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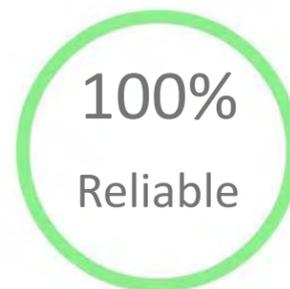
e-mail: sales@steri.com
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Steri CANDLE Filter

Multi-purpose simplicity.

Ideal for polishing liquids with stringent requirements...



Solids as small as 0.2 micron. Sizes up to 60m²

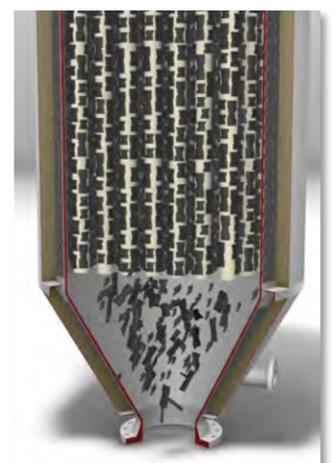
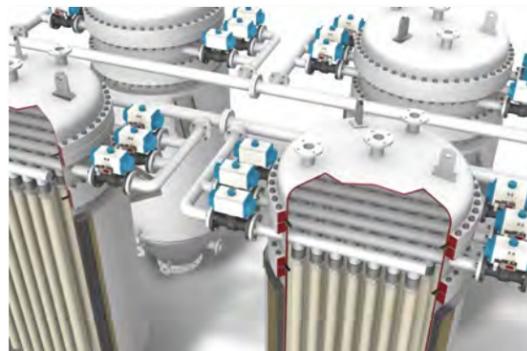
Steri CANDLE Filters

Superior design, superlative performance and professional support.

Steri CANDLE filters are designed as a totally enclosed system for the removal of solids as small as 0.2 micron. Ideal for polishing liquids to meet stringent requirements.

Due to its simplicity, these CANDLE filters serve a wide variety of applications. Based on specific needs, the elements can be of porous sintered metal construction, multi-layer media or candles installed with fabric filter cloth. Solids are removed from the slurry by traditional outside-in filtration. Discharging of the cake is by the back-pulse method utilizing gas or a suitable liquid.

Manufactured in the United States of America by Steri Technologies, Steri CANDLE filters combine superior design with a program of total support that makes filtration easy from every perspective.

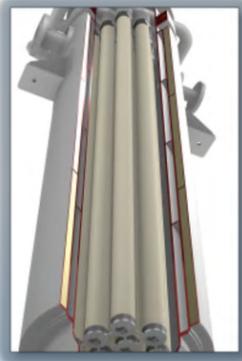




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CANDLE Filter / Applications

Sealed filtration without moving parts.

Multi or single CANDLE back-pulse filters...

The Exact Solution for your Application

With CANDLE filters by Steri Technologies, you can depend on cost-effective performance from the most efficient manufacturer. These filters meet ASME or other industry standards and incorporate important functional enhancements designed by Steri engineers, each with a quarter century of hands on CANDLE filter experience. This technology has an extensive record of reliable performance across a broad range of applications:

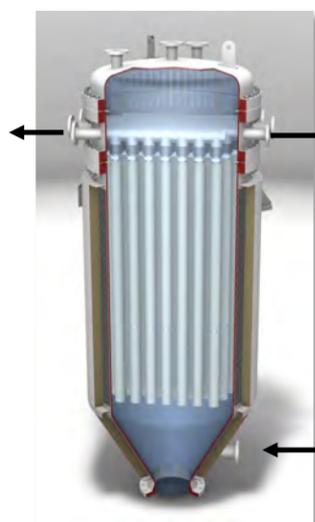
- Pharmaceutical
- Fine chemistry
- Food industry applications requiring FDA approval
- Fuel and oil additive filtration
- Hazardous materials filtration
- Precious metal and other catalyst recovery
- Solid content: up to 2%

Theory of Operation



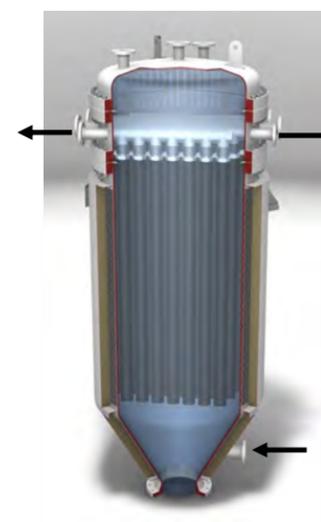
Filling

The slurry enters at the bottom of the filter vessel. The upward flow helps to keep the solids in suspension so that they are evenly deposited on the surface of the filter element.



