

**VEXVE** / VEXVE  
ARMATURY  
GROUP

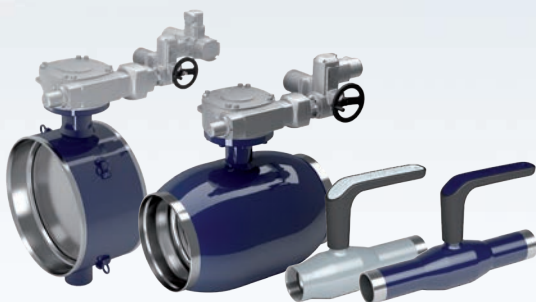
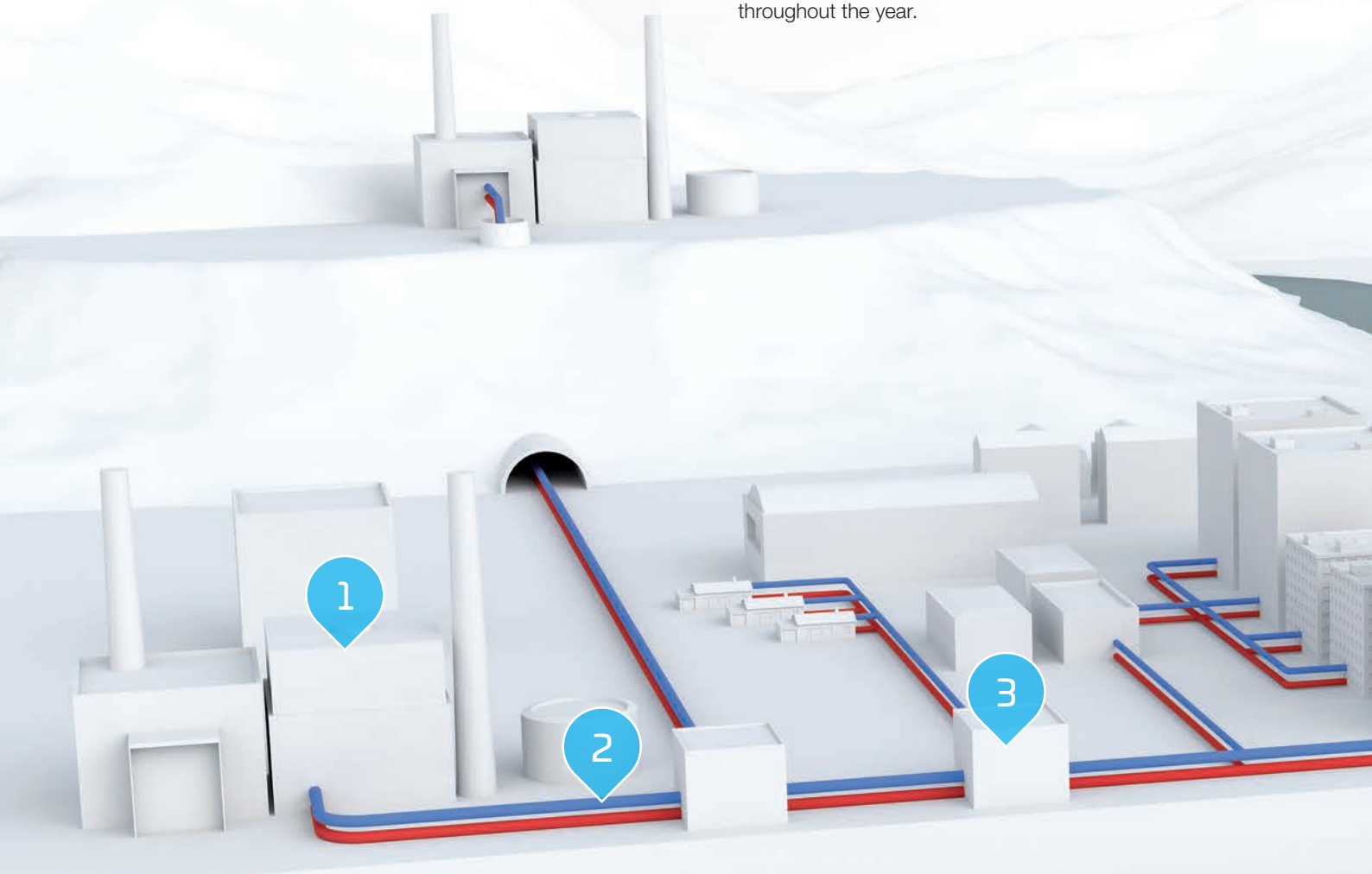
# Efficiency and reliability for district energy networks



# Reliable solution for district energy networks

Vexve is the globally leading provider of valve solutions for the heating and cooling needs of cities and industry. Our valve solutions manufactured in Finland are used in district energy networks, power plants and heating and cooling systems of buildings all around the world.

