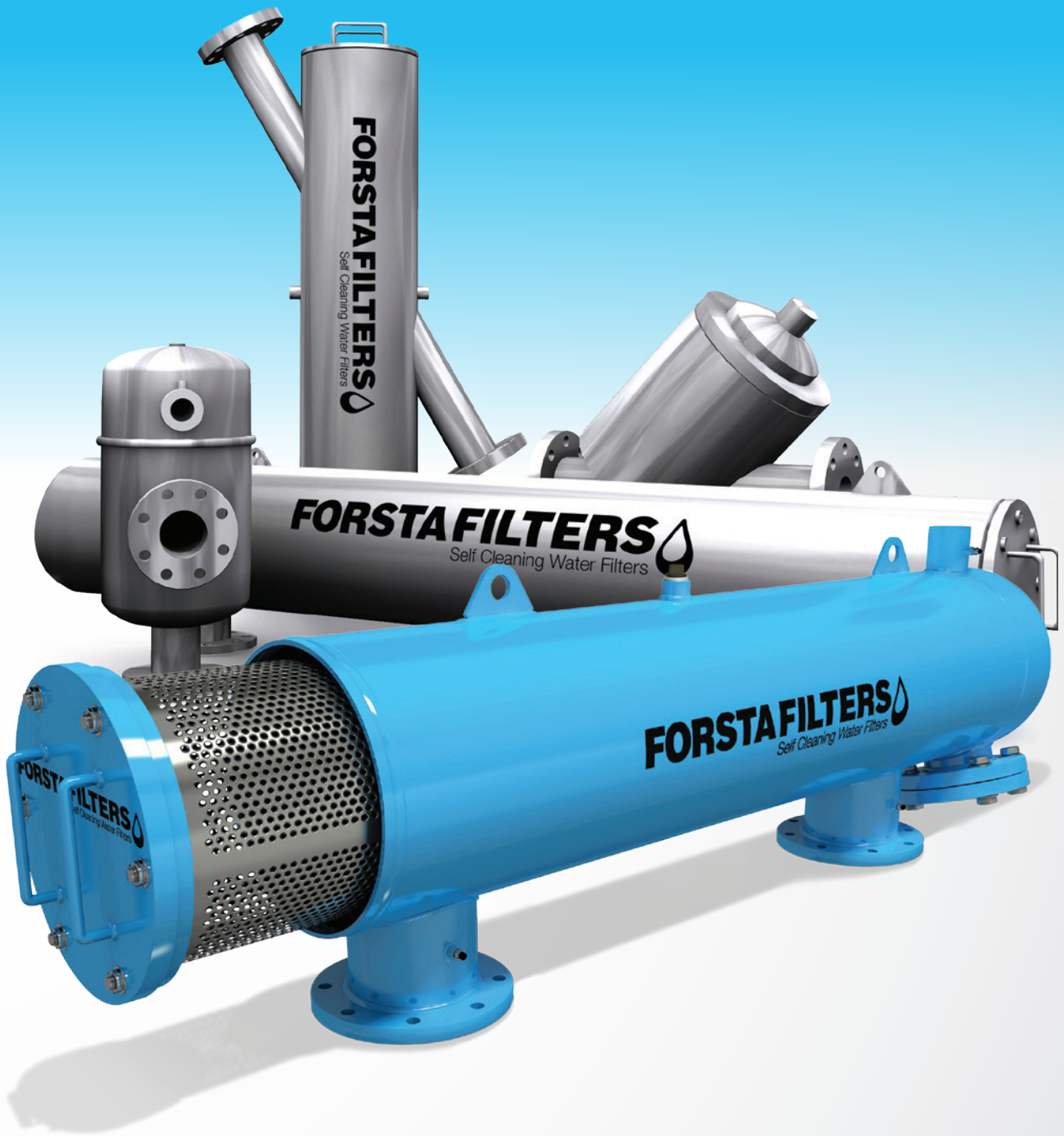

FORSTA FILTERS
Self Cleaning Water Filters

INNOVATIVE DESIGN FOR EFFICIENT AND RELIABLE FILTRATION SYSTEMS.

A California based company, Forsta provides self-cleaning filtration equipment throughout the United States and Internationally.

As a premier manufacturer of self-cleaning water filters, Forsta offers low-maintenance, high-efficiency and dependable equipment to a variety of industries. Forsta's straightforward approach makes suspended particle removal a simple task for a wide range of water sources and applications. A diverse selection of materials, sizes and configurations mark Forsta's line of self-cleaning filters as the most versatile in the market.

Engineers at Forsta work closely with customers to assess project parameters. The Forsta commitment is to determine the most comprehensive, cost-effective, and long-lasting filtration solution for every application.

Forsta prides itself in superior customer service, maintaining prompt and thorough communication that spans from inquiry to installation and throughout operation. Design phases are simplified with the inclusion of comprehensive equipment submittal packages.

Forsta's presence in the filtration market has provided great ease to the experience of engineers and end-users alike.

Forsta invites you to become a part of its fast-growing network of highly satisfied customers.

FORSTAFILTERS
Self Cleaning Water Filters

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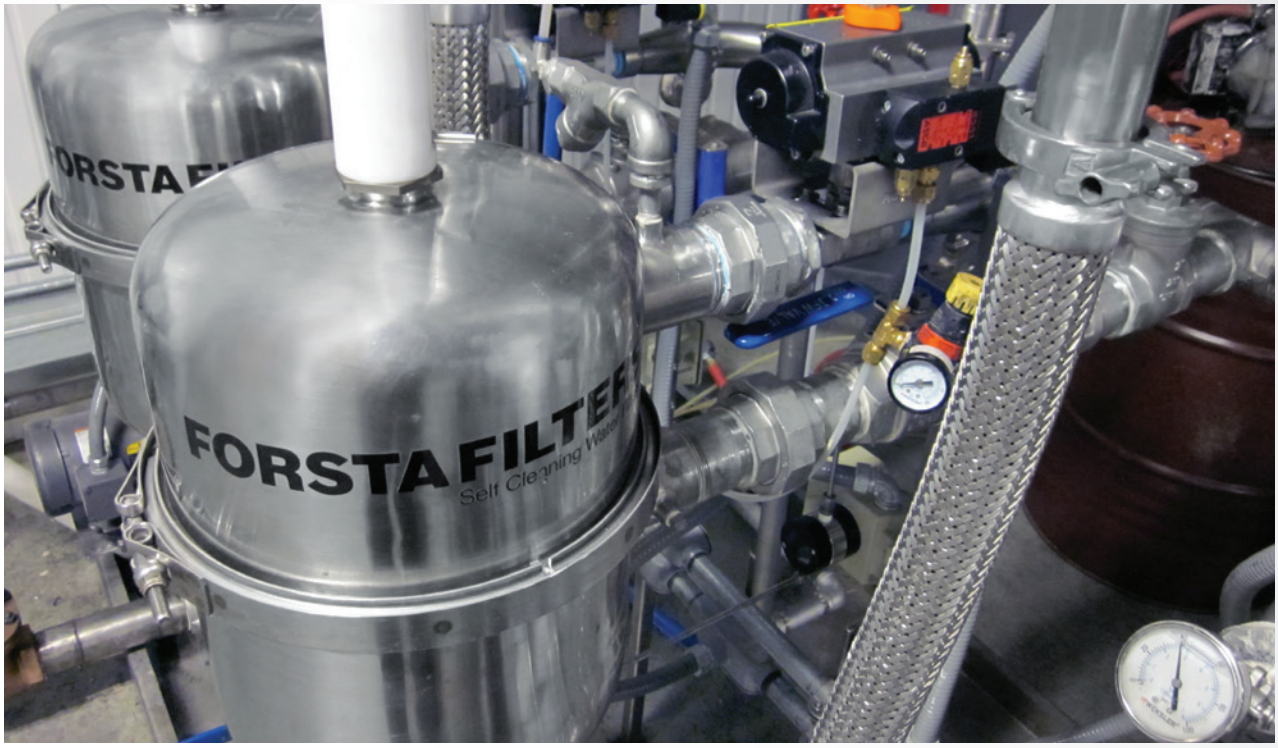


CONTENTS

INDUSTRIAL USES

Major industries utilize Forsta self-cleaning water filters. Three central categories describe all filter applications in the field; Industrial, Municipal and Irrigation.

