEX, IECEx and CCC and other institutions.



## 1/2" Pilot Acting Ex d Solenoid Valve

This series of products is a 3/2, 5/2, or 5/3 **pilot acting explosion-proof solenoid valve**, available for Namur or in-line connection with large flow rate spool valve (1/2"), CV value of 2.79. The coil is protected by aluminum alloy enclosure with an explosion-proof grade of Ex d IIC T6 Gb, and can be used in hazardous areas (zone 1). Since 2016, the solenoid valve has passed the strict performance tests, and has successively won the explosion-proof certificate issued by ATEX, IECEx and CCC and other institutions.



## 3/4" Pilot Acting Ex d Solenoid Valve

This series of products is a 3/2, 5/2, or 5/3 **pilot acting explosion-proof solenoid valve**, available for Namur or in-line connection with large flow rate spool valve (3/4"), CV value of 5.00. The coil is protected by aluminum alloy enclosure with an explosion-proof grade of Ex d IIC T6 Gb, and can be used in hazardous areas (zone 1). Since 2016, the solenoid valve has passed the strict performance tests, and has successively won the explosion-proof certificate issued by ATEX, IECEx and CCC and other institutions.



# Intrinsically Safe Solenoid Valve

## Direct acting aluminum intrinsically safe solenoid valve

This series of products are 3/2NC intrinsically safe **direct acting solenoid valve**, using the coil with aluminum alloy enclosure, explosion-proof grade of Ex ia IIC T6 G and in the hazardous areas (Zone 0) can be directly installed and connected with a variety of pneumatic valves to achieve the pilot control.

Since 2021, the solenoid valve has passed strict performance tests, and has successively won the explosion-proof certificate issued by ATEX, IECEx and CCC institutions.



## Direct acting thermoset resin intrinsically safe solenoid valve

This series of products are 3/2NC intrinsically safe **direct acting solenoid valve**, using the coil with thermoset resin enclosure, explosion-proof grade of Ex ia IIC T6 G and in the hazardous areas (Zone 0) and/or high corrosion environment can be directly installed and connected with a variety of pneumatic valves to achieve the pilot control.

Since 2022, the solenoid valve has passed strict performance tests, and has successively won the explosion-proof certificate issued by ATEX, IECEx and CCC institutions.



## Pilot acting intrinsically safe solenoid valve

This series of products is a 3/2, 5/2, or 5/3 **pilot acting intrinsically safe solenoid valve**, with a large flow rate, and the CV value can be selected in the range of 1.40 to 6.00. The coil is protected by aluminum alloy or thermoset resin enclosure with an explosion-proof rating of Ex ia IIC T6 Gb and can be used in hazardous areas in zone 0.

Since 2021, the solenoid valve has passed strict performance tests, and has successively won the explosion-proof certificate issued by ATEX, IECEx and CCC institutions.



# Namur Solenoid Valve

## High performance NAMUR solenoid valve

**ALV series high performance NAMUR solenoid valve** is specially designed for the outdoor use of pneumatic actuator, using advanced cartridge structure sealing technology, the valve body has no breathing hole too outside, good waterproof and dust-proof performance and long working life. Each valve body is equipped with 3/2 and 5/2 NAMUR plates that is available for the operation of double-acting and spring-return pneumatic actuators.

The solenoid valve is equipped with external tight waterproof cable connector, and the climate protection level reaches to IP66.



## High-flow rate NAMUR solenoid valve

Pneumatic actuators with an output torque greater than 2,000 N m ( at 5 bar) generally require high-flow rate solenoid valves.

**ALV series high-flow rate Namur solenoid valve** with CV value of 2.79 can meet the working requirements of high torque pneumatic actuator. The solenoid valve is designed and produced in strict accordance with the Namur standard, and can be directly mounted to the Namur interface of the actuator.



# Auxiliary Valve For Pneumatic Actuator

## Actuator speed controller

The **ACHEM ASC series actuator speed control valve** is designed and produced according to the NAMUR standard, with single acting and double acting working modes, which can be mounted together with NAMUR solenoid valve on air interface of the pneumatic actuator.