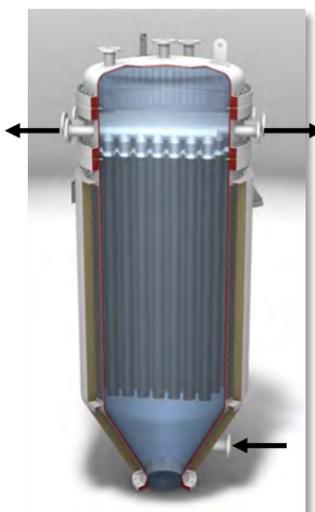
Pre-coating

The suspension is circulated through the filter elements to produce a porous pre-coat layer.



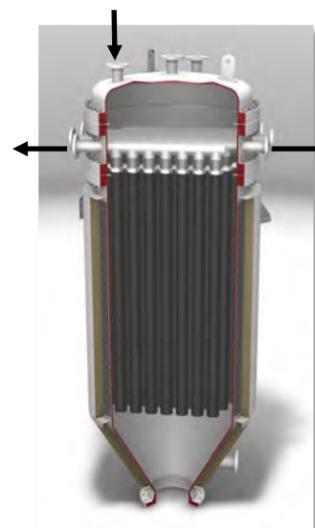
Filtration

The filter cake is formed on the outside of the filter candle while the clear filtrate is discharged from the interior of the candles through the header. The candle can form a 5 to 25mm thick cake.



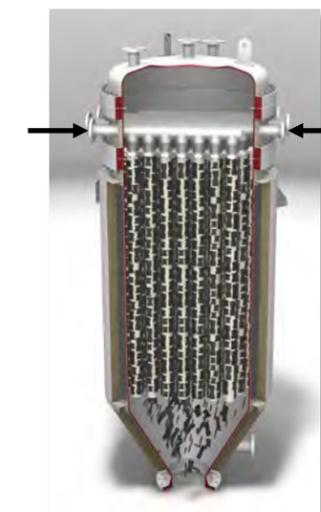
Cake Washing

The wash liquid follows the same route as in filtration. The cake can be washed or re-slurried in one or more stages.



Cake Drying

The cake can be heated and dried in the vessel using hot gases, such as steam, air or nitrogen.



Cake Discharge

Discharging of the dry cake is by gentle gas expansion of the filter element, where gas is purged backwards through the filter, which pushes the dry cake off the filter surface.



