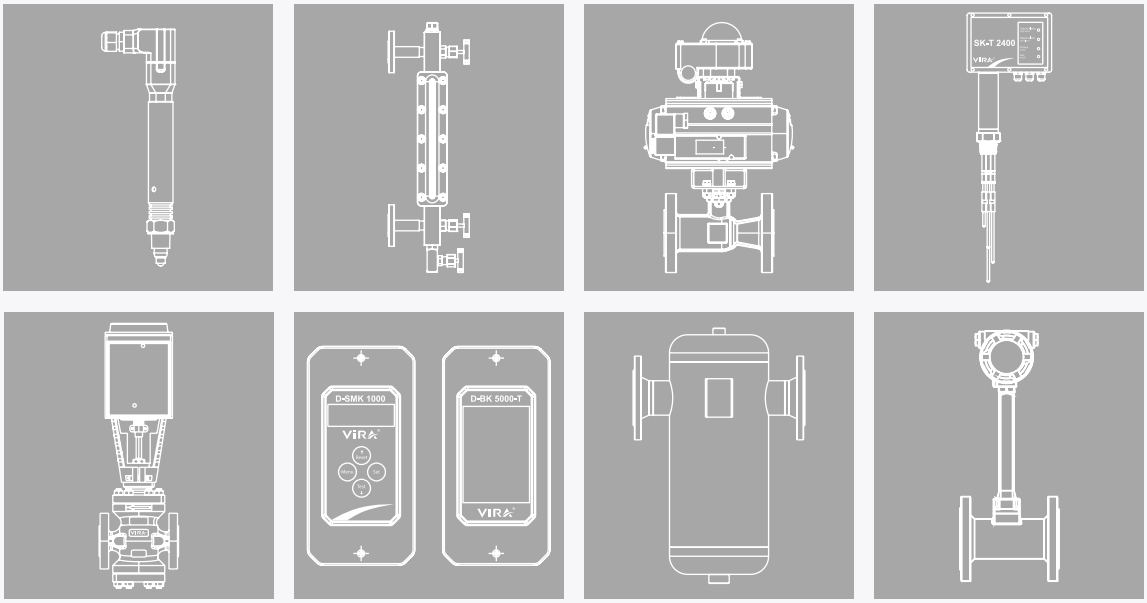
Steam Boiler Control Systems & Steam Equipments Catalogue



- Level Control & Alarm Systems
- Level Alarm & Limiting Systems
- TDS Blowdown Systems
- Bottom Blowdown Systems
- Condensate Contamination Control Systems
- Reflex Level Gauges
- Magnetic Level Gauges
- Steam Dryers/Seperators
- Vortex Flow Meters
- Magnetic Flow Meters
- Resistance Termometer
- Pressure Transmitter
- Pressure Switch
- Boiler Control Cabinet
- Sample Cooler

VIRA®

"Boiler Control Engineered for Steam Excellence"

ABOUT US

Vira is a dynamic and experienced company specializing in the design and production of boiler control systems and steam equipment. We deliver a wide range of products, complete systems, and smart solutions that combine our extensive application expertise with superior technical support, proper installation, and commissioning services to ensure maximum reliability.

Our durable, high-quality boiler control systems and steam equipment are trusted across diverse industries, including petrochemistry, food and beverage, textile, hospitality, healthcare, pulp and paper, and pharmaceuticals. Wherever steam is generated, distributed, or used, Vira solutions contribute to energy savings and system efficiency while playing a key role in environmental protection.

As a company, we aim and pledge to:

- Be a trusted and experienced partner for our stakeholders.
- Enhance productivity, production efficiency, and overall profitability.
- Attract, develop, and retain skilled, versatile, and highly qualified employees.
- Minimize maintenance expenses and optimize energy efficiency.
- Provide innovative, industry-leading products, services, and solutions.
- Accelerate service processes and reduce production downtime.
- Cut down on spare parts and inventory costs.

Throughout our value-added and supply chain, we ensure that our products are manufactured with a commitment to preserving resources, promoting environmental sustainability, and saving energy during their use. We also adhere to the highest standards of legal compliance, treating them as the minimum benchmark for our operations.

With a focus on energy efficiency, system reliability, and sustainability, Vira continues to build a global network of representatives, expanding our presence in over 35 countries. We are proud to be a leading name in boiler control systems and steam accessories, empowering industries with innovative and reliable technologies.

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VIRA Electronic Steam Boiler Controls

Vira designs modern boiler systems that meet the diverse needs of industries worldwide, ensuring optimal performance for a wide range of processes. Our engineers have developed a specialized line of boiler control systems and steam equipment that cater to the specific demands of modern boilerhouses, offering the ideal balance between efficiency, safety, and reliability.

Vira's electronic boiler control systems are designed for easy installation, straightforward commissioning, and seamless, trouble-free operation. Investing in one of our advanced systems means you can rest assured that potential boiler accidents will be minimized, thanks to our rigorous safety protocols.

Our solutions are fully compliant with national standards, industry regulations, and local safety codes, ensuring reliable performance in any environment. Vira's innovative sensing probes are built with no moving parts, ensuring maximum durability and accuracy. These probes can be mounted either directly into the boiler shell or within probe chambers for enhanced flexibility.

With a focus on low-maintenance requirements, our systems are designed to operate efficiently and cost-effectively over the long term. Whether you're located in Europe, Asia, or beyond, Vira's global network of representatives is ready to assist in selecting the ideal system for your needs, such as:

- Level Control
- Level Limiting
- TDS (Total Dissolved Solids) Continuous Blowdown Control
- Bottom (Intermittent) Blowdown Control
- Condensate Contamination (Conductivity) Control

Let Vira be your trusted partner in optimizing your steam system's performance and reliability.

Certifications & Compliance

At Vira, all products are designed and manufactured in accordance with European directives and international standards to ensure maximum safety, reliability, and performance. Our product portfolio covers both electronic control systems and pressure-bearing steam equipment, all of which are developed, tested, and certified to meet the rigorous requirements of industrial boiler applications.

Vira products fully comply with the European steam boiler standards EN 12952 and EN 12953, guaranteeing safe and efficient operation across various boiler configurations. The Self-Monitoring Level Limiter Systems are designed in accordance with IEC 61508 and certified to achieve SIL 2 and SIL 3 functional safety levels. These devices incorporate fail-safe, redundant, and self-monitoring architectures, providing continuous protection and reliability for critical safety functions in boiler operation.

All pressure-bearing components are certified under the Pressure Equipment Directive 2014/68/EU (PED), while every electronic product undergoes testing and approval in compliance with the Low Voltage Directive 2014/35/EU (LVD) and the Electromagnetic Compatibility Directive 2014/30/EU (EMC). These certifications ensure both mechanical integrity and electrical stability under demanding operating conditions.

In addition to CE and European directives, Vira products also meet regional certification requirements such as EAC (Eurasian Conformity) for the CIS region and other local conformity standards where applicable. This enables our solutions to be seamlessly used across multiple international markets.

All manufacturing and testing processes are carried out under strict quality control and full traceability. Through continuous verification, documentation, and calibration, Vira guarantees that every product leaving its production facilities represents the highest standard of safety, performance, and reliability in modern steam boiler technology.

Every step of our production process — from initial concept and hardware design to software development, testing, and final assembly — is carried out entirely in-house by our expert team. This full vertical integration allows us to maintain complete control over quality, preserve critical know-how, and respond rapidly to evolving industry needs. We do not outsource innovation; we engineer it from the ground up.

Our certifications are not just badges — they are a reflection of our commitment to technical excellence and global compliance. We work in accordance with standards such as EN 12952, EN 12953, PED TS 2025 and IEC guidelines, delivering solutions that are trusted in more than 50 countries around the world.

Vira is not a company that stands still. We are driven by progress — always seeking to improve, adapt, and create value through technological innovation and customer-focused engineering. The D Series Controllers is a testament to this vision: modern, intelligent, and future-ready.

Panel Mounting

Vira's controller range is designed to meet diverse installation requirements with both DIN rail mounting and panel mounting options. DIN rail mounting offers quick and flexible installation in electrical cabinets, ensuring efficient space use and easy maintenance. Panel mounting, on the other hand, provides a clean, integrated front display for operator panels, enabling intuitive access and streamlined control in industrial environments.

Din Rail Mounting

Vira's 1st generation products are designed exclusively for panel mounting, making them ideal for control panels where a dedicated front-facing interface is required. In contrast, the 2nd generation controllers are engineered for dual compatibility, supporting both DIN rail and panel mounting configurations. This versatility allows seamless integration into existing systems and greater flexibility for new installations.

By offering both mounting types in the 2nd generation range, Vira ensures that its controllers can adapt to various project specifications and cabinet designs. Whether retrofitting existing equipment or designing new systems, users benefit from simplified installation, enhanced accessibility, and reliable operation. Vira's commitment to flexible, installer-friendly design helps reduce setup time while ensuring safe and robust performance in demanding industrial settings.

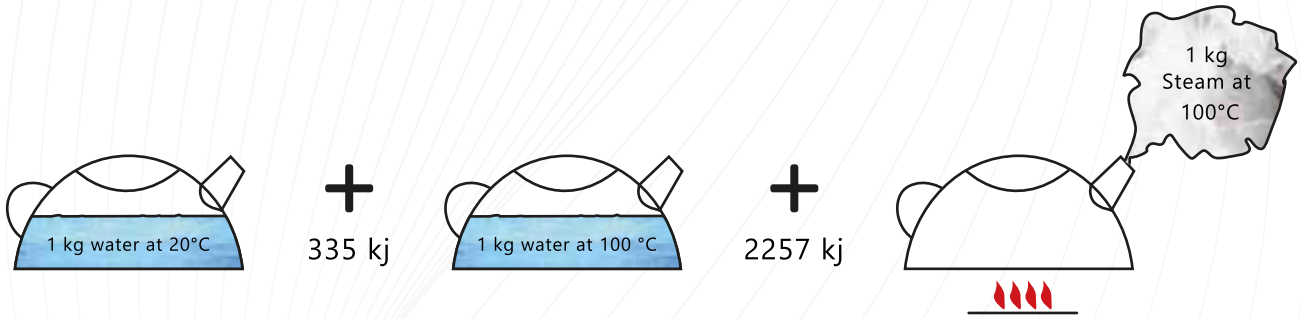
WHAT IS STEAM?

Steam is the gaseous phase of water produced when water is heated beyond its boiling point. It plays a central role in industrial energy systems due to its high thermal energy content and ease of transport and control.

At 1 bar absolute pressure, the saturation temperature of water is 100°C. When heat is added to water at this pressure, its temperature remains constant at 100°C — the added heat is used to change the phase of the water into steam. The steam produced under these conditions is called saturated steam.

If additional heat is supplied after all the water has been converted to steam, the temperature of the steam begins to rise. This higher-temperature steam is known as superheated steam, which contains more energy and is often used in turbines and high-temperature industrial processes.

Understanding the properties and behavior of steam is fundamental to the design of efficient and safe steam systems.



Steam is an ideal medium for transferring energy, thanks to its high heat content, controllability, and ease of distribution. For this reason, it is extensively used across a wide range of industries and applications.

The primary areas where steam is utilized include industrial facilities such as textile, paper, chemical, pharmaceutical, food and beverage processing (including tea and dairy plants), as well as power generation plants and central heating systems.

Its versatility, efficiency, and clean energy transfer capabilities make steam an indispensable part of modern industrial infrastructure.

Why Steam?

Steam remains one of the most efficient and reliable methods of transferring thermal energy in industrial processes. Its ability to carry large amounts of heat with precise control makes it indispensable in applications that demand consistency, safety, and energy efficiency.

One of steam's key advantages is its ease of generation and distribution. It can be produced from various fuel sources and transported through insulated piping systems with minimal energy loss. Steam is also clean and non-toxic, making it ideal for use in food, pharmaceutical, and chemical industries.

In addition, steam systems are highly scalable and flexible, suitable for both small and large-scale operations. With proper control and recovery systems, steam offers high energy efficiency and can contribute significantly to sustainable production goals through waste heat recovery and condensate return.

Whether used for heating, sterilization, processing, or power generation, steam remains a proven and trusted energy carrier across the industrial world.

Steam Generation

Steam is generated by applying heat to water under controlled conditions, typically within a pressure vessel known as a boiler. As heat is transferred to the water, its temperature rises until it reaches the boiling point corresponding to the system pressure. At this point, further heat input causes a phase change from liquid to vapor—producing saturated steam.

If heating continues beyond this point without additional water, the steam becomes superheated, increasing in temperature and energy content without increasing pressure. This is especially useful in applications requiring dry, high-energy steam, such as turbines or high-temperature processes.

The heat source for steam generation may include natural gas, diesel, coal, biomass, or electricity. The choice of fuel and boiler design depends on the application, available energy resources, and efficiency requirements.

Modern steam generation systems are engineered for optimal energy use, safety, and environmental compliance, often incorporating features such as economizers, condensate recovery, and blowdown control to maximize efficiency and minimize losses.

Boiler Types

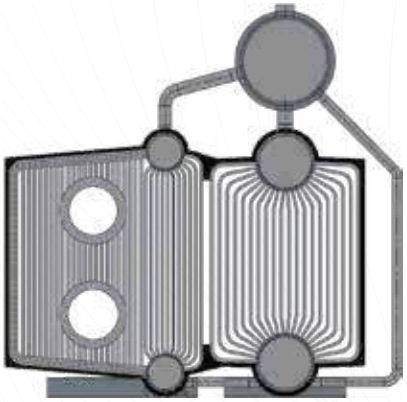
Boilers are classified based on their design, operating pressure, fuel type, and application. Selecting the right boiler type is essential for ensuring safety, efficiency, and reliable performance in steam systems. The most common types include:

1. Fire-Tube Boilers

In fire-tube boilers, hot gases pass through tubes that are surrounded by water. These boilers are typically used for low to medium pressure applications and are known for their simplicity, ease of maintenance, and cost-effectiveness. They are widely used in small to mid-sized industrial facilities and heating systems.

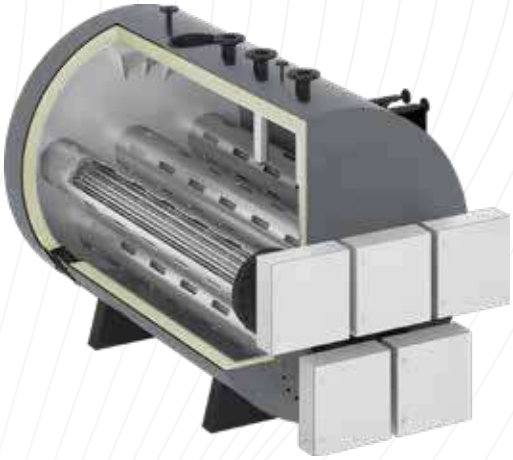
2. Water-Tube Boilers

Water-tube boilers operate with water flowing through the tubes, while the hot combustion gases surround the tubes externally. This design supports higher pressures and greater steam capacities, making it ideal for large-scale industrial operations and power generation. Water-tube boilers offer fast response times and better heat transfer efficiency.



3. Electric Boilers

Electric boilers use electrical resistance to generate steam without combustion. They are clean, compact, and quiet, and are often used in environments with strict emission limits or where space is limited. Electric boilers require minimal maintenance and are suitable for low-capacity or specialty applications.

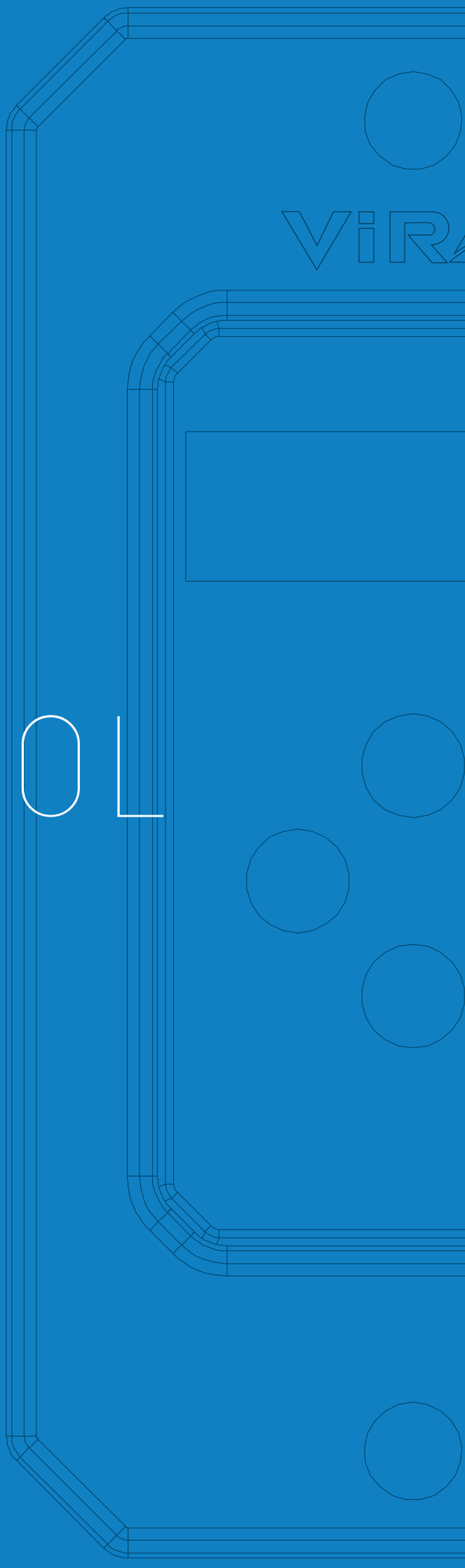


4. Waste Heat Boilers

Waste heat boilers recover thermal energy from exhaust gases of industrial processes or engines, converting it into steam. These systems improve overall energy efficiency and are often used in combined heat and power (CHP) applications or process plants where excess heat would otherwise be wasted.

Each boiler type serves specific operational needs. The selection depends on factors such as required steam output, pressure, fuel availability, space constraints, and regulatory compliance.

LEVEL CONTROL

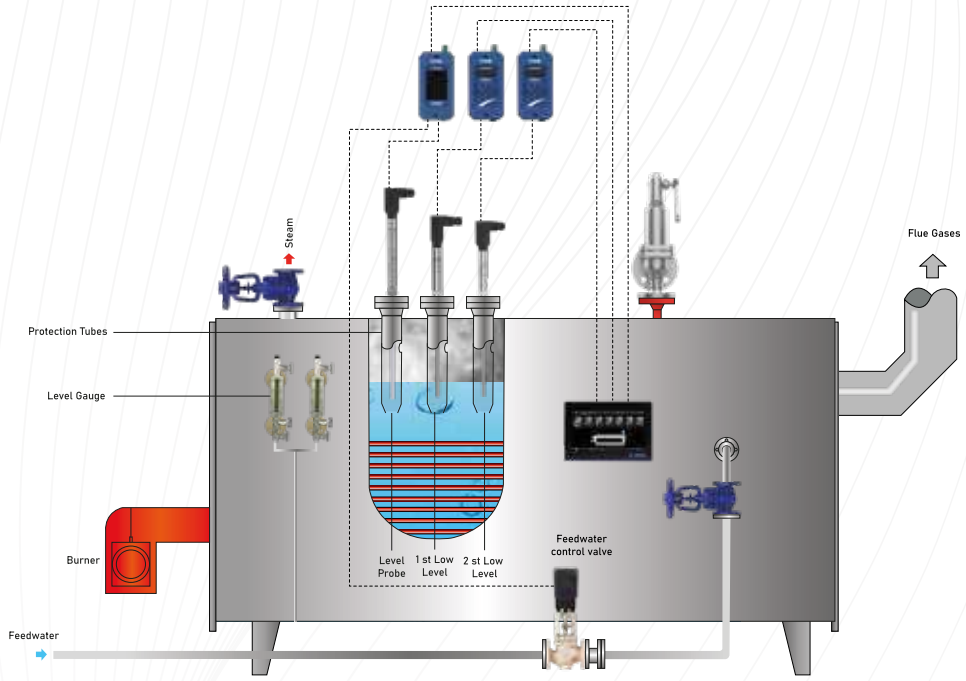


VIRA®

"Boiler Control Engineered for Steam Excellence"

Boiler Level Control and Safety

In steam boilers, the water level decreases with the convert of the water into steam and the decreasing water is completed by the operation of the boiler feedwater pump. Depending on the amount of steam produced in the steam boiler, since the water temperature entering the boiler is lower than the boiler temperature and due to changes in steam pressure, a constant fluctuation in the water level occurs. For the efficient and safe operation of boilers, the water level must always be checked. This check may include a sound or light alarm, shutting down the feedwater supply, and shutting down the burner. It is also essential to provide an outside drum level indicator such as magnetic or reflex level gauges.



Note: Level probes can be both installed in a protection tube or a level tube. It is undesirable for the water to drop below the desired level in steam boilers. If it does, it can cause costly damage to the boilers and even fatal accidents. In case of low water level, check the following reasons.

Causes of Low Level
- Lack of feedwater
- Sudden load changes
- Feedwater pump failure
- Safety valve leaks
- Control valve malfunction
- Malfunction of boiler water level controller

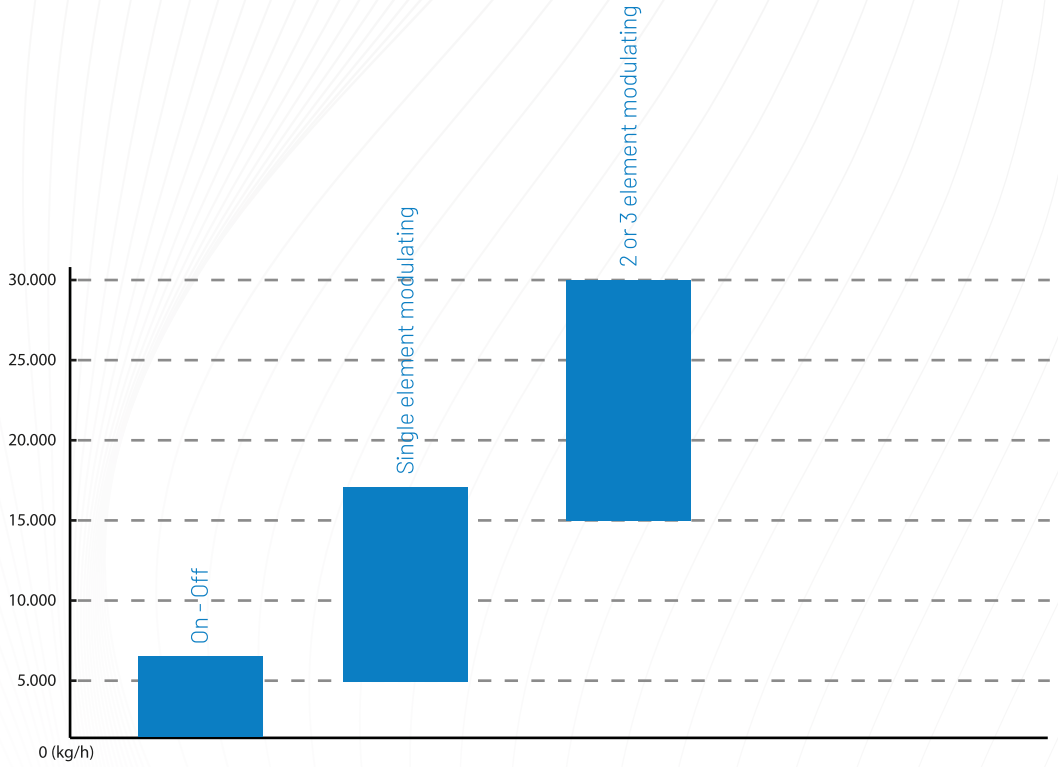
To ensure the safe operation of the boiler, all elements that affect the level control must be monitored and make sure they are working. In case of failure, the boiler operator must understand the cause of the problem and should take action most appropriately.

Boiler Water Level Control Systems

In steam boilers, feed water should be supplied to replace the water lost during steam production. Automatic level control systems are applied in steam boilers produced with modern technology. Automatic feedwater control systems have two different applications: On/Off Level control and modulating level control.

Depending on the boiler capacity; On-Off level control system should be used for the boilers with the capacity up to 5000 kg/h. for the boiler with the capacity up to 15.000 kg/h single element modulating control and higher capacity than 15.000 kg/h 2 or 3 element modulating level control systems should be used.

- **Single Element Modulating** : Modulating level control system only
- **2 Element Modulating** : Modulating level control system, steam production amount measurement with modulating level control system and steam flow meter
- **3 Element Modulating** : Modulating level control system, steam production amount measurement with steam flow meter and feed water amount measurement for the boiler with water flow meter

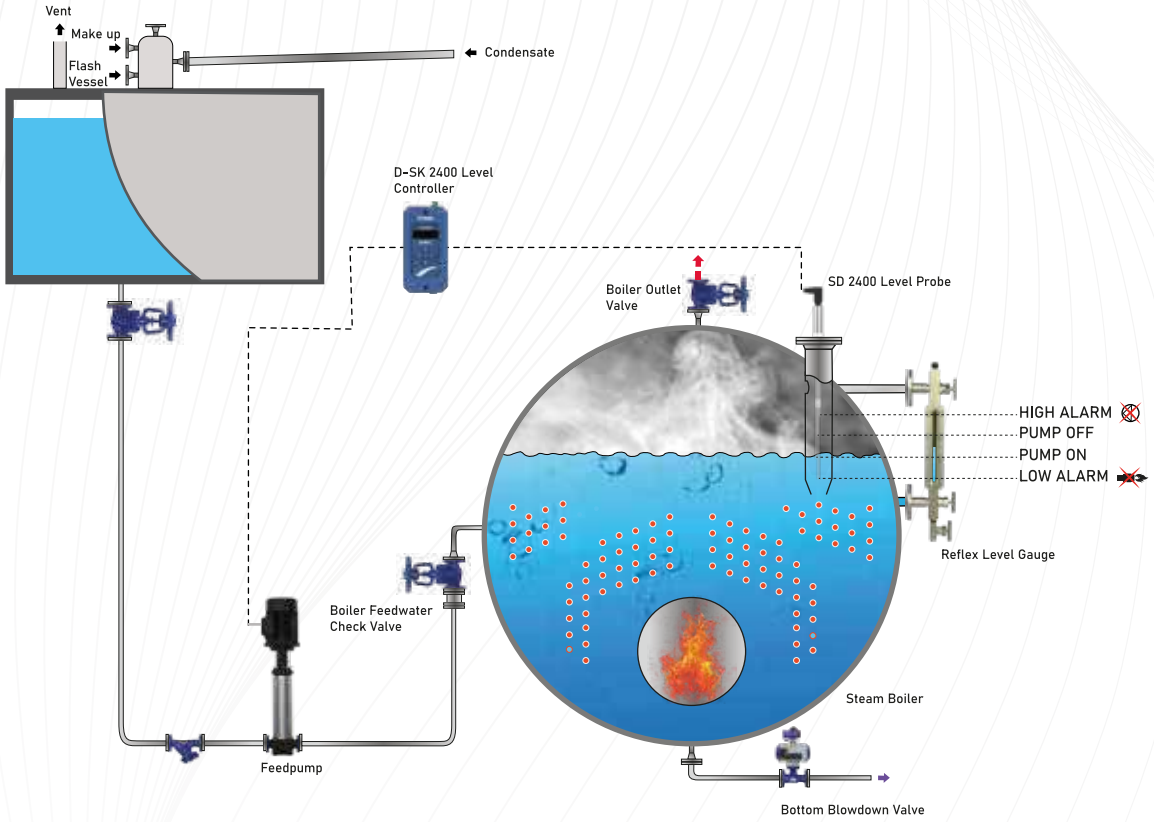


It is not sufficient to decide which level control system to use only by considering the boiler capacity. In practice, factors such as the steam consumption behavior of the plant, the variability of process loads, and the feedwater conditions are equally important. For example, an on-off level control system may not be adequate even in a low-capacity boiler if there are sudden or frequent load fluctuations. In such cases, modulating level control is preferred to ensure stable operation.

Another major reason to use a modulating level control system is energy efficiency. At higher flow rates, adding large amounts of cooler water instead of evaporated water can lead to both energy loss and thermal stress on the boiler. By adding water proportionally to the steam consumption, the boiler can operate more smoothly, reducing thermal shocks and improving fuel efficiency. Therefore, modulating control systems are often selected not only for larger capacity boilers but also for medium or even smaller boilers where load variations are significant or energy efficiency is a priority.

On-Off Level Control & Alarm System

On-Off Automatic Level control system consists of a level probe and a controller. The feed water pump is started when the water level in the boiler reaches the specified lower level and is stopped when the water reaches the specified upper level. The working principle of the system is conductivity. The pump is allowed to start or stop depending on whether the electrodes are in contact with water.



For a safe operation, all steam boilers should have low and high level alarm systems. Additional high and low level alarms can be received from the on-off level control and alarm system.

On-Off Level control and alarm system is used;

- In boilers with a capacity of 5,000 kg/h and less
- Where constant steam load and pressure are not critical
- In backup boilers
- Feed water tanks
- In condensate tanks

SK 2000 On-Off Level Control and Alarm System

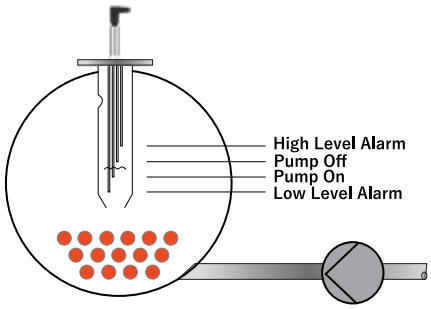
On-Off Level Control and Alarm Controller

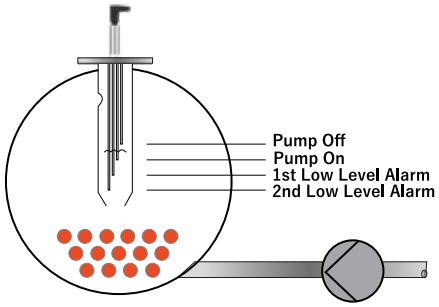
Type	: SK 2400
Supply Voltage	: 230 VAC (+5% / -10%), 50/60Hz
Enclosure	: Panel-mount Type
Functions	: Pump On-Off Control, High & Low Level Alarms
Outputs	: 1 Pump On-Off Relay, 2 Alarm Relays
Max. Ambient Temp	: 55 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), EN 12952 & EN 12953, Type Approval (Module B + D)

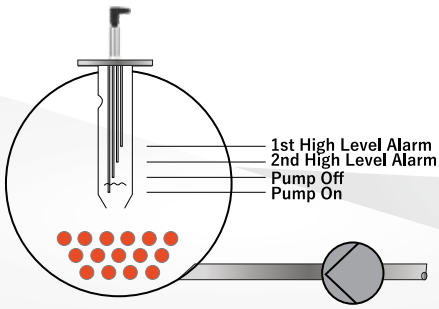
On-Off Level Control and Alarm Probe

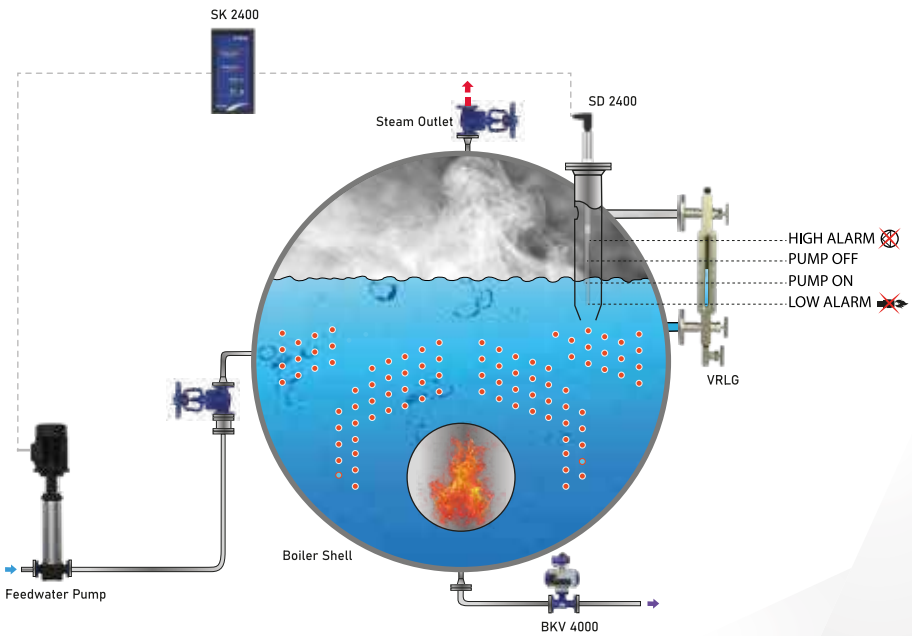
Type	: SD 2400
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1" BSPT (Optional NPT)
Length	: 500, 1000, 1500 mm (can be cut to desired level)
Max. Ambient Temp	: 75 °C
Compliance	: CE (PED 2014/68/EU), EN 12952 & EN 12953, Type Approval (Module B + D)

SK 2000 Typical Installation



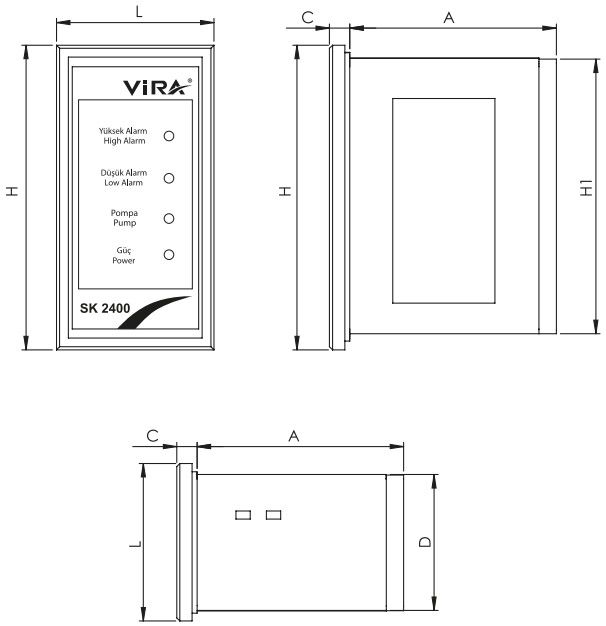






TECHNICAL SPECIFICATION

SK 2400 On-Off Level Control & Alarm Controller



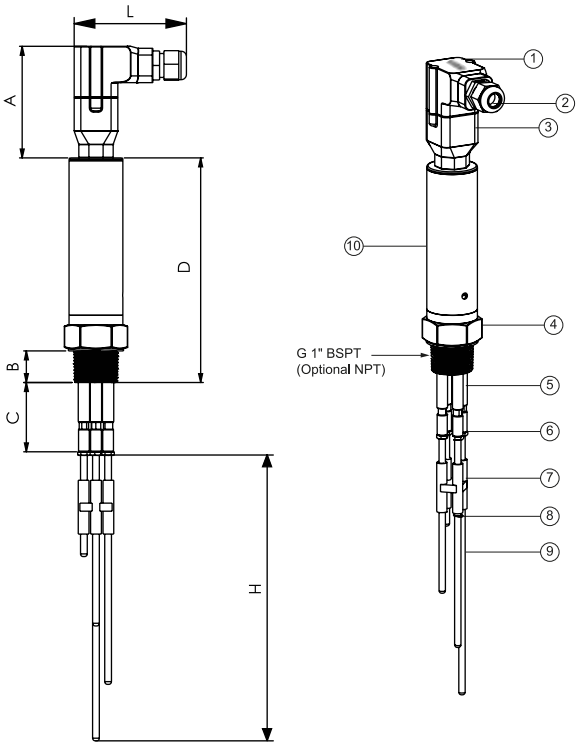
Technical Data

Type	SK 2400
Supply Voltage	230VAC (+5% / -10%), 50/60Hz
Functions	Pump On-Off Control, High & Low Level Alarms
Inputs	Level probe input (4 level), Ground
Outputs	1 Pump Relay, 2 Alarm Relays
Display	Led
Label	Lexan
Max. Ambient Temp.	55℃
Enclosure	PA (Polyamide)
Type	Panel-mount
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	A (mm)	C (mm)	D (mm)
144	135	72	101	9	67

SD 2400 On-Off Level Control & Alarm Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	PG 11 Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Probe Body	Austenitic Stainless Steel 304
5	Tip Insulation (Sleeve)	PTFE (Polytetrafluoroethylene)
6	Lock Nuts	Austenitic Stainless Steel 304
7	Tip Steady	Polytetrafluoroethylene (PTFE)
8	Snap Ring	C75 Spring Steel
9	Probe Tips	Austenitic Stainless Steel 316L
10	Label	Laser Marking

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
500 1000 1500	83,5	83	23,5	51,5	167

Note: The probe tips are supplied in uniform lengths according to the ordered size. The lengths must be cut and adjusted on site to suit the specific application. If 500 mm is ordered, all probe tips will be delivered with a dimension 'H' of 500 mm.

D-SK 2000 On-Off Level Control and Alarm System

NEW

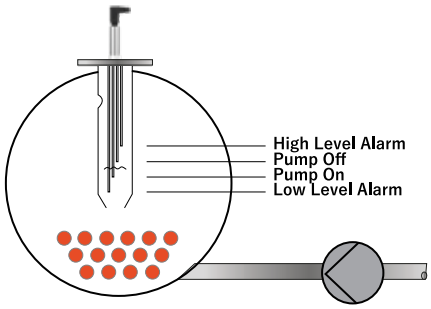
On-Off Level Control and Alarm Controller

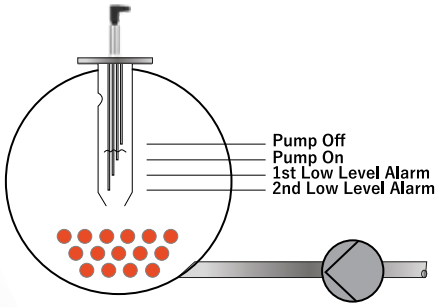
Type	: D-SK 2400
Supply Voltage	: 24VDC
Enclosure	: Panel-mount and Din Rail Type
Functions	: Pump On-Off Control, High & Low Level Alarms, Test, Reset, 7 Segment Display, 4 buttons
Outputs	: 1 Pump On-Off Relay, 2 Alarm Relays, RS485 Modbus
Max. Ambient Temp.	: 55 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), EN 12952 & EN 12953, Type Approval (Module B + D)

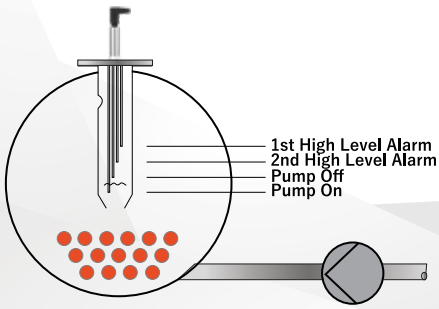
On-Off Level Control and Alarm Probe

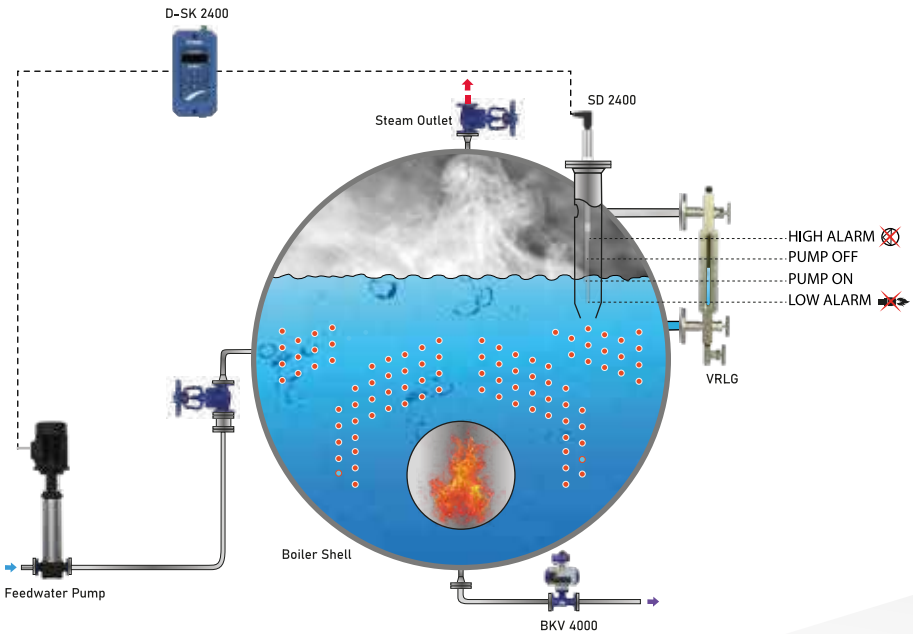
Type	: SD 2400
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1" BSPT (Optional NPT)
Length	: 500, 1000, 1500 mm (can be cut to desired level)
Max. Ambient Temp	: 75 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), EN 12952 & EN 12953, Type Approval (Module B + D)

D-SK 2000 Typical Installation



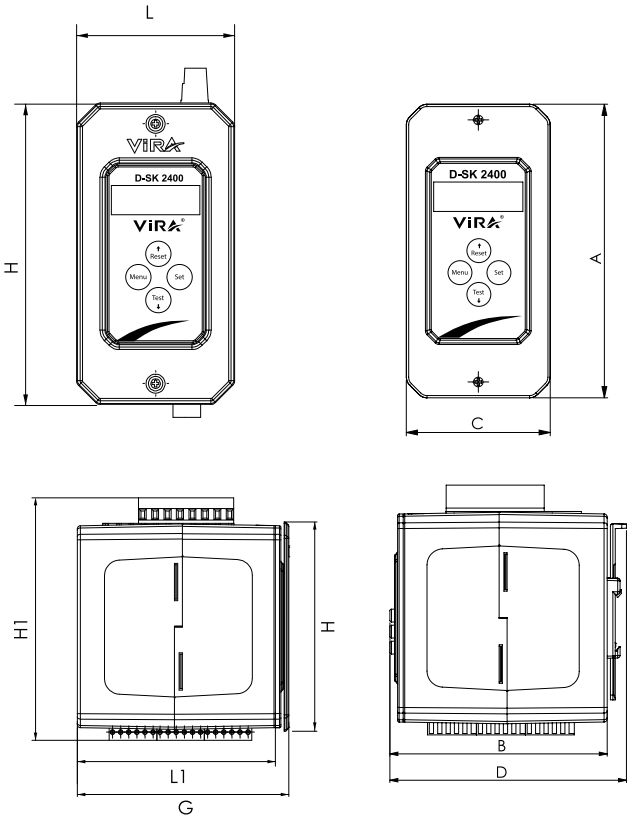






TECHNICAL SPECIFICATION

D-SK 2400 On-Off Level Control & Alarm Controller



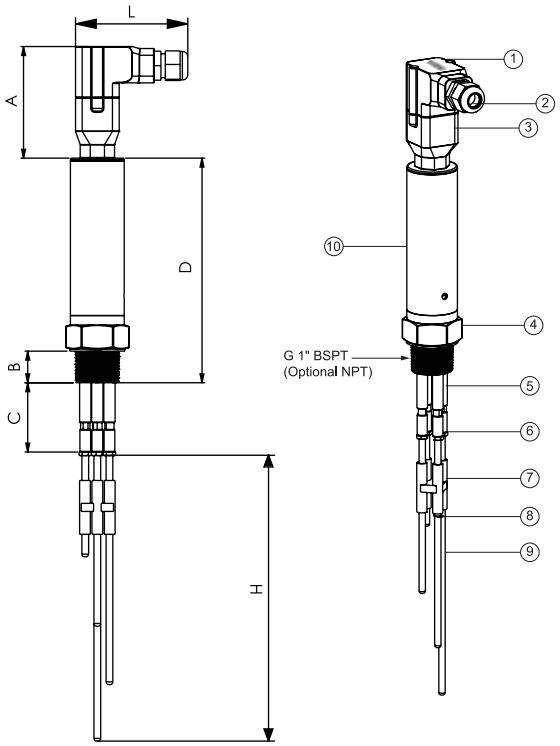
Technical Data

Type	D-SK 2400
Supply Voltage	24VDC
Functions	Pump On-Off Control, High & Low Level Alarms, Alarm Test, Alarm Reset
Inputs	Level probe input (4 level), Ground
Outputs	1 Pump Relay, 2 Alarm Relays, RS485 Modbus
Display	7 Segment
Label	Silicone Rubber
Control	4 Buttons
Max. Ambient Temp.	55℃
Enclosure	PC (Polycarbonate)
Type	Panel-mount and Din Rail
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	L1 (mm)	C (mm)	D (mm)	B (mm)	G (mm)	A (mm)
134,6	156	72	130	64	148	136	136	130

SD 2400 On-Off Level Control & Alarm Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	PG 11 Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Probe Body	Austenitic Stainless Steel 304
5	Tip Insulation (Sleeve)	PTFE (Polytetrafluoroethylene)
6	Lock Nuts	Austenitic Stainless Steel 304
7	Tip Steady	Polytetrafluoroethylene (PTFE)
8	Snap Ring	C75 Spring Steel
9	Probe Tips	Austenitic Stainless Steel 316L
10	Label	Laser Marking

Dimensions

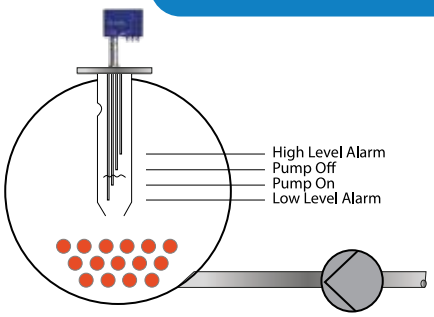
H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
500 1000 1500	83,5	83	23,5	51,5	167

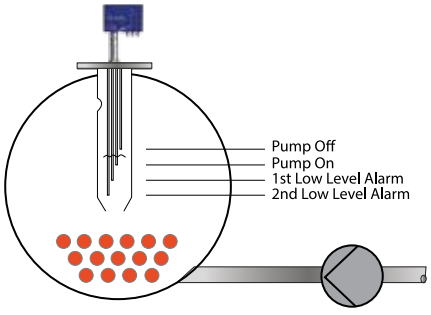
Note: The probe tips are supplied in uniform lengths according to the ordered size. The lengths must be cut and adjusted on site to suit the specific application. If 500 mm is ordered, all probe tips will be delivered with a dimension 'H' of 500 mm.

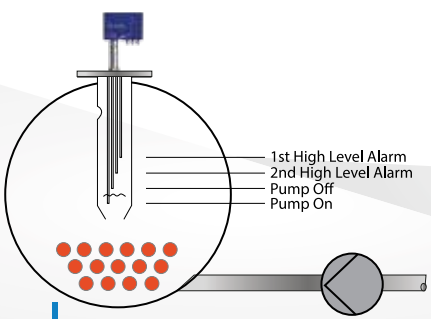
SK-T 2400 Compact On-Off Level Control and Alarm System

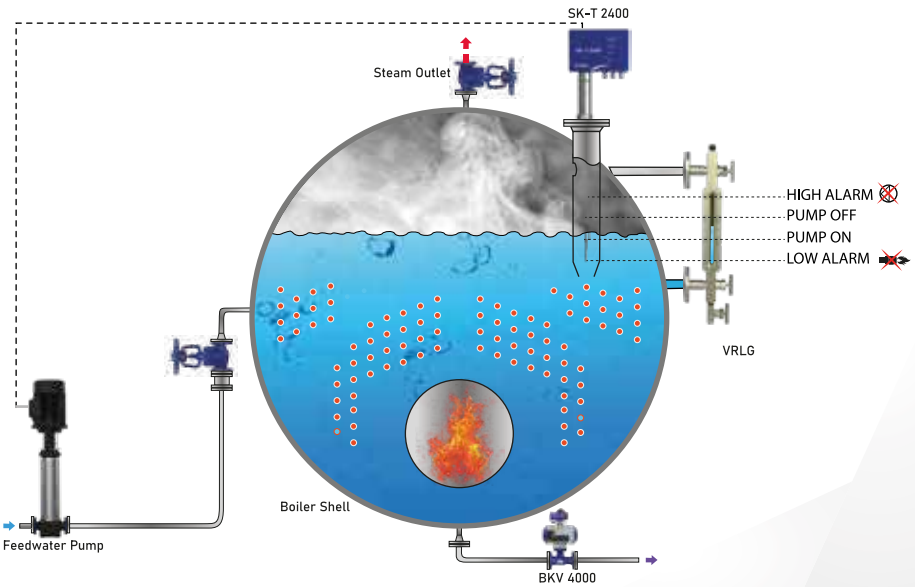
Compact On-Off Level Control and Alarm System	
Type	: SK-T 2400
Supply Voltage	: 230 VAC (+5% / -10%), 50/60Hz
Functions	: Pump On-Off Control, High & Low Level Alarms
Outputs	: 1 Pump On-Off Relay, 2 Alarm Relays
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1" BSPT (Optional NPT)
Length	: 500, 1000, 1500 mm (can be cut to desired level)
Max. Ambient Temp.	: 75 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU,PED 2014/68/EU), EN 12952 & EN 12953, Type Approval (Module B + D)

SK-T 2400 Typical Installation



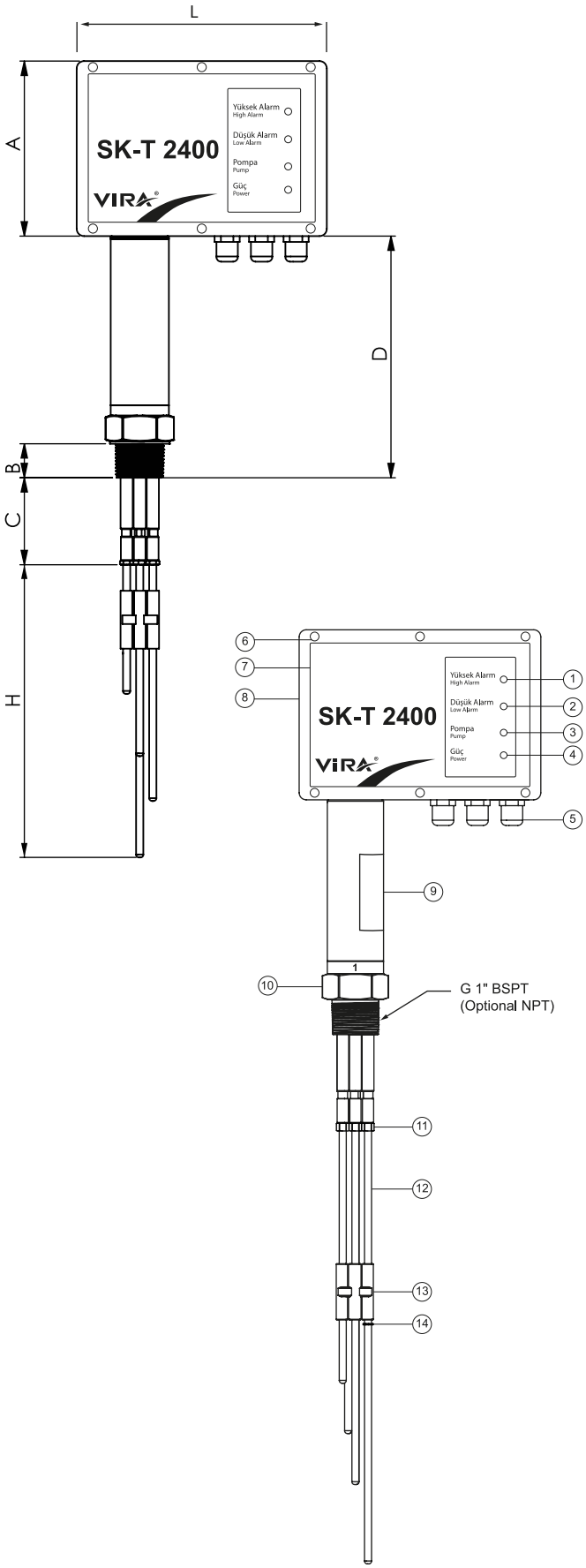






TECHNICAL SPECIFICATION

SK-T 2400 Compact On-Off Level Control & Alarm System



Technical Data

Type	SK-T 2400
Supply Voltage	230VAC (+5% / -10%), 50/60Hz
Functions	Pump On-Off Control, High & Low Level Alarms
Inputs	Level probe input (4 level), Ground
Outputs	1 Pump Relay, 2 Alarm Relays
Display	Led
Label	Lexan
Max. Ambient Temp.	75°C
Enclosure	Aluminum
Installation Type	Boiler top mounted
Protection Class	IP 65
Nominal Pressure	PN 40
Max. Operating Temp.	239 °C
Max. Operating Pres.	32 Bar g
Connection	G 1" BSPT (Optional NPT)
Length	500, 1000, 1500 mm (can be cut to desired level)

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
500 1000 1500	170	121	23,5	60	167

No	Part	Material
1	Led "High Alarm"	Lexan Label
2	Led "Low Alarm"	Lexan Label
3	Led "Pump"	Lexan Label
4	Led "Power"	Lexan Label
5	PG 9 Cable Gland	Brass (Nickel Coated)
6	Housing Screws M4	Austenitic Stainless Steel 304
7	Housing Cover	Aluminum
8	Housing	Aluminum
9	Label	Laser Marking
10	Probe Body	Austenitic Stainless Steel 304
11	Lock Nuts	Austenitic Stainless Steel 304
12	Probe Tips	Austenitic Stainless Steel 316L
13	Tip Steady	Polytetrafluoroethylene (PTFE)
14	Snap Ring	C75 Spring Steel

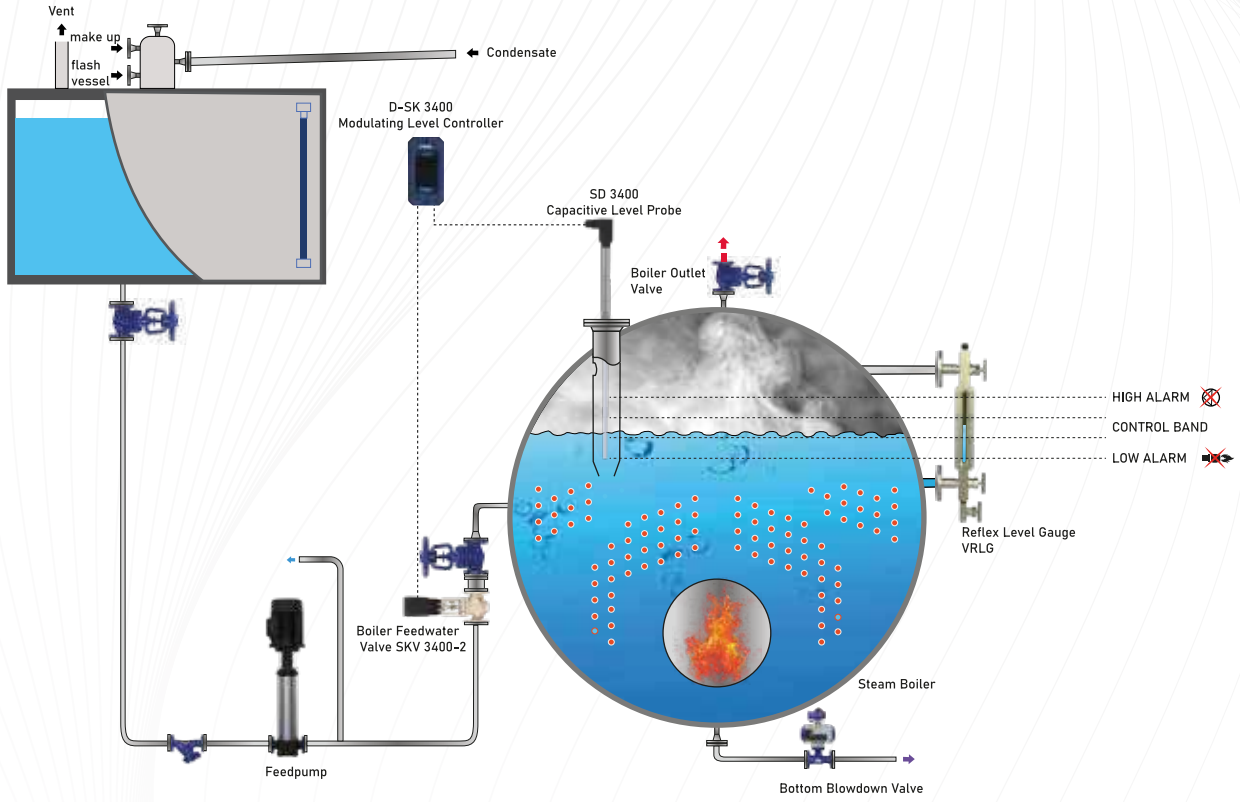
Note: The probe tips are supplied in uniform lengths according to the ordered size. The lengths must be cut and adjusted on site to suit the specific application. If 500 mm is ordered, all probe tips will be delivered with a dimension 'H' of 500 mm.

VIRA®

"Boiler Control Engineered for Steam Excellence"

MODULATING LEVEL CONTROL & ALARM SYSTEM

Modulating level control system consists of a capacitive probe, a level controller and a 2 or 3-way valve. The water level, which varies with the phase change of the water in the boiler, is determined by the capacitive level probe and is continuously compared with the previously set value by the level controller. In any determined deviation, it sends a signal to the feedwater valve in order to take the required feedwater amount into the boiler.
The probe used in the modulating level control system works according to the capacitance principle. Capacitance value is measured according to the amount of water. The controller opens and closes the proportional control valve through signals from the capacitive probe and the water level is kept at the desired level. Thus, the flow rate and pressure of the steam obtained are constant. It also has a low moisture content.



Note: The control valve can be either a 2-way or a 3-way valve, depending on the boiler feedwater system design.

For safe operation, all steam boilers must be equipped with independent low and high level limiting devices. The modulating level control system is designed for water level regulation only and should not be considered a substitute for safety-related level limiting systems.