The speed control valve has an external handle to accurately adjust the operating speed of the pneumatic actuator.



## Quick exhaust & breather protection valve

**ALV Series QP Valve (Quick Exhaust & Breather Protection valve)** is a unique design to be used on applications where the pneumatic spring-return actuator/valve need to be shutdown fast.

This QP valve also provides a breather protection function which can effectively avoid direct contact between the actuator's spring chambers with corrosive and/or moisture atmosphere air.



# High-Performance Pneumatic Actuator

## Block and vent valve

Where the pneumatic actuator needs to be isolated from the air control system of the plant, typically in the application of the valve + declutch manual override + actuator, the "Block and Vent" will help more in operation.

This device provides a local means of blocking and venting the supply air from both solenoid valve and actuator, and at the same time venting all compressed air from both chambers of the actuator.

This device is available both for double acting and spring return



# Top Valve Controller And Positioner

## ALP Series E-P Valve Positioner

**ALP Series E-P Valve Positioner** is a kind of mechanical valve positioner, and is available both for linear and rotary valve.

According to input signal of 4-20mA from the remote controller of DCS system, the E-P valve positioner controls valve stroke accurately through adjusting the output air pressure.



## ALP Series P-P Valve Positioner

**ALP Series P-P Valve Positioner** is a kind of mechanical valve positioner, and is available both for linear and rotary valve.

According to input air signal of 0.2 - 1 kgf/cm<sup>2</sup> (3-15psi), the P-P valve positioner controls valve stroke accurately through adjusting the output air pressure.



## ALSD Series Top Valve Controller

**ALSD series top valve controller** is an optimizing solution to integrate position sensors, solenoid coil and 5/2 or 3/2 spool valve together in a box, which greatly improves the explosion-proof level and weather-proof level of the product.

The product is designed and manufactured in strict accordance with NAMUR international standard, directly installed on top of the pneumatic actuator, and receives the electric power (24VDC, 110 / 220VAC) from the remote controller (DCS) for valve position control and feedback of on/off valves.



# Valve Monitor Limit Switch Box

## ALS200 series valve monitor (limit switch box)

The ALS200 series valve monitor is a rotary position indication device. Armed with mechanical switch, inductive sensor or magnet sensor, this device can sense mechanical position (on/off) of valve for remote PLC or PC indication.

The visual indicator on the top of the device can also clearly display the valve position for local detection.



ALS200D series



ALS210 series



ALS20P series

## ALS300 series valve monitor (limit switch box)

The ALS300 series valve monitor (limit switch box) is a rotary position indication device with multi-function. The device can be armed with not only micro mechanical switch, inductive switch or magnetic inductive switch, but also armed with 4-20mA modular or AS-i field bus module, and digitize the perceived valve position signal and send it to the remote PLC or PC terminal.

The visual indicator on the top of the device can also clearly display the valve position for local detection.



4-20mA modula



AS-i module

# Valve Monitor Limit Switch Box

## ALS400 series valve monitor (limit switch box)

The **ALS400 series flameproof valve monitor** is a rotary position indication device used in hazardous area (Ex d IIC T6). The device can be armed with not only micro mechanical switch, inductive switch or magnetic inductive switch, but also armed with 4-20mA modular or AS-i field bus module, and digitize the perceived valve position signal and send it to the remote PLC or PC terminal.

The visual indicator on the top of the device can also clearly display the valve position for local detection.



## ALS600 series valve monitor (limit switch box)

The **ALS600 series flameproof valve monitor** is a rotary position indication device used in corrosive hazardous area (Ex d IIC T6).

The device can be armed with not only micro mechanical switch, inductive switch or magnetic inductive switch, but also armed with 4-20mA modular or AS-i field bus module, and digitize the perceived valve position signal and send it to the remote PLC or PC terminal.

The visual indicator on the top of the device can also clearly display the valve position for local detection.



