

# AUTOMATIC FILTER F490

Made in Germany - AT HOME ALL OVER THE WORLD



**MULTIX**  
EXPANDABLE FILTER

For more than 80 years SAB Georg Schünemann has been a reliable partner supplying innovative filtration solutions for industrial and navy applications. SAB's Automatic Self-cleaning Filters are ideally suited for the pre-treatment of water and low-viscosity fluids. No matter the application – whether filtering particles from seawater, process water or cooling water, SAB's Automatic Filters are designed to particularly meet the specific customer requirements.

SAB invented the Multi-Bernoulli filter in 2010 to meet the increasing market demand for finer filtration and higher volume flows. This design utilizes the advantages of the proven Bernoulli based cleaning principle, such as low flushing pressure and unmatched cleaning efficiency, integrating multiple strainers in one filter housing.

The revolutionary **MULTI X** design combines the advanced Multi-Bernoulli filter technology with a smart and modular cast design offering unique technical advantages and short delivery times.



## Multi X – Exceptional Performance is our Standard

» The patented **MULTI X** series presents innovative technical advantages with maximum modular flexibility:

### Grade of Filtration

The **MULTI X** ensures the safe protection of our customer's applications with a consistently high filtration quality down to 40 µm. The proven Multi-Bernoulli technology warrants a continuous and effective filtration even at low operating pressures starting from only 0.7 bar.

### Backflush Rate

Exceptionally low backflush rates of less than 1% of the total volume flow are possible and underline the unmatched efficiency of the **MULTI X**. While maximizing the clean water flow the waste water flow is reduced to a minimum.

### Compact Design

With its smart and modular design, the **MULTI X** offers a considerably smaller footprint saving up to 40% of space compared to conventional filter solutions. This compact design based on smaller and standardized components, reduces the required maintenance space and efforts significantly. The flanges are arranged in-line to ensure an easy piping integration without any height offset.

### Technical Summary

DESIGN	
<b>Connections</b>	DN 100 / DN 250 / DN 400 / DN 600 / DN 800
<b>Volume flow</b>	50 m³/h - 8000 m³/h
<b>Grade of filtration</b>	40 µm - 10 mm
<b>Operating pressure</b>	0,7 - 10 bar
<b>Codes &amp; Standards</b>	EN 13445 / AD2000 / PED 17/23 / ASME VIII Div.1 / ATEX
MATERIALS	
Housing:	GGG40 / 1.4557 / 1.4581
Internals:	Stainless steel / Duplex / Super Duplex



Bernoulli's principle states that an increase in the speed of a fluid occurs simultaneously with a decrease in static pressure:

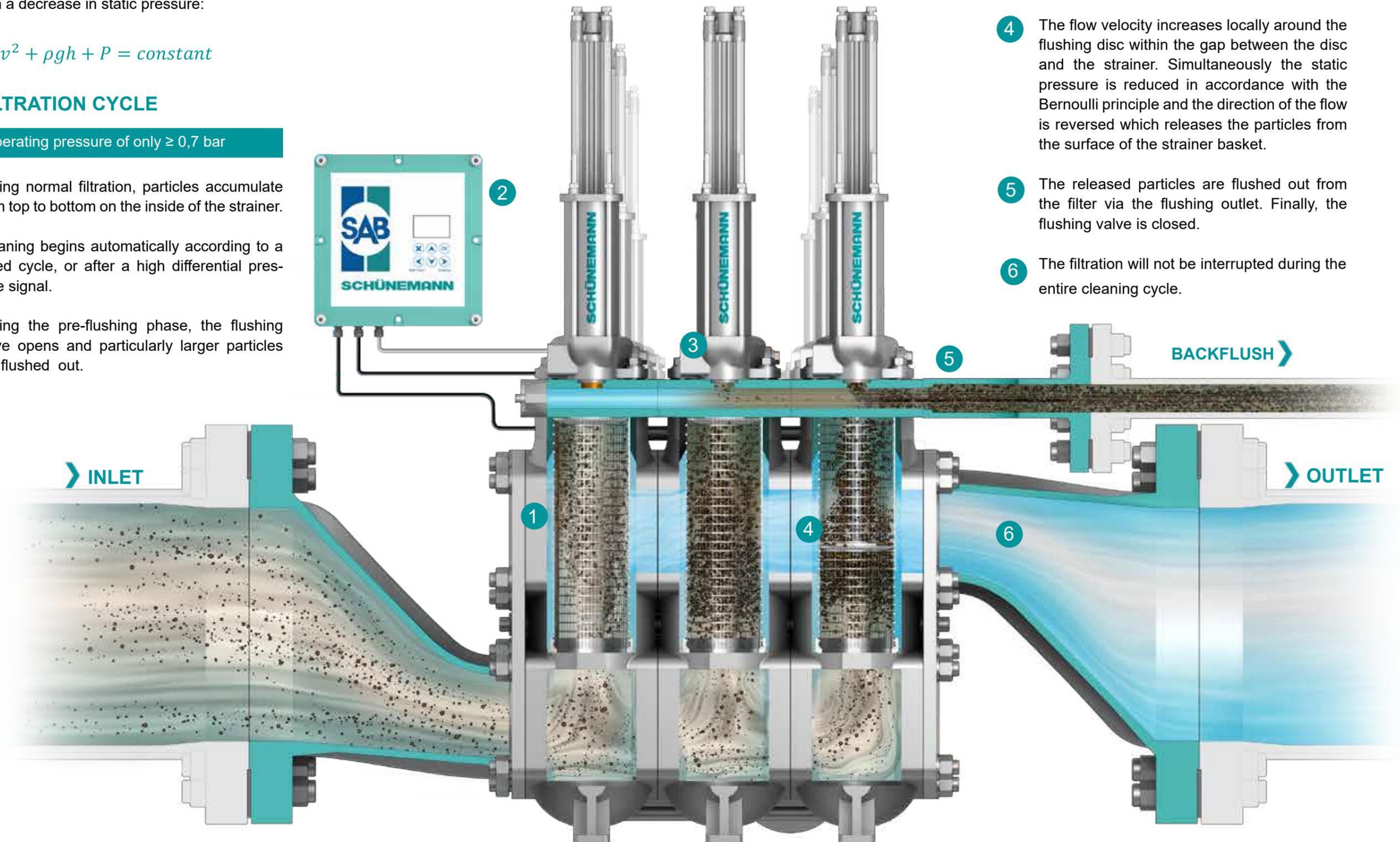
$$\frac{1}{2}\rho v^2 + \rho gh + P = \text{constant}$$