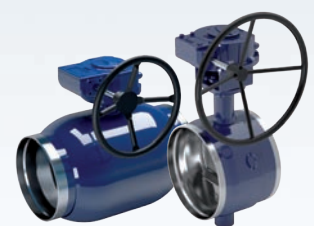
The high-quality valve solutions are specially designed for district energy networks and they operate reliably even in the most demanding conditions. Thanks to the targeted design and determined product development, our valves ensure efficient and trouble-free heating and cooling distribution throughout the year.



**1** Power plants



**2** Transmission lines



**3** Pumping stations

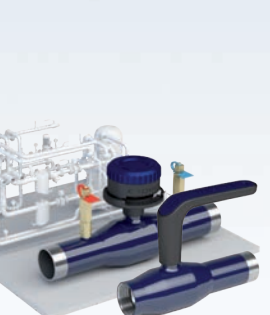
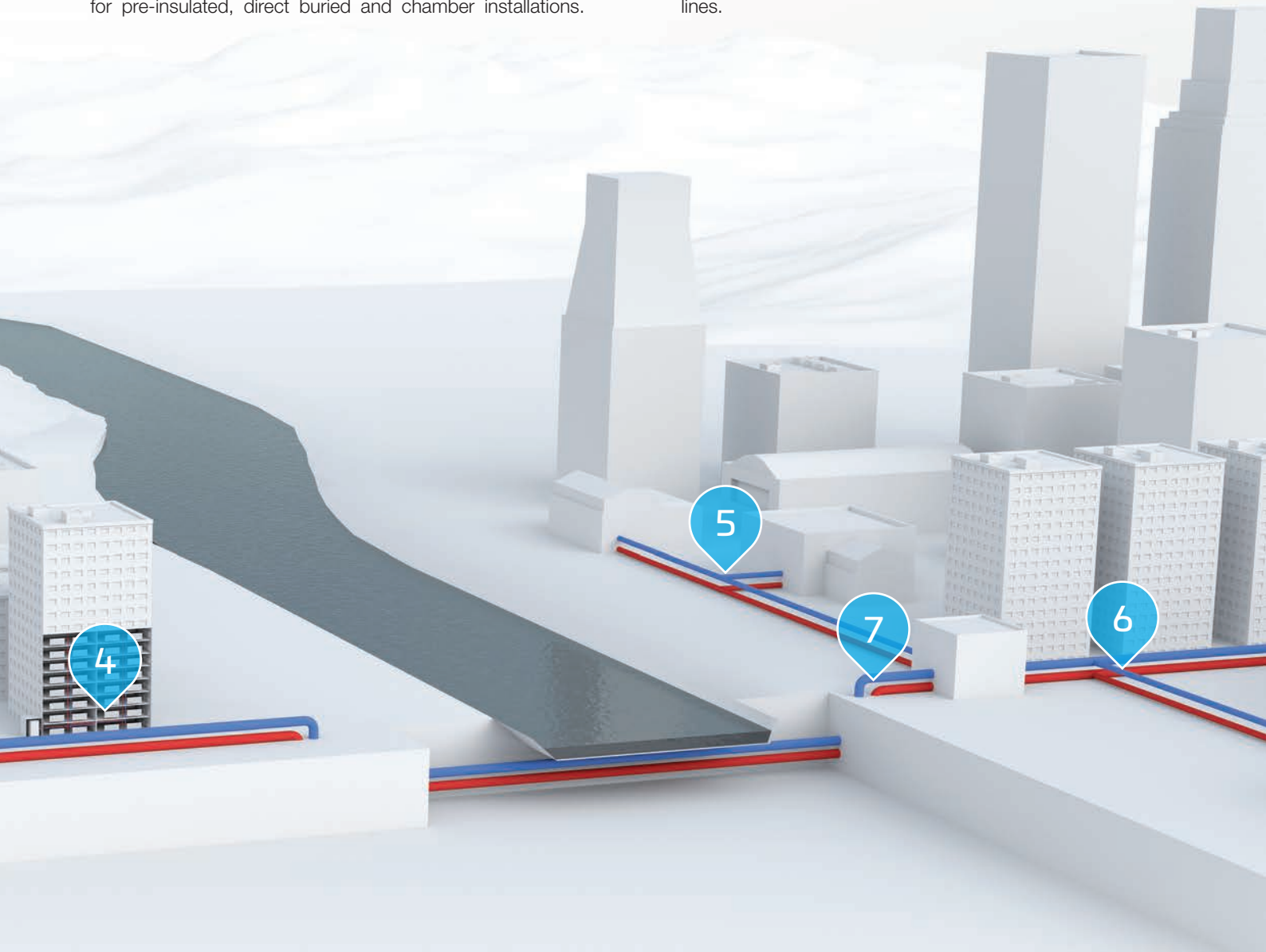


