



**Sure Flow
Equipment Inc.**

FRP STRAINERS (FIBERGLASS REINFORCED PLASTIC)

www.sureflowequipment.com

2012



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Service Applications



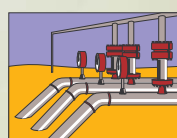
Pulp and Paper



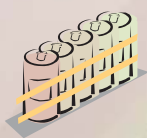
Mining Operations



Cement Manufacturing



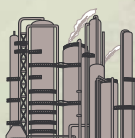
Petrochemical



Food Processing Facilities



Steel Mills



Chemical Plants

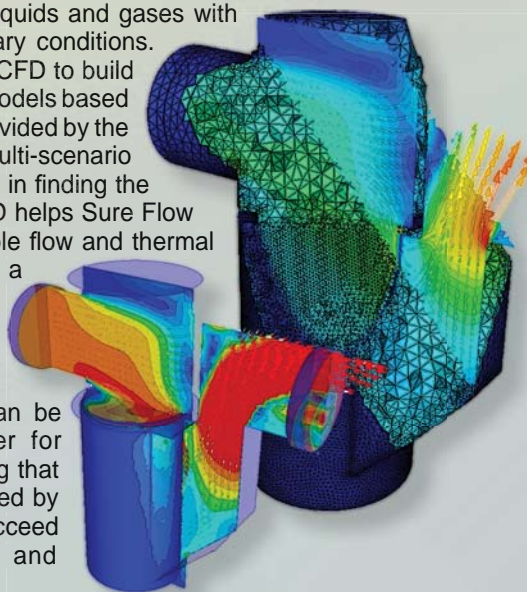


Sewage Treatment Industry

Computational Fluid Dynamics (CFD)

Computational Fluid Dynamics (CFD) is a sophisticated use of numerical methods and algorithms to solve and analyze problems that involve fluid flows. Computers are used to perform the millions of calculations required to simulate the interaction of liquids and gases with surfaces defined by boundary conditions.

Sure Flow Equipment uses CFD to build and test strainer assembly models based on the service conditions provided by the end user. This allows for multi-scenario design studies that can help in finding the optimal product design. CFD helps Sure Flow Equipment test the applicable flow and thermal simulations when designing a custom engineered strainer. Sure Flow Equipment can build a virtual prototype of a strainer in order to generate a drawing that can be submitted to the end user for review. CFD aids in assuring that all custom products fabricated by Sure Flow Equipment will succeed in performing as desired and surpassing expectations.



Commitment to Quality

Sure Flow Equipment Inc. features complete custom engineered design and fabrication expertise within a quality focused state-of-the-art manufacturing facility. Commitment to quality, customer satisfaction and continual improvement is integral to our manufacturing processes and ensures custom engineered strainers meet your design specifications and stringent quality requirements. We've made it easy for you to place your order with confidence.

Sure Flow Equipment Inc. provides industry with Custom Engineered Fabricated Strainers to many design codes. Custom products are designed and manufactured to ASME SECTION VIII, DIV 1, Current Edition. ASME "U" Code Stamp and ASME "UM" Code Stamp are available on certain products as specified in this brochure.

The Sure Flow Equipment Inc. list of Certifications includes:

ISO 9001:2008 Certificate of Registration

ASME "U" Code Stamp Certificate of Authorization and
ASME "UM" Code Stamp Certificate of Authorization
(ASME Boiler and Pressure Vessel Code; ASME Section VIII, Div 1, Current Edition);

National Board Certified and authorized to apply the "NB" Mark for pressure vessels and/or pressure retaining items manufactured in accordance with ASME "U" Code Stamp and ASME "UM" Code Stamp;

TSSA (Technical Standards & Safety Authority) Certificate of Authorization for the manufacture of pressure vessels in accordance with ASME Boilers and Pressure Vessel Code, Section VIII, Division 1 and CSA Standard B51, Boiler, Pressure Vessel and Pressure Piping Code.

TSSA (Technical Standards & Safety Authority) Certificate of Authorization for the repair and alteration of boilers, pressure vessels, piping, and Category A, B, E & H fittings in accordance with CSA Standard B51, Boiler, Pressure Vessel and Pressure Piping Code.