Within each of these categories are nearly limitless variations of water sources, filtration applications, and end uses of filtered water. Forsta answers the needs of each industry with equipment uniquely suited to new design or to accommodate existing pipelines, operating pressures, flow rates and water qualities.

Within Forsta's Industrial filtration division, equipment has been used to generate improved water for equipment protection/ prefiltration, cooling, rinsing, process and effluent streams in facilities including: cooling towers, petrochemical plants, pulp & paper mills, sugar refineries, metal-works, plastics, and food processing factories, power generation and desalination plants, and more. Forsta offers a unique line of industrial filters made from Fiberglass Reinforced Plastic (FRP), ideal for industrial applications using seawater.

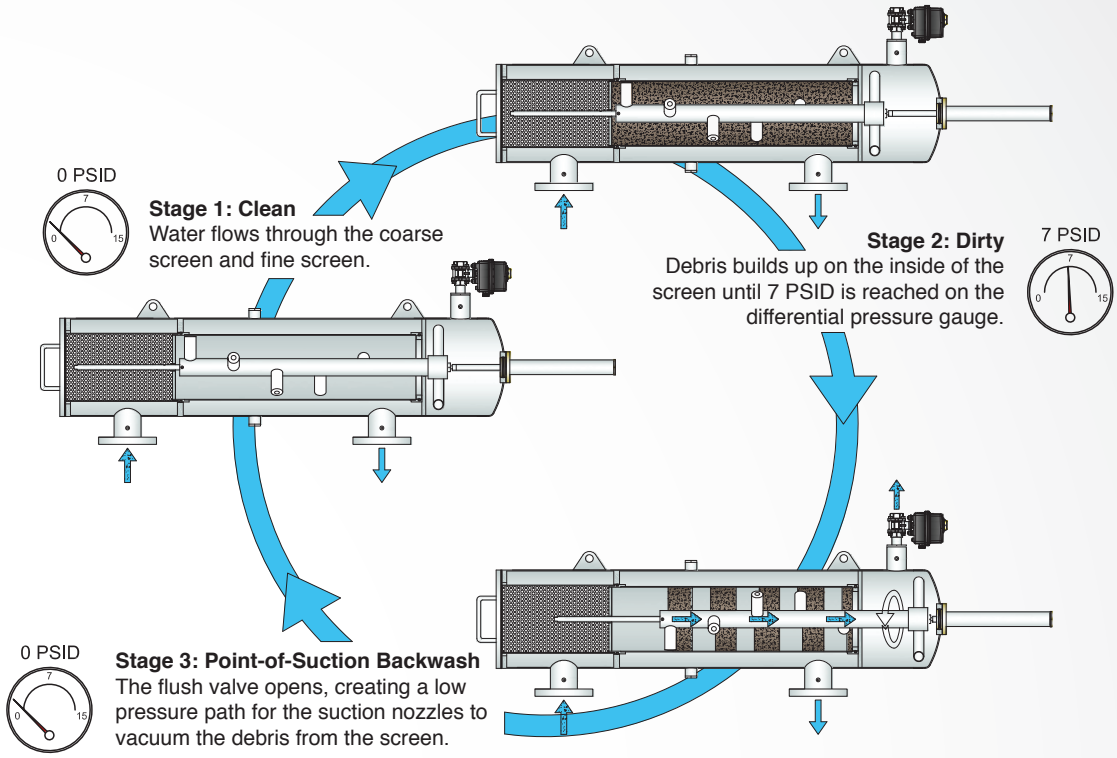
MUNICIPAL USES

In the municipal sector, Forsta self-cleaning equipment is utilized both for drinking and wastewater treatment. For drinking water applications Forsta equipment offers effective prefiltration for finer filter elements such as Reverse Osmosis, Ultrafiltration, Microfiltration etc. Filters used in municipal wastewater facilities are generally specified at the secondary or tertiary stage of treatment.

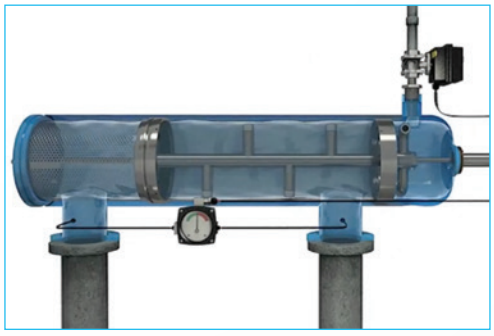
IRRIGATION USES

Forsta's well-established irrigation department provides self-cleaning water filters for turf, landscape, agriculture, greenhouse, golf course and nursery applications.

Forsta self-cleaning water filters are also applicable in emerging green and blue industries like Aquaculture.



Suction nozzles vacuum particles from a dirty screen during the backwash cycle without interrupting the continuous flow of water through the filter.



During normal operation suspended particles are trapped as water passes through the fine screen.

THE SELF-CLEANING CYCLE

A self-cleaning screen filter is a type of water filter which utilizes system pressure to clean itself. A rigid cylinder screen strains particles from a water source, trapping debris on the inside. This layer of buildup causes differential pressure across the inlet and outlet. A controller monitors the filter and opens a flush valve when it senses adequate differential pressure. This creates rapid flow through the internal cleaning apparatus, which vacuums buildup from the screen and expels it.

A unique characteristic of self-cleaning screen filters is that the backwash cycle does not require the entire system flow to stop and reverse, as is the case for many other types of filters. Instead, a point-of-suction backwash reverses flow across the screen only directly in front of suction nozzles. This allows the cleaning mechanism to scan and clean the screen incrementally without disrupting the main flow through the filter.

Self-cleaning screen filters are used in a variety of applications where continuous water flow is crucial, including industrial equipment protection, irrigation nozzle protection, and municipal water treatment.

180 SERIES

FILTER CHARACTERISTICS

***Flow Rate**: 15 – 7,350 gpm*

***Flush Cycle Duration**: 6 – 20 seconds*

***Flush Valve Size**: Single 1" or 2"*

***Screen Opening**: 5µ – 4000µ*

***Temperature**: 210ºF*

***Flush Volume**: 2 – 50 gallons per backwash*

***Working Pressure**: 35 – 150 psi*

***Material**: Stainless Steel or Carbon Steel*

The 180 Series offers a unique configuration of automatic self-cleaning water filters.

180 Series self cleaning water filters have a parallel flange configuration to accommodate simple installation. The 180 Series automatic water filter will integrate with any straight pipeline.

180 Series industrial water filters are distinguished by a two-stage screening process. Each water filtration system contains a coarse screen and a fine screen. The coarse screen is responsible for straining out large debris from a water source. The fine screen purifies water to its designated quality.