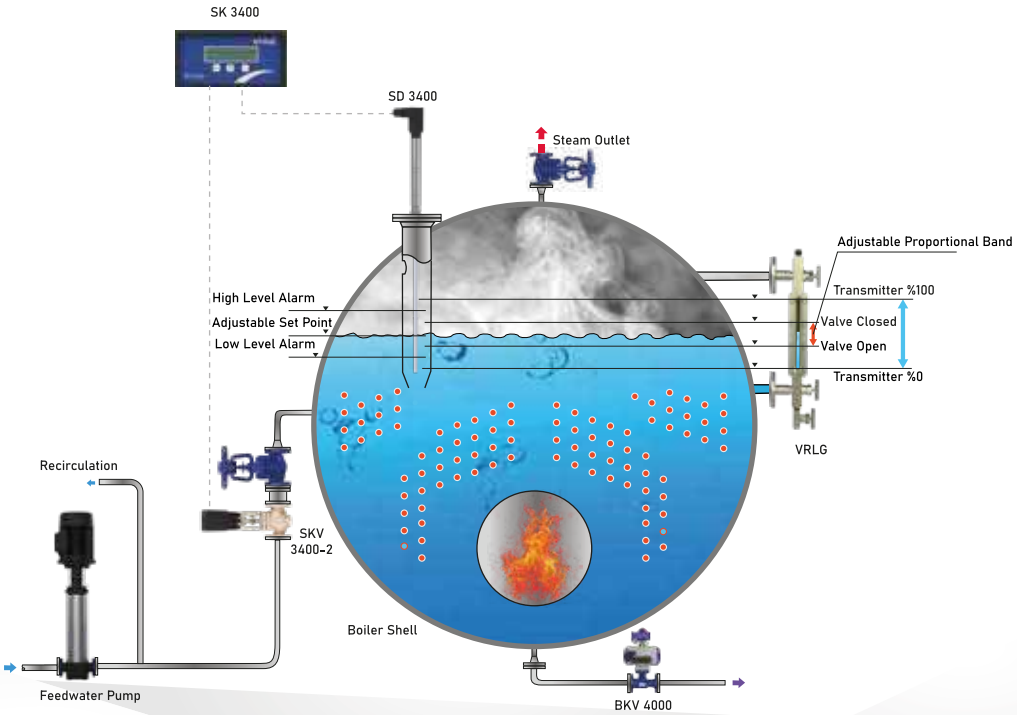
Modulating level control and alarm system can be used;
- Boilers with a capacity above 5,000 kg/h
- Applications with frequent steam load or pressure fluctuations
- Installations where energy efficiency and fuel savings are important
- Processes requiring stable and continuous steam supply

SK 3000-2 Modulating Level Control and Alarm System

Modulating Level Controller	
Type	: SK 3400
Supply Voltage	: 230 VAC (+5% / -10%), 50/60Hz
Enclosure	: Panel-mount Type
Functions	: Modulating / On–Off Level Control, High & Low Level Alarms, Adjustable Control Parameters (e.g. proportional band, set point, alarm delay)
Outputs	: 4–20 mA Analog Level Signal, Valve Control Relay, 2 Alarm Relays
Max. Ambient Temp.	: 55 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), EN 12952 & EN 12953, Type Approval (Module B + D)

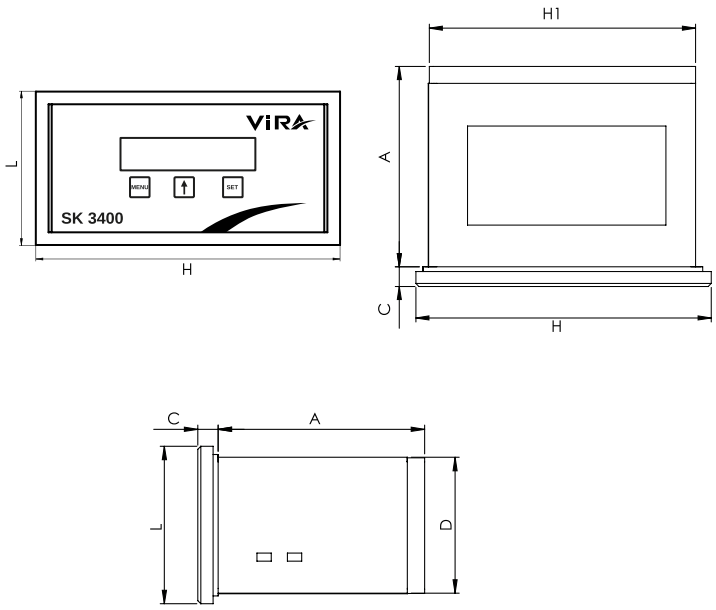
Modulating Level Control Probe (Capacitive Level Probe)	
Type	: SD 3400
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1/2" BSPT (Optional NPT)
Length	: 300-1500 mm
Max. Ambient Temp.	: 75 °C
Compliance	: CE (PED 2014/68/EU), EN 12952 & EN 12953, Type Approval (Module B + D)

SK 3000-2 Typical Installation



TECHNICAL SPECIFICATION

SK 3400 Modulating Level Controller



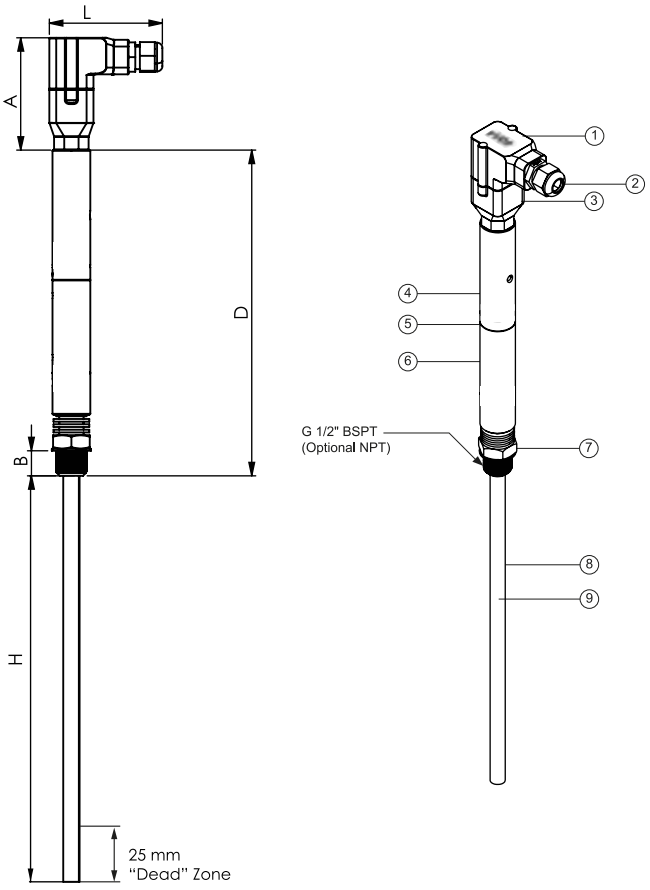
Technical Data

Type	SK 3400
Supply Voltage	230 VAC (+5% / -10%), 50/60Hz
Functions	Modulating / On–Off Level Control, High & Low Level Alarms, Adjustable Control Parameters (e.g. proportional band, set point, alarm delay)
Inputs	Level Probe Input, Ground, 0-1k Ohm Potentiometer, Control Valve
Outputs	1 Valve Modulation Relay, 2 Alarm Relays, 4–20 mA Analog Level Signal
Display	LCD
Max. Ambient Temp.	55℃
Enclosure	PA (Polyamide)
Label	Lexan
Type	Panel-mount
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	A (mm)	C (mm)	D (mm)
144	135	72	101	9	67

SD 3400 Capacitive Level Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	PG 11 Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Preamplifier Body	Austenitic Stainless Steel 304
5	Preamplifer Connector	Austenitic Stainless Steel 316L
6	Cover Assembly	Austenitic Stainless Steel 304
7	Probe Body	Austenitic Stainless Steel 316L
8	Probe Sheathing	Polytetrafluoroethylene (PTFE)
9	Probe (Sheated)	Austenitic Stainless Steel 316L

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	D (mm)	Dead zone (mm)
300-1500	83,5	83	18,5	240,5	25

Note: The capacitive level probe is manufactured to the specified length and cannot be shortened afterwards. The required probe length must be clearly stated at the time of order.

D-SK 3000-2 Modulating Level Control and Alarm System

NEW

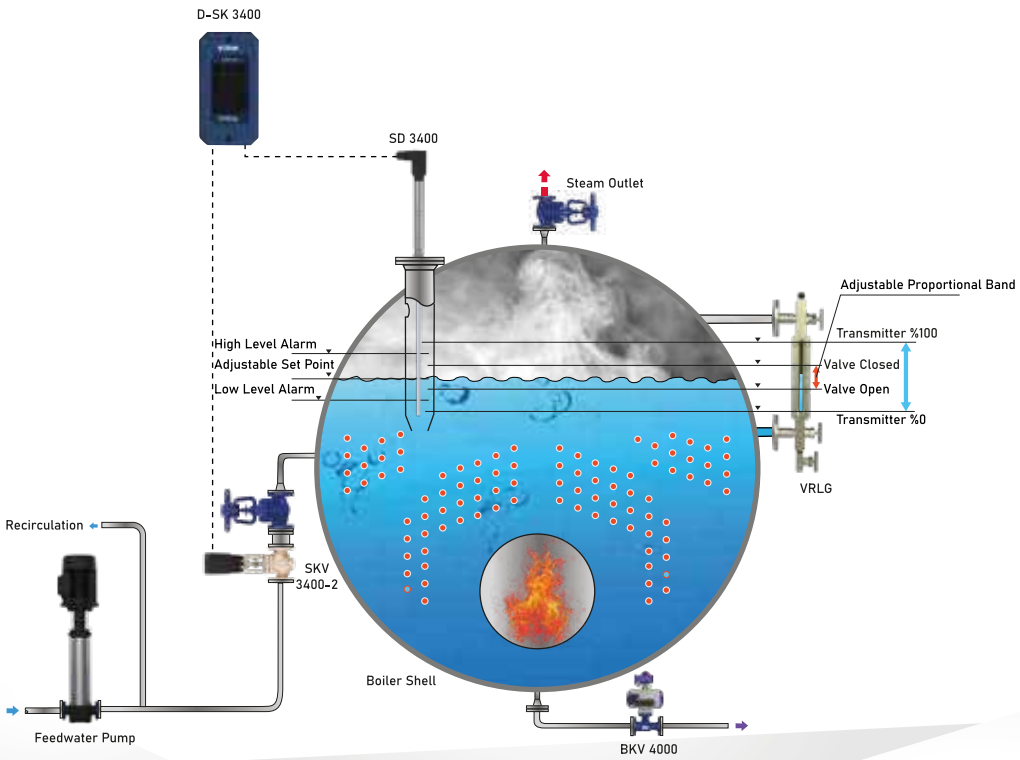
Modulating Level Controller

Type	: D-SK 3400
Supply Voltage	: 24VDC
Enclosure	: Panel-mount and Din Rail Type
Functions	: Modulating / On–Off Level Control, On-Off Level Control, High & Low Level Alarms, 4-20 mA Analogue Input, Touch Screen, Adjustable Control Parameters (e.g. proportional band, set point, alarm delay)
Outputs	: 4–20 mA Analog Level Signal, 4-20 mA Output (Control/Drive), Valve Control Relay, 2 Alarm Relays, RS 485 Modbus, 0-1K Ohm Potentiometer Feedback
Max. Ambient Temp.	: 55 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), EN 12952 & EN 12953, Type Approval (Module B + D)

Modulating Level Control Probe (Capacitive Level Probe)

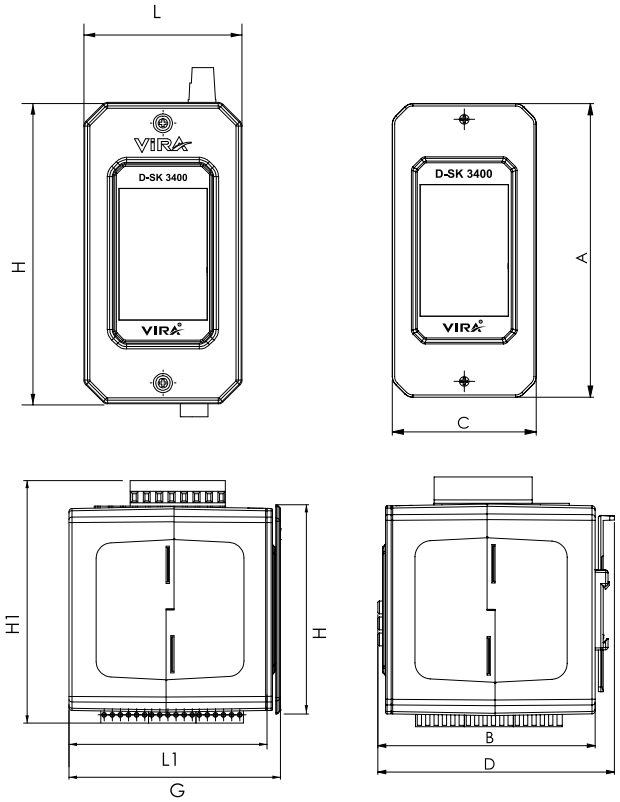
Type	: SD 3400
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1/2" BSPT (Optional NPT)
Length	: 300-1500 mm
Max. Ambient Temp.	: 75 °C
Compliance	: CE (PED 2014/68/EU), EN 12952 & EN 12953, Type Approval (Module B + D)

D-SK 3000-2 Typical Installation



TECHNICAL SPECIFICATION

D-SK 3400 Modulating Level Controller



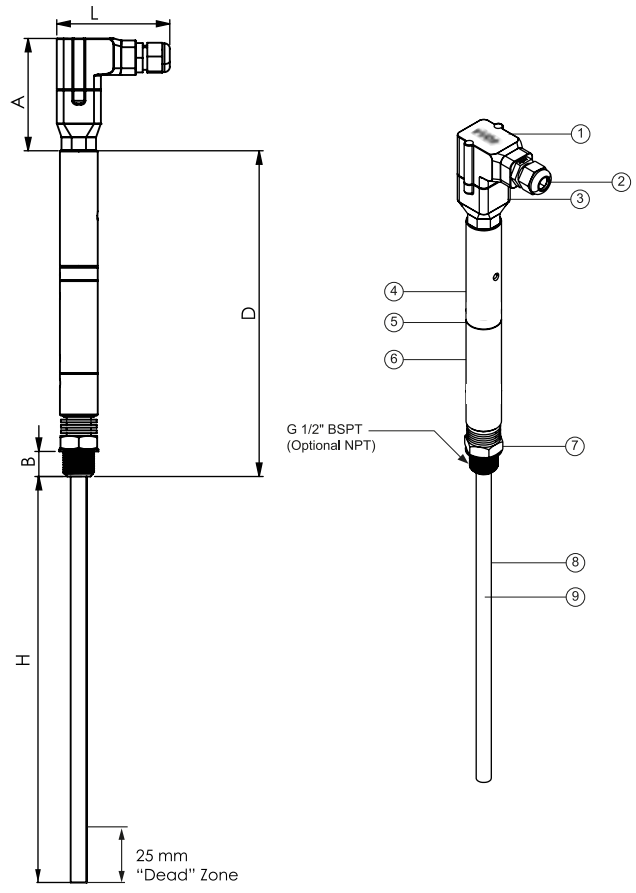
Technical Data

Type	D-SK 3400
Supply Voltage	24VDC
Functions	Modulating / On–Off Level Control, High & Low Level Alarms, Touch Screen, Adjustable Control Parameters (e.g. proportional band, set point, alarm delay)
Inputs	Level Probe Input, Ground, 0-1k Ohm Potentiometer Feedback, 4-20 mA Analogue Input
Outputs	1 Valve Modulation Relay, 2 Alarm Relays, 4–20 mA Analog Level Signal, 4–20 mA Analog Control Output
Display	Touch Screen
Label	Silicone Rubber
Max. Ambient Temp.	55°C
Enclosure	PC (Polycarbonate)
Type	Panel-mount and Din Rail
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	L1 (mm)	C (mm)	D (mm)	B (mm)	G (mm)	A (mm)
134,6	156	72	130	64	148	136	136	130

SD 3400 Capacitive Level Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	PG 11 Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Preamplifier Body	Austenitic Stainless Steel 304
5	Preamplifer Connector	Austenitic Stainless Steel 316L
6	Cover Assembly	Austenitic Stainless Steel 304
7	Probe Body	Austenitic Stainless Steel 316L
8	Probe Sheathing	Polytetrafluoroethylene (PTFE)
9	Probe (Sheated)	Austenitic Stainless Steel 316L

Dimensions

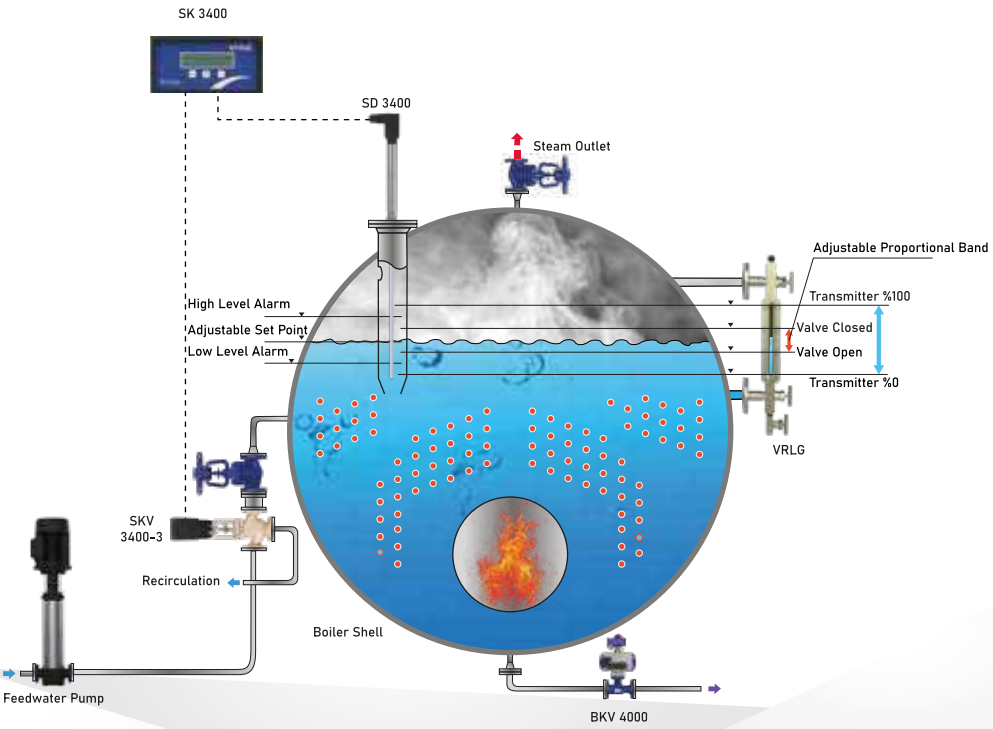
H (mm)	L (mm)	A (mm)	B (mm)	D (mm)	Dead zone (mm)
300 1500	83,5	83	18,5	240,5	25

Note: The capacitive level probe is manufactured to the specified length and cannot be shortened afterwards. The required probe length must be clearly stated at the time of order.

SK 3000-3 Modulating Level Control and Alarm System

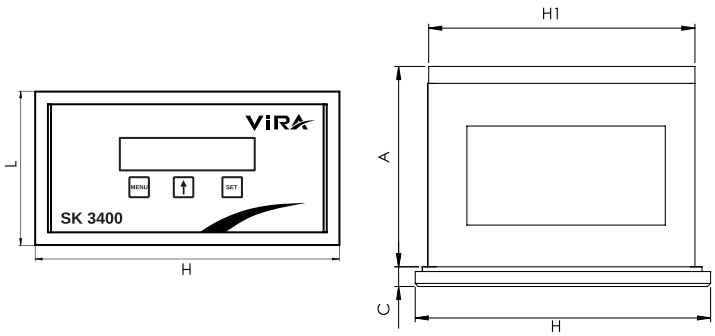
Modulating Level Controller	
Type	: SK 3400
Supply Voltage	: 230 VAC (+5% / -10%), 50/60Hz
Enclosure	: Panel-mount Type
Functions	: Modulating / On–Off Level Control, High & Low Level Alarms, Adjustable Control Parameters (e.g. proportional band, set point, alarm delay)
Outputs	: 4–20 mA Analog Level Signal, 1 Valve Control Relay, 2 Alarm Relays
Max. Ambient Temp.	: 55 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), EN 12952 & EN 12953, Type Approval (Module B + D)

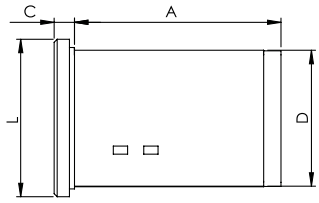
SK 3000-3 Typical Installation



TECHNICAL SPECIFICATION

SK 3400 Modulating Level Controller





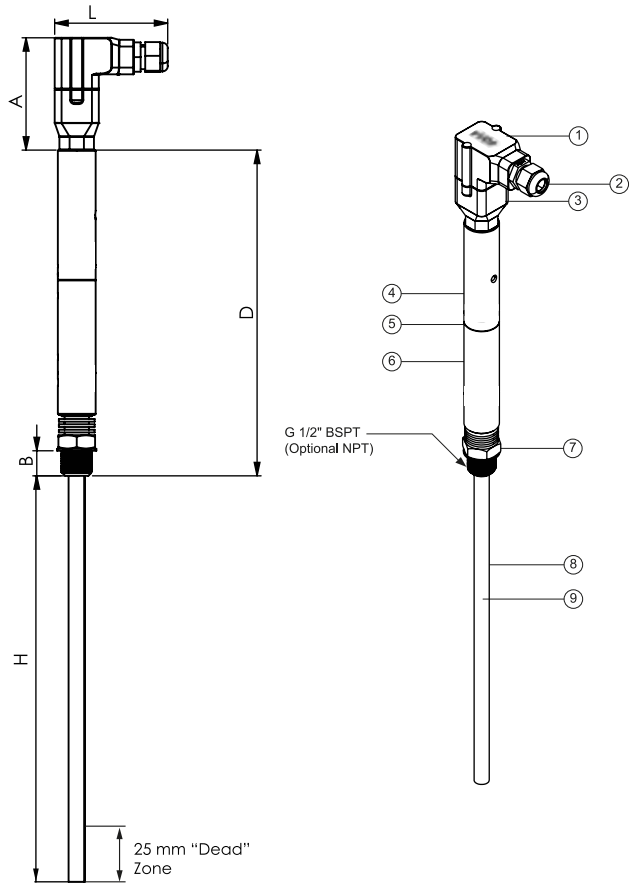
Technical Data

Type	SK 3400
Supply Voltage	230 VAC (+5% / -10%), 50/60Hz
Functions	Modulating / On–Off Level Control, High & Low Level Alarms, Adjustable Control Parameters (e.g. proportional band, set point, alarm delay)
Inputs	Level Probe Input, Ground, 0-1k Ohm Potentiometer, Control Valve
Outputs	1 Valve Modulation Relay, 2 Alarm Relays, 4–20 mA Analog Level Signal
Display	LCD
Max. Ambient Temp.	55°C
Enclosure	PA (Polyamide)
Label	Lexan
Type	Panel-mount
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	A (mm)	C (mm)	D (mm)
144	135	72	101	9	67

SD 3400 Capacitive Level Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	PG 11 Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Preamplifier Body	Austenitic Stainless Steel 304
5	Preamplifer Connector	Austenitic Stainless Steel 316L
6	Cover Assembly	Austenitic Stainless Steel 304
7	Probe Body	Austenitic Stainless Steel 316L
8	Probe Sheathing	Polytetrafluoroethylene (PTFE)
9	Probe (Sheated)	Austenitic Stainless Steel 316L

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	D (mm)	Dead zone (mm)
300-1500	83,5	83	18,5	240,5	25

Note: The capacitive level probe is manufactured to the specified length and cannot be shortened afterwards. The required probe length must be clearly stated at the time of order.

D-SK 3000-3 Modulating Level Control and Alarm System

NEW

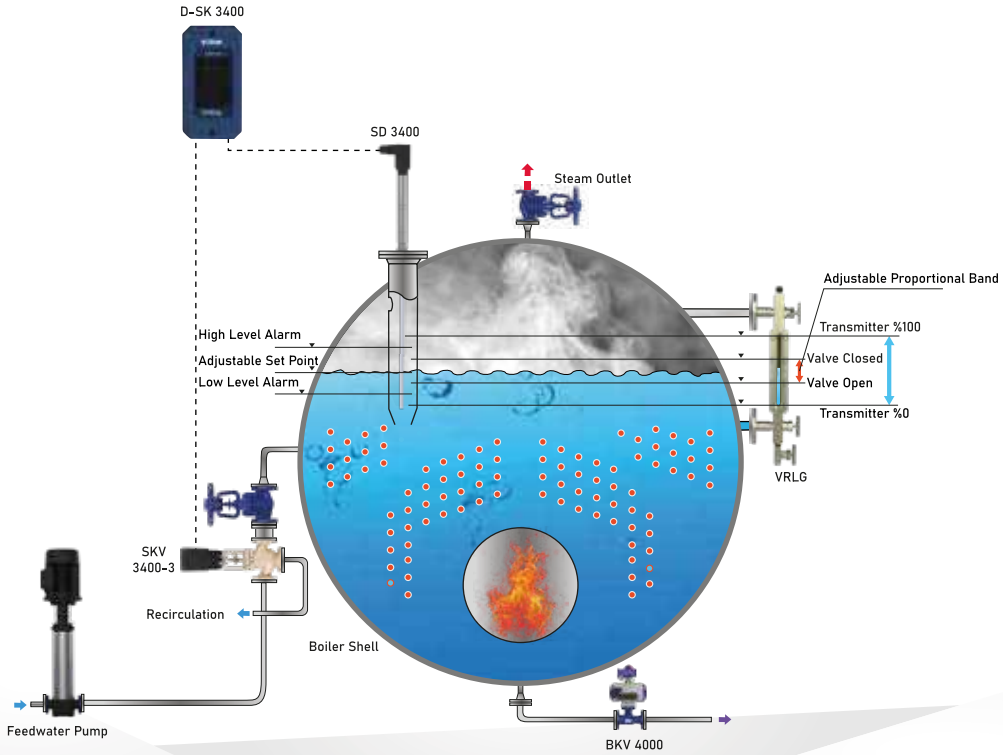
Modulating Level Controller

Type	: D-SK 3400
Supply Voltage	: 24VDC
Enclosure	: Panel-mount and Din Rail Type
Functions	: Modulating / On–Off Level Control, High & Low Level Alarms, 4-20 mA Analogue Input, Touch Screen Adjustable Control Parameters (e.g. proportional band, set point, alarm delay)
Outputs	: 4–20 mA Analog Level Signal, 4–20 mA Analog Control Output (Control/Drive), 1 Valve Control Relay, 2 Alarm Relays, RS 485 Modbus, 0-1k Ohm Potentiometer Feedback
Max. Ambient Temp.	: 55 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), EN 12952 & EN 12953, Type Approval (Module B + D)

Modulating Level Control Probe (Capacitive Level Probe)

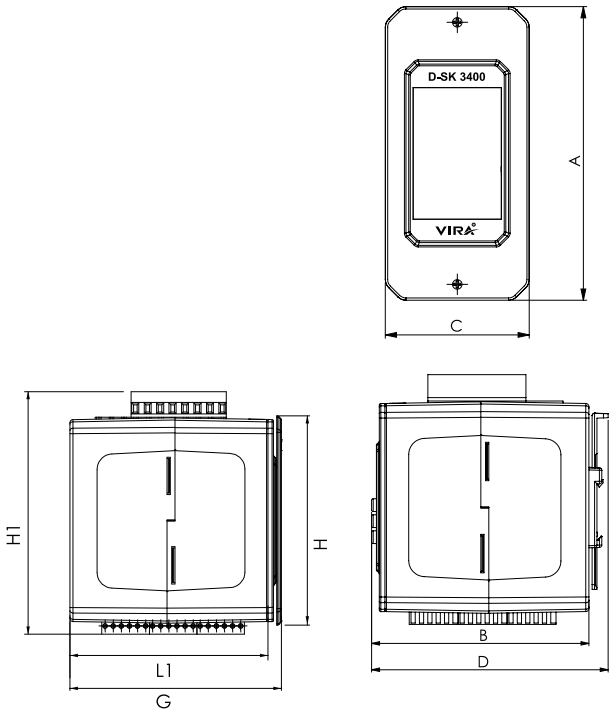
Type	: SD 3400
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1/2" BSPT (Optional NPT)
Length	: 300-1500 mm
Max. Ambient Temp.	: 75 °C
Compliance	: CE (PED 2014/68/EU), EN 12952 & EN 12953, Type Approval (Module B + D)

D-SK 3000-3 Typical Installation



TECHNICAL SPECIFICATION

D-SK 3400 Modulating Level Controller



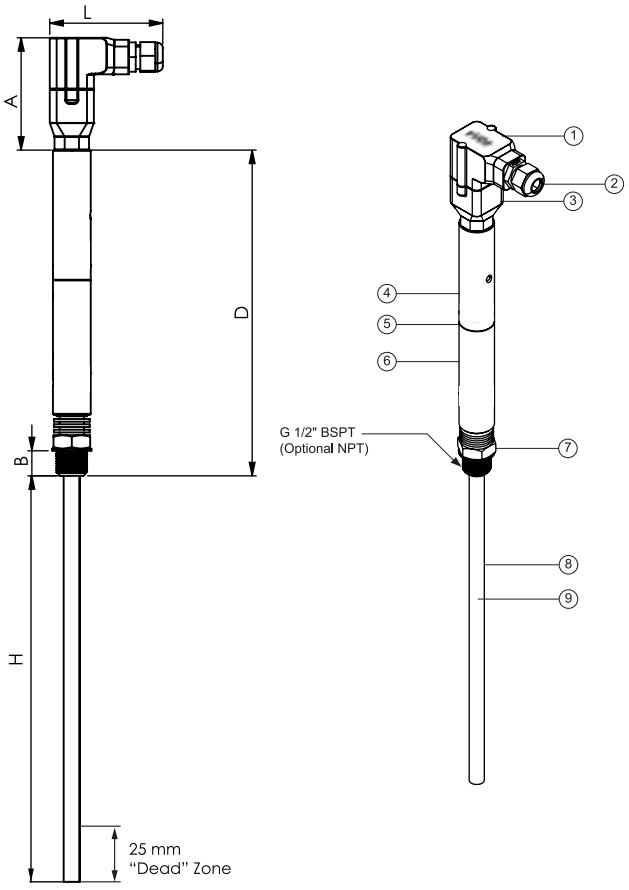
Technical Data

Type	D-SK 3400
Supply Voltage	24VDC
Functions	Modulating / On–Off Level Control, High & Low Level Alarms, Touch Screen, Adjustable Control Parameters (e.g. proportional band, set point, alarm delay)
Inputs	Level Probe Input, Ground, 0-1k Ohm Potentiometer Feedback, 4-20 mA Analogue Input
Outputs	1 Valve Modulation Relay, 2 Alarm Relays, RS 485 Modbus, 4–20 mA Analog Level Signal, 4–20 mA Analog Control Output
Display	Touch Screen
Label	Silicone Rubber
Max. Ambient Temp.	55℃
Enclosure	PC (Polycarbonate)
Type	Panel-mount and Din Rail
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	L1 (mm)	C (mm)	D (mm)	B (mm)	G (mm)	A (mm)
134,6	156	72	130	64	148	136	136	130

SD 3400 Capacitive Level Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	PG 11 Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Preamplifier Body	Austenitic Stainless Steel 304
5	Preamplifer Connector	Austenitic Stainless Steel 316L
6	Cover Assembly	Austenitic Stainless Steel 304
7	Probe Body	Austenitic Stainless Steel 316L
8	Probe Sheathing	Polytetrafluoroethylene (PTFE)
9	Probe (Sheated)	Austenitic Stainless Steel 316L

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	D (mm)	Dead zone (mm)
300-1500	83,5	83	18,5	240,5	25

Note: The capacitive level probe is manufactured to the specified length and cannot be shortened afterwards. The required probe length must be clearly stated at the time of order.

2-Way Feedwater Control Valve

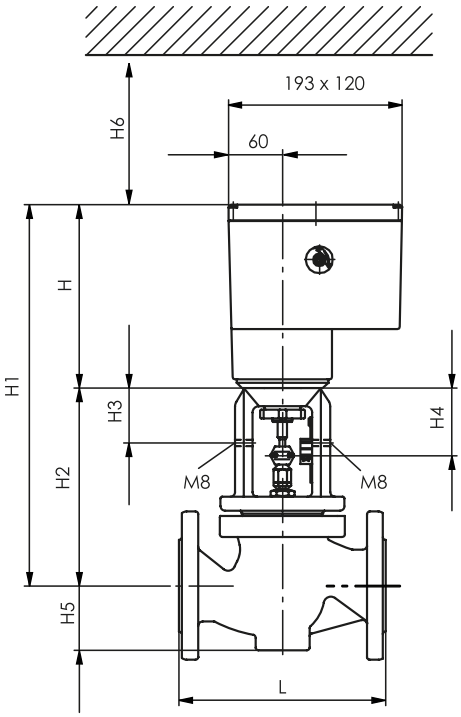
Type	: SKV 3400-2
Body Material	: ENJL 1040 PN 16, ENJS 1049 PN 25, 1.0619 PN 40
Leakage Class	: Class IV (Optional V)
Flow Characteristic	: Lineer (Equal Percentage)
Operating Temp.	: -10 - + 220°C (High Temp. on Request)
Supply	: 220VAC (optional 24VDC)
Control Signal	: 3 Step (4-20 mA Optional)
Protection Class	: IP 54
Protection Switch	: Standard 2 * Safety Limit Switch

3-Way Feedwater Control Valve

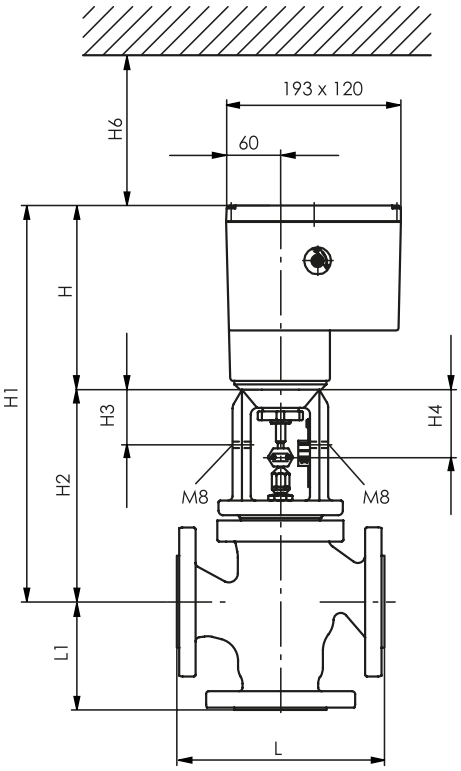
Type	: SKV 3400-3
Body Material	: ENJL 1040 PN 16, ENJS 1049 PN 25, 1.0619 PN 40
Leakage Class	: Class I
Flow Characteristic	: Lineer (Equal Percentage)
Operating Temp.	: -10 - + 220°C (High Temp. on Request)
Supply	: 220VAC (optional 24VDC)
Control Signal	: 3 Step (4-20 mA Optional)
Protection Class	: IP 54
Protection Switch	: Standard 2 * Safety Limit Switch

TECHNICAL SPECIFICATION

SKV 3400-2
2 Way Feedwater Control Valve



SKV 3400-3
3 Way Feedwater Control Valve



Technical Data

Model	SKV 3400-2, SKV 3400-3
Supply Voltage	230 V, 50 Hz
Type	Diverting Valve
Pressure Class	PN 16, PN 25, PN 40
Body Material	EN-JL1040 - PN16 EN-JS1049 - PN25 1.0619 - PN40
Operat. Temp.	-10 - +220 °C
Sealing	Metal to Metal
Actuator	Electric (Optional Pneumatic)
Protection Class	IP54
Control Options	3 Step, 4-20 mA (optional)
Feedback Signal	0-1K Potentiometer, 4-20 mA Positioner (Optional)

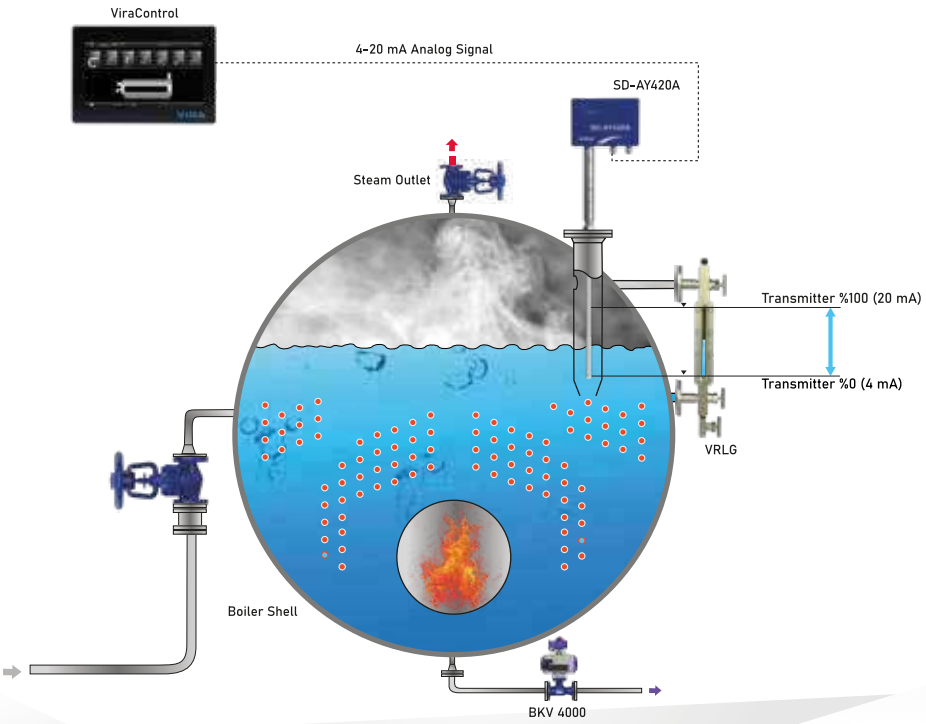
Dimensions

Nominal size (DN)	L (mm)	L1 (mm)	H1 (mm)	H2 (mm)	H3 (mm)	H4 (mm)	Weight (kg)
15	130	70	H2+H	235	61	75	6
20	150	80	H2+H	235	61	75	7
25	160	85	H2+H	235	61	75	8
32	180	100	H2+H	235	61	75	13
40	200	105	H2+H	235	61	75	15
50	230	120	H2+H	235	61	75	17
65	290	130	H2+H	270	61	75	31
80	310	140	H2+H	270	61	75	37
100	350	150	H2+H	360	75	90	49
125	400	200	H2+H	375	75	90	95
150	480	210	H2+H	375	75	90	135

SD-AY 420A Capacitive Level Transmitter

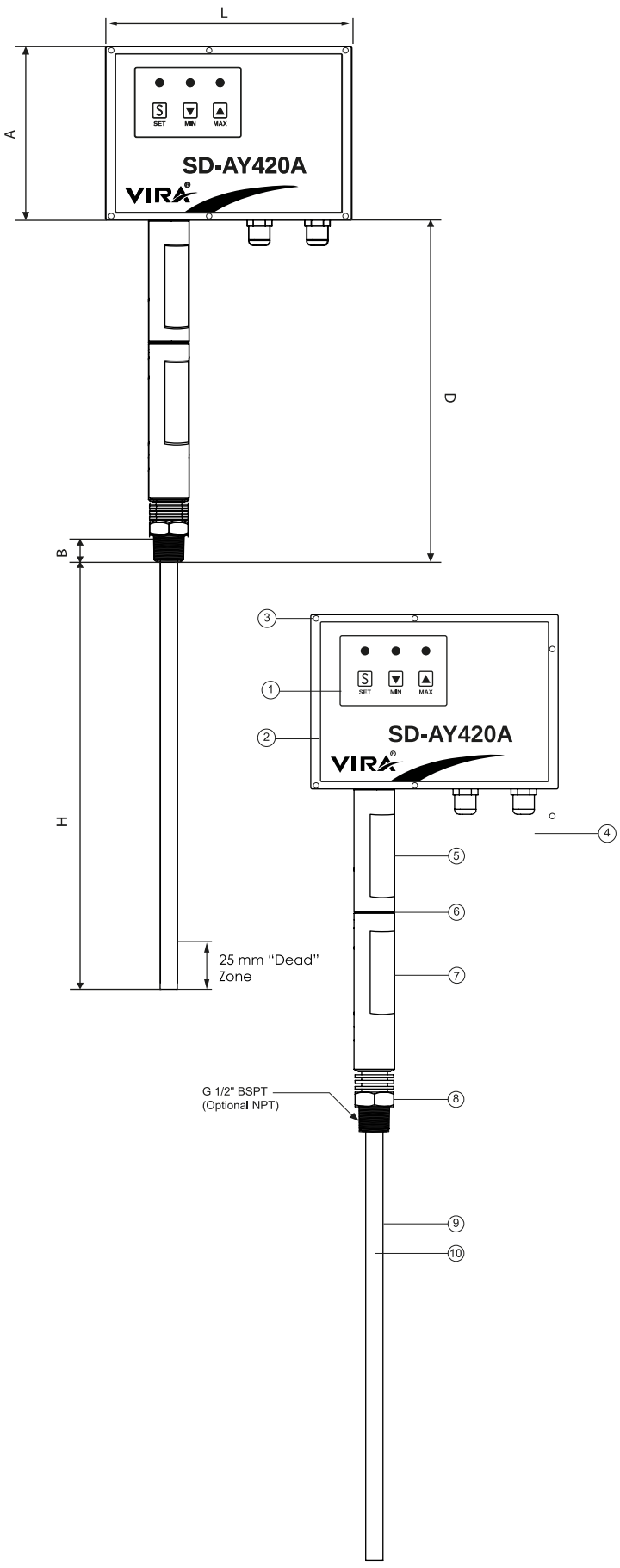
SD-AY 420A Capacitive Level Transmitter	
Type	: SD-AY 420A
Supply Voltage	: 24 VDC (Optional 230 VAC)
Functions	: Minimum & Maximum Level Set
Outputs	: 4–20 mA Analog Level Signal / Active (Optional Passive)
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1/2" BSPT (Optional NPT)
Length	: 300 -1500 mm
Max. Ambient Temp.	: 75 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU,PED 2014/68/EU), EN 12952 & EN 12953, Type Approval (Module B + D)

SD-AY 420A Typical Installation



TECHNICAL SPECIFICATION

SD-AY 420A Capacitive Level Transmitter



Technical Data

Type	SD-AY 420A
Supply Voltage	24VDC (Optional 230VAC)
Functions	Min Level Set, Max Level Set
Inputs	Level Probe Input
Outputs	4–20 mA Analog Level Signal
Display	Led
Max. Ambient Temp.	75℃
Enclosure	Aluminum
Label	Lexan
Control	3 Buttons
Installation Type	Boiler top mounted
Protection Class	IP 65
Nominal Pressure	PN 40
Max. Operating Temp.	239 °C
Max. Operating Pres.	32 Bar g
Connection	G 1/2" BSPT (Optional NPT)
Length	300–1500 mm

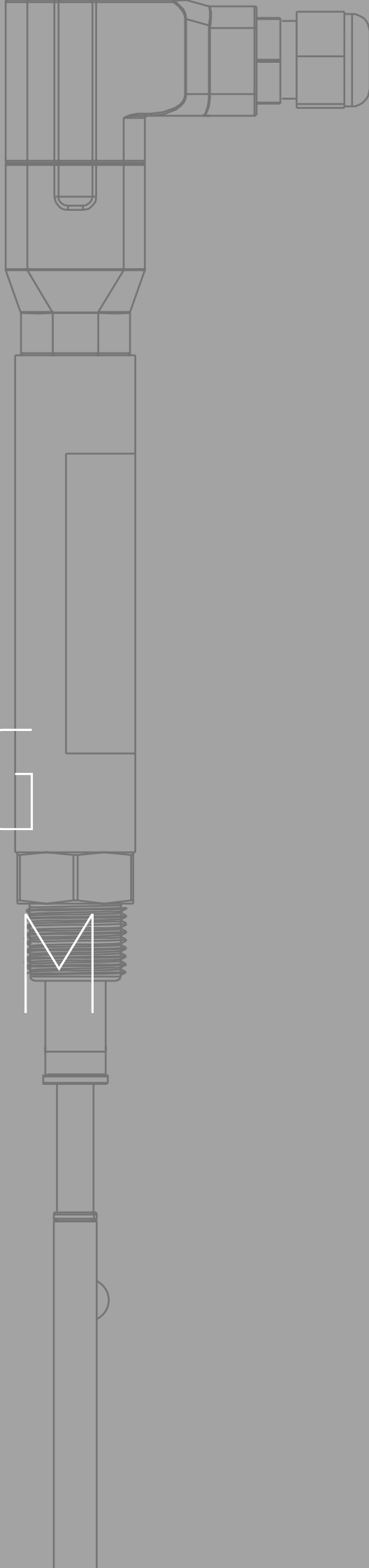
Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
300-1500	170	121	23,5	60	241

No	Part	Material
1	Display	Leds
2	Label	Lexan
3	Housing Screws M4	Austenitic Stainless Steel 304
4	PG7 Cable Gland	Brass (Nickel Coated)
5	Preamplifier Body	Austenitic Stainless Steel 304
6	Preamplifer Connector	Austenitic Stainless Steel 316L
7	Cover Assembly	Austenitic Stainless Steel 304
8	Probe Body	Austenitic Stainless Steel 316L
9	Probe Sheathing	Polytetrafluoroethylene (PTFE)
10	Probe (Sheated)	Austenitic Stainless Steel 316L

Note: The capacitive level probe is manufactured to the specified length and cannot be shortened afterwards. The required probe length must be clearly stated at the time of order.

LEVEL LIMITING & ALARM



LEVEL LIMITING & ALARM

Reliable water level monitoring is one of the most critical safety requirements in steam boiler operation. For this reason, two different types of systems are used in compliance with EN 12952 and EN 12953:

Level Alarm Systems
Level alarm systems continuously monitor the water level inside the boiler and generate an alarm signal when the defined high or low level limits are reached. These systems are primarily used to warn operators of abnormal operating conditions and allow timely intervention. Vira's SK 1000 and SK-T 1200 series provide dependable alarm functions for both high and low water levels.

Level Limiter Systems
Unlike alarm systems, level limiters are designed as safety devices that automatically shut down the burner or stop fuel supply when a critical water level is reached. Vira's SMH 1000, D-SMH 1000 (high level) and SML 1000, D-SML 1000 (low level) self-monitoring limiters incorporate advanced diagnostic functions such as:

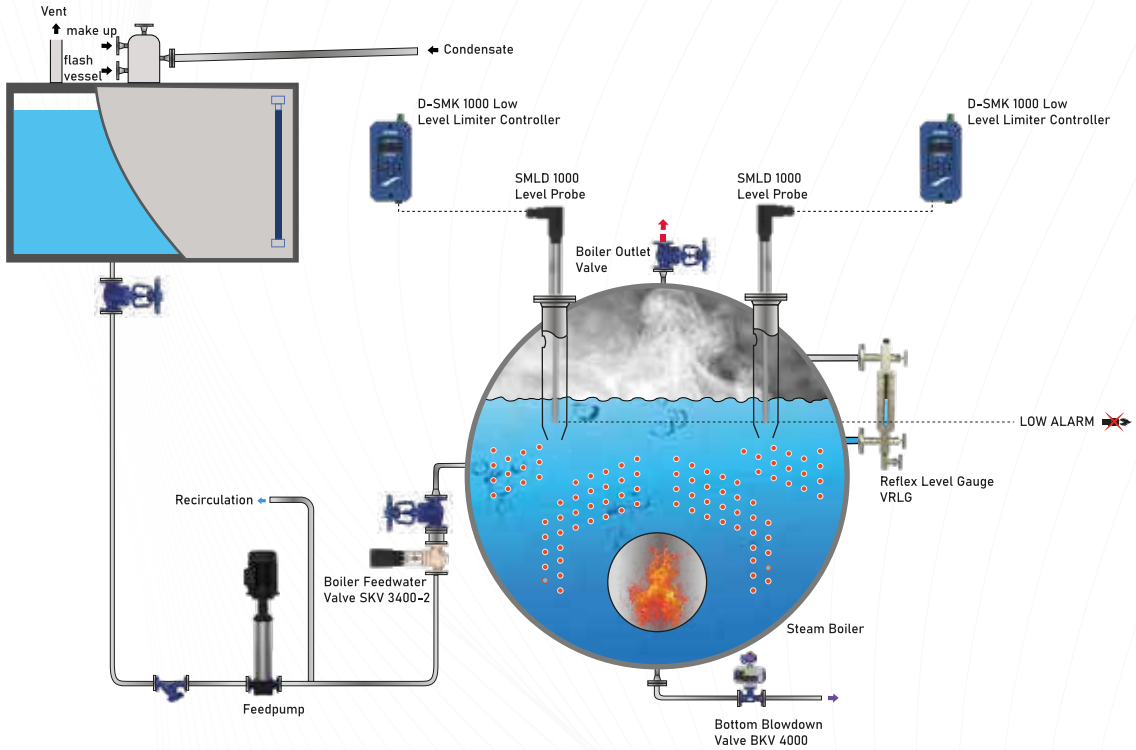
- Detection of open circuit (cable break) or short circuit in the connection lines
- Verification of probe contact with the boiler body
- Monitoring for probe leakage and contamination
- Periodic internal circuit self-checks
- Automatic fault alarm in case of any irregularity

Difference Between Alarm and Limiter Systems

A Level Alarm system provides warnings to the operator when the water level in the boiler reaches a predefined high or low point. The alarm signal is transmitted via relays, but the device itself is not self-monitoring and not redundant.

A Level Limiter, on the other hand, is a certified safety device designed to automatically shut down and lockout the boiler in case of dangerous low or high water level conditions. Unlike alarms, limiters fulfill mandatory safety requirements in accordance with EN 12952 and EN 12953 standards.

Note: SMH 1000, D-SMH 1000 and SML 1000, D-SML 1000 self-monitoring level limiter systems are certified for use in unattended boiler operation in line with EN 12952 and EN 12953 requirements.



SMH 1000 Self Monitoring High Level Limiter System

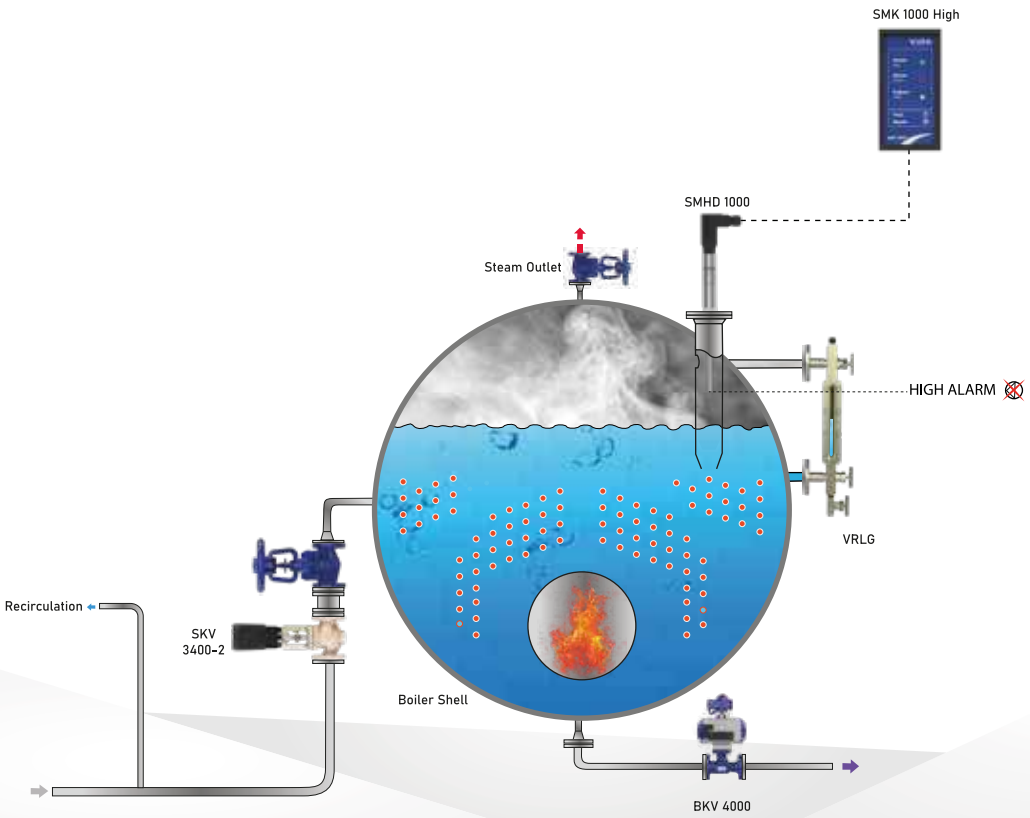
Self Monitoring High Level Limiter Controller

Type	: SMK 1000 High
Enclosure	: Panel-mount Type
Supply Voltage	: 230 VAC (+5% / -10%) 50/60Hz
Functions	: Self Monitoring High Level Alarm, Test, Reset, Cable Break Check, Short Circuit Check, Probe Scale Check, Periodic Self Check
Outputs	: 2 Safety Relays
Max. Ambient Temp.	: 55°C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), PED 2014/68/EU, SIL (IEC 61508), EN 12952 & 12953, Type Approval (Module B + D)

Self Monitoring High Level Limiter Probe

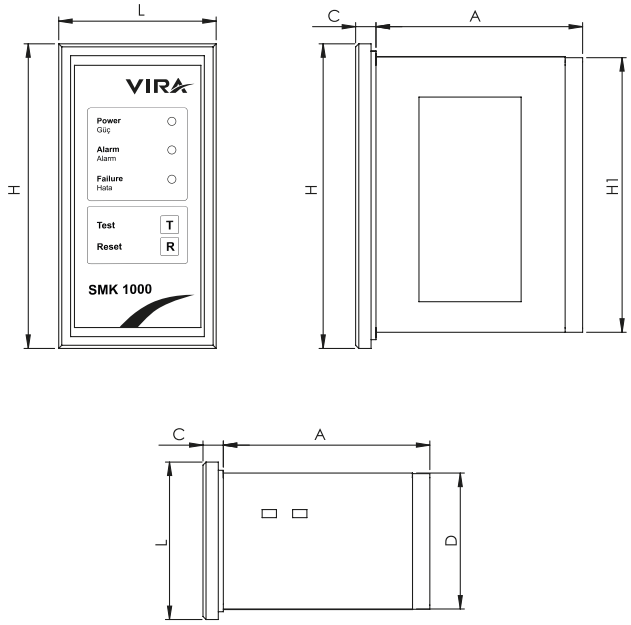
Type	: SMHD 1000
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1/2" BSPT (Optional NPT)
Length	: 500, 1000, 1500 mm (can be cut to desired level)
Max. Ambient Temp	: 75 °C
Compliance	: CE (PED 2014/68/EU), EN 12952 & 12953, Type Approval (Module B + D)

SMH 1000 Typical Installation



TECHNICAL SPECIFICATION

SMK 1000 Self Monitoring High Level Limiter Controller



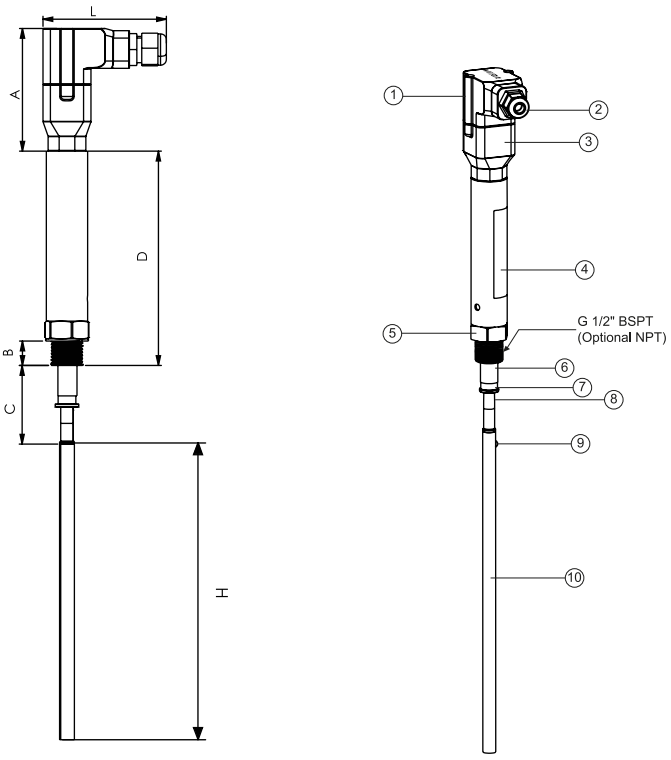
Technical Data

Type	SMK 1000 High
Supply Voltage	230 VAC (+5% / -10%) 50/60Hz
Functions	Self Monitoring High Level Limiting, Test, Reset, Cable Break Check, Short Circuit Check, Probe Scale Check, Periodic Self Check
Inputs	Level Probe Input, Ground
Outputs	2 Safety Relays
Display	Led
Label	Lexan
Max. Ambient Temp.	55°C
Enclosure	PA (Polyamide)
Type	Panel-mount
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	A (mm)	C (mm)	D (mm)
144	135	72	101	9	67

SMHD 1000 Self Monitoring High Level Limiter Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	PG 11 Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Probe Body	Austenitic Stainless Steel 304
6	Primary Insulator	Polytetrafluoroethylene (PTFE)
7	Comparator Tip	Austenitic Stainless Steel 316L
8	Secondary Insulator	Polytetrafluoroethylene (PTFE)
9	Retaining Bolt	Austenitic Stainless Steel 304
10	Probe Tip	Austenitic Stainless Steel 316L

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
500 1000 1500	83,5	83	16,5	53	145

Note: The probe tips are supplied in uniform lengths according to the ordered size. The lengths must be cut and adjusted on site to suit the specific application. If 500 mm is ordered, all probe tips will be delivered with a dimension 'H' of 500 mm.

