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About Fil-Trek

Fil-Trek is an industrial filtration manufacturer strategically located in Cambridge, Ontario, Canada. We produce both standard and custom filter housings, strainers, tanks and rentals to the filtration industry in markets including water, desalination, chemicals, food & beverage, oil & gas, power generation, paper and many more.

Designing, manufacturing, servicing and renting both standard and custom built filtration products is what we do best. Fil-Trek thrives on being a filtration manufacturer with the ability to provide our customers with complete solutions by supplying equipment, replacement media and all spare parts. We have the capability to ship all of our equipment worldwide.

Fil-Trek is a privately owned company, established in 1997 and has proven success year after year with steady and continuous growth in staff, sales and most importantly, customers.

All of our equipment is designed and manufactured in Ontario with complete sales support, technical support and engineering staff. Fil-Trek also services Canada’s Western provinces with a strong sales force and equipment warehousing in Red Deer and Calgary, Alberta as well as warehousing and sales support in the US and worldwide.

“We bring next generation filtration to our customers.”

Lou Faustini, President and Founder
ENGINEERING CAPABILITIES

Fil-Trek offers a wide range of professional engineering services for developing industrial filtration systems and products.

Experienced Mechanical Designers
- Advanced 3D modelling and virtual prototyping capabilities
- High-Def/HD image rendering and animation capabilities
  - Showing a video is an extremely powerful way to communicate across languages and between technical and non-technical people
- Finite element analysis (FEA) programming/design capabilities

Customization
- Capacity and pressure rating
- Mechanical and electropolished surface finishing
- Stationary or portable design
- Cone, sloped or dished bottoms
- Fixed or removable tops
- Port types, sizes and locations
- Skid assembly
- Accessories such as gauges, valves lights, agitators, sightglasses, handholes, etc.

Services
- Consultation and evaluation
- Process recommendations and equipment selection
- Preliminary drawings and specifications provided for review and approval by customer
- Equipment modification drawings and specifications detailing your application requirements
- Equipment layout drawings
- Tie-in specifications for existing equipment and/or utilities
- Assurance of compliance to industry guidelines
- Test procedures and documentation for validation

FIL-TREK CERTIFICATIONS
- ASME Section VIII, div 1.
- UM Stamp
- R Stamp
- Canadian Registration Number (CRN)
- U Stamp
- NB
- TSSA
- CE

MANUFACTURING CAPABILITIES

Fil-Trek takes pride in being a single source filtration company. With in-house mechanical engineers, over 68,000 square feet of manufacturing space and multiple buildings across North America for our stock equipment. Our product lines of replacement media complete our filter housings while offering competitive pricing and minimizing your company’s need to source multiple companies for a single job.

INDUSTRIES SERVED
- Water
- Desalination
- Chemicals
- Electronics
- Food & Beverage
- Inks/Paints/Coatings
- Power Generation
- Coolants
- Pulp & Paper
- Sour Service
- Frac Water
- Brackish Water
- Desanders
- RO Pre-filtration
BASKET OPTIONS

We can manufacture replacement and custom basket designs for basket strainers, T strainers, Y strainers, duplex strainers and more.

We can customize our basket design to meet a variety of nonstandard requirements.

AVAILABLE MATERIALS

- Carbon steel
- SS304 or SS316
- C 276
- AL6XN
- LDX2101
- 2205
- 2507
- Monel 400
- Titanium

CLOSURE AND QUICK OPENING COVER OPTIONS

Fil-Trek designs and fabricates a variety of closure and quick opening cover options to accommodate strict applications and requirements. All materials of construction are in accordance with ASME specifications.

Hinged Cover

Threaded Hinged Cover

Mechanical Davit Assembly

Yoke
## PRESSURE & TEMPERATURE DESIGNATION

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>MOC</th>
<th>PSI</th>
<th>TEMP (°F)</th>
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</table>

*Table above based on ANSI flange ratings. Fil-Trek will design based on application pressure and temperature requirements.

**Max temperature may be limited to gasket material.

## STRAINER OPTIONS

*Indicates standard configuration

### Connection Options
- Raised Face Flange*
  - Other Available Options:
    - Butt Weld (Sch 10 to 160)
    - Flat Face Flange
    - Ring Joint Flange
    - Grooved
    - Socket Weld
    - NPT Threaded
    - Wafer Flat Face (Smooth Finish)
    - Wafer Flat Face (Serrated Finish)
    - Wafer Ring Joint
  - **Based on standard of construction

### Finish Options
- External paint "National Blue" (std for carbon steel housings)*
- Bead Blast (std for stainless steel 304 and 316)*
- Electro polish Inside/Outside
  - Inside only
  - Outside only
- Passivation

### Leg Options
- Leg tabs* (std for flat bottom)
- No legs* (std for domed bottom)
- Other Available Options: Angle Iron Legs, Skirt

### Basket/Mesh Options
- **PERF OPTIONS**
- 1/8"**
- 3/16"**
- 1/4"
- 3/8"
- 1/2"
- 5/8"
- 3/4"
- 7/8"
- 1"

### Mesh Options
- 10
- 20
- 30
- 40
- 50
- 60
- 80
- 100
- 120

### Cover Options
- Swing Bolt closure*
- ANSI Thru Bolt closure*
- Bolted Cover (Gasket Seal) w/ Davit
- Yoke Cover (O-Ring Seal)
- Quick Opening Threaded Cover (O-Ring Seal)
- Quick Opening C-Clamp Cover (O-Ring Seal)
- Grooved
  - **Based on standard of construction