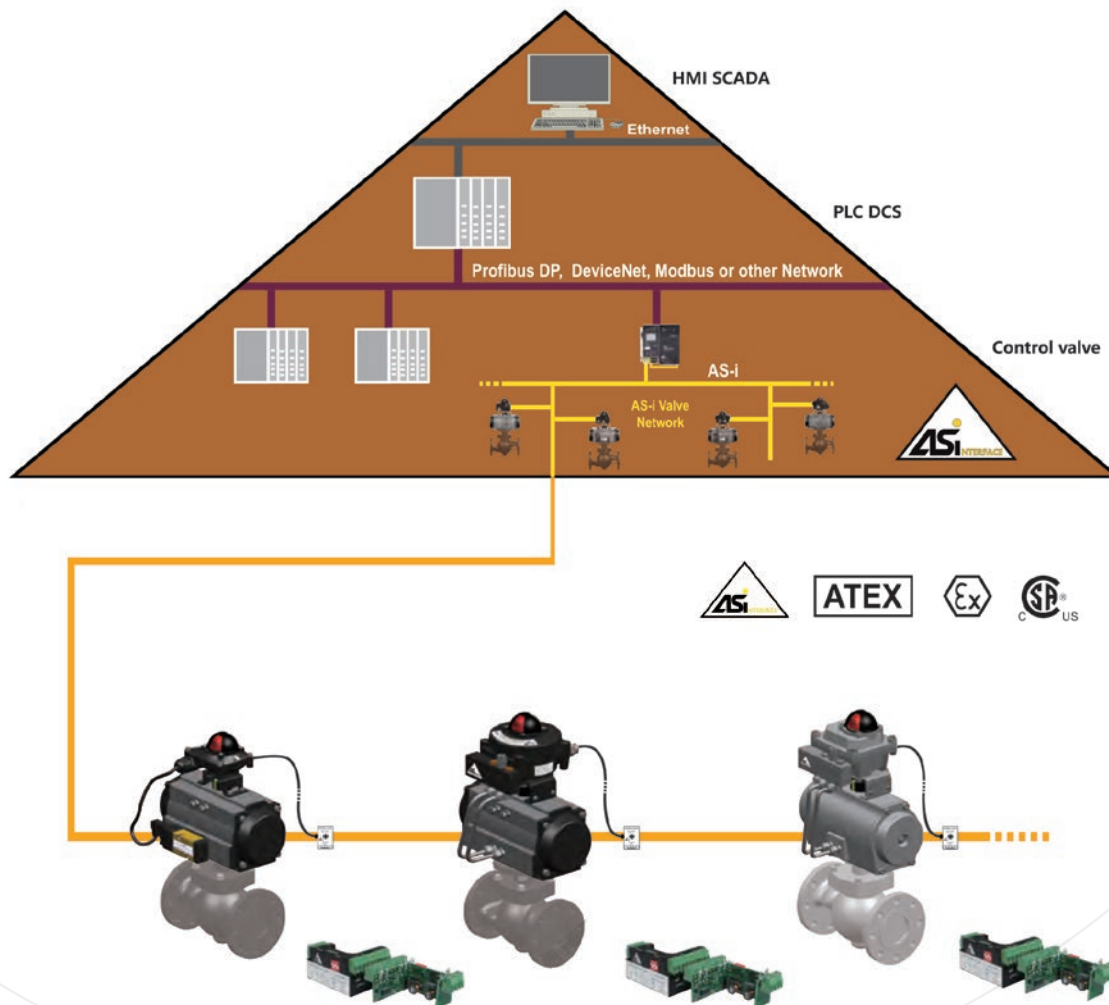
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# Introduction of AS-i Network