D-SMH 1000 Self Monitoring High Level Limiter System

NEW

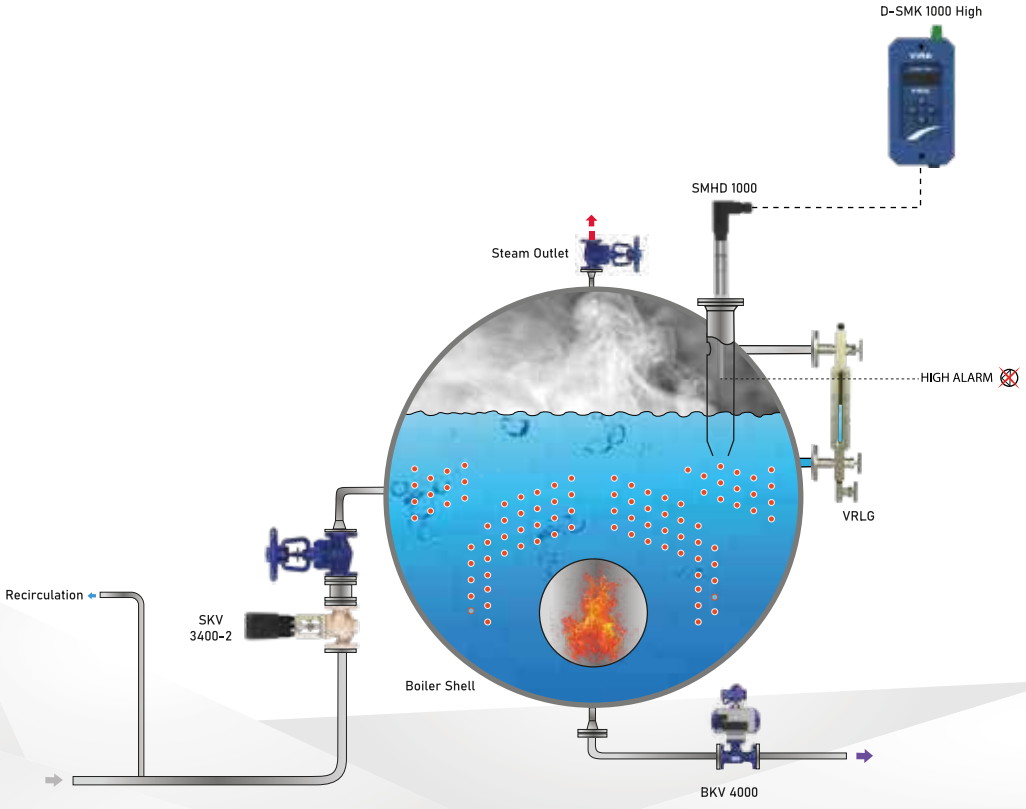
Self Monitoring High Level Limiter Controller

Type	: D-SMK 1000 High
Supply Voltage	: 24VDC
Enclosure	: Panel-mount and Din Rail Type
Functions	: Self Monitoring High Level Alarm, Test, Reset, Cable Break Check, Short Circuit Check, Probe Scale Check, Periodic Self Check, 7 Segment Display, 4 buttons
Outputs	: 2 Safety Relays
Max. Ambient Temp.	: 55 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), PED 2014/68/EU, SIL (IEC 61508), EN 12952 & 12953,Type Approval (Module B + D)

Self Monitoring High Level Limiter Probe

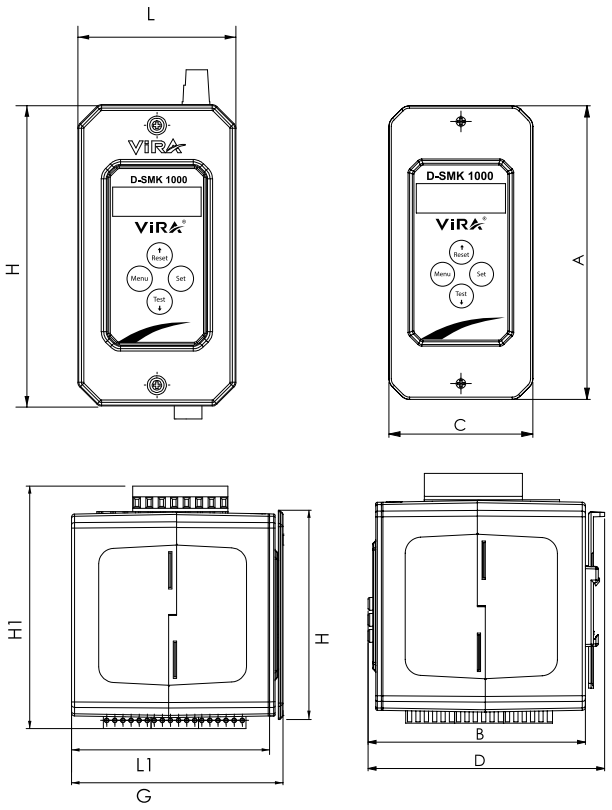
Type	: SMHD 1000
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1/2" BSPT (Optional NPT)
Length	: 500, 1000, 1500 mm (can be cut to desired level)
Max. Ambient Temp	: 75 °C
Compliance	: CE (PED 2014/68/EU), EN 12952 & 12953, Type Approval (Module B + D)

D-SMH 1000 Typical Installation



TECHNICAL SPECIFICATION

D-SMK 1000 Self Monitoring High Level Limiter Controller



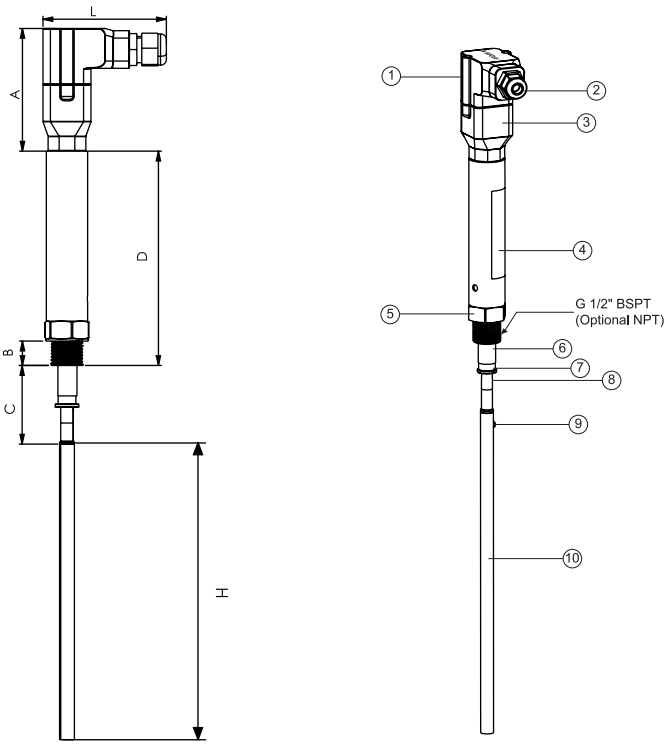
Technical Data

Type	D-SMK 1000 High
Supply Voltage	24VDC
Functions	Self Monitoring High Level Limiting, Test, Reset, Cable Break Check, Short Circuit Check, Probe Scale Check, Periodic Self Check
Inputs	Level Probe Input, Ground
Outputs	2 Safety Relays
Display	7 Segment
Label	Silicone Rubber
Max. Ambient Temp.	55°C
Enclosure	PC (Polycarbonate)
Type	Panel-mount and Din Rail
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	L1 (mm)	C (mm)	D (mm)	B (mm)	G (mm)	A (mm)
134,6	156	72	130	64	148	136	136	130

SMHD 1000 Self Monitoring High Level Limiter Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	PG 11 Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Probe Body	Austenitic Stainless Steel 304
6	Primary Insulator	Polytetrafluoroethylene (PTFE)
7	Comparator Tip	Austenitic Stainless Steel 316L
8	Secondary Insulator	Polytetrafluoroethylene (PTFE)
9	Retaining Bolt	Austenitic Stainless Steel 304
10	Probe Tip	Austenitic Stainless Steel 316L

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
500 1000 1500	83,5	83	16,5	53	145

Note: The probe tips are supplied in uniform lengths according to the ordered size. The lengths must be cut and adjusted on site to suit the specific application. If 500 mm is ordered, all probe tips will be delivered with a dimension 'H' of 500 mm.

SML 1000 Self Monitoring Low Level Limiter System

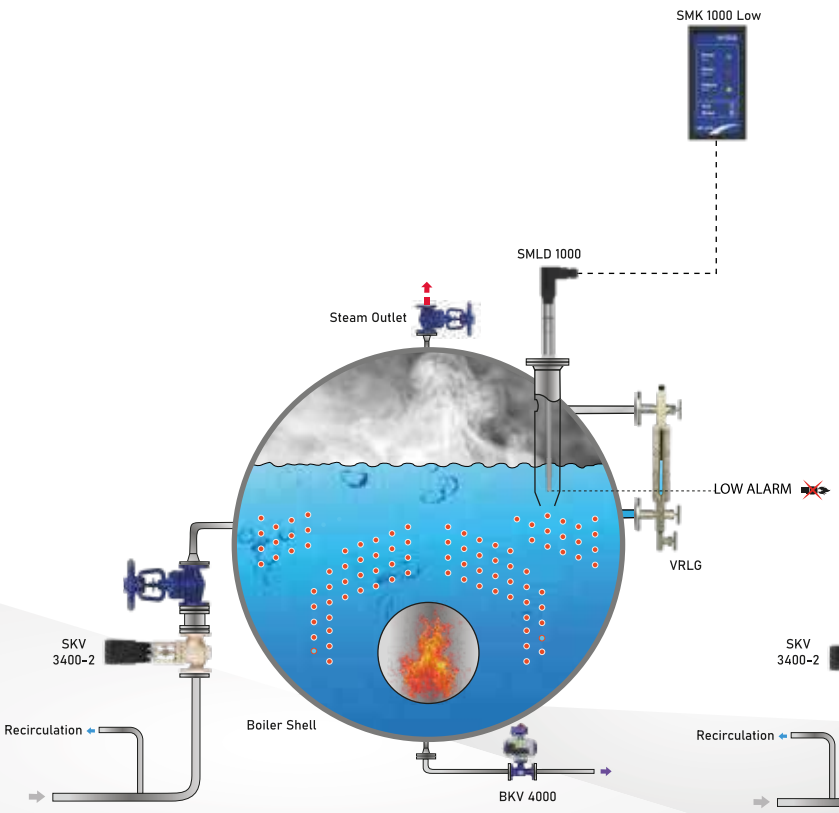
Self Monitoring Low Level Limiter Controller

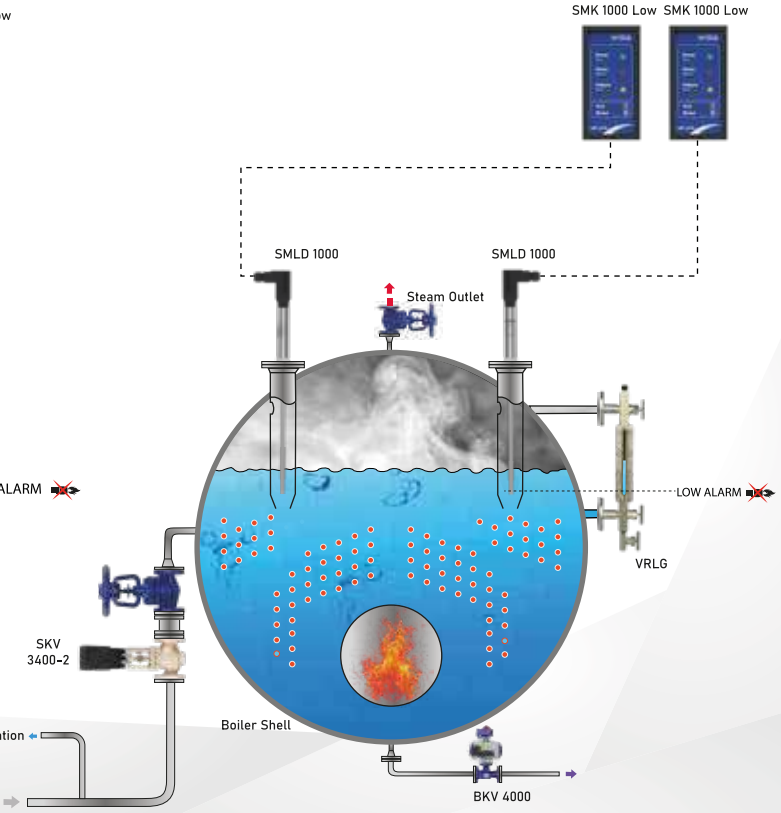
Type	: SMK 1000 Low
Enclosure	: Panel-mount Type
Supply Voltage	: 230 VAC (+5% / -10%) 50/60Hz
Functions	: Self Monitoring Low Level Alarm, Test, Reset, Cable Break Check, Short Circuit Check, Probe Scale Check, Periodic Self Check
Outputs	: 2 Safety Relays
Max. Ambient Temp.	: 55°C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), PED 2014/68/EU, SIL (IEC 61508), EN 12952 & 12953, Type Approval (Module B + D)

Self Monitoring Low Level Limiter Probe

Type	: SMLD 1000
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1/2" BSPT (Optional NPT)
Length	: 500, 1000, 1500 mm (can be cut to desired level)
Max. Ambient Temp	: 75 °C
Compliance	: CE (PED 2014/68/EU), EN 12952 & 12953, Type Approval (Module B + D)

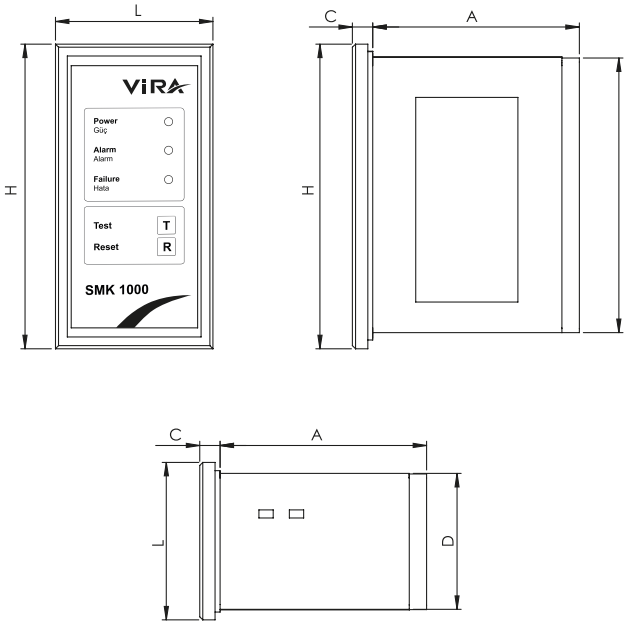
SML 1000 Typical Installation





TECHNICAL SPECIFICATION

SMK 1000 Self Monitoring Low Level Limiter Controller



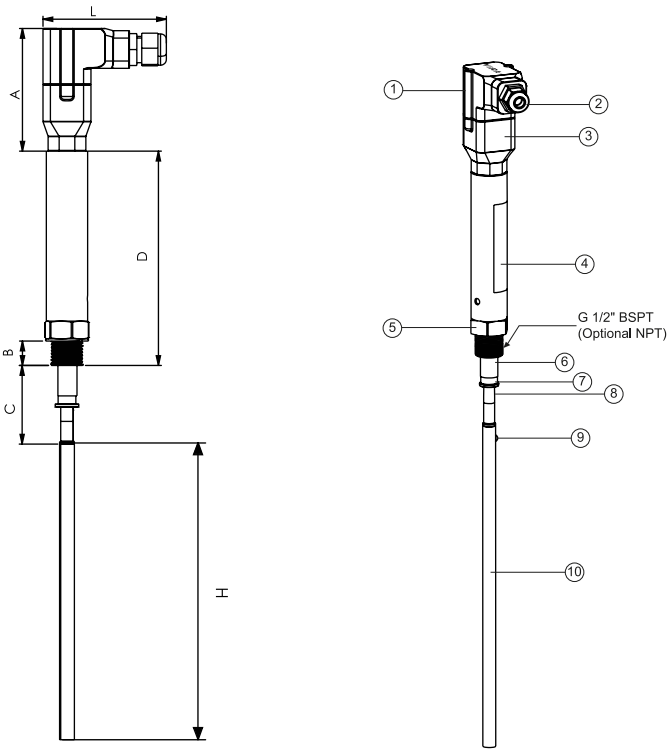
Technical Data

Type	SMK 1000 Low
Supply Voltage	230 VAC (+5% / -10%) 50/60Hz
Functions	Self Monitoring Low Level Limiting, Test, Reset, Cable Break Check, Short Circuit Check, Probe Scale Check, Periodic Self Check
Inputs	Level Probe Input, Ground
Outputs	2 Safety Relays
Display	Led
Label	Lexan
Max. Ambient Temp.	55℃
Enclosure	PA (Polyamide)
Type	Panel-mount
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	A (mm)	C (mm)	D (mm)
144	135	72	101	9	67

SMLD 1000 Self Monitoring Low Level Limiter Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	PG 11 Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Probe Body	Austenitic Stainless Steel 304
6	Primary Insulator	Polytetrafluoroethylene (PTFE)
7	Comparator Tip	Austenitic Stainless Steel 316L
8	Secondary Insulator	Polytetrafluoroethylene (PTFE)
9	Retaining Bolt	Austenitic Stainless Steel 304
10	Probe Tip	Austenitic Stainless Steel 316L

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
500 1000 1500	83,5	83	16,5	53	145

Note: The probe tips are supplied in uniform lengths according to the ordered size. The lengths must be cut and adjusted on site to suit the specific application. If 500 mm is ordered, all probe tips will be delivered with a dimension 'H' of 500 mm.

D-SML 1000 Self Monitoring Low Level Limiter System

NEW

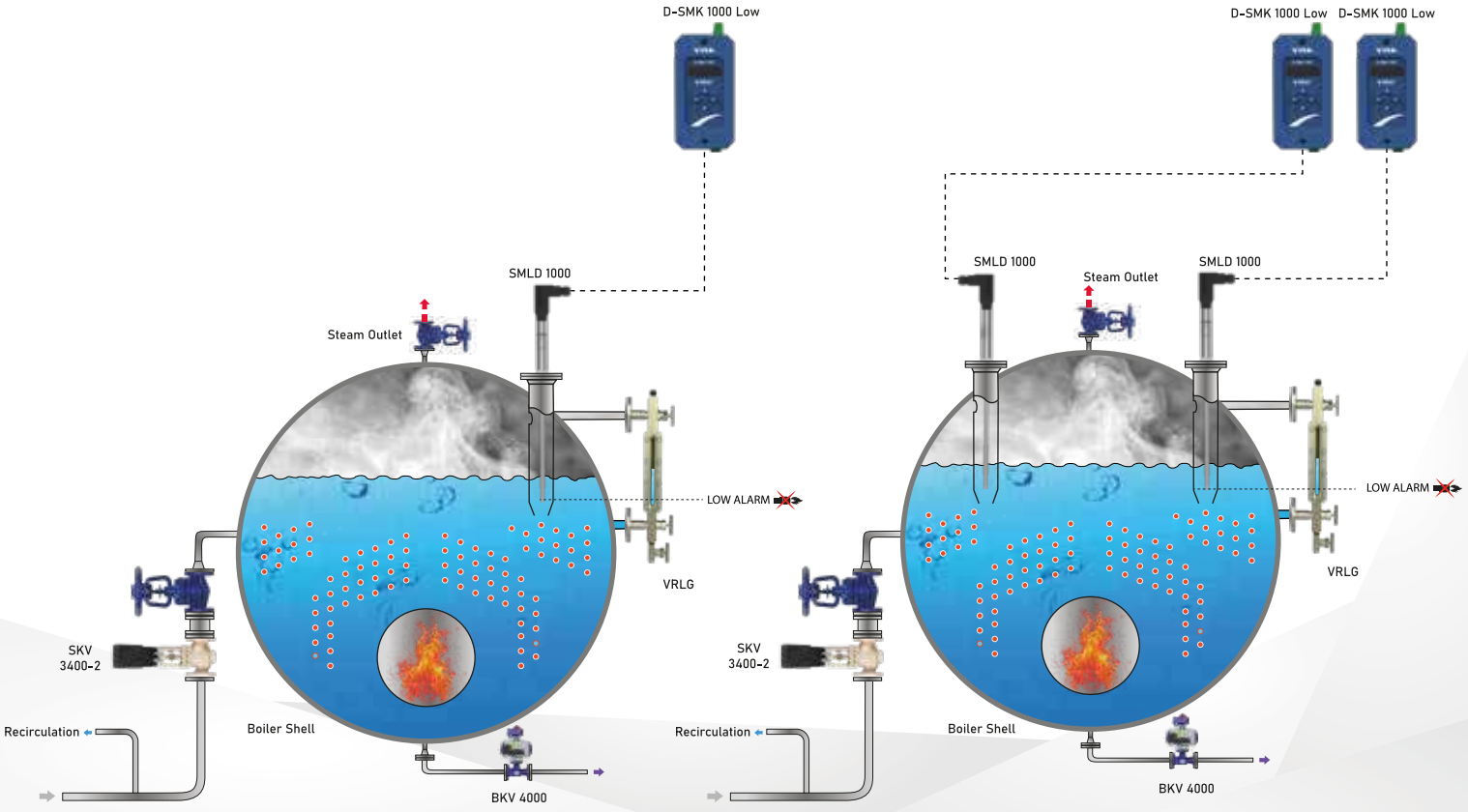
Self Monitoring Low Level Limiter Controller

Type	: D-SMK 1000 Low
Enclosure	: Panel-mount and Din Rail Type
Supply Voltage	: 24VDC
Functions	: Self Monitoring Low Level Alarm, Test, Reset, Cable Break Check, Short Circuit Check, Probe Scale Check, Periodic Self Check
Outputs	: 2 Safety Relays
Max. Ambient Temp.	: 55°C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), PED 2014/68/EU, SIL (IEC 61508), EN 12952 & 12953,Type Approval (Module B + D)

Self Monitoring Low Level Limiter Probe

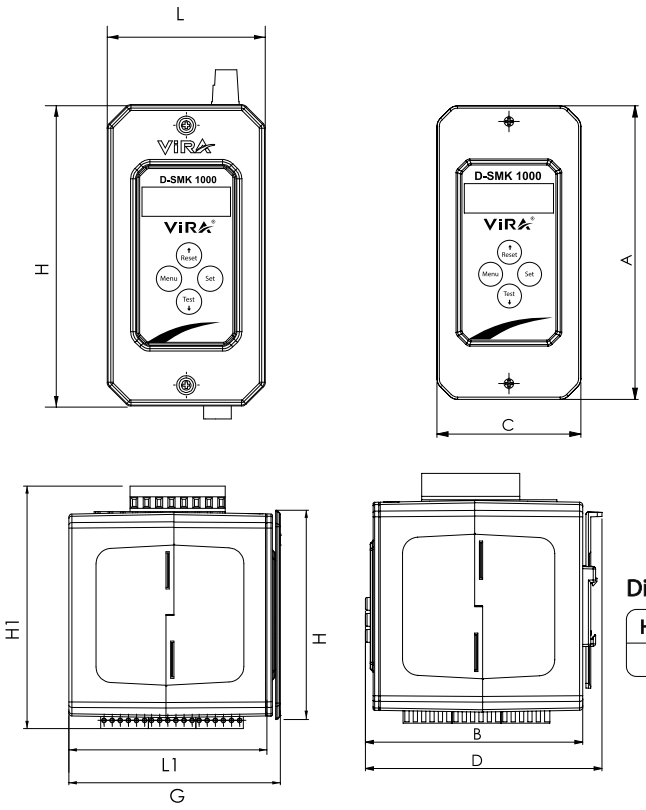
Type	: SMLD 1000
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1/2" BSPT (Optional NPT)
Length	: 500, 1000, 1500 mm (can be cut to desired level)
Max. Ambient Temp	: 75 °C
Compliance	: CE (PED 2014/68/EU), EN 12952 & 12953, Type Approval (Module B + D)

D-SML 1000 Typical Installation



TECHNICAL SPECIFICATION

D-SMK 1000 Self Monitoring Low Level Limiter Controller



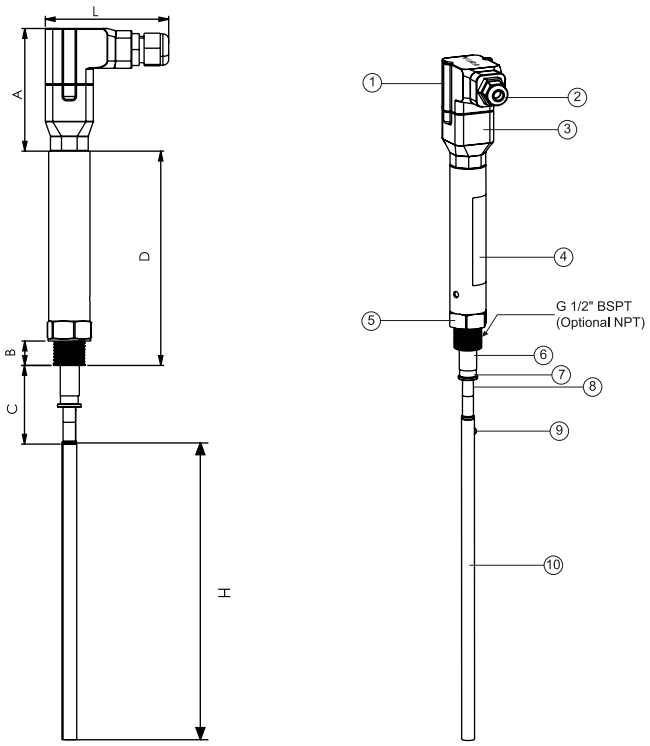
Technical Data

Type	D-SMK 1000 Low
Supply Voltage	24VDC
Functions	Self Monitoring Low Level Limiting, Test, Reset, Cable Break Check, Short Circuit Check, Probe Scale Check, Periodic Self Check
Inputs	Level Probe Input, Ground
Outputs	2 Safety Relays
Display	7 Segment
Label	Silicone Rubber
Max. Ambient Temp.	55°C
Enclosure	PC (Polycarbonate)
Type	Panel-mount and Din Rail
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	L1 (mm)	C (mm)	D (mm)	B (mm)	G (mm)	A (mm)
134,6	156	72	130	64	148	136	136	130

SMLD 1000 Self Monitoring Low Level Limiter Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	PG 11 Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Probe Body	Austenitic Stainless Steel 304
6	Primary Insulator	Polytetrafluoroethylene (PTFE)
7	Comparator Tip	Austenitic Stainless Steel 316L
8	Secondary Insulator	Polytetrafluoroethylene (PTFE)
9	Retaining Bolt	Austenitic Stainless Steel 304
10	Probe Tip	Austenitic Stainless Steel 316L

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
500 1000 1500	83,5	83	16,5	53	145

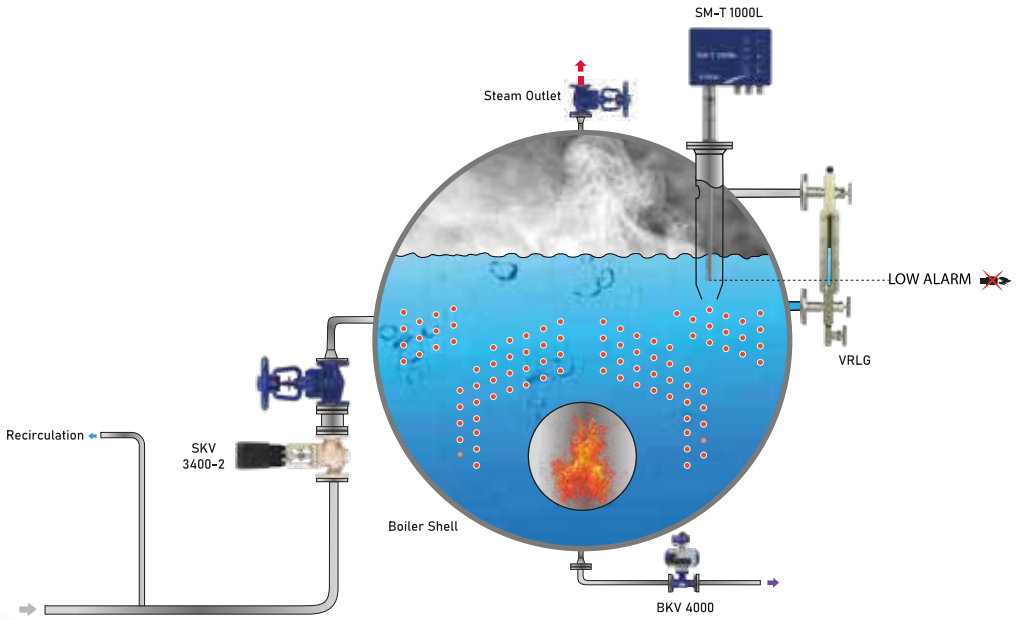
Note: The probe tips are supplied in uniform lengths according to the ordered size. The lengths must be cut and adjusted on site to suit the specific application. If 500 mm is ordered, all probe tips will be delivered with a dimension 'H' of 500 mm.

SM-T 1000L Compact Self Monitoring Low Level Limiter System

NEW

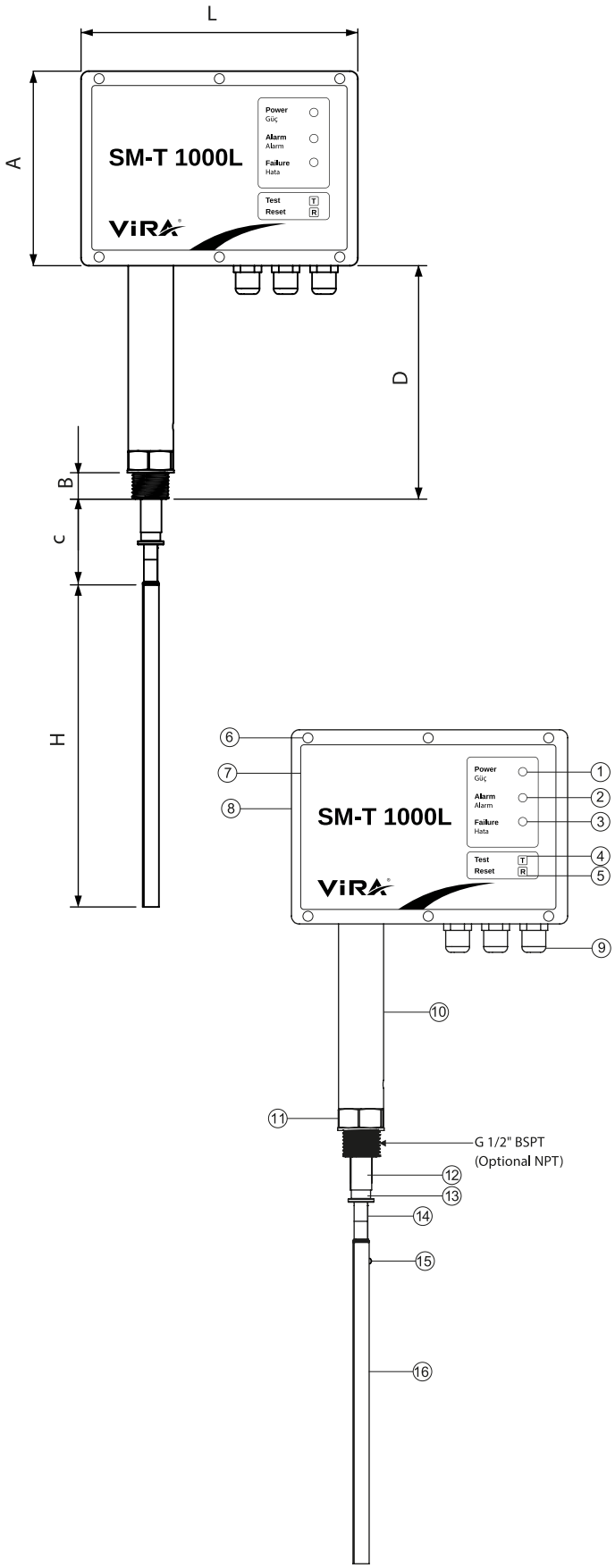
Compact Self Monitoring Low Level Limiter	
Type	: SM-T 1000L
Supply Voltage	: 230 VAC (+5% / -10%), 50/60Hz
Functions	: Self Monitoring Low Level Alarm, Test, Reset, Cable Break Check, Short Circuit Check, Probe Scale Check, Periodic Self Check
Outputs	: 2 Safety Relays
Nominal Pressure	: PN 40
Operat. Temp.	: 239 °C
Operat. Press.	: 32 Bar g
Connection	: G 1/2" BSPT (Optional NPT)
Length	: 500, 1000, 1500 mm (can be cut to desired level)
Ambient Temp.	: 75 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), PED 2014/68/EU, SIL (IEC 61508), EN 12952 & 12953

SM-T 1000L Typical Installation



TECHNICAL SPECIFICATION

SM-T 1000L Compact Self Monitoring Low Level Limiter



Technical Data

Type	SM-T 1000L
Supply Voltage	230 VAC (+5% / -10%), 50/60Hz
Functions	Self Monitoring Low Level Limiting, Test, Reset, Cable Break Check, Short Circuit Check, Probe Scale Check, Periodic Self Check
Input	Level Probe Input, Ground
Outputs	2 Safety Relays
Display	Led
Max. Ambient Temp.	75°C
Enclosure	Aluminum
Installation Type	Boiler top mounted
Protection Class	IP 65

No	Part	Material
1	Led " High Alarm"	Lexan Label
2	Led " Low Alarm"	Lexan Label
3	Led "Power"	Lexan Label
4	Test Button	Lexan Label
5	Reset Button	Lexan Label
6	Housing screws M4	Austenitic Stainless Steel 304
7	Housing Cover	Aluminum
8	Housing	Aluminum
9	Cable Gland PG9	Brass (Nickel Coated)
10	Label	Laser Marking
11	Probe Body	Austenitic Stainless Steel 304
12	Primary Insulator	Polytetrafluoroethylene (PTFE)
13	Comparator Tip	Austenitic Stainless Steel 316L
14	Secondary Insulator	Polytetrafluoroethylene (PTFE)
15	Retaining Pin	Austenitic Stainless Steel 304
16	Probe Tip	Austenitic Stainless Steel 316L

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
500 1000 1500	170	121	16,5	53,2	145

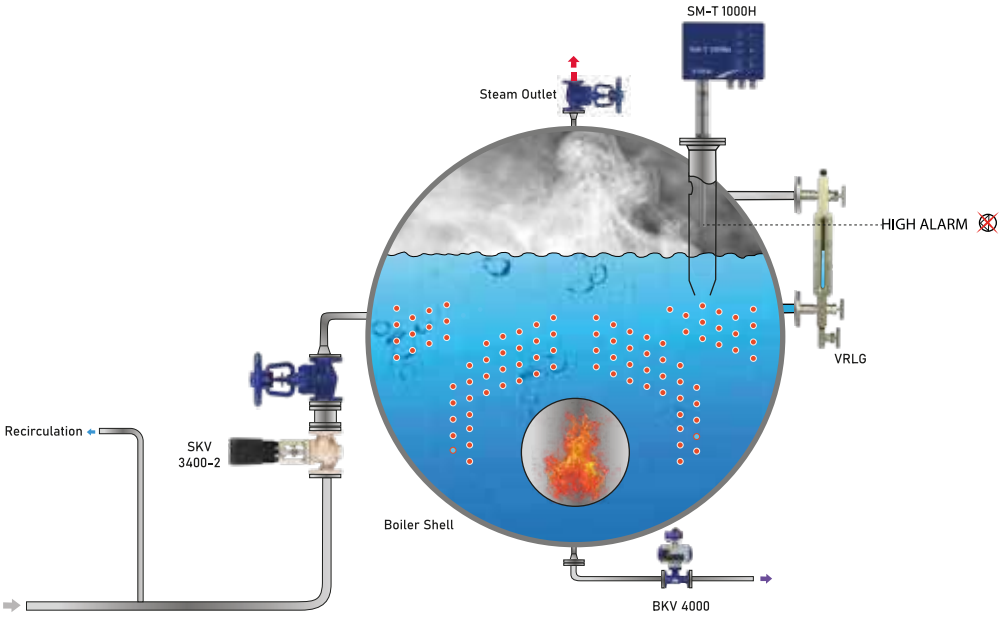
Note: The probe tips are supplied in uniform lengths according to the ordered size. The lengths must be cut and adjusted on site to suit the specific application. If 500 mm is ordered, all probe tips will be delivered with a dimension 'H' of 500 mm.

NEW

SM-T 1000H Compact Self Monitoring High Level Limiter System

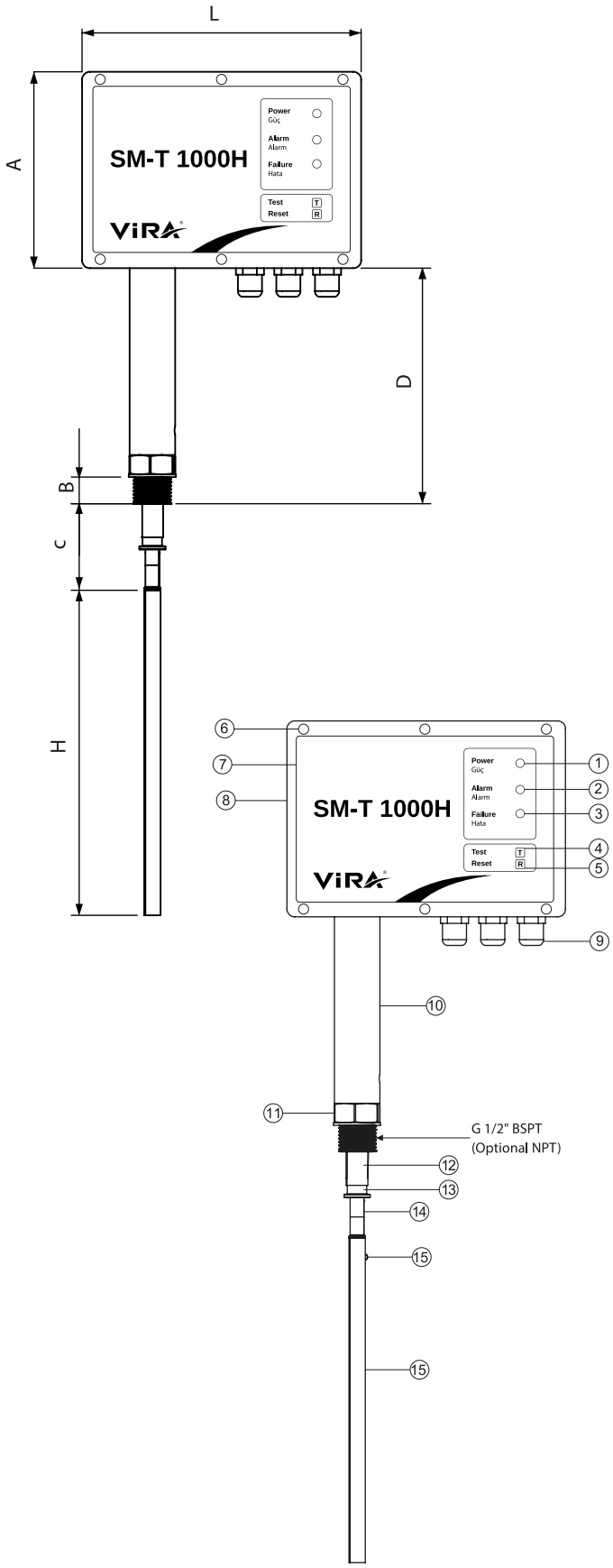
Compact Self Monitoring High Level Limiter	
Type	: SM-T 1000H
Supply Voltage	: 230 VAC (+5% / -10%), 50/60Hz
Functions	: Self Monitoring High Level Alarm, Test, Reset, Cable Break Check, Short Circuit Check, Probe Scale Check, Periodic Self Check
Outputs	: 2 Safety Relays
Nominal Pressure	: PN 40
Operat. Temp.	: 239 °C
Operat. Press.	: 32 Bar g
Connection	: G 1/2" BSPT (Optional NPT)
Length	: 500, 1000, 1500 mm (can be cut to desired level)
Ambient Temp.	: 75 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), PED 2014/68/EU, SIL (IEC 61508), EN 12952 & 12953

SM-T 1000H Typical Installation



TECHNICAL SPECIFICATION

SM-T 1000H Compact Self Monitoring High Level Limiter



Technical Data

Type	SM-T 1000H
Supply Voltage	230 VAC (+5% / -10%), 50/60Hz
Functions	Self Monitoring High Level Limiting, Test, Reset, Cable Break Check, Short Circuit Check, Probe Scale Check, Periodic Self Check
Inputs	Level Probe Input, Ground
Outputs	2 Safety Relays
Display	Led
Max. Ambient Temp.	75℃
Enclosure	Aluminum
Installation Type	Boiler top mounted
Protection Class	IP 65

No	Part	Material
1	Led " High Alarm"	Lexan Label
2	Led " Low Alarm"	Lexan Label
3	Led "Power"	Lexan Label
4	Test Button	Lexan Label
5	Reset Button	Lexan Label
6	Housing screws M4	Austenitic Stainless Steel 304
7	Housing Cover	Aluminum
8	Housing	Aluminum
9	Cable Gland PG9	Brass (Nickel Coated)
10	Label	Laser Marking
11	Probe Body	Austenitic Stainless Steel 304
12	Primary Insulator	Polytetrafluoroethylene (PTFE)
13	Comparator Tip	Austenitic Stainless Steel 316L
14	Secondary Insulator	Polytetrafluoroethylene (PTFE)
15	Retaining Pin	Austenitic Stainless Steel 304
16	Probe Tip	Austenitic Stainless Steel 316L

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
500 1000 1500	170	121	16,5	53,2	145

Note: The probe tips are supplied in uniform lengths according to the ordered size. The lengths must be cut and adjusted on site to suit the specific application. If 500 mm is ordered, all probe tips will be delivered with a dimension 'H' of 500 mm.

SK 1000 Level Alarm System

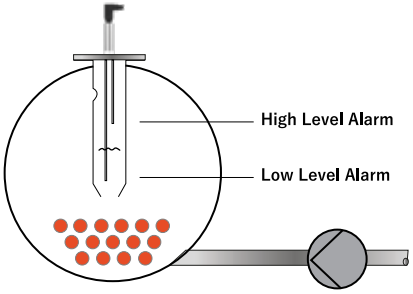
Level Alarm Controller

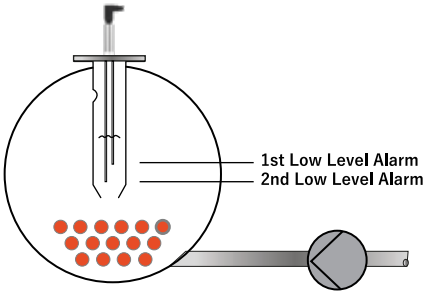
Type	: SK 1200
Supply Voltage	: 230 VAC (+5% / -10%), 50/60Hz
Enclosure	: Panel-mount Type
Functions	: High Level Alarm, Low Level Alarm
Outputs	: 2 Alarm Relays
Max. Ambient Temp.	: 55 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), EN 12952 & 12953,Type Approval (Module B + D)

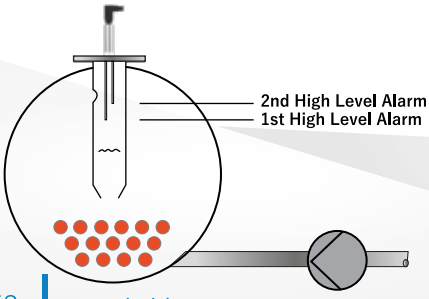
Level Alarm Probe

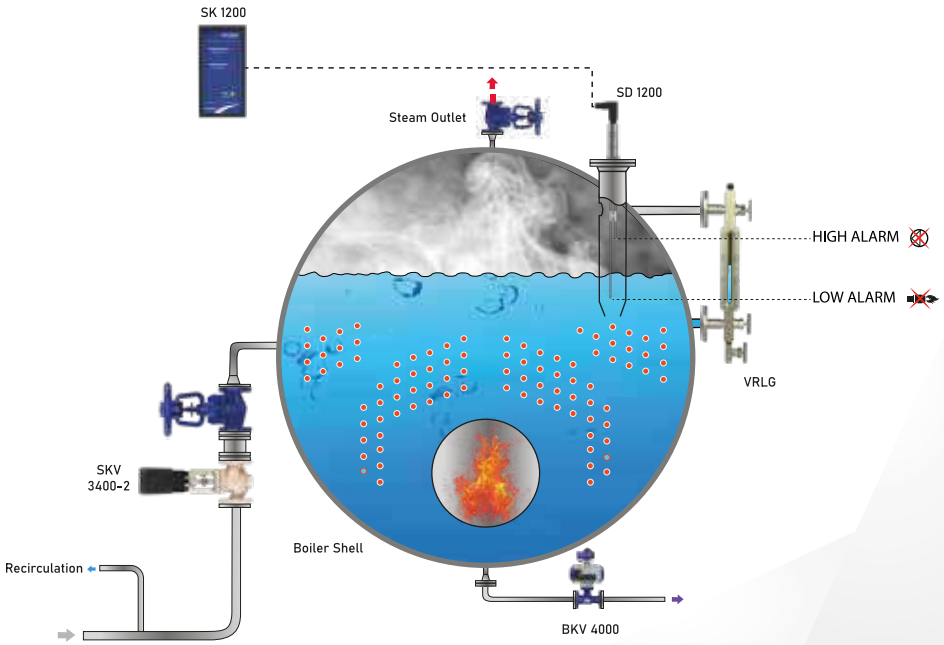
Type	: SD 1200
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1" BSPT (Optional NPT)
Length	: 500, 1000, 1500 mm (can be cut to desired level)
Max. Ambient Temp	: 75 °C
Compliance	: CE (PED 2014/68/EU), EN 12952 & 12953,Type Approval (Module B + D)

SK 1000 Typical Installation



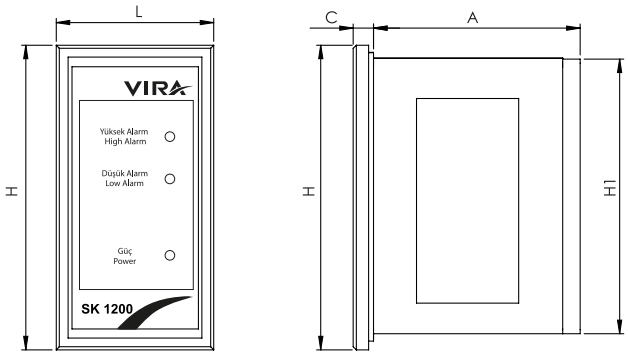


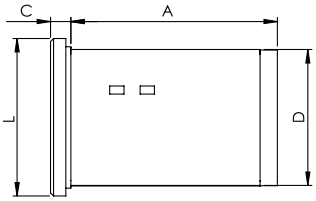




TECHNICAL SPECIFICATION

SK 1200 Level Alarm Controller





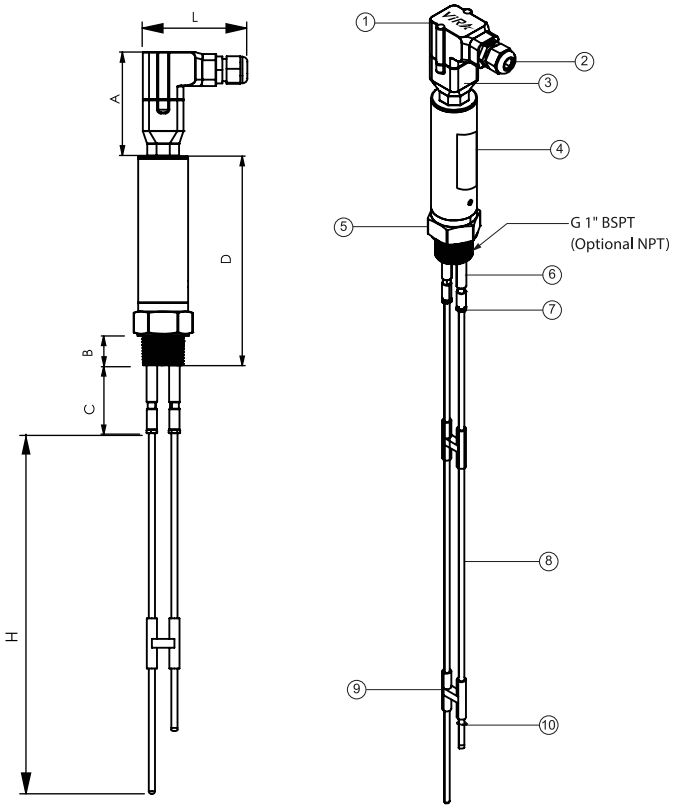
Technical Data

Type	SK 1200
Supply Voltage	230 VAC (+5% / -10%), 50/60Hz
Functions	High Level Alarm, Low Level Alarm
Inputs	Level Probe Input (2 Level), Ground
Outputs	2 Alarm Relays
Display	Led
Label	Lexan
Max. Ambient Temp.	55℃
Enclosure	PA (Polyamide)
Type	Panel-mount
Protection Class	IP 40

Dimensions

H (mm)	H1 (mm)	L (mm)	A (mm)	C (mm)	D (mm)
144	135	72	101	9	67

SD 1200 Level Alarm Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	PG 11 Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass FiberReinforced Polypropylene)
4	Label	Laser Marking
5	Probe Body	Austenitic Stainless Steel 304
6	Tip Insulation (Sleeve)	Polytetrauoroethylene (PTFE)
7	Lock Nuts	Austenitic Stainless Steel 304
8	Probe Tips	Austenitic Stainless Steel 316L
9	Tip Steady	Polytetrafluoroethylene (PTFE)
10	Snap Ring	C75 Spring Steel

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
500 1000 1500	83,5	83	16,5	53	145

Note: The probe tips are supplied in uniform lengths according to the ordered size. The lengths must be cut and adjusted on site to suit the specific application. If 500 mm is ordered, all probe tips will be delivered with a dimension 'H' of 500 mm.

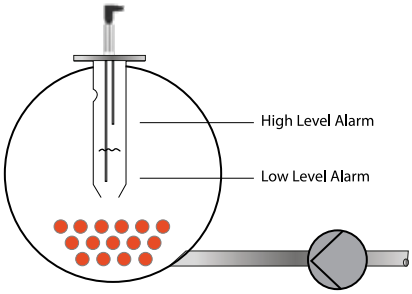
D-SK 1000 Level Alarm System

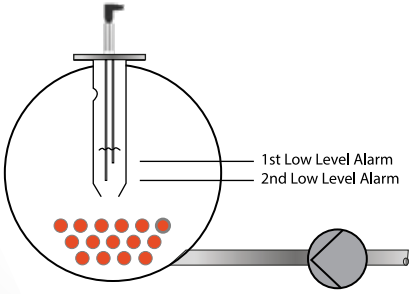
NEW

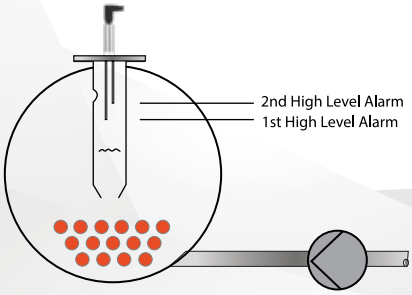
Level Alarm Controller	
Type	: D-SK 1200
Supply Voltage	: 24VDC
Enclosure	: Panel-mount and Din Rail Type
Functions	: High Level Alarm, Low Level Alarm, Test, Reset, 7 Segment Display, 4 buttons
Outputs	: 2 Alarm Relays, RS 485 Modbus
Max. Ambient Temp.	: 55 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), EN 12952 & 12953,Type Approval (Module B + D)

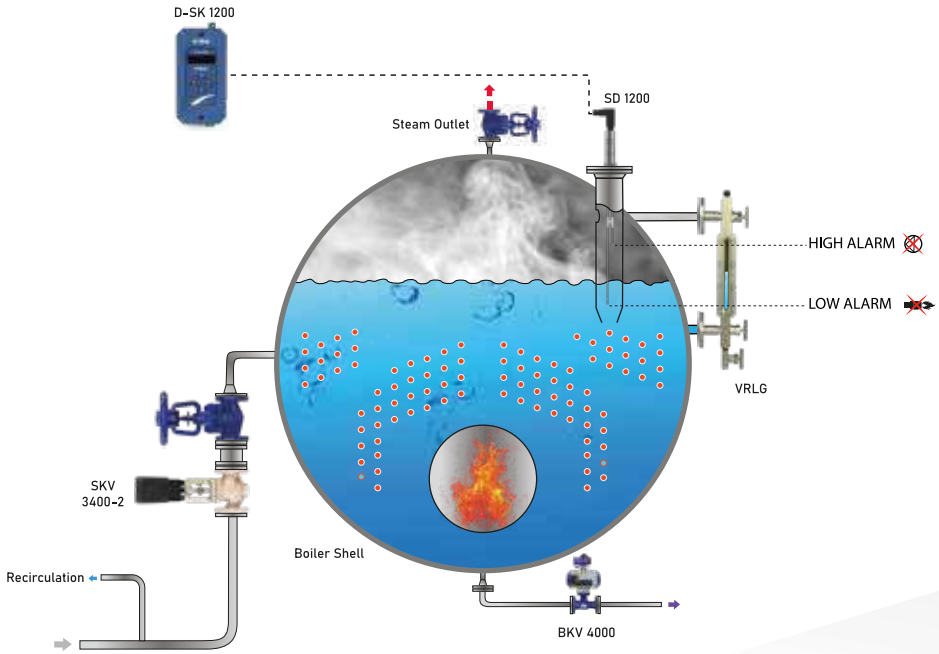
Level Alarm Probe	
Type	: SD 1200
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1" BSPT (Optional NPT)
Length	: 500, 1000, 1500 mm (can be cut to desired level)
Max. Ambient Temp	: 75 °C
Compliance	: CE (PED 2014/68/EU), EN 12952 & 12953, Type Approval (Module B + D

D-SK 1000 Typical Installation



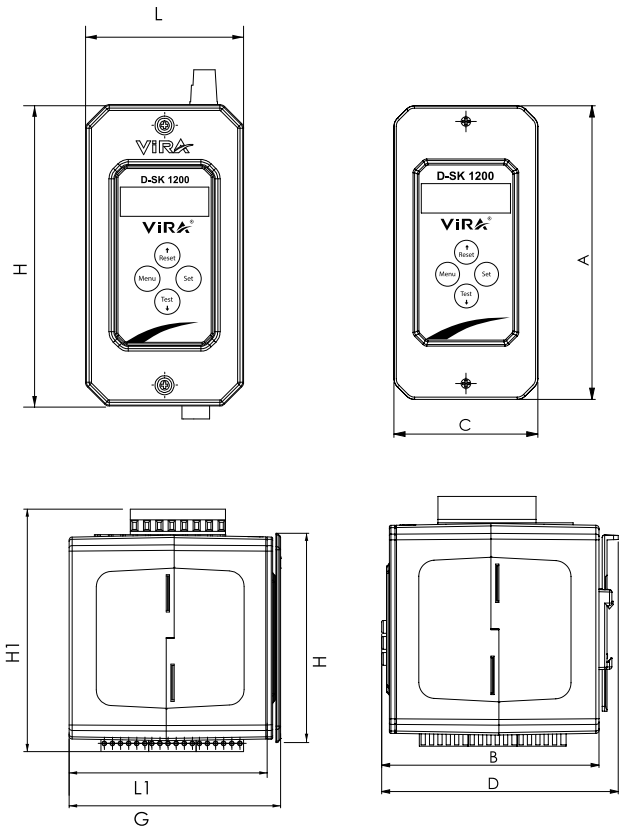






TECHNICAL SPECIFICATION

D-SK 1200 Level Alarm Controller



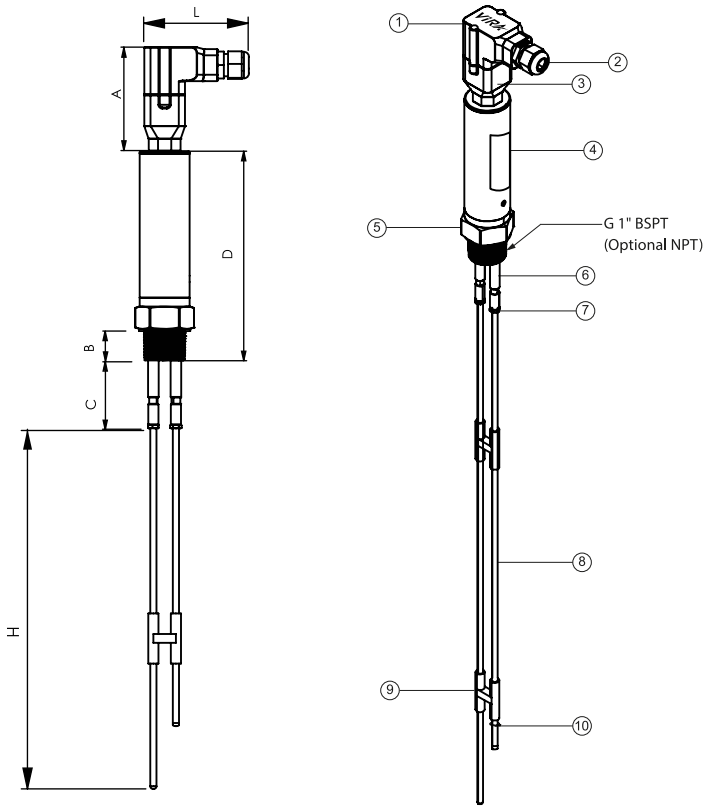
Technical Data

Type	D-SK 1200
Supply Voltage	24VDC
Functions	High Level Alarm, Low Level Alarm, Alarm Test, Alarm Reset
Inputs	Level Probe Input (2 Level), Ground
Outputs	2 Alarm Relays, RS485 Modbus
Display	7 Segment
Label	Silicone Rubber
Control	4 Buttons
Max. Ambient Temp.	55℃
Enclosure	PC (Polycarbonate)
Type	Panel-mount and Din Rail
Protection Class	IP 40

Dimensions

H (mm)	H1 (mm)	L (mm)	L1 (mm)	C (mm)	D (mm)	B (mm)	G (mm)	A (mm)
134,6	156	72	130	64	148	136	136	130

SD 1200 Level Alarm Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	PG 11 Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass FiberReinforced Polypropylene)
4	Label	Laser Marking
5	Probe Body	Austenitic Stainless Steel 304
6	Tip Insulation (Sleeve)	Polytetrauoroethylene (PTFE)
7	Lock Nuts	Austenitic Stainless Steel 304
8	Probe Tips	Austenitic Stainless Steel 316L
9	Tip Steady	Polytetrafluoroethylene (PTFE)
10	Snap Ring	C75 Spring Steel

Dimensions

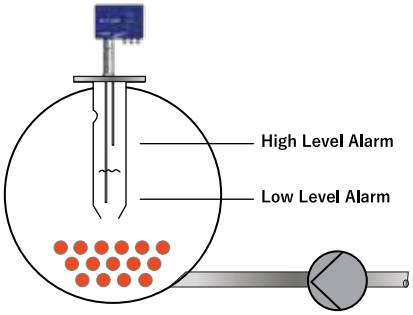
H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
500 1000 1500	83,5	83	16,5	53	145

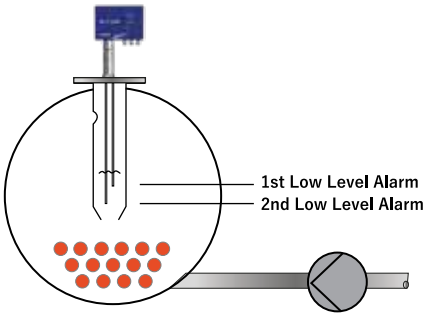
Note: The probe tips are supplied in uniform lengths according to the ordered size. The lengths must be cut and adjusted on site to suit the specific application. If 500 mm is ordered, all probe tips will be delivered with a dimension 'H' of 500 mm.

