

HANKE

Filter Application

Filtration Solutions for **Metallurgy**

We offer custom process filtration solutions including oil & gas filtration solutions, metallurgy filtration solutions, etc.



ONE-STOP
FILTRATION
SOLUTION PROVIDER

METALLURGY FILTRATION SOLUTIONS

Metallurgy refers to the process and technology of extracting metals or metal compounds from minerals and making them into metallic materials with certain properties through various processing methods. In the metallurgical process, in order to reduce input costs, equipment coolant and lubricating oil need to be filtered to remove impurities and achieve recycling. Hanke provides you with targeted metallurgical filtration solutions to help you reduce investment costs and protect downstream equipment.

Metallurgy
Filtration
Part 2
Process Filtration Solutions

Metallurgy
Filtration
Part 1
Process Filtration Solutions



HYDRAULIC & LUBRICATING SYSTEM FILTRATION

Background

Lubricating oils are used among moving parts of various metallurgical equipment to play the role of lubrication, auxiliary cooling, rust prevention, cleaning, sealing and buffering, etc. They are widely used in centralized lubricating systems, hot rolling drive systems, cold rolling support roll lubricating systems, wire and bar mill lubricating system, etc.

Problem

With the production of steel, foreign matters generated due to equipment corrosion or aging, hydraulic oil or gear oil sludge and other impurities generated due to thermalization also accumulate in the hydraulic & lubricating systems. These impurity particles can cause equipment wear and affect the service life of equipment and the recycling of lubricants.

Solution

Therefore, hydraulic and lubricating oils need to be filtered and processed in time to extend the service life of the equipment. **Cartridge filters** are often adopted for hydraulic & lubricating system filtration to effectively remove the tiny particles in the system and protect the downstream equipment.



ROLLING MILL COOLANT FILTRATION

Background

Rolling mill is the main equipment that makes metal blanks forming by rolling in the production of steel. The mill cooling system lubricates the surface of the rolled pieces and takes away the heat generated by friction and deformation in the mechanical forming process of the rolled pieces; In this process, it also removes the secondary iron oxide on the surface of the rolled pieces to prevent it from embedding in the work piece surface, thereby affecting the quality of the rolled pieces and causing damage to the equipment

Problem

Many manufacturers recycle and reuse coolants to reduce production costs. The recycled coolant contains a large quantity of impurities, such as iron oxide formed on the surface of the rolled pieces and dust. When reused, these impurities can easily block the nozzles and increase equipment maintenance costs.

Solution

Therefore, these coolants are required to be filtered before reuse to achieve coolant cyclic utilization. **Automatic backwash filters** are generally employed for coolant filtration as it can automatically perform continuous filtration online and effectively remove solid particle contaminants from the coolant.





Trustworthy Filtration

Expert & Partner



Self-Cleaning Filters—Automatic Backwash Filter



Automatic backwash filter is a kind of self-cleaning filter that consists of multiple stainless steel filter elements and can continuously perform filtration for 24 hours. It can effectively filter out solid particle contaminants from various water and low-viscosity liquids like rolling emulsions to make the liquid cleanliness meet the system operation and downstream process requirements and protect key downstream equipment. It is widely used in oil & gas, metallurgy, marine filtration systems, water treatment, Pulp & paper and other industries.

Features

- Automatic online continuous filtration, continuous filtration during backwashing to reduce downtime and maintenance costs.
- The control system can be tailored to monitor pressure and time settings for various fluids.
- Gap type high performance filter is adopted, which features high precision, large effective filter area, small pressure drop and high backwash efficiency.
- Compact design ensures that installation requires minimal space and is easy to install. The inlet and outlet ports are adjustable according to end users' requirements.
- Filter rating 50–2000 μm , suitable for the filtration of all kinds of raw water, cooling water, process water and low viscosity fluids with a viscosity of less than 40 mPa.s and impurity content less than 300 ppm.




✧ Specification

Applicable liquid:  Raw water, cooling water, process water and low viscous liquid (< 40 mPa.s),
 impurity < 300 ppm

Filter Rating:  \rightarrow  **Flow rate range:** 

Inlet & outlet size:  2"– 24"/DN 50 – DN 1000

Fluid working temperature:  0°C \rightarrow 95 °C

Standard design pressure: 0.7 MPa  1.0 MPa

Self-cleaning differential pressure: 0.05 MPa  0.07 MPa

Minimum operating differential pressure:
 Differential pressure between the outlet and back-flushing outlet > 0.15 MPa

Control system: Based on SIMENS controller, parallel control mode of differential pressure and time



Gear motor: 180W/370W, 3-phases, 380V, protection class IP55, CCWU

Valve actuator: Pneumatic or electric, IP65

Back-flushing valve: Wafer butterfly valve/full-port ball valve

Supply facility requirement: 0.4–0.6 MPa clean and dry air, 380V AC

Filter element type:

V-slot slotted metal filter element,
 SS304  SS316L

Filter housing material:

 SS304  SS316L  Carbon steel  Customized.

