GESTRA Control Valves GCV

Control Solutions for Steam & Condensate

Engineering steam performance

GESTRA Control Valves GCV

General service control valves

Designed to meet the demands of today's industries, the GESTRA Control Valve GCV is robust, innovative and cost effective.

- Adaptable to your needs
  - a highly flexible modular design to meet your process requirements
- Set and forget
  - designed for steam and other industrial fluids giving exceptional valve life, easy commissioning and low maintenance requirements
- Improved working environments
  - noise and emission reducing options
- Available in a wide range of sizes and connections

The GESTRA Control Valve GCV has been used effectively across many industries.

No need for expensive upgrades

Select a valve characteristic to complement your application

GCV Valve Range

	PN16 / PN25 / ASME 150	PN40 / ASME 300	PN100 / ASME 600
DN300 / 12”	Carbon Steel		
DN250 / 10”			
DN200 / 8”	Stainless Steel Carbon Steel SG Iron Cast Iron	Alloy Steel Stainless Steel Carbon Steel	
DN150 / 6”			
DN100 / 4”			
DN50 / 2”			
DN15 / 1”			

Valve stem sealing
Choose a stem seal to match your operating temperature and minimise emissions

Safety and process efficiency

Plug
Characterised and balanced plugs

Reduced flow trim
Accuracy and adaptability of control

Seat
Choose the best seating material for your application

Adaptable to your process requirements

The GESTRA Control Valve GCV has a modular design concept, which can incorporate many options within a single body envelope. This leads to a low number of components and a highly flexible system, where one valve can satisfy the needs of numerous industrial requirements. The outcome for the user is a general service control valve with an exceptionally low cost of ownership.

Pneumatic actuation

GCV with PN9000 Actuator and SP500 Smart Positioner

For applications where pneumatic actuation is preferred, we have a range of pneumatic diaphragm actuators to suit a wide variety of differential pressures and applications. To ensure your plant is safe in the event of air failure they are available in either a spring-to-close or spring-to-open configuration, a hand-wheel is available as an option if required. Electro-pneumatic smart positioners allow your control system to communicate effectively with the valve assembly via one of our class leading SP500 positioners.

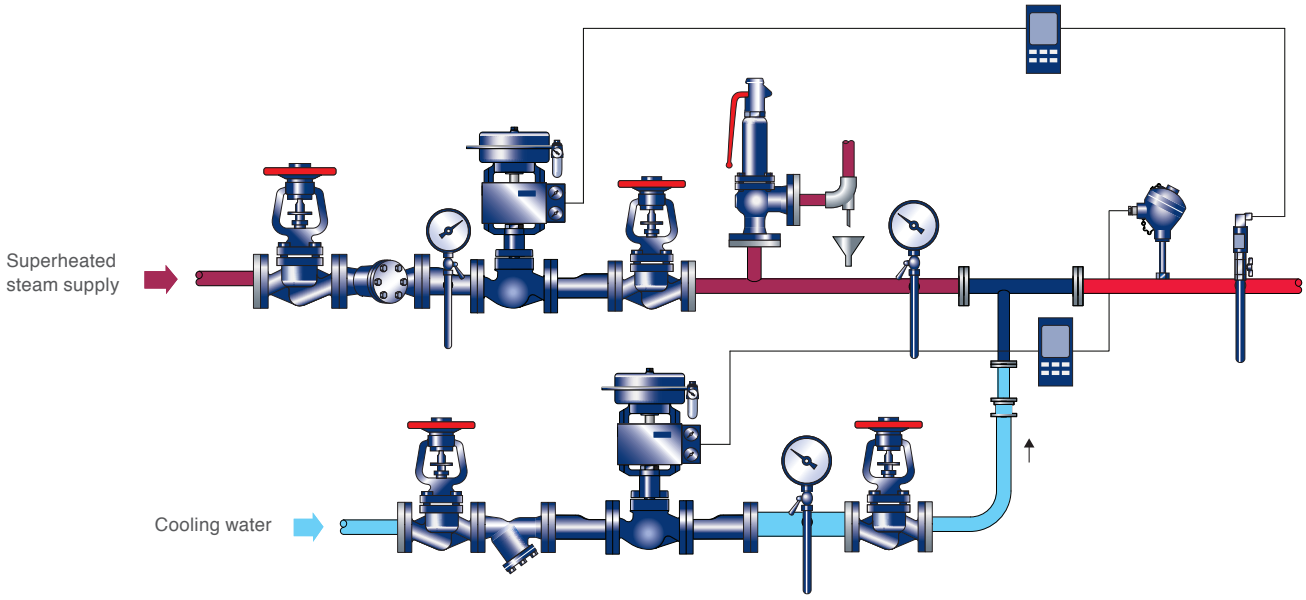
Electric actuation

AEL5 Electric Actuator

The AEL5 is a robust and user friendly actuator which is easy to install and commission, reducing total cost of ownership.