CE Mark is available

C-TPAT Certified (Customs-Trade Partnership Against Terrorism)

Recognized by PIP (Partners In Protection) for our C-TPAT status

Member of FCI (Fluid Controls Institute) and Vice Chairman of Pipeline Strainer Section



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COMPANY ADDRESS AND CONTACT INFORMATION

Head Office and
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Management Personnel

President/CEO
Plant Manager
Quality Manager
VP of Sales and Marketing
Engineering and Design Manager
Controller/CFO

John L. Wordsworth
Joe Lawrence
John Skalko
John Zuber
Justin LeBlanc
George H. King

Quality Control and Certifications

ISO 9001:2008 Certificate of Registration

ASME “U” Code Stamp Certificate of Authorization for the manufacture of pressure vessels.

ASME “UM” Code Stamp Certificate of Authorization for the manufacture of miniature pressure vessels.

TSSA (Technical Standards & Safety Authority) Certificate of Authorization for the manufacture, repair and alteration of pressure vessels.

National Board Certified and authorized to apply the **“NB” Mark** for pressure vessels and/or pressure retaining items

CE Mark is Available.

All audits take place at regular quarterly and annual intervals to meet or exceed requirements. Our Quality Control Manual has been approved by ASME (American Society of Mechanical Engineers) as well as the TSSA (Technical Standards & Safety Authority).

All certificates are available for viewing on our website under ‘Certifications’. Please visit us at www.sureflowequipment.com or contact us for a personal copy.



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FRP STRAINERS - SERIES AND MATERIALS

FRP : Fiberglass Reinforced Plastic

P-Series FRP Strainer

P-Series Strainers are made from a highly corrosion resistant pipe system with reinforced chemical resistant barrier.

Strainers are fabricated with premium resins-Derakane 411 or Hetron 922.

P-Series Strainers are recommended for use in a wide range of moderate to aggressive corrosion environments.

H-Series FRP Strainer

H-Series Strainers have enhanced corrosion resistance for high temp. environments up to 200 deg. F. It has improved resistance to strong acids, solvents, and oxidizing agents.

Strainers are fabricated with premium resins- Derakane 470 or Hetron 970.

H-Series Strainers are recommended for hot concentrated HCl and has been used extensively in mineral process industry applications.

A-Series FRP Strainer

A-Series Strainers have enhanced resistance to erosive slurries and is the standard material used in Flue Gas Desulphurization (FGD) projects worldwide for over 35 years.

The material of construction of these strainers out-perform Standard FRP, Rubber Lined Carbon Steel, and Alloy piping in fine particle slurries including limestone, gypsum, & lime). Strainers are fabricated with premium resins-Derakane 411 or 470, Hetron 922 or 970. Strainers shall have a nominal 110 mil abrasion/corrosion barrier comprised glass in a specially formulated abrasion resistant resin matrix.



Material Features

- Integral corrosion resistant liner
- Bisphenol A vinyl ester resin throughout corrosion liner and structure
- 50 to 150 psi rating
- Joining with Tapered Adhesive, Butt & Wrap, or O-Ring joints
- U.V. protected
- Optional fire retardant resins
- Temperature limitation of 180 deg. F (82 deg. C)

Material Features

- Custom designed corrosion barriers
- Elevated temperature performance
- Enhanced solvent resistance
- Bisphenol A vinyl ester or epoxy Novolac vinyl ester resin
- 50 to 150 psi rating
- Joining with Tapered Adhesive or Butt & Wrap joints
- U.V. protected
- Optional fire retardant resins
- Temperature limitation of 220 deg. F (104 deg. C)

Material Features

- Integral abrasion resistant liner
- Resistant to chlorides and fluorides
- 50 to 150 psi rating
- Joining with Tapered Adhesive and Butt & Wrap joints
- U.V. protected
- Optional fire retardant resins
- Temperature limitation of 180 deg. F (82 deg. C)



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FRP BASKET STRAINERS

FRP (Fiberglass Reinforced Plastic) Basket Strainers

All Strainers are manufactured from premium resins and feature 5 part construction:

- **Two Chemical Barriers:**
Nominal thickness 10 mils of Nexus veil, 90% resin to 10% reinforcement. (Layers 1 & 4)
- **Anti-wicking barrier:** 100 mil of chopped strand glass, 75% resin to 25% reinforcement. (Layer 2)
- **Structural Layer:** Filament wound continuous roving, wind angle 55 deg: 30% resin to 70% reinforcement. (Layer 3)
- **Exterior Protection:** Polyester resin gel coating: 10 mil thickness. (Layer 5)



This construction offers the finest in chemical and impact resistance. Various resins and matrices are used to achieve different strainer criteria. Please see comparison of P, H and A-Series FRP Strainers for details.