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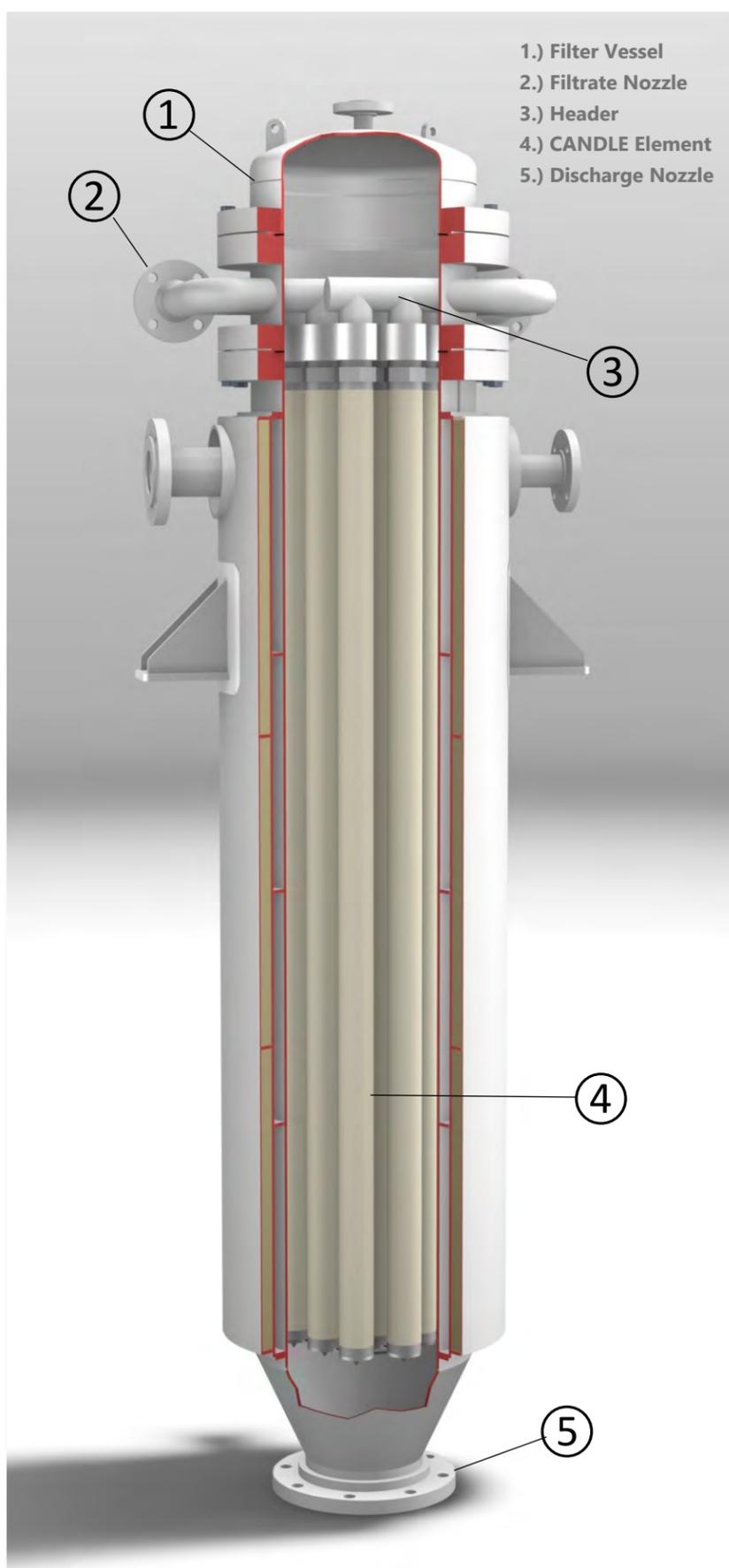
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CANDLE Filter / Design

Take advantage of high filtration rates.
Exceptional simple design & operation...

Anatomy of a Steri CANDLE Filter



Steri CANDLE filters have no moving parts.

Steri CANDLE filters are design to operate without any moving components. The few seals that are needed are static and not subject to wear. This increases the operational reliability and reduces maintenance requirements and costs dramatically. Due to its simplicity, the CANDLE filter serves a wide variety of applications.

Anatomy of a Steri CANDLE filter

CANDLE filter elements are cylindrical in shape and can be installed in a single tube or arranged in a group inside of a larger vessel. In either case the individual CANDLE filter elements are connected to headers in a series and/or parallel arrangement. This arrangement is determined by Steri's engineering team during the design phase based on the process results required. The headers are then connected to the main manifold though valves. Filtration and backwashing are controlled by these valves. Operation of the valves allows flow control in the CANDLE filter elements to optimize cake formation. Valve operation makes it possible for filtration and backwashing to be cycled from header to header.

Why CANDLE Filters?

Most filters rely, to varying extents, on the solids collected on the filter surface to achieve maximum effectiveness, essentially using the solids themselves to trap more incoming solids. But, as the cake builds on the filter surface, the distance that the fluid must travel through the cake increases which increases pressure and lowers the flow rate. In the CANDLE filter, solids are removed from the slurry as the fluid passes through the filter media from outside. So as the cake grows on the outside of the cylindrical CANDLE filter surface, the surface area also increases. This means that the cake thickness grows more slowly than it would on a flat-faced filter, and results in a more linear change in pressure and flow rate.

CANDLE Filter Element: Designed for Fine Filtration

Each CANDLE filter elements consists of a cylindrical perforated support structure. The filter media fits over the perforated support structure like a sock and is clamped in place. This rigid design allows for high pressure filtration. The replaceable filter media can be virtually any process compliant woven or sintered material. Steri has specifically designed CANDLE filter elements for efficient filtration while guaranteeing adherence of the filter cake to the cloth.



