

World class solutions for power and district energy



**VEXVE
ARMATURY
GROUP**

Vexve Armature Group - Five customer segments, one family

Vexve Armature Group is the leading European provider of mission-critical valve solutions in the transition to a low-carbon future.

The company was created by combining two leading valve manufacturers in their respective niche markets, Vexve and ARMATORY Group, while ZMK Technologies joined the group a year later – all family-owned companies with a history dating back all the way to the 1960s.

With our combined expertise, we serve customers in five segments. We are known for our long-standing customer relations, dedicated team, industry-leading R&D and highly automated production.

Together we can build a greener future!



District Energy

We offer a wide range of valve, control and smart monitoring solutions for district energy networks and internal heating and cooling systems of buildings.



Power

We provide the power industry with valves that meet the demanding industrial and safety requirements and ensure the reliability of operations.



Gas & hydrogen



Petrochemical



Iron & steel

World class valve brands for power and district energy

Valves for district heating and cooling applications

With its comprehensive product range, Vexve is the globally leading manufacturer of high-quality ball and butterfly valves for district heating and cooling. The high-quality valve solutions are specifically designed for district energy networks, and they operate reliably even in the most demanding conditions. Vexve valves are manufactured in Finland, and they are used in district energy networks, power plants, and heating and cooling systems of buildings all around the world.

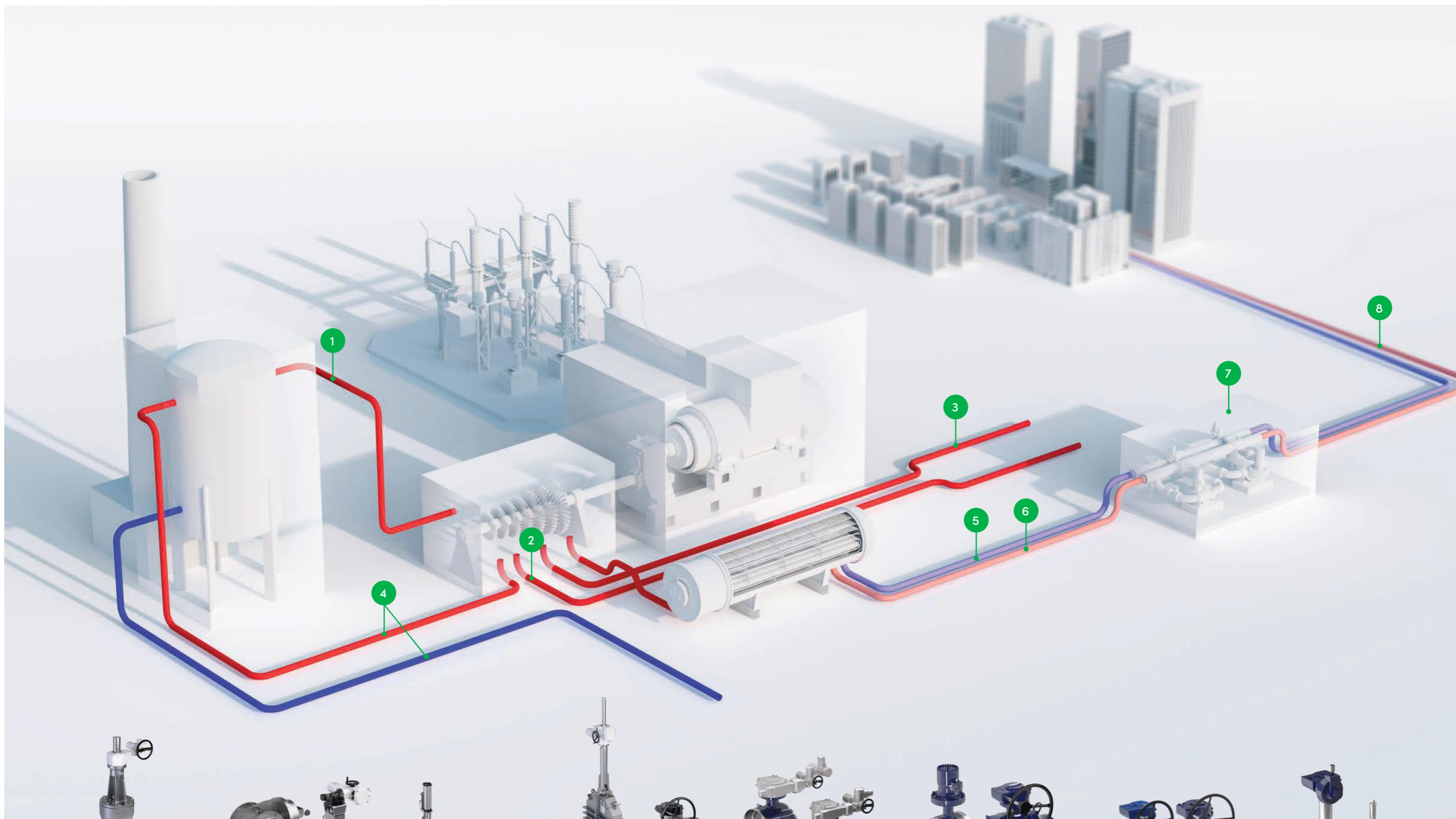
The brand offers a wide range of valves needed in operation and construction of district heating and cooling systems, from shut-off valves to control valves and special purpose valves such as hot tapping and branching valves. With Vexve valves, you can ensure efficient and reliable heating and cooling distribution throughout the year.