### O-Ring/Gasket Options
- Buna-N*  
- EPDM  
- Viton  
- Silicone  
- Teflon encap. Viton  
- Spiral Wound Flexitallic*  
- Garlon  
- Vegetable Fibre  
- Other materials available, contact factory
## STRAINERS

<table>
<thead>
<tr>
<th>Series</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 Series</td>
<td>Inline Basket Strainers</td>
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<tr>
<td>91 Series</td>
<td>Offset Basket Strainers</td>
<td>6</td>
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<tr>
<td>92 Series</td>
<td>Same Side Basket Strainers</td>
<td>7</td>
</tr>
<tr>
<td>93 Series</td>
<td>Duplex Basket Strainers</td>
<td>8</td>
</tr>
<tr>
<td>Duplex</td>
<td>Configuration Options</td>
<td>9</td>
</tr>
<tr>
<td>94 &amp; 95 Series</td>
<td>Y Basket Strainers</td>
<td>10</td>
</tr>
<tr>
<td>96 Series</td>
<td>T Strainers</td>
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<tr>
<td>98 Series</td>
<td>Automatic Strainers</td>
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</tbody>
</table>
INLINE BASKET STRAINERS

90 SERIES
Inline, Flat Bottom Design
Inline, Domed Bottom Design

ASME Code ("U" or "UM") and non-code design fabricated basket strainers.

- Carbon or Stainless Steel
- Flanged or Butt Weld
- Sizes from 2" to 36"

RATINGS
- ASME Class 150
- ASME Class 300
- ASME Class 600
- ASME Class 900
- ASME Class 1500
- ASME Class 2500

DESIGN PRESSURE
Up to 3700 @ 800° F (427° C)

AVAILABLE MATERIALS
Carbon or Stainless Steel 304 or 316, LDX2101, C276, AL6XN, 2205, 2507 & Monel 400, Titanium and other materials.
Stainless steel 304 and 316 are NSF/ANSI 61 certified.

CONFIG OPTIONS
- 90A Inline, flat bottom w/ swing bolt closure
- 90B Inline, flat bottom w/ thru bolt closure
- 90C Inline, domed bottom w/ swing bolt closure
- 90D Inline, domed bottom w/ thru bolt closure

ADDITIONAL FEATURES
Swing bolt or thru-bolt closures available
Domed bottom and flat bottom configurations

SUITABLE USES
- Air & Gas
- Coolant
- Electronics
- Oil & Gas
- Pulp & Paper
- Marine
- Desalination
- Water
- Coatings
- Chemical
- Power
- Equipment

View full 90 Series details
OFFSET BASKET STRAINERS

91 SERIES
Offset, Flat Bottom Design
Offset, Domed Bottom Design

ASME Code (“U” or “UM”) and non-code design fabricated basket strainers

- Carbon or Stainless Steel
- Flanged or Butt Weld
- Sizes from 2" to 36"

RATINGS
- ASME Class 150
- ASME Class 300
- ASME Class 600
- ASME Class 900
- ASME Class 1500
- ASME Class 2500

DESIGN PRESSURE
Up to 3700 @ 800° F (427° C)

AVAILABLE MATERIALS
Carbon or Stainless Steel 304 or 316, LDX2101, C276, AL6XN, 2205, 2507, Monel 400 and other materials.
Stainless steel 304 and 316 are NSF/ANSI 61 certified.

CONFIG OPTIONS
- 91A Offset, flat bottom w/ swing bolt closure
- 91B Offset, flat bottom w/ thru bolt closure
- 91C Offset, domed bottom w/ thru bolt closure
- 91D Offset, domed bottom w/ swing bolt closure

ADDITIONAL FEATURES
Swing bolt or thru-bolt closures available
Domed bottom and flat bottom configurations

SUITABLE USES
- Air & Gas
- Oil & Gas
- Coolant
- Pulp & Paper
- Desalination
- Water
- Chemical
- Power
- Electronics
- Marine
- Coatings
- Equipment
SAME SIDE BASKET STRainers

92 SERIES
Same Side, Flat Bottom Design
Same Side, Domed Bottom Design

ASME Code (“U” or “UM”) and non-code design fabricated basket strainers

- Carbon or Stainless Steel
- Flanged or Butt Weld
- Sizes from 2” to 36”

RATINGS
- ASME Class 150
- ASME Class 300
- ASME Class 600
- ASME Class 900
- ASME Class 1500
- ASME Class 2500

DESIGN PRESSURE
Up to 3700 @ 800° F (427° C)

AVAILABLE MATERIALS
Carbon or Stainless Steel 304 or 316, LDX2101, C276, AL6XN, 2205, 2507 & Monel 400, Titanium and other materials.
Stainless steel 304 and 316 are NSF/ANSI 61 certified.

CONFIG OPTIONS
- 92A Inline, flat bottom w/ swing bolt closure
- 92B Inline, flat bottom w/ thru bolt closure
- 92C Inline, domed bottom w/ swing bolt closure
- 92D Inline, domed bottom w/ thru bolt closure

ADDITIONAL FEATURES
Swing bolt or thru-bolt closures available
Domed bottom and flat bottom configurations

SUITABLE USES
- Air & Gas
- Oil & Gas
- Desalination
- Chemical
- Coolant
- Pulp & Paper
- Water
- Electronics
- Power
- Marine
- Coatings
- Equipment

View full 92 Series details
DUPLEX BASKET STRAINERS

93 SERIES

Fabricated duplex basket strainers are used in applications where fluid flow cannot be interrupted when baskets need to be removed for maintenance and/or cleaning.