Standard baskets are manufactured of heavy gauge PVDF with 1/4" or 1/8" perforations. Stainless, titanium, monel or hastalloy baskets are also available. Mesh liners are available of PP, PVDF, ETFE, Polyester as well as metallic screens.



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FRP STRAINERS - P-SERIES

Specification for Fiberglass Reinforced Plastic P-Series Strainers

1.) SCOPE

THIS SPECIFICATION COVERS REQUIREMENTS FOR FRP STRAINERS. Y TYPE, BASKET TYPE AND DUPLEX TYPES ARE INTENDED FOR USE IN CHEMICAL PIPING SYSTEMS WHERE MAXIMUM RESISTANCE TO CORROSION, PRESSURE AND TEMPERATURE IS REQUIRED.

2.) STRAINER DESIGN

- 2.1 Strainer shall be flanged basket (or Y) type.
- 2.2 Body configuration shall be 1. in-line, 2. offset, 3. angled offset, 4. boot. (select one)
- 2.3 Basket shall be PVDF, Perforations 1/8" on 3/16" centers (or as required)
- 2.4 Minimum area ratio of pipe to basket shall be 10 to 1.
- 2.5 All strainers shall be furnished with minimum 1/2" flanged drain.
- 2.6 Cover shall be FRP with optional 1/2" vent tap.
- 2.7 Flanges shall be contact molded.
- 2.8 Strainer shall be rated for 150 psi at 180 deg. F
- 2.8 Strainer design shall conform to ASME code for non-metallic pressure vessels.
- 2.8 Vendor shall supply min 5 years service history of applications in similar service.

3.) CONSTRUCTION

- 3.1 Strainer body shall be of filament wound construction, for sizes 12" and lower. Larger sizes may be hand lay up construction in accordance with PS-15-669.
- 3.2 Resin shall be Vinyl Ester. Derakane 411 or Hetron 922, or equal.
- 3.3 Body shall contain a chemical barrier, 10 mils nexus, 90 % resin, 10% reinforcement
- 3.4 Anti-wicking barrier, 100 mils chopped strand glass, 70% resin to 30% glass shall be provided.
- 3.5 Structural layer shall be filament wound continuous roving, 30% resin to 70% glass.
- 3.4 Exterior protection is unsaturated polyester resin based high quality gel coat- 10 mils min.

4.) STANDARDS

- 4.1 All products shall conform to or exceed the specifications as set forth in the following standards.

RTP-1/Sec X

ASTM B31.3/Sec 15

BS1 BS 6464

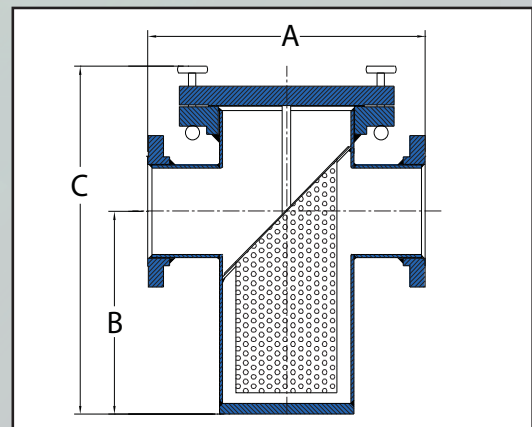
GSB 41-GP-22

Notes:

- Larger sizes available

Manufacturer reserves the right to modify dimensions, materials, or design. Consult factory for certification.

FRP Strainer Dimensions (Inch) For Inline Configuration			
Strainer Size	A	B	C
2"	11"	10 1/2"	18 1/2"
3"	11"	10 1/2"	18 1/2"
4"	13 3/4"	11 5/8"	21 1/4"
6"	18"	16"	26 1/2"
8"	20"	21 1/2"	34 1/2"
10"	22"	23"	37 1/2"
12"	27 1/2"	31 5/8"	46 3/4"
14"	35"	32 1/2"	49"