**4**

## Reliability for decades

Our wide product range includes both ball and butterfly valves. Vexve's range of valve solutions for energy distribution networks includes underground ball and butterfly valves for pre-insulated, direct buried and chamber installations.

We also offer a full range of air release valves for pre-insulated valve elements as well as branching and hot-tapping valves, specifically designed for branching of new and existing pipelines.



**4** District heating substations



**5** Distribution network



**6** Branching solutions



**7** Smart solutions

# Ball valves for district energy networks

## High-quality ball valves for district energy networks

- steel ball valves DN 10–1200
- underground ball valves DN 25–900 and air release valves DN 25–50
- hot tapping and branching valves DN 20–200
- special stem heights, stem extensions, accessories such as T-keys, planetary gears and hot tapping drilling devices
- with manual, electric or hydraulic actuators

## Fully welded construction

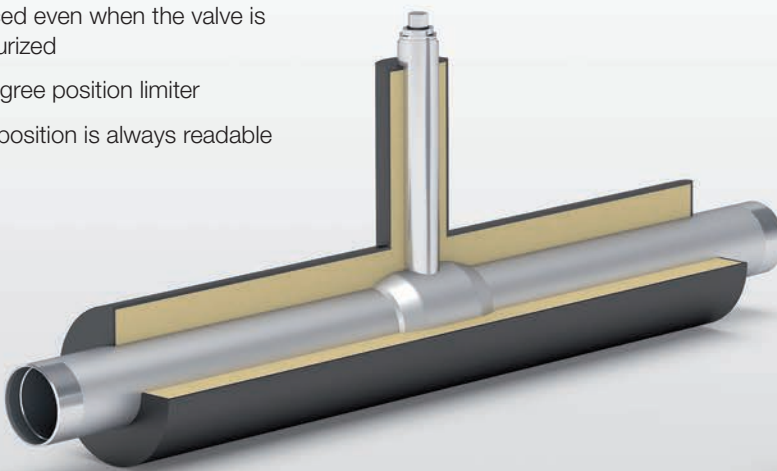
- lightweight and space-saving design
- easy to install and insulate completely
- maintenance-free throughout for life cycle
- optimal solution for underground use

## Made of high quality pressure vessel steel

- considerably lighter than a traditional casting structure
- robust, durable and long-lasting material
- pressure vessel steel is suitable for direct installation in carbon steel piping

## Blow-out safe stem construction

- ensures safe valve operation
- the upper seal of the stem can be replaced even when the valve is pressurized
- 90-degree position limiter
- valve position is always readable



## Floating ball design with spring-loaded ball seats DN 15–500

- the floating ball structure ensures the total tightness of the valve when pressure difference is high
- the spring-loaded design ensures the total tightness of the valve with a low pressure difference
- the springs receive possible pressure shocks in the piping, keeping the valve and seals intact, ensuring the longevity of the solution
- easy usability even at high temperatures
- reliable and safe

## Trunnion mounted ball design with spring-loaded ball seats DN 150–1200

- the ball and the stem are attached to each other on both sides of the ball, which provides more support, especially as the ball size increases
- spring-loaded ball seats guarantee total tightness for the valves in high and low pressures
- stem is sealed with multiple O-rings, which guarantees that the stem construction is tight and the valve is maintenance-free
- the face-to-face lengths are standardized
- the double block and bleed functionality allows draining of the valve body to check the tightness of the valve, even when the pipeline is pressurized.