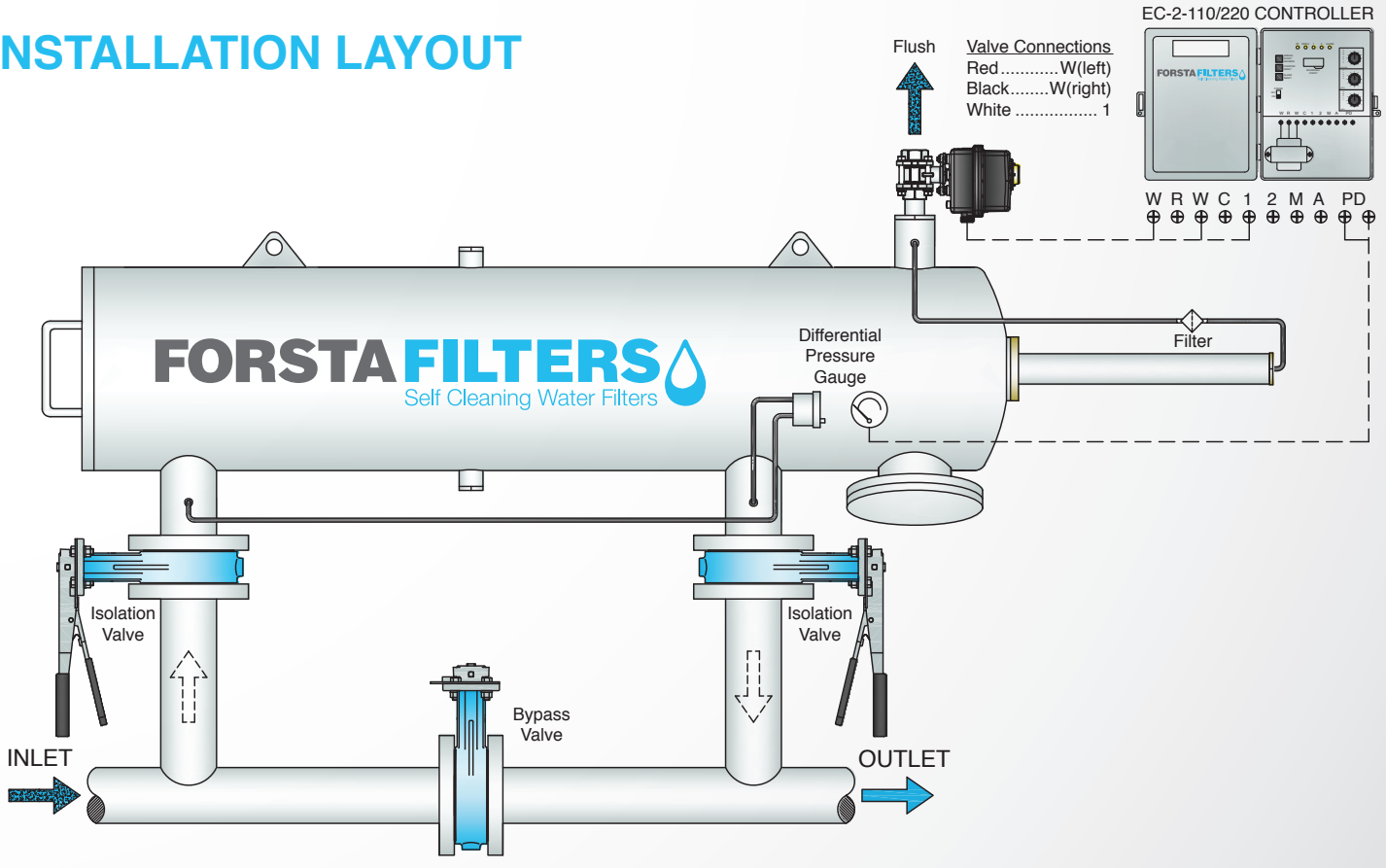
These automatic water filters provide solutions in a wide variety of industrial, irrigation, and municipal applications.

SPECIFICATIONS

Filter Model	Screen Area (sq ft)	Max Flow Rate (gpm)	Connection Size (in)
A2-180	2.65	200	2
A3-180	2.65	300	3
A4-180	2.65	500	4
A6-180	2.65	650	6
B4-180	5.25	500	4
B6-180	5.25	1000	6
B8-180	5.25	1400	8
C4-180	7	500	4
C6-180	7	1000	6
C8-180	7	1700	8
C10-180	7	1900	10
D4-180	9.25	500	4
D6-180	9.25	1000	6
D8-180	9.25	2000	8
D10-180	9.25	2000	10

Filter Model	Screen Area (sq ft)	Max Flow Rate (gpm)	Connection Size (in)
E10-180	12.25	2700	10
E12-180	12.25	3100	12
F12-180	15.25	3800	12
F14-180	15.25	3800	14
F16-180	15.25	3800	16
F18-180	15.25	3800	18
G14-180	18	4500	14
G16-180	18	4500	16
G18-180	18	4500	18
G20-180	18	4500	20
H16-180	24.5	6125	16
H18-180	24.5	6125	18
H20-180	24.5	7350	20
H24-180	24.5	7350	24
H30-180	24.5	7350	30

INSTALLATION LAYOUT



180 FRP

FILTER CHARACTERISTICS

***Flow Rate**: 15 – 4,500 gpm*

***Flush Cycle Duration**: 6 – 20 seconds*

***Flush Valve Size**: Single 1" or 2"*

***Screen Opening**: 5µ – 4000µ*

***Temperature**: 150ºF*

***Flush Volume**: 4 – 50 gallons per backwash*

***Working Pressure**: 35 – 150 psi*

***Material**: Fiberglass Reinforced Plastic*

The 180 Fiberglass Reinforced Plastic (FRP) Series filters offer an ideal solution for corrosion resistance in brackish, brine and seawater filtration applications. All wetted components of the FRP Series self-cleaning filters are constructed from seawater-resistant plastic or other high alloy materials.

Forsta's FRP Series self-cleaning water filters are available with an on-line, or in-line flange configuration to accommodate simple installation, and easily integrate with any pipeline.

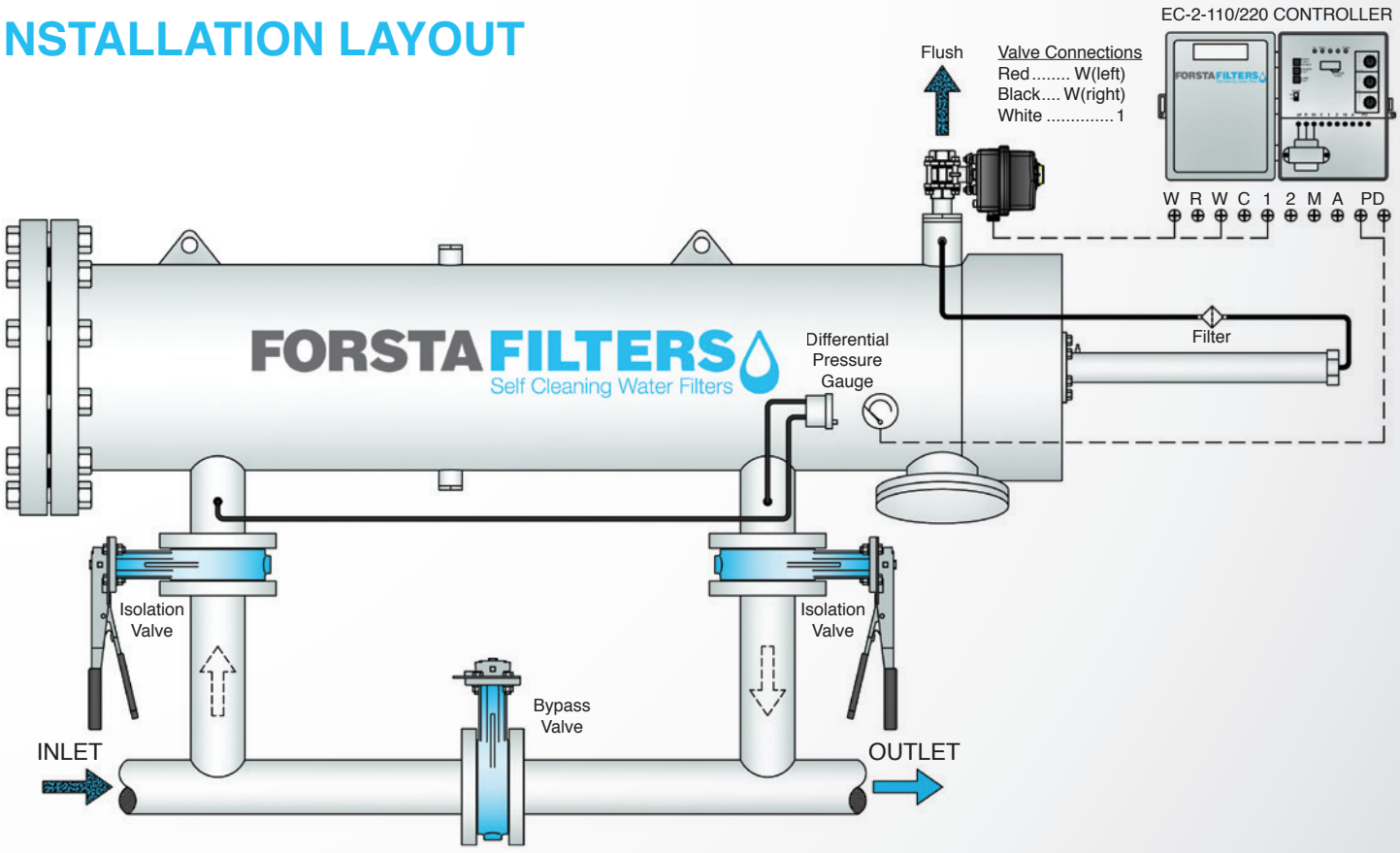
A two-stage screening process distinguishes the FRP Series filters. A coarse screen is responsible for straining out large debris from the water source, and the fine screen purifies water to the designated micron rating.