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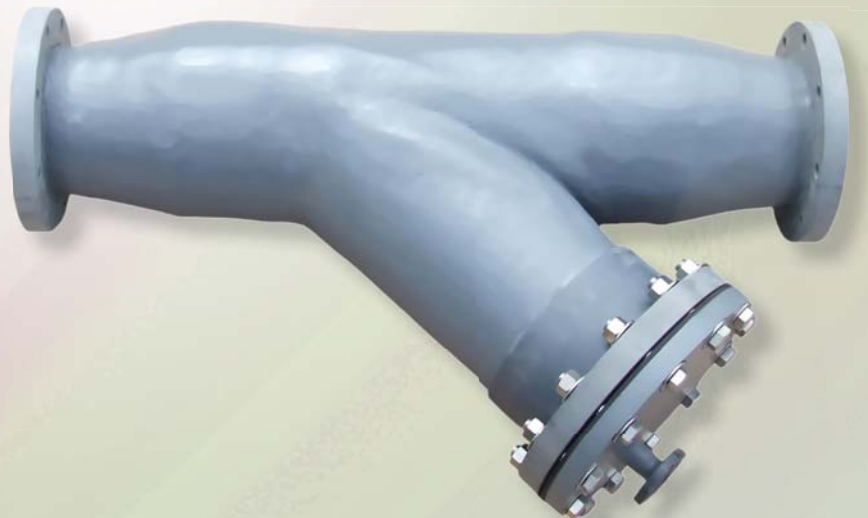


FRP Y STRAINERS

FRP (Fiberglass Reinforced Plastic) Y Strainers

Sure Flow FRP Y type strainers are available in sizes 2 " and up. The design of the FRP Y Strainer allows for in-line piping in either a vertical or a horizontal orientation. All Y strainers feature a cleanout valve. This eliminates the need for removing the screen when performing routine cleaning.

Sure Flow manufactures FRP Y Strainers to standards that exceed industry standards. These strainers are made for critical applications where high flow rates and high loading potential exists, while low pressure drops are desired.



The lamination construction of FRP Strainers combines the chemical resistance of the particular liner material (thermoplastic) and the structural strength of fiberglass. Sure Flow Y Strainers are also offered in all-FRP construction. Resins can be used for high temperature and abrasive applications

- EPDM lid gasket is standard, but Viton and Teflon are also options.
- Flanged lid with stainless bolts, nuts and washers are standard. T-Handle Design for easy lid removal is an option.
- Screens are 1/4" perforated- made from same material as the strainer (FRP Ys have PVDF Screens). Other perms/materials are available.
- Pipe connections are Flanges. Threaded, socket, groove latch and couplings are also available.
- Flanged or threaded blowdown ports are provided.
- Custom dimensions and designs are readily available.

Pressure Drop

As with all Sure Flow strainers, the FRP Y Strainer is engineered to offer the lowest practical pressure drop. Pressure drop through the strainers is determined by several factors. These are line size, flow rate, specific gravity, viscosity and percent of open area of the screen. To minimize the pressure drop, the screen open area is at least 4 times the cross sectional area of the inlet pipe. (Through clean screens only).

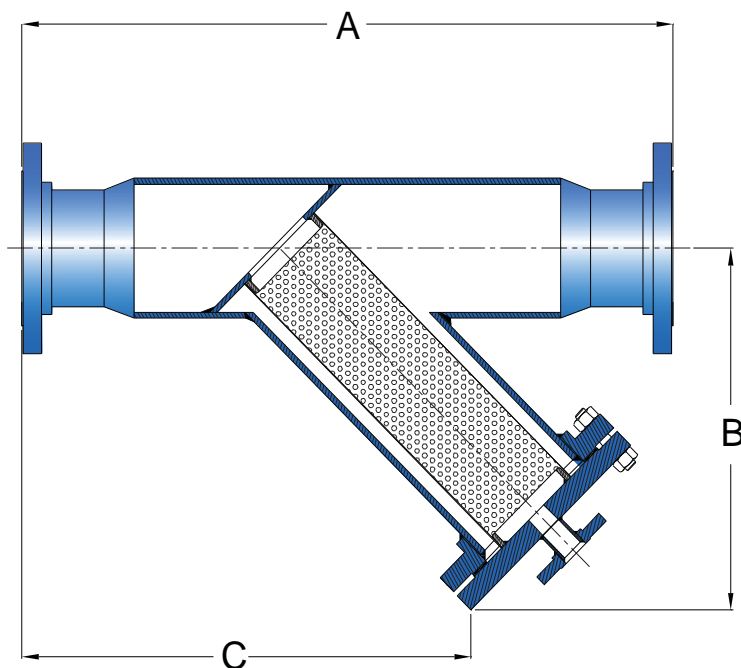


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FRP Y STRAINERS - DIMENSIONS & PERFORMANCE



Notes:

- Larger sizes available

Manufacturer reserves the right to modify dimensions, materials, or design. Consult factory for certification.