- Carbon or Stainless Steel
- ASME Code (“U” or “UM”)/Non-Code
- Sizes from 2” to 36”

<table>
<thead>
<tr>
<th>RATINGS</th>
<th>ASME Class 150</th>
<th>ASME Class 900</th>
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<td>ASME Class 600</td>
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DESIGN PRESSURE

Up to 3700 @ 800° F (427° C)

AVAILABLE MATERIALS

Carbon or Stainless Steel 304 or 316, LDX2101, C276, AL6XN, 2205, 2507 & Monel 400, Titanium and other materials.

Stainless steel 304 and 316 are NSF/ANSI 61 certified.

CONFIG OPTIONS

- 93A Offset, flat bottom w/ swing bolt closure
- 93B Offset, flat bottom w/ thru bolt closure
- 93C Offset, domed bottom w/ swing bolt closure
- 93D Offset, domed bottom w/ thru bolt closure

DUPLEX CONNECTION OPTIONS

- D1 Offset compact style
- D2 Inline manifold style
- D3 Inline elbow style 1
- D4 Inline elbow style 2

ADDITIONAL FEATURES

Swing bolt or thru-bolt closures available
Domed bottom and flat bottom configurations
Four individually operated isolation valves are used to isolate flow.
DUPLex
BASKet STRAINERS

DUPLex CONFIGURATION OPTIONS

D1 Series

D2 Series

D3 Series

D4 Series
Y STRAINERS

94 SERIES | PIPE DESIGN
95 SERIES | ELBOW DESIGN

ASME Code (“U” or “UM”) and non-code design fabricated basket strainers

- Carbon or Stainless Steel
- Flanged or Butt Weld
- Sizes from 2” to 36"

<table>
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<tr>
<th>RATINGS</th>
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<tbody>
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<td>ASME Class 150</td>
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*Stainless steel 304 and 316 are NSF/ANSI 61 certified.*

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<tr>
<td>94A Pipe design w/ swing bolt closure</td>
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<tr>
<td>94B Pipe design w/ ANSI thru bolt closure</td>
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<tr>
<td>95A Elbow design w/ swing bolt closure</td>
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<td>95B Elbow design w/ ANSI thru bolt closure</td>
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<tr>
<td>Swing bolt or thru-bolt closures available</td>
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<tr>
<td>Domed bottom and flat bottom configurations</td>
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SUITABLE USES

- Air & Gas
- Oil & Gas
- Desalination
- Chemical
- Coolant
- Pulp & Paper
- Water
- Electronics
- Marine
- Power
- Coatings
- Equipment
T STRAINERS

96 SERIES | FABRICATED T STRAINERS

Fabricated ASME Code ("U" or "UM") and non-code design T strainers

- Carbon or Stainless Steel
- Flanged or Butt Weld
- Sizes from 2" to 36"

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| DESIGN PRESSURE | Up to 3700 @ 800°F (427°C) |

| AVAILABLE MATERIALS | Carbon or Stainless Steel 304 or 316, LDX2101, C276, AL6XN, 2205, 2507 & Monel 400, Titanium and other materials. Stainless steel 304 and 316 are NSF/ANSI 61 certified. |

| ADDITIONAL FEATURES | Swing bolt or thru-bolt closures available |
|                    | Vertical or horizontal configuration |

SUITABLE USES

- Air & Gas
- Coolant
- Electronics
- Oil & Gas
- Pulp & Paper
- Marine
- Desalination
- Water
- Coatings
- Chemical
- Power
- Equipment

View full 96 Series details
AUTOMATIC STRAINERS

98 SERIES
Offset Fabricated Automatic Strainers

Automatic, motorized self cleaning strainers offer continuous removal of debris from fluid processes that require full-time uninterrupted flow.

- Carbon or Stainless Steel
- Suitable for flow rates up to 36,000 GPM
- Sizes from 1" to 42"

**RATINGS**
- ASME Class 150
- ASME Class 300

Additional ratings available, please contact Fil-Trek

**DESIGN PRESSURE**
Up to 740 PSI @ 400° F (204° C)

**AVAILABLE MATERIALS**
Carbon or Stainless Steel 304 or 316, LDX2101, C276, AL6XN, 2205, 2507 & Monel 400, Titanium and other materials.

**ADDITIONAL FEATURES**
- Uninterrupted cleaning cycle (no backwash system) with low system pressure losses.
- Easily adjustable scraper to suit any changes of service conditions.
- Standard aluminum gearbox. Stainless steel washdown gearboxes available.
- Available in both standard and custom engineered designs.

View full 98 Series details
TEMPORARY STRAINERS

Cone | Basket | Plate

Temporary strainers offer excellent low cost protection for costly filtration equipment, valves and other mechanical equipment

- Excellent for pipeline start up or minimal solid loading
- 100% to 300% open area range (OAR)
- Sizing from $\frac{3}{4}''$ to 36''

**RATINGS**
- ASME Class 150
- ASME Class 300
- ASME Class 600
- ASME Class 900
- ASME Class 1500
- ASME Class 2500

**DESIGN PRESSURE**
Up to 3700 @ 800° F (427° C)

**AVAILABLE MATERIALS**
Carbon or Stainless Steel 304 or 316, LDX2101, C276, AL6XN, 2205, 2507 & Monel 400, Titanium and other materials.