SPECIFICATIONS

Filter Model	Screen Area (sq ft)	Max Flow Rate (gpm)	Connection Size (in)
A2-180-FRP	3	200	2
A3-180-FRP	3	300	3
A4-180-FRP	3	500	4
A6-180-FRP	3	650	6
B4-180-FRP	5	500	4
B6-180-FRP	5	1000	6
B8-180-FRP	5	1400	8
C4-180-FRP	7	500	4
C6-180-FRP	7	1000	6
C8-180-FRP	7	1700	8
C10-180-FRP	7	1900	10
D4-180-FRP	8.8	500	4

Filter Model	Screen Area (sq ft)	Max Flow Rate (gpm)	Connection Size (in)
D6-180-FRP	8.8	1000	6
D8-180-FRP	8.8	2000	8
D10-180-FRP	8.8	2000	10
E10-180-FRP	12.25	2700	10
E12-180-FRP	12.25	3100	12
F12-180-FRP	15	3600	12
F14-180-FRP	15	3600	14
F16-180-FRP	15	3600	16
G12-180-FRP	18	4000	12
G14-180-FRP	18	4500	14
G16-180-FRP	18	4500	16

INSTALLATION LAYOUT



FILTER CHARACTERISTICS

***Flow Rate**: 15 – 1,000 gpm*

***Flush Cycle Duration**: 4 – 10 seconds*

***Flush Valve Size**: Single 1”*

***Screen Opening**: 5µ – 4000µ*

***Temperature**: 210ºF*

***Flush Volume**: 3 – 7 gallons per backwash*

***Working Pressure**: 35 – 150 psi*

***Material**: Stainless Steel or Duplex Alloys*

The 180C (clamp-style) filter boasts a more compact and lightweight alternative to the standard 180 series. The 180C series offers a first-stage coarse protection screen, and a second-stage fine screen.

The 180C filter line accommodates simple online installation, with the water-saving advantage of using only a single 1” flush valve. Flush volume is as little as 3 – 7 gallons per backwash, depending on the selected model.

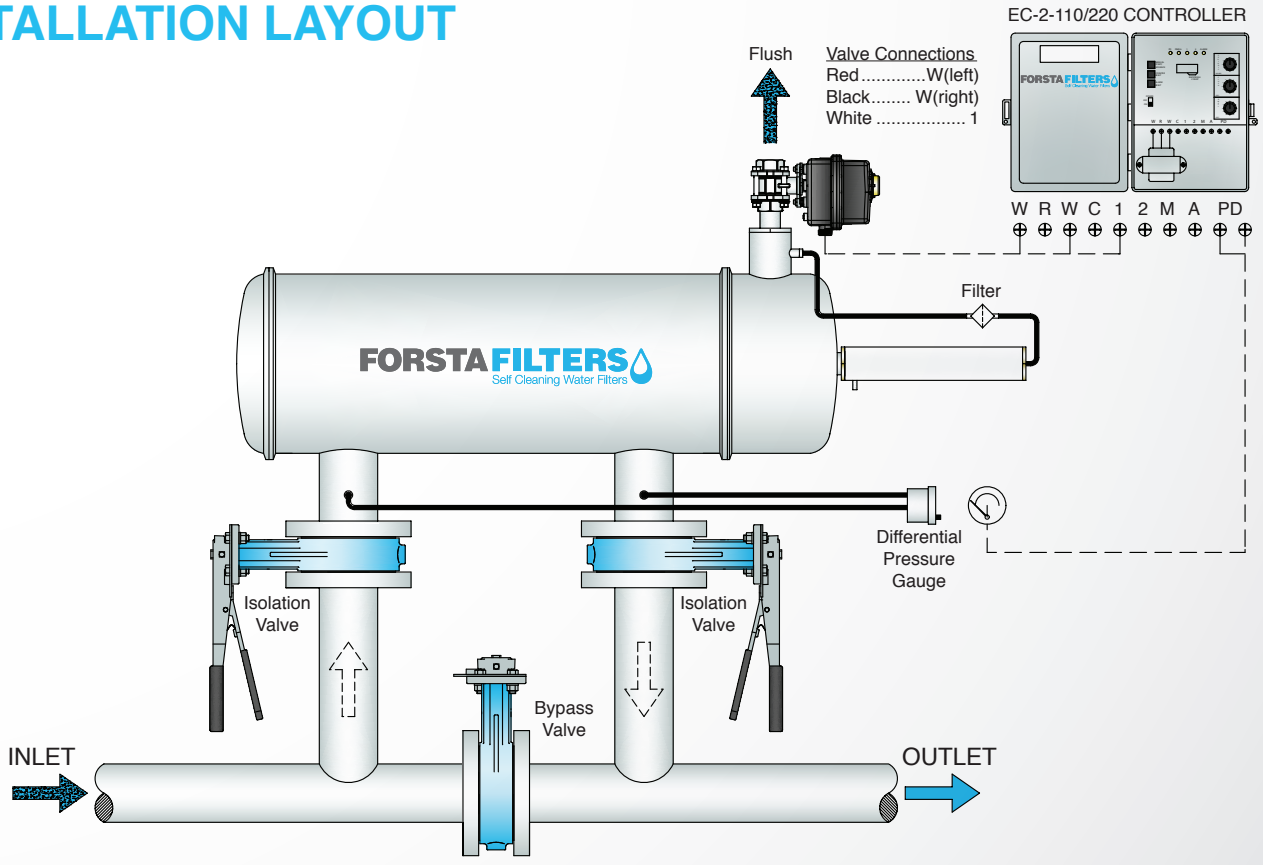
180C filters are ideal for irrigation, municipal, or industrial applications where installation footprint, weight, or flush volume are of concern.

SPECIFICATIONS

Filter Model	Screen Area (sq ft)	Max Flow Rate (gpm)	Connection Size (in)
A2-180C	3	200	2
A3-180C	3	300	3
A4-180C	3	500	4
A6-180C	3	600	6
B2-180C	4	200	2
B3-180C	4	300	3
B4-180C	4	500	4
B6-180C	4	800	6

Filter Model	Screen Area (sq ft)	Max Flow Rate (gpm)	Connection Size (in)
B8-180C	4	800	8
C2-180C	5	200	2
C3-180C	5	300	3
C4-180C	5	500	4
C6-180C	5	1000	5
C8-180C	5	1000	8
C10-180C	5	1000	10

INSTALLATION LAYOUT



90 SERIES

FILTER CHARACTERISTICS

***Flow Rate**: 15 – 1,600 gpm*

***Flush Cycle Duration**: 4 – 10 seconds*

***Flush Valve Size**: Single 1" or 1.5"*

***Screen Opening**: 5µ – 4000µ*

***Temperature**: 210ºF*

***Flush Volume**: 1 – 8 gallons per backwash*

***Working Pressure**: 35 – 150 psi*

***Material**: Stainless Steel, Duplex Alloys or Fiberglass Reinforced Plastic*

The 90 Series offers a unique configuration of self-cleaning irrigation and industrial water filters.

90 Series self cleaning water filters have a right angle flange configuration that provides a compact filter unit. A 90 Series automatic water filter is much smaller than its 180 Series counterpart, and offers a space-saving alternative.

90 Series industrial water filters are ideal where large debris from source water is not a concern. These filtration systems house a single fine screen, and achieve specified water quality in one step.