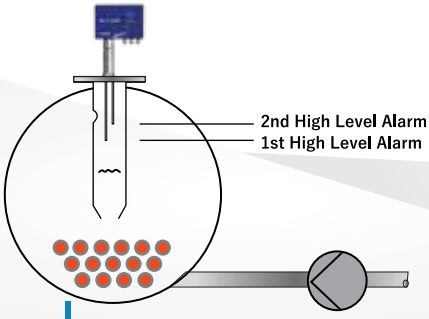
SK-T 1200 Compact Level Alarm System

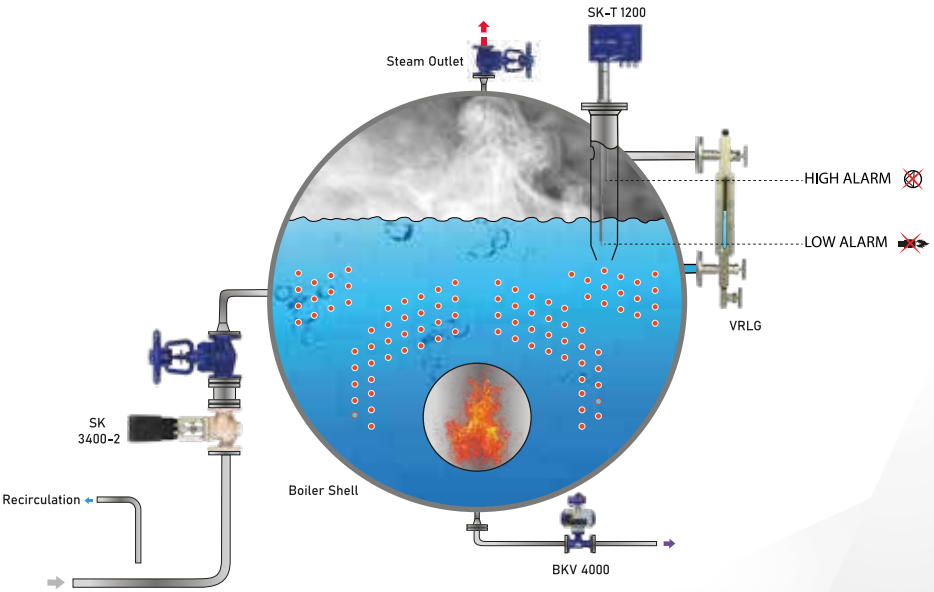
Compact Level Alarm System	
Type	: SK-T 1200
Supply Voltage	: 230 VAC (+5% / -10%), 50/60Hz
Function	: High Level Alarm, Low Level Alarm
Outputs	: 2 Alarm Relays
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1" BSPT (Optional NPT)
Length	: 500, 1000, 1500 mm (can be cut to desired level)
Max. Ambient Temp.	: 75 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), PED 2014/68/EU, EN 12952 & 12953, Type Approval (Module B + D)

SK-T 1200 Typical Installation



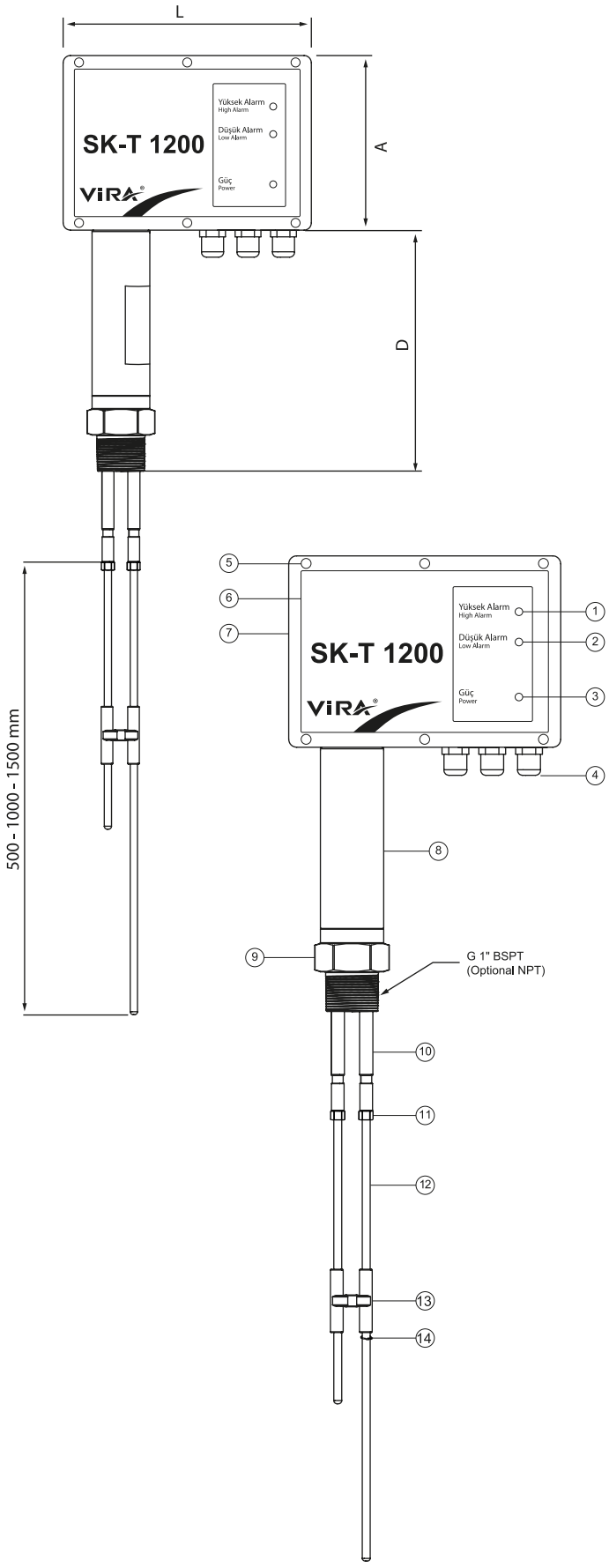






TECHNICAL SPECIFICATION

SK-T 1200 Compact Level Alarm System



Technical Data

Type	SK-T 1200
Supply Voltage	230VAC (+5% / -10%), 50/60Hz
Functions	High Level Alarm, Low Level Alarm
Inputs	Level Probe Input (2 Level), Ground
Outputs	2 Alarm Relays
Display	Led
Label	Lexan
Max. Ambient Temp.	75℃
Enclosure	Aluminum
Installation Type	Boiler top mounted
Protection Class	IP 65
Nominal Pressure	PN 40
Max. Ambient Temp.	239 °C
Max. Operat. Pres.	32 Bar g
Connection	G 1" BSPT (Optional NPT)
Length	500, 1000, 1500 mm (can be cut to desired level)

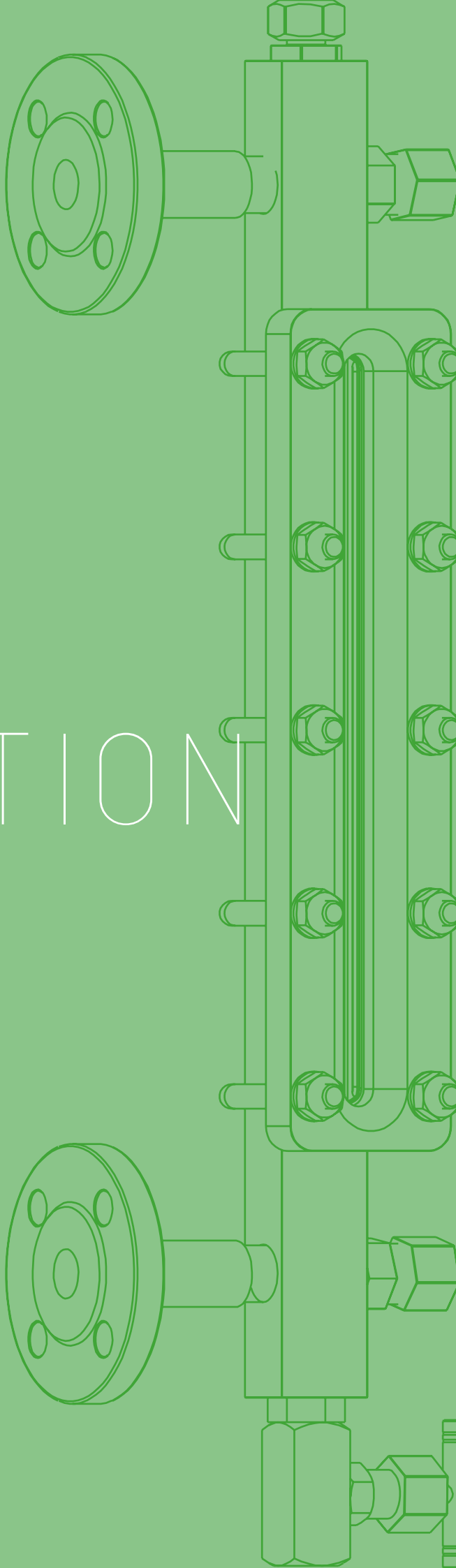
Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
500 1000 1500	170	121	23,5	60	241

No	Part	Material
1	Led " High Alarm"	Lexan Label
2	Led " Low Alarm"	Lexan Label
3	Led "Power"	Lexan Label
4	PG 9 Cable Gland	Brass (Nickel Coated)
5	Housing screws M4	Austenitic Stainless Steel 304
6	Housing Cover	Aluminum
7	Housing	Aluminum
8	Label	Laser Marking
9	Probe Body	Austenitic Stainless Steel 304
10	Tip Insulation (Sleeve)	Polytetrauoroethylene (PTFE)
11	Lock Nuts	Austenitic Stainless Steel 304
12	Probe Tips	Austenitic Stainless Steel 316L
13	Tip Steady	Polytetrafluoroethylene (PTFE)
14	Snap Ring	C75 Spring Steel

Note: The probe tips are supplied in uniform lengths according to the ordered size. The lengths must be cut and adjusted on site to suit the specific application. If 500 mm is ordered, all probe tips will be delivered with a dimension 'H' of 500 mm.

LEVEL INDICATION



VMLG
Magnetic Level Gauge

The Magnetic Level Gauge offers a safe, leak-proof, and maintenance-friendly solution for continuous liquid level monitoring in pressurized or hazardous environments. Using the principle of magnetic coupling, the system allows for clear external level indication without direct contact between the indicator and process fluid.

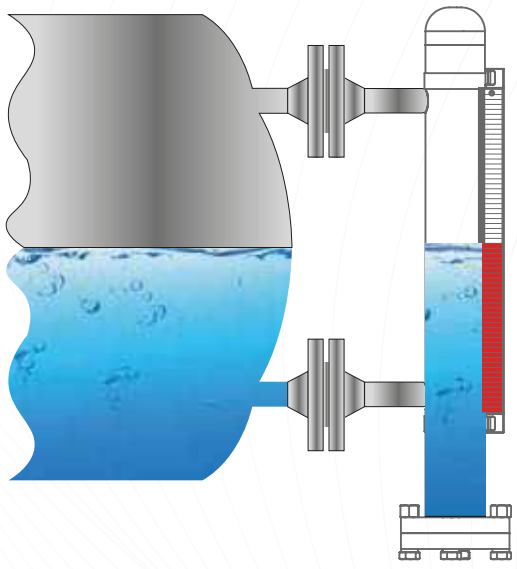
Inside the chamber, a float with an embedded magnet rises and falls with the liquid level. Outside the chamber, a magnetic indicator rail—consisting of colored flags or a follower—moves in response, providing a highly visible and accurate level reading even from a distance.

Magnetic level gauges are ideal for applications involving toxic, corrosive, or high-pressure fluids, and are commonly used in the chemical, petrochemical, power generation, and water treatment industries.

Key Features:

- Non-invasive level indication with no direct contact between the indicator and the process fluid
- Operates reliably in high-pressure and high-temperature conditions
- Suitable for horizontal or vertical tank installations
- Available with stainless steel, PVC, or special alloy chambers depending on the application
- Optional switches and transmitters for remote level monitoring and control integration
- Customizable float designs for wide density and interface level ranges
- Conforms to international pressure equipment and safety standards (e.g. PED, ASME, EN)

Vira's Magnetic Level Gauges are engineered for long service life, high accuracy, and process safety, especially where conventional glass level gauges are not suitable.



Magnetic Level Gauge for Tanks

Magnetic Level Gauge for Tanks	
Type	: VMLG-T
Pressure	: PN 6
Temperature	: 110 °C
Body	: Stainless Steel
Connection Types	: Flanged (Optional Threaded)
Flanges	: Carbon Steel (Optional Stainless Steel)
Float	: Stainless Steel
Indicator	: Aluminum
Flaps	: Nylon (PA6)

The VMLG-T Magnetic Level Gauge is specially designed for low-pressure tank and storage applications. With a PN 6 pressure rating, this model ensures reliable and clear monitoring of process liquids. Its compact construction makes it particularly suitable for auxiliary tanks, condensate collection vessels, and installations operating close to atmospheric pressure. A robust body, precise level indication, and a maintenance-free magnetic system provide long-lasting and safe operation.

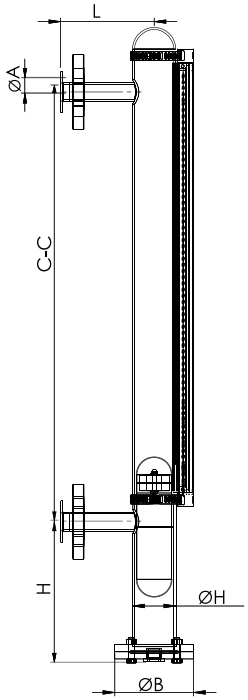
Magnetic Level Gauge for Boilers

Magnetic Level Gauge for Boiler	
Type	: VMLG-B
Pressure	: PN 16
Temperature	: 180 - 200 °C
Body	: Stainless Steel
Connection Types	: Flanged (Optional Threaded)
Flanges	: Carbon Steel (Optional Stainless Steel)
Float	: Stainless Steel
Indicator	: Aluminum
Flaps	: Nylon (PA6)

The VMLG-B Magnetic Level Gauge is designed for steam boiler and other high-pressure process applicatons. With a PN 16 pressure rating, it is engineered to withstand continuous high temperature and pressure conditions. Its durable stainless steel body, dual-sided magnetic indication system, and boiler connection flanges ensure safe and reliable level monitoring. As an indirect magnetic level indicator, it is suitable for use in combination with the direct level gauges required by EN 12952 and EN 12953 standards, providing operators with enhanced visibility and operational safety.

TECHNICAL SPECIFICATION

Magnetic Level Gauge

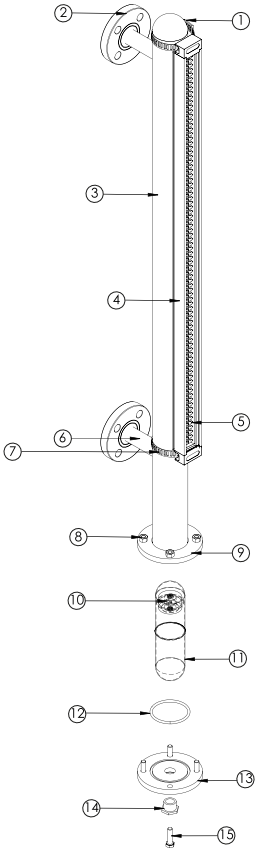


Technical Data

Type	VMLG
Body	AISI 304 / AISI 316 Stainless Steel, PN16 rated
Flap	Nylon (PA6)
Float	AISI 316L Stainless Steel
Connection	Flanged
Size	DN20, DN 25
Indicator Frame	Aluminum
Flanges	Carbon Steel

Dimensions

C-C (mm)	L (mm)	Ø A (mm)	ØB (mm)	H (mm)	ØD (mm)
300-3000	130,5	26,9	110	87,6	60,3



No	Part	Material
1	Indicator top cover / cap	AISI 304 / AISI 316 Stainless Steel
2	Process connection flange	AISI 304 / AISI 316 Stainless Steel
3	Chamber / body (main tube)	AISI 304 / AISI 316 Stainless Steel, PN16 rated
4	Magnetic flaps (bicolor indicators)	Nylon (PA6) - (Red/White)
5	Indicator housing / frame	Aluminum
6	Process nozzle / connection pipe	AISI 304 / AISI 316 Stainless Steel
7	Mounting clamp / bracket (indicator-to-body)	AISI 304 Stainless Steel
8	Bolt (body-to-bottom flange)	AISI 304 / AISI 316 Stainless Steel
9	Bottom end flange / drain flange	AISI 304 / AISI 316 Stainless Steel
10	Magnetic disc (inside float)	NdFeB Magnet (encapsulated)
11	Float	AISI 316L Stainless Steel (non-magnetic)
12	O-ring (cover seal)	FKM (Viton) / NBR depending on medium
13	Drain cover / bottom cover flange	AISI 304 / AISI 316 Stainless Steel
14	Drain plug	AISI 304 / AISI 316 Stainless Steel
15	Cap nut (for cover studs)	AISI 304 / AISI 316 Stainless Steel

VRLG
Reflex Level Gauges

The Reflex Level Gauge is a robust and highly reliable instrument used for direct visual indication of liquid levels in steam boilers, tanks, and industrial vessels. It operates using a reflex glass mounted within a precision-engineered body, which utilizes the difference in light reflection between liquid and gas phases to provide a clear and unambiguous reading.

Reflex gauges are ideal for applications where high visibility, durability, and pressure resistance are critical. Their simple yet effective design eliminates the need for external power or complex instrumentation, making them perfect for both continuous monitoring and quick visual checks.

Key Features:

-Clear level indication based on light refraction and reflection through borosilicate reflex glass

-Suitable for saturated steam applications up to 32 bar and liquid service under high temperature and pressure

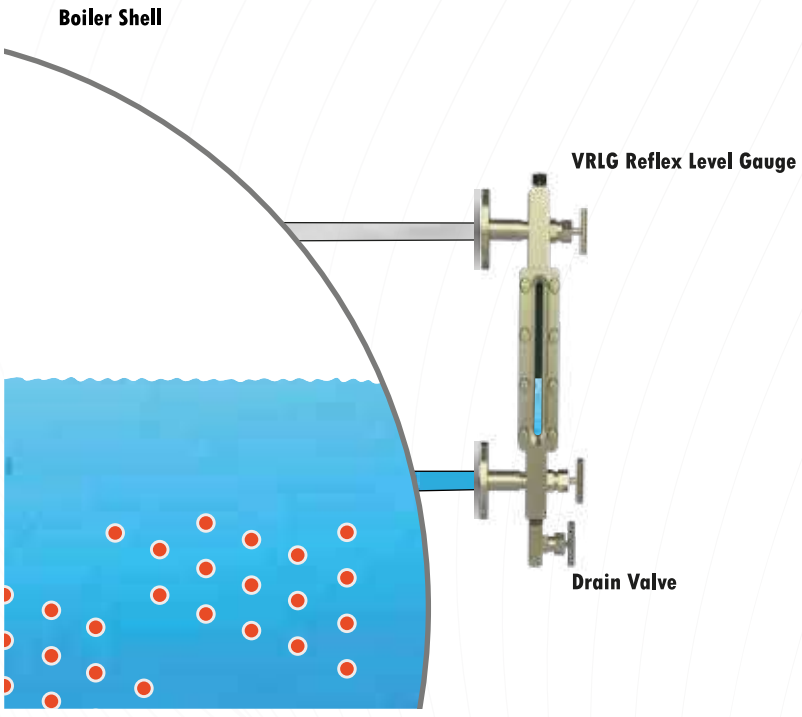
-Constructed from carbon steel or stainless steel bodies with corrosion-resistant internals

-Standard sizes available with center-to-center connections from 290 mm to 1500 mm

-Optional mica shields for protection in high-pressure steam service

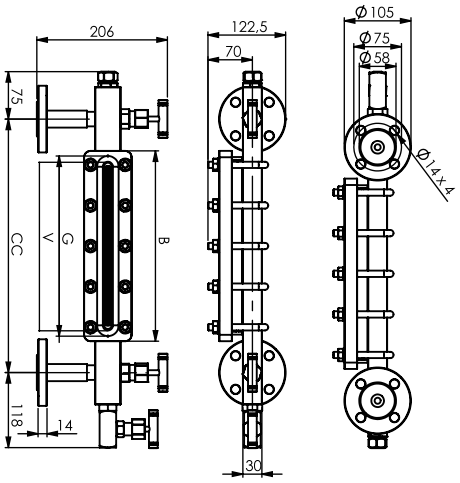
-Conforms to EN 12953, and other relevant pressure equipment standards

Reflex level gauges are essential for ensuring safe operation and maintaining water level compliance in steam boiler systems.
Vira also offers high-quality borosilicate reflex glass, ensuring optimal clarity and long service life under demanding operating conditions.



Reflex Level Gauges

Reflex Level Gauges	
Type	: VRLG
Pressure	: PN 40
Temperature	: 250 °C
Body	: Carbon Steel
Connection Types	: Flanged
Flanges	: Carbon Steel



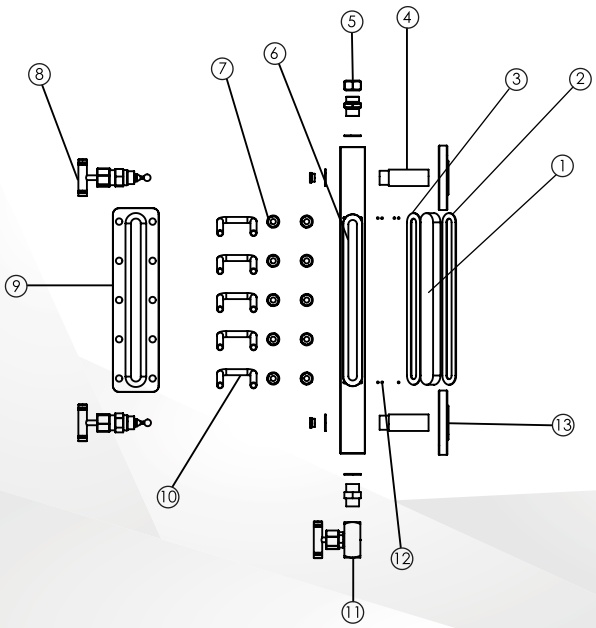
Technical Data

Type	VRLG
Body	Carbon Steel
Cover	Carbon Steel
Glass	Borosilicat
Connection	Flanged
Size	DN 20,DN 25

Dimensions

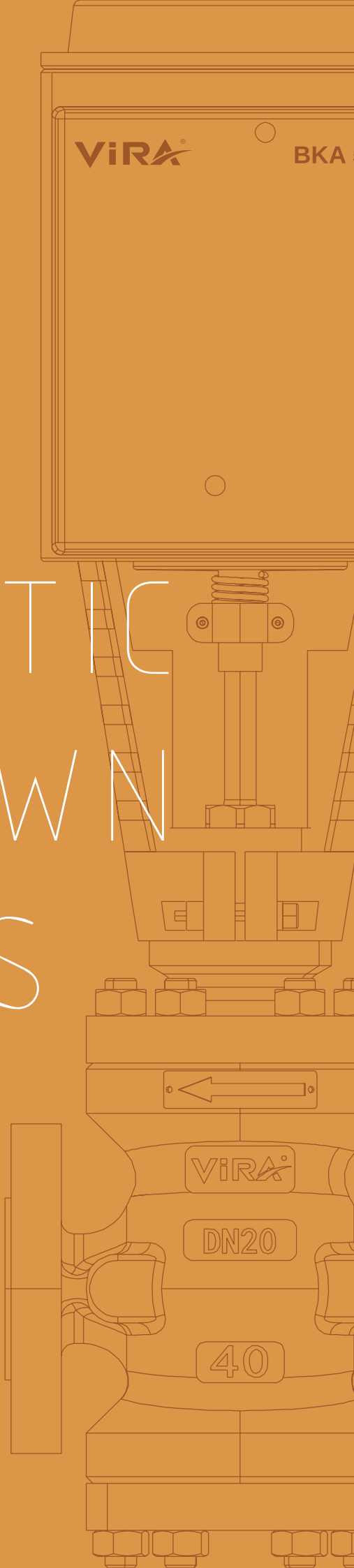
Model	C-C (mm)	B (mm)	V (mm)	G (mm)	Weight kg
VRLG - 310	310	210	176	194	9,3
VRLG - 340	340	240	206	224	9,8
VRLG - 370	370	270	236	254	10,3
VRLG - 400	400	300	266	284	10,5
VRLG - 440	440	340	306	324	11,5
VRLG - 500	500	360	326	344	12,5

Note: Dimensions other than the standard sizes are available upon request.



No	Part	Material
1	Glass	Borosilicate glass
2	Gasket (upper)	Graphite
3	Gasket (lower)	Klingerit
4	Flange connection pipe	P265GH Carbon Steel
5	Vent plug	P265GH Carbon Steel
6	Body	P265GH Carbon Steel
7	Washer-faced nut	Carbon Steel (zinc plated)
8	Valve	AISI 316 Stainless Steel
9	Cover	P265GH Carbon Steel
10	U bolt	Carbon Steel (zinc plated)
11	Drain Valve	AISI 316 Stainless Steel
12	Retaining pin	Carbon Steel
13	Flange	P265GH Carbon Steel

AUTOMATIC BLOWDOWN SYSTEMS



VIRA®

"Boiler Control Engineered for Steam Excellence"

AUTOMATIC BLOWDOWN

Boiler Blowdown

Why is it necessary to blowdown in steam boilers?

Many industries use boilers to generate steam for their energy needs. The water used to feed the boilers contains varying levels of impurities:
• Dissolved solids - Scale forming substances
• Suspended solids - Sludge forming substances
• Dissolved gasses - Corrosive gasses such as oxygen and carbon dioxide.

Boiler feedwater could contain a high level of dissolved salts and minerals, even if there is a feedwater treatment. When steam evaporates, the concentration of the salt and minerals in the boiler water increases. This causes TDS increase in the boiler water and high TDS may cause;
• Carryover of the boiler water
• Formation of sludge
• Scaling of the boiler tubes

Carryover of the water in steam lines may cause water hammer, corrosion, and deposits. Deposits on the heat transfer surfaces decrease the efficiency and cause control valves and steam traps to malfunction.

Water Carryover

Suspended solids accumulate at the bottom of the boiler and if they are not removed those solids prevent heat transfer from the boiler fire tube which will overheat and may even fail. Sludge formation can lead to malfunction of level control devices.
Scaling on the heating surfaces in the boiler will increase fuel cost, reduce heat transfer, and efficiency.
1 mm calcium carbonate scale increases %3 or 1mm Silicate scale increases %8 in fuel cost.

Why Automatic Blowdown?

The blowdown rate can be controlled manually or automatically.

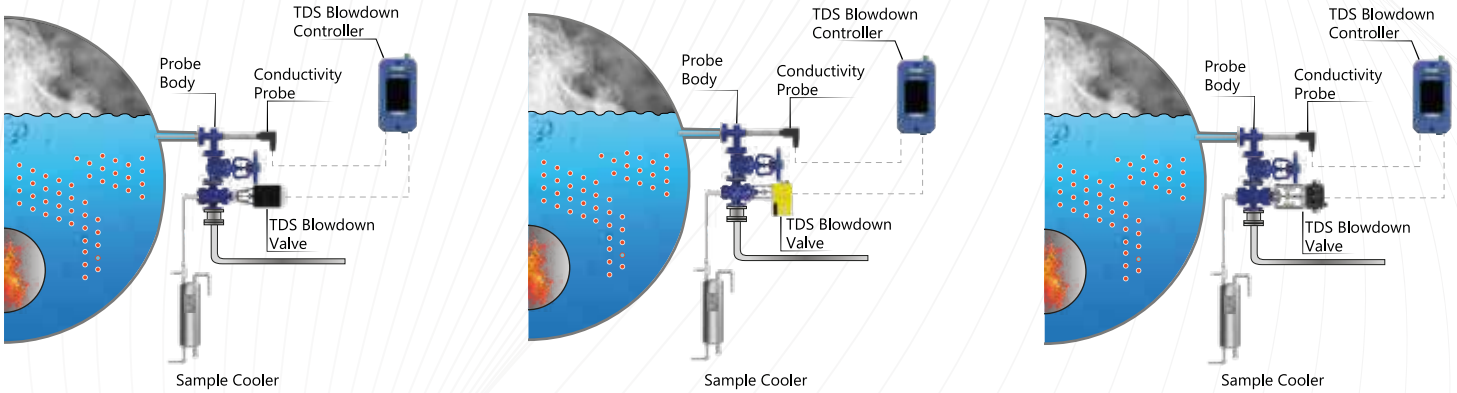
With manual blowdown control, if the level of TDS is higher than the allowed level, it may cause loss of water, heat and chemicals from the boiler. Boiler blowdown automation helps to reduce fuel, water, chemical and manpower costs.

Automatic blowdown system ensures a maximum of dissolved solids and suspended solids are removed with a minimal loss of water and heat from the boiler.

Automatic Surface Blowdown (TDS) Control

As water in the boiler drum turns into steam, the concentration of dissolved solids in the boiler water rises. These dissolved substances are carried into the system with the steam and water, causing malfunctions and leading to deposits on the heat transfer surfaces. Such deposits reduce efficiency by impairing heat transfer. Since blowdown alone cannot prevent scaling, dosing and degassing of boiler feedwater are also essential to maintain the boiler water at the desired TDS level.

The conductivity probe where located in the boiler shell continuously monitors the conductivity of the boiler water. The measured conductivity value is compared with the ''Set Point'' in the controller. If the water conductivity is higher than the set value the blowdown valve will be continuously working until the conductivity value drops below the set valueby hysteresis value. If it is lower than the set point the blowdown valve will remain its closed position.



Vira offers two advanced surface blowdown solutions: the BS4 system and the BS4-T system. While both systems are designed for precise TDS (Total Dissolved Solids) control, the BS4-T provides an additional advantage with its integrated temperature compensation feature. This ensures reliable measurement accuracy even under fluctuating boiler conditions, whereas the standard BS4 system operates without this feature.

In steam boilers, an increase in water temperature leads to a corresponding rise in conductivity — approximately 2% for every 1 °C. If not compensated, this variation can result in inaccurate readings, improper blowdown cycles, and reduced boiler efficiency.

Building on this proven technology, Vira now introduces the new generation D-BS4 and D-BS4-T systems. These systems incorporate the latest D-Series controllers, offering enhanced user interfaces, improved diagnostics, and more compact designs.
D-BS4 system consists of 4 main components: the D-BK 5000-T Controller, BD 5400 Conductivity Probe, and BKV 5400 Continuous Blowdown Valve, and DG 5400 Probe Body.
D-BS4-T system consists of 4 main components: the D-BK 5000-T Controller, BD 5600-T Conductivity Probe (with integrated temperature compensation), BKV 5400 Continuous Blowdown Valve, and DG 5400 Probe Body.
With din rail and panel type application, touch screen, user friendly interface, and advanced monitoring functions, the new D-Series systems deliver higher reliability, reduced commissioning effort, and long-term operational savings.

Advantages of Automatic TDS Blowdown:

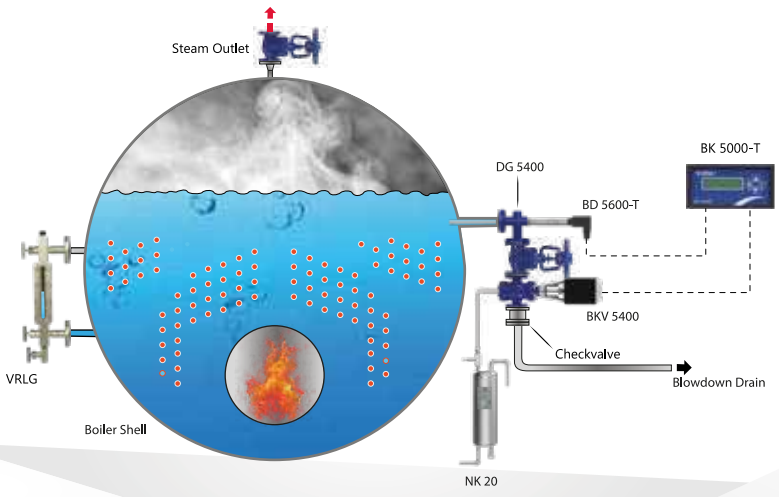
- Reduced maintenance and repair costs (minimized carryover and deposits)
- Cleaner and more efficient steam
- Energy saving
- Reduced operating cost (less feedwater consumption; chemical treatment and higher heating efficiency)
- Potential savings from a blowdown heat recovery system (where installed).
- The labor-saving advantages of automation.

BS4-T Temperature Compensation Type Automatic TDS Blowdown System

Temp. Comp. Type Conductivity Controller	
Type	: BK 5000-T
Supply Voltage	: 230 VAC (+5% / -10%) 50/60Hz
Enclosure	: Panel-mount Type
Functions	: Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis Points, LCD Display, 4 Buttons
Outputs	: 1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Features	: Conductivity and Alarm Set Values, Temperature Compensation, Valve & Alarm Relay Test Functions, LCD Display, User-friendly Parameter Setting (4 Buttons)
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval (Module B + D), EN 12952 & EN 12953

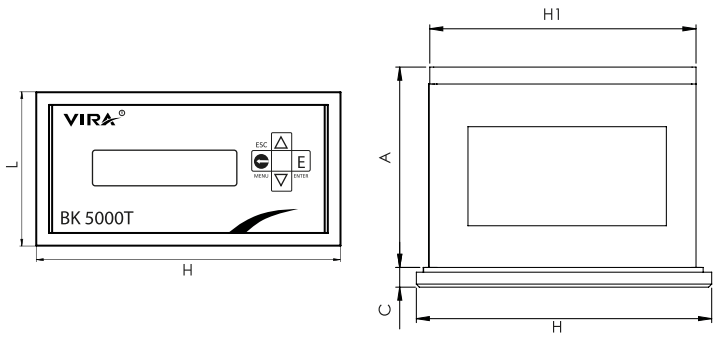
Temperature Compensation Type Conductivity Probe	
Type	: BD 5600-T
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1/2" BSPT (Optional NPT)
Max. Ambient Temp.	: 75 °C
Compliance	: CE (PED 2014/68/EU), Type Approval (Module B + D), EN 12952 & EN 12953

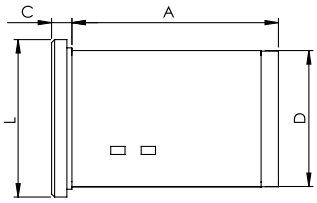
BS4-T Typical Installation



TECHNICAL SPECIFICATION

BK 5000-T Conductivity Controller





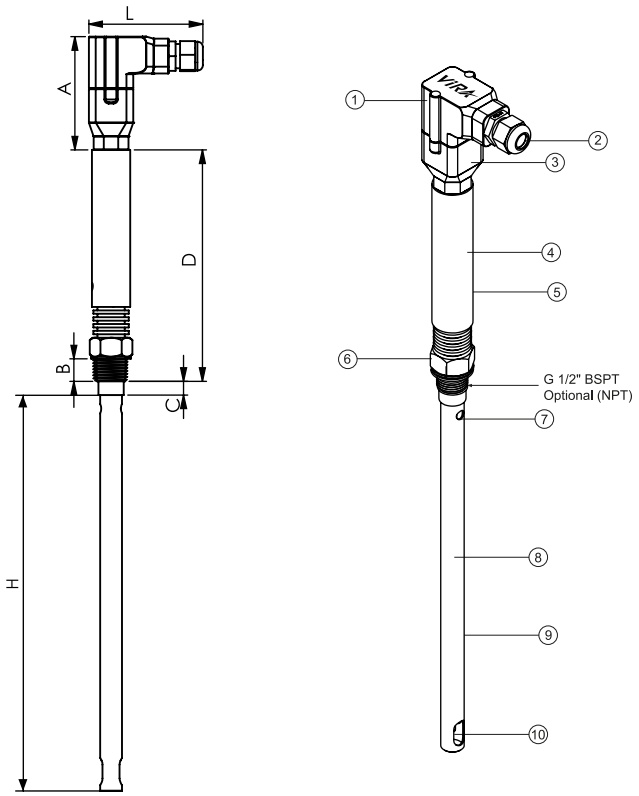
Technical Data

Controller	BK 5000-T
Supply Voltage	230VAC (+5%/-10%) 50/60Hz
Functions	Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis Points, LCD Display, 4 Buttons
Inputs	1 Conductivity Input (via Probe), 1 Temperature Input (Pt100, via Probe), Ground Connection
Outputs	1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Range	0-10.000 µS/cm (default)
Display	LCD
Label	Lexan
Max. Ambient Temp.	55℃
Enclosure	PA (Polyamide)
Type	Panel-mount
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	A (mm)	C (mm)	D (mm)
144	135	72	101	9	67

BD 5600-T Conductivity Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Cover Tube	Austenitic Stainless Steel 304
6	Probe Body	Austenitic Stainless Steel 316L
7	Probe Tip Sleeving	Politetrafloroetilen (PTFE)
8	Probe Tip	Austenitic Stainless Steel 316L
9	Rod	Austenitic Stainless Steel 316L
10	Sensor Tip	Austenitic Stainless Steel 316Ti

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
500	83,5	83	16,5	10	169,5

Note: Standard probe length is 500 mm. Alternative lengths are available upon request.

NEW

D-BS4-T Temperature Compensation Type Automatic TDS Blowdown System

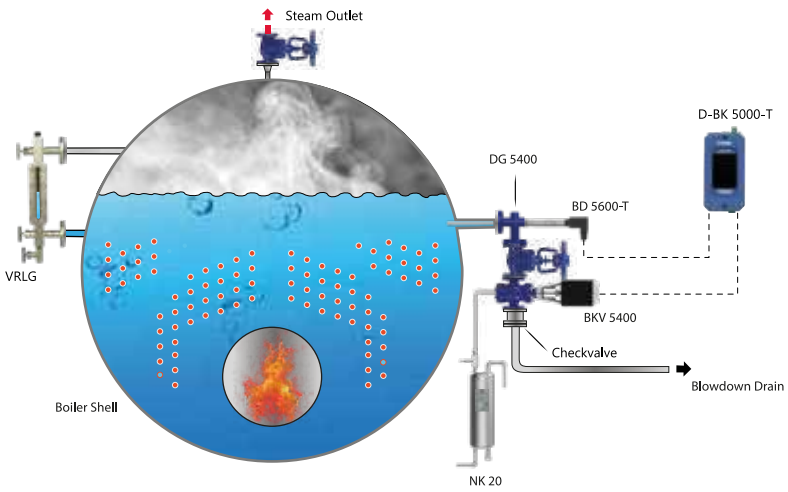
Temp. Comp. Type Conductivity Controller

Type	: D-BK 5000-T
Supply Voltage	: 24VDC
Enclosure	: Panel-mount and Din Rail Type
Functions	: Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis Points, Touchscreen Display, Multi-Language User Interface, Alarm Reset
Outputs	: 1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Features	: Conductivity and Alarm Set Values, Temperature Compensation, Valve & Alarm Relay Test Functions, Touchscreen Display, User-Friendly Parameter Setting, Multi-Language Support
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval (Module B + D), EN 12952 & EN 12953

Temperature Compensation Type Conductivity Probe

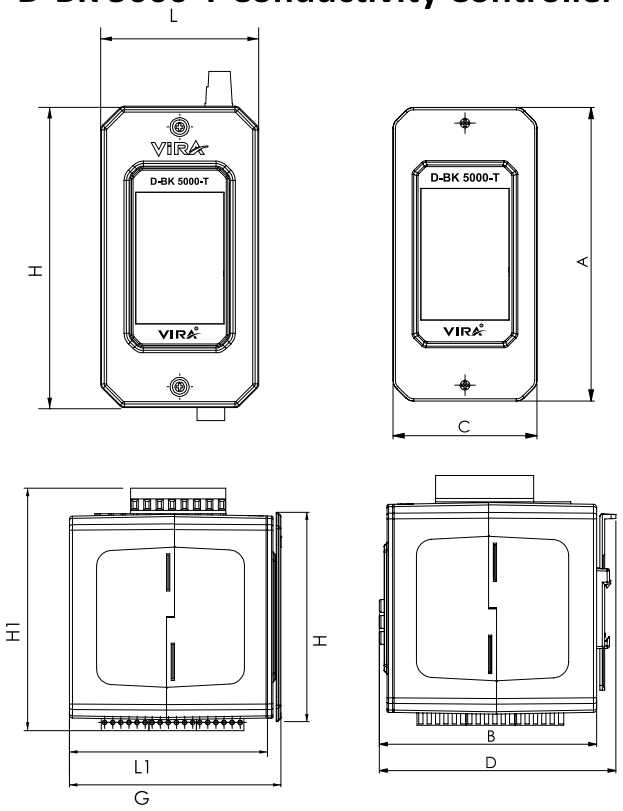
Type	: BD 5600-T
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1/2" BSPT (Optional NPT)
Max. Ambient Temp.	: 75 °C
Compliance	: CE (PED 2014/68/EU), Type Approval (Module B + D), EN 12952 & EN 12953

D-BS4-T Typical Installation



TECHNICAL SPECIFICATION

D-BK 5000-T Conductivity Controller



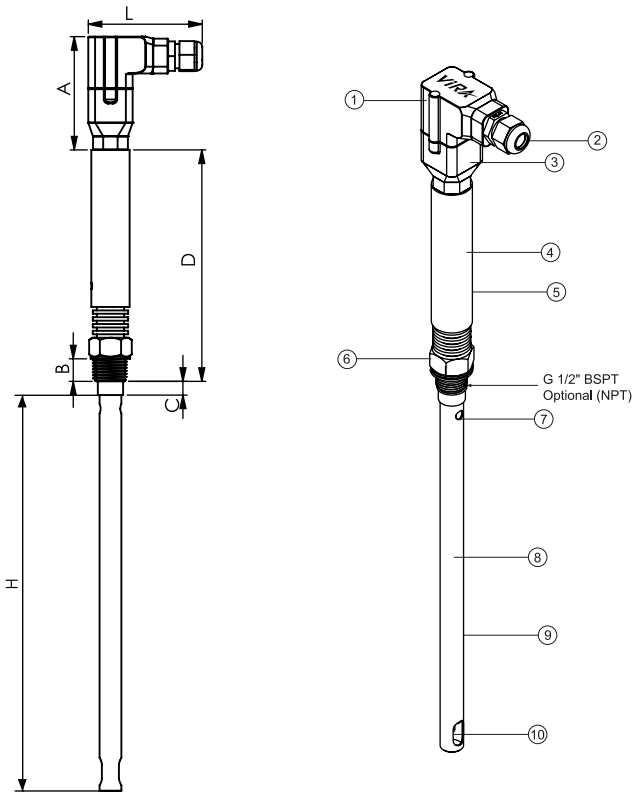
Technical Data

Controller	D-BK 5000-T
Supply Voltage	24VDC
Functions	Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis Points, Touchscreen Display, Multi-Language User Interface, Alarm Reset
Inputs	1 Conductivity Input (via Probe), 1 Temperature Sensor Input (Pt100, via Probe), Ground Connection
Outputs	1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Range	0-10.000 µS/cm (default)
Display & Control	Touch Screen
Label	Silicone Rubber
Max. Ambient Temp.	55℃
Enclosure	PC (Polycarbonate)
Type	Panel-mount and Din Rail
Protection Class	IP 40

Dimensions

H (mm)	H1 (mm)	L (mm)	L1 (mm)	C (mm)	D (mm)	B (mm)	G (mm)	A (mm)
134,6	156	72	130	64	148	136	136	130

BD 5600-T Conductivity Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Cover Tube	Austenitic Stainless Steel 304
6	Probe Body	Austenitic Stainless Steel 316L
7	Probe Tip Sleeving	Politetrafloroetilen (PTFE)
8	Probe Tip	Austenitic Stainless Steel 316L
9	Rod	Austenitic Stainless Steel 316L
10	Sensor Tip	Austenitic Stainless Steel 316Ti

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
500	83,5	83	16,5	10	169,5

Note: Standard probe length is 500 mm. Alternative lengths are available upon request.

BS4 Automatic TDS Blowdown System

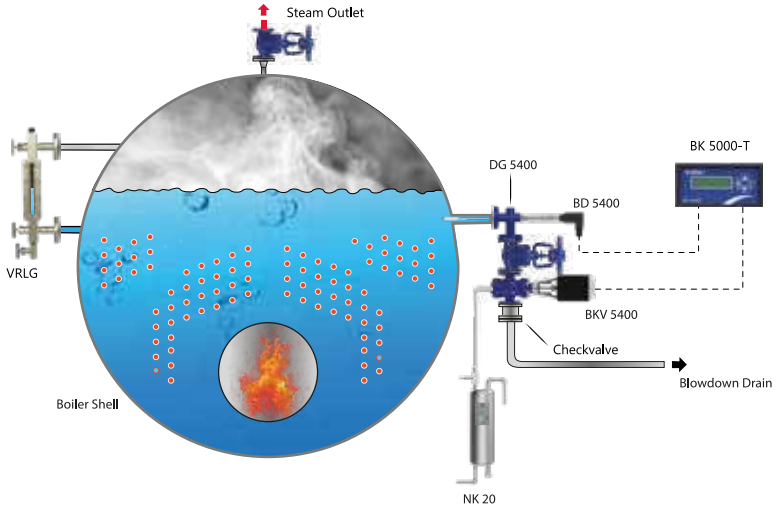
Conductivity Controller

Type	: BK 5000-T
Supply Voltage	: 230 VAC (+5% / -10%) 50/60Hz
Enclosure	: Panel-mount Type
Functions	: Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis Points, LCD Display, 4 Buttons
Outputs	: 1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Features	: Conductivity and Alarm Set Values, Valve & Alarm Relay Test Functions, LCD Display, User-friendly Parameter Setting (4 Buttons)
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval (Module B + D), EN 12952 & EN 12953

Conductivity Probe

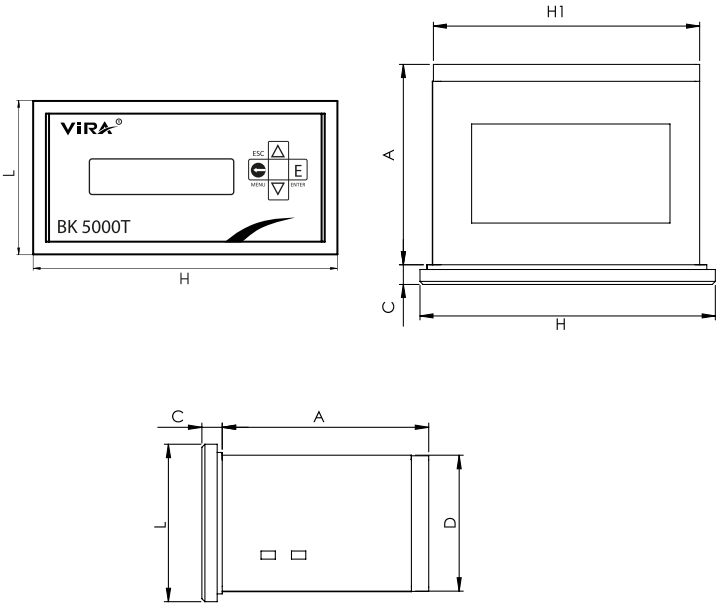
Type	: BD 5400
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1/2" BSPT (Optional NPT)
Max. Ambient Temp.	: 75 °C
Compliance	: CE (PED 2014/68/EU), Type Approval (Module B + D), EN 12952 & EN 12953

BS4 Typical Installation



TECHNICAL SPECIFICATION

BK 5000-T Conductivity Controller



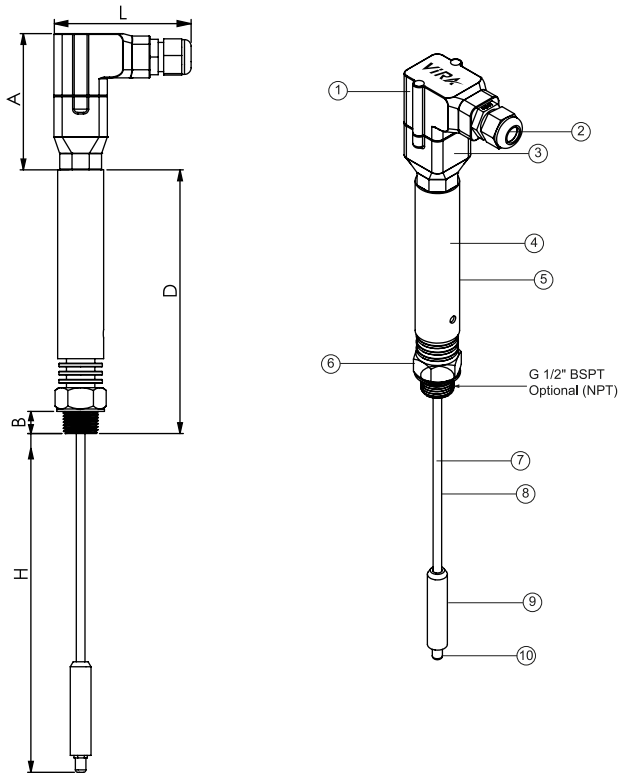
Technical Data

Controller	BK 5000-T
Supply Voltage	230VAC (+5%/-10%), 50/60Hz
Functions	Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis Points, LCD Display, 4 Buttons
Inputs	1 Conductivity Input (via Probe), Ground Connection
Outputs	1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus Communication
Range	0-10.000 µS/cm (default)
Display	LCD
Label	Lexan
Max. Ambient Temp.	55°C
Enclosure	PA (Polyamide)
Type	Panel-mount
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	A (mm)	C (mm)	D (mm)
144	135	72	101	9	67

BD 5400 Conductivity Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Cover Tube	Austenitic Stainless Steel 304
6	Probe Body	Austenitic Stainless Steel 316L
7	Probe Tip	Austenitic Stainless Steel 316L
8	Probe Tip Sleeving	Politetrafloroetilen (PTFE)
9	Insulator	Politetrafloroetilen (PTFE)
10	Sensor Tip	Austenitic Stainless Steel 316Ti

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	D (mm)
500	83,5	83	13,5	160,6

Note: Standard probe length is 500 mm. Alternative lengths are available upon request.

NEW

D-BS4 Automatic TDS Blowdown System

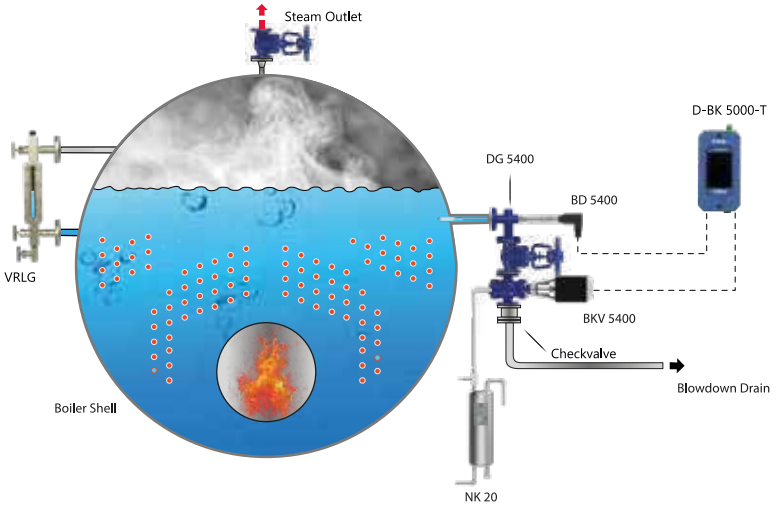
Conductivity Controller

Type	: D-BK 5000-T
Supply Voltage	: 24VDC
Enclosure	: Panel-mount and Din Rail Type
Functions	: Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis Points, Touchscreen Display, Multi-Language User Interface, Alarm Reset
Output	: 1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Features	: Conductivity and Alarm Set Values, Valve & Alarm Relay Test Functions, Touchscreen Display, User-Friendly Parameter Setting, Multi-Language Support
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval (Module B + D), EN 12952 & EN 12953

Conductivity Probe

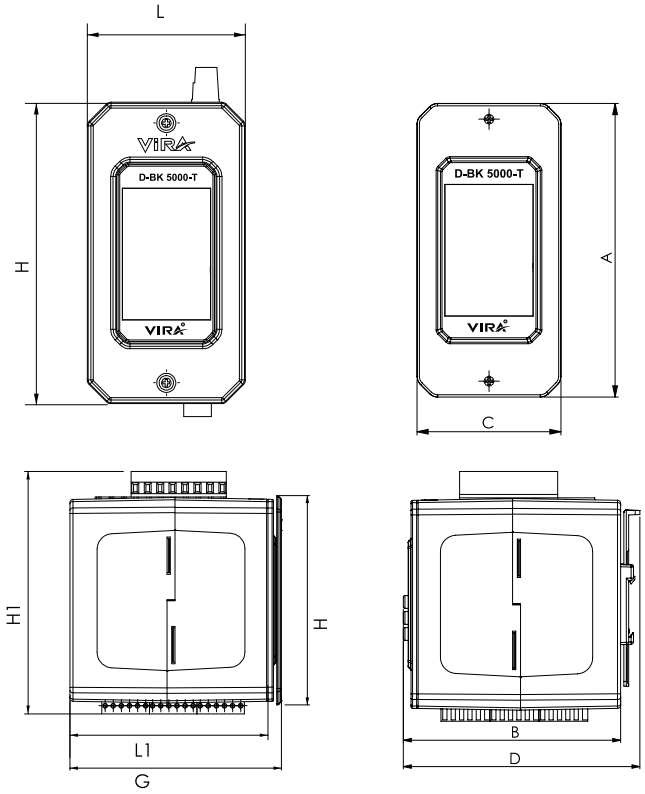
Type	: BD 5400
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1/2" BSPT (Optional NPT)
Max. Ambient Temp.	: 75 °C
Compliance	: CE (PED 2014/68/EU), Type Approval (Module B + D), EN 12952 & EN 12953

D-BS4 Typical Installation



TECHNICAL SPECIFICATION

D-BK 5000-T Conductivity Controller



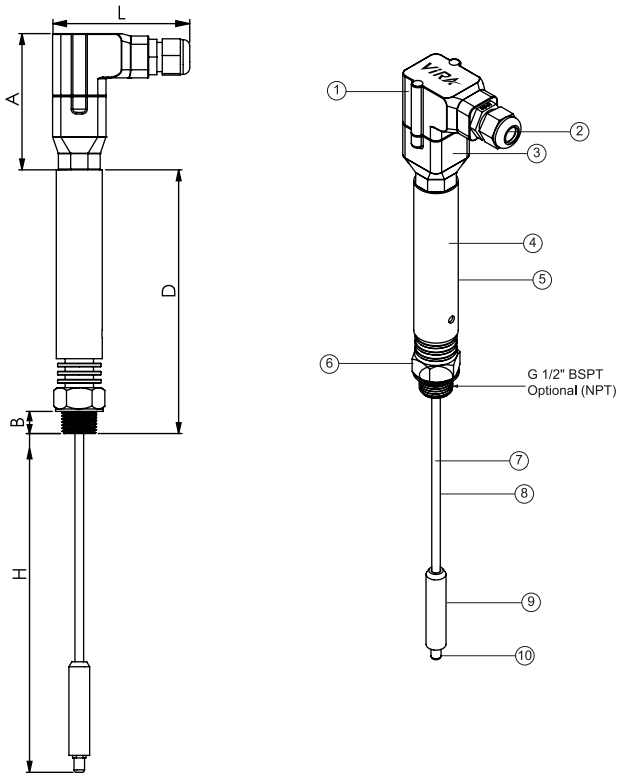
Technical Data

Controller	D-BK 5000-T
Supply Voltage	24VDC
Functions	Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis Points, Touchscreen Display, Multi-Language User Interface, Alarm Reset
Inputs	1 Conductivity Input (via Probe), Ground Connection
Outputs	1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Range	0-10.000 µS/cm (default)
Display & Control	Touch Screen
Label	Silicone Rubber
Max. Ambient Temp.	55℃
Enclosure	PC (Polycarbonate)
Type	Panel-mount and Din Rail
Protection Class	IP 40

Dimensions

H (mm)	H1 (mm)	L (mm)	L1 (mm)	C (mm)	D (mm)	B (mm)	G (mm)	A (mm)
134,6	156	72	130	64	148	136	136	130

BD 5400 Conductivity Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Cover Tube	Austenitic Stainless Steel 304
6	Probe Body	Austenitic Stainless Steel 316L
7	Probe Tip	Austenitic Stainless Steel 316L
8	Probe Tip Sleeving	Politetrafloroetilen (PTFE)
9	Insulator	Politetrafloroetilen (PTFE)
10	Sensor Tip	Austenitic Stainless Steel 316Ti

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	D (mm)
500	83,5	83	13,5	160,6

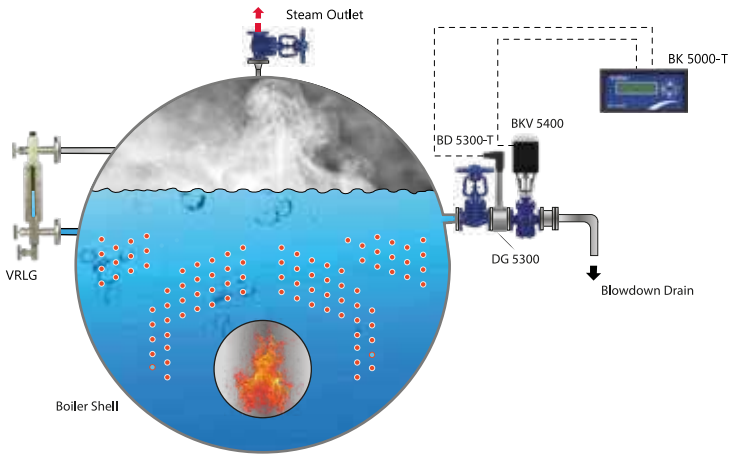
Note: Standard probe length is 500 mm. Alternative lengths are available upon request.