**CONFIG OPTIONS**
- Cone design
- Basket design
- Plate design

**ADDITIONAL FEATURES**
- Designed for bidirectional flow paths.
- Suitable for both vertical and horizontal pipelines.
- CRN registration available.

**SUITABLE USES**
- Air & Gas
- Oil & Gas
- Chemical
- Desalination
- Coolant
- Pulp & Paper
- Water
- Power
- Marine
- Electronics
- Coatings
- Equipment

View full details
**STRAINER APPLICATION WORKSHEET**

Please use the following worksheet to enter as much detail as possible about the strainer application you are sizing. The minimum requirement we need to help size will be the areas marked with an "+".

### Operating Conditions
- **Name of Gas**
- **Name of Liquid Present**
- **Max. Operating Flow Rate**
  - @ ___________ Pressure (PSIG)
- **Gas Specific Gravity (Air = 1)**
  - OR Mole Weight/Composition
- **Type of System or Location in Process**
- **Dry**
- **Min. Operating Pressure (PSIG)**
- **Max. Operating Pressure (PSIG)**
- **Min. Operating Temperature (F)**
- **Max. Operating Temperature (F)**
- **Amount of Liquids Present (GPD)**
- **Specific Gravity (Water = 1)**
- **Amount of Particulate Present (Parts per 100 scf)**
- **Name of Particulate**
- **Max. Allowable Clean Pressure Drop**
  - *(Standard = 2 PSID Flange to Flange)*

### Mechanical Data
- **Design Pressure Min.**
- **Max.**
- **Design Temperature Min.**
- **Max.**
- **ASME Code Required**
- **Sour Service?**
- **Acid Service?**
- **If YES, Pressure (PSI)**
- **Temp (F)**
- **Corrosion Allowance (in)**
- **Fire Safe Service**
  - *(ie All Connections/Closures Flanged?)*
- **Inlet/Outlet Type:**
  - Flanged
  - Threaded
- **Other (Please specify)**
- **Type/ANSI Rating of Flanges**
  - Face
    - RF
    - RTJ
  - Type
    - SO
    - WN
    - LWN
  - Vessel MOC
    - CS
    - SS304
    - SS316
  - Other (Please specify)
- **Internals MOC**
  - CS
  - SS304
  - SS316
  - Other (Please specify)

### Other Details

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SCREEN/BASKET DESIGN CHECKLIST

Performance Requirements

- Req. Level of Filtration
- Material of Construction
- Min. Specified Burst Pressure
- Flow Direction

Dimensional Requirements

Design Style (O or I)

- A Basket Outside Diameter
- B Basket Height – Shortest
- C Basket Height – Longest
- D Ring Outside Diameter
- E Overall Height
- F Ring Thickness

Additional Notes

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
SCREEN/BASKET DESIGN CHECKLIST

97A Cone Design

Performance Requirements

Req. Level of Filtration

Material of Construction

Min. Specified Burst Pressure

Flow Direction

Dimensional Requirements

Design Style (Cone, Basket or Plate)

A* Outside Diameter

B* Inside Diameter

C* Gauge Thickness

D Overall Length

E Bottom Outside Diameter (For basket style only)

F Desired Handle Size

* Required for plate design.

Additional Notes


### SCREEN OPENINGS

<table>
<thead>
<tr>
<th>Mesh</th>
<th>Percentage</th>
<th>Opening Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>30% O.A.</td>
<td>0.006&quot;</td>
</tr>
<tr>
<td>80</td>
<td>36% O.A.</td>
<td>0.008&quot;</td>
</tr>
<tr>
<td>60</td>
<td>38% O.A.</td>
<td>0.010&quot;</td>
</tr>
<tr>
<td>40</td>
<td>41% O.A.</td>
<td>0.016&quot;</td>
</tr>
<tr>
<td>30</td>
<td>45% O.A.</td>
<td>0.022&quot;</td>
</tr>
<tr>
<td>20</td>
<td>49% O.A.</td>
<td>0.035&quot;</td>
</tr>
<tr>
<td>3/64&quot;</td>
<td>36% O.A.</td>
<td></td>
</tr>
<tr>
<td>1/16&quot;</td>
<td>37% O.A.</td>
<td></td>
</tr>
<tr>
<td>3/32&quot;</td>
<td>39% O.A.</td>
<td></td>
</tr>
<tr>
<td>1/8&quot;</td>
<td>40% O.A.</td>
<td></td>
</tr>
<tr>
<td>5/32&quot;</td>
<td>58% O.A.</td>
<td></td>
</tr>
<tr>
<td>5/32&quot;</td>
<td>58% O.A.</td>
<td></td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>40% O.A.</td>
<td></td>
</tr>
</tbody>
</table>

### FACTORS TO CONSIDER

#### 1 Purpose
If the strainer is being used for protection rather than direct filtration, standard screens will suffice in most applications.

#### 2 Service
With services that require extremely sturdy screens, such as high pressure/temperature applications or services with high viscosities, perforated screens without mesh liners are recommended. If a mesh liner is required to obtain a certain level of filtration, then a trapped perf/mesh/perf combination is recommended.

#### 3 Filtration Level
When choosing a perf. or a mesh/perf. combination, attention should be given to ensure overstraining does not occur. As a general rule, the specified level of filtration should be no smaller than half the size of the particle to be removed. If too fine a filtration is specified, the pressure drop through the strainer will increase very rapidly, possibly causing damage to the screen.