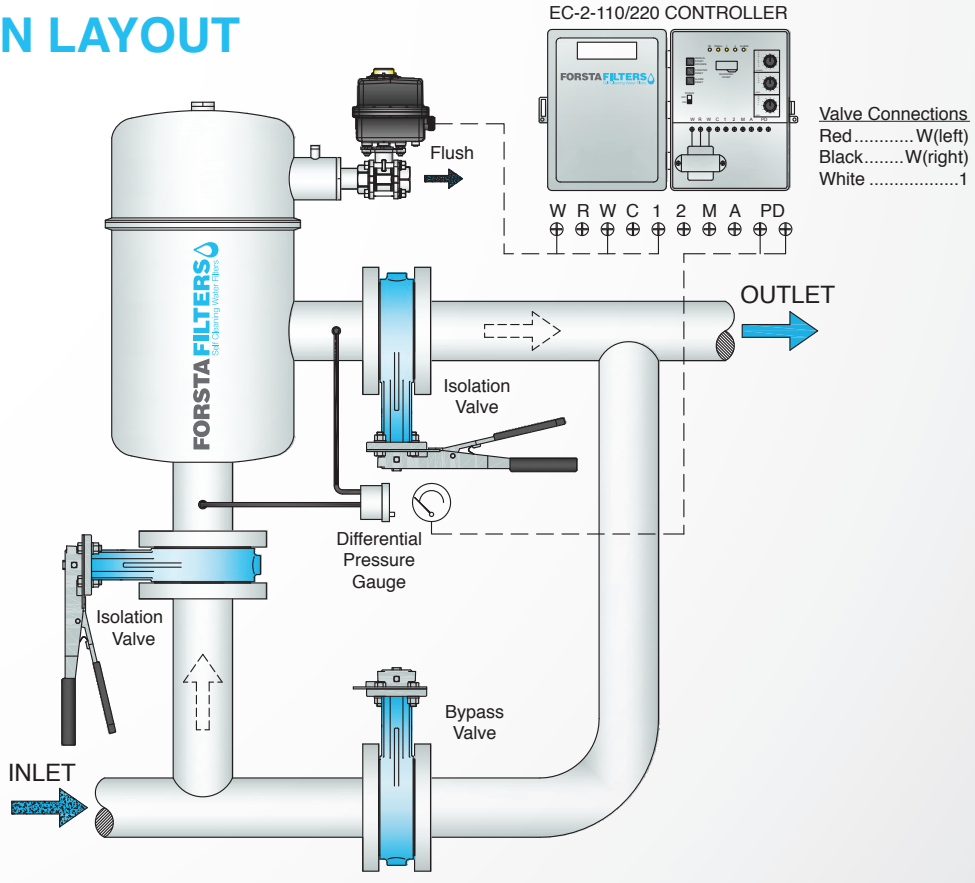
These automatic water filters provide solutions in a wide variety of industrial, irrigation, and municipal applications.

SPECIFICATIONS

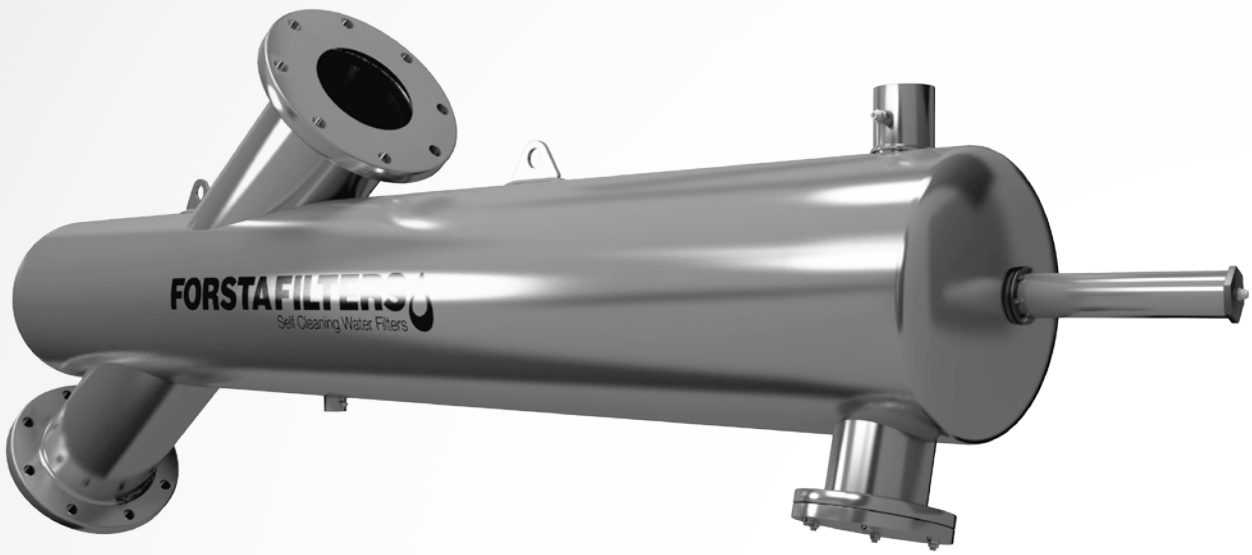
Filter Model	Screen Area (sq ft)	Max Flow Rate (gpm)	Connection Size (in)
M.75-90	0.4	50	0.75
M1-90	0.4	75	1
M1.5-90	0.4	100	1.5
M2-90	0.4	100	2
A1-90	1	75	1
A1.5-90	1	150	1.5
A2-90	1	200	2
A3-90	1	200	3
B2-90	2	200	2
B3-90	2	300	3
B4-90	2	400	4
C2-90	3	200	2
C3-90	3	300	3

Filter Model	Screen Area (sq ft)	Max Flow Rate (gpm)	Connection Size (in)
C4-90	3	500	4
C6-90	3	600	6
C8-90	3	600	8
CL2-90	2	200	4.00
CL3-90	3	300	4.00
CL4-90	4	500	4.00
CL6-90	6	800	4.00
CL8-90	8	800	4.00
CXL3-90	3	300	5.00
CXL4-90	4	500	5.00
CXL6-90	6	1000	5.00
CXL8-90	8	1000	5.00
CXL10-90	10	1000	5.00

INSTALLATION LAYOUT



ZERO SERIES



FILTER CHARACTERISTICS

***Flow Rate**: 15 – 7,350 gpm*

***Flush Cycle Duration**: 6 – 20 seconds*

***Flush Valve Size**: Single 1" or 2"*

***Screen Opening**: 5µ – 4000µ*

***Temperature**: 210ºF*

***Flush Volume**: 4 – 50 gallons per backwash*

***Working Pressure**: 35 – 150 psi*

***Material**: Stainless Steel, Carbon Steel, or Duplex Stainless*

The Zero Series offers a unique configuration of automatic self-cleaning water filters.

Zero Series automatic water filters have a straight flange configuration to accommodate simple installation. The Zero Series filter will integrate with any straight pipeline.

Zero Series irrigation and industrial water filters are distinguished by a two-stage screening process. Each water filtration contains a coarse screen and a fine screen. The coarse screen is responsible for straining out large debris from a water source. The fine screen purifies water to its designated quality.

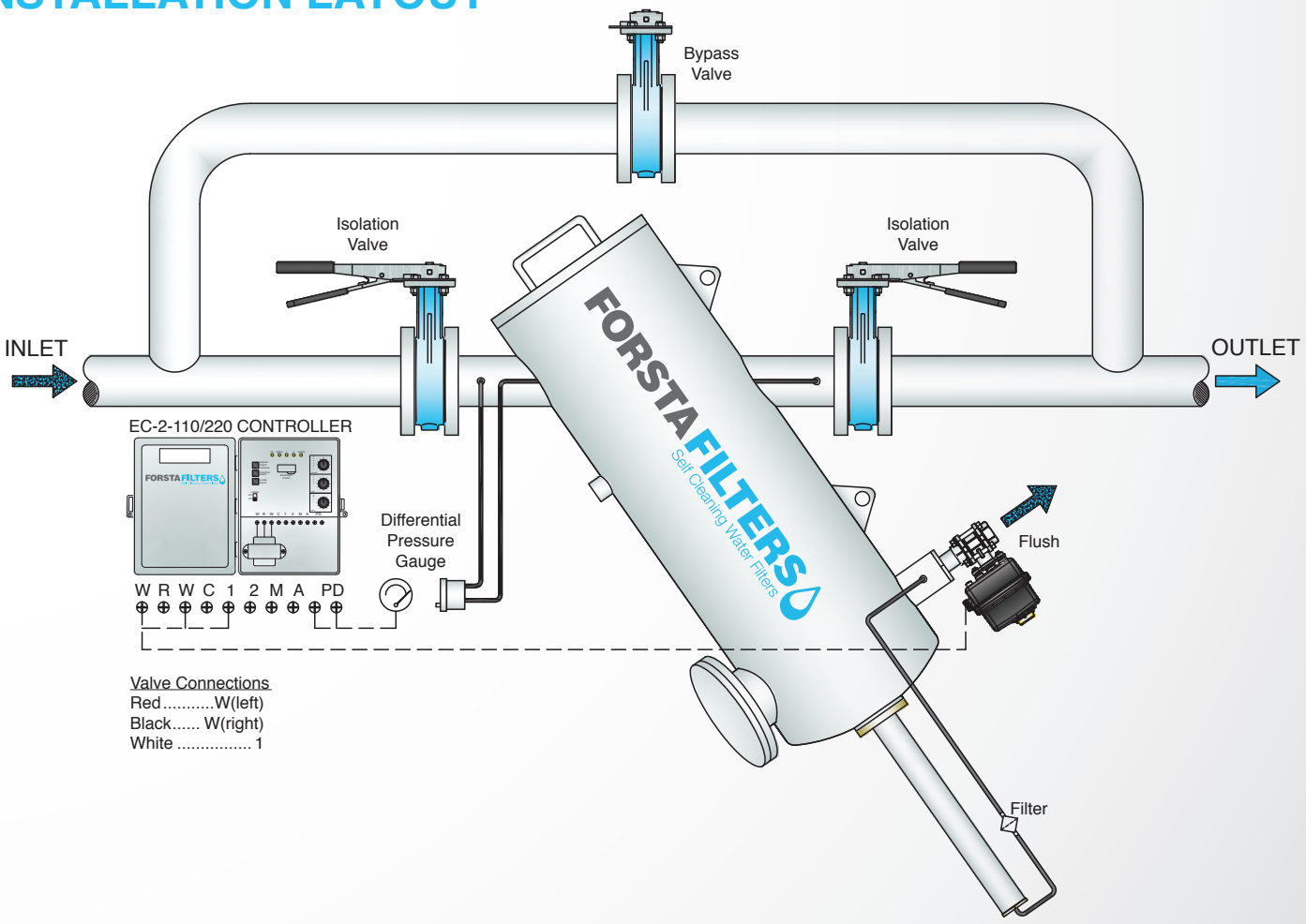
These automatic water filters provide solutions in a wide variety of applications.

