



#### The New Definition of Purity for Your Medium

**Cooling Water** 

**River Water** 

Sea Water

Sinter and Scale Separation

Emulsions

Process Water

Mussel / Mussel Larvae Separation

Spray Nozzles

Piping Systems

Plate Heat Exchangers

Mechanical Seals

Pumps

**Micro Filtration** 

flow rate	1 m <sup>3</sup> /h to 25,000 m <sup>3</sup> /h
filter fineness	≥ 50 µm, ≤ 5 mm
operating pressure	1.5 to 63 bar
pressure loss with clean filter	0.1 - 0.3 bar
flange	DN 50 to DN 3000
temperature	– 25 to + 200 °C
automatic / manual backwash	$\checkmark$

# **Scope of Delivery**



voltage 230 V or 400 V	•	
voltage 110 V to 690 V		Δ
Pressure Equipment Directive (PED)		
ASME		Δ
explosion protection		Δ
differential pressure gauging	•	
differential pressure as 4-20 mA-signal		Δ
automatic filter control	•	
self-medium backwash	•	
external medium backwash		Δ
backwash with suction pump		Δ
electric or pneumatic backwash valve		
signal exchange with PLC	•	
electrical cabling incl. connectors	•	
documentation	•	
certificates	•	Δ
functional test at manufacturer's works	•	

included in the scope of delivery • available at extra charge Δ

	standard design	sea water resistant design	special design
filter housing	carbon steel galvanized, carbon steel coated	GRP, steel gummed, stainless steel	PP, PE, PVC
filter elements	stainless steel	stainless steel	stainless steel

### **Our Filter Systems Protect**

### **Filtration Process**

raw water inlet

### 操作模式

原水通過濾心固定板的入口進入過濾器元件。 橫截面的減少導致在過濾元件的軸向流速,成比例增加至5-7 m/ 放置在過濾元件的一端是圓錐共同髒污收集器。

### Mode of Operation

The raw water enters the filter elements through the ports of the cartridge holding plate. The reduction of the cross section leads to a proportional increase of the axial flow speed in the filter elements up to 5 - 7 m/s.

At one end of the filter elements a conical common dirt collector

#### ,i<u>s placed</u> 自努利規則,原水過濾在最後三分之一的過濾元件中。 自內而外。清潔後的水通過

#### 由於在過濾元件中軸國法連為一/ s,因此污垢顆粒在共同的 收集器中排出。 逆洗過程由差壓(原水側和清水側之間的壓力差)觸發。 此外,允許電控使用計時繼電器開始逆洗過程

clean water outlet

Because of the axial flow speed of 5 - 7 m/s in the filter elements the dirt particles are discharged in the common collector. The backwash process is triggered off by the differential pressure (pressure difference between raw and clean water side). Additionally an adjustable time lag relay in the electric control permits the start of the backwash process.

clean water outlet

#### **Backwash Process**



#### 在打開電機驅動逆洗閥時開始清潔過濾器。 現在少量的原水流過逆洗口從而使污垢顆粒從共同收集器中流出過濾器。 在逆洗期間,過濾元件中的軸向流速增加到10m/s。 這高流速也有助於清潔過濾元件。另外,過濾元件中產生負壓,這保業了處碍的水逆 經過10-20秒的逆洗過程完成,逆洗閥自動關閉。在逆洗過程中,過濾過程不會中斷。

The filter cleaning starts off with the opening of the motor driven backwash valve. Now a small amount of raw water flows through the backwash port thereby flushing the dirt particles from the common collector out of the filter. During backwashing the axial flow speed in the filter elements is increased to up to 10 m/s. This high speed also contributes to cleaning the filter elements. Additionally an underpressure in the filter elements is produced. This guarantees the elements' backwashing from outside to inside with clean water. After 10 - 20 seconds the backwash process is finished and the backwash valve closes automatically. During backwashing the filtration process is not interrupted.

backwash water outlet

oper

Fig. 3



### **Filter Elements**

Fig. 4

Stainless steel slotted tube cartridges with axial slots for optimal filter element cleaning.

不鏽鋼濾管軸向開槽,最佳的清潔效果。

#### Fig. 5 Electric Control 標準控制包含以下的訊號與客戶的控制系統交流

The standard control includes the following signal exchanges with the customer's control system (PLC):

準備運作

- collective fault indication 故障指示
- ready for operation
- filter is backwashing 過濾器逆洗中
- external starting of the backwash process
- external release of the backwash process
- 外部啟動逆洗 外部取消逆洗





## Venturi Nozzle and Backwash Valve 文氏噴嘴和逆洗閥

The venturi nozzle is dimensioned according to the conditions at site for regulating the necessary backwash water amount and for avoiding pressure fluctuations in the piping system. As standard the backwash valve is equipped with an electric or a pneumatic drive.

## Differential Pressure Gauging 差壓表

Consisting of:

- optical inlet-pressure indicator 入口壓力表
- optical indicator of the differential pressure 差壓表
- 2 adjustable micro-switches 2個可調整的微動開闢
- start filter backwash 開始逆洗
- alarm signal 警示訊號



文氏噴嘴的尺寸根據現場條件,在調節必要的逆洗水量和避免管道系統中的壓力波動。 標準的逆洗閥配有電動或氣動驅動。

# **Range of Application**



Fig. 8

Silvretta Seilbahn AG, Austria (Cable Car Operating Company); snow making system



Fig. 9

Bayer Uerdingen, Germany (Chemical Industry); river water



*Fig. 10* CERN, Switzerland (European Organization for Nuclear Research); cooling water



Krombacher Brauerei, Germany (Brewery); drinking and process water

## **Process Diagram**



Fig. 12

## **Advantages**



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