Screen openings other than those shown above are readily available. Various mesh sizes as fine as 5 micron and perforated plate as coarse as 1/2" Dia. are in inventory.

Screens are available in a wide range of materials. Screens of carbon steel, stainless steel (304, 316), alloy 20, monel 400, hastelloy C and titanium grade 2 are in inventory.

Custom manufactured screens are available upon request. Please consult factory.
Note: Pressure drop curves are based on water flow with standard screens. See Chart 1 for correction factors to be used with other fluids and/or screen openings.
Non-Standard and Mesh Lined Screens

### Chart 1

<table>
<thead>
<tr>
<th>Size Range</th>
<th>Perf. Plate % Screen Material Open Area</th>
<th>Mesh Lined Screens % Screen Material Opening Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60% 50% 40% 30% 20%</td>
<td>50% 40% 30%</td>
</tr>
<tr>
<td>¼&quot; to 1½&quot;</td>
<td>0.45 0.55 0.70 1.00 1.15</td>
<td>1.05 1.05 1.20</td>
</tr>
<tr>
<td>2&quot; to 48&quot;</td>
<td>0.65 0.80 1.00 1.40 2.15</td>
<td>1.05 1.05 1.20</td>
</tr>
</tbody>
</table>

### Viscosity & Density Correction Factor Chart

#### Chart 2

<table>
<thead>
<tr>
<th>Viscosity (CP)</th>
<th>Body Loss Factor (BF)</th>
<th>Perf Only (PF)</th>
<th>20 Mesh (MF)</th>
<th>30 to 40 Mesh (MF)</th>
<th>60 to 300 Mesh (MF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>1.0</td>
<td>1.15</td>
<td>1.20</td>
<td>1.40</td>
<td>1.50</td>
</tr>
<tr>
<td>25</td>
<td>1.2</td>
<td>1.25</td>
<td>2.00</td>
<td>2.20</td>
<td>2.50</td>
</tr>
<tr>
<td>100</td>
<td>1.6</td>
<td>1.40</td>
<td>3.00</td>
<td>4.00</td>
<td>6.50</td>
</tr>
<tr>
<td>200</td>
<td>2.2</td>
<td>1.50</td>
<td>4.50</td>
<td>7.00</td>
<td>11.50</td>
</tr>
<tr>
<td>500</td>
<td>4.4</td>
<td>1.60</td>
<td>10.00</td>
<td>15.00</td>
<td>25.00</td>
</tr>
<tr>
<td>1000</td>
<td>8.0</td>
<td>1.70</td>
<td>15.00</td>
<td>30.00</td>
<td>50.00</td>
</tr>
<tr>
<td>2000</td>
<td>15.0</td>
<td>1.90</td>
<td>30.00</td>
<td>60.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

#### Chart 3

<table>
<thead>
<tr>
<th>Component Factor (CF)</th>
<th>¾&quot; to 1½&quot;</th>
<th>2&quot; to 48&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.25</td>
<td>0.35</td>
</tr>
</tbody>
</table>

#### Example

**Basket Strainer**

- **Strainer Size:** 10”
- **Screen Size:** 100 Mesh, ¼” Perf
- **Flow Rate:** 3000 GPM
- **Service:** Water
- **Specific Gravity:** 1
- **Viscosity:** 100 cP

**How to calculate for Pressure Drop correction:**

1. Use Figure 1 to get the pressure drop of the screen.
2. Refer to the Screen Opening chart to determine the % Open Area of the mesh/screen size being used.
3. Using the chart above, find the correction factor to be used.
4. Multiply the PSID by the correction factor to determine the total pressure drop.

**Example Pressure Drop equation:** $2.0 \times 1.2 = 2.4$ PSID clean

**Example Results**

<table>
<thead>
<tr>
<th>PSID</th>
<th>Percent</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>30%</td>
<td>1.2</td>
</tr>
<tr>
<td>1.2</td>
<td>1.20</td>
<td>1.20</td>
</tr>
<tr>
<td>2.4</td>
<td>11.48</td>
<td>1.15</td>
</tr>
</tbody>
</table>

**How to calculate for Viscosity and Density correction:**

1. Use the Pressure Drop ($P_1$) through the strainer with water flow and standard or mesh screens from Chart 1.
2. Multiply $P_1$ by the specific gravity of the fluid actually flowing through the strainer to get $P_2$.
3. Using Chart 2 above, multiply $P_2$ by the correct component factor to get $P_3$.
4. Subtract $P_3$ from $P_2$ to equal $P_4$.
5. Multiply $P_3$ by the appropriate Body Loss factor from Chart 3 above to get $P_5$.
6. Multiply $P_4$ by the appropriate Screen Loss factor from Chart 3 above to get $P_6$.
7. Total pressure drop for the example will be $P_5 + P_6 = P_7$. Total Pressure Drop = 11.48 PSID clean

**Example Results**

<table>
<thead>
<tr>
<th>PSID</th>
<th>Percent</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>30%</td>
<td>1.2</td>
</tr>
<tr>
<td>1.2</td>
<td>1.20</td>
<td>1.20</td>
</tr>
<tr>
<td>2.4</td>
<td>1.15</td>
<td>1.15</td>
</tr>
</tbody>
</table>

**Example Pressure Drop:**

- **2.0 PSID clean**
How to calculate
1 Find the pressure drop using Figure 3.

2 Reference the ratio of free area to pipe area using Figure 9. (round down to 1:1)

3 Using Chart 4 above, find the correction factor based on the % clogged. 3.9

4 Calculate the total pressure drop by multiplying the pressure drop from step 1 with the correction factor from step 3. 0.9 x 3.9 = 3.51 PSID

How to calculate
1 Find the pressure drop on page using Figure 3 with a standard screen size.