SPECIFICATIONS

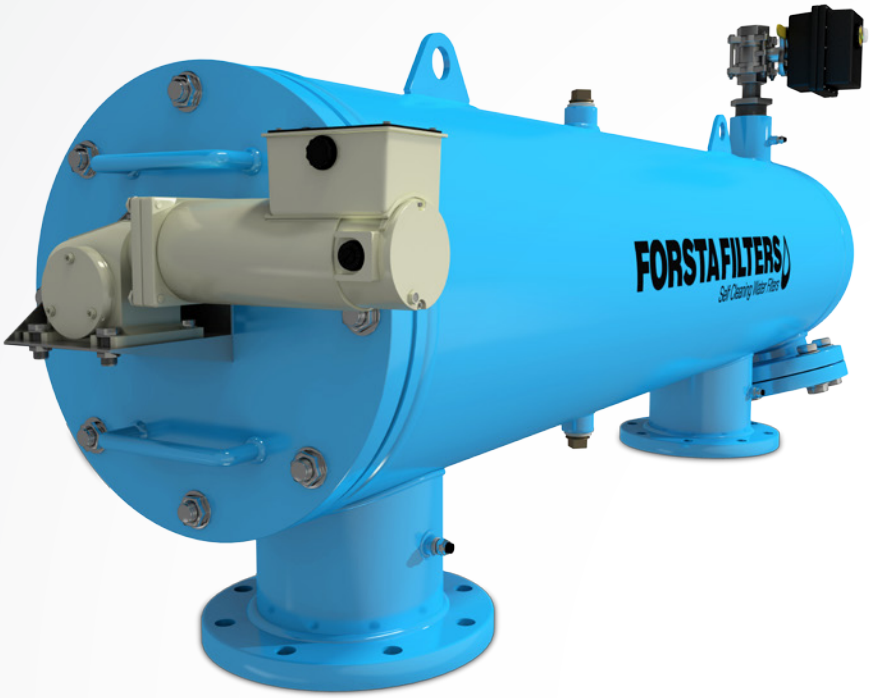
Filter Model	Screen Area (sq ft)	Max Flow Rate (gpm)	Connection Size (in)
A2-0	2.65	200	2
A3-0	2.65	300	3
A4-0	2.65	500	4
B4-0	5.25	500	4
B6-0	5.25	1000	6
B8-0	5.25	1400	8
C4-0	7	500	4
C6-0	7	1000	6
C8-0	7	1700	8
D4-0	9.25	500	4

Filter Model	Screen Area (sq ft)	Max Flow Rate (gpm)	Connection Size (in)
D6-0	9.25	1000	6
D8-0	9.25	2000	8
E10-0	12.25	2700	10
F12-0	15.25	3800	12
F14-0	15.25	3800	14
G14-0	18	4500	14
G16-0	18	4500	16
H16-0	24.5	6125	16
H18-0	24.5	6125	18
H20-0	24.5	7350	20

INSTALLATION LAYOUT



LOW PRESSURE SERIES



FILTER CHARACTERISTICS

***Flow Rate**: 15 – 7,350 gpm*

***Flush Cycle Duration**: 6 – 20 seconds*

***Flush Valve Size**: Single 1" or 2"*

***Screen Opening**: 20µ – 4000µ*

***Temperature**: 210ºF*

***Flush Volume**: 4 – 50 gallons per backwash*

***Working Pressure**: 15 – 150 psi*

***Material**: Stainless Steel, Carbon Steel, or Duplex Stainless*

The Low Pressure Series automatic water filters utilize an electric motor to assist cleaning during the backwash cycle.

Low Pressure models make self-cleaning filtration possible at lower pressures. They are necessary where the minimum 35 psi system pressure is not available. Motor Run filters operate at system pressures as low as 15 psi.

All 180 Series and Zero Series filter models can be upgraded to allow Low Pressure irrigation and industrial water filtration.

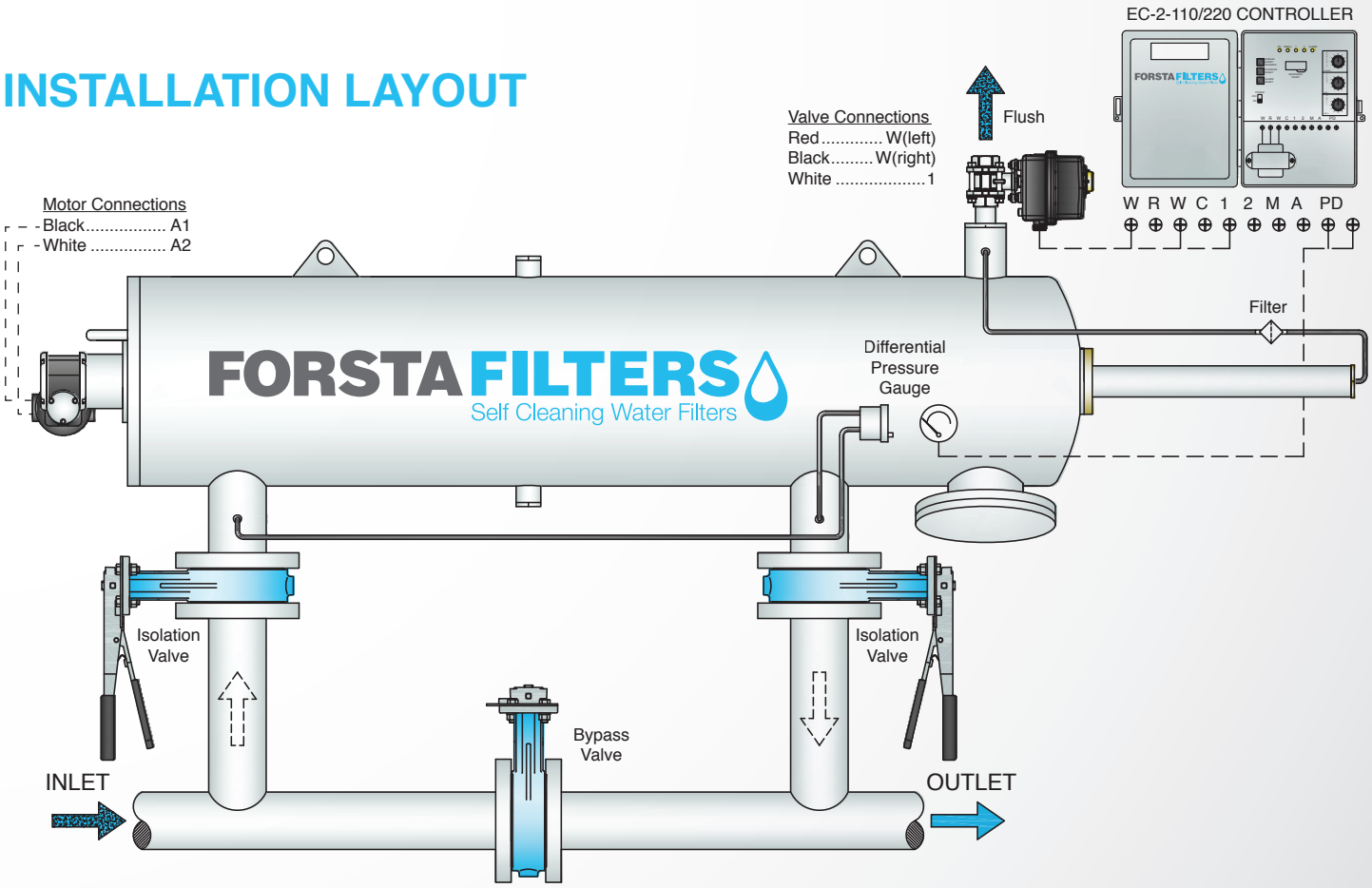
LP SERIES APPLICATIONS

Low Pressure Series filters are ideal for industrial closed loop and side-stream applications. Low pressure units increase the range of applications where self-cleaning screen filters may be used, including cooling towers, heat exchangers, and many other equipment protection applications where system pressure is relatively low.