Inner corrosion protection:

Epoxy paint, PA11 or rubber Lining for sea water resistance

Housing seal material:

NBR/EPDM/VITON



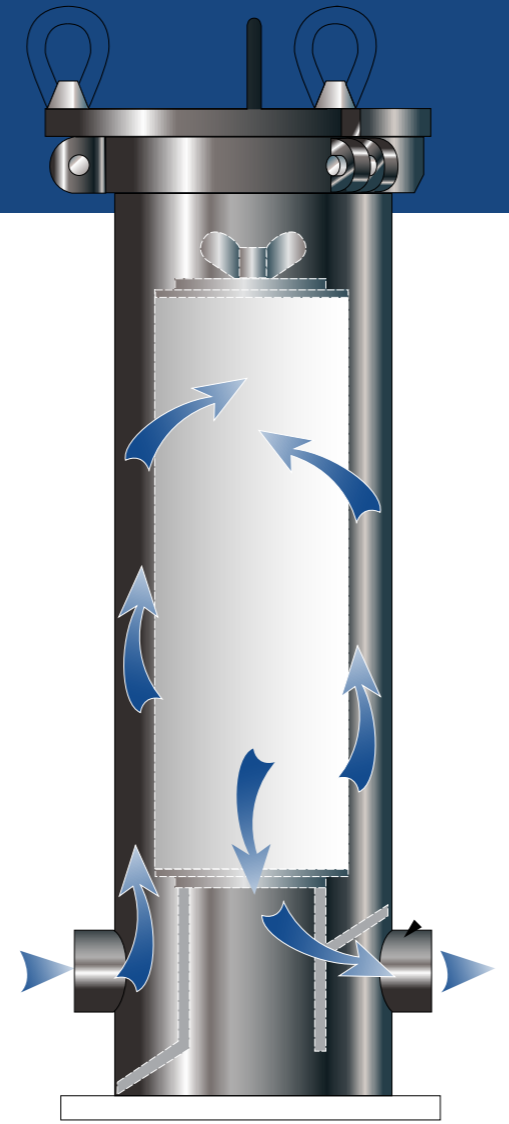
Cartridge Filters

Single Cartridge Filter

Single cartridge filter requires only one filter cartridge inside. Compared with multi cartridge filter, it requires a smaller footprint and filters a smaller area, as a result, it is suitable for applications with low flow rates in limited space.

Features

- V-bands or swing-bolt closures are provided for quick filter cartridge replacement.
- Suitable for accommodating filter cartridges with a length of 10", 20" or 30"
- Suitable for DOE and SOE filter cartridges
- Removable filter cartridges, easy to clean and replace.
- Suitable for filtering fluids in low flow at low flow rates.
- Cartridge filters in special specifications are available upon request.



Working Principle

First, precoat is applied before filtering. Agitate precoat tank containing filtrate and filter aid (diatomaceous earth, perlite, etc.) for around 10 minutes. Then, fill the vessel with the mixture, empty all the air, and pressurize the vessel. The precoat runs for 15 minutes at a fluid rate around 30–60 gallons per square foot per hour.

✦ Specification

Optional cartridge:

PP melt blown, string wound PP cartridge, PP pleated cartridges, ceramic cartridges and stainless steel wire cartridges

Cartridge size (length): 10", 20", 30"

Cartridge end cap: DOE, SOE (222)

Housing material: SS304, SS316L, carbon steel

Operating pressure: 150 psi (10.3 bars) max

Operating temperature:

4°C —————> 149 °C
10°F —————> 300 °F

Model	Cartridge Size	Inlet Size	Flow Rate (GPM)	Drain Size (NPT)
1	10"	3/4" – 1"	6	1/4"
2	20"	3/4" – 1"	12	1/4"
3	30"	3/4" – 1"	18	1/4"

Multi Cartridge Filter

Multi cartridge filter consist of a stainless steel filter housing and multiple filter cartridges like filter PP filter cartridge inside. It is mainly used after multi-medium pretreatment filtration and before membrane filtration equipment such as reverse osmosis and ultrafiltration to ensure the water filtration rating and protect membrane filter elements from large particles.