2 Using the Screen Correction chart to determine the % of open area (OA) of 5/32” perf. 58%

3 See Chart 1 to find the correction factor for 5/32” perf (round up). 0.65

4 Multiply step 1 by the pressure drop from step 3. 0.9 x 0.65 = 0.59 PSID

5 Since a non-standard screen is being used, use the formula above to calculate the Ratio free area to pipe area (Ag = 167, OA = 58%, Ap = 50.3). 1.9:1 (round up to 2:1)

6 Using the result from step 5, check Chart 4 to find the correction factor. 3.7

7 Multiply results from steps 4 and 6 to get the pressure drop when clogged. 0.59 x 3.7 = 2.2 PSID

Notes:
1 See Figures 7 to 10 for the ratio of free area to pipe area for Fil-Trek strainers equipped with standard screens.

2 For screens other than Fil-Trek standard, use the following formula to calculate the ratio free area to pipe area:

\[ R = \frac{Ag \times OA}{100Ap} \]

where;
- \( R \) = Ratio free area to pipe area
- \( Ag \) = Gross screen area, sq. in. (see Figures 7 to 10)
- \( OA \) = Open area of screen media, % (Screen Opening chart, i.e. 1/8” perf = 40%)
- \( Ap \) = Nominal area of pipe fitting, sq. in. (see Figures 7 to 10)
**SCREEN BURST PRESSURE**

**Basket and Duplex Basket Strainers**

![Diagram of burst pressure chart]

**Notes:**
1. The above chart is to be used for strainers manufactured from perforated plate and is based on the formula below.
2. The above chart is based on standard dimensions. Higher burst pressure ratings are available. Please contact factory.
3. The above chart is based on a screen material of stainless steel. No safety factor is incorporated. It is the responsibility of the user to determine an acceptable safety factor.

4. See the Screen Openings chart for % Open Area’s of standard perforated plate.

\[
t = d \sqrt{\frac{0.3P}{S}}
\]

**How to calculate**
1. Locate Strainer size.
2. Follow vertical line to gauge thickness.
3. Follow horizontal line to required perforation open area.
4. Follow vertical line downward to read burst pressure.
5. Burst pressure equals: 19 psid for **EXAMPLE 1** and 44 psid for **EXAMPLE 2**.

**Provided as an Example**

**Example 1**
- **Strainer Size:** 8”
- **Basket Type:** Perf w/11 gauge solid bottom
- **Screen Mat’l Open Area:** 20% - 60%

**Example 2**
- **Strainer Size:** 8”
- **Basket Type:** 11 gauge w/ 11 gauge bottom
- **Screen Mat’l Open Area:** 40%
SCREEN BURST PRESSURE

T Strainers

Notes:
1. The above chart is to be used for strainers manufactured from perforated plate and is based on the formula below.

2. The above chart is based on standard dimensions. Higher burst pressure ratings are available. Please contact factory.

3. The above chart is based on a screen material of stainless steel. No safety factor is incorporated. It is the responsibility of the user to determine an acceptable safety factor.

4. See the Screen Openings chart for % Open Area’s of standard perforated plate.

\[ t = d \sqrt{\frac{0.3P}{S}} \]

- \( t \) = Thickness of perforated plate, in.
- \( d \) = Basket Diameter, in.
- \( P \) = Burst Pressure, psi
- \( S \) = Reduced allowable stress, psi

How to calculate

1. Locate Strainer size in the above chart.

2. Follow the vertical line to gauge thickness.

3. Follow the horizontal line to required perforation open area.

4. Follow vertical line downward to read burst pressure.

5. Burst pressure equals 20 psid.

Example Results

<table>
<thead>
<tr>
<th>Strainer Size: 8”</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basket Type: 11 gauge</td>
<td>Basket Type: 11 gauge</td>
</tr>
<tr>
<td>Screen Material Open Area: 40%</td>
<td>Screen Material Open Area: 40%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Strainer Size: 8”</th>
<th>Burst Pressure (psid)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>20 PSID</td>
</tr>
</tbody>
</table>
**SCREEN BURST PRESSURE**

**Y Strainers**

*Notes:*
1. The above chart is to be used for strainers manufactured from perforated plate and is based on the formula below.
2. The above chart is based on standard dimensions. Higher burst pressure ratings are available. Please contact factory.
3. The above chart is based on a screen material of stainless steel. No safety factor is incorporated. It is the responsibility of the user to determine an acceptable safety factor.
4. See the Screen Openings chart for % Open Area’s of standard perforated plate.

\[
P = \frac{St}{R - 0.4t}
\]

**Example**

<table>
<thead>
<tr>
<th>Strainer Size:</th>
<th>10”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basket Type:</td>
<td>16 gauge</td>
</tr>
<tr>
<td>Screen Material Open Area:</td>
<td>60%</td>
</tr>
</tbody>
</table>

**How to calculate**

1. Locate Strainer size in the above chart.
2. Follow the vertical line to gauge thickness.
3. Follow the horizontal line to required perforation open area.
4. Follow vertical line downward to read burst pressure.
5. Burst pressure equals **56 psid**.