Low Pressure Series filters also provide an excellent solution for irrigation applications including golf, turf, landscape, agriculture, greenhouse, and nursery. Lower pressure requirements allow for seamless integration, avoiding potential system pump redesign.

Typical material of construction for the filter bodies is stainless steel. Forsta also offers a variety of alternative materials for more corrosive environments. Alternative materials include titanium, carbon steel with epoxy coating, and sea water alloys including duplex 2101, 2205, and super duplex 2507.

INSTALLATION LAYOUT



COARSE STRAINER

FILTER CHARACTERISTICS

***Flow Rate**: 15 – 3,580 gpm*

***Flush cycle duration**: 6 – 10 seconds*

***Flush valve size**: Single 2", 3", or 4"*

***Screen opening**: 500µ – 4000µ*

***Temperature**: 210ºF*

***Flush Volume**: 4 – 50 gallons per backwash*

***Working pressure**: 35 – 150 psi*

***Material**: Stainless Steel, Carbon Steel, Duplex Stainless, or Fiberglass Reinforced Plastic*

A Coarse Strainer industrial water filter is an in-line configuration of an automatic self-cleaning water filter.

Coarse Strainer automatic filters have an inline flange design which allows for direct installation into an existing pipeline.

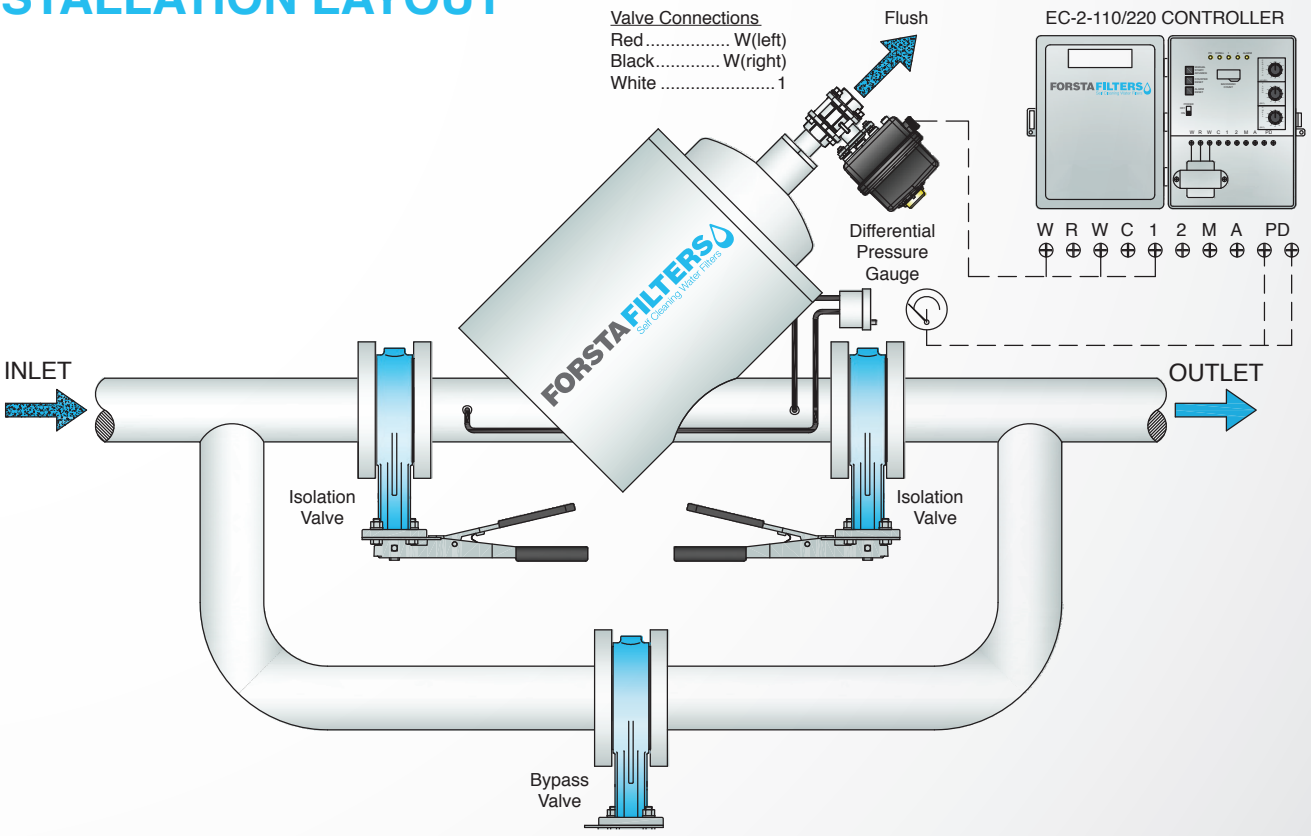
This first-stage automatic water filter is designed to eliminate large debris from source water. A Coarse Strainer industrial water filter is often used in combination with other Forsta filter models to provide complete equipment protection.

SPECIFICATIONS

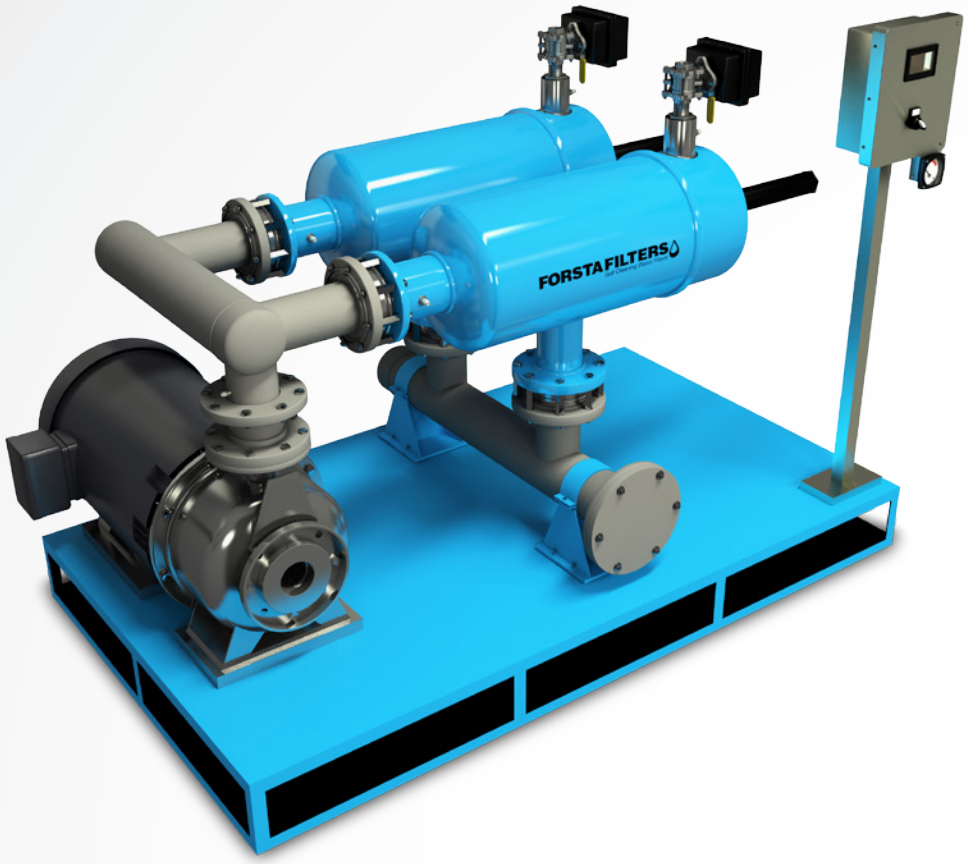
Filter Model	Screen Area (sq ft)	Max Flow Rate (gpm)	Connection Size (in)
A2-CS	1.64	200	2
B3-CS	2.8	300	3
D4-CS	3.2	500	4
D6-CS	3.2	1000	6
C8-CS	4.2	1470	8