## FILTRATION CYCLE

Operating pressure of only  $\geq 0,7$  bar

- 1 During normal filtration, particles accumulate from top to bottom on the inside of the strainer.
- 2 Cleaning begins automatically according to a timed cycle, or after a high differential pressure signal.
- 3 During the pre-flushing phase, the flushing valve opens and particularly larger particles are flushed out.

- 4 The flow velocity increases locally around the flushing disc within the gap between the disc and the strainer. Simultaneously the static pressure is reduced in accordance with the Bernoulli principle and the direction of the flow is reversed which releases the particles from the surface of the strainer basket.
- 5 The released particles are flushed out from the filter via the flushing outlet. Finally, the flushing valve is closed.
- 6 The filtration will not be interrupted during the entire cleaning cycle.



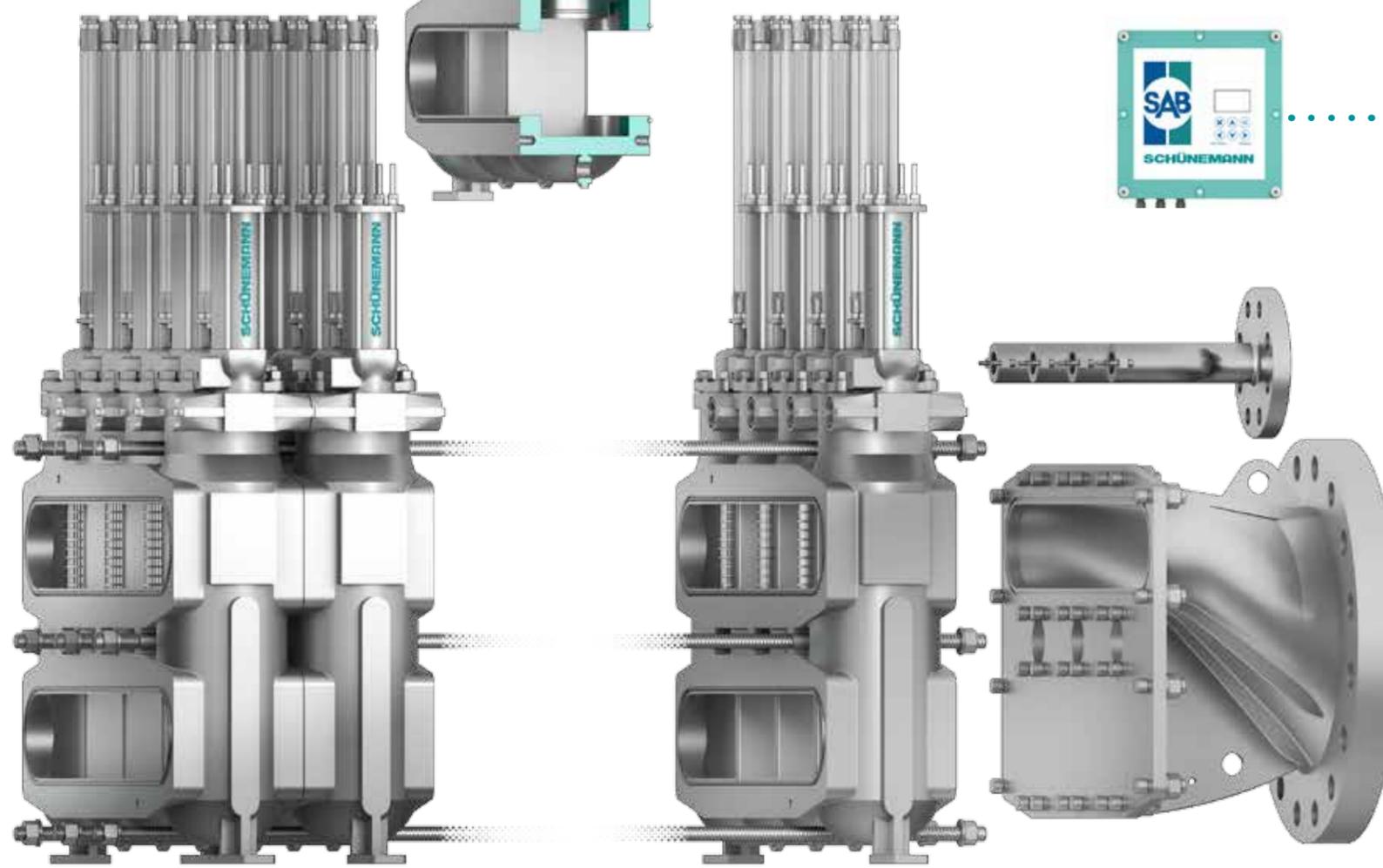
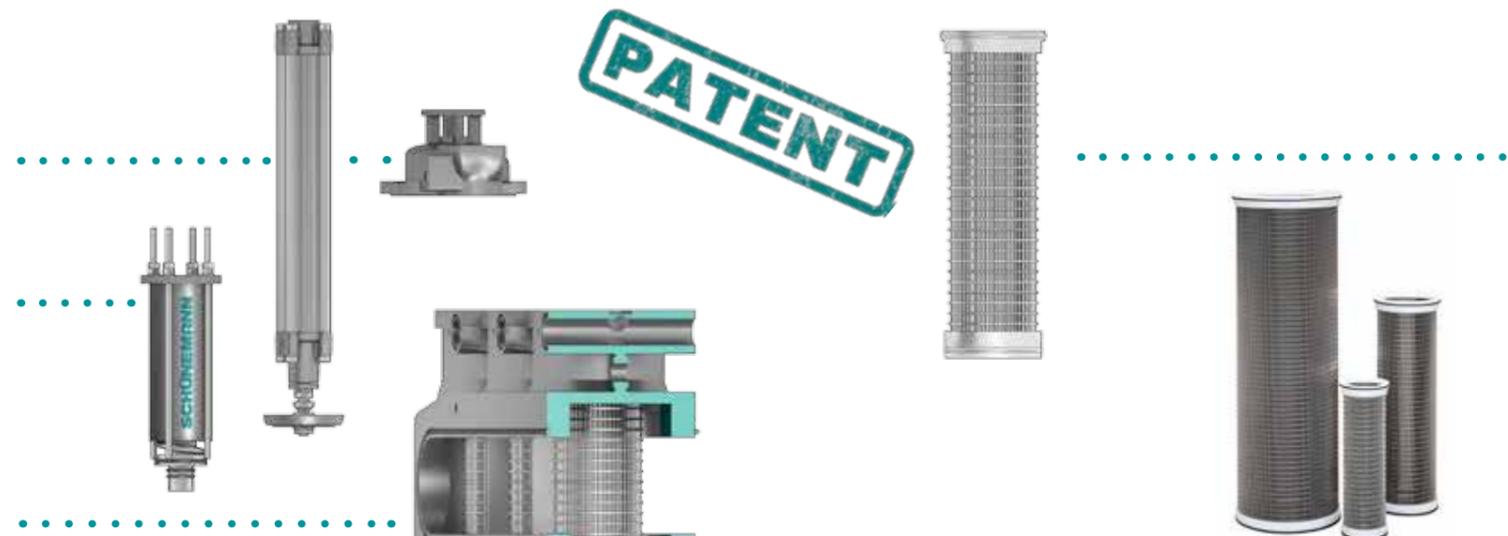
## COVER & CYLINDER DESIGN

A spring-closing backwash valve and a pneumatic cylinder with integrated solenoid valve was specifically designed for the **MULTI X**. The proven SAB leakage protection system preventing water from entering the pneumatic cylinder and thus preventing corrosion is directly incorporated in the cast cover.