- Aluminium support for board and accessories
  - Highly durable and sturdy support for holding and/or fitting accessories
- User friendly adjustment of cams with stroke scale
  - Precise valve setting
- User friendly valve stem connection
  - Simple and securely locked connection to the valve stem minimising installation time.

Typical GCV installation overview



The above overview shows a typical pressure reduction and desuperheating station installation including a pressure control valve, a temperature control valve and a desuperheater. Each ancillary component of this installation ensures the longevity and proper operation of the control valves and the desuperheater.

The isolation valves ensure safety when maintenance of the system and products are required.

A strainer should always be installed upstream of a control valve to protect its internals from any potential debris in the line.

Further control system accessories such as pressure gauges, pressure sensors, pressure and temperature controllers and safety valves may also be required.

We can provide all of these items either loose for installation on site or as a complete package saving you valuable downtime.

Robust, innovative and cost effective

Increased stem seal life

Top and bottom guided valve stem ensures excellent alignment and long stem seal life. Scraper and dust rings ensure the stem seal is not damaged by the flow media or particles form the atmosphere. Viton 'O' rings ensure excellent sealing in low pressure and temperature media.

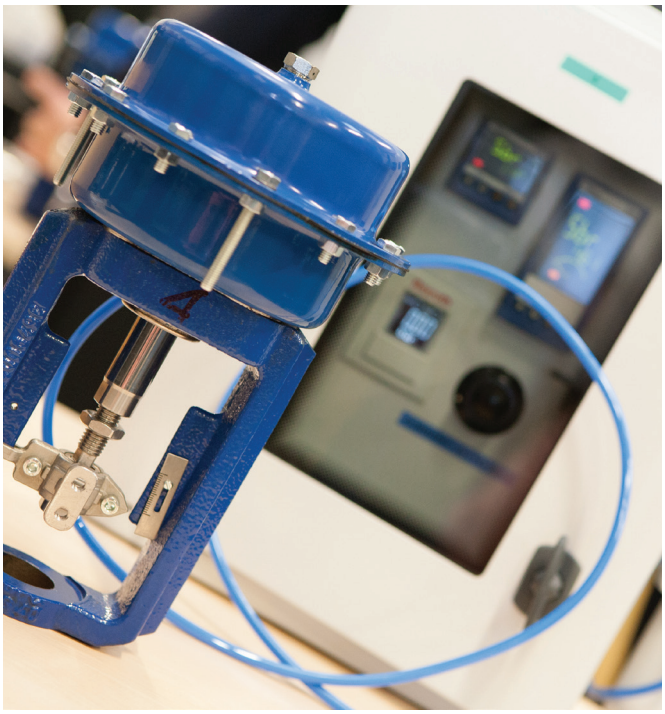
Long-life valve internals

When compared to alternative designs, the cage retained seat and plug of the GCV provides the user with better valve shut-off performance and reduced leakage across the seat. Hard trim materials as standard, designed for steam, giving a high resistance to erosion and corrosion on an extensive range of media. Large gallery area reduces the flow velocity, body erosion and noise output.

Hassle free – with quick and easy installation and low maintenance requirements

All trim components are designed to clamp in place so the valve can quickly be configured to the user's specific process needs. During assembly the seat and plug are self-aligning using the clamp in place cage retained design. The simplicity of build also means that maintenance is quick and easy, with no special tools required.

- Quick to configure
- No special tools required
- Design performance easily achieved after maintenance.



GCV adaptable to your process needs

Improve your safety and process efficiency

Reduce noise or cavitation within the flow improving your working environment and extending the life of your valve.

- Standard
- Low Noise
- Anti-cavitation
- Multi-stage

Valve stem sealing

Minimise emissions through the value stem by choosing a stem seal that is suitable for your operating temperature. Valve stem sealing options include PTFE chevrons and high temperature graphite rings.

Reduced flow trim

A number of flow reductions are available allowing you to precisely match the appropriate trim to your process loads, giving you accurate control of each individual process and greater adaptability for application changes.

Bellows sealed bonnet

Robust bellows sealed option where zero emissions leakage is required.

- High temperature
- Low maintenance
- Zero emission

Select a valve characteristic to complement your application

Flow Characteristics

- Equal Percentage
- Fast Opening
- Linear

Soft seat insert vs soft plug

Soft plug seals often fail due to exposure to the turbulent region of the flow. This will lead to leakages, contamination and eventual loss of control.

Locating the soft seat insert away from the turbulent region gives superior control valve longevity. Reducing the possibility of spoilt product due to contamination and leakage and vastly increasing equipment life.

The soft seat is easily checked and replaced without any need for removal from the line, making this a highly cost effective long term solution.

Seat

Choose the seating material that best matches your media and shut-off requirement for a safe installation.

- Metal
- Soft seat

Did you know?

Cavitation is a dynamic process that can cause metal erosion, and even major mechanical failure in extreme cases. When the pressure in a liquid flow drops below a certain point, bubbles of vapour can form. Then, as the flow pressure recovers further downstream of the valve trim, these bubbles implode and collapse back into liquid state. This releases energy that can produce wear on adjacent metal components.

