Our way of working

First, we keep our organisation flat and flexible, with short decision pathways. This ensures that customer needs are rapidly detected and understood by the experts who can make a difference.

Second, our product design and management is built around customisation, and the tailoring of solutions to unique customer requirements.

Third, we maintain a global network of sales representatives and service technicians, to assist customers with technical filter solutions and routine maintenance as well as emergencies.

We also use ISO certified management systems to make sure our performance keeps on improving.

Satisfied customers, worldwide

Over the years, the Bernoulli way of working has proven to be successful and highly appreciated by our customers. Today, thousands of corporations in over 80 countries enjoy the benefits of our filter technology, in everything from industrial cooling water systems to water treatment systems.

Partner with Bernoulli and feel secure in the knowledge that you have the highest quality, best service, and most dedicated partner in industrial filters.
Over thirty years ago, the founder of Bernoulli System noticed that the use of low-quality water, such as lake water and seawater, led to the fouling and clogging of plate heat exchangers (PHE) in cooling water systems. The solution was to design a simple, reliable, self-cleaning filter to protect PHEs by reducing the content of suspended solids in the intake water. The first automatic Bernoulli Filter was patented in 1990.

Why is it called Bernoulli?
Bernoulli System pioneered the application of the Bernoulli Principle, named after the Swiss scientist Daniel Bernoulli, to water filtration. The distinguishing feature of a Bernoulli Filter is a disc mounted on a pneumatic cylinder, which enables contactless cleaning of the filter. The cleaning sequence itself is automatic and continuous, requiring no manual intervention. The combination of a low flushing pressure of 0.3 bar with very few moving parts makes our filters truly unique on the market.

Typical applications
Since the fundamental purpose of a Bernoulli Filter is to reduce the content of suspended solids in water from natural sources, the scope of applications ranges from pre-filtration in water treatment to the protection of plate heat exchangers and sensitive process equipment such as spray nozzles. It is used in a variety of industries ranging from power generation, petrochemicals, and HVAC to steelmaking, aquaculture, pharmaceuticals, pulp and paper, and foods and beverages.

About Bernoulli Filter
The Bernoulli Filter is pneumatically operated, making its automatic cleaning process simple and reliable, with very little mechanical wear. The filter is supported by a control panel with a programmable logic controller (PLC), a flushing valve including an actuator and differential pressure sensor. Thanks to the flexible nozzle orientation, Bernoulli Filters can be installed in almost any position, either horizontally or vertically. Since the Bernoulli Filter operates as a pressure filter, it is always installed downstream of the feed pump.

Single-basket Bernoulli Filters come in a variety of different materials from plastics to stainless steel and other metals. Our standard three products lines are BSP, BSS and BSG.

BSP
The BSP product line was developed to offer a cost-effective option for small capacities. The filter body in a BSP filter is made of PVC (polyvinyl chloride), which provides high chemical resistance in seawater applications. The BSP product line consists of three models, DN65 (2.5”) – DN100 (4”), handling capacities of up to 130 m³/h.

BSS
This product line – the original Bernoulli Filter model designed in 1990 - meets the requirements of industries where stainless steel 316 is the material of choice. The BSS product line is made with a stainless steel 316 filter body and includes seven models, DN80 (3”) - DN400 (16”) handling capacities of up to 2000 m³/h.

BSG
The BSG product line was introduced in order to meet the tough corrosion challenges faced by products operating in seawater-based cooling systems. BSG filters are made of GRP (glass fiber-reinforced polyester). The use of GRP further strengthens the advantages of the filter system in terms of material durability and very large weight savings. In the BSG product line, capacities up to 6400 m³/h can be supported among the eleven models we offer, ranging from DN100 (4”) to DN700 (28”).

BUILT TO LAST
Choose a Bernoulli Filter from Bernoulli System, and you get a reliable filter with an ingeniously simple design that ensures continuous, safe operation year after year. Quite simply, our filters are effective and they last!
The flushing sequence is initiated by a timer setting or triggered by a differential pressure sensor before any blockage of the filter basket causes flow reduction.