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CANDLE Filter / Option & Sizes

Filtration systems to your specifications.

Steri CANDLE & FUNDA filters - A powerful duo...

Comprehensive Options

A comprehensive set of options and Steri's applications experience assure your precise requirements are met quickly and easily.

With numerous standard options and knowledgeable decision support from process experts, your Steri CANDLE filter can be easily configured to meet your specifications. What's more, you'll benefit from the flow of design enhancements Steri has been bringing on line each year.

Various options are offered for all Steri CANDLE filter systems. Steri offers a complete range of off the shelf options. Coupled with the engineering applications know-how, we can configure your filtration system to your exact specifications. Choosing from a selection of standard components, that have been proven effective many times over, is a sure way to bring a customized system on line quickly and without problems.

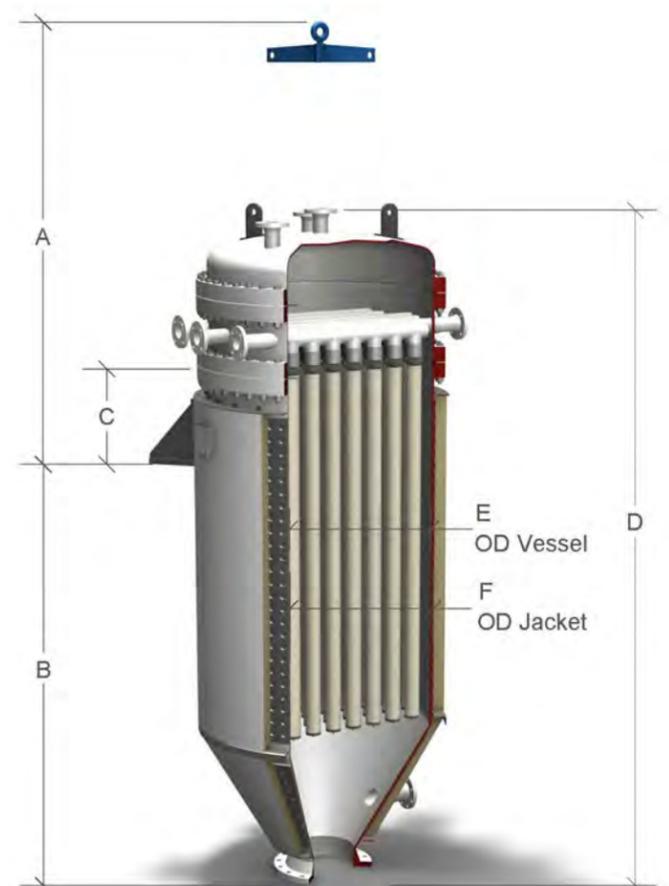
Steri CANDLE Filters and FUNDA Filters – A Powerful Duo

When extremely high filtrate clarity is required, Steri can engineer an innovative solution by combining our FUNDA and CANDLE filtration. Steri CANDLE filters are designed as a totally enclosed system for the removal of solids as small as 0.2 micron. Used for fine polishing applications, Steri CANDLE filters can be installed in series, downstream from a FUNDA filter providing a total liquid-solid separation solution. All from one source. Steri Technologies.

Capacities

Size	Number Of CANDLES*	CANDLE Length	CAN-DLE Area	CAN-DLE OD	A	B	C	D	E	F
m ²	Qty	mm	m ²	mm	mm	mm	mm	mm	mm	mm
1.0	3	1200	0.34	90	1800	1300	250	1900	420	460
2.5	7	1200	0.34	90	1800	1700	250	2300	510	550
6.5	19	1200	0.34	90	1950	2050	300	2800	800	850
3.5	7	1800	0.51	90	2400	2000	250	2600	510	550
10.0	19	1800	0.51	90	2550	2350	300	3100	800	850
19.0	37	1800	0.51	90	2800	2800	400	3800	1100	1150
25.0	49	1800	0.51	90	3300	2500	600	4000	1300	1350
31.0	61	1800	0.51	90	3300	2700	600	4200	1500	1550
29.0	49	2100	0.60	90	3600	2800	600	4300	1300	1350
36.0	61	2100	0.60	90	3600	3000	600	4500	1500	1550
46.0	77	2100	0.60	90	3600	3100	600	4600	1600	1650
54.0	91	2100	0.60	90	3700	3200	700	4800	1800	1850
66.5	112	2100	0.60	90	3700	3400	700	5000	2000	2050

*Quantity of candles can be customized.