FRP Strainer Dimensions (Inch) For Inline Configuration				Performance Criteria		
Flange Size	A	B	C	Basket Surface Area (in ²)	Ratio Basket Surface : Pipe	Flow Rate = 1 psid (Clean Basket)
2"	23	12	15 5/8	72.2	23	140 GPM
3"	24	12 1/4	15 1/4	72.2	102	140 GPM
4"	32	16 1/4	21 3/8	207.2	16.5	400 GPM
6"	39	20 7/8	28 1/4	384.3	13.6	790 GPM
8"	48	24 1/4	31 3/4	594.6	11.8	1150 GPM
10"	50	27 5/8	34 7/8	826.6	10.5	1600 GPM
12"	56	32 7/8	41 7/8	1130.4	10	2230 GPM
14"	60	39 1/2	47	1519.8	9.9	3000 GPM



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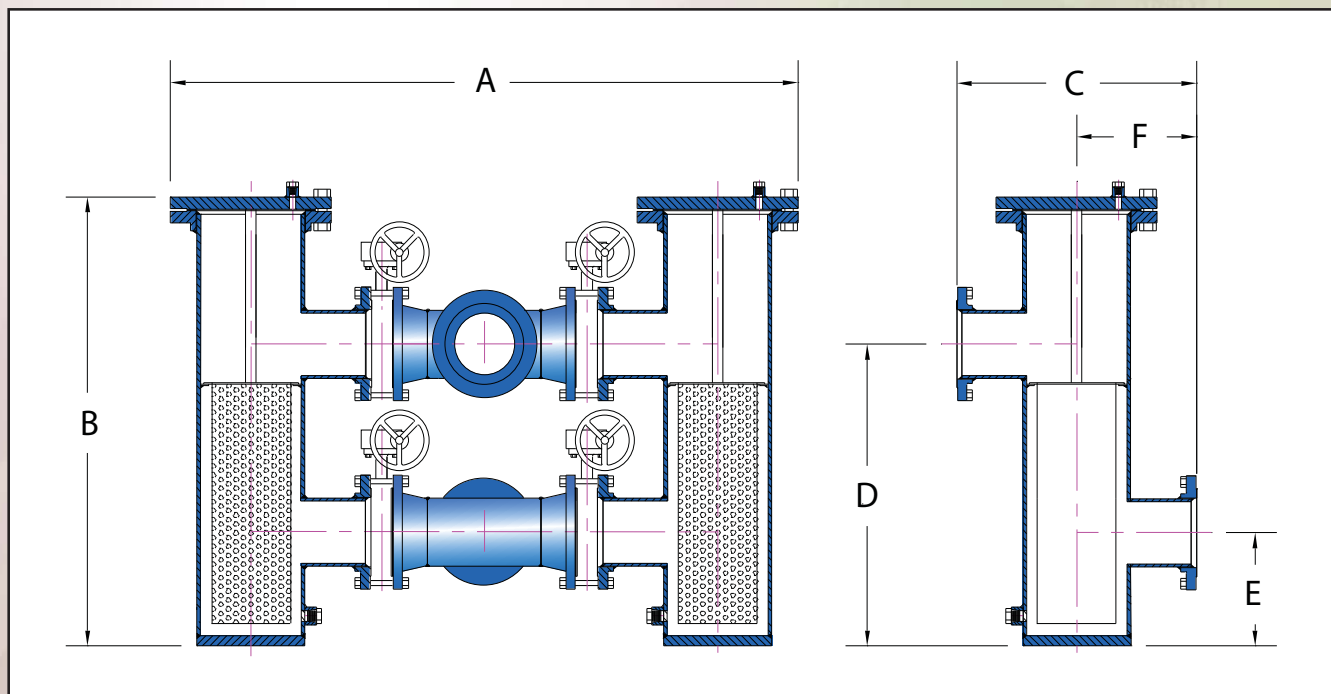
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FRP DUPLEX STRAINERS

FRP (Fiberglass Reinforced Plastic) Duplex Strainers

Sure Flow FRP Duplex Basket Strainers are ideal for applications in water environments, water parks, commercial swimming pools and aquariums. They are also an ideal choice for industrial and chemical resistant applications.



Notes:

- Larger sizes available

Manufacturer reserves the right to modify dimensions, materials, or design. Consult factory for certification.