BS5-T Automatic TDS Blowdown Control System

Temp. Compensation Type Conductivity Controller	
Type	: BK 5000-T
Supply Voltage	: 230 VAC (+5% / -10%) 50/60Hz
Enclosure	: Panel-mount Type
Functions	: Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis Points, LCD Display, 4 Buttons
Outputs	: 1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Features	: Conductivity and Alarm Set Values, Temperature Compensation, Valve & Alarm Relay Test Functions, Digital LED Display, User-friendly Parameter Setting (4 Buttons)
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval (Module B + D), EN 12952 & EN 12953

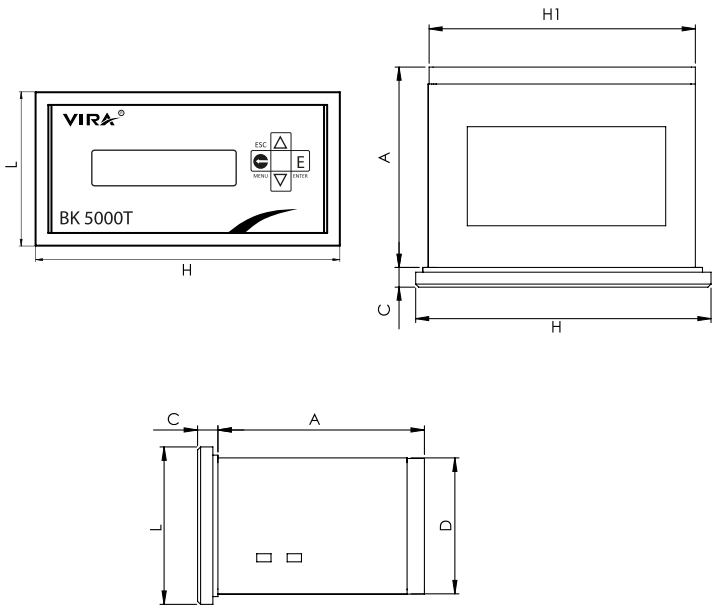
Temp. Compensation Type Conductivity Probe	
Type	: BD 5300-T
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: 1/2" BSPT (Optional NPT)
Max. Ambient Temp.	: 75 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval (Module B + D), EN 12952 & EN 12953

BS5-T Typical Installation



TECHNICAL SPECIFICATION

BK 5000-T Conductivity Controller



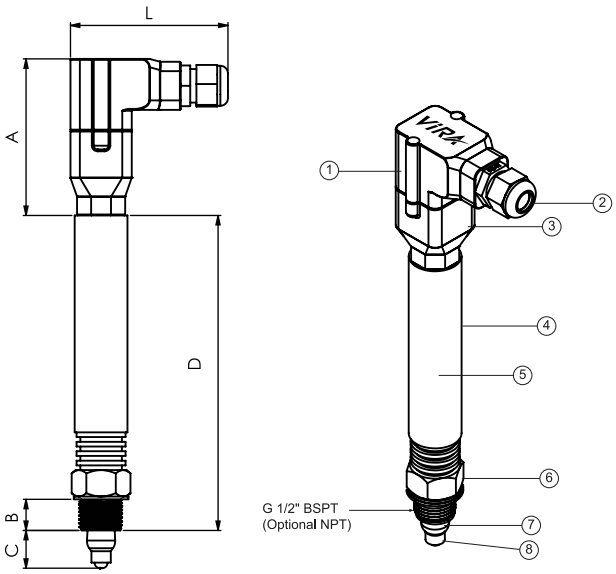
Technical Data

Controller	BK 5000-T
Supply Voltage	230VAC (+5%/-10%), 50/60Hz
Functions	Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis, LCD Display, 4-Button
Inputs	1 Conductivity Input (via Probe), 1 Temperature Input (Pt100 via Probe), Ground Connection
Outputs	1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Range	0-10.000 µS/cm (default)
Display	LCD
Label	Lexan
Max. Ambient Temp.	55°C
Enclosure	PA (Polyamide)
Type	Panel-mount
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	A (mm)	C (mm)	D (mm)
144	135	72	101	9	67

BD 5300-T Conductivity Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Cover Tube	Austenitic Stainless Steel 304
6	Probe Body	Austenitic Stainless Steel 316L
7	Probe Tip Sleeving	Politetrafloroetilen (PTFE)
8	Probe Tip	Austenitic Stainless Steel 316L

Dimensions

L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
83,5	83	16,5	20	167

NEW

D-BS5-T Automatic TDS Blowdown Control System

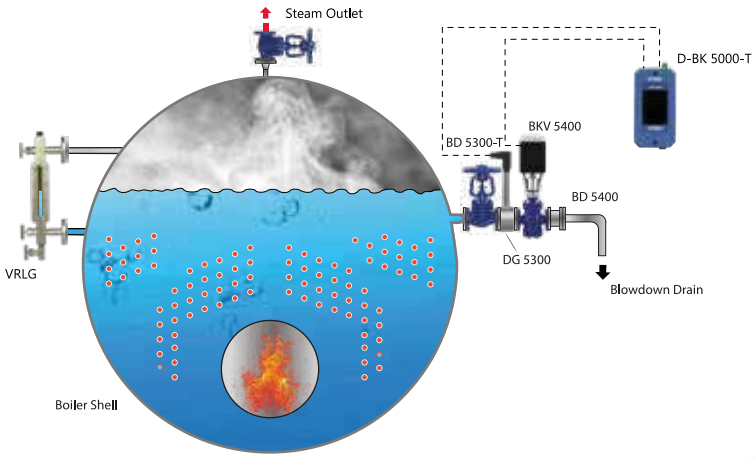
Temp. Comp. Type Conductivity Controller

Type	: D-BK 5000-T
Supply Voltage	: 24VDC
Enclosure	: Panel-mount and Din Rail Type
Functions	: Conductivity Measurement and Continuous Blowdown Control, Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis, Touchscreen Display, Multi-Language User Interface, Alarm Reset
Outputs	: 1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus Communication
Features	: Conductivity and Alarm Set Values, Valve & Alarm Relay Test Functions, Touchscreen Display, User-Friendly Parameter Setting, Multi-Language Support, Temperature Compensation.
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval (Module B + D), EN 12952 & EN 12953

Temp. Compensation Type Conductivity Probe

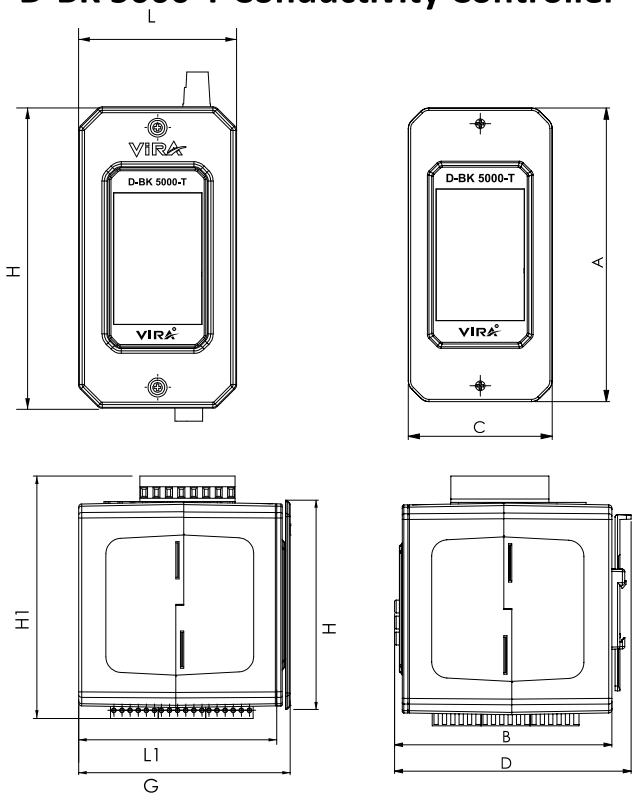
Type	: BD 5300-T
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: 1/2" BSPT (Optional NPT)
Max. Ambient Temp.	: 75 °C
Compliance	: CE (PED 2014/68/EU), Type Approval (Module B + D), EN 12952 & EN 12953

D-BS5-T Typical Installation



TECHNICAL SPECIFICATION

D-BK 5000-T Conductivity Controller



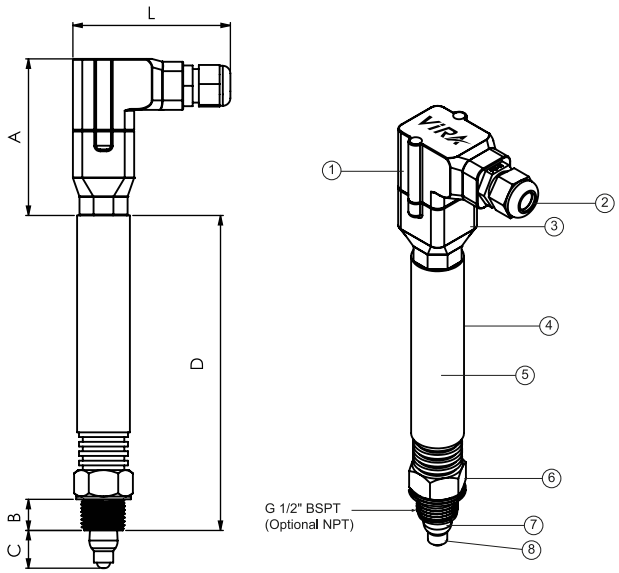
Technical Data

Controller	D-BK 5000-T
Supply Voltage	24VDC
Functions	Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis, Touchscreen Display, Multi-Language User Interface, Alarm Reset
Inputs	1 Conductivity Input (via Probe), 1 Temperature Sensor Input (Pt100 via Probe), Ground Connection
Outputs	1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus Communication
Range	0-10.000 µS/cm (default)
Display & Control	Touch Screen
Label	Silicone Rubber
Max. Ambient Temp.	55°C
Enclosure	PC (Polycarbonate)
Type	Panel-mount and Din Rail
Protection Class	IP 40

Dimensions

H (mm)	H1 (mm)	L (mm)	L1 (mm)	C (mm)	D (mm)	B (mm)	G (mm)	A (mm)
134,6	156	72	130	64	148	136	136	130

BD 5300-T Conductivity Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Cover Tube	Austenitic Stainless Steel 304
6	Probe Body	Austenitic Stainless Steel 316L
7	Probe Tip Sleeving	Politetrafloroetilen (PTFE)
8	Probe Tip	Austenitic Stainless Steel 316L

Dimensions

L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
83,5	83	16,5	20	167

Continuous (TDS) Blowdown Valve (Electric Actuated)

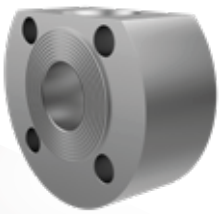
Type	: BKV 5400- E
Nominal Pressure	: PN 40
Sizes	: DN 20, DN 25, DN 40
Actuator Type	: Electric
Max. Operat. Temp.	: 230 °C
Body	: WCB
Sample Cooler Outlet	: 1/4" BSP Threaded
Compliance	: CE (PED 2014/68/EU)

Continuous (TDS) Blowdown Valve (Pneumatic Actuated)

Type	: BKV 5400- P
Nominal Pressure	: PN 40
Sizes	: DN 20, DN 25, DN 40
Actuator Type	: Pneumatic
Max. Operat. Temp.	: 230 °C
Body	: WCB
Sample Cooler Outlet	: 1/4" BSP Threaded
Compliance	: CE (PED 2014/68/EU)

Conductivity Probe Body

Type	: DG 5400
Nominal Pressure	: PN 40
Sizes	: DN 20, DN 25, DN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Body	: Nodular Cast Iron, Carbon Steel

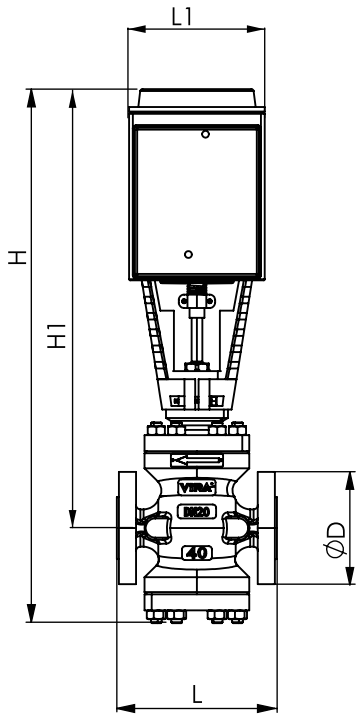


Conductivity Probe Body

Type	: DG 5300
Nominal Pressure	: PN 40
Sizes	: DN 20, DN 25, DN32, DN 40, DN 50
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Body	: Carbon Steel, Stainless Steel

TECHNICAL SPECIFICATION

BKV 5400 Blowdown Valves



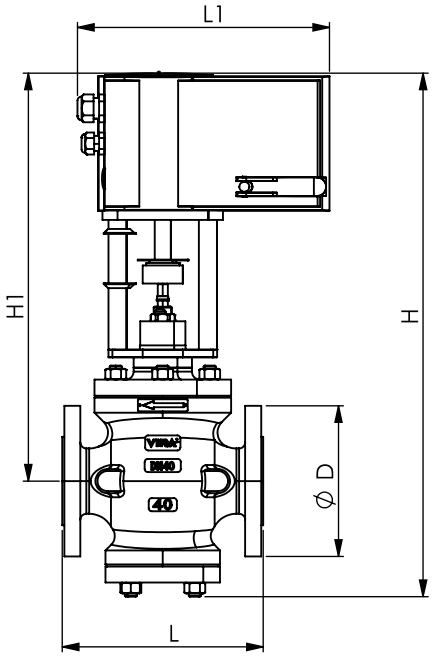
Technical Data

Type	BKV 5400-E
Body	WCB
Pressure Class	PN 40
Operat. Temp.	-10 - +230 °C
Sealing	Metal to Metal
Actuator	Electric
Control	On-Off, Spring Return (Fail-Safe)
Connection	Flanged

Dimensions

Type	DN	D (mm)	H (mm)	H1 (mm)	L1 (mm)	L (mm)
BKV 5420-E	**20**	105	483	394	127	150
BKV 5425-E	**25**	115	483	394	127	160

BKV 5400 Blowdown Valves



Technical Data

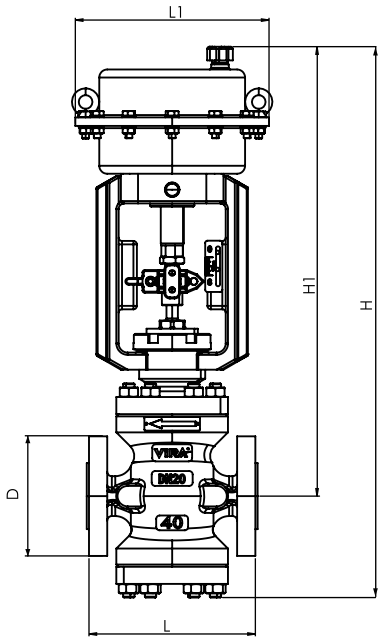
Type	BKV 5400-E
Body	WCB
Pressure Class	PN 40
Operat. Temp.	-10 - +230 °C
Sealing	Metal to Metal
Actuator	Electric
Control	On-Off, Spring Return (Fail-Safe)
Connection	Flanged

Dimensions

Type	DN	D (mm)	H (mm)	H1 (mm)	L1 (mm)	L (mm)
BKV 5440-E	**40**	150	521	406	223	196

TECHNICAL SPECIFICATION

BKV 5400 Blowdown Valves



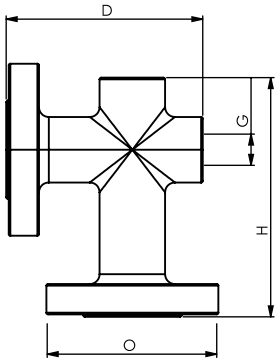
Technical Data

Type	BKV 5400-P
Body	WCB
Pressure Class	PN 40
Operat. Temp.	-10 - +230 °C
Sealing	Metal to Metal
Actuator	Pneumatic (Diaphragm)
Control	On-Off, Spring Return (Fail-Safe)
Accessories	Switch Box, Namur Solenoid Valve, Air Filter
Connection	Flanged

Dimensions

Type	DN	D (mm)	H (mm)	H1 (mm)	L1 (mm)	L (mm)
BKV 5420-P	**20**	105	483,5	394,5	170	146
BKV 5425-P	**25**	115	483,5	394,5	170	156
BKV 5440-P	**40**	150	522	407	170	200

DG 5400 Probe Housing



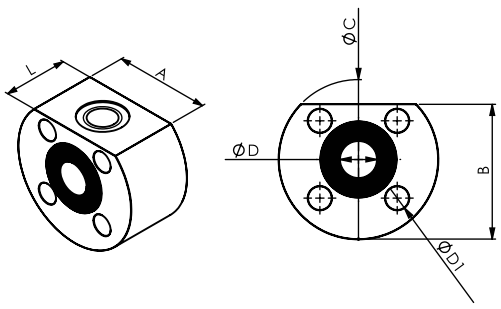
Technical Data

Type	DG 5400
Body	Nodular Cast Iron, Carbon Steel
Pressure Class	PN 40
Process Connection	Flanged
Probe Connection	Threaded

Dimensions

Type	Size	D (mm)	G (inch)	H (mm)	O (DN)
DG 5420	**DN 20**	120	1/2"	146	105
DG 5425	**DN 25**	150	1/2"	150	115
DG 5440	**DN 40**	188	1/2"	188	150

DG 5300 Probe Housing



Technical Data

Type	DG 5300
Body	Carbon Steel, Stainless Steel
Pressure Class	PN 40
Process Connection	Threaded
Probe Connection	Threaded

Dimensions

Type	Size	L (mm)	A (mm)	B (mm)	⌀ C (mm)	⌀ D (mm)	⌀ D1 (mm)
DG 5320	**DN 20**	47	68	92,5	105	27,6	14 x 4
DG 5325	**DN 25**	47	82,5	97,5	115	34,5	14 x 4
DG 5332	**DN 32**	47	104	117	140	43	18 x 4
DG 5340	**DN 40**	47	112	125	150	49	18 x 4

VIRA®

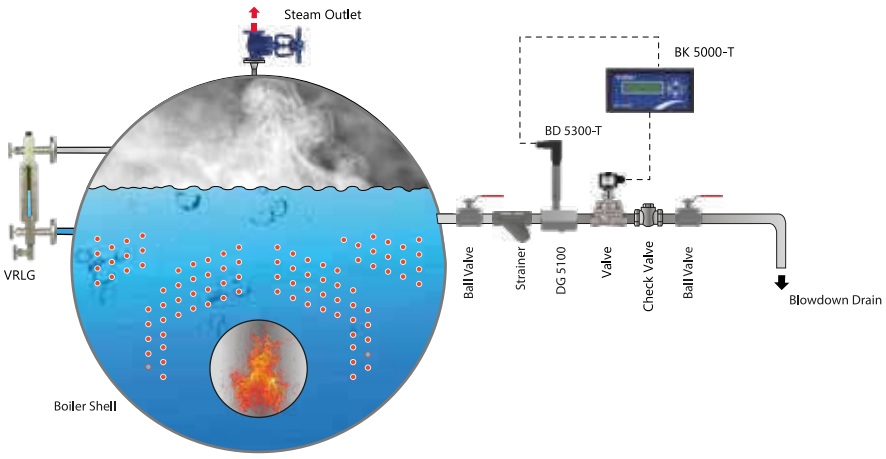
"Boiler Control Engineered for Steam Excellence"

BS1-T Automatic TDS Blowdown Control System for Low Capacity Boilers

Temp. Compensation Type Conductivity Controller	
Type	: BK 5000-T
Supply Voltage	: 230 VAC (+5% / -10%) 50/60Hz
Enclosure	: Panel-mount Type
Functions	: Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis Points, LCD Display, 4 Buttons
Outputs	: 1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Features	: Conductivity and Alarm Set Values, Temperature Compensation, Valve & Alarm Relay Test Functions, LCD Display, User-friendly Parameter Setting (4 Buttons)
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval (Module B + D), EN 12952 & EN 12953

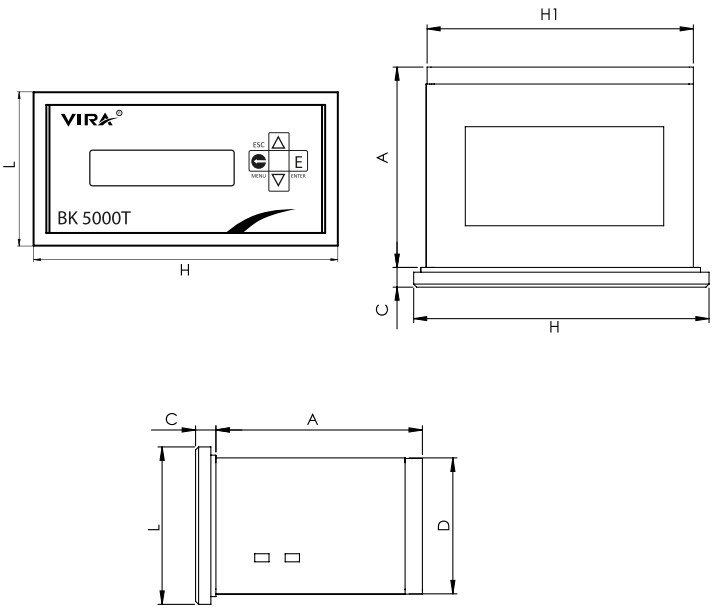
Temp. Compensation Type Conductivity Probe	
Type	: BD 5300-T
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: 1/2" BSPT (Optional NPT)
Max. Ambient Temp.	: 75 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval (Module B + D), EN 12952 & EN 12953

BS1-T Typical Installation



TECHNICAL SPECIFICATION

BK 5000-T Conductivity Controller



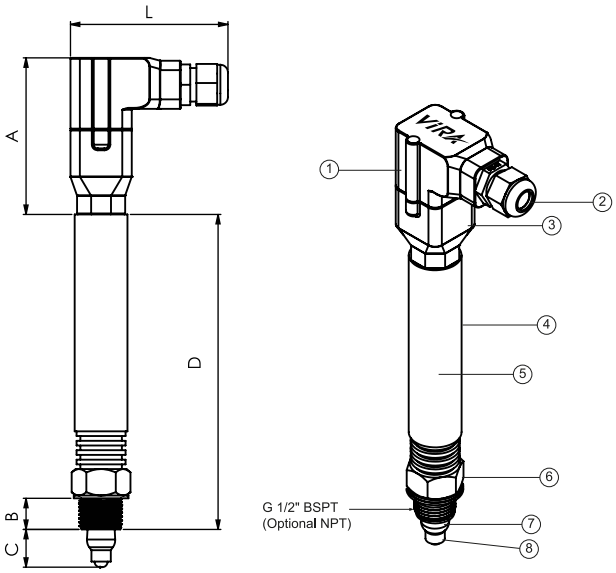
Technical Data

Controller	BK 5000-T
Supply Voltage	230VAC (+5%/-10%), 50/60Hz
Functions	Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis, LCD Display, 4-Button
Inputs	1 Conductivity Input (via Probe), 1 Temperature Input (Pt100 via Probe), Ground Connection
Outputs	1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Range	0-10.000 µS/cm (default)
Display	LCD
Label	Lexan
Max. Ambient Temp.	55℃
Enclosure	PA (Polyamide)
Type	Panel-mount
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	A (mm)	C (mm)	D (mm)
144	135	72	101	9	67

BD 5300-T Conductivity Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Cover Tube	Austenitic Stainless Steel 304
6	Probe Body	Austenitic Stainless Steel 316L
7	Probe Tip Sleeving	Politetrafloroetilen (PTFE)
8	Probe Tip	Austenitic Stainless Steel 316L

Dimensions

L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
83,5	83	16,5	20	167

D-BS1-T Automatic TDS Blowdown Control System for Low Capacity Boilers

NEW

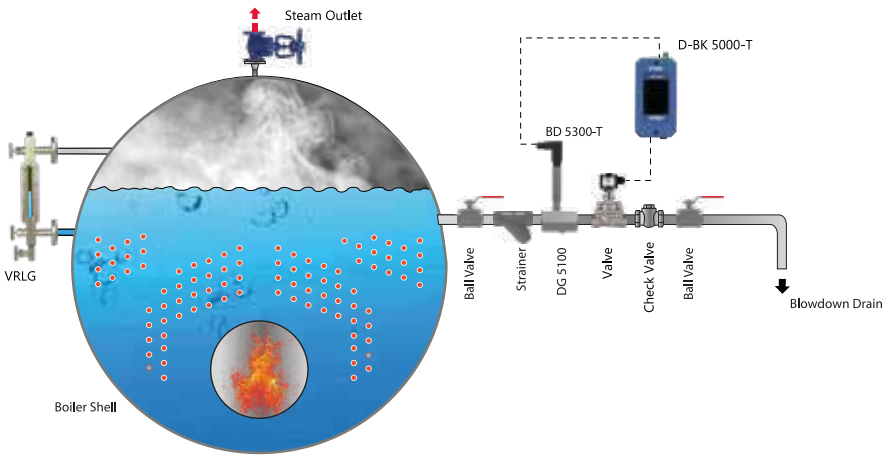
Temp. Comp. Type Conductivity Controller

Type	: D-BK 5000-T
Supply Voltage	: 24VDC
Enclosure	: Panel-mount and Din Rail Type
Functions	: Conductivity Measurement and Continuous Blowdown Control, Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis, Touchscreen Display, Multi-Language User Interface, Alarm Reset
Outputs	: 1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus Communication
Features	: Conductivity and Alarm Set Values, Valve & Alarm Relay Test Functions, Touchscreen Display, User-Friendly Parameter Setting, Temperature Compensation, Multi-Language Support
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval (Module B + D), EN 12952 & EN 12953

Temp. Compensation Type Conductivity Probe

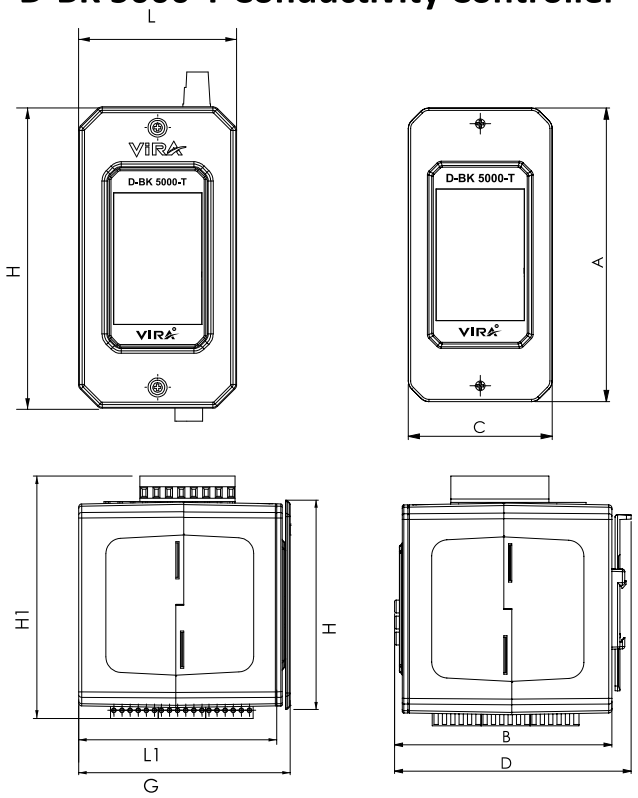
Type	: BD 5300-T
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: 1/2" BSPT (Optional NPT)
Max. Ambient Temp.	: 75 °C
Compliance	: CE (PED 2014/68/EU), Type Approval (Module B + D), EN 12952 & EN 12953

D-BS1-T Typical Installation



TECHNICAL SPECIFICATION

D-BK 5000-T Conductivity Controller



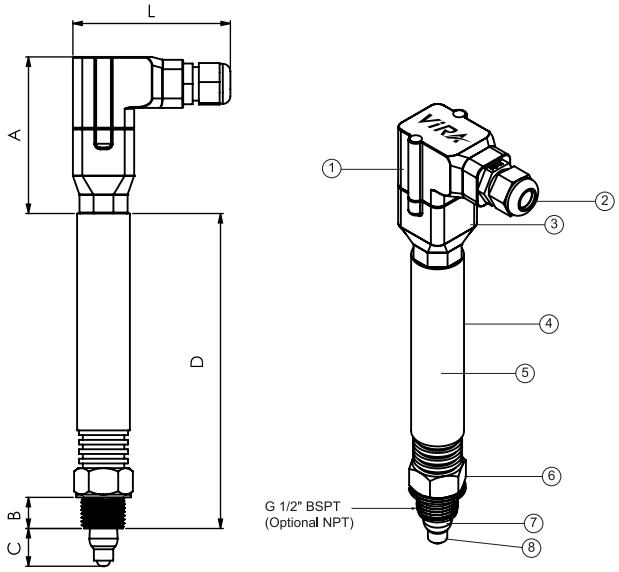
Technical Data

Controller	D-BK 5000-T
Supply Voltage	24VDC
Functions	Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis, Touchscreen Display, Multi-Language User Interface, Alarm Reset
Inputs	1 Conductivity Input (via Probe), 1 Temperature Sensor Input (Pt100 via Probe), Ground Connection
Outputs	1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus Communication
Range	0-10.000 µS/cm (default)
Display & Control	Touch Screen
Label	Silicone Rubber
Max. Ambient Temp.	55°C
Enclosure	PC (Polycarbonate)
Type	Panel-mount and Din Rail
Protection Class	IP 40

Dimensions

H (mm)	H1 (mm)	L (mm)	L1 (mm)	C (mm)	D (mm)	B (mm)	G (mm)	A (mm)
134,6	156	72	130	64	148	136	136	130

BD 5300-T Conductivity Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Cover Tube	Austenitic Stainless Steel 304
6	Probe Body	Austenitic Stainless Steel 316L
7	Probe Tip Sleeving	Politetrafloroetilen (PTFE)
8	Probe Tip	Austenitic Stainless Steel 316L

Dimensions

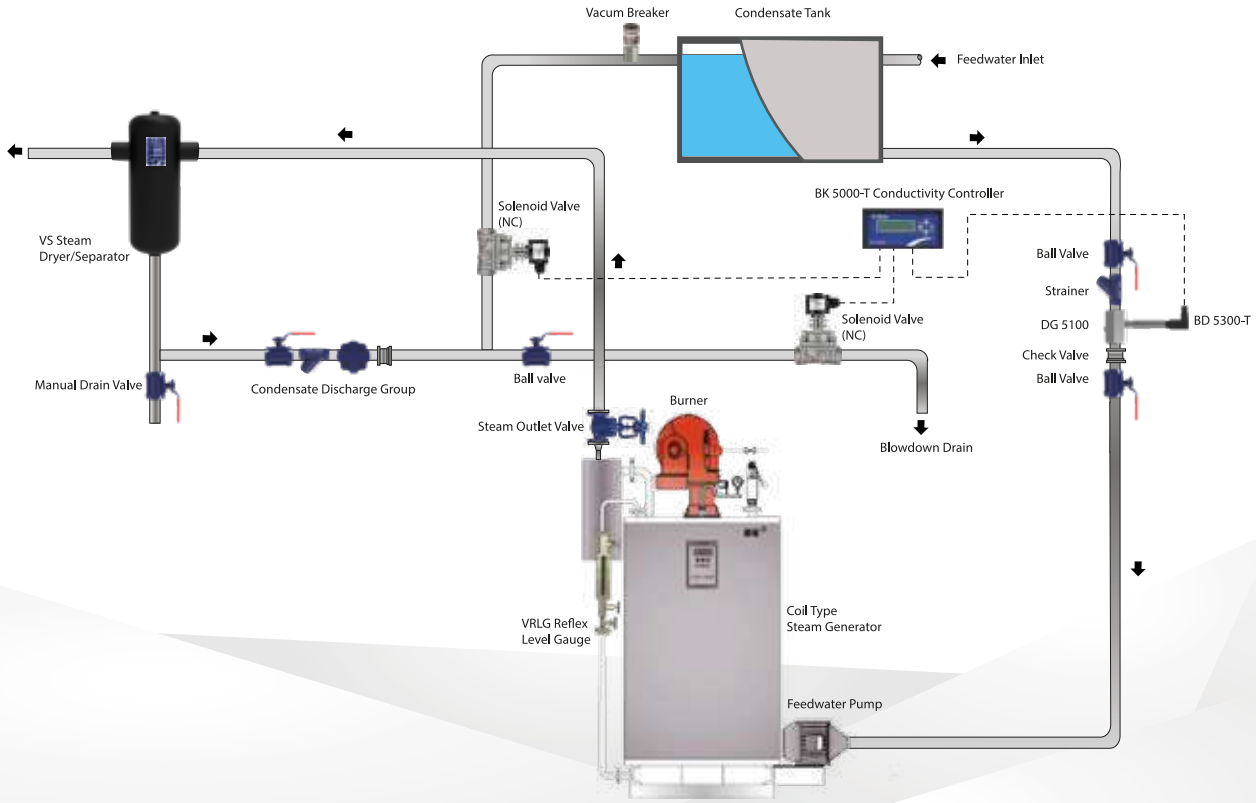
L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
83,5	83	16,5	20	167

BS2-T Automatic TDS Blowdown Control System for Coil Type Steam Generators

Temp. Compensation Type Conductivity Controller	
Type	: BK 5000-T
Supply Voltage	: 230 VAC (+5% / -10%) 50/60Hz
Enclosure	: Panel-mount Type
Functions	: Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis Points, LCD Display, 4 Buttons
Outputs	: 1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Features	: Conductivity and Alarm Set Values, Temperature Compensation, Valve & Alarm Relay Test Functions, LCD Display, User-friendly Parameter Setting (4 Buttons)
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval (Module B + D), EN 12952 & EN 12953

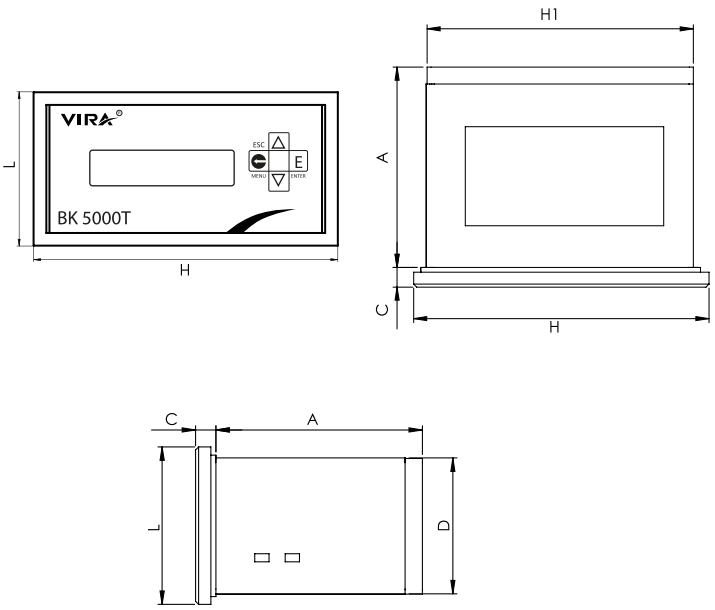
Temp. Compensation Type Conductivity Probe	
Type	: BD 5300-T
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: 1/2" BSPT (Optional NPT)
Max. Ambient Temp.	: 75 °C
Compliance	: CE (PED 2014/68/EU), Type Approval (Module B + D), EN 12952 & EN 12953

BS2-T Typical Installation



TECHNICAL SPECIFICATION

BK 5000-T Conductivity Controller



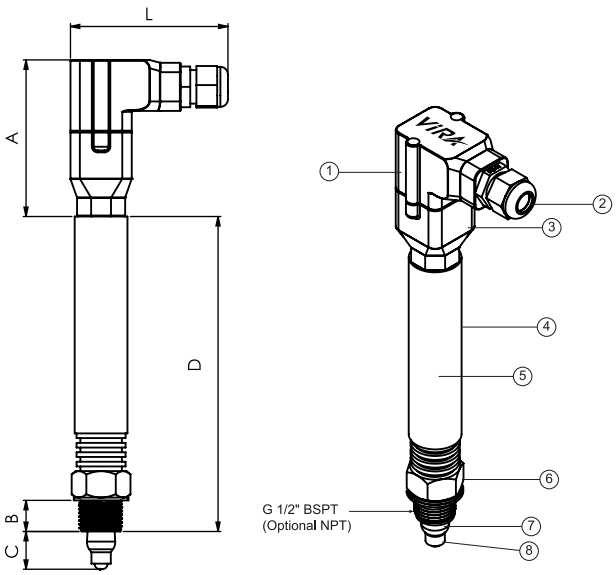
Technical Data

Controller	BK 5000-T
Supply Voltage	230VAC (+5%/-10%), 50/60Hz
Functions	Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis, LCD Display, 4-Buttons
Inputs	1 Conductivity Input (via Probe), 1 Temperature Input (Pt100 via Probe), Ground Connection
Outputs	1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Range	0-10.000 µS/cm (default)
Display	LCD
Label	Lexan
Max. Ambient Temp.	55°C
Enclosure	PA (Polyamide)
Type	Panel-mount
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	A (mm)	C (mm)	D (mm)
144	135	72	101	9	67

BD 5300-T Conductivity Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Cover Tube	Austenitic Stainless Steel 304
6	Probe Body	Austenitic Stainless Steel 316L
7	Probe Tip Sleeving	Politetrafloroetilen (PTFE)
8	Probe Tip	Austenitic Stainless Steel 316L

Dimensions

L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
83,5	83	16,5	20	167

NEW

D-BS2-T Automatic TDS Blowdown Control System for Coil Type Steam Generators

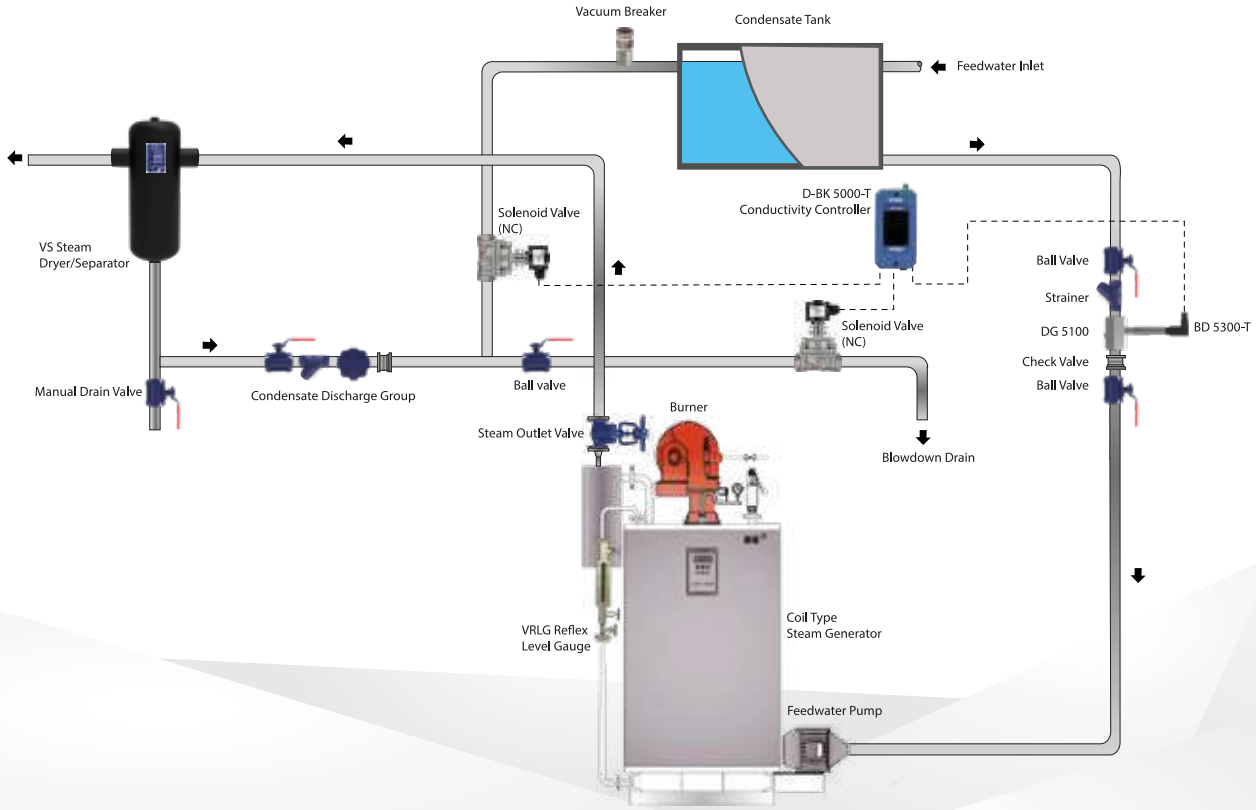
Temp. Comp. Type Conductivity Controller

Type	: D-BK 5000-T
Supply Voltage	: 24VDC
Enclosure	: Panel-mount and Din Rail Type
Functions	: Conductivity Measurement and Continuous Blowdown Control, Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis, Touchscreen Display, Multi-Language User Interface, Alarm Reset
Outputs	: 1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus Communication
Features	: Conductivity and Alarm Set Values, Valve & Alarm Relay Test Functions, Touchscreen Display, User-Friendly Parameter Setting, Temperature Compensation, Multi-Language Support
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval (Module B + D), EN 12952 & EN 12953

Temp. Compensation Type Conductivity Probe

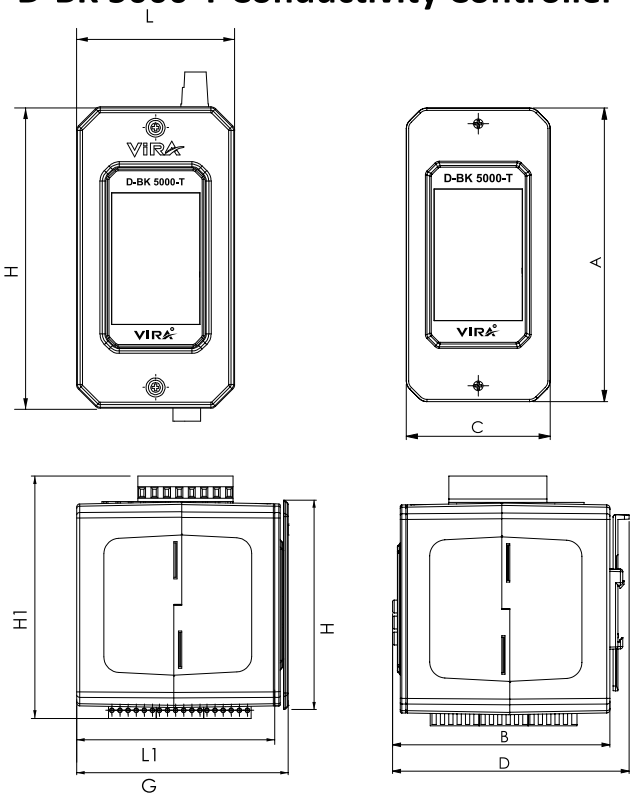
Type	: BD 5300-T
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: 1/2" BSPT (Optional NPT)
Max. Ambient Temp.	: 75 °C
Compliance	: CE (PED 2014/68/EU), Type Approval (Module B + D), EN 12952 & EN 12953

D-BS2-T Typical Installation



TECHNICAL SPECIFICATION

D-BK 5000-T Conductivity Controller



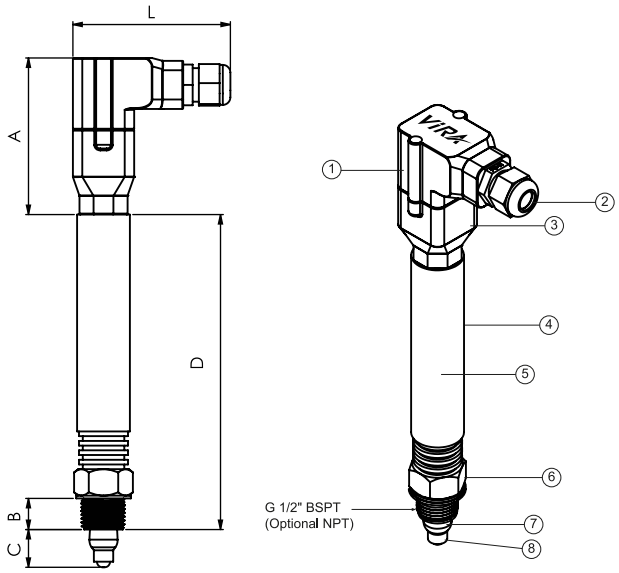
Technical Data

Controller	D-BK 5000-T
Supply Voltage	24VDC
Functions	Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis, Touchscreen Display, Multi-Language User Interface, Alarm Reset
Inputs	1 Conductivity Input (via Probe), 1 Temperature Sensor Input (Pt100 via Probe), Ground Connection
Outputs	1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus Communication
Range	0-10.000 µS/cm (default)
Display & Control	Touch Screen
Label	Silicone Rubber
Max. Ambient Temp.	55°C
Enclosure	PC (Polycarbonate)
Type	Panel-mount and Din Rail
Protection Class	IP 40

Dimensions

H (mm)	H1 (mm)	L (mm)	L1 (mm)	C (mm)	D (mm)	B (mm)	G (mm)	A (mm)
134,6	156	72	130	64	148	136	136	130

BD 5300-T Conductivity Probe



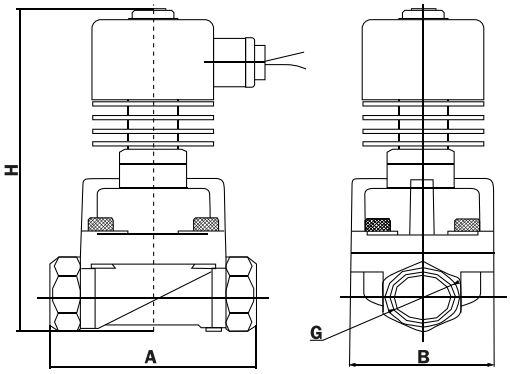
No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Cover Tube	Austenitic Stainless Steel 304
6	Probe Body	Austenitic Stainless Steel 316L
7	Probe Tip Sleeving	Politetrafloroetilen (PTFE)
8	Probe Tip	Austenitic Stainless Steel 316L

Dimensions

L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
83,5	83	16,5	20	167

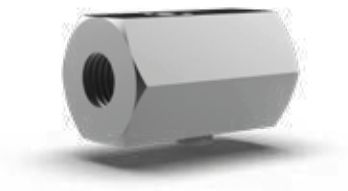
Solenoid Valve (NC)

Type	: BKV 5100
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 225 °C
Max. Operat. Press.	: 25 Bar g
Size	: 3/4"-1/2"
Body	: Stainless Steel



Dimensions

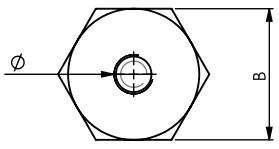
Type	Connection Thread	Orifice (mm)	CV factor	Operating Pressure differential kgf/cm			Max. Temperature °C	External Dimensions	Weight Kg
				Min Pressure	Max Pressure			Length A x Width B x Height H	
					Heat-conducting oil	Steam			
BKV 5120	3/4"	20	8.0	0.5	25	25	225	85x60x171	1.66
BKV 5115	1/2"	15	4.5	0.5	25	25	225	75x52x159	1.36



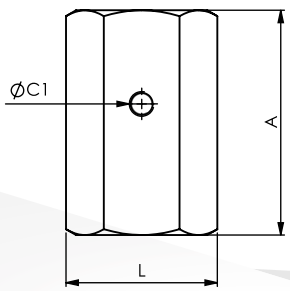
Conductivity Probe Body

Type	: DG 5100
Nominal Pressure	: PN 40
Size	: 1/2", 3/4"
Max. Operat. Press.	: 32 Bar g
Max. Operat. Temp.	: 239 °C
Body	: Carbon Steel

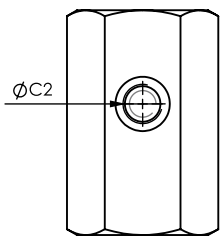
Front View



Bottom View



Top View



Technical Data

Type	DG 5100
Body	Carbon Steel
Pressure Class	PN 40
Process Connection	Threaded
Probe Connection	Threaded

Dimensions

Type	Size (Ø)	L (mm)	A (mm)	B (mm)	Ø C2	Ø C1
DG 5115	1/2"	81	120	70	1/2"	1/4"
DG 5120	3/4"	81	120	70	1/2"	1/4"

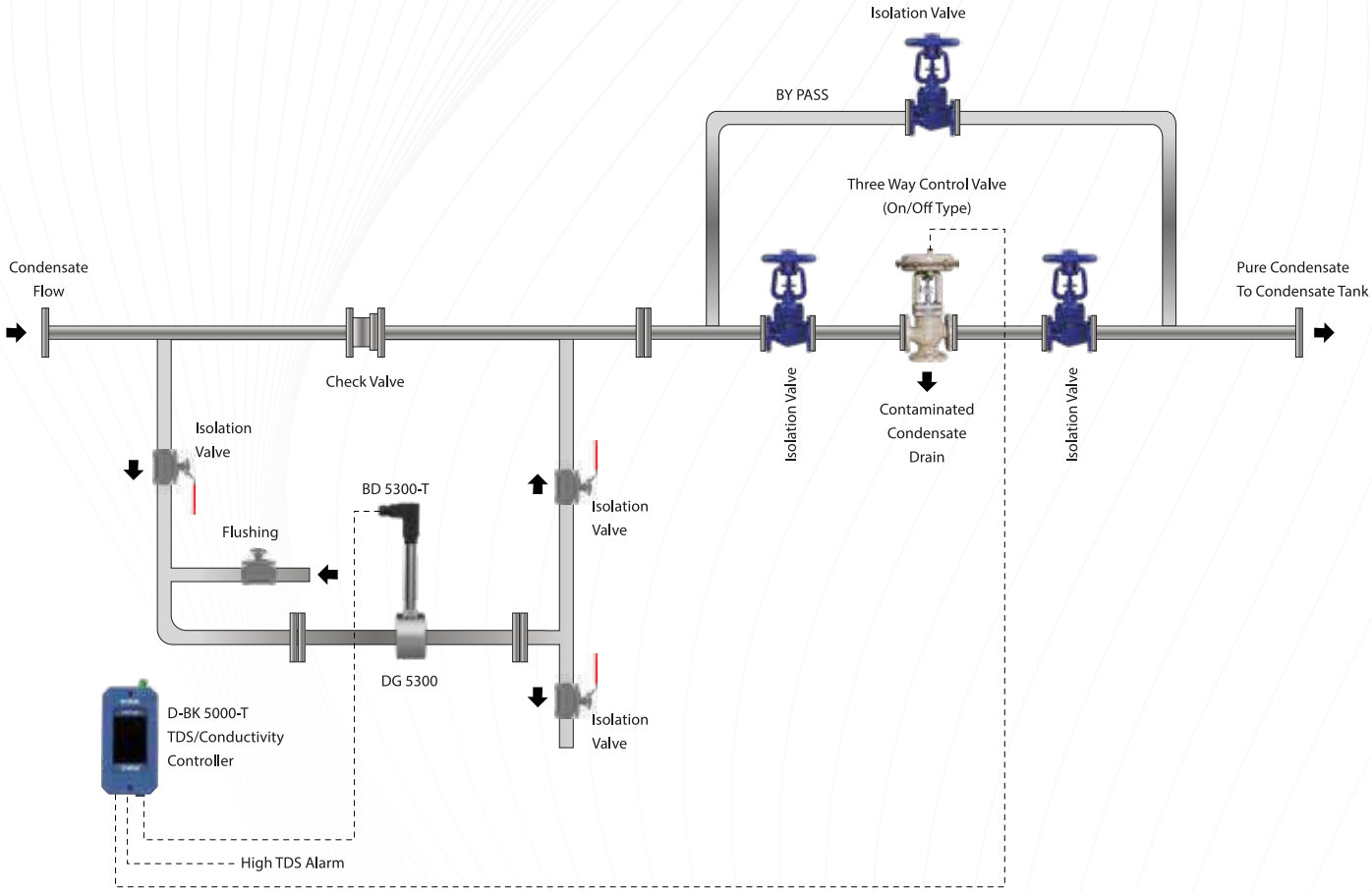
Condensate Contamination Control System

Condensate is very valuable for steam producing plants and needs to be recycled. It must be ensured that the returned condensate is clean. Leakage in one of the devices used for heat transfer may cause the heated fluid to mix into the condensate water.

The condensate contamination control system monitors and displays the conductivity of the condensate. It automatically diverts the condensate to drain by a 3 way valve instead of back to the boiler system.

When the conductivity drops to the desired level, the condensate is allowed to return to the boiler system, thus minimizing heat and water wastage, as well as avoiding the possibility of contaminating the feedwater.

Note: BS3-T and D-BS3-T Vira Condensate Contamination Control system performs contamination control with electrical conductivity measurement.