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Steri CANDLE Rental Systems

Simple to install in virtually any environment.
Glowing reports in its ease of operation...

Think Steri for Rentals

Use one of our filters on a rental basis to experience first hand, filtration made easy. You'll see how simple it is to install a Steri filter in virtually any environment. You'll notice and appreciate its compact design. You'll get glowing reports in its ease of operation and purity of output. Steri maintains an inventory of CANDLE filter rentals. CANDLE filters are available in stainless steel in sizes up to 0.25m². The unit is skid mounted for fast, easy installation. Put them to use for laboratory work, pilot processes and short term production runs. A rental unit can be cost-effective and up and running in just a few days.

Think Steri for Lab Testing

Liquid-Solids Separation and Filtration Testing in Our Lab

Steri now offers testing of your product in our laboratory. For decades now, Steri Technologies has been a leading manufacturer of CANDLE filter technology.

Steri has several small scale filters in our lab that enable us to test various filter media and filter-aids to determine the most efficient filtration process for your product.



Think Steri for Lab Filters

In addition to portable pilot and production models, Steri offers a convenient 0.01m² filter to permit you to quickly test filtering feasibility and filter media. We would be delighted to bring it to your plant for a consultation, or provide it on a rental basis

Try and Buy

All of our rental filters are automatically included in our TRY-and-BUY program. The Steri "Try and Buy" program provides credit for a portion of the rental fee toward the purchase of a full-scale filtration system. And when you compare value and price – made even more cost effective by the special terms available through Try and Buy – you'll select Steri for CANDLE filtration made easy.

Liquid-Solids Separation and Filtration Testing in your Facility Using our Rental Units

Steri has several small-scale filters available as rental units. Scaled-down, self-contained, skid-mounted versions of our Steri CANDLE type filters can be rented for in-plant pilot runs or testing. These small-scale rental filters enable you to test various filter media and filter-aids to determine the most efficient filtration process for your product.





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Turn-Key Systems

Steri plans, designs and manufactures complete automated filtration installations...

Turn-Key Filtration Systems

Steri Technologies has the engineering expertise to design and fabricate completely self-contained, fully automated, turn-key filtration and process systems.

For decades now, the FUNDA filter has been used all over the world to separate solid matter from liquids. Steri plans, designs and manufactures FUNDA filters as separate units, as filter skids and as complete filtration installations - complete with process engineering and corresponding process guarantees.



R-80m² FUNDA Filtration Unit

Sometimes a stand-alone filter does not meet the process requirements, on-site integration capabilities, or scheduling constraints. Sometimes only a complete turn-key filtration system will meet the challenge.



R-20m² FUNDA Filtration Skid

Steri Technologies has the experience of designing filtration systems to exacting customer specifications. Our engineers review the overall process sequence to recommend the most effective means of adding a filtration step.



A-15m² FUNDA Skid with Pre-Coat, Body Feed Tank and Bag Loading Station

Custom Process Systems

Steri designs and builds custom process systems that combine multiple process steps into one skid mounted assembly. Any process steps may be included such as wet & dry material injection, mixing, weighing, filtration, heating, drying and any others that might be needed. We've manufactured various types of stand-alone skidded systems for uses such as industrial process heaters, chilled water filtration, water desalination, laboratory preparation and more...



HVAC Side Stream Filtration

The resulting filtration or process system seamlessly integrates with your overall infrastructure. Our modular systems feature factory level manufacturing and quality control. All custom skids are fully tested before leaving our facility.



Brackish Water Desalination Skid



Cutting / Cooling Oil Mixing Plant



Laboratory Prep Skids



Heating / Cooling Skids



Brackish Water Desalination Plant



Cutting / Cooling Oil Mixing Plant



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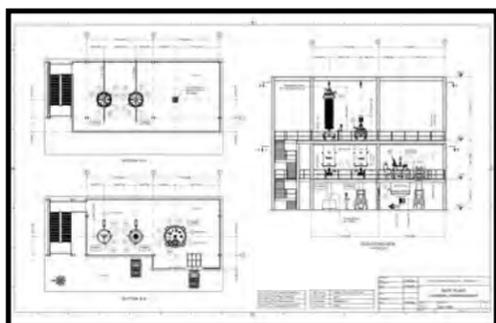
In-House Engineering

Experienced engineering team that provides complete design support from concept to installation...