Dimensions (Inch)						
Size	A	B	C	D	E	F
2" & 3"	36	20	10 7/8	26	6	6
4"	38	26	14 1/2	30	10	7 1/4
5"	51 1/2	38	25 1/4	30	10	13
6"	51 1/2	38	25 1/4	30	10	13
8"	60	48	26 1/4	37 1/2	12	14
10"	70 3/4	56	30	42	12	15
12"	75	64	32	48	12	16
14"	89	66	36	50	14	18
16"	107 1/2	68	40	50	14	20



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FRP STRAINERS - SPECIFICATION & IDENTIFICATION

Strainer Specification Tables

Getting as much information available during the initial stages of a strainer design is critical. We do understand how design criteria changes as projects develop and we are very reactive to these variations.

The information in the tables to the right will most likely not be completely available at the onset of a project, but should be filled out as well as possible for optimal strainer design.

Strainer Identification

All strainers are given a serial number for future reference and this is affixed to each strainer that leaves the factory. Substantial records are kept at the factory for future reference. Therefore, in the event the end user needs assistance, parts or replacement, Sure Flow is able to identify the exact strainer in question by referencing this, including special circumstances of each individual unit.



Ordering Selection Guide

Fluid Characteristics		
Composition		
Operating Temperature		F
Operating Pressure		PSI
Viscosity		Centipoise
Specific Gravity		SG
Minimum Size to Filter		Mesh, Micron, Inch or MM
Allowable Pressure Drop		PSI - Clean Basket
Flow Rate		GPM
Strainer Characteristics		
Type of Strainer		
Size		
Designed Flow Rate		
Design Pressure		
Maximum Temperature		
Maximum Pressure		
Housing Material		
Gasket Material		
Liner Material		
Drain Size/Type		
End Connections		
Vent Size/Type		
Pressure Taps		
Model Number		
Date of Manufacture		
Serial Number		



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Sure Flow Custom Engineered Strainers



Another Group of
"Handsome" Sure Flow Employees



Sure Flow Custom Engineered
Basket Strainers



Venezuela's Monel
Custom Strainer Basket



ASME "U" Stamp
Basket Strainers



Hanging Out



High Capacity
Forged Tee Strainers



Creative Custom Fabrication



Rubber Lined "Giant"
Basket Strainer



South America:
"The Big Guys" Basket Strainer

A Sampling of our "Team" Accomplishments



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Sure Flow Equipment Inc. – Limited Warranty

All products are warranted to be free of defects in material and workmanship for a period of one year from the date of shipment, subject to below. **All custom products are not subject to return, credit or refund.**

If the purchaser believes a product to be defective, the purchaser shall:

- Notify the manufacturer **within ten(10) days after receipt of merchandise**, state the alleged defect and request permission to return the product. Merchandise will not be accepted for return without a "Return Code" clearly marked on the outside of the package. Contact the office to obtain a return code. **Merchandise will not be accepted for return or credit later than six (6) months after invoicing.**
- If permission is given, return the product with the transportation prepaid. Collect shipments will not be accepted. Goods must be returned **prepaid**.

If a shipment is received in a damaged or deficient condition, a claim must be filed with the delivering carrier and noted on the freight bill before you accept the merchandise. All other claims must be made in writing and received by Sure Flow Equipment Inc. within ten (10) days after receipt of merchandise.

If the product is accepted for return and found to be defective, the manufacturer will, at its discretion, either repair or replace the product, F.O.B. factory, within 60 days of receipt, or issue credit for the purchase price.

Sure Flow Equipment Inc. shall not be liable for failure to deliver or delays in delivering occasioned by acts of God, war, labor difficulties, inability to obtain materials or any other causes whatsoever beyond our control.

Other than to repair, replace or credit as described above, purchaser agrees that manufacturer shall not be liable for any loss, costs, expenses, or damages of any kind arising out of the product, its use, installation or replacements, labeling, instructions, information or technical data of any kind, description of product use, sample or model, warnings or lack of any of the foregoing.

NO OTHER WARRANTIES, WRITTEN OR ORAL, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY, ARE MADE OR AUTHORIZED. NO AFFIRMATION OF ACT, PROMISE, DESCRIPTION OF PRODUCT OR USE OR SAMPLE OR MODEL SHALL CREATE ANY WARRANTY FROM MANUFACTURER, UNLESS SIGNED BY THE PRESIDENT OF MANUFACTURER.

CANCELLATIONS:

Cancelled orders will be subject to a charge of at least 35%.

Cancelled custom orders will be subject to a charge of 100% of quoted price.

SPECIAL DOCUMENTATION: A charge will apply for non-standard, special documentation requests such as Material Test Reports (MTR's) and Certificates of Conformance (COC's).

MINIMUM BILLING: \$100.00 NET

Product shipping weights are approximate and subject to variances depending on packaging methods/requirements.



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