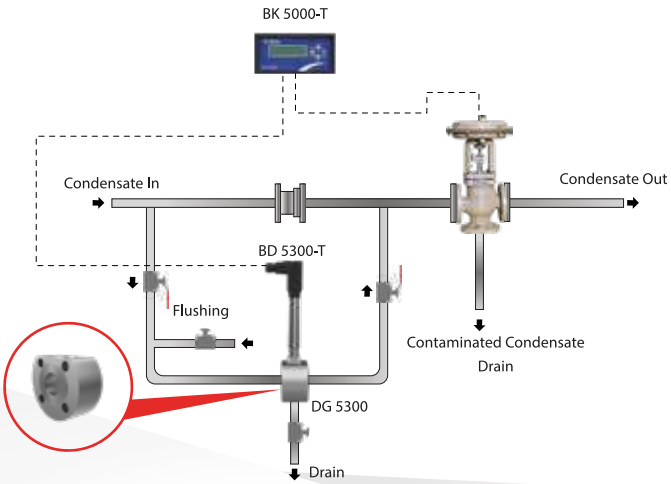


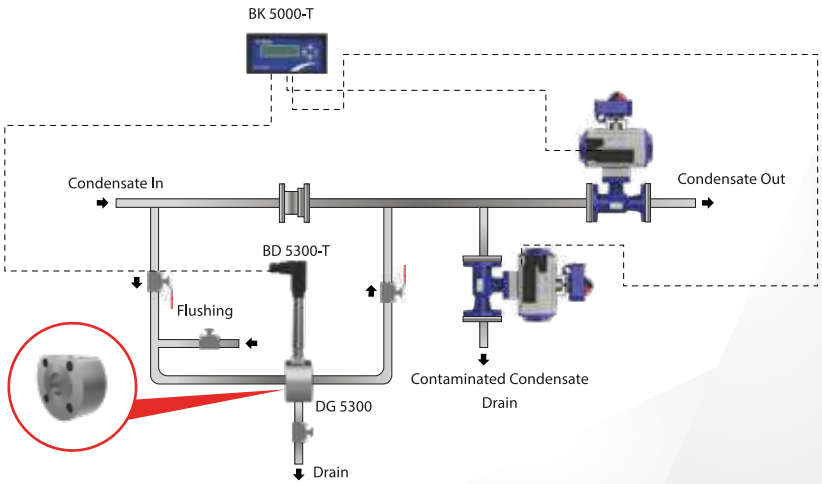
BS3-T Condensate Conductivity Control System

Temp. Compensation Type Conductivity Controller	
Type	: BK 5000-T
Supply Voltage	: 230 VAC (+5% / -10%) 50/60Hz
Enclosure	: Panel-mount Type
Functions	: Conductivity Measurement and Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis Points, LCD Display, 4 Buttons
Outputs	: 1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Features	: Conductivity Set Value, Alarm Set Value, Valve Relay Test, Alarm Relay Test, Temp. Compensation
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval (Module B + D), EN 12952 & EN 12953

Temp. Compensation Type Conductivity Probe	
Type	: BD 5300-T
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: 1/2" BSPT (Optional NPT)
Max. Ambient Temp.	: 75 °C
Compliance	: CE (PED 2014/68/EU), Type Approval (Module B + D), EN 12952 & EN 12953

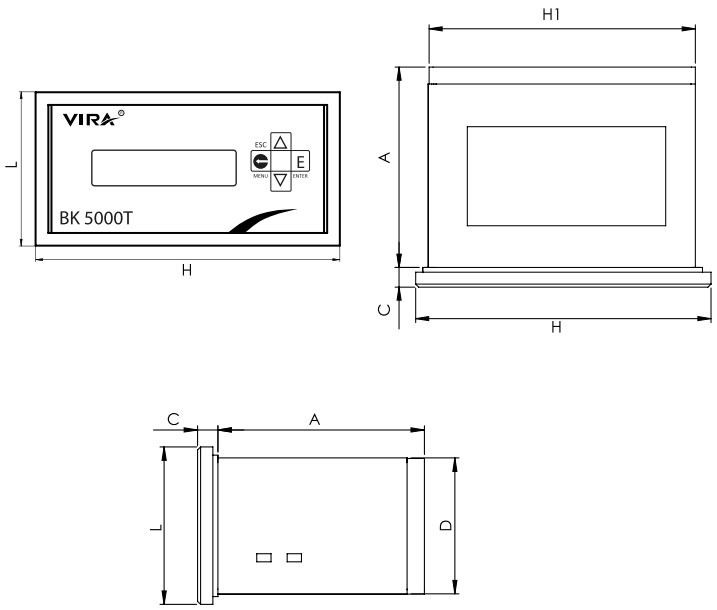
BS3-T Typical Installations





TECHNICAL SPECIFICATION

BK 5000-T Conductivity Controller



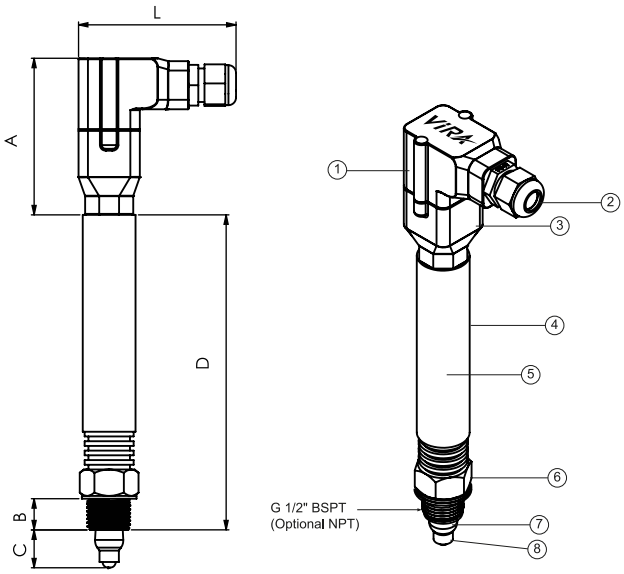
Technical Data

Controller	BK 5000-T
Supply Voltage	230VAC (+5%/-10%), 50/60Hz
Functions	Conductivity Measurement and Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis Points, LCD Display, 4 Buttons
Inputs	Level Probe Input, Ground, 0-1k Ohm Potentiometer, Control Valve
Outputs	1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Range	0-1.000 µS/cm (default)
Display	LCD
Label	Lexan
Max. Ambient Temp.	55°C
Enclosure	PA (Polyamide)
Type	Panel-mount
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	A (mm)	C (mm)	D (mm)
144	135	72	101	9	67

BD 5300-T Conductivity Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Cover Tube	Austenitic Stainless Steel 304
6	Probe Body	Austenitic Stainless Steel 316L
7	Probe Tip Sleeving	Politetrafloroetilen (PTFE)
8	Probe Tip	Austenitic Stainless Steel 316L

Dimensions

L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
83,5	83	16,5	20	167

D-BS3-T Condensate Conductivity Control System

NEW

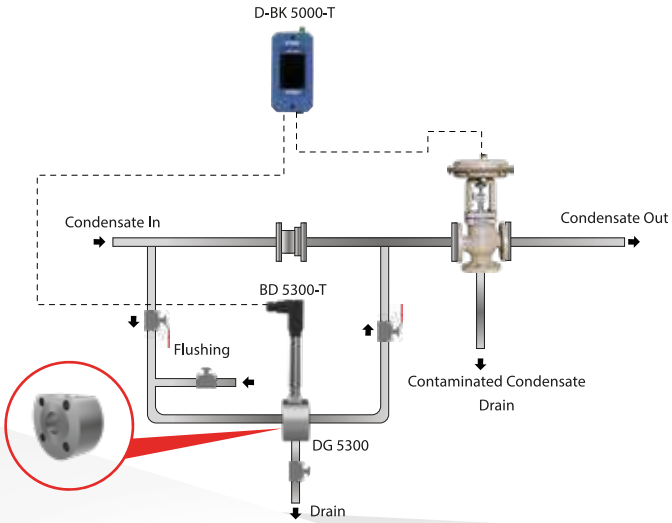
Temp. Comp. Type Conductivity Controller

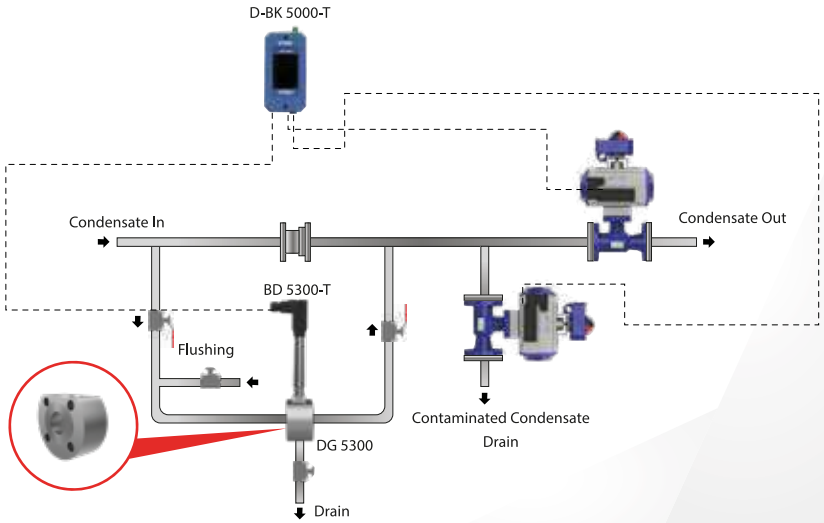
Type	: D-BK 5000-T
Supply Voltage	: 24VDC
Enclosure	: Panel-mount and Din Rail Type
Functions	: Conductivity Measurement and Continuous Blowdown Control, Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis, Touchscreen Display, Multi-Language User Interface, Alarm Reset
Outputs	: 1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus Communication
Features	: Conductivity and Alarm Set Values, Valve & Alarm Relay Test Functions, Touchscreen Display, User-Friendly Parameter Setting, Multi-Language Support
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval (Module B + D), EN 12952 & EN 12953

Temp. Compensation Type Conductivity Probe

Type	: BD 5300-T
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: 1/2" BSPT (Optional NPT)
Max. Ambient Temp.	: 75 °C
Compliance	: CE (PED 2014/68/EU), Type Approval (Module B + D), EN 12952 & EN 12953

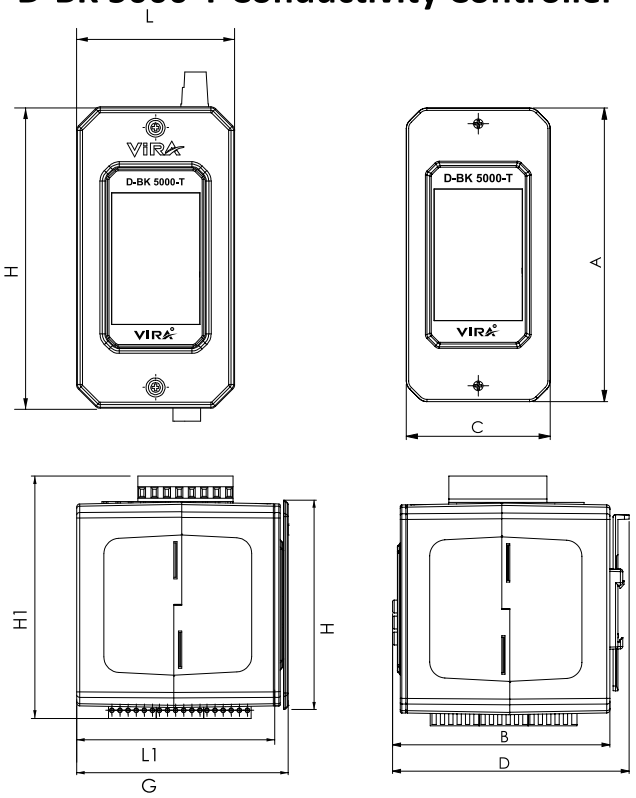
D-BS3-T Typical Installations





TECHNICAL SPECIFICATION

D-BK 5000-T Conductivity Controller



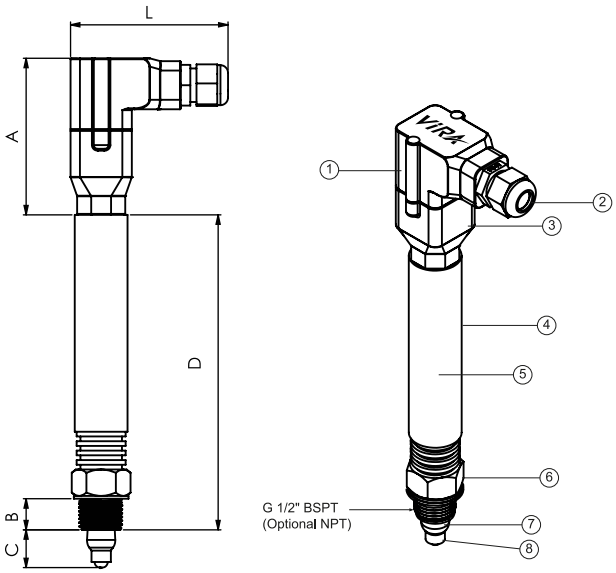
Technical Data

Controller	D-BK 5000-T
Supply Voltage	24VDC
Functions	Conductivity Measurement and Continuous Blowdown Valve Control, High TDS Alarm, Adjustable Setpoints and Hysteresis, Touchscreen Display, Multi-Language User Interface, Alarm Reset
Inputs	1 Conductivity Input (via Probe), 1 Temperature Sensor Input (Pt100 via Probe), Ground Connection
Outputs	1 Valve Control Relay, 1 High TDS Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus Communication
Range	0-1.000 µS/cm (default)
Display & Control	Touch Screen
Label	Silicone Rubber
Max. Ambient Temp.	55°C
Enclosure	PC (Polycarbonate)
Type	Panel-mount and Din Rail
Protection Class	IP 40

Dimensions

H (mm)	H1 (mm)	L (mm)	L1 (mm)	C (mm)	D (mm)	B (mm)	G (mm)	A (mm)
134,6	156	72	130	64	148	136	136	130

BD 5300-T Conductivity Probe

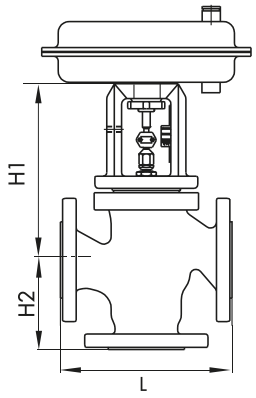


No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Cover Tube	Austenitic Stainless Steel 304
6	Probe Body	Austenitic Stainless Steel 316L
7	Probe Tip Sleeving	Politetrafloroetilen (PTFE)
8	Probe Tip	Austenitic Stainless Steel 316L

Dimensions

L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
83,5	83	16,5	20	167

Control Valve for Condensate Conductivity Control	
Type	: SKV 3300-3
Body Material	: ENJL 1040 PN 16, ENJS 1049 PN 25, 1.0619 PN 40
Leakage Class	: Class I
Flow Characteristic	: Lineer
Operating Temp.	: -10 - + 220°C (High Temp. on Request)
Sealing	: Metal to Metal
Actuator	: Pneumatic

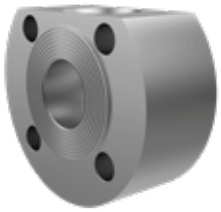


Technical Data

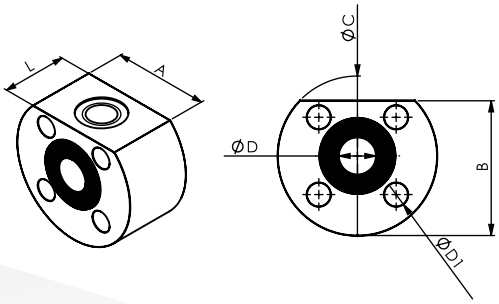
Model	SKV 3300-3
Type	Diverting Valve
Pressure Class	PN 16, PN 25, PN 40
Body Material	EN-JL1040 - PN16 EN-JS1049 - PN25 1.0619 - PN40
Operat. Temp.	-10 - +220 °C
Sealing	Metal to Metal
Actuator	Pneumatic

Dimensions

Valve	DN	15	20	25	32	40	50	65	80	100	125	150
L	-	130	150	160	180	200	230	290	310	350	400	480
H1	-	235	235	235	235	235	235	270	270	360	375	375
H2	-	70	80	85	100	105	120	130	140	150	200	210



Conductivity Probe Body	
Type	: DG 5300
Nominal Pressure	: PN 40
Sizes	: DN 20, DN 25, DN32, DN 40, DN 50
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Body	: Stainless Steel



Technical Data

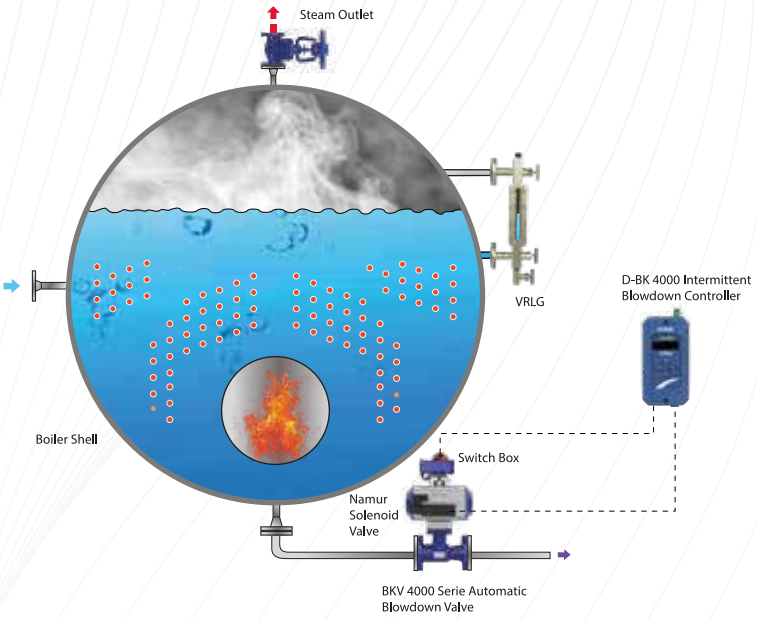
Type	DG 5300
Body	Carbon Steel, Stainless Steel
Pressure Class	PN 40
Process Connection	Threaded
Probe Connection	Threaded

Dimensions

Type	Size	L (mm)	A (mm)	B (mm)	⌀ C (mm)	⌀ D (mm)	⌀ D1 (mm)
DG 5320	**DN 20**	47	68	92,5	105	27,6	14 x 4
DG 5325	**DN 25**	47	82,5	97,5	115	34,5	14 x 4
DG 5332	**DN 32**	47	104	117	140	43	18 x 4
DG 5340	**DN 40**	47	112	125	150	49	18 x 4

Automatic Bottom Blowdown System

Some impurities, and salts (rust, oil and dirt that may come from the installation) precipitate to the bottom of the boiler to form a sludge layer. By an actuated valve, at least four-second blowdown is performed in every eight hours (once in a shift). As a result of this process, the sludge and sediment accumulated at the bottom of the boiler are moved out of the boiler. Thus blowdown is made on time and enough by an automatic blowdown valve. By this way, both over blowdown and forgetting of blowdown is avoided.



Advantages

- Ensures timely and consistent blowdown, preventing excessive energy and water losses.
- Prevents sludge accumulation, improving boiler heat transfer and efficiency.
- Protects boiler tubes and shell from corrosion and scaling.
- Reduces operator dependency – fully automated periodic blowdown.
- Compatible with all boiler types, including shell and fire tube boilers.
- Can be integrated with the boiler's main control panel.

Difference between Vira Bottom Blowdown Controller and Ordinary Timers

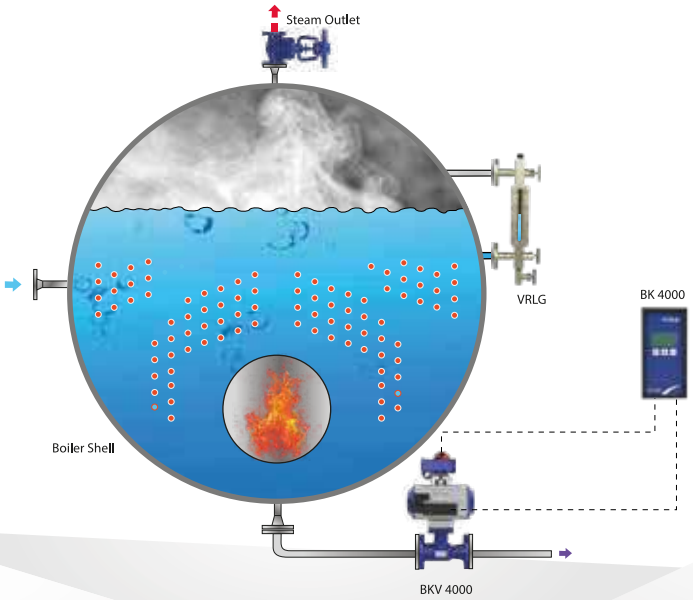
1. It controls the position of the valve. If the valve is in a different position than it should be, it gives an alarm.
2. It prevents simultaneous blowdown in boilers operating side by side and connected to a single blowdown line.
Before the blowdown process in a boiler is finished, other boilers are prevented from blowdown.
3. If desired, the blowdown during burner operation is delayed until the burner is switched off.

DB2 Automatic Bottom (Intermittent) Blowdown System

Bottom Blowdown (Intermittent) Controller	
Type	: BK 4000
Supply Voltage	: 230 VAC (+5% / -10%) 50/60Hz
Enclosure	: Panel-mount Type
Functions	: Bottom Blowdown Valve Control, Bottom Blowdown Valve Stuck-Open Alarm, Bottom Blowdown Valve Stuck-Closed Alarm, LCD Display, Alarm Reset, 3 Buttons, Blowdown Timer, Adjustable Bottom Blowdown Interval and Duration.
Outputs	: 1 Bottom Blowdown Valve Control Relay, 1 Alarm Relay.
Max. Ambient Temp	: 55 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval (Module B + D), EN 12952 & EN 12953

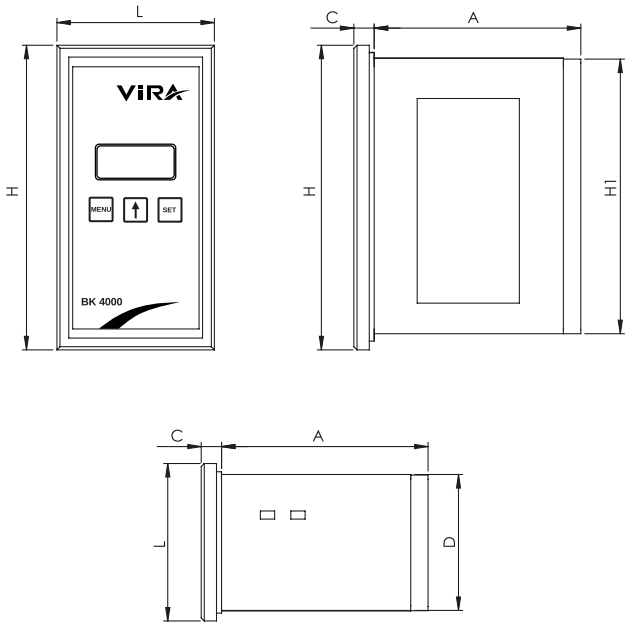
Bottom (Intermittent) Blowdown Valve	
Type	: BKV 4000
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 220 °C
Max. Operat. Press.	: 27 Bar g
Size	: DN 25 - DN 50
Body	: WCB, Monoblock
Accessories	: Namur Solenoid Valve, Switch Box
Compliance	: CE (PED 2014/68/EU)

DB2 Typical Installation



TECHNICAL SPECIFICATION

BK 4000 Blowdown Timer Controller



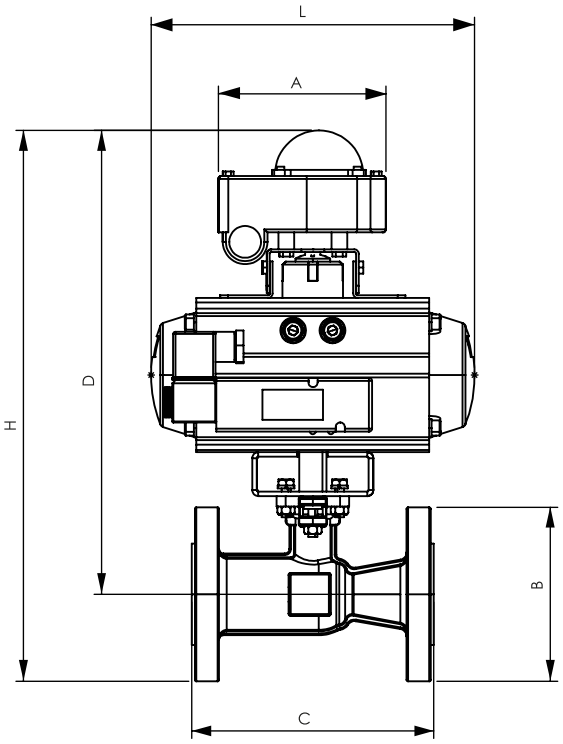
Technical Data

Type	BK 4000
Supply Voltage	230 VAC (+5% / -10%) 50/60Hz
Functions	Bottom Blowdown Valve Control, Bottom Blowdown Valve Stuck-Open Alarm, Bottom Blowdown Valve Stuck-Closed Alarm, LCD Display, Alarm Reset, 3 Buttons, Blowdown Timer, Adjustable Bottom Blowdown Interval and Duration.
Inputs	Limit Switch, Namur Solenoid Valve
Outputs	1 Bottom Blowdown Valve Control Relay, 1 Alarm Relay
Display	LCD
Max. Ambient Temp.	55℃
Enclosure	PA (Polyamide)
Type	Panel-mount
Protection Class	IP 40

Dimensions

H (mm)	H1 (mm)	L (mm)	A (mm)	C (mm)	D (mm)
144	135	72	101	9	67

BKV 4000 Intermittent Blowdown Valve



Technical Data

Valve	BKV 4000
Size	DN 25, 32, 40, 50
Actuator	Pneumatic
Motor Type	On-Off, Spring Return (Fail-Safe)
Pressure Class	PN 40
Body	WCB
Supply	220VAC, 24VDC (please ask)
Operat. Temp.	-10 - +220 °C
Structure	Reduced Bore

Dimensions

Type	Size	H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
BKV 4025	**DN 25**	364	214	111	115	160	307
BKV 4032	**DN 32**	390	251,5	111	140	180	320
BKV 4040	**DN 40**	395	251,5	111	150	200	320
BKV 4050	**DN 50**	431,3	270	111	165	230	349

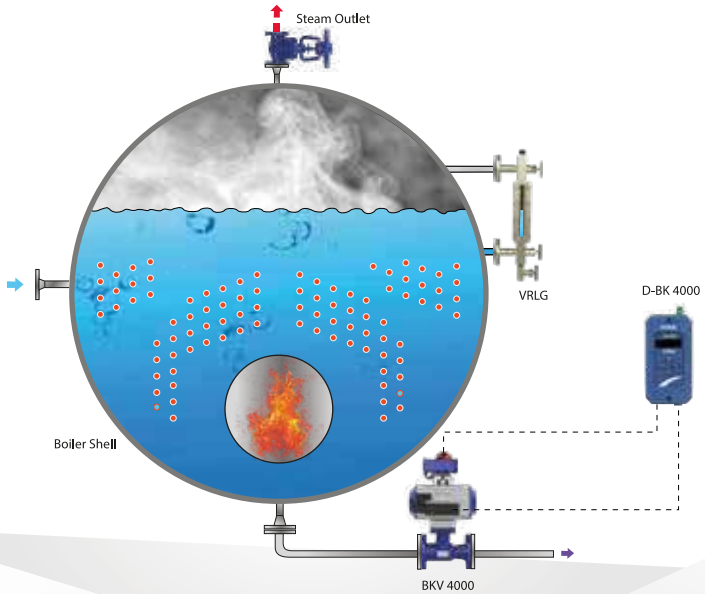
D-DB2 Automatic Bottom (Intermittent) Blowdown System

NEW

Bottom Blowdown Controller	
Type	: D-BK 4000
Supply Voltage	: 24VDC
Enclosure	: Panel-mount and Din Rail Type
Functions	: Bottom Blowdown Valve Control, Bottom Blowdown Valve Stuck-Open Alarm, Bottom Blowdown Valve Stuck-Closed Alarm, 7 Segment Display, Alarm Reset, 4 Buttons, Blowdown Timer, Adjustable Bottom Blowdown Interval and Duration
Outputs	: 1 Bottom Blowdown Valve Control Relay, 1 Alarm Relay, RS485 Modbus
Max. Ambient Temp.	: 55 °C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval (Module B + D), EN 12952 & EN 12953

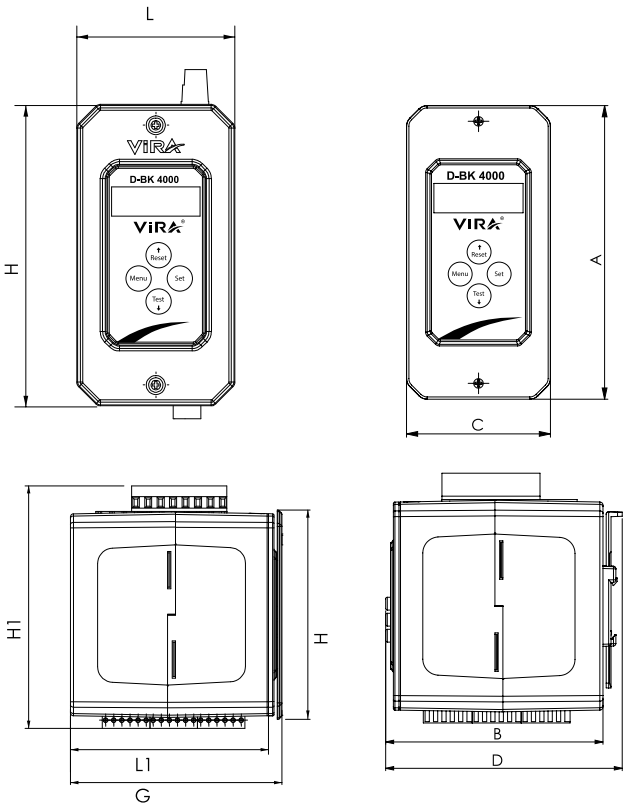
Bottom Blowdown Valve	
Type	: BKV 4000
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 220 °C
Max. Operat. Press.	: 27 Bar g
Size	: DN 25 - DN 50
Body	: WCB, Monoblock
Accessories	: Namur Solenoid Valve, Switch Box
Compliance	: CE (PED 2014/68/EU)

D-DB2 Typical Installation



TECHNICAL SPECIFICATION

D-BK 4000 Blowdown Timer Controller



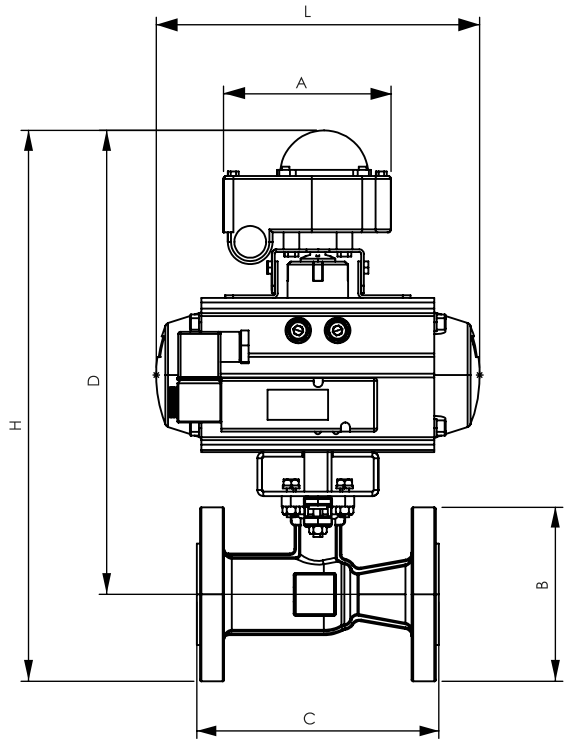
Technical Data

Controller	D-BK 4000
Supply Voltage	24VDC
Functions	Bottom Blowdown Valve Control, Bottom Blowdown Valve Stuck-Open Alarm, Bottom Blowdown Valve Stuck-Closed Alarm, 7 Segment Display, Alarm Reset, 4 Buttons, Blowdown Timer, Adjustable Bottom Blowdown Interval and Duration
Inputs	Limit Switch, Namur Solenoid Valve
Outputs	1 Bottom Blowdown Valve Control Relay, 1 Alarm Relay, RS485 Modbus
Display	7 Segment
Max. Ambient Temp.	55℃
Enclosure	PC (Polycarbonate)
Type	Panel-mount and Din Rail
Protection Class	IP 40

Dimensions

H (mm)	H1 (mm)	L (mm)	L1 (mm)	C (mm)	D (mm)	B (mm)	G (mm)	A (mm)
134,6	156	72	130	64	148	136	136	130

BKV 4000 Intermittent Blowdown Valve



Technical Data

Valve	BKV 4000
Size	DN 25, 32, 40, 50
Actuator	Pneumatic
Motor Type	On-Off, Spring Return (Fail-Safe)
Pressure Class	PN 40
Body	WCB
Supply	220VAC, 24VDC (please ask)
Operat. Temp.	-10 - +220 °C
Structure	Reduced Bore

Dimensions

Type	Size	H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
BKV 4025	**DN 25**	364	214	111	115	160	307
BKV 4032	**DN 32**	390	251,5	111	140	180	320
BKV 4040	**DN 40**	395	251,5	111	150	200	320
BKV 4050	**DN 50**	431,3	270	111	165	230	349

NEW

D-BS6-T Automatic Combined Blowdown System

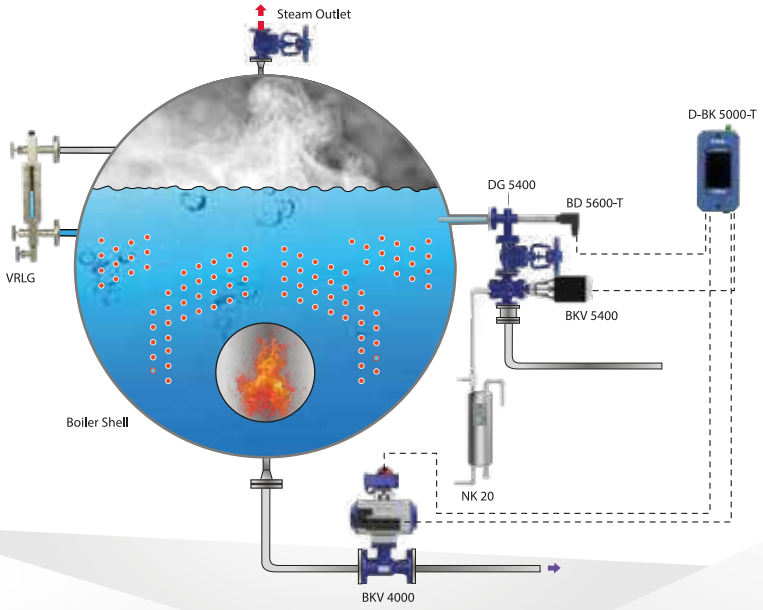
Combined Blowdown Controller

Type	: D-BK 5000-T
Supply Voltage	: 24VDC
Enclosure	: Panel-mount and Din Rail Type
Functions	: Cond. Measurement & Cont. Blowdown Valve Control, Bottom Blowd. Valve Control, High TDS Alarm, Bottom Blowd. Valve Stuck Open Alarm, Bottom Blowd. Valve Stuck Closed, Adjustable Setpoints & Hysteresis, Touchscreen Display, Multi-Language Interface, Alarm Reset, Blowdown Timer, Adjustable Bottom Blowd. Interval and Duration.
Outputs	: 1 TDS Blowdown Valve Control Relay, 1 Bottom Blowdown Valve Control Relay, 1 Common Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Features	: Conductivity Set Value, Alarm Set Value, Valve Relay Test, Alarm Relay Test, Temperature Compensation
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), Type Approval, (Module B + D), EN 12952 & EN 12953

Temperature Compensation Type Conductivity Probe

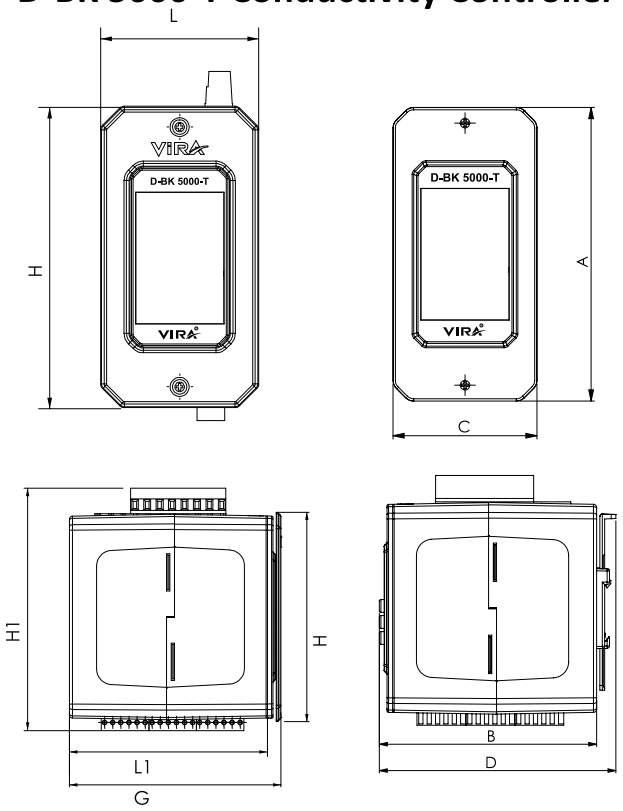
Type	: BD 5600-T
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1/2" BSPT (Optional NPT)
Max. Ambient Temp.	: 75 °C
Compliance	: CE (PED 2014/68/EU), Type Approval (Module B + D), EN 12952 & EN 12953

D-BS6-T Typical Installation



TECHNICAL SPECIFICATION

D-BK 5000-T Conductivity Controller



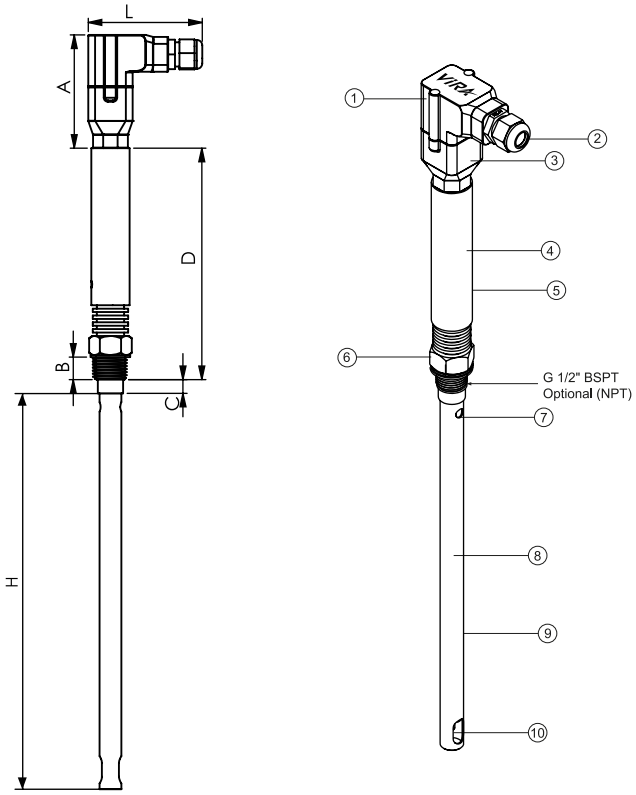
Technical Data

Controller	D-BK 5000-T
Supply Voltage	24VDC
Functions	Cond. Measurement & Cont. Blowdown Valve Control, Bottom Blowd. Valve Control, High TDS Alarm, Bottom Blowd. Valve Stuck Open Alarm, Bottom Blowd. Valve Stuck Closed, Adjustable Setpoints & Hysteresis, Touchscreen Display, Multi-Language Interface, Alarm Reset, Blowdown Timer, Adjustable Bottom Blowd. Interval and Duration
Inputs	1 Conductivity Input (via Probe), 1 Temperature Sensor Input (Pt100, via Probe), Limit Switch, Namur Solenoid Valve, Ground
Outputs	1 TDS Blowdown Valve Control Relay, 1 Bottom Blowdown Valve Control Relay, 1 Common Alarm Relay, 4–20 mA Analog Conductivity Output, RS485 Modbus
Range	0-10.000 µS/cm (default)
Display & Control	Touch Screen
Label	Silicone Rubber
Max. Ambient Temp.	55°C
Enclosure	PC (Polycarbonate)
Type	Panel-mount and Din Rail
Protection Class	IP 40

Dimensions

H (mm)	H1 (mm)	L (mm)	L1 (mm)	C (mm)	D (mm)	B (mm)	G (mm)	A (mm)
134,6	156	72	130	64	148	136	136	130

BD 5600-T Conductivity Probe



No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Cover Tube	Austenitic Stainless Steel 304
6	Probe Body	Austenitic Stainless Steel 316L
7	Probe Tip Sleeving	Politetrafloroetilen (PTFE)
8	Probe Tip	Austenitic Stainless Steel 316L
9	Rod	Austenitic Stainless Steel 316L
10	Sensor Tip	Austenitic Stainless Steel 316Ti

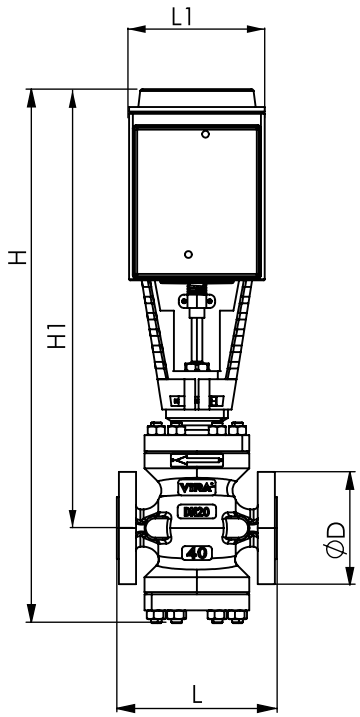
Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
500	83,5	83	16,5	10	169,5

Note: Standard probe length is 500 mm. Alternative lengths are available upon request.

TECHNICAL SPECIFICATION

BKV 5400 Blowdown Valves



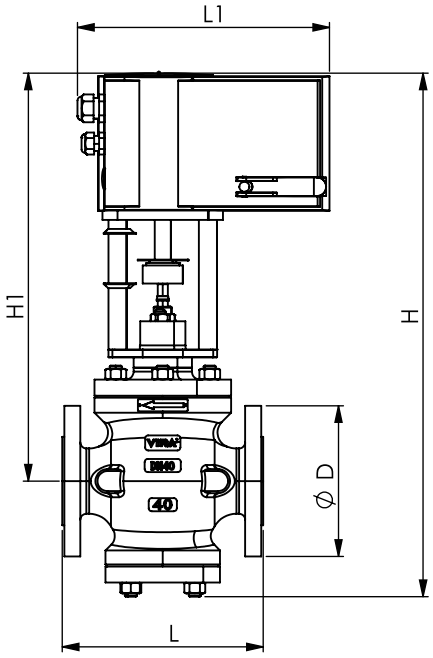
Technical Data

Type	BKV 5400-E
Body	WCB
Pressure Class	PN 40
Operat. Temp.	-10 - +230 °C
Sealing	Metal to Metal
Actuator	Electric
Control	On-Off, Spring Return (Fail-Safe)
Connection	Flanged

Dimensions

Type	DN	D (mm)	H (mm)	H1 (mm)	L1 (mm)	L (mm)
BKV 5420-E	**20**	105	483	394	127	150
BKV 5425-E	**25**	115	483	394	127	160

BKV 5400 Blowdown Valves



Technical Data

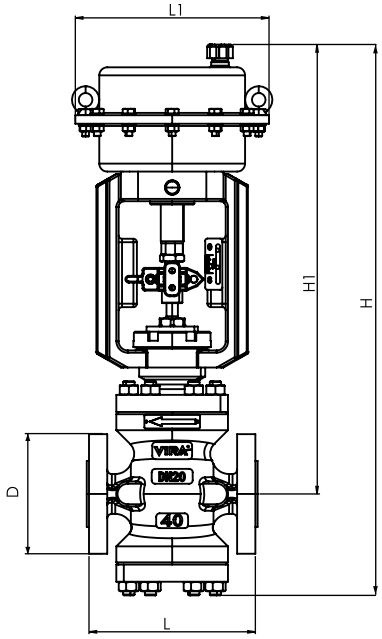
Type	BKV 5400-E
Body	WCB
Pressure Class	PN 40
Operat. Temp.	-10 - +230 °C
Sealing	Metal to Metal
Actuator	Electric
Control	On-Off, Spring Return (Fail-Safe)
Connection	Flanged

Dimensions

Type	DN	D (mm)	H (mm)	H1 (mm)	L1 (mm)	L (mm)
BKV 5440-E	**40**	150	521	406	223	196

TECHNICAL SPECIFICATION

BKV 5400 Blowdown Valves



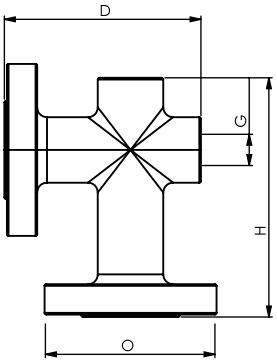
Technical Data

Type	BKV 5400-P
Body	WCB
Pressure Class	PN 40
Operat. Temp.	-10 - +230 °C
Sealing	Metal to Metal
Actuator	Pneumatic (Diaphragm)
Control	On-Off, Spring Return (Fail-Safe)
Accessories	Switch Box, Namur Solenoid Valve, Air Filter
Connection	Flanged

Dimensions

Type	DN	D (mm)	H (mm)	H1 (mm)	L1 (mm)	L (mm)
BKV 5420-P	**20**	105	483,5	394,5	170	146
BKV 5425-P	**25**	115	483,5	394,5	170	156
BKV 5440-P	**40**	150	522	407	170	200

DG 5400 Probe Housing



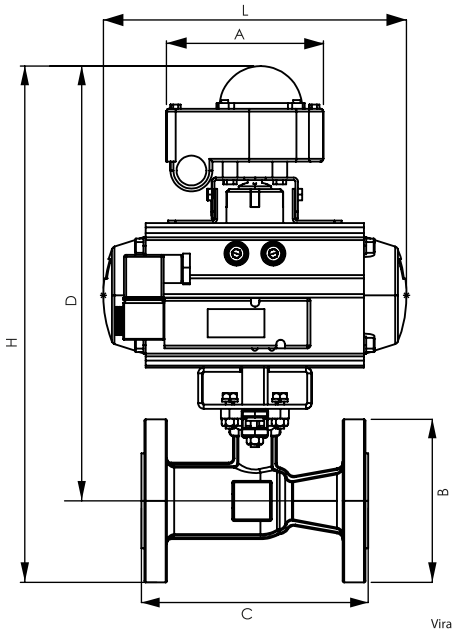
Technical Data

Type	DG 5400
Body	Nodular Cast Iron, Carbon Steel
Pressure Class	PN 40
Process Connection	Flanged
Probe Connection	Threaded

Dimensions

Type	Size	D (mm)	G (inch)	H (mm)	O (DN)
DG 5420	**DN 20**	120	1/2"	146	105
DG 5425	**DN 25**	150	1/2"	150	115
DG 5440	**DN 40**	188	1/2"	188	150

BKV 4000 Intermittent Blowdown Valve



Technical Data

Valve	BKV 4000
Size	DN 25, 32, 40, 50
Actuator	Pneumatic
Motor Type	On-Off, Spring Return (Fail-Safe)
Pressure Class	PN 40
Body	WCB
Supply	220VAC, 24VDC (please ask)
Operat. Temp.	-10 - +220 °C
Structure	Reduced Bore

Dimensions

Type	Size	H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
BKV 4025	**DN 25**	364	214	111	115	160	307
BKV 4032	**DN 32**	390	251,5	111	140	180	320
BKV 4040	**DN 40**	395	251,5	111	150	200	320
BKV 4050	**DN 50**	431,3	270	111	165	230	349

VIRA®

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NK 20

Sample Cooler

The Vira NK 20 Sample Cooler is designed to provide safe, efficient, and reliable cooling of boiler water and steam samples for chemical analysis. It ensures that high-temperature, high-pressure samples are cooled to safe handling levels without altering their chemical properties, allowing for precise and accurate water quality monitoring.

The NK 20 operates using a stainless steel coil heat exchanger, where the hot sample passes through the coil and is cooled by counter-flowing cooling water. This indirect cooling method protects both personnel and measuring instruments, ensuring compliance with industrial and environmental standards.

Key Features:

Designed for continuous or manual sampling from steam boilers and pressurized vessels

Built with high-quality stainless steel for long-term corrosion resistance and durability

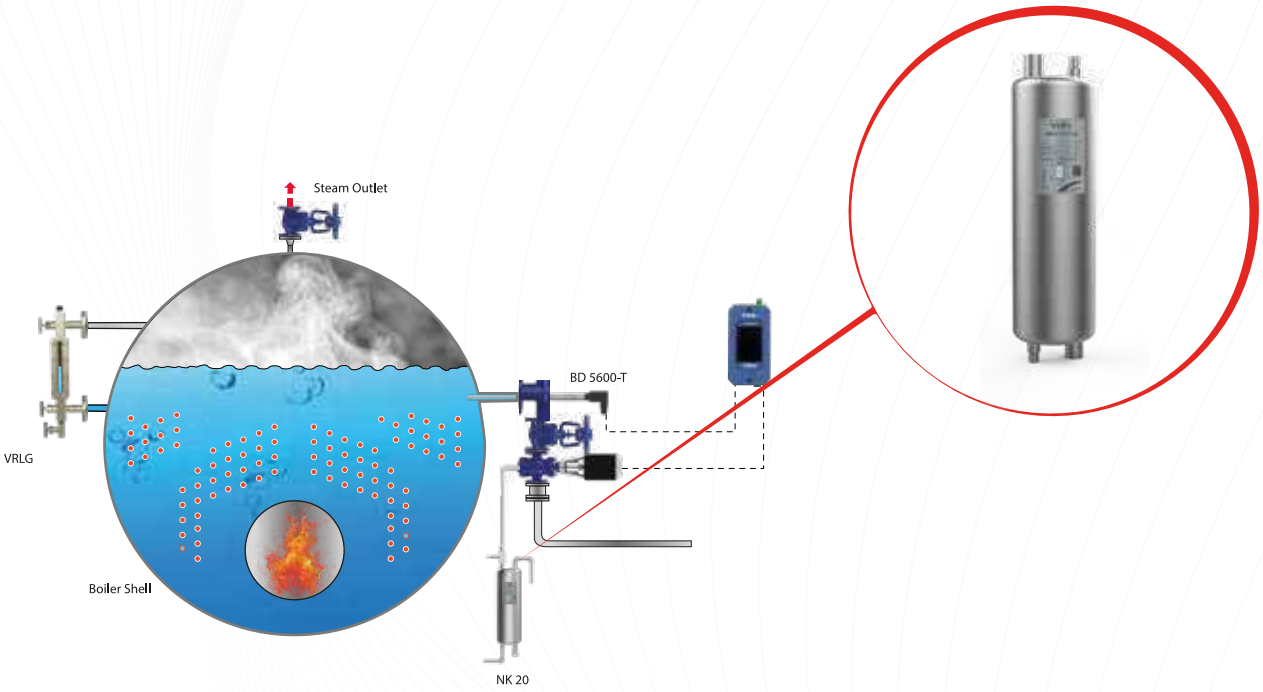
Compact, wall- or panel-mounted design for easy installation and maintenance

Reduces sample temperature to below 50°C, suitable for safe and accurate analysis

Ideal for monitoring conductivity, pH, silica, and other critical water quality parameters

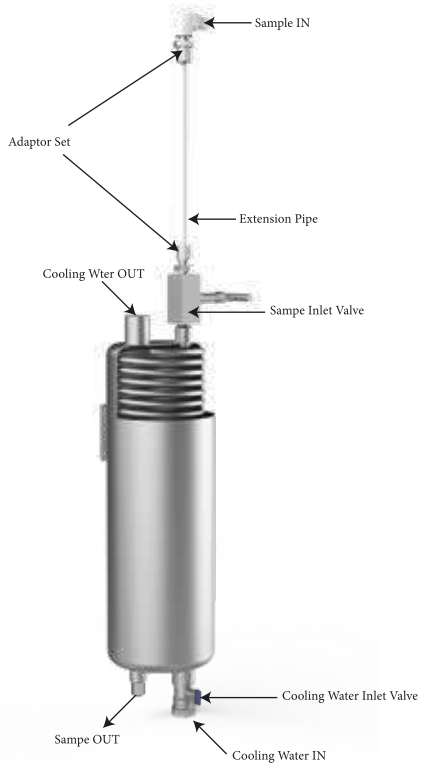
Fully compatible with Vira's boiler control and blowdown systems

The NK 20 Sample Cooler is an essential accessory for maintaining boiler efficiency, extending equipment life, and meeting the strict requirements of EN 12952 and EN 12953 standards.



NK 20 Sample Cooler

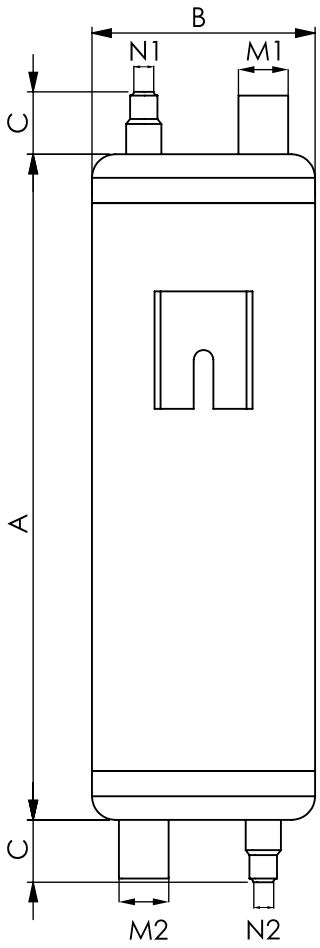
Sample Cooler	
Type	: NK 20
Body	: AISI 304L Stainless Steel
Pipe Coil	: AISI 304L Stainless Steel
Pipe Coil Nominal Pressure	: PN 40
Max. Operat. Press.	: 32 Bar g
Max. Operat. Temp.	: 239 °C
Cooling Water Connection	: 1/2" BSP Threaded
Sample Connection	: 1/4" BSP Threaded



Montage Set	
Type	: NK 20 - MS
Needle Valve	: 1/4"
Street Elbow	: 1/4"
Pipe	: 1/4" , 50 cm, Ø6mm
Reduction	: 1/2" - 1/4"
Connector	: 1/4", Ø6mm
Valve	: 1/2" Male - Female

TECHNICAL SPECIFICATION

NK 20 Sample Cooler

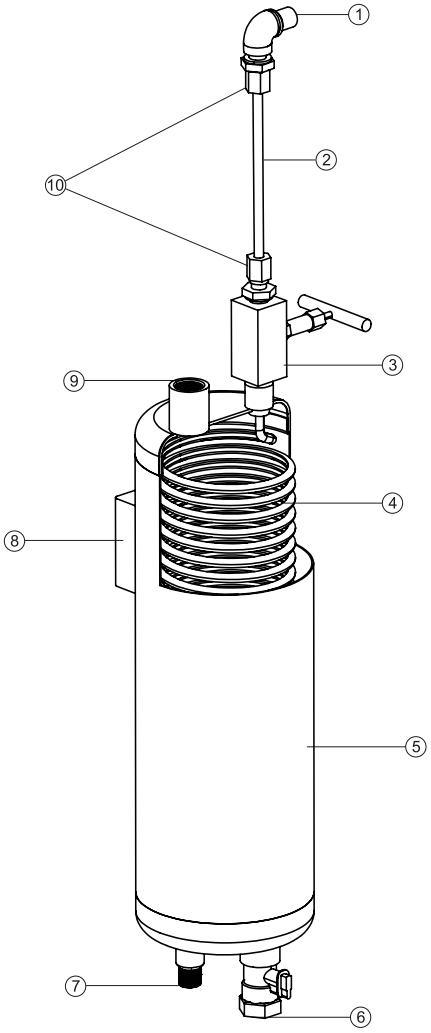


Technical Data

Type	NK20
Body Material	Austenitic Stainless Steel 304L
Coil Material	Austenitic Stainless Steel 304L
Coil Nominal Pressure	PN 40
Coil Max. Operat. Pres.	32 Bar g
Coil Max. Operat. Temp.	239 C
Body Nominal Pres.	PN 16
Body Max. Operat. Pres.	10 Bar g
Body Max. Operat. Temp.	120 C

Dimensions

SIZE	A (mm)	B (mm)	C (mm)	M (inch)	N (mm)
NK20	340	114	30	1/2	1/4



No	Part	Material
1	Street Elbow (Sample Inlet)	Austenitic Stainless Steel 304
2	Extension Pipe	Austenitic Stainless Steel 304
3	Needle Valve	Austenitic Stainless Steel 304
4	Coil	Austenitic Stainless Steel 304L
5	Shell	Austenitic Stainless Steel 304L
6	Cooling Water Inlet Valve	Brass
7	Sample Out	Austenitic Stainless Steel 304
8	Mounting Bracket	Austenitic Stainless Steel 304
9	Cooling Water Outlet	Austenitic Stainless Steel 304
10	Adaptor Set	Austenitic Stainless Steel 316L

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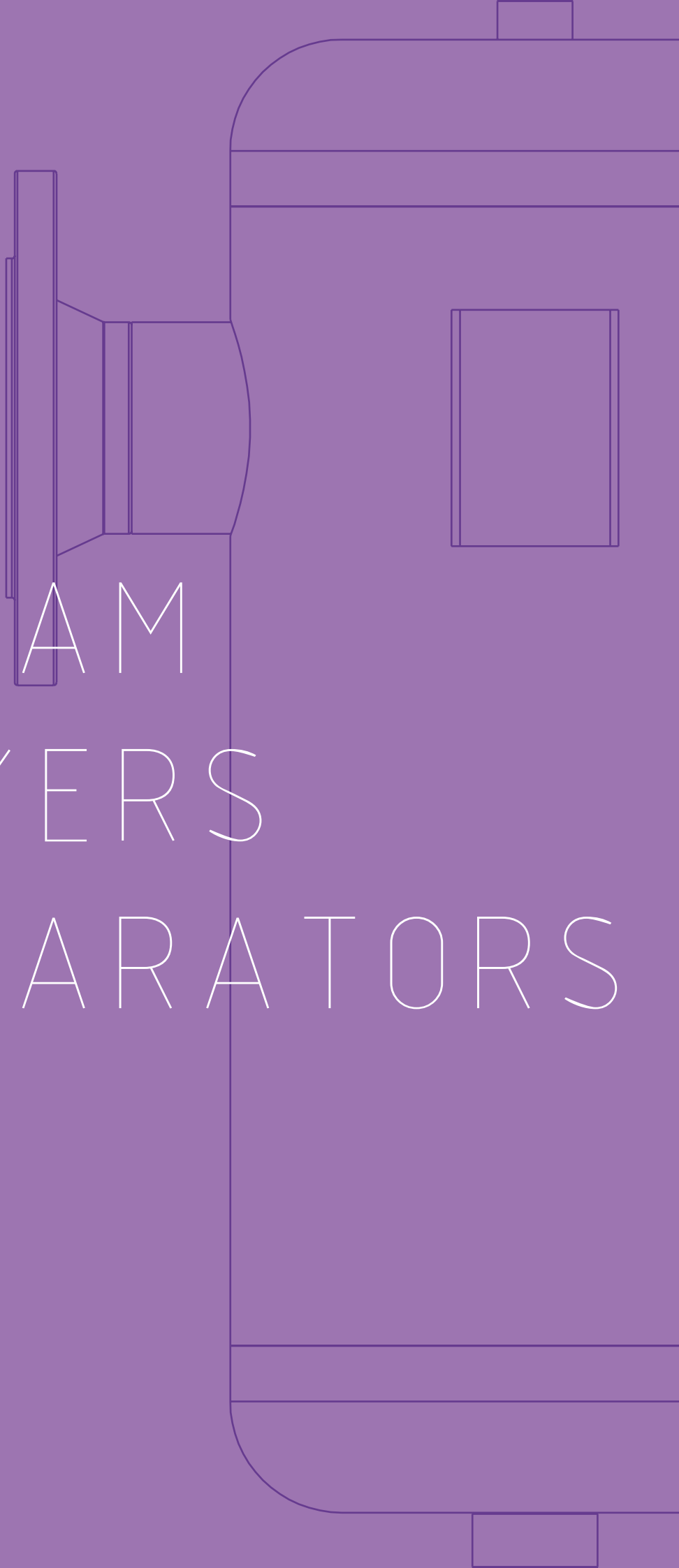
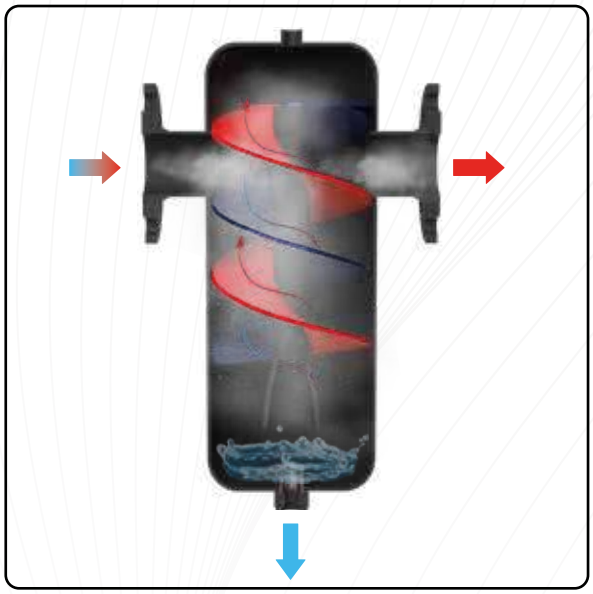


STEAM
DRYERS
SEPARATORS

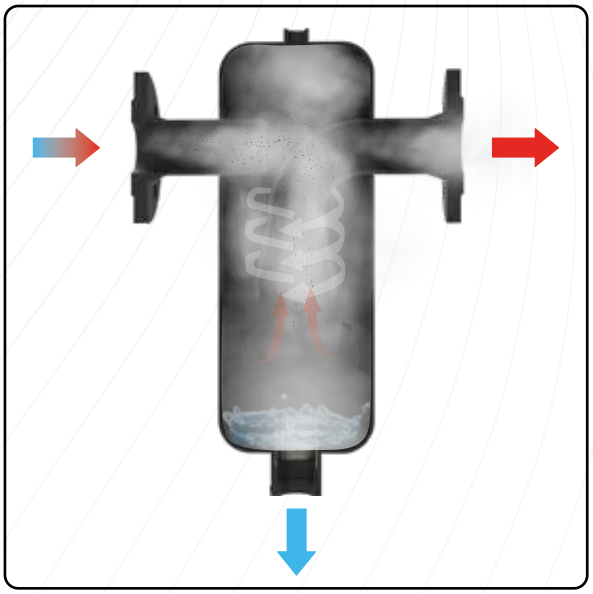
SEPARATORS

Why Use a Steam Separator?
Steam leaving the boiler often carries water droplets and impurities, creating wet steam. Wet steam reduces energy efficiency and may lead to erosion, corrosion, water hammer, and increased maintenance costs. By ensuring dry steam, separators protect downstream equipment and improve overall system performance.

Vira Separator Technology
Vira steam separators are available in Vortex and Cyclone types. They operate on the principle of centrifugal force, using the difference in specific gravity between gas and liquid to efficiently separate steam, air, and water particles. The steam (or compressed air) is directed into a spiral flow inside the separator, forcing heavier water droplets and impurities to the wall. These are collected at the bottom of the separator, where a steam trap station discharges the condensate safely by gravity.



Vortex Type



Cyclone Type

Product Range and Options

- **Connection types:** Threaded or flanged
- **Pressure ratings:** Available in multiple pressure classes
- **Material options:** Manufactured from high-quality steels according to application needs
- **Performance:** Up to 98% steam dryness when properly sized and installed

Key Benefits

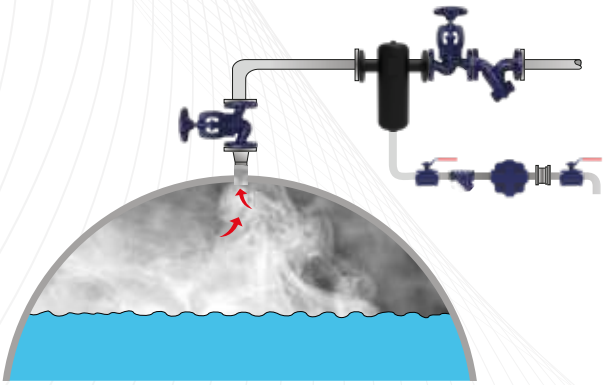
- High separation efficiency with vortex and cyclone technology
- Increased system efficiency and equipment lifetime
- Reduced risk of water hammer, erosion, and corrosion
- Flexible design with multiple connection and material options
- Manufactured with advanced production techniques and strict quality standards

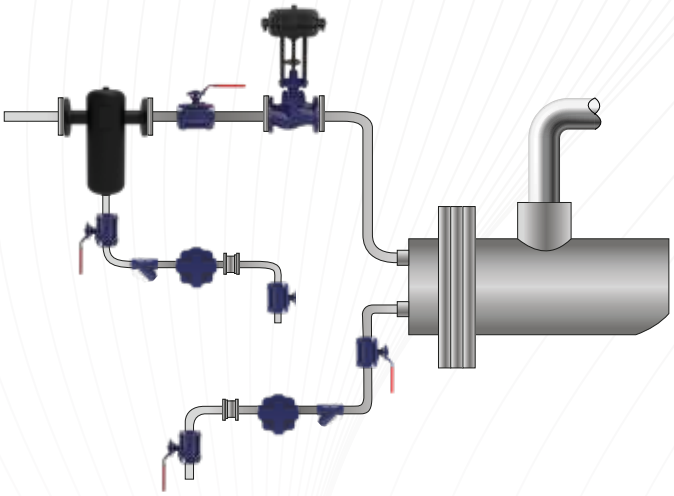
Note: For correct sizing and optimum performance, separator selection should consider line diameter, steam velocity, and allowable pressure drop.