**Example Results**

<table>
<thead>
<tr>
<th>Burst pressure, psi</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>56 PSID</strong></td>
</tr>
</tbody>
</table>

*Provided as an example*
Notes:
1. The above chart is to be used for strainers manufactured from perforated plate and is based on the formula below.

\[ t = \frac{d}{0.3} \frac{3P}{S} \]

2. The above chart is based on standard dimensions. Higher burst pressure ratings are available. Please contact factory.

3. The above chart is based on a screen material of stainless steel. No safety factor is incorporated. It is the responsibility of the user to determine an acceptable safety factor.

4. See the Screen Openings chart for % Open Area’s of standard perforated plate.

Example

<table>
<thead>
<tr>
<th>Strainer Size:</th>
<th>10”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basket Type:</td>
<td>11 gauge</td>
</tr>
<tr>
<td>Screen Material Open Area:</td>
<td>20%</td>
</tr>
</tbody>
</table>

How to calculate

1. Locate Strainer size.
2. Follow vertical line to gauge thickness.
3. Follow horizontal line to required perforation open area.
4. Follow vertical line downward to read burst pressure.
5. Burst pressure equals **27 psid**.

Example Results

<table>
<thead>
<tr>
<th>BURST PRESSURE (PSID)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20%</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>11 GAUGE</td>
</tr>
<tr>
<td>20</td>
</tr>
</tbody>
</table>

PROVIDED AS AN EXAMPLE
Notes:
1 The above chart is to be used for strainers manufactured from perforated plate and is based on the formula below.

2 The above chart is based on standard dimensions. Higher burst pressure ratings are available. Please contact factory.

3 The above chart is based on a screen material of stainless steel. No safety factor is incorporated. It is the responsibility of the user to determine an acceptable safety factor.

4 See the Screen Openings chart for % Open Area’s of standard perforated plate.

\[ P = \frac{2St \cos \theta}{D + 1.2t \cos \theta} \]

\( t \) = Thickness of perforated plate, in.
\( d \) = Dimension B (see strainer sizing), in.
\( P \) = Burst Pressure, psi
\( S \) = Reduced allowable stress, psi
\( \theta \approx 15 \) degree

Example

**Strainer Size:** 10"
**Basket Type:** 26 gauge
**Screen Material Open Area:** 30%

**Example Results**

1. Locate Strainer size.
2. Follow vertical line to gauge thickness.
3. Follow horizontal line to required perforation open area.
4. Follow vertical line downward to read burst pressure.
5. Burst pressure equals **41 psid**.
# FABRICATED STRAINER SCREEN EFFECTIVE AREAS

**Figure 7**

## Basket Strainers | 2" to 24"

<table>
<thead>
<tr>
<th>Pipe Size (In)</th>
<th>Perf. Diameter (In)</th>
<th>Nom. Area of Sch 40/Std. Pipe (In²)</th>
<th>Gross Screen Area (In²)</th>
<th>Free Area (In²)</th>
<th>Ratio Free Area to Pipe Area (OAR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1/8&quot;</td>
<td>3.36</td>
<td>215</td>
<td>86</td>
<td>25.6</td>
</tr>
<tr>
<td>3</td>
<td>1/8&quot;</td>
<td>7.39</td>
<td>265</td>
<td>106</td>
<td>14.3</td>
</tr>
<tr>
<td>4</td>
<td>1/8&quot;</td>
<td>12.73</td>
<td>265</td>
<td>106</td>
<td>8.3</td>
</tr>
<tr>
<td>5</td>
<td>1/8&quot;</td>
<td>20.01</td>
<td>380</td>
<td>152</td>
<td>7.6</td>
</tr>
<tr>
<td>6</td>
<td>1/8&quot;</td>
<td>28.89</td>
<td>560</td>
<td>224</td>
<td>7.8</td>
</tr>
<tr>
<td>8</td>
<td>1/8&quot;</td>
<td>50.03</td>
<td>570</td>
<td>228</td>
<td>4.6</td>
</tr>
<tr>
<td>10</td>
<td>1/8&quot;</td>
<td>78.85</td>
<td>910</td>
<td>364</td>
<td>4.6</td>
</tr>
<tr>
<td>12</td>
<td>1/8&quot;</td>
<td>113.10</td>
<td>1300</td>
<td>520</td>
<td>4.6</td>
</tr>
<tr>
<td>14</td>
<td>3/16&quot;</td>
<td>140.50</td>
<td>1600</td>
<td>640</td>
<td>4.6</td>
</tr>
<tr>
<td>16</td>
<td>3/16&quot;</td>
<td>185.66</td>
<td>1830</td>
<td>732</td>
<td>3.9</td>
</tr>
<tr>
<td>18</td>
<td>3/16&quot;</td>
<td>237.10</td>
<td>2290</td>
<td>916</td>
<td>3.9</td>
</tr>
<tr>
<td>20</td>
<td>3/16&quot;</td>
<td>294.83</td>
<td>2800</td>
<td>1120</td>
<td>3.8</td>
</tr>
<tr>
<td>24</td>
<td>3/16&quot;</td>
<td>429.13</td>
<td>4090</td>
<td>1636</td>
<td>3.8</td>
</tr>
</tbody>
</table>