Filter Design, Integration & Process Design Support

Filter Design

Steri has an experienced engineering team that provides complete design support from concept to installation. Starting right from the proposal stage, we create a clear picture of your filtration system and its integration into your facility using 3D CAD software. As the design evolves the 3D model is continuously updated. Approval drawings and bills of materials are ready for quick turn-around minimizing delays in ordering material. At completion of the project the 3D model is fully updated to reflect the as-built configuration and included in the complete documentation package.



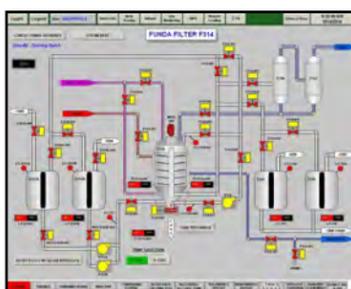
Integration

Process sequencing maps out the overall design of the filter and how it will fit into your process. Steri works with your engineering team to design an integration plan. The plan identifies any upgrades or modifications that may be required to your existing infrastructure.

Process Design Support

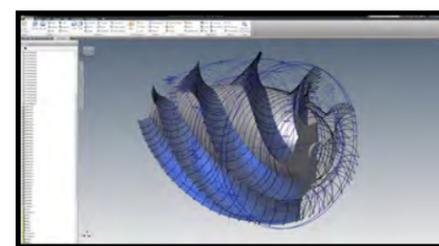
Steri offers process revitalization support for legacy installations. If you have an older Steri filter but do not feel that you are getting the best possible performance we can help. We have a knowledge base of thousands of systems installed world-wide.

Over the course of time, system sequences tend to grow away from the original design intent. A thorough system analysis by one of our engineers can net you performance improvements and cost reductions. As a result of our analysis we then recommend instrumentation upgrades and safety improvements. The instrumentation also allows the process to be automated, reducing down-time. The vent system can be evaluated along with the drying technique. By simplifying the vent routing and incorporating the latest drying techniques the overall cake drying time could be reduced. Steri can review the piping plan uncovering exceeding long piping runs, eliminating contamination between batches of different products. Once all of these recommendations have been implemented, Steri then establishes baseline operating points including characterized pressure increases as filter loading increased. The data can then be used in conjunction with the instrumentation to optimize the automation program. Sequence review by Steri and the resulting process changes along with automation will increase safety, decrease waste and save money.



Process Design

The key to producing a quality product using Steri Filters is process integration. Steri engineering works with you early-on to create a complete filtration process sequence. Part of the sequence development includes an evaluation of your overall system that results in recommended upgrades to your system. Giving you the best performance possible from your new Steri filter. The sequence, which is presented in HMI screenshots, includes all the steps required such as filling, pre-coat, filtration, washing, re-slurrying, drying, discharge and clean-in-place.



CAD-CAM Machining

Our engineers design every component in 3D right from the start. The software handles complex shapes and standard flanges equally. Once the design is complete the files are sent directly to our CAM software for error free CNC machining. All performed in-house to ensure complete quality control.





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In-House Manufacturing

Our modern manufacturing facility is equipped with the latest equipment...

Machining, ASME Fabrication & Testing

Steri Technologies offers machining and ASME pressure vessel fabrication services to a variety of industries. Our modern manufacturing facility is equipped with the latest manufacturing equipment including CNC milling, lathe, Robotic welding and water jet machines.

We are an ASME and National Board certified company. Our employees take pride in their company and meet your requests with a "can do" attitude. We offer a variety of services:



CNC Lathe



Mill Lathe



Robotic Welding



Skid Fabrication



System Testing



CIP Testing



Waterjet Cutting



ASME Fabrication



Mechanical Polishing



Laboratory Testing

From Vision to Reality

3D Model Developed with Client



Final Fabricated Skid

3D Model Developed with Client



Final Fabricated Skid

3D Model Developed with Client



Final Fabricated Skid



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Start-Up & Support

Your Steri system is serviced by the people who manufacture it...