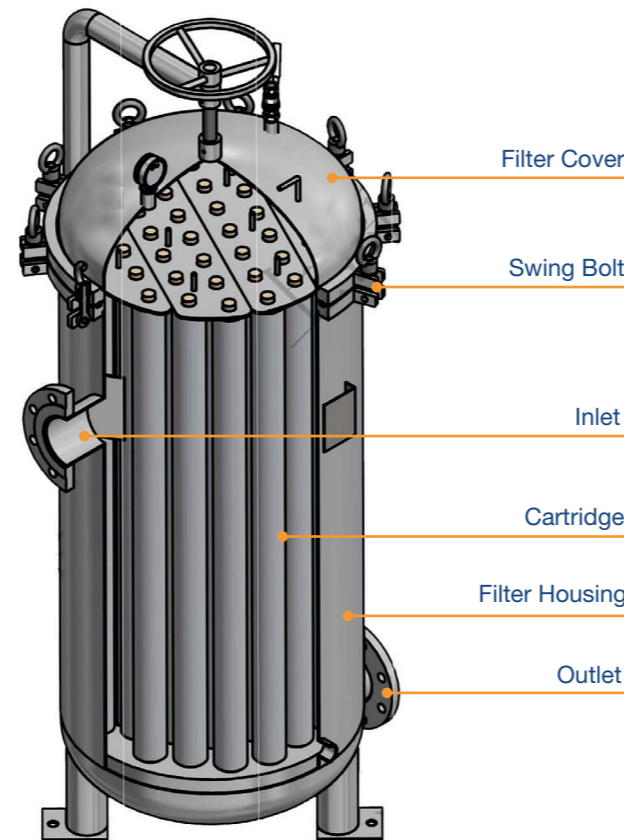
Features

- V-bands or swing-bolt closures are provided for quick filter cartridge replacement.
- Suitable for accommodating filter cartridges with a length of 10", 20", 30" or 40".
- Suitable for DOE and SOE filter cartridges.
- Removable filter cartridges, easy to clean and replace.
- Suitable for filtering fluids in high flow at various flow rates.
- Other specifications are available upon request.

Working Principle

The unfiltered liquid flows into the filter from the inlet, flows through the cartridge from outside to inside and becomes clean. Impurities are trapped in the deep layer or on the surface of the cartridge and clean fluid flows out from the outlet.

When the differential pressure upstream and downstream is more than 0.2MPa and the flow rate of the liquid is 30% less than before, it is time to change the filter cartridge to prevent system clogging.



✦ Specification

Optional cartridge:

PP melt blown, string wound PP cartridge, PP pleated cartridges, ceramic cartridges and stainless steel wire cartridges

Rated value: 0.05–200 μm

Cartridge size (length): 1–200

Cartridge end cap: DOE, SOE (Fin/ 222, Fin/ 226, Flat/ 222, Flat/ 226)

Housing material: SS304, SS316L, carbon steel

Surface treatment: Sandblasting, mechanical polishing, electrolytic polishing

Operating temperature:



Inlet/outlet: BSP, Tri-cover, ANST flange

Applicable viscosity (cp): 1–500

Design pressure: 0.6 MPa, 1.0 Mpa

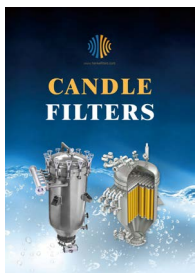
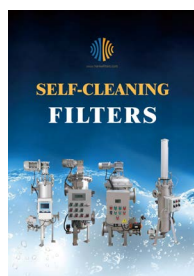
Cover connection: V-band, swing-bolt

Model #	Cartridge Requirements	Pipe Size (flange)	Max. Flow Rate (GPM)	Drain Size (NPT)
1	(4) of 10"	2"	24	1/2"
2	(4) of 20"	2"	48	1/2"
3	(4) of 30"	2"	72	1/2"
4	(4) of 40"	2"	96	1/2"
5	(5) of 10"	2"	30	1/2"
6	(5) of 20"	2"	60	1/2"
7	(5) of 30"	2"	90	1/2"
8	(5) of 40"	2"	120	1/2"
9	(6) of 40"	3"	144	1/2"
10	(7) of 20"	2"	84	1/2"
11	(7) of 30"	2"	126	1/2"
12	(7) of 40"	3"	168	1/2"
13	(9) of 40"	3"	216	1/2"
14	(12) of 40"	4"	288	1/2"
15	(22) of 30"	4"	396	1/2"
16	(22) of 40"	6"	528	1/2"
17	(27) of 40"	6"	660	1/2"
18	(36) of 40"	6"	720	1/2"
19	(42) of 40"	6"	1,008	1/2"
20	(55) of 40"	8"	1,320	1/2"
21	(61) of 40"	8"	1,464	1/2"
22	(73) of 40"	8"	1,752	1/2"
23	(98) of 40"	10"	2,340	1/2"
24	(120) of 40"	10"	2,880	1/2"
25	(150) of 40"	10"	3,000	1/2"

10
years⁺
est. 2011



BASKET STRAINERS,
BAG FILTERS,
SELF-CLEANING FILTERS,
CANDLE FILTERS,
PRESSURE LEAF FILTERS,
FILTER CARTRIDGES



ANPING HANKE FILTER TECHNOLOGY CO., LTD

No. 21 Jingsi Rd., Industry Park, Anping, Hebei, China.

Tel: +86-318-7999978

Skype: +86-13831829720 Dina Yang

WE ARE HERE FOR YOU:

E-mail: sales1@hanke-filter.com

Website: <https://www.hankefilters.com>