Worldwide recognized products for power

The ARMATORY Group is a renowned manufacturer of a wide range of industrial valves for various industries. Customized valves are developed and manufactured for the power industry according to the exact specifications of its customers, which meet both legislative regulations and the demanding requirements of power plants. Each product guarantees safe and reliable operation and a long service life with its unique quality and design.

The most common products for the power sector include gate valves, check valves, shut-off valves and isolation valves. Long-term research and development of these products, and highly advanced production technologies guarantee that you can rely on our high-quality valves!





Live steam line

1



High-pressure extraction steam line

2



Steam process line

3



Reheat line & feed water line

4



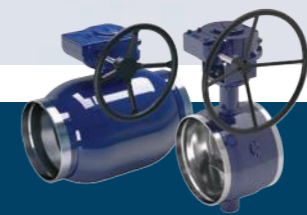
District heating lines and other low-pressure lines

5



Transmission lines

6



Pumping stations

7



Distribution network

8



1

Live steam line



Check valves type L10 are used to stop the backflow and gate valves type S43 are used to close to flow of the medium, which is mainly steam. Sealing surfaces coated with Stellite 6 weld overlay ensures long-term functionality and minimal maintenance.



2

High-pressure extraction steam line



Double eccentric extraction check valve C09.6 is a metal-seated butterfly valve that prevents backflow in the pipeline. The valve is excellent balanced and therefore has a low pressure drop. Each check valve is designed exactly according to the extraction parameters.

Secure solutions for live steam lines

ARMATURY Group's valve solutions for live steam lines include gate valves type S43 and check valves type L10 for a wide range of temperatures and pressures (up to PN400). Valves are manufactured from high-quality carbon or alloy steel forgings depending on medium and customer requirements. Valves are available with welded ends and have a minimal maintenance requirement. The forged semi-finished design ensures a long service life.

Live steam line valve key benefits:

- Zero leakage rate for gate valves S43
- Reliable function and tightness for check valves L10
- Low and easy maintenance requirements
- Secure design to the outside
- Low pressure drop
- Compact design

Excellence for high-pressure extraction steam lines

For the high-pressure extraction steam line, ARMATURY Group offers extraction check valves type C09 and triple-eccentric butterfly valves type L32.8. Check valves are specially designed to prevent the backflow from steam turbines' extraction pipes and are an essential part of any extraction and bleeding lines. Mostly C09.6 valves works in pair with the L32.8 valves. Valves are possible to install in horizontal and vertical piping.

Extraction steam line valve key benefits:

- Guaranteed tightness class
- Low pressure losses
- Low passive resistance
- No axial strength
- Maintenance-free and long service life
- Unique design based on the working conditions
- Possibility of quick closing within 1s (according to DN)



3

Steam process line



The gate valve family S33 presents a wide range of solutions for various types of applications. Every type is made with different technology and each valve has its own advantages, that suit customers' needs, and requirements. Due to the valve design, they have an excellent leakage rate.