In the pre-flushing stage, the flushing valve opens and larger particles are flushed out.

During the flushing sequence, a specially shaped flushing disc mounted on a pneumatic cylinder enters the filter basket and creates a gap between the disc and the filter basket.

As the flow velocity increases locally around the disc, the static pressure is reduced in accordance with the Bernoulli Principle and the direction of the flow is reversed, thus releasing particles which are stuck to the surface of the filter basket.

The released particles are led out from the filter through the flushing outlet.

**The Bernoulli Principle**

The Bernoulli Principle states that for an inviscid flow, an increase in the speed of the fluid occurs simultaneously with a decrease in pressure.

\[ P_1 + \frac{u_1^2}{2} \rho + \rho gh_1 = \text{const} \]
FREE SPACE (FS)

OPERATING SPECIFICATIONS

Min. operating pressure ≥ 0,3 bar¹
Max. operating pressure 10 bar (g)
Max. operating temp. BSP: 40°C / BSG: 60°C / BSS: 80°C
Power supply 100-240V AC or DC 45-65 Hz (AC)
Instrument air pressure min 6 bar g

1 Minimum operating pressure during flushing, depends on filter size.
2 Alternative maximum operating temperatures are available upon request.

STANDARD DESIGN SPECIFICATIONS

Design code EN 13121 / ASME VIII, Div 1 / ASME X
Flange standard DIN 2632 PN10 / ANSI B 16.5 lbs 150
Filter body material BSP: PVC / BSG: GRP / BSS: AISI 316L
Filtration range 0.1–1.0 mm Wedge wire 1.0–2.0 mm Perforated
Filter basket material Stainless steel (316, Duplex, Super-duplex) / Titanium
Control panel PLC

DIMENSIONS

Filter type Flow capacity Dimensions (mm)

FILTER BODY IN PVC
BSP 65 17 2 96 205 295 380 built in 460 330 DN 65 BSP 1" 12
BSP 80 23 3 180 235 380 485 150 630 430 DN 80 DN 40 17
BSP 100 36 4 185 275 440 550 150 720 450 DN 100 DN 40 24

FILTER BODY IN GRP
BSG 100 36 4 185 200 385 495 212 630 450 DN 100 DN 40 18
BSG 150 83 9 240 275 530 675 212 820 780 DN 150 DN 50 40
BSG 200 145 17 310 350 705 890 292 1060 790 DN 200 DN 65 60
BSG 250 235 26 350 400 825 1050 52 1260 940 DN 250 DN 100 105
BSG 300 325 37 400 475 1050 1280 52 1480 1110 DN 300 DN 100 160
BSG 350 450 50 400 475 1100 1380 52 1610 1250 DN 350 DN 100 180
BSG 400 580 67 450 600 1240 1540 52 1790 1370 DN 400 DN 100 300
BSG 450 735 77 500 650 1450 1800 56 2030 1640 DN 450 DN150 500
BSG 500 910 105 600 700 1650 2050 56 2340 1860 DN 500 DN 150 550
BSG 600 1300 150 650 900 1800 2250 56 2620 2060 DN 600 DN 150 850
BSG 700 1770 200 750 850 2250 2780 60 3170 2450 DN 700 DN 200 1300

FILTER BODY IN AISI 316L
BSS 80 23 3 165 165 340 455 90 570 430 DN 80 BSP 1¼" 30
BSS 100 36 4 200 175 350 465 115 590 410 DN 100 BSP 1½" 37
BSS 150 83 9 250 250 500 650 115 770 780 DN 150 BSP 2" 90
BSS 200 145 17 275 300 630 820 155 970 780 DN 200 BSP 2½" 140
BSS 250 235 26 325 350 750 975 52 1150 940 DN 250 DN 100 210
BSS 300 325 37 380 380 900 1160 52 1350 1100 DN 300 DN 100 270
BSS 400 580 67 460 450 1050 1360 52 1570 1370 DN 400 DN 100 550