# Butterfly valves for district energy networks

## High-quality butterfly valves for district energy networks

- shut-off butterfly valves DN 300–1600
- control and shut-off butterfly valves DN 300–1200

## Metal sealed construction

- reliable over a wide temperature range
- suitable for many different applications and withstands varying water quality
- total tightness, maintenance free and long lasting

## Triple eccentric design

- completely tight in both flow directions even with a pressure difference of 25 bar
- friction between seal and disc is minimized to ensure a long service life

## Optimized flow design

- disc and stem construction minimizes flow resistance and turbulence
- strong two-piece stem structure maximizes flow capacity
- full bore design in size classes DN 300–800 guarantees the best flow values in the industry and reduces pumping costs
- high Kv values in DN 900 to 1600 reduced bore butterfly valves



# Underground monitoring and control solutions provide security for district energy networks

## iSENSE™ – Smart monitoring solutions for district energy networks

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 leakage detection.

All iSENSE products are suitable for wireless underground use, are self-powered and can be retrofitted to existing networks. Monitoring systems are delivered on a turnkey basis. Vexve's maintenance service takes care of system functionality and device maintenance.

### **iSENSE Flow - For measuring changing flow and network conditions**

The measurement data produced by iSENSE Flow supports energy companies in the network optimization, monitoring of regional heat consumption, and validation of computational models.

### **iSENSE Opti – Real-time network monitoring**

iSENSE Opti enables real-time detection of changing conditions in the underground district energy networks, so that network can be controlled optimally based on accurate, measured data.

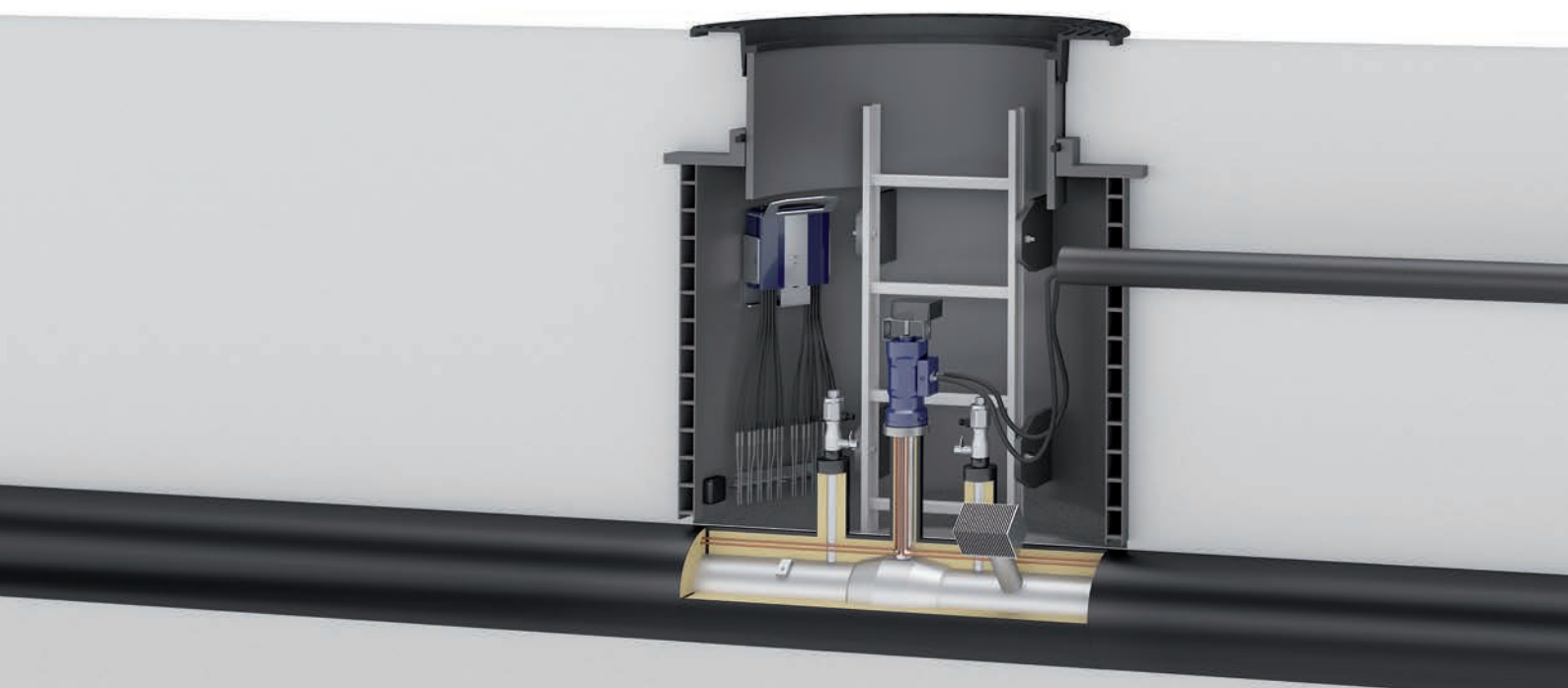
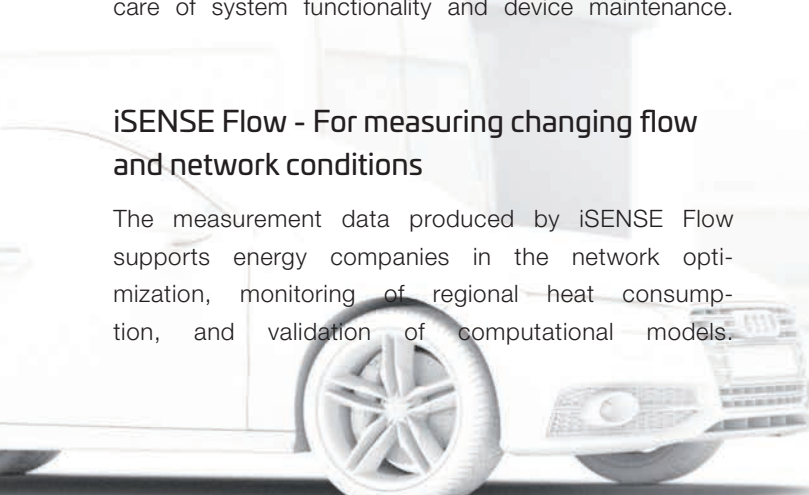
### **iSENSE Pulse – For fast leakage detection**