4

Reheat & feed water line



The extensive ball valve portfolio is designed to serve even the most demanding customer needs such as valves that can stand a velocity of 20m/s where ordinary valves would face severe cavitation. Valves are available with welded and flanged connection ends. Ball valves are also suitable for feed water lines.

Wide range of valves for steam process utilization

ARMATURY Group's range of gate and butterfly valves also offers solutions for steam process lines. Gate valves type S33, and butterfly valve type L32.7 are used as shut-off valves to completely close the flow in the pipeline. Valves can be supplied also as a control valves. Valves are fully-welded or manufactured from high-quality castings depending on customer requirements. The product range include welded and flanged connection ends.

Steam process line valve key benefits:

- All welded fittings can be manufactured according to the customer's requirements
- Sealing surfaces coated with Stellite 6 hardener ensures long-term functionality
- Minimal maintenance requirements
- Full-flow design without flow reductions for the seats

Optimal valve solutions for reheat lines

For the reheat lines, ARMATURY Group offers globe valves type V46, gate valves type S33 and ball valves type K92. Globe valves are the optimal solution for the most demanding energy operations in the highest temperature and pressure parameters for both closing and regulation of the flowing medium. Ball valves K92 have a minimal pressure drop and zero leakage rate, with pressures up to 160 bar. All the valves are manufactured from forgings or castings from carbon or alloy steel depending on the requirements.

Reheat line valve key benefits:

- The design of the forged semifinished parts ensures a long service life
- Easy conversion to electric, hydro and pneumatic actuation
- Minimal maintenance requirements
- The design of the V46 globe valves with self-sealing bonnet ensures highest performance and reliable sealing to the outside



5

District heating lines and other low-pressure lines



Vexve's ball valves have a fully-welded construction and valves are made of high-quality pressure vessel steel. Thanks to the construction valves are lighter, have a space-saving design, and are also easy to install and insulate completely. Valves are maintenance-free throughout for life cycle and are the optimal solution for heating and low-pressure lines.



6

Transmission lines



Trunnion mounted ball valve range includes full bore and reduced bore valves in DN 150-1200 with welded or flanged ends up to pressure class PN 40. Trunnion mounted ball valves are the right solution for large pipe diameters for maximized reliability and flow values.

District heating and low-pressure valves inside power plants

Vexve's range of valve solutions for heating, cooling and CHP plants include shut-off ball valves and metal-seated butterfly valves for shut-off and control applications up to 40 bars of pressure and diameters up to DN 1600. From our range, you can also find stainless steel valves from DN 10 up to DN 250. The valves can be equipped with manual gears or electric, hydraulic, or pneumatic actuators.

Reliable heat transmission

The wide range of Vexve valves offers reliable valve solutions for district heating transmission lines. Our fully-welded ball and butterfly valves are designed for above and underground installations to operate even in the most demanding conditions. All our valves are maintenance-free, and they are manufactured from high-quality materials to last the entire life cycle of the pipeline. Our ball valve range includes both floating and trunnion mounted valve constructions.

Vexve ball valves key benefits:

- The fully-welded construction ensures easy installation and insulation of the valves
- Valves are maintenance-free throughout their life cycle
- Bi-directional Rate A tightness
- Blow-out safe stem construction ensures safe valve operation and replaceability of the stem seal even when the valve is pressurized