TYPICAL SEPARATOR APPLICATIONS

Steam Distribution
In steam systems, maintaining the correct steam quality is critical for both efficiency and equipment longevity. When steam leaves the boiler, excessive velocity or insufficient separation can allow moisture to be carried into the distribution network. This moisture is not just water – it often contains dissolved salts, treatment chemicals, and other impurities that can accelerate wear, cause scaling inside valves, and reduce heat transfer performance.

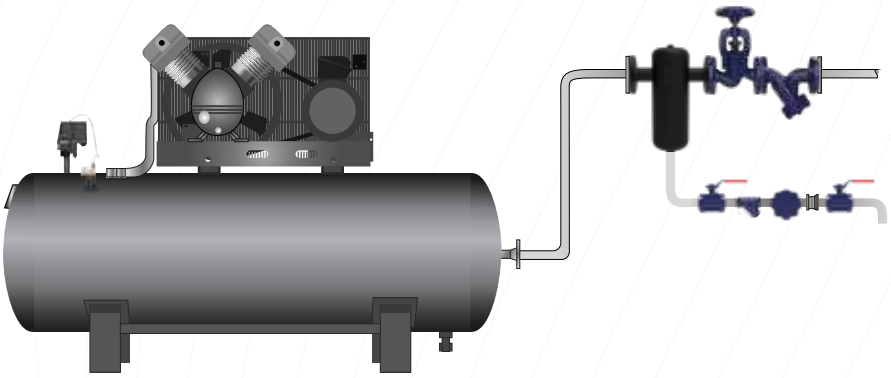
Vira's advanced separation technologies are engineered to deliver consistently dry, clean steam. Our carbon steel separators remove entrained moisture before it reaches the process, ensuring reliable operation, reduced maintenance, and optimal energy efficiency across the plant.

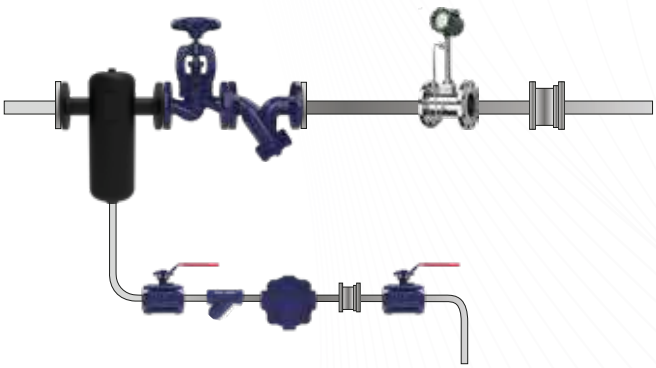




Heat Transfer Processes and Valve Protection
Vira separators condition steam before control valves, preventing wire drawing at low loads and reducing moisture on heat transfer surfaces, ensuring higher efficiency and longer valve life.

Compressed Air Distribution
Moisture in compressed air can cause corrosion, waterhammer, and freezing damage. Vira separators remove excess moisture before distribution, protecting equipment and ensuring reliable, efficient operation.





Steam Flowmeters
Vira separators remove moisture before metering, ensuring accurate dry steam measurements and protecting flowmeter components from damage.

Steam/Air Dryer

Vortex Steam Separator	
Type	: VSF (Vortex)
Connection	: Flanged
Pressure Class	: PN 16, PN 25, PN 40
Max. admissible temperature	: 200 - 250 °C
Material	: Carbon Steel (Optional Stainless Steel)
Min. admissible temperature	: -10 °C
Compliance	: CE (PED 2014/68/EU)

Vortex Steam Separator	
Type	: VS (Vortex)
Connection	: Threaded
Pressure Class	: PN 16, PN 25, PN 40
Max. admissible temperature	: 200 - 250 °C
Material	: Carbon Steel (Optional Stainless Steel)
Min. admissible temperature	: -10 °C
Compliance	: CE (PED 2014/68/EU)

Cyclone Steam Separator	
Type	: SSF (Cyclone)
Connection	: Flanged
Pressure Class	: PN 16, PN 25, PN 40
Max. admissible temperature	: 200 - 250 °C
Material	: Carbon Steel (Optional Stainless Steel)
Min. admissible temperature	: -10 °C
Compliance	: CE (PED 2014/68/EU)

Cyclone Steam Separator	
Type	: SS (Cyclone)
Connection	: Threaded
Pressure Class	: PN 16, PN 25, PN 40
Max. admissible temperature	: 200 - 250 °C
Material	: Carbon Steel (Optional Stainless Steel)
Min. admissible temperature	: -10 °C
Compliance	: CE (PED 2014/68/EU)

SEPARATORS RANGE

In addition to the standard sizes and pressure classes listed in the following tables, Vira also manufactures steam separators tailored to specific project requirements. Custom designs can be provided for:

- Larger or non-standard diameters
- Special pressure ratings
- Different connection types (threaded, flanged, welded)
- Alternative materials for demanding applications

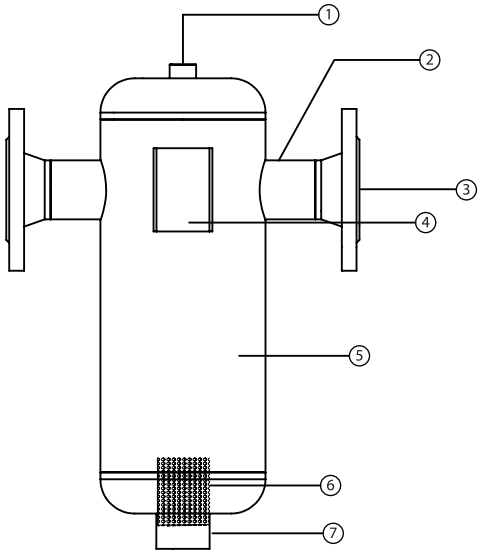
Vira's engineering and production capabilities allow us to deliver separators that meet the exact needs of each installation.

Type			Vortex									
Material			Carbon Steel	Carbon Steel	Stainless Steel	Stainless Steel	Carbon Steel	Carbon Steel	Stainless Steel	Stainless Steel	Carbon Steel	Stainless Steel
Model			VS-16	VSF-16	VS-S-16	VSF-S-16	VS-25	VSF-25	VS-S-25	VSF-S-25	VSF-40	VSF-S-40
Connection			Threaded	Flanged	Threaded	Flanged	Threaded	Flanged	Threaded	Flanged	Flanged	Flanged
Body Design Condition			PN 16	PN 16	PN 16	PN 16	PN 25	PN 25	PN 25	PN 25	PN 40	PN 40
Size	DN 15	1/2"	•		•		•		•			
	DN 20	3/4"	•		•		•		•			
	DN 25	1"	•	•	•	•	•	•	•	•		
	DN 32	11/4"	•	•	•	•	•	•	•	•		
	DN 40	11/2"	•	•	•	•	•	•	•	•		
	DN 50	2"	•	•	•	•	•	•	•	•	•	•
	DN 65	2 1/2"		•		•		•		•	•	•
	DN 80	3"		•		•		•		•	•	•
	DN 100	4"		•		•		•		•	•	•
	DN 125	5"		•		•		•		•	•	•
	DN 150	6"		•		•		•		•	•	•
	DN 200	8"		•		•		•		•	•	•
	DN 250	10"		•		•		•		•	•	•
	DN 300	12"		•		•		•		•	•	•
	DN 350	14"		•		•		•		•	•	•

Type			Cyclone									
Material			Carbon Steel	Carbon Steel	Stainless Steel	Stainless Steel	Carbon Steel	Carbon Steel	Stainless Steel	Stainless Steel	Carbon Steel	Stainless Steel
Model			SS-16	SSF-16	SS-S-16	SSF-S-16	SS-25	SSF-25	SS-S-25	SSF-S-25	SSF-40	SSF-S-40
Connection			Threaded	Flanged	Threaded	Flanged	Threaded	Flanged	Threaded	Flanged	Flanged	Flanged
Body Design Condition			PN 16	PN 16	PN 16	PN 16	PN 25	PN 25	PN 25	PN 25	PN 40	PN 40
Size	DN 15	1/2"	•		•		•		•			
	DN 20	3/4"	•		•		•		•			
	DN 25	1"	•	•	•	•	•	•	•	•		
	DN 32	11/4"	•	•	•	•	•	•	•	•		
	DN 40	11/2"	•	•	•	•	•	•	•	•		
	DN 50	2"	•	•	•	•	•	•	•	•	•	•
	DN 65	2 1/2"		•		•		•		•	•	•
	DN 80	3"		•		•		•		•	•	•
	DN 100	4"		•		•		•		•	•	•
	DN 125	5"		•		•		•		•	•	•
	DN 150	6"		•		•		•		•	•	•
	DN 200	8"		•		•		•		•	•	•
	DN 250	10"		•		•		•		•	•	•
	DN 300	12"		•		•		•		•	•	•
	DN 350	14"		•		•		•		•	•	•

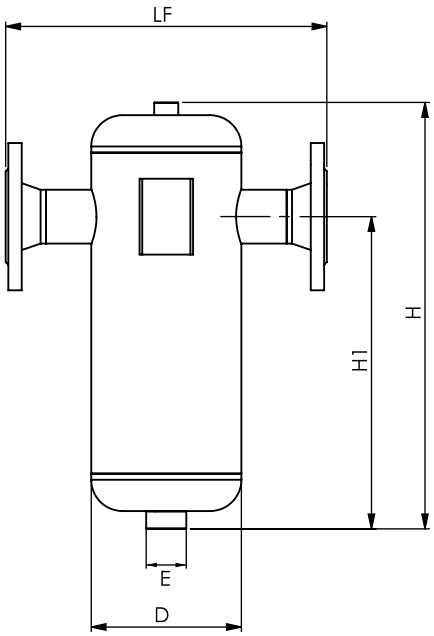
TECHNICAL SPECIFICATION

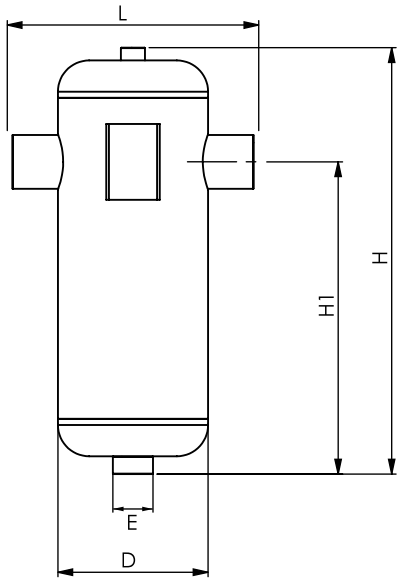
VSF/SSF Vortex/Cyclone Steam Separator



No	Part	Material
1	Air Vent Connection / Muff	Carbon Steel (P235GH / P265GH)
2	Inlet Nozzle / Pipe	Carbon Steel (P235GH / P265GH)
3	Steam Inlet / Flange	Carbon Steel (P235GH / P265GH)
4	Label	Aluminum
5	Body	Carbon Steel (P235GH / P265GH)
6	Filter Mesh	Stainless Steel (AISI 304 / AISI 316)
7	Condensate Outlet	Carbon Steel (P235GH / P265GH)

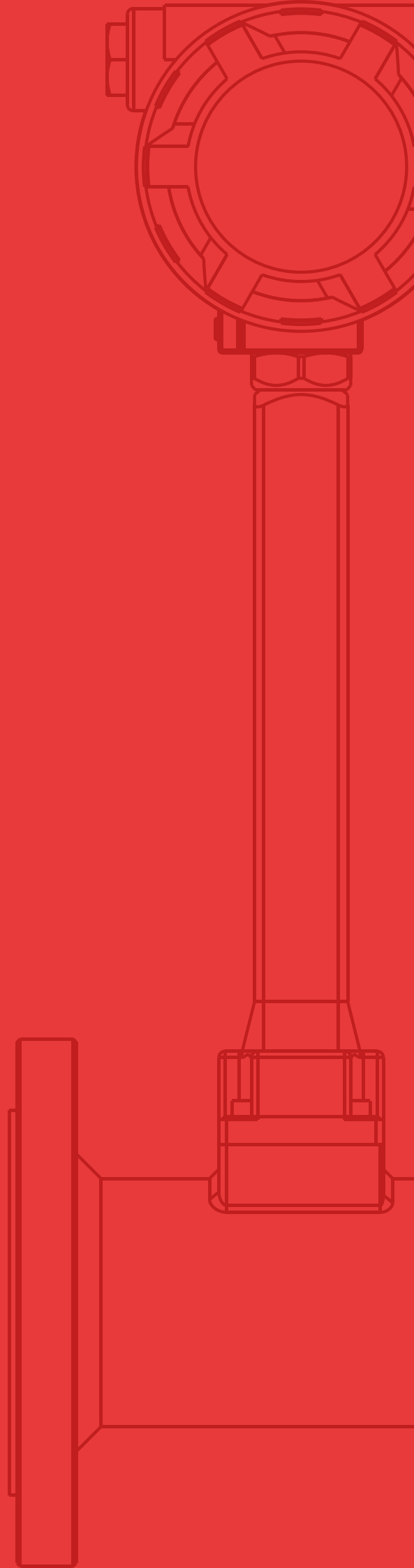
Dimensions





Nominal size (DN)	D (mm)	H (mm)	H1 (mm)	E (inch)	LF (mm)	L (mm)
15	114,3	348	210	1/2''	230	180
20	114,3	348	210	1/2''	230	180
25	114,3	348	210	1/2''	230	180
32	139,7	412	280	1''	250	230
40	139,7	412	280	1''	260	240
50	168,3	478	350	1''	360	340
65	219,1	564	410	11/2''	380	360
80	219,1	600	452	11/2''	400	380
100	273	902	660	11/2''	485	465
125	323,9	885	648	2''	550	500
150	350	1050	733	2''	585	535
200	400	1318	1018	2''	650	600
250	500	1600	1165	2''	802	750
300	600	1650	1190	2''	900	850

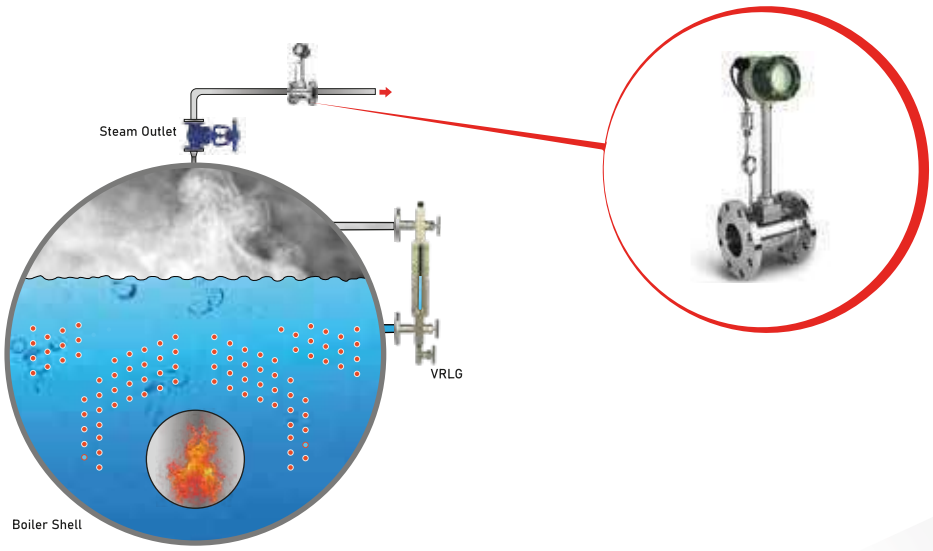
FLOW METERS



Vortex Steam Flow Meter

Vortex Steam Flow Meter	
Type	: VXW
Display	: Total flow and instant flow
Pressure	: 1.6 MPa, 2.5 MPa, 4.0 MPa
Ambient Temperature	: -20 °C to +60 °C
Diameter and Connection	: Flange type : DN15~DN300 Clamp on type : DN15~DN300 Insertion type : DN250~DN1000
Power	: 24 VDC
Relative Humidity	: %5 - %90
Atm. Pressure	: 86 - 106 Kpa
Measurable Fluid	: Liquid, Gas, Steam
Accuracy	: Flange type ±1.0%; ±1.5% Clamp on type : ±1.0%; ±1.5% Insertion type : ±1.5%; ±2.0%; ±2.5%;
LCD Digital Display	: L/min, m/h, kg/h, etc.
Output Signal	: 4-20 mA Current Output, Pulse Output (Optional), ModBus RTU (Optional)
Medium Temp.	: -40 C - +250 C
Material	: Stainless Steel 304 (Optional SS 316)
Protection	: IP 65

VXW Steam Flow Meter Typical Application



VXW

The vortex flowmeter consists of a vortex generator, a detection probe, and dedicated electronic circuitry. As the fluid passes through the vortex generator, alternating vortices are created on both sides of the body, known as Kármán vortices. The frequency of these vortices is directly proportional to the flow velocity of the fluid, establishing the fundamental measurement principle of the device. The relationship can be expressed as:

$$f=St\times dV$$

f : Frequency of vortex shedding (Hz)

V : Average flow velocity on both sides of the vortex generator (m/s)

St : Strouhal number (dimensionless, constant within a specific Reynolds number range)

d : Width of the upstream face of the vortex generator (m)

Where to use;
- Liquid, Gas and Steam Flow Measurement
- Boiler Efficiency Monitoring

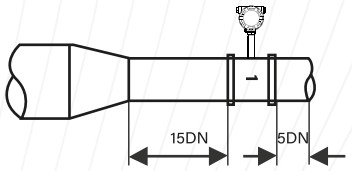
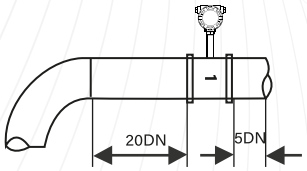
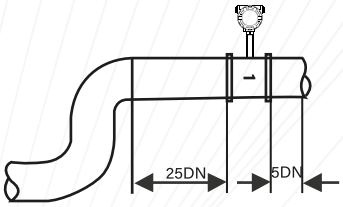
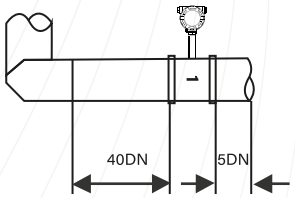
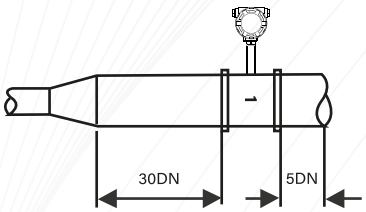
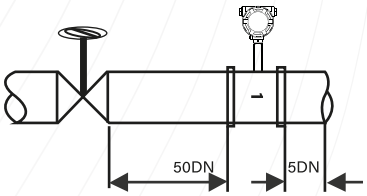
Benefits;
- Calculation of steam costs by measuring the steam consumption of the plant and various units.
- Checking whether steam is supplied to the processes in operation at the correct amount and pressure.
- The efficiency of the plants and processes are monitored with steam flow meters.

Saturated Steam Flow Range

Measurable Flow Range																	
Mpa (g)		0,1	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9	1,1	1,3	1,5	1,7	1,9	2,1	
°C		120,2	133,6	143,6	151,8	158,8	164,9	170,4	175,4	179,9	188,6	196,3	203	209,3	212,4	216	
Kg/m^3		1,12	1,67	2,19	2,68	3,18	3,67	4,15	4,62	5,16	6,1	7,15	8,2	9,45	10,57	11	Unit
Dw		Different Steam Density Corresponding with Flow Range															
mm																	
15	Qmin	3,92	5,845	7,665	9,38	11,13	12,845	14,525	16,17	18,06	21,35	25,025	28,7	33,075	36,995	38,5	
	Qmax	13,44	20,04	26,28	32,16	38,16	44,04	49,8	55,44	61,92	73,2	85,8	98,4	113,4	126,84	132	
20	Qmin	6,72	10,02	13,14	16,08	19,08	22,02	24,9	27,72	30,96	36,6	42,9	49,2	56,7	63,42	66	
	Qmax	33,6	50,1	65,7	80,4	95,4	110,1	124,5	138,6	154,8	183	214,5	246	283,5	317,1	330	
25	Qmin	10,08	15,03	19,71	24,12	28,62	33,03	37,35	41,58	46,44	54,9	64,35	73,8	85,05	95,13	99	
	Qmax	61,6	91,85	120,45	147,4	174,9	201,85	228,25	254,1	283,8	335,5	393,25	451	519,75	581,35	605	
32	Qmin	16,8	25,05	32,85	40,2	47,7	55,05	62,25	69,3	77,4	91,5	107,25	123	141,75	158,55	165	
	Qmax	145,6	217,1	284,7	348,4	413,4	477,1	539,5	600,6	670,8	793	929,5	1066	1228,5	1374,1	1430	
40	Qmin	24,64	36,74	48,18	58,96	69,96	80,74	91,3	101,64	113,52	134,2	157,3	180,4	207,9	232,54	242	
	Qmax	224	334	438	536	636	734	830	924	1032	1220	1430	1640	1890	2114	2200	kg/h
50	Qmin	40,32	60,12	78,84	96,48	114,48	132,12	149,4	166,32	185,76	219,6	257,4	295,2	340,2	380,52	396	
	Qmax	358,4	534,4	700,8	857,6	1017,6	1174,4	1328	1478,4	1651,2	1952	2288	2624	3024	3382,4	3520	
65	Qmin	56	83,5	109,5	134	159	183,5	207,5	231	258	305	357,5	410	472,5	528,5	550	
	Qmax	537,6	801,6	1051,2	1286,4	1526,4	1761,6	1992	2217,6	2476,8	2928	3432	3936	4536	5073,6	5280	
80	Qmin	84	125,25	164,25	201	238,5	275,25	311,25	346,5	387	457,5	536,25	615	708,75	792,75	825	
	Qmax	703,36	1048,76	1375,32	1683,04	1997,04	2304,76	2606,2	2901,36	3240,48	3830,8	4490,2	5149,6	5934,6	6637,96	6908	
100	Qmin	145,6	217,1	284,7	348,4	413,4	477,1	539,5	600,6	670,8	793	929,5	1066	1228,5	1374,1	1430	
	Qmax	1232	1837	2409	2948	3498	4037	4565	5082	5676	6710	7865	9020	10395	11627	12100	
125	Qmin	0,224	0,334	0,438	0,536	0,636	0,734	0,83	0,924	1,032	1,22	1,43	1,64	1,89	2,114	2,2	
	Qmax	1,904	2,839	3,723	4,556	5,406	6,239	7,055	7,854	8,772	10,37	12,155	13,94	16,065	17,969	18,7	
150	Qmin	0,3136	0,4676	0,6132	0,7504	0,8904	1,0276	1,162	1,2936	1,4448	1,708	2,002	2,296	2,646	2,9596	3,08	
	Qmax	2,5088	3,7408	4,9056	6,0032	7,1232	8,2208	9,296	10,3488	11,5584	13,664	16,016	18,368	21,168	23,6768	24,64	
200	Qmin	0,6496	0,9686	1,2702	1,5544	1,8444	2,1286	2,407	2,6796	2,9928	3,538	4,147	4,756	5,481	6,1306	6,38	
	Qmax	4,704	7,014	9,198	11,256	13,356	15,414	17,43	19,404	21,672	25,62	30,03	34,44	39,69	44,394	46,2	t/h
250	Qmin	1,0864	1,6199	2,1243	2,5996	3,0846	3,5599	4,0255	4,4814	5,0052	5,917	6,9355	7,954	9,1665	10,2529	10,67	
	Qmax	6,16	9,185	12,045	14,74	17,49	20,185	22,825	25,41	28,38	33,55	39,325	45,1	51,975	58,135	60,5	
300	Qmin	1,6352	2,4382	3,1974	3,9128	4,6428	5,3582	6,059	6,7452	7,5336	8,906	10,439	11,972	13,797	15,4322	16,06	
	Qmax	8,96	13,36	17,52	21,44	25,44	29,36	33,2	36,96	41,28	48,8	57,2	65,6	75,6	84,56	88	

Design and Installation

Design

Sensor upstream pipe type	Front and back straight pipe length	Sensor upstream pipe type	Front and back straight pipe length
Concentric contract opening-valve		90 degree elbow	
Two 90 degree Elbow which on a same plane		Two 90 degree Elbow which not on a same plane	
Concentric expanded pipe		Control valve half open the vale (not recommend)	

Installation Requirements

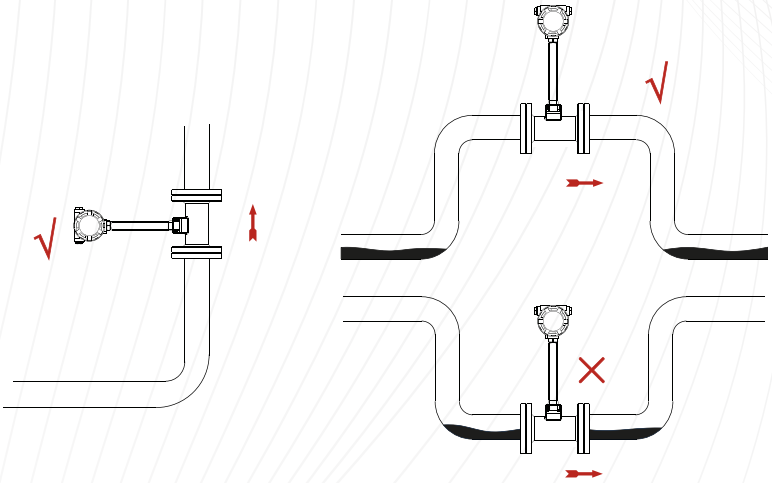
Measuring Gas and Steam Installation Considerations

1. Pipelines used for measuring gas or steam should prevent interference from accumulated liquid.

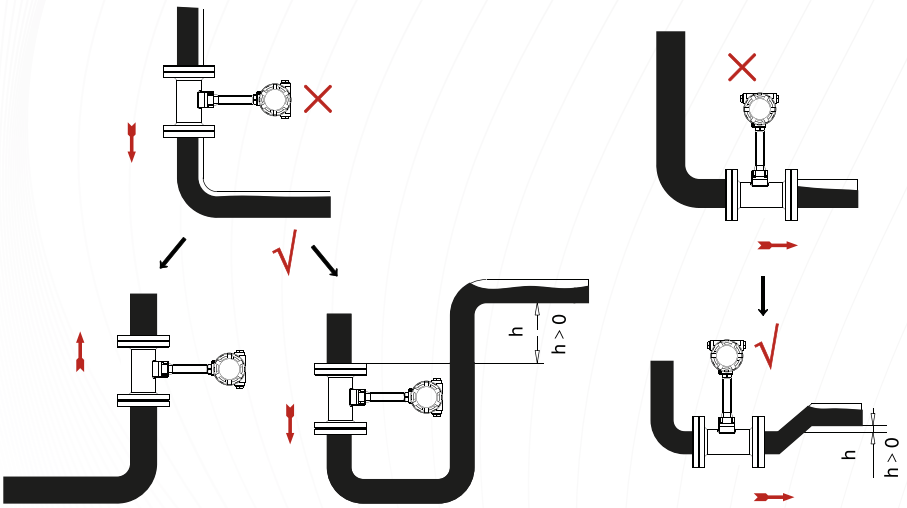
2. The flow meter can be installed vertically on the pipeline to avoid fluid accumulation.

3. When installing the flow meter horizontally, it should be placed at the highest point of an inverted U-shaped pipe.

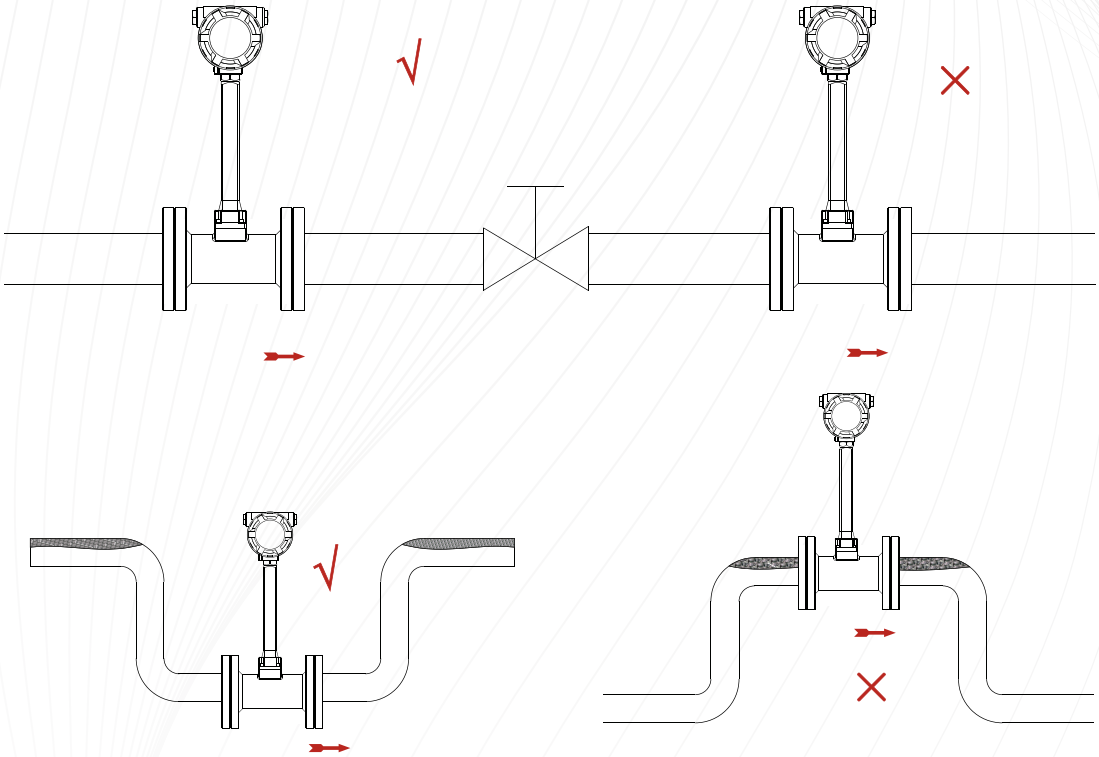
4. Installation at the lowest point of a positive U-shaped pipeline is strictly prohibited. Condensate tends to collect at the lowest point of a positive U-shaped pipeline. This condensation can form air pockets, leading to inaccurate measurements. In extreme cases, the instrument may be damaged and the pipeline medium may leak.



In order to ensure accurate measurement, the measuring medium must fill the pipeline of the flowmeter, so the flow direction of the medium should be bottom-up. When the fluid flows downward, it must be ensured that the installation position of the vortex flowmeter is lower than the height of the downstream pipeline to ensure that the vortex flowmeter is full.

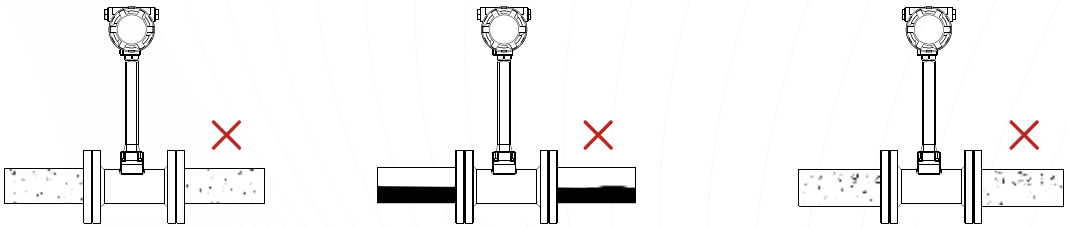


If the measurement medium contains gas, the measurement accuracy of the instrument will be affected, and in severe cases, the flowmeter will work abnormally, so it is required to avoid generating air bubbles when installing the pipeline; When the liquid flows through the control valve, air bubbles will be generated due to the pressure drop, resulting in inaccurate measurement, so the flow meter must be installed upstream of the valve. It is forbidden to install the flowmeter at the highest point of the inverted U-shaped pipe.



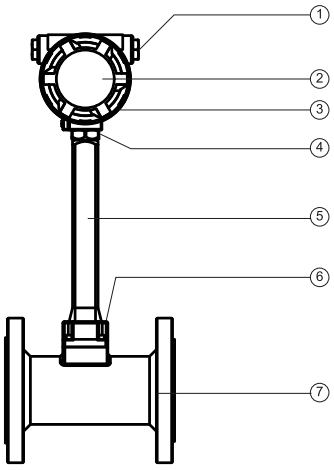
Mixed Liquid

When the measured fluid is a single-phase flow, the flow meter can accurately measure gas, steam and liquid. When the measured fluid is a mixed-phase flow, the flow meter cannot make accurate judgments.



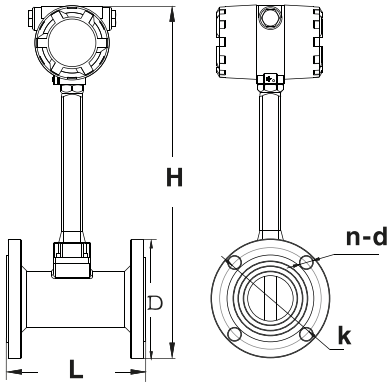
TECHNICAL SPECIFICATION

Vortex Steam Flow Meter



No	Part	Material
1	Elevtrical Unit	Austenitic Stainless Steel 304
2	Display Protector	Glass
3	Transmitter Housing	Aluminum
4	Pick Up Sensor Connection	Austenitic Stainless Steel 304
5	Pick Up Sensor	Austenitic Stainless Steel 304
6	Pick Up Sensor Connection	Austenitic Stainless Steel 304
7	Flange	Austenitic Stainless Steel 304

Dimensions

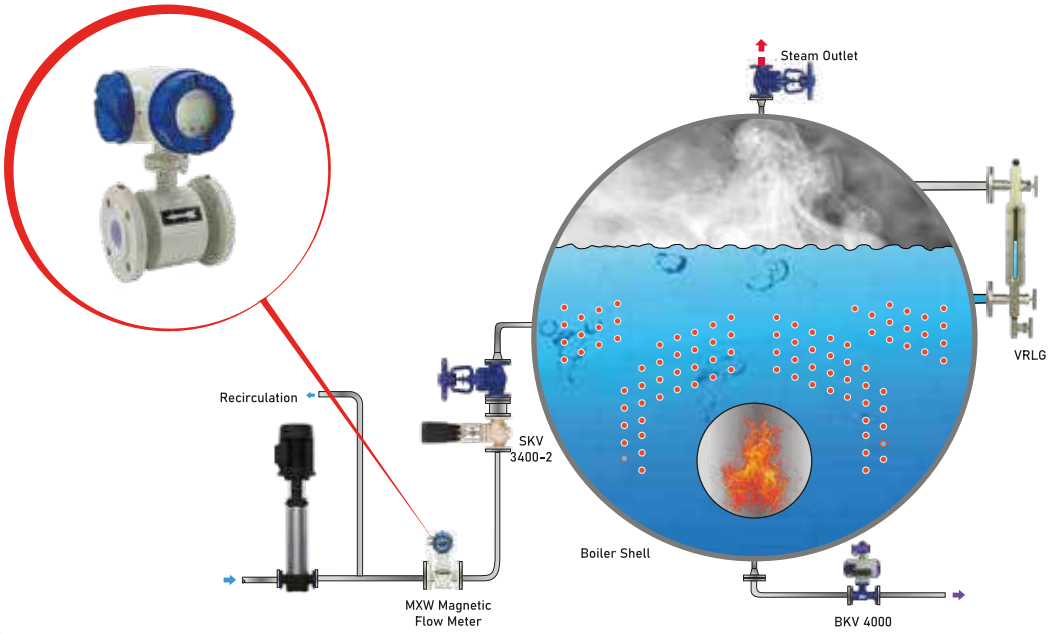


DN	D (mm)	K (mm)	n-d (mm)	Thread	L (mm)	H (mm)	Piping
15	95	65	4-14	M12	160	460	Φ19-2
20	105	75	4-14	M12	160	460	Φ26-3
25	115	85	4-14	M12	160	465	Φ34-4.5
32	140	100	4-18	M16	160	475	Φ39-3.5
40	150	110	4-18	M16	180	490	Φ49-4.5
50	165	125	4-18	M16	180	500	Φ59-4.5
65	185	145	4-18	M16	180	520	Φ78-6.5
80	200	160	4-18	M16	180	530	Φ91-5.5
100	220	180	4-18	M16	200	550	Φ 110-5
125	250	210	4-18	M16	200	580	Φ 135-5
150	285	240	8-22	M20	200	615	Φ161-5.5
200	340	295	12-22	M20	200	665	Φ222-11
250	405	355	12-26	M24	200	720	Φ273-11.5
300	460	410	12-26	M24	200	770	Φ325-12.5

Magnetic Flow Meter

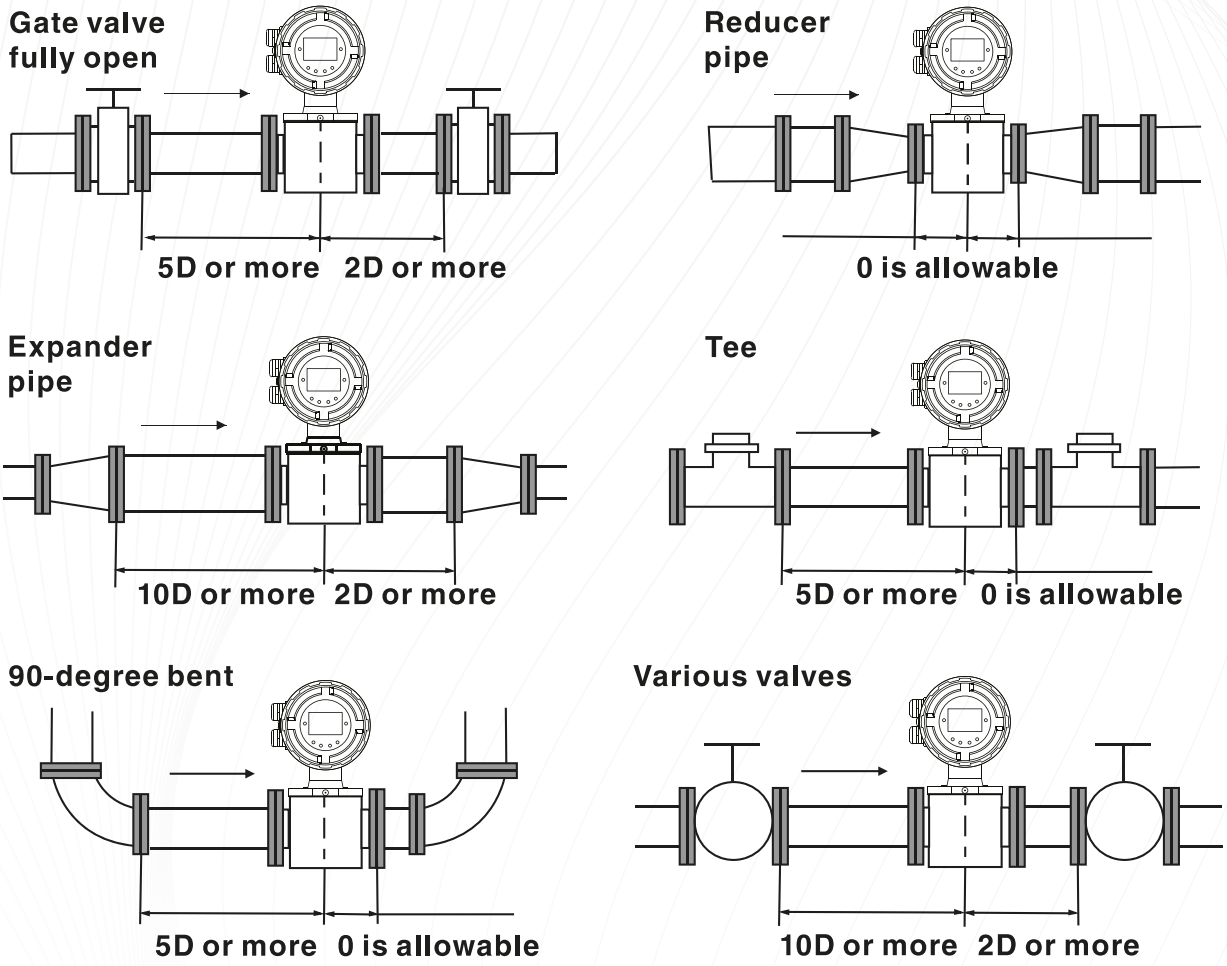
Type	: MXW
Diameter	: PTFE: DN2.5 - DN1000
Rubber	: DN50 - DN3000
Flow Direction	: Forward Reverse
Repeatability Error	: ±0.1%
Accuracy	: ±0.5% of rate; ±0.2% of rate
Medium Temp. with Rubber Liner	: -20...+60°C,
Medium Temp. with PTFE Liner	: -20...+120 °C,
Medium Temp. with PFA	: -20...+180°C
Velocity	: 0.3-10m/s
Ambient Temperature	: -20...+60 °C
Relative Humidity	: 5%-95%
Power Consumption	: <20W
Protection	: IP 65; IP 68 (Remote Type)

MXW Typical Application



Required Lengths Of Straight Runs

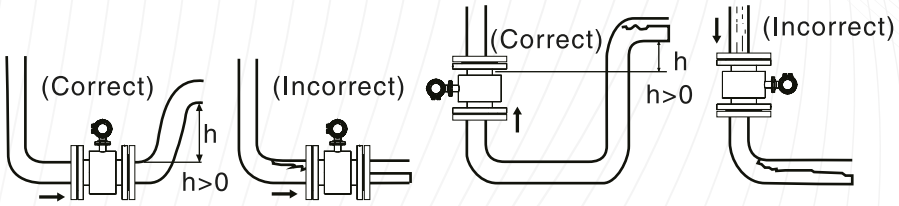
For optimum accuracy performance, it is required to provide sufficient inlet and outlet straight pipe runs. An equivalent to 3 diameters of straight pipe is required on the inlet side, and 2 diameters on the outlet side. There are no special requirements for standard concentric pipe reducers. See diagram1 for required straight runs when there is altering device.



Cautions For Installation

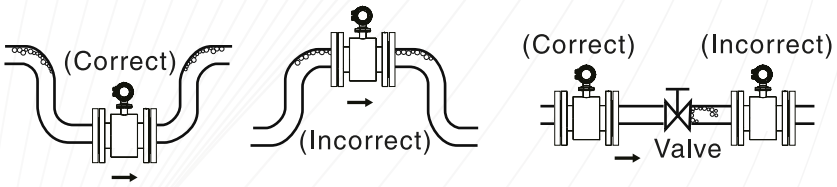
Mounting Positions

Pipes must be fully filled with liquids. It is essential that pipes remain fully filled at all times, otherwise flow rate indications may be affected and measurement errors may be caused.



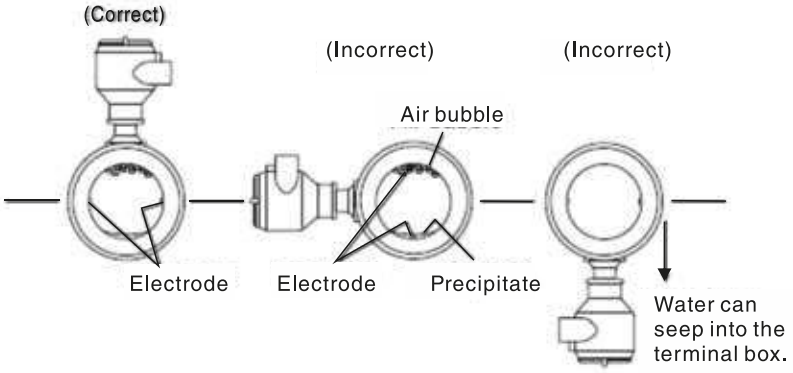
Mounting Positions

Avoid Air Bubbles. If air bubbles enter a measurement pipe, flow rate indications may be affected and measurement errors may be caused.



Avoiding Air Bubbles

If the electrodes are vertical to the ground, air bubbles near the top or precipitates at the bottom may cause measurement error. Ensure that the terminal box is mounted above the piping to prevent water from entering them.



Mounting Orientation

Avoid all pipe locations where the flow is pulsating, such as in the outlet side of piston or diaphragm pumps.

Avoid locations near equipment producing electrical interference such as electric motors, transformers, variable frequency, etc.

Install the meter with enough room for future access for maintenance purposes.

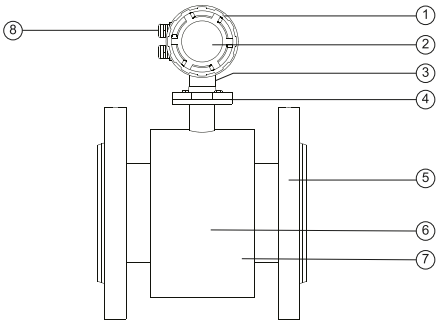
The magnetic meter isolating liner, whether if it is PTFE or Rubber, is not intended to be used as gasket material. Standard gaskets (not provided) should be installed to ensure a proper hydraulic seal. When installing the gaskets, make sure they are properly centered to avoid restriction or turbulence. Do not use graphite or any electrically conductive sealing compound to hold the gaskets in place during installation. This could affect the reading accuracy of the measuring signal.

Flow Range

Diameter		Flow Rate (m³/h)		
		V=0.3m/s	V=6m/s	V=10m/s
(mm)	(Inch)	(Min)	(Calibrated)	(Max)
6	1/4"	0.0306	0.611	1.018
10	3/8"	0.0849	1.696	2.827
15	1/2"	0.1909	3.817	6.362
20	3/4"	0.3393	6.786	11.31
25	1"	0.5301	10.60	17.67
32	1-1/4"	0.8686	17.37	28.95
40	1-1/2"	1.357	27.14	45.24
50	2"	2.121	42.14	70.69
65	2-1/2"	3.584	71.68	119.5
80	3"	5.429	108.6	181.0
100	4"	8.482	169.6	282.7
125	5"	13.25	265.1	441.8
150	6"	19.09	381.7	636.2
200	8"	33.93	678.6	1131
250	10"	53.01	1060	1767
300	12"	76.34	1527	2545
350	14"	103.9	2078	3465
400	16"	135.7	2714	4524
450	18"	171.8	3435	5726
500	20"	212.1	4241	7069
600	24"	305.4	6107	10179
700	28"	415.6	8310	13850
800	32"	542.9	10860	18100
900	36"	662.8	13740	22900
1000	40"	848.2	16962	28270

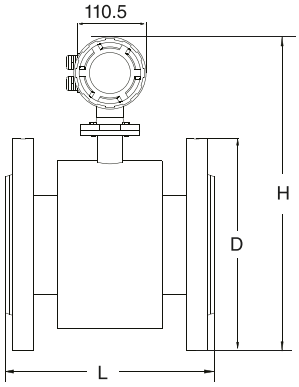
TECHNICAL SPECIFICATION

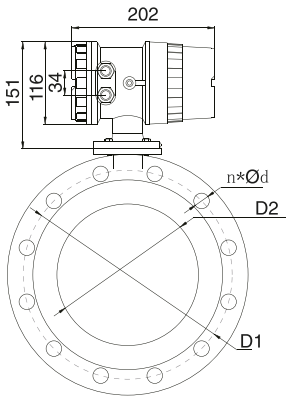
Magnetic Water Flow Meter



No	Part	Material
1	Transmitter Housing	Aluminum
2	Display Protector	Glass
3	Pick Up Sensor	Carbon steel
4	Pick Up Sensor Connection	Carbon steel With Rubber Sealing
5	Flange	Carbon steel
6	Body Housing	Carbon steel
7	Tube	Austenitic Stainless Steel 304
8	Electrial Unit	Austenitic Stainless Steel 304
Note: If order 304 body material, items 5.6.7 are SS304. If order 316 body material, items 5.6.7 are SS316		

Dimensions





Dimensions

DN	B Type L (mm)	L Type L (mm)	H (mm)	H1 (mm)	D (mm)	D 1 (mm)	n x Φd (mm)
10	160/200	120	360	220	90	65	4×14
15	160/200	200	360	220	95	65	4×14
20	165/200	200	360	220	105	75	4×14
25	200	200	360	220	115	85	4×14
32	200	200	370	235	140	100	4×18
40	200	200	370	235	150	110	4×18
50	200	200	385	242	165	125	4×18
65	250/200	200	400	256	185	145	4×18
80	250/200	200	415	275	200	160	8×18
100	250	250	435	295	220	180	8×18
125	250	NA	465	325	250	210	8×18
150	300	NA	497	355	285	240	8×22
200	350	NA	550	410	340	295	12×22
250	450	NA	610	488	405	355	12×22
300	500	NA	660	520	460	410	12×22

RESİSTANCE THERMOMETERS

Resistance Thermometers

Resistance thermometers are widely used in various processes within the temperature range of -200°C to +850°C. They provide more accurate readings than thermocouples, especially at low temperatures. Standard designs are suitable up to 500°C, while special types are available for applications up to 850°C upon request.

The maximum operating temperatures stated in the catalogue refer to clean air environments free from harmful gases. In environments with corrosive or aggressive gases, the service life of the resistance thermometers may be reduced depending on the severity of the exposure.

Resistance thermometers are suitable for use in machinery, tanks, pipelines, and media such as air, steam, gas, water, and oil, as well as for surface measurements in low and high-pressure processes.

VR02
Steam and Water Temperature

Vira temperature sensors are specifically designed for steam applications, delivering accurate and reliable performance even in high-pressure and high-temperature environments. Built for durability, Vira sensors ensure precise control, making them the ideal choice for steam systems requiring optimal safety and efficiency.

VR01 resistance thermometer is a straight type model without raccord, designed for precise and stable temperature measurement. A B-type connection head is used in standard production. Diameters of 9 mm and above are manufactured as inset type and include the VR05 inset element. Upon request, inset versions can also be produced in diameters below 9 mm.

VR03
Flue Gas Temperature

Vira flue gas temperature sensor is designed for accurate, real-time temperature measurement in high-temperature environments. Made from corrosion-resistant materials, it ensures long-term reliability and seamless integration with boiler control systems, helping optimize efficiency and reduce emissions.

VR02 resistance thermometer is a raccord type model designed for precise and reliable temperature measurement. It is supplied with a standard ½" raccord connection. Diameters of 9 mm and above are manufactured as inset type and include the VR05 inset element. Upon request, inset versions can also be produced in diameters below 9 mm.

Steam and Water Temperature

Type	: VR02
Element	: Pt-100, Pt-1000 (2,3,4 Wire)
Housing	: 1.4571 DIN Stainless Steel (AISI 316)
Size (D)	: This size must be selected by customer
Length (L)	: This size must be selected by customer
Connection	: ½"
Head	: Screwed, Chain and o-ring sealing water proof (IP67)

Flue Gas Temperature

Type	: VR03
Element	: Pt-100, Pt-1000 (2,3,4 Wire)
Housing	: 1.4571 DIN Stainless Steel (AISI 316)
Size (D)	: This size must be selected by customer
Length (L)	: This size must be selected by customer
Connection	: ½"
Head to Thread Length	: 120 mm
Head	: Screwed, Chain and o-ring sealing water proof (IP67)

Note: Resistance thermometers can be manufactured in special dimensions according to customer requirements.

Resistance Thermometer:

Changing the resistance value of a temperature wire obtained by resistance thermometer is a conductive sensor depending on the temperature. It is widely used in industry and laboratory applications found after thermocouple. They give more accurate values than thermocouples, especially at low temperatures and in the processes where precise measurement is desired. The value of the changing resistance changes depending on the temperature change. A varying voltage is obtained with the constant current applied on it.

There are some things to consider for resistance thermometers. The first of these is that the current applied on it causes a small temperature change. Another important element is the resistance of the wires carrying the current. In resistance thermometers, the temperature change factor is defined by "α". Resistance changes are usually formulated as follows.

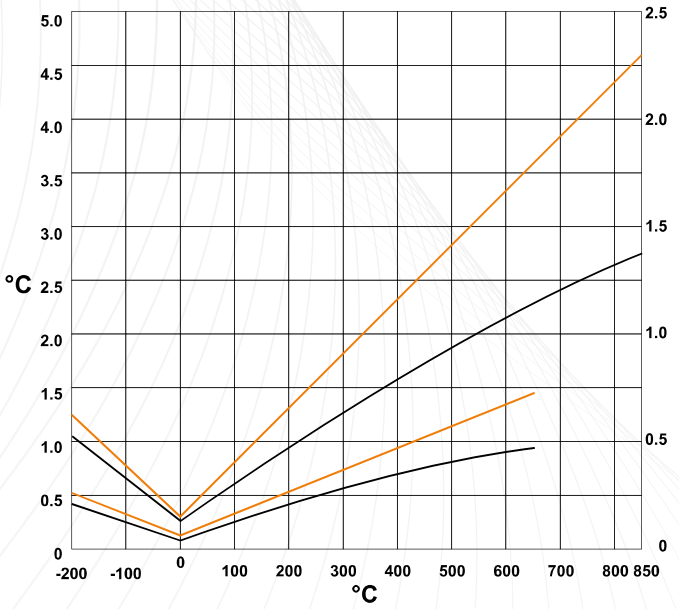
α : Resistance thermometer temperature change factor
R_0 : Resistance value at 0°C
R_{100} : Resistance value at 100°C

$$a = \frac{R100 - R0}{R_o * 100\ °C}$$

Resistance thermometer temperature-resistance change values comply with DIN43760 and IEC751 standards. Pt-100 and Ni-1000 resist 100 Ohms at 0°C with a tolerance of ±0.1 Ohm. Temperature-resistance change values are calculated with the following formula:

Rt = Ro (1 + At + Bt)
Rt = Resistance value at any temperature T
Ro = Resistance value at 0°C
t = Temperature
A = 0390784×10-² °C-³ (Constant)
B = 0.578408×10-⁶ °C-² (Constant)

Resistance Thermometer Resistance Graph



Resistance Thermometer Tolerance Table

TEMPERATURE °C	TOLERANCE IEC 751:1983 (BS EN 60751:1996)			
	A CLASS		B CLASS	
	±°C	±OHM	±°C	±OHM
-200	0.55	0.24	1.3	0.56
-100	0.35	0.14	0.8	0.32
0	0.15	0.06	0.3	0.12
100	0.35	0.13	0.8	0.30
200	0.55	0.20	1.3	0.48
300	0.75	0.27	1.8	0.64
400	0.95	0.33	2.3	0.79
500	1.15	0.38	2.8	0.93
600	1.35	0.43	3.3	1.06
650	1.45	0.46	3.6	1.13
700	-	-	3.8	1.17
800	-	-	4.3	1.28
850	-	-	4.6	1.34

Three important points should be taken into consideration in the use of resistance thermometers:
1- Environmental conditions
2- Maximum and minimum operating temperatures
3- Tolerance values

When looking at resistance changes related to temperature, Platinum and Nickel wire give the best performance among many alloys and metals. For this reason, resistors wrapped from these wires are used in Pt-100 and Ni-100s. It is best to use Pt-100 in this area.

a = 3,85.10-³ (1/°C) for Platinum
a = 6,17.10-³ (1/°C) for Nickel

Looking at the resistance thermometer structure, it consists of inset, outer protective sheath and other connection parts. Resistance thermometer element that measures the temperature is placed in the inset with outer protection. Metal oxide powders are filled in the sheath. A single piece of wire is used between the terminal element and the terminal and this wire is insulated with insulators.

In standard production, the inset diameters are 6mm or 8mm, the resistance thermometer element in the sheath is defined as inset with its connection terminal. Inset is mounted in outer protective sheath. With this structure, the inset resistance thermometer in the outer protective sheath can be removed more easily without removing the outer protective sheath from the process. If the resistance thermometer element in the inset is to be connected to a single device, it is produced as a single element, but if it is to be connected to a second device, then it is produced as double element.

Resistance Thermometer Element:
The resistance thermometer element consists of placing the resistance wire wrapped in Platinum or Nickel wire in Ceramic, Glass or Mica. Platinum resistance thermometer elements are used from -200 °C to +850 °C. Since the resistance thermometer elements are used from -60 °C to +150 °C. Pt-100 element is widely used because it gives constant temperature and more accurate values. They are also more readily available. For this reason, Pt-100 is preferred even in processes suitable for Ni-100 ranges.

The resistance thermometer element placed at the tip in the inset is connected to the terminal with Copper (Cu), Silver (Ag) or Nickel chrome (NiCr) wires. If Copper and Silver are chosen, these wires are ignored because their resistance is very low. Applications above 600 °C use as internal connection wire in nickel chrome wire is good. Since the resistance of nickel chrome wire is high, the resistance of this wire is measured and written into the head-terminal block.

Resistance Thermometer Inset:
The resistance thermometer element is not mounted directly on the outer protective sheath. It is placed in a smaller diameter metal sheath and identified as an inset. The inset is placed in the outer protective sheath in a separate metal sheath as the second sheath. In this way, when the resistance thermometer element is damaged, the inset can be changed easily from inside the head without stopping the process and without removing the outer sheath. In this way, if there is an outer sheath and a head available, a more economical product is obtained by only providing inset without the connection parts.

RESİSTANCE THERMOMETER TOLERANCE TABLE (PLATINUM RESISTANT) EN60751 (IEC751)

Temp. °C	Tolerance									
	Class B		Class A		1/3 DIN*		1/5 DIN*		1/10 DIN*	
	± °C	± Ohms	± °C	± Ohms	± °C	± Ohms	± °C	± Ohms	± °C	± Ohms
-200	1.30	0.56	0.55	0.24	0.44	0.19	0.26	0.11	0.13	0.06
-100	0.80	0.32	0.35	0.14	0.27	0.11	0.16	0.06	0.08	0.03
0	0.30	0.12	0.15	0.06	0.10	0.04	0.06	0.02	0.03	0.01
100	0.80	0.30	0.35	0.13	0.27	0.11	0.16	0.05	0.08	0.03
200	1.30	0.48	0.55	0.20	0.44	0.16	0.25	0.10	0.13	0.05
300	1.80	0.64	0.75	0.27	0.60	0.21	0.36	0.13	-	-
400	2.30	0.79	0.95	0.33	0.77	0.26	-	-	-	-
500	2.80	0.93	1.15	0.38	-	-	-	-	-	-
600	3.30	1.06	1.35	0.43	-	-	-	-	-	-
650	3.60	1.13	1.45	0.46	-	-	-	-	-	-
700	3.80	1.17	-	-	-	-	-	-	-	-
800	4.30	1.28	-	-	-	-	-	-	-	-
850	4.60	1.34	-	-	-	-	-	-	-	-

NOTE
Tolerance is calculated to 2 decimal places and taken as a fraction. Class Be.
* Tabulated values for close tolerance detectors are 1/2rd, 1/5th and 1/10th DIN interpolated and are for guidance only,

Protective sheath:
In resistance thermometers, the size, diameter and type of the protective sheaths are selected depending on the process conditions. Inset sheaths are selected from 304 or 316 material. Selection of outer protective sheath should be chosen from different materials for each process. For this reason, please check the "Thermocouple Protective Sheath Selection" table in the thermocouple general information section for the selection of protective sheaths.