iSENSE Pulse enables fast and precise leakage detection based on pulse technology via internal insulated alarm wires.

### **iSENSE Chamber – For remote chamber monitoring**

iSENSE Chamber enables effective online monitoring of chambers.

Water accumulation to chambers and resultant problems can be prevented and maintenance operations can be done effectively targeted.



# Hydrox™ – Hydraulic control solutions for district energy networks

Vexve's Hydrox hydraulic actuator is suitable for even the most challenging installation sites and conditions. Solution is specifically designed for district heating and district cooling applications. The Hydrox control system consists of a hydraulic actuator and a control unit that fit seamlessly with Vexve's comprehensive range of valves. The hydraulic system operates without underground electricity and the weatherproof and simple design of the actuator ensures reliable operation even in wet and corrosive environments.

Vexve's hydraulic actuators ensure easy and reliable operation of the valves without compromising on safety. Hydrox actuators can be controlled by Vexve HCU control units. The control units operate with either a manual or electro-hydraulic pump. The actuators can be controlled remotely or locally with wire or wireless connection.

## Benefits of hydraulic control solutions

- seamless compatibility with Vexve valves
- easy and reliable valve operation even in demanding conditions
- safe, no need for underground electricity
- maintenance-free
- local and remote access



## Our experts are ready to serve you!

We aim to be one step ahead of our customers' needs and exceed your expectations every day by serving you well. Our experts in the valve technology and special features of the district energy networks help you to choose the right valve solutions for your needs.

We also offer actuator installations, commissionings and practical expert assistance in any problem situations you may face.

## Delivery reliability at its peak!

In Vexve, the customer is number one for us. We optimize and measure our supply chain efficiency through delivery reliability, delivery capability, and customer satisfaction. Together with the technology and sales department, our customer service team serves customers in more than 10 different languages. Our goal is to answer all your order and delivery

related questions within 24 hours of the contact. Our production control is optimized according to customer needs, which ensures that we are able to deliver products directly from our warehouse quickly and efficiently. Together, we build a world-class supply chain for our customers.

## Uncompromising quality control

Automated and modern production, precise quality control and our extensively certified operations ensure that our valve solutions meet the strictest quality criteria.

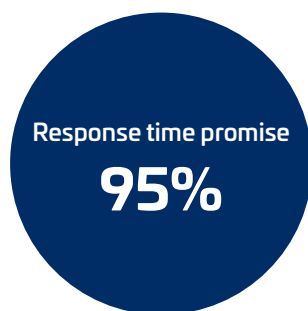
Our Pressure Equipment Directive (PED) certified valves have been production tested in accordance with the EN 12266-1 standard with various media, pressures and test times.

Our valves are designed to fulfill the strict requirements of EN 488 and EHP003 standards set for district heating.