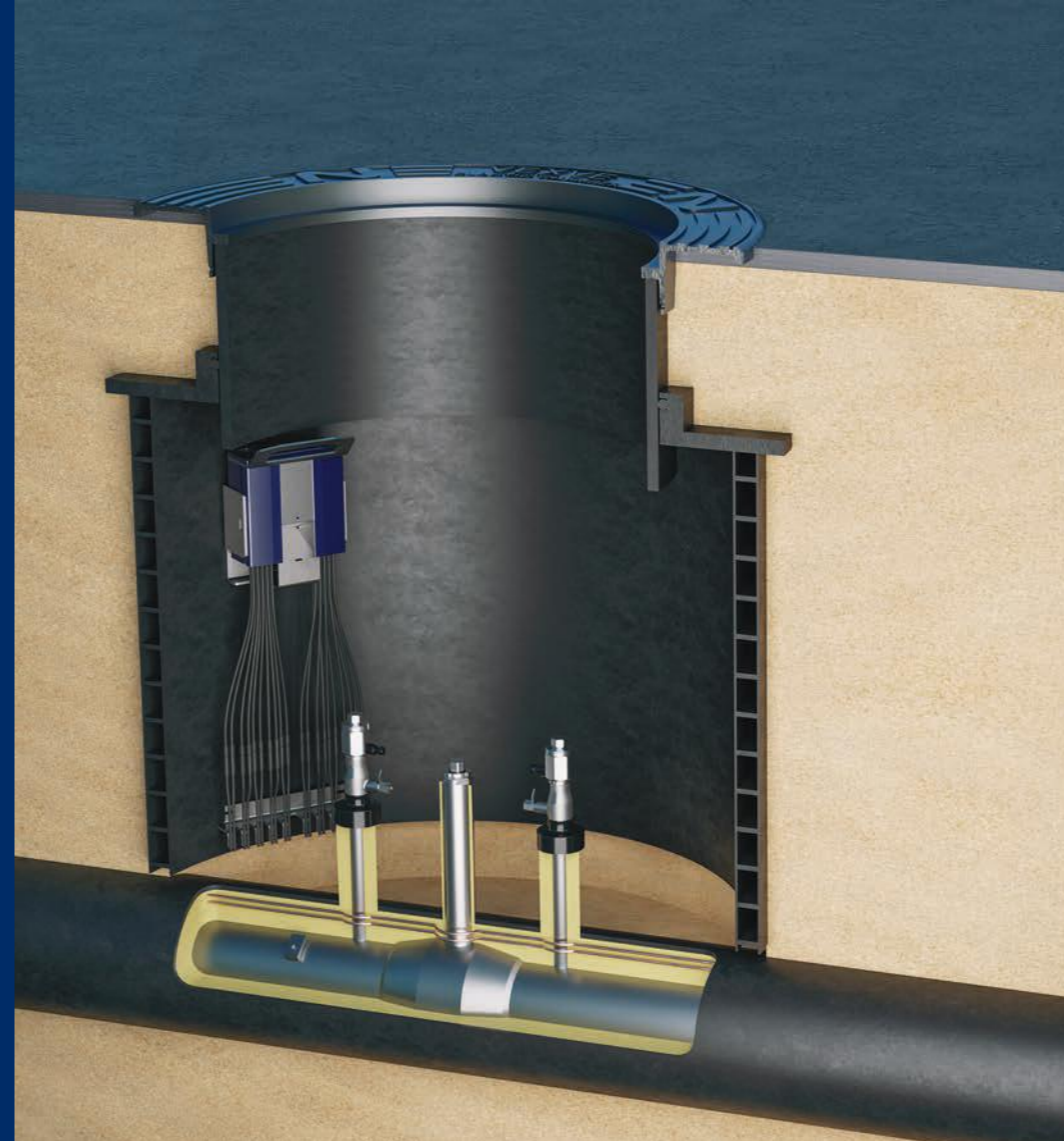


7

Pumping stations



Butterfly valves are optimal solution for shut-off and controlling distribution networks, powerplants and pumping stations. Valves are 100 % tight and they offer reliable performance at a relatively low price. Vexve's butterfly valves are metal-seated and have a triple eccentric design, which minimizes friction between the disc and the sealing ring during valve movement and thus maximizes the valve's operating life.



8

Distribution network



Vexve's iSENSE product family consists of smart monitoring solutions specifically designed for underground district heating and cooling networks. The real-time measurement data provided by iSENSE product family helps to improve network efficiency, provides tools for condition monitoring, and enables fast leak detection.

Efficiency for the pumping stations

Valves in pumping stations are part of the critical operation of the network. From the wide range of valves, you can find suitable ball and butterfly valves to support efficient and reliable operation of the pumping station. Thanks to high Kv values of Vexve valves, pressure losses can be minimized and savings can be achieved by reduced pumping costs. The valves are made of the same material as the pipeline so they can be directly welded to the pipeline. Our range also includes valves with flanged ends.