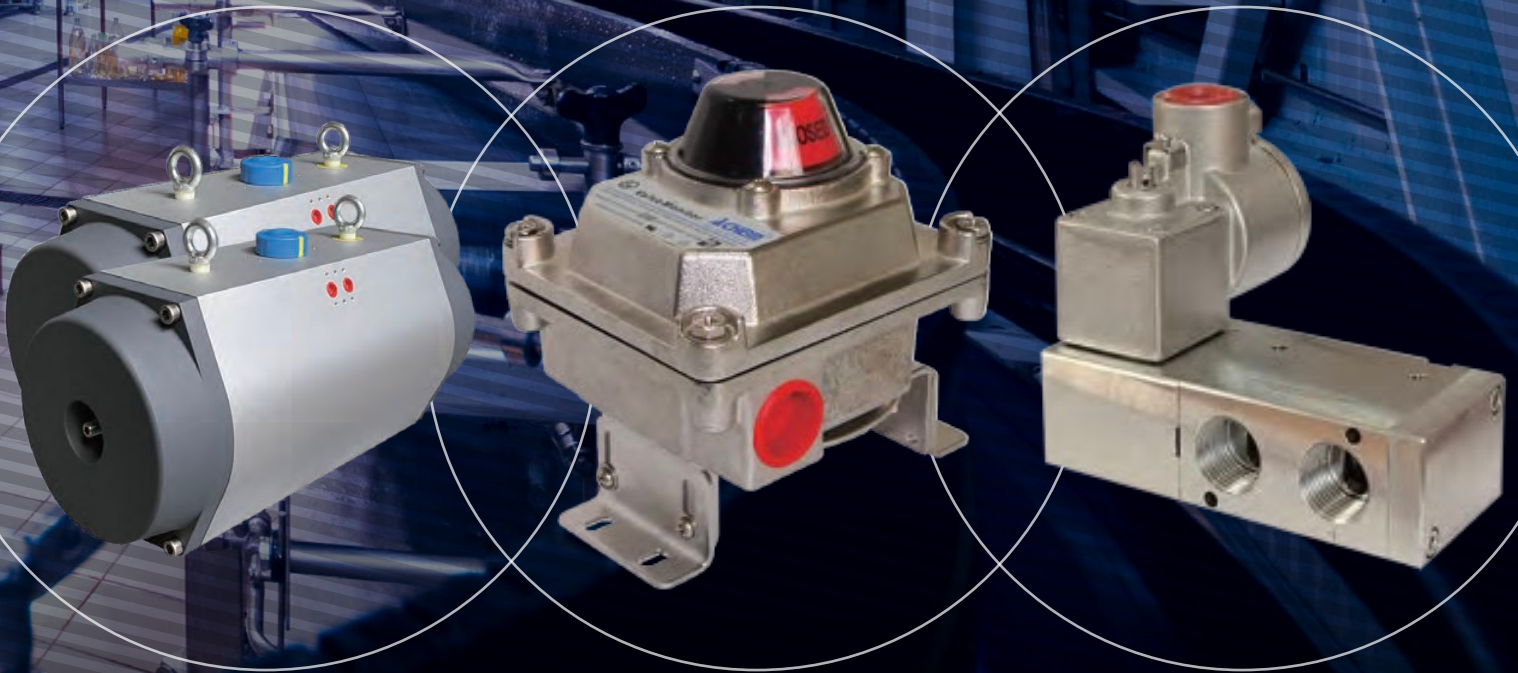
## ACHEM Large Torque Pneumatic Actuator

has been designed and produced by us specifically for use in low level valve automation systems. For large quantity of On/Off control valve signals, AS-i valve monitoring and controlling network offers an easy to use, low-cost, network solution which monitors and controls On/Off valve only by one cable.

Because of the flexible topology and compatible with many industry fieldbus networks, AS-i valve monitoring and controlling network has been widely used in industry valve automation.



# TAKING CONTROL THROUGH CUSTOMISED SOLUTIONS



**ALPHA** CONTROLS <sup>®</sup>  
ALPHA CONTROLS LTD

Alpha House, Hindley Industrial Estate,  
Swan Lane, Hindley Green. Wigan. WN2 4HR. UK  
Telephone +44 (0)1942 525833  
E-mail: [technicalsales@alphacontrols.co.uk](mailto:technicalsales@alphacontrols.co.uk)

[www.alphacontrols.co.uk](http://www.alphacontrols.co.uk)