SP500

Easily commissioned and energy efficient

With increasing pressure on industry to reduce carbon emissions and save energy, a reduction in the running costs of plant comes as a welcome opportunity. We have listened to customers' concerns regarding compressed air waste and have designed the SP500 to have negligible running costs; typically consuming less than 1% of the air of a traditional electropneumatic positioner.

The SP500 has been designed to ensure ease of commissioning with a simple user interface and straight-forward set-up procedure. No specialist skills are required to get your digital valve positioner up-and-running so you can be confident that it will be right, first time.

The SP500 has an adaptive action that compensates for fluctuations in supply pressure and valve stem friction, thus enabling guaranteed process stability.

Non-contact magnetic feedback eliminates hysteresis and ensures accuracy. Unlike traditional feedback arms, the innovative non-contact feedback system is unaffected by corrosion that can cause positioners to stick or give inaccurate readings. Fewer components in the overall design mean guaranteed long-term reliability and reduced lifecycle running costs saving maintenance time. Highly efficient positioner, with the lowest steady state air consumption on the market – increases profitability, reduces electricity cost and lowers CO_2 emissions.

Simple to commission

All SP500 units are supplied with a universal mounting kit making them quick and easy to assemble. They operate on a non-mechanical magnetic feedback system which is very easy to set-up and will not suffer wear, vibration or dirt problems. A simple autostroke routine makes it extremely quick and easy to commission and the keypad provides trouble free navigation through the menu system. Manual operation is available at the touch of a button.

SP500 Key features and benefits

Key feature	Key reason	Key benefit
One touch commissioning	Commissioning doesn't have to be complicated for standard single-acting applications	Reduces set-up time and cost
Non-contact Hall effect feedback device	Avoiding direct contact eliminates vibrations in valve position feedback, enables a sealed unit free from dust, dirt and corrosion penetration	Better accuracy in valve position feedback No wear and tear, therefore longer service life
Digital air control	Accurate control	Low running costs as near zero air consumption at steady state
Programmable functions and integral keypad	Easy and quick to commission, easy optimisation of valve performance	The control valve and assembly can be optimised for the requirements of the application
Class-leading low impedance electrical design	No additional wiring needed, powered from the 4-20mA control signal	Saves controller power and eliminates the need for auxiliary power supplies and additional wire installations
Capability for increased programmable functions for valve control	Changing the behaviour/characteristics of a valve through the positioner is quicker and easier than changing the shape of the valve internals. Simpler / standard (and lower cost) valve internals can be used to achieve different characteristics	Greater control at low cost, and in shorter time timeframe
More options for communication between positioner and the control system	Valve position feedback to control system	Makes assembly suitable for use in critical applications
Optional HART communication protocol	Communication and integration with digital control systems using existing 4-20mA control signal	No additional wires needed, less install time and costs

Energy consumption

Type of positioner	Annual energy consumption in kWh at steady state conditions based on 8000 h / year and air at 6 bar g	Leak rate at 1.4 bar g
SP500 smart digital piezo-electric positioner	0.4	0.48 dm3/h
Traditional electropneumatic positioner	498	700 dm3/h

SP500

The smart solution – Reduce energy consumption with the ultra-efficient SP500 positioners. These smart digital positioners consume approximately 1% of the air of a traditional electropneumatic positioner and have class-leading low impedance helping to save on controller power.

Hall effect contactless feedback – giving a zero lag between feedback and position, eliminating hysteresis.

Simple single button push to commission – quick and easy to set up, requiring no specialist training or skills.

Highly efficient positioner, with the lowest steady state air consumption on the market – increases profitability, reduces electricity cost and lowers CO_2 emissions.

SP500: World's most energy efficient positioner

GESTRA offers the world's most energy efficient digital electro-pneumatic valve positioners according to independent specialist, the Lloyds Registry EMEA, which has confirmed the air consumption rates of GESTRA's SP500 are the lowest available on the market today.

In response to market requirements, the SP500 innovative design has not only reduced air leakage but its non-contact positioner technology minimises downtime for maintenance. With only 3 button pushes or fewer making it quick and easy to install and commission providing increased accuracy and reliability over mechanical linkages. The SP500 is feature rich and also supports the HART® protocol.

This recognition of the SP500 electro-pneumatic smart positioner range – developed in-house by GESTRA's dedicated instrumentation team in Italy – is a testament to the Company's focus on sustainability across the whole plant.

Lower leakage rates enable you to increase efficiency and save money throughout the plant.

The Lloyd's Register Group is one of the world leaders in assessing business processes and products to internationally recognised standards. The SP500 have been certified by Lloyds Registry EMEA to have the minimal leak rate of 0.48 dm^3/h (1.01 ft^3/h), considerably less than the closest contender, which vastly reduces the cost of wasted compressed air.

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