Vexve butterfly valves key benefits:

- Up to size DN 800 valves have a full-bore design to maximize the Kv value and reduce the pumping costs
- The sealing system contains only metal components, which ensures total tightness and maintenance-free operation over a long lifetime
- Butterfly valves are non-jamming and have a floating metal sealing ring with a U-shape profile
- Valves are light-weight and easy to install

Wide range of solutions for distribution networks

Vexve's range of valve solutions for energy distribution networks includes underground ball and butterfly valves for pre-insulated, direct buried pipelines and chamber installations. Our underground ball valves are available in various standard or customized stem heights. We also offer a full range of service valves for pre-insulated valve elements as well as branching and hot tapping valves specifically designed for branching of new and existing pipelines.

In addition, our underground control and monitoring solutions provide tools for hydraulic remote controlling and smart monitoring of networks.

Hydrox hydraulic control solutions:

- The actuators are easy to operate above ground using the control units
- Hydraulic actuators do not require electricity to operate underground
- The weatherproof and simple design guarantees the reliability of the solution even in corrosive conditions
- Several valves can be operated with one control unit, even if the valves are installed at a distance from each other

Quality

First-class customer service

Vexve Armature Group aims to be one step ahead of our customers' needs and exceed customers' expectations every day by serving them well. Our competent and dedicated teams in valve technology and special features of the power and district energy segment help you to choose the right valve solutions for your needs. We also offer strong after-sales assistance. Our experienced sales team and trusted distribution network operates in more than 70 countries worldwide.

Fast delivery times

We have the most competitive offering of both off-the-shelf as well as customized valves that are tailored specially to your needs. We always strive to serve you efficiently and with the best delivery times. We optimize and measure our supply chain efficiency through delivery reliability, delivery capability, and customer satisfaction. Together, we build a world class supply chain for our customers.

Superior product quality

Automated and modern production, precise quality control and our extensively certified operations ensure that our valve solutions meet the strictest quality criteria. Our valves, certified in accordance with the Pressure Equipment Directive (PED), have been production tested in accordance with the EN 12266-1 standard with various media, pressures, and test times.

As a responsible group, we also operate in accordance with the social responsibility standard ISO 26000. Our business is certified with a quality management system certificate ISO 9001: 2015 and environmental management system certificate ISO 14001: 2015.

General standards and certificates

- ■ ISO 9001
Quality management system
- ■ ISO 14001
Environmental management system
- ■ ISO 26000
Social responsibility
- ■ ISO 3834-2
Welding quality specifications
- ■ ISO 5817 Class B
Welding quality assurance
- ■ ISO 9606-1 (287) and ISO 14732 (1418)
Requirements for welders
- ■ ISO 9712 and ISO 17637
Assurance of weldings and other visual quality
- ■ EN 19
Marking of valves
- ■ PED (2014/68/EU, Module H)
Pressure Equipment Directive
- ■ EHP003 and EN 488
Underground district heating valves
- ■ ISO 45001
Occupational health and safety management systems
- ■ ATEX Certificate for S43 valves
European Union directive for protection against explosive atmospheres
- ■ SIL Certificate for C09.6 valves
Safety integrity level

Other quality assurance

- ■ EN 10204
Quality assurance of purchasing materials

Testing

- ■ EN12266-1, leakage rate A (bubble tight)
- ■ P10
Valve body strength
- ■ P11
Valve body tightness
- ■ P12
Valve closing tightness
- ■ ISO 5208
Pressure testing of metallic valves

Design standards

- ■ ISO EN 13445
Strength requirements for valves
- ■ EN 1983
Industrial valves: steel ball valves, structural specifications
- ■ EN 12627 and EN 253+A2
Industrial valves shapes of welding ends
- ■ EN 1092-1:2018
Flanges and flange connections
- ■ ISO EN 5211:2017
Actuator mounts
- ■ EN 12570
Industrial valves, operating parts sizing method
- ■ EN 12982 series 63 for trunnion mounted ball valves
Standardized face-to-face lengths for welding ends
- ■ EN 558 series 12 for trunnion mounted ball valves
Standardized face-to-face lengths for flanged ends

VEXVE

Vexve Oy

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The logo for ARMATURY Group features a stylized blue circular icon on the left, followed by the word "ARMATURY" in a bold, blue, sans-serif font, and the word "Group" in a smaller, lighter blue font below it.

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