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



\* Average of Vexve factories in 2021



\* In 2021, we responded to 95% of contact requests by the end of the next business day at the latest



\*Global survey using NPS method was carried out on 9/2021, rating scale -100-100



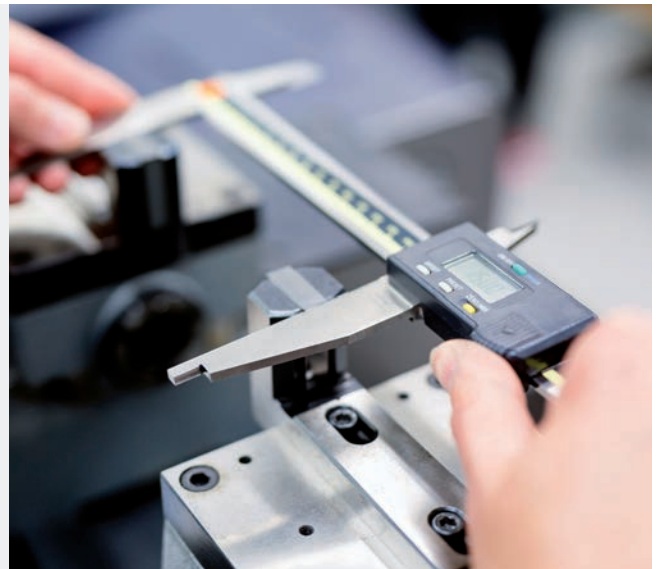


## General standards and certificates

- 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

## Design standards

- ISO EN 13445 – Strength requirements for valves
- EN 593:2017 – Industrial valves: steel butterfly 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



## 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

**Each of our valves is tested before delivery to the customer!**

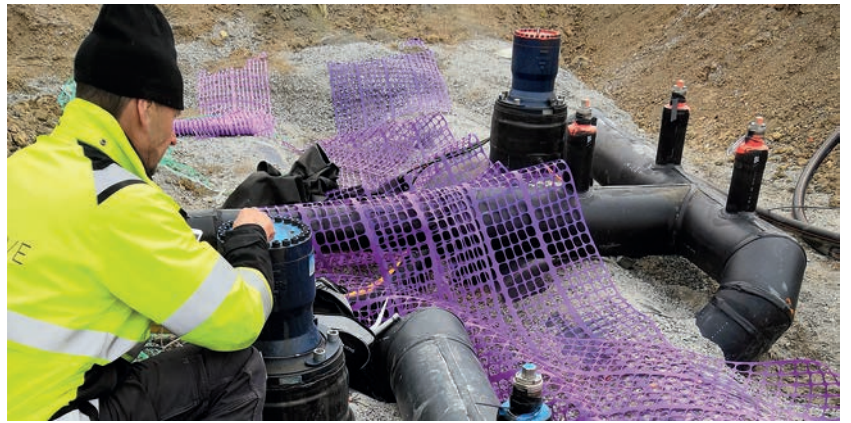
# References



## Fortum

Fortum is a clean energy power company that offers solutions for electricity, heating and cooling. In 2018, Fortum started construction work on the district heating transmission line from Kivenlahti to Puolarmetsä in Espoo.

The district heating transmission line uses DN 500 and DN 600 insulated ball and butterfly valves supplied by Vexve. Some of the valves are equipped with Vexve's Hydrox hydraulic actuators and HCU Remote remote control unit. The new transmission line has internal insulation alarm wires, which are connected to Vexve's iSENSE Pulse leakage monitoring system. The system enables real-time leak detection and precise leak localization via pulse measurement technology.



## E.ON Energilösningar AB

E.ON Energilösningar AB is an energy company that offers solutions for heat production, gas and electricity in the Nordic countries. In 2018, Vexve delivered 25 pcs of DN 600 ball valves and smaller valves for E.ON's large district heating transmission line project in Sweden. The project included a biogas plant, a CHP plant and a 23 km long district heating transmission line from Högbytorp to Järfälla.

In addition to the transmission line, Vexve ball valves and butterfly valves are part of E.ON's advanced heat production at CHP plants and pumping stations along the transmission line.



## The Xingtai District Heating Company

Xingtai is a city in Hebei province, home to some 7.1 million people. In 2015, the Xingtai district heating company built a 20 km long transfer line from a power plant outside the city to the city center. The main transfer line also takes care of part of the suburban area's heat demand.

By adding district heat, Xingtai aims to replace smaller heating boilers with a more environmentally friendly heating system and thus improve air quality in the area.

The underground transfer line uses Vexve DN 1400 butterfly valves as well as different sized steel ball valves with manual gears.

# INSPIRED BY YOUR FLOW



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