Commissioning, Start-Up & Site Training

Your filter system can be up and running in just a few hours. Steri provides the level of service that meets the needs of your project. We offer complete system design and installation services to seamlessly integrate our equipment into your process facility. In the design phase Steri will provide all the necessary recommendations for pipe routing and valve placement so that you get the best possible performance from our filter systems. Steri can provide experienced on-site installation support, coordinating the trades such as crane operations, structural steel fabrication, concrete installation, piping and wiring. This complete level of support applies to all Steri products from complete skidded filtration systems to stand-alone filters.



Installation Supervision



FUNDA Filter Installation



Filter Commissioning

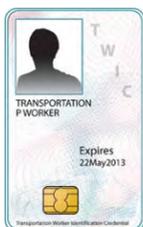


On-Site Training

Steri's service does not end with installation. Our trained technicians will be present during start-up and commissioning to maximize the performance of the filter within your overall process. Once the filter has been commissioned Steri will provide complete on-site training to all operators so that your Steri filter continues to provide maximum service for years to come.

Technical Support

Steri service technicians are available whenever you need. They have been fully trained on confined space protocols, hold the widely recognized Transportation Worker Identification Credential (TWIC®), and can be dispatched to anywhere in the world.





Total Filtration Solution

Activated Carbon Removal
 Antibiotics Separation
 Sterile Environment Processes
 Fuel and Oil Additive Filtration
 Photo-Chemicals Filtration
 Gold Precipitate Recovery
 Hazardous Materials Filtration
 Radioactive Waste Filtration
 Machine Oil Regeneration

Catalyst Recovery
 Resin Filtration
 Pharmaceutical
 Petrochemical
 Food Industry
 Plasticizer Filtration
 Antioxidant Filtration
 Precious Metal Recovery
 Polyol Filtration



Steri has the **Right** solution for your **Filtration** application

For decades now, Steri Technologies has been delivering reliable filtration equipment to every continent around the world. Superior designs of **FUNDA** pressure leaf filters, **ZWAG** Nutsche filters, Steri **CANDLE** filters technologies and many more...

FUNDA[®] Filter

ZWAG[®] Filter

CANDLE Filter



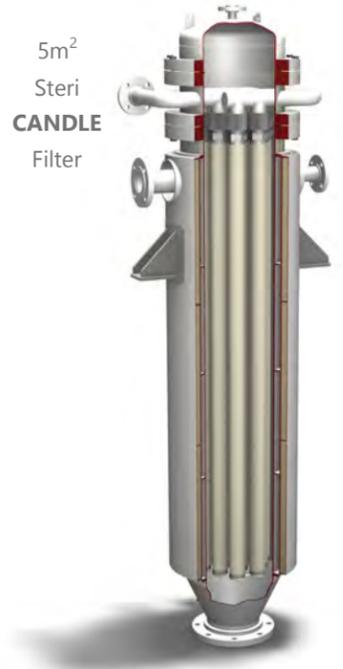
12m²
FUNDA
Filter
Type R



50m²
FUNDA
Filter
Type A



2m²
ZWAG
Nutsche
Filter



5m²
Steri
CANDLE
Filter

FUNDA type R,
for dry cake discharge.
0.1m² to 100m²

FUNDA type A,
for slurry cake discharge.
0.1m² to 100m²

ZWAG, superior design, superlative performance and professional support.
0.1m² to 12m²

Steri CANDLE filters, low solid filtration.
0.1m² to 60m²

FUNDA[®] filters are compact, enclosed, self-cleaning, multi-plate filters available with integrated heating and drying for manufacturing, pilot and laboratory applications. With more than 6,000 systems in place worldwide, and hundreds in North America, this technology has an extensive track record of reliable performances across a broad range of applications.

ZWAG[®] is a family of totally enclosed, single-plate Nutsche filters for pressure filtration and vacuum drying. With integral heating and drying, multi-functional ZWAG filters are compact and versatile for manufacturing, pilot and laboratory applications.

Steri **CANDLE** filters are enclosed, candle shaped filter elements arranged vertically inside a pressure vessel. The filter cake is formed on the outside of the candle.



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