Filter Model	Screen Area (sq ft)	Max Flow Rate (gpm)	Connection Size (in)
E10-CS	6.1	2135	10
E12-CS	6.1	2135	12
F14-CS	9.4	3300	14
G16-CS	11	3580	16

INSTALLATION LAYOUT



SKID MOUNTED



FILTER CHARACTERISTICS

***Flow Rate**: 15 – 7,350 gpm*

***Flush Cycle Duration**: 6 – 20 seconds*

***Flush Valve Size**: Single 1" or 2"*

***Screen Opening**: 5µ – 4000µ*

***Temperature**: 210ºF*

***Flush Volume**: 4 – 50 gallons per backwash*

***Working Pressure**: 15 – 150 psi*

***Material**: Stainless Steel, Carbon Steel, Duplex Stainless, or Fiberglass Reinforced Plastic*

Skid Mounted units are ready-to-go custom industrial water filters mounted on a single platform.

Skid Mounted filtration systems combine any self cleaning filter model with required pumps, manifolds, and controllers. With mounted components Skids offer a mobile and easy to install industrial water filter station. Skid Mounted units provide a comprehensive solution to virtually any industrial, irrigation or municipal application.

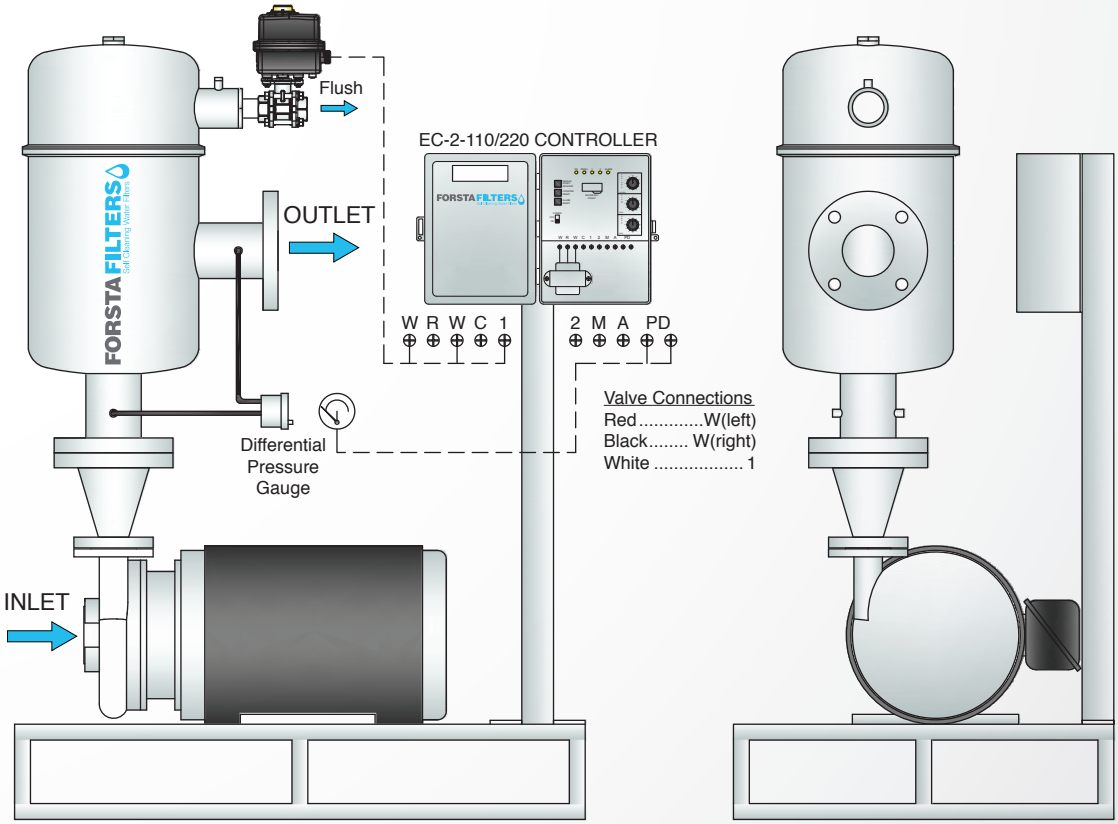
SKID MOUNTED APPLICATIONS

With the ability to incorporate any filter model and any number of filter units, Skid Mounted options are virtually endless. Each unit is customized to user specifications to provide ready-to-install solutions.

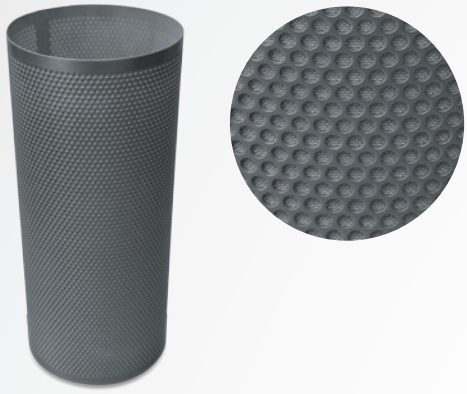
Standard equipment includes the self cleaning water filter, controller, flush valve, pump, bracing, manifold, isolation valves, gaskets, and platform. Factory assembled, Skid Mounted units provide a comprehensive solution requiring minimal installation time.

Skid Mounted filtration units are offered in a variety of materials including stainless steel, carbon steel with protective coating, and duplex stainless steel for seawater applications.

INSTALLATION LAYOUT



SCREEN OPTIONS

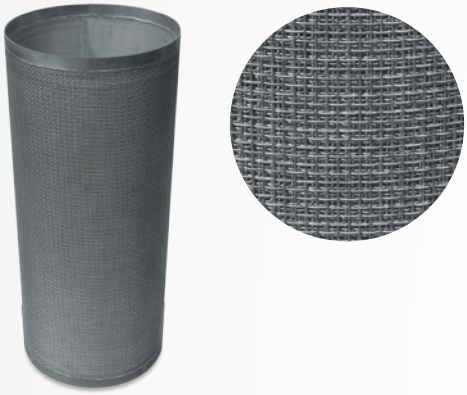


SINTERED MESH ON PERFORATED PLATE

Stainless Steel Grades 304L, 316L

High Flow Wire Mesh

Reinforced Perforated Plate



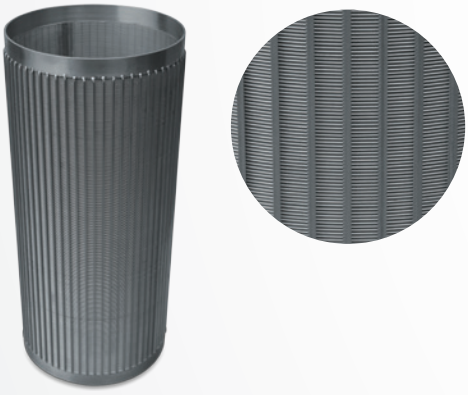
MULTI-LAYERED DIFFUSION BONDED WIRE MESH

Stainless Steel Grades 304L, 316L

Alloy 20, Inconel, Monel

Outstanding Effective Screen Area

High Flow Design



WEDGE WIRE SLOTTED SCREEN

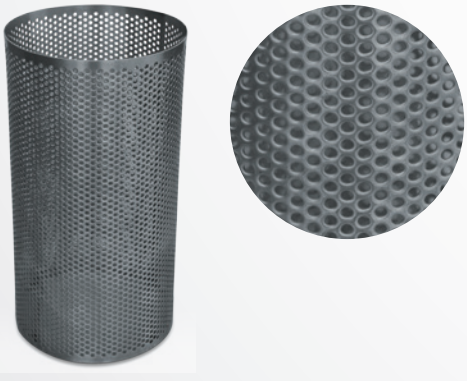
Stainless Steel Grades 304L, 316L

Duplex and Super Duplex Stainless

Alloy 20, Inconel, Monel

Ideal for Applications with Fibers

Extremely Robust Design



PERFORATED PLATE

Stainless Steel Grades 304L, 316L

Monel

Ideal for Coarse Filtration

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