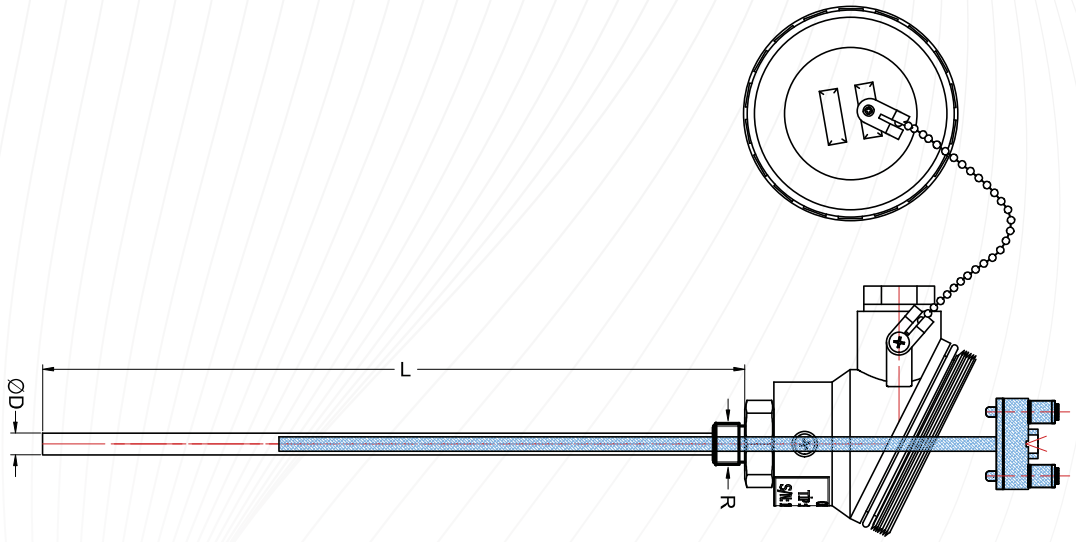
Chemical abrasions and mechanical abrasions in the process should be taken into consideration in the selection of protective sheaths. For an accurate temperature measurement in resistance thermometers, a minimum of 6 and a maximum of 15 times the outer diameters should be immersed in the process. In this way, the farthest element will enter the environment at a sufficient rate and will make the correct measurement. Resistance thermometers should be placed in the flow direction of the fluid in flowing processes.

The nominal resistanc e measurement point is determined at a distance of 8 mm from the end of the sensor body.

Feature	DIN EN 60751 (According to IEC 751) Thin Film Element Features
Temperature Range	-70 ° C to +150 ° C (Coninuous Usage) (It is possible to use it temporarily at 550 ° C.) Tolerance Class B: -70 ° C to +150 ° C Tolerance Class A: -50 ° C to +300 ° C Tolerance Class 1/3 DIN: 0 ° C to +150 ° C

Connection Cables:
Copper conductive cables are used between the device and the resistance thermometer in applications of resistance thermometers. Cables with 1.5mm2 cross-section are preferred. Cable resistance will also have an effect on the measurement value. For this reason, in standard cable connections, a 2-wire cable is used for a distance of up to 10 m, a 3-wire cable for a distance of up to 150m, and a 4-wire cable for distances of more than 150m. In addition, the resistance / current converter method is often used for long distances.

Resistance Thermometer Structure:
Resistance thermometers consist of connection head, protective sheath, inset and various connection parts. Resistance thermometer structure is given in Figure-1. Inset change is given in Figure-2.

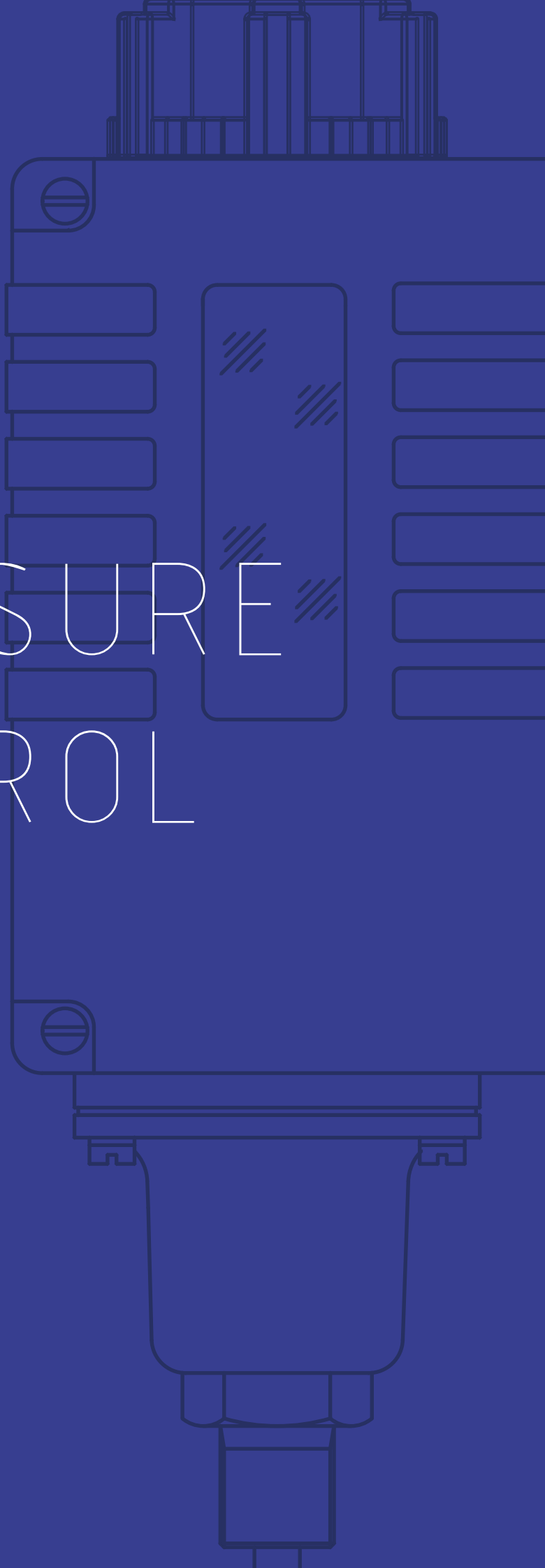


RESİSTANCE THERMOMETER TOLERANCE TABLE						(DIN 43760 and 751 STANDARD9				
°C	0	-10	-20	-30	-40	-50	-60	-70	-80	-90
-200	18,51	-	-	-	-	-	-	-	-	-
-100	60,27	56,18	52,11	48,01	43,86	39,73	35,55	31,34	27,11	22,82
0	100,00	96,10	92,17	88,22	84,28	80,32	76,31	72,32	68,32	64,31
°C	0	10	20	30	40	50	60	70	80	90
0	100,00	103,90	107,80	111,66	115,53	119,41	123,23	127,07	130,91	134,72
100	138,52	142,30	146,08	149,82	153,57	157,32	161,06	164,78	168,48	172,17
200	175,86	179,54	183,20	186,85	190,47	194,11	197,71	201,32	204,90	208,48
300	212,04	215,61	219,16	222,69	226,22	229,72	233,23	236,71	240,19	243,65
400	247,09	250,53	253,96	257,37	260,77	264,17	267,56	270,93	274,29	277,65
500	280,98	284,30	287,62	290,92	294,21	297,48	300,75	304,02	307,25	310,50
600	313,71	316,92	320,12	323,30	326,48	329,64	332,79	335,93	339,06	342,18
700	345,28	348,38	351,46	354,53	357,59	360,64	363,67	366,70	369,71	372,71
800	375,70	378,78	381,65	384,60	387,55	390,48	-	-	-	-

Note : Resistance values of different resistance thermometer elements are obtained by multiplying the resistance values of the Pt-100 element by certain coefficients.

Sample: Pt-50 = Pt-100×1/2 equals. - Pt-500 = Pt-100×5 equals. - Pt-1000 = Pt-100×10 equals.

PRESSURE CONTROL



Pressure Transmitter

A pressure transmitter is a device that measures the pressure in a system and converts this pressure value into a standard electrical signal. This signal is then transmitted to control systems, indicators or recorders, allowing for the monitoring, control, or recording of the pressure.

The Working principle of a pressure transmitter is as follows:
Firstly, the pressure of the process fluid or gas is applied to the pressure sensor of the device. Subseqently, the pressure sensor generates an electrical signal directly proportional to this applied pressure; this signal can be in the from of a change in resistance, voltage, or capacitance. Next, the electronic circutis receiev this weak and often nonlinear signal from sensor. This signal is then amplified and linearized in a manner proportional to the pressure. In the final stage, this processed signal is converted into an industry-standart current or voltage signal and transmitted to control systems, indicators, or recorders.

Pressure Switch

A pressure switch is a device that opens or closes an electrical circuit depending on the pressure of a fluid (liquid or gas). It functions as a safety mechanism or a control element in various systems.

The working principle of a pressure switch is as follows:
Pressure switches have a sensing element that detects pressure changes in the system. When this element is subjected to pressure, it changes shape or moves, and this mechanical motion is transferred to the electrical contacts inside the switch. When a specific setpoint is reached, these contacts either close to complete the circuit or open to break the circuit. Thanks to the adjustable setpoint found in many pressure switches, users can customize the pressure value at which the switch activates. Additionally, a feature known as hysteresis or deadband creates a small difference between the pressure at which the switch activates and the pressure at which it deactivates. This feature prevents rapid and unnecessary on-off cycles in the system.

Pressure Transmitter

Type	: O - 10
Non Linearity	: 0.5% BSFL
Wetted Parts	: 316L
Case	: 316L
Unit	: Bar
Perm. Medium Temp.	: 0...+80 °C
Process Connection	: G 1/4 A DIN EN ISO 1179-2

Technical Specification

Output Signal	
Signal Type	
Current (2-wire)	4 ...20 mA
Voltage (3-wire)	- DC 0.5 ... 4.5 V - DC 0 ... 5 V - DC 1 ... 5 V - DC 0 ... 10 V
Ratiometric (3-wire)	DC 0.5 ... 4.5 V
Load in Ω	
Current (2-wire)	≤ (supply voltage - 8 V) / 0.02 A
Voltage (3-wire)	> (supply voltage - 8 V) / 0.02 A
Ratiometric (3-wire)	> 4.5 k Ω

Measuring Ranges, Bar	
0 ... 6 [1) 2)]	**0 ... 100**
0 ... 10 [1) 2)]	**0 ... 160**
0 ... 16	**0 ... 250**
0 ... 25	**0 ... 400**
0 ... 40	**0 ... 600**
0 ... 60	

Output Signal		
Voltage Supply [1)]		
Supply Voltage	Output Signal 4 ...20 mA	DC 8 ... 30 V
	Output Signal DC 0.5 ... 4.5 V	DC 8 ... 30 V
	Output Signal DC 0 ... 5 V	DC 8 ... 30 V
	Output Signal DC 1 ... 5 V	DC 8 ... 30 V
	Output Signal DC 0 ... 10 V	DC 14 ... 30 V
	Output Signal DC 0.5 ... 4.5 V (Ratiornetic)	DC 5 V ± 10%
Current Supply	Current (2-Wire)	
	Voltage (3-Wire)	
Overvoltage protection	DC 36 V	
Dynamic Behavirour		
Settling Time per IEC 61298-2	< 2 ms	

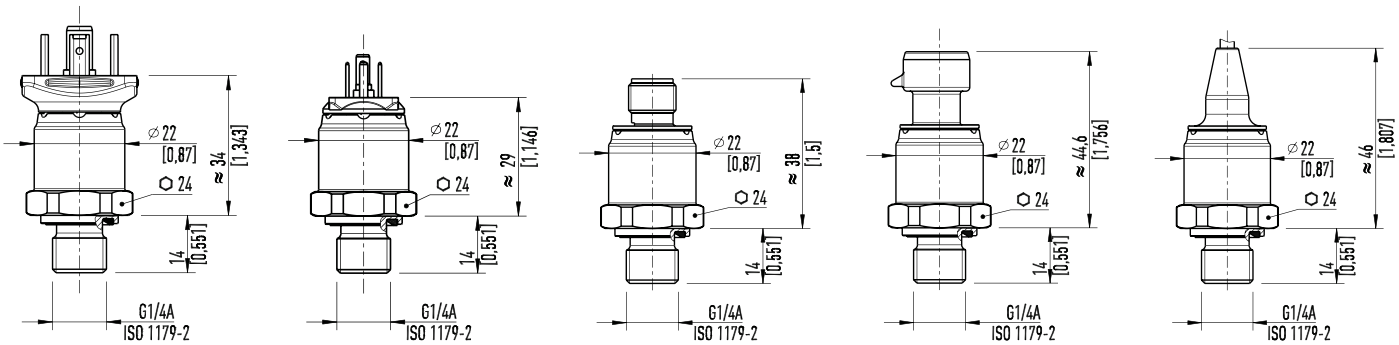
TECHNICAL SPECIFICATION

O-10 Pressure Transmitter

Process Connection				
Standard	**Thread Size**	**Max. Measuring range**	**Overpressure Limit**	**Sealing**
EN 837	G 1/8 B	400 bar [5,800 psi]	572 bar [8,290 psi]	-
	G 1/4 B	600 bar [8,700 psi]	1,200 bar [17,400 psi]	
	G 1/4 Female Thread	600 bar [8,700 psi]	1,200 bar [17,400 psi]	
	G 3/8 B	600 bar [8,700 psi]	1,200 bar [17,400 psi]	
DIN EN ISO 1179-2 (Formerly DIN 3852-E	G 1/4 A	600 bar [8,700 psi]	858 bar [12,400 psi]	- NBR[1)] - FPM/FKM[2)]
DIN EN ISO 9974-2 (Formerly DIN 3852-E	M14 x 1.5	600 bar [8,700 psi]	858 bar [12,400 psi]	
ANSI/ASME B1.20.1	1/8 NPT	400 bar [5,800 psi]	572 bar [8,290 psi]	-
	1/4 NPT	600 bar [8,700 psi]	1,200 bar [17,400 psi]	
	1/4 NPT Female Thread	600 bar [8,700 psi]	1,200 bar [17,400 psi]	
SAE J514 E	7/16-20 UNF-2A, O-ring BOSS	600 bar [8,700 psi]	858 bar [12,400 psi]	- FPM/FKM[2)]
	9/16-20 UNF-2A, O-ring BOSS	600 bar [8,700 psi]	858 bar [12,400 psi]	

Operating Conditions	
Medium Temperature Limit	-30 ... +100 °C [-22 ... +212 °F]
Ambient Temperature Limit	-30 ... +100 °C [-22 ... +212 °F]
Storage Temperature Limit	-30 ... +100 °C [-22 ... +212 °F]
Vibration Resistance per IEC 60068-2-6	20 g (20 ... 2,000 Hz, 120 min)
Shock Resistance per IEC 60068-2-27	40 g (6 ms), Mechanical Shoc
Free Fall per IEC 60068-2-31	1 m
Service Life	10 Million Load Cycles

Dimensions in mm [in]



Pressure Switch

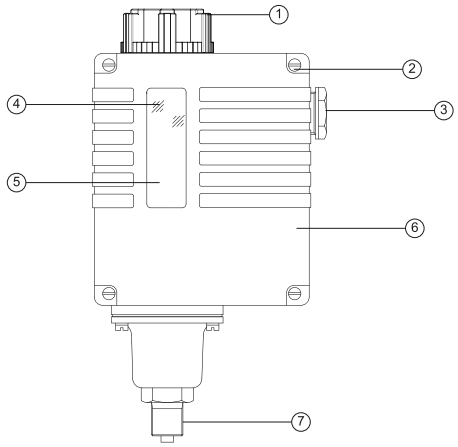
Type	: PSM - 550
Units	: Bar, psi
Switching function	: Single pole double throw (SPDT)
Differential /hysteresis	: Adjustable
Process connections	: G 3/8" B
Non-repeatability	: ≤ %1
Electrical Connection	: Cable gland ½ NPT
Protection Class	: IP 67
Details	: For further details please see data sheet PV 35.01
Approvals	: EU declaration of conformity, Low voltage directive, RoHS directive
Applications	: Boilers, Pumps, Lubrication Systems, Hydraulic Systems, Autoclaves etc.

Pressure Switch

Type	: PSM - 520
Units	: Bar, psi
Switching function	: Single pole double throw (SPDT)
Differential /hysteresis	: Adjustable
Process connections	: G ¼ female, G ¼ B
Non-repeatability	: ≤ 2 %
Electrical Connection	: Rubber grommet for cables Ø 6 ... 14 mm
Protection Class	: IP 30
Details	: For further details please see data sheet PV 35.01
Approvals	: EU declaration of conformity, Low voltage directive, RoHS directive
Applications	: Steam Generators, Pumps, Compressors etc.

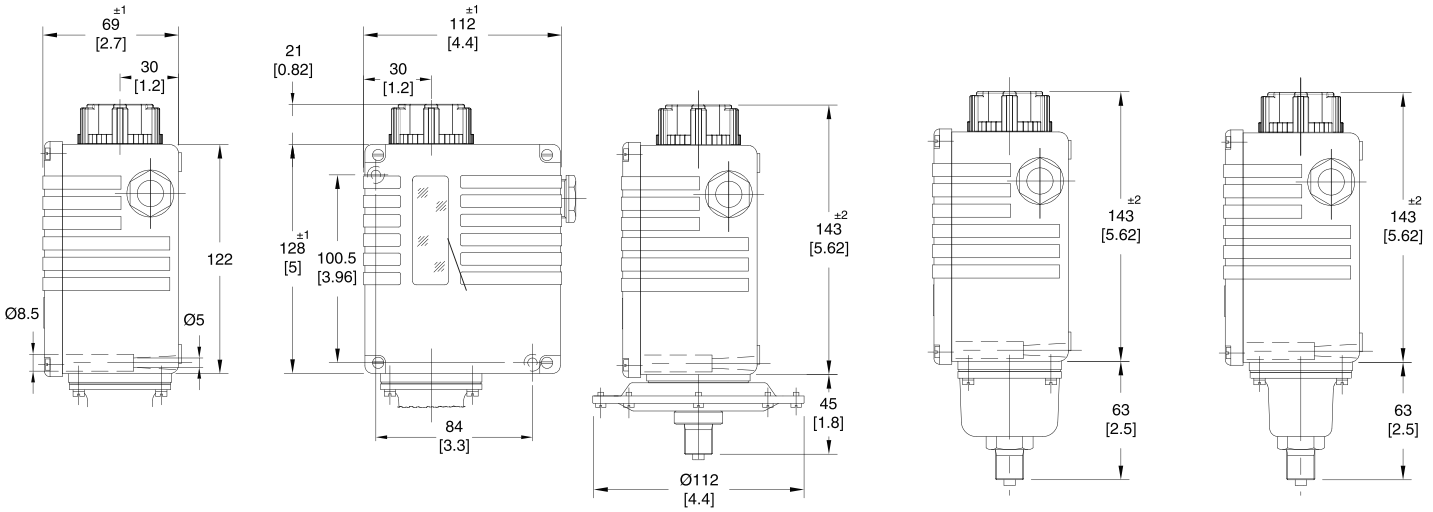
TECHNICAL SPECIFICATION

PSM 550 Pressure Switch



No	Part
1	Switch point setting
2	4 mounting screws for plastic cover
3	Electrical connection
4	Switch point setting display
5	Range of adjustable switch differential
6	Removable plastic cover
7	Process connection

Dimensions in mm [in]



Setting range: 0 ... 300 mbar

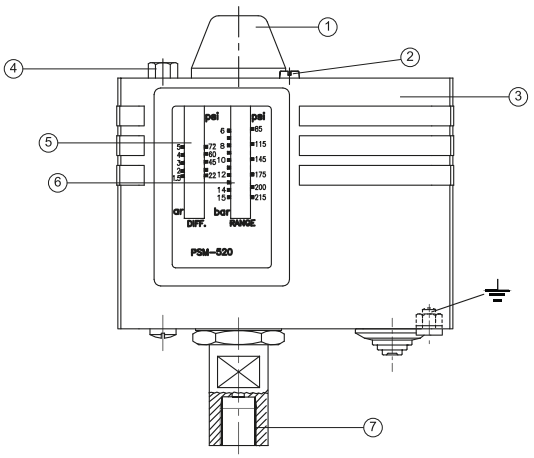
Setting range: 0.1 ... 1 bar, -1 ... 0 bar

Setting range: 0.2 ... 3 bar, 1 ... 10 bar, 4 ... 17 bar, -0.8 ... +5 bar, 0.2 ... 6 bar, 2 ... 17 bar, 10 ... 30 bar

Unit	Setting Range [1]	Permissible Switch Point On Rising Pressure	Permissible Switch Point On Falling Pressure	Adjustable Switch Differential [2]	Max. Working Pressure Depending On Measuring Element		
					Bellow, Copper Alloy	Bellow, Stainless Steel	Diaphragm, Nbr
mbar	0...300	30...300	0…250	10…50	-	-	500
bar	0.1…1.1	0.17…1.1	0.1…0.94	0.07…0.16	7	7	-
	0.2…3	0.32…3	0.2…2.25	0.12…0.75	7	7	-
	0.2…6	0.45…6	0.2…4.8	0.25…1.2	15	25	-
	1…10	1.3…10	1…8.7	0.3…1.3	16	25	-
	2…17	2.3…17	2…15	0.3…2	-	25	-
	4…17	5.2…17	4…13	1.2…4	25	25	-
	10…30	11…30	10…26	1…4	45	45	-
	−1…0	−0.91…0	−1...−0.4	0.09…0.4	7	7	-
	−0.8...+5	−0.3...+5	−0.8...+3	0.5…2	15	25	-

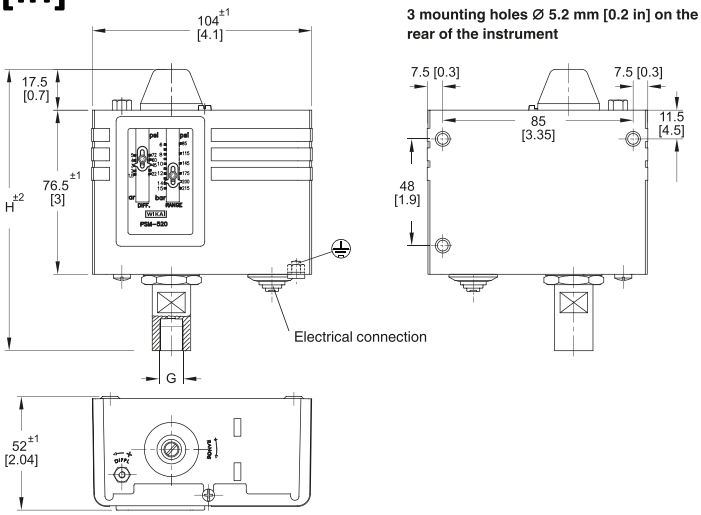
TECHNICAL SPECIFICATION

PSM 520 Pressure Switch



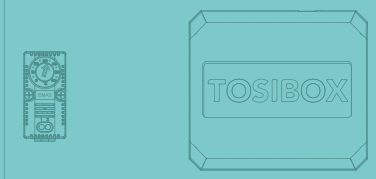
No	Part
1	Protection cap for switch point setting
2	Screw for fixing the plastic cover
3	Removable plastic cover
4	Switch differential adjustment
5	Switch differential setting display
6	Switch point setting display
7	Process connection

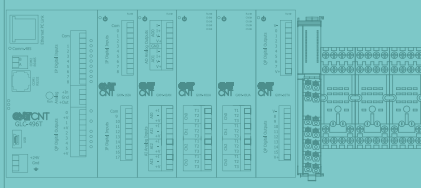
Dimensions in mm [in]

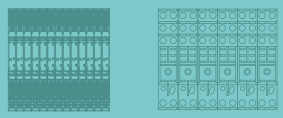


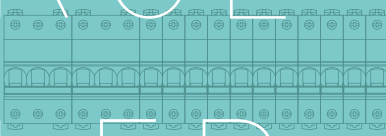
Unit	Setting range 1)	Permissible switch point on rising pressure	Adjustable switch differential 2)	Max. working pressure
bar	0…5	0.4…5	0.4…4	16
	0…7	0.6…7	0.6…6	16
	6…15	7.5…15	1.5…5	32
	6…30	9…30	3…8	42
	–0.4…+7	0.2…7	0.6…6	16
MPa	0…0.5	0.04…0.5	0.04…0.4	1.6
	0…0.7	0.06…0.7	0.06…0.6	1.6
	0.6…1.5	0.75…1.5	0.15…0.5	3.2
	0.6…3	0.9…3	0.3…0.8	4.2
	–0.04…+0.7	0.02…0.7	0.06…0.6	1.6
psi	0…70	6…70	6…55	230
	0…100	9…100	9…85	230
	85…215	107…215	22…72	450
	85…425	130…425	45…115	610
	–6…+100	3…100	9…85	230

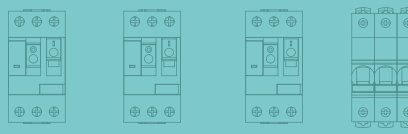
VIRA CONTROL STEAM BOILER CONTROL CABINET

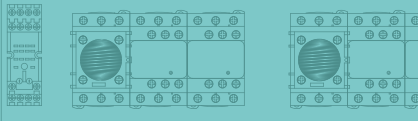


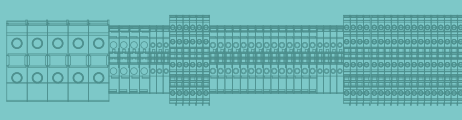












Boiler Operation without Constant Supervision

1. Introduction - Historical Background

For many years, the operation and safety of steam boilers in Europe were governed by the TRD regulations (Technische Regeln für Dampfkessel). Standards such as TRD 401 and TRD 604 defined the necessary safety equipment, control systems, and inspection requirements for boilers operating either without constant supervision or with only periodic attendance. These regulations ensured a high level of operational safety; however, due to the presence of different national rules across Europe, there was no unified framework that could be applied consistently in all countries.

2. Transition to European Standards

Over time, the need for harmonization became evident, leading to the withdrawal of the TRD regulations and their replacement by the European standards EN 12952 (for water-tube boilers) and EN 12953 (for shell boilers). The EN 12953-1:2002 standard was officially published on 14 June 2002, marking a significant milestone in this transition. As national regulations like TRD 401 and 604 were phased out, these EN standards became the harmonized reference across Europe. These standards consolidated the requirements for boiler equipment, safety functions, and operating conditions under a common European framework. As a result, they provided a single reference point for both manufacturers and operators. Furthermore, EN 12952 and EN 12953 were developed in line with the Pressure Equipment Directive (PED 2014/68/EU), ensuring compliance with CE marking requirements and creating consistency in boiler safety practices across Europe.

3. EN 12952 and EN 12953 – Operation without Constant Supervision

Both EN 12952-7 (Water-tube boilers – Requirements for equipment for the boiler) and EN 12953-6 (Shell boilers – Requirements for equipment for the boiler) include dedicated provisions that define the conditions under which boilers can be operated without constant supervision.

These sections specify the equipment and safety functions required for up to 72 hours of unattended operation, ensuring that boilerhouses can be operated safely and efficiently under standardized European rules.

Key requirements include:

- Reliable level control systems (both modulating and on-off), supported by level alarms and limiters.

- TDS (Total Dissolved Solids) control and surface blowdown systems to prevent scaling and corrosion.

- Automatic bottom blowdown for effective removal of sludge and sediments.

- Overpressure protection through certified safety valves.

- Overtemperature protection to prevent thermal damage.

- Control devices with self-monitoring capabilities and built-in test functions to ensure continuous reliability.

4. Requirements for Unattended Operation

In order for a boiler to be operated without constant supervision for up to 72 hours, EN 12952 and EN 12953 define a number of strict technical requirements. These requirements ensure that the boiler remains safe and reliable even in the absence of continuous operator presence.

The main requirements can be summarized as follows:

Redundant level limiter systems: At least two independent devices must be installed to monitor and limit the boiler water level.

Self-monitoring and fail-safe design: Control and limiting devices must have the ability to continuously monitor their own functionality and automatically move to a safe state in case of failure.

Automatic blowdown systems: Both surface TDS blowdown and bottom blowdown must be automated to guarantee water quality and prevent scaling or sludge accumulation.

Overpressure and overtemperature protection: Certified safety valves and temperature limiters are required to protect the boiler against dangerous operating conditions.

Alarm and recording functions: Any fault, deviation, or limit exceedance must be automatically recorded and transmitted to external alarm systems, ensuring timely intervention.

Periodic testing requirements: The standards mandate regular functional checks of safety devices to verify that they remain fully operational throughout the service life of the boiler.

Together, these requirements form the foundation for safe 72h unattended boiler operation, creating a standardized approach across Europe in line with the Pressure Equipment Directive (PED 2014/68/EU).

5. Conclusion – Vira's Approach

The transition from TRD regulations to the harmonized EN 12952 and EN 12953 standards has established a unified and reliable framework for boiler operation without constant supervision. These standards define strict requirements for safety equipment, control systems, and monitoring functions to enable safe 72h unattended operation.

At Vira, we ensure that our products are fully aligned with these international standards. Our portfolio includes:

Self-monitoring high and low level limiters (SMH 1000, SML 1000), designed to meet the redundancy and fail-safe requirements of EN standards.

Vira level controllers and SD series level probes, providing accurate on-off and modulating water level control.

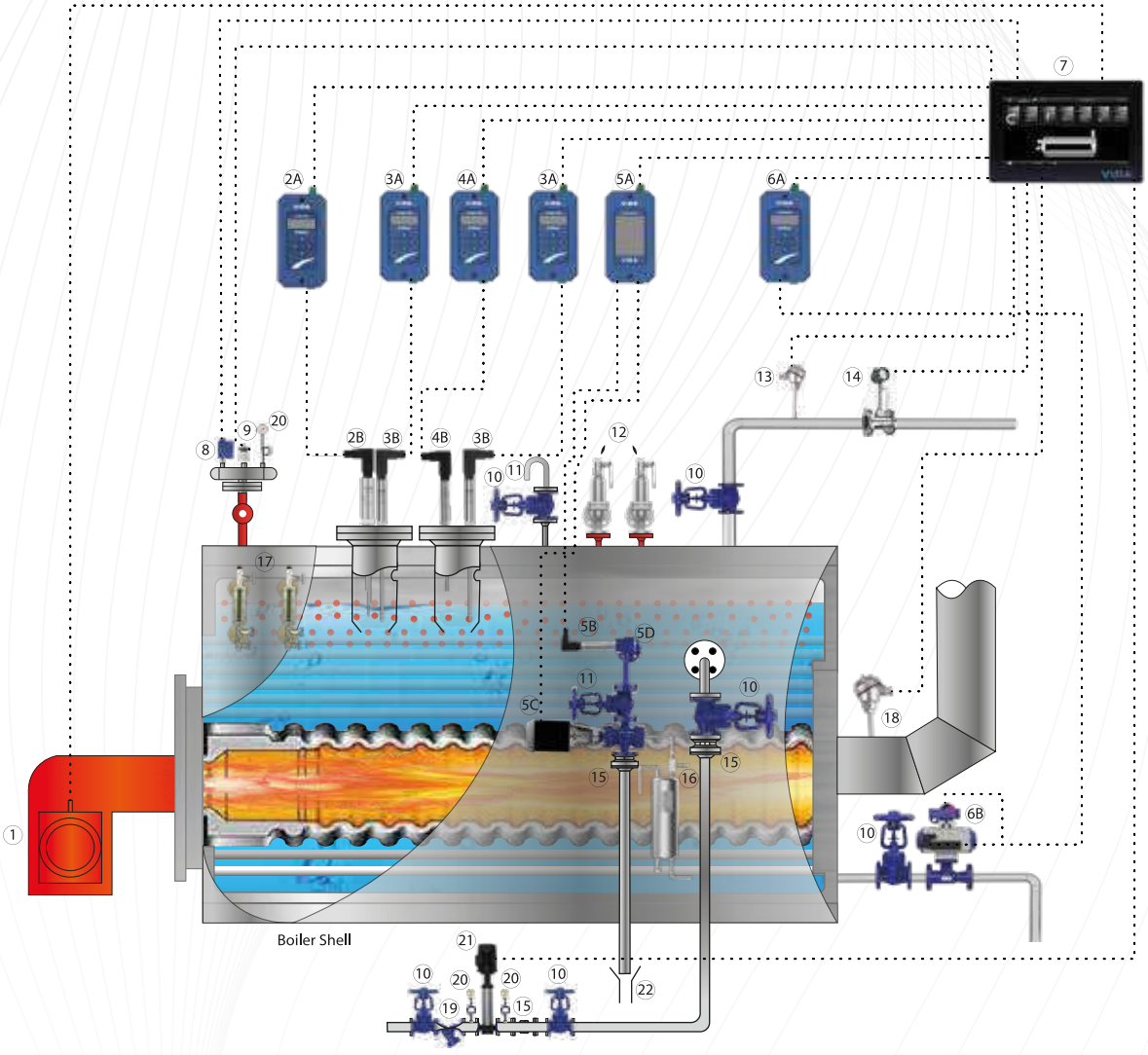
Vira TDS controllers and BS series blowdown systems, ensuring water quality through automated surface and bottom blowdown.

Certified safety equipment, all manufactured in compliance with PED 2014/68/EU, CE marking, and EMC/LVD directives.

With millions of references worldwide and a proven track record in safety, reliability, and efficiency, Vira provides complete solutions that enable boiler manufacturers and operators to meet the requirements of EN 12952 and EN 12953. Our systems guarantee not only compliance but also extended boiler lifetime, reduced operating costs, and maximum operational safety.

Equipments Required for 72h Unattended Boiler Operation

Application with On-Off Level Control System

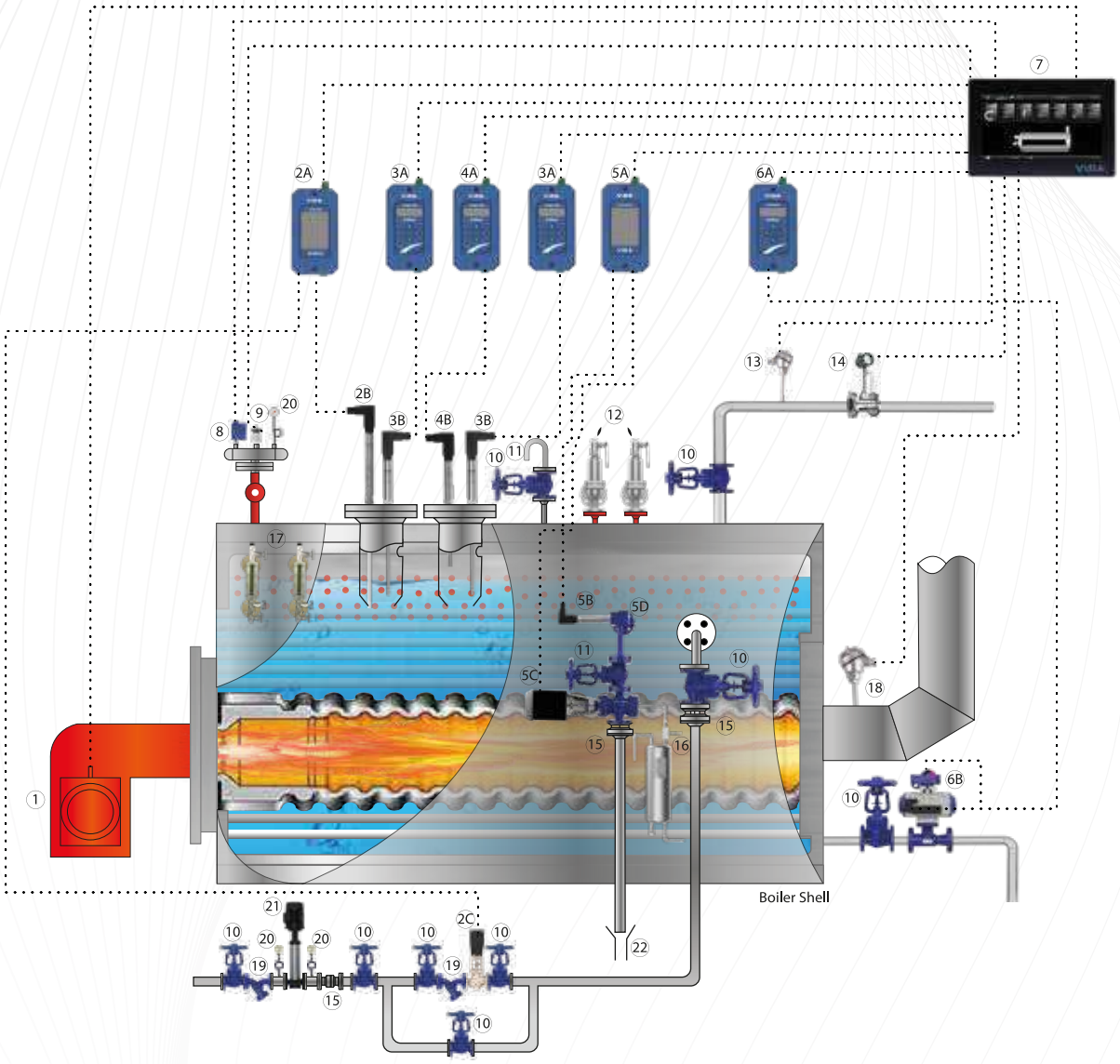


No	Part
1	Burner
2	D-SK 2000 On-Off Level Control & Alarm System *A: D-SK 2400 On-Off Level Control & Alarm Controller* *B: SD 2400 On-Off Level Control & Alarm Probe*
3	D-SML 1000 Low Level Limiter * 2 Pcs *A: D-SMK 1000 Low Level Limiter Controller* *B: SMLD 1000 Low Level Limiter Probe*
4	D-SMH High Level Limiter *A: D-SMK 1000 High Level Limiter Controller* *B: SMHD 1000 High Level Limiter Probe*
5	D-BS4-T TDS Blowdown System *A: D-BK 5000-T Conductivity /TDS Controller* *B: BD 5600-T Conductivity /TDS Probe* *C: BKV 5400 Cont. Bolwdown Valve* *D: DG 5400 Probe Housing*
6	D-DB2 Intermittent Blowdown System *A: D-BK 4000 Intermittent Blowdown Controller* *B: BKV 4000 Intermittent Blowdown Valve*
7	Boiler Control Cabinet *ViraControl Steam Boiler Control Panel*
8	Pressure Switch * 2 Pcs *PSM 550 Pressure Switch*
9	Pressure Transmitter * 2 Pcs *0-10 Pressure Transmitter*

No	Part
10	Stop Valve
11	Air Vent
12	Safety Valve * 2 Pcs
13	Steam Temperature Sensor *VR02 Resistance Temperature Sensor*
14	Steam Flow Meter *VXW Vortex Steam Flow Meter*
15	Checkvalve
16	Sample Cooler *NK 20 Sample Cooler*
17	Reflex Level Gauge * 2 Pcs *VRLG Reflex Level Gauge*
18	Flue Gas Temperature Sensor *VR03 Resistance Temperature Sensor*
19	Strainer
20	Pressure Gauge
21	Feedwater Pump
22	Blowdown Vessel *VBV Blowdown Vessel*

Equipments Required for 72h Unattended Boiler Operation

Application with Modulating Level Control System

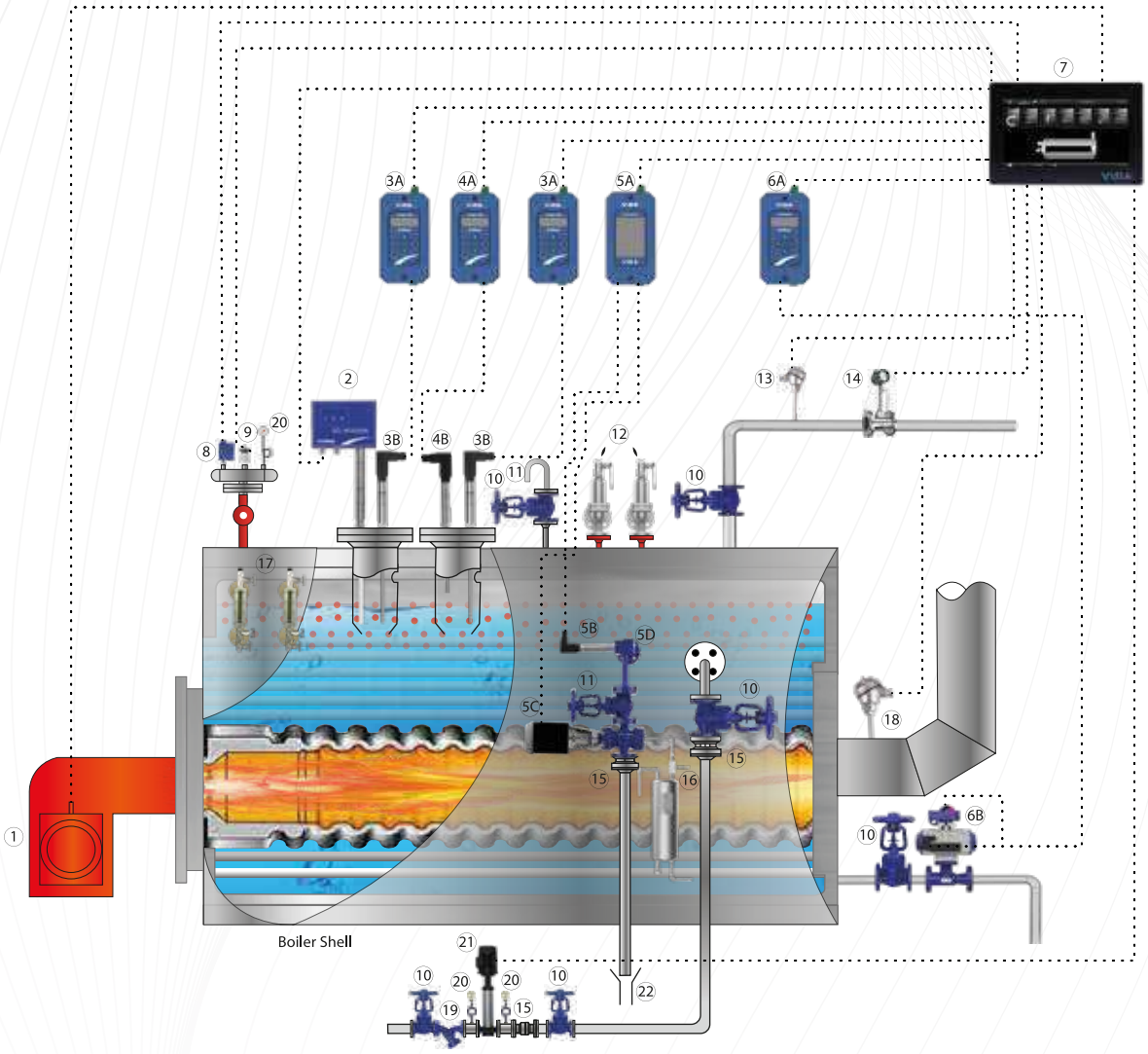


No	Part
1	Burner
2	D-SK 3000 Modulation Level Control & Alarm System *A: D-SK 3400 Modulating Level Control & Alarm Controller* *B: SD 3400 Modulating Level Control & Alarm Probe* *C: SKV 3400-2 Feedwater Control Valve*
3	D-SML 1000 Low Level Limiter * 2 Pcs *A: D-SMK 1000 Low Level Limiter Controller* *B: SMLD 1000 Low Level Limiter Probe*
4	D-SMH High Level Limiter *A: D-SMK 1000 High Level Limiter Controller* *B: SMHD 1000 High Level Limiter Probe*
5	D-BS4-T TDS Blowdown System *A: D-BK 5000-T Conductivity / TDS Controller* *B: BD 5600-T Conductivity / TDS Probe* *C: BKV 5400 Cont. Bolwdown Valve* *D: DG 5400 Probe Housing*
6	D-DB2 Intermittent Blowdown System *A: D-BK 4000 Intermittent Blowdown Controller* *B: BKV 4000 Intermittent Blowdown Valve*
7	Boiler Control Cabinet *ViraControl Steam Boiler Control Panel*
8	Pressure Switch * 2 Pcs *PSM 550 Pressure Switch*

No	Part
9	Pressure Transmitter * 2 Pcs *O-10 Pressure Transmitter*
10	Stop Valve
11	Air Vent
12	Safety Valve * 2 Pcs
13	Steam Temperature Sensor *VR02 Resistance Temperature Sensor*
14	Steam Flow Meter *VXW Vortex Steam Flow Meter*
15	Checkvalve
16	Sample Cooler *NK 20 Sample Cooler*
17	Reflex Level Gauge * 2 Pcs *VRLG Reflex Level Gauge*
18	Flue Gas Temperature Sensor *VR03 Resistance Temperature Sensor*
19	Strainer
20	Pressure Gauge
21	Feedwater Pump
22	Blowdown Vessel *VBV Blowdown Vessel*

Equipments Required for 72h Unattended Boiler Operation

Application with Capacitive Level Transmitter



No	Part
1	Burner
2	Level Transmitter *SD-AY420A Capacitive Level Transmitter*
3	D-SML 1000 Low Level Limiter * 2 Pcs *A: D-SMK 1000 Low Level Limiter Controller* *B: SMLD 1000 Low Level Limiter Probe*
4	D-SMH High Level Limiter *A: D-SMK 1000 High Level Limiter Controller* *B: SMHD 1000 High Level Limiter Probe*
5	D-BS4-T TDS Blowdown System *A: D-BK 5000-T Conductivity /TDS Controller* *B: BD 5600-T Conductivity / TDS Probe* *C: BKV 5400 Cont. Bolwdown Valve* *D: DG 5400 Probe Housing*
6	D-DB2 Intermittent Blowdown System *A: D-BK 4000 Intermittent Blowdown Controller* *B: BKV 4000 Intermittent Blowdown Valve*
7	Boiler Control Cabinet *ViraControl Steam Boiler Control Panel*
8	Pressure Switch * 2 Pcs *PSM 550 Pressure Switch*
9	Pressure Transmitter * 2 Pcs *O-10 Pressure Transmitter*

No	Part
10	Stop Valve
11	Air Vent
12	Safety Valve * 2 Pcs
13	Steam Temperature Sensor *VR02 Resistance Temperature Sensor*
14	Steam Flow Meter *VXW Vortex Steam Flow Meter*
15	Checkvalve
16	Sample Cooler *NK 20 Sample Cooler*
17	Reflex Level Gauge * 2 Pcs *VRLG Reflex Level Gauge*
18	Flue Gas Temperature Sensor *VR03 Resistance Temperature Sensor*
19	Strainer
20	Pressure Gauge
21	Feedwater Pump
22	Blowdown Vessel *VBV Blowdown Vessel*

"ViraControl" Steam Boiler Control Panel

ViraControl is an advanced central control system designed for the safe, efficient, and user-friendly operation of steam boiler plants. It integrates all essential boiler functions – water level control, blowdown management, feedwater regulation, burner control, and alarm systems – into a single intelligent platform. With its modular structure and compatibility with Vira's complete range of boiler control equipment, ViraControl ensures seamless operation and compliance with EN 12952 / EN 12953 standards.

Features

7" or 10" HMI Touch Screen
High-resolution interface for monitoring and control of all boiler functions. Multi-language, password-protected, and intuitive navigation.

PLC-Based Architecture
Industrial PLC ensuring reliable and flexible operation for on-off or modulating systems.

Remote Access & Connectivity
Ethernet and USB ports as standard; optional internet-based remote support. Modbus TCP/RTU compatible.

Integrated Safety Chain
Monitors all critical safety devices such as level limiters, pressure switches, and emergency circuits in compliance with EN 12953.

Cascade Operation
Supports master-slave control for multi-boiler systems, providing load sharing and sequencing for optimum efficiency.

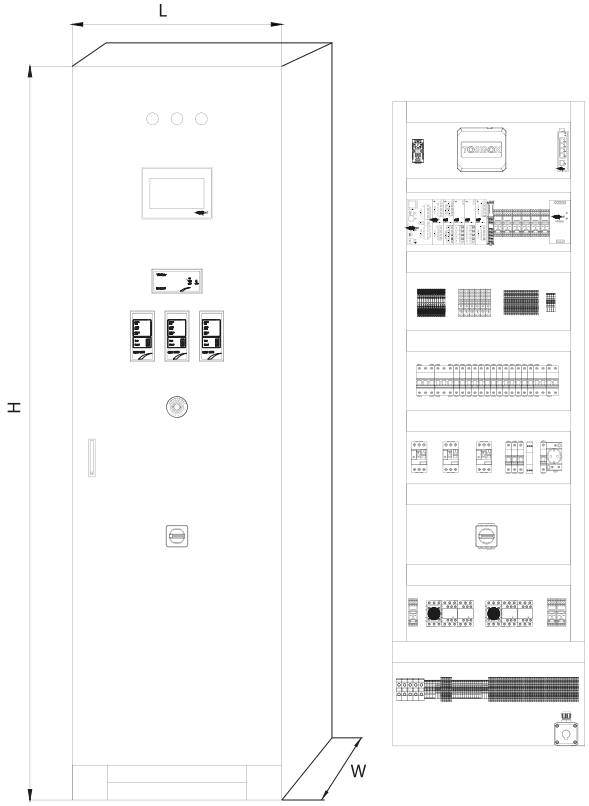
Comprehensive Process Control
Integration with burner, feedwater, blowdown, conductivity, economizer, and condensate tank control units.

Data Logging & Trend Monitoring
Records process values such as pressure, temperature, level, and conductivity for performance analysis.

Alarm & Protection System
Visual and audible alarm management with detailed error codes and reset logic for safe operation.

TECHNICAL SPECIFICATION

"ViraControl" Steam Boiler Control Panel

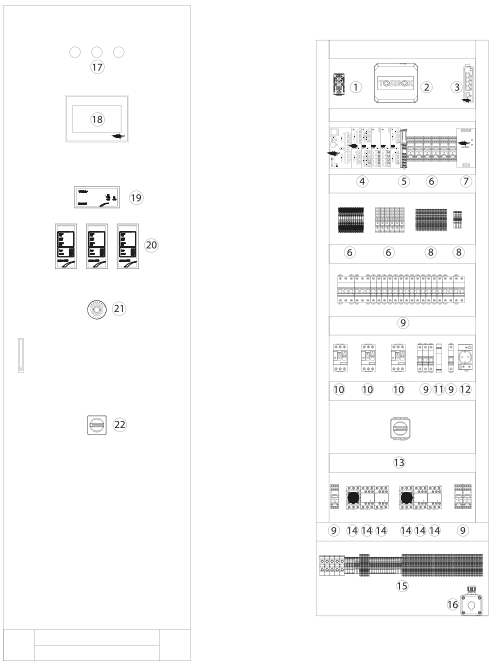


Technical Data

Type of Mounting	Floor-standing
Construction Material	Pre-galvanized steel sheet
Color	Standard RAL 7035 (Grey)
Paint	Epoxy - polyester powder paint
Cooling	Fan-assisted
Supply Voltage	400/230VAC, 50/60Hz
Switchgear	Thermal magnetic circuit breaker, fuses, motor protection circuit breakers
Cabling	NYAF / H07V-K type, heat shrinking tube labeled
Terminal Blocks	Screw type, DIN rail mounting, numbered
Control Device	Programmable logic controller
Display	7" (or 10") TFT 1024x600 touch operator panel
Functions	-Burner modulation control (4-20mA/3-point step) -Boiler water level control -Boiler water conductivity control (via blowdown controller) -Boiler bottom blowdown control -Condensate tank water level control -Boiler self-monitoring low-level and high-level limiter system - Monitoring steam boiler parameters -Continuous alarm detection system
Remote Access	Provided for diagnostics, troubleshooting, commissioning purposes.

Dimensions

H (mm)	L (mm)	W (mm)
2100	600	500



No	Part
1	Thermostat switch
2	Remote Access Device
3	Ethernet Switch
4	PLC
5	Safety Relay
6	Relays
7	Power Source
8	Distribution Clamps
9	Insurance
10	Motor Protection Switch
11	Phase Control Relay
12	Socket
13	Load Separator Pako Switch Socket
14	Contactors
15	Field Clamps
16	Ethernet Port
17	R-S-T Lamp
18	HMI Screen
10	Surface Bluff Controller
20	Level Alarm Controller
21	Emergency Stop Button
22	Load Disconnect Switch

Note: The dimensions of the boiler control panel may vary depending on the equipment used in the project. The dimensions shown here represent the standard sizes.

ViraControl Steam Boiler Efficiency Measurement and Analysis System

Boiler efficiency is one of the most critical parameters in steam generation. While efficiency is often considered during the purchase of a new boiler, it is rarely monitored once the system is in operation. In reality, maintaining high efficiency throughout the boiler's lifetime is essential for reducing fuel consumption and operating costs.

The "ViraControl Boiler Efficiency Measurement and Analysis System" continuously monitors and analyses key operating parameters to determine the actual efficiency of the boiler under real working conditions. By identifying deviations from the expected performance, the system enables optimization of combustion and blowdown processes, ensuring sustained efficiency and stable operation.

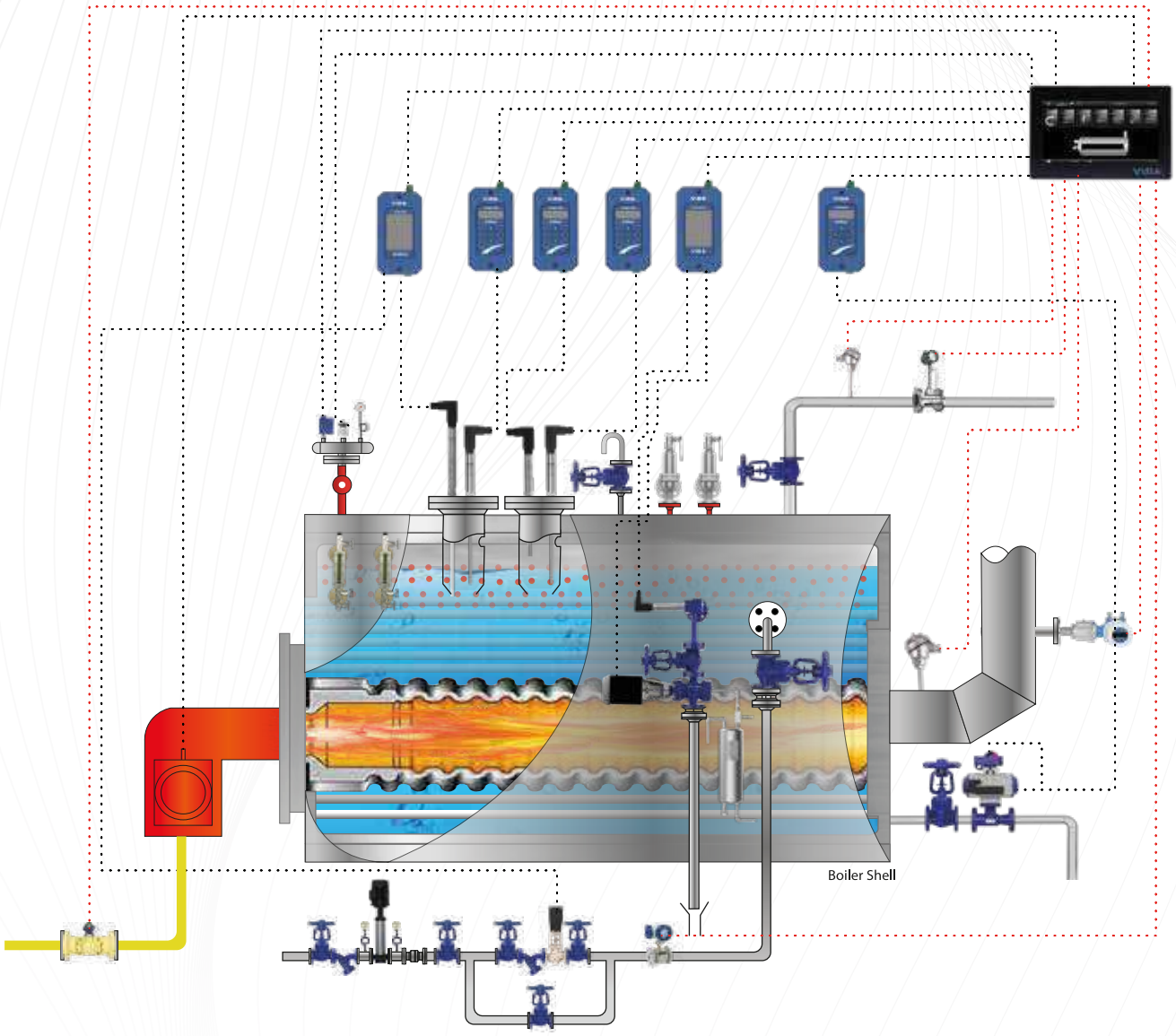
Fuel represents the largest portion of a boiler's lifetime cost. Even a small drop in efficiency can lead to significant fuel and financial losses over time. Studies indicate that boilers operating without performance monitoring may lose 5–15% efficiency compared to their rated values. The first step toward improvement is awareness — knowing the real-time efficiency and acting on it.

By integrating advanced sensors, data processing, and trend recording, "ViraControl Boiler Efficiency Measurement and Analysis System" system provides actionable insights that help operators minimize fuel consumption, reduce emissions, and achieve lower steam generation costs. In doing so, it supports sustainable and environmentally responsible energy use, in line with modern industrial efficiency and carbon reduction goals.

System Parameters

Measured Parameters	Calculated Parameters	Control & Optional Parameters
Steam Flow	Boiler Efficiency	Oxygen trimming
Fuel Flow	Steam-to-fuel Ratio	Drum Level (Optional)
Steam Pressure	Stack Loss	Water Tank Level (Optional)
Steam Temperature	Blowdown Loss	Deaerator Level (Optional)
Stack Temperature	Enthalpy Loss	Deaerator Pressure (Optional)
Ambient Temperature	Radiation Loss	Radiation Loss
Feedwater Temperature	Blowdown Quantity	Blowdown Control (Optional)
% O2 in flue Gas		
Blowdown TDS		

ViraControl Steam Boiler Efficiency Measurement and Analysis System



Benefits

Corrective Action Execution	Improved Performance	Fuel Bill Reduction	System Tuning & Calibration	Performance Monitoring & Analysis

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