## HOUSING

Every single module consists of four filter elements combined in one housing.

- Integrated backflush valve, thus no malfunction in power and no chance of compressed air failure
- Integrated leakage safety system
- No additional height required for screen replacement
- Cylinder with integrated valve/throttle



## STRAINER

The **MULTI X** introduces a new and innovative strainer concept with a design completely developed from scratch. The reduced parts, combined with the smart attachment without any screws, allows quick and easy maintenance.

- Approximately 50% fewer parts
- No additional welding and post-treatment required
- Quick and easy maintenance
- Less stock required for spare parts

## LCP

Every **MULTI X** is delivered with a Local Control Unit including LED display as a standard. The Local Control Unit acts as the master and communicates via Modbus with the individual slave units of each single strainer.

- IP65
- Inputs: Flushing with pre-flushing, Error quitting, Flushing lock
- Outputs: Operation, Flushing with pre-flushing, Error

## MODULAR DESIGN

Modules can be added or removed and operational plant data changes.

# MARKETS

Water and Wastewater Applications



Desalination



Power Generation



Marine

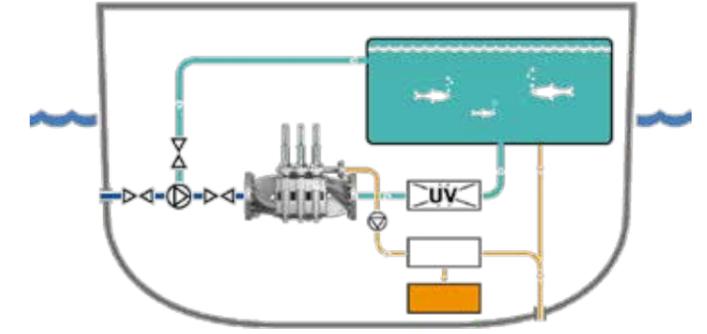


# SELECTED APPLICATIONS

Marine



Aquaculture

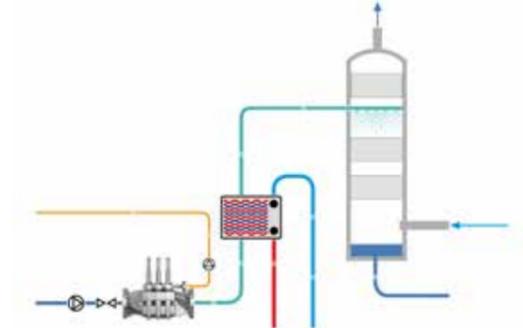


Environmentally friendly technologies are crucial to improve fish welfare and biosafety in the aquaculture industry. Here, SAB filters play a key role by removing particles and contamination in the water as well as sea lice and lice eggs when performing delousing in a well boat.

Chemical & Petrochemical Industry



Protection of Quench Tower

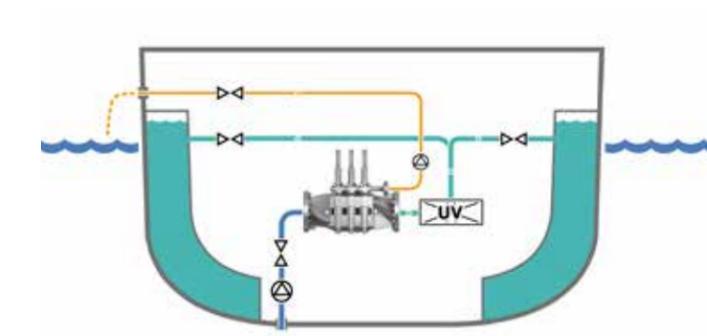


In many different industrial application quench towers are used to condition or clean gases. A high filter availability and performance are key to ensure the productivity of the overall plant. The SAB product portfolio covers many innovative and proven filter solutions which reliably remove solids out of the quench water in order to protect heat exchangers or quench internals, for example the demister. Furthermore, the exceptionally low backflush flow minimizes the fluid losses.

Marine



Ballast Water



Invasive aquatic species in ship's ballast water is one of the biggest problems faced by the shipping industry. Posing a great threat to the marine ecosystem, these aquatic species have led to an increase in bio-invasion at an alarming rate. The implementation of ballast water treatment systems on ships has thus become increasingly important. The SAB filter represents the first process stage, removing organic particles and sediments from the ballast water.