**Figure 8**

## Duplex Basket Strainers | 2" to 24"

<table>
<thead>
<tr>
<th>Pipe Size (In)</th>
<th>Perf. Diameter (In)</th>
<th>Nom. Area of Sch 40/Std. Pipe (In²)</th>
<th>Gross Screen Area (In²)</th>
<th>Free Area (In²)</th>
<th>Ratio Free Area to Pipe Area (OAR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1/8&quot;</td>
<td>3.36</td>
<td>215</td>
<td>86</td>
<td>25.6</td>
</tr>
<tr>
<td>3</td>
<td>1/8&quot;</td>
<td>7.39</td>
<td>265</td>
<td>106</td>
<td>14.3</td>
</tr>
<tr>
<td>4</td>
<td>1/8&quot;</td>
<td>12.73</td>
<td>265</td>
<td>106</td>
<td>8.3</td>
</tr>
<tr>
<td>5</td>
<td>1/8&quot;</td>
<td>20.01</td>
<td>380</td>
<td>152</td>
<td>7.6</td>
</tr>
<tr>
<td>6</td>
<td>1/8&quot;</td>
<td>28.89</td>
<td>560</td>
<td>224</td>
<td>7.8</td>
</tr>
<tr>
<td>8</td>
<td>1/8&quot;</td>
<td>50.03</td>
<td>570</td>
<td>228</td>
<td>4.6</td>
</tr>
<tr>
<td>10</td>
<td>1/8&quot;</td>
<td>78.85</td>
<td>910</td>
<td>364</td>
<td>4.6</td>
</tr>
<tr>
<td>12</td>
<td>1/8&quot;</td>
<td>113.10</td>
<td>1300</td>
<td>520</td>
<td>4.6</td>
</tr>
<tr>
<td>14</td>
<td>3/16&quot;</td>
<td>140.50</td>
<td>1600</td>
<td>640</td>
<td>4.6</td>
</tr>
<tr>
<td>16</td>
<td>3/16&quot;</td>
<td>185.66</td>
<td>1830</td>
<td>732</td>
<td>3.9</td>
</tr>
<tr>
<td>18</td>
<td>3/16&quot;</td>
<td>237.10</td>
<td>2290</td>
<td>916</td>
<td>3.9</td>
</tr>
<tr>
<td>20</td>
<td>3/16&quot;</td>
<td>294.83</td>
<td>2800</td>
<td>1120</td>
<td>3.8</td>
</tr>
<tr>
<td>24</td>
<td>3/16&quot;</td>
<td>429.13</td>
<td>4090</td>
<td>1636</td>
<td>3.8</td>
</tr>
</tbody>
</table>

OAR = Free Screen Area / Inlet Area
Free Screen Area = Opening % x Gross Screen Area
Values shown are approximate. Consult factory for exact ratios.
### Fabricted Strainer Screen Effective Areas

#### T Strainers | 2” to 24”

<table>
<thead>
<tr>
<th>Pipe Size (In)</th>
<th>Perf. Diameter (In)</th>
<th>Nom. Area of Sch 40/Std. Pipe (In²)</th>
<th>Gross Screen Area (In²)</th>
<th>Free Area (In²)</th>
<th>Ratio Free Area to Pipe Area (OAR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1/8”</td>
<td>3.36</td>
<td>22</td>
<td>9</td>
<td>2.6</td>
</tr>
<tr>
<td>3</td>
<td>1/8”</td>
<td>7.39</td>
<td>40</td>
<td>16</td>
<td>2.2</td>
</tr>
<tr>
<td>4</td>
<td>1/8”</td>
<td>12.73</td>
<td>58</td>
<td>23</td>
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**OAR** = Free Screen Area / Inlet Area

**Free Screen Area** = Opening % x Gross Screen Area

Values shown are approximate. Consult factory for exact ratios.

---

#### Y Basket Strainers | 2” to 24”

<table>
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<tr>
<th>Pipe Size (In)</th>
<th>Perf. Diameter (In)</th>
<th>Nom. Area of Sch 40/Std. Pipe (In²)</th>
<th>Gross Screen Area (In²)</th>
<th>Free Area (In²)</th>
<th>Ratio Free Area to Pipe Area (OAR)</th>
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</table>

**OAR** = Free Screen Area / Inlet Area

**Free Screen Area** = Opening % x Gross Screen Area

Values shown are approximate. Consult factory for exact ratios.
INSTALLATION AND MAINTENANCE INSTRUCTIONS

WARNING

This product operates in pipelines or with equipment that carries fluids and/or gasses at elevated temperatures and pressures. Caution should be taken to make sure that this equipment is installed correctly and inspected regularly. Caution should also be taken to protect personnel from fluid or gas leakage.

Strainer installation instructions

- Ensure all machined surfaces are free of defects and that the inside of the strainer is free of foreign objects.
- For horizontal and vertical pipelines, the strainer should be installed so that the blow-down drain connection is pointed downward.
- For flanged end strainers, the flange bolting should be tightened gradually in a back and forth clockwise motion. Threaded end strainers should use an appropriate sealant.
- Once installed, increase line pressure gradually and check for leakage around joints.
- If the strainer is supplied with a start-up screen, monitor pressure drop carefully.

Screen removal instructions

- Drain piping
- Vent line to relieve pressure.
- Loosen cover and open to access screen.
- Remove, clean and replace screen in original position (Note: In some instances, a high pressure water jet or steam may be required for effective cleaning)
- Inspect cover gasket for damage. If necessary, replace. (Note: If spiral wound gaskets have been used, they must be replaced and can not be used again)
- Tighten cover. The strainer is ready for line startup.

Maintenance instructions

For maximum efficiency, determine the length of time it takes for the pressure drop to double that in the clean condition. Once the pressure drop reaches an unacceptable value, shut down line and follow the “Screen Removal Instructions” above. A pressure gauge installed before and after the strainer in-line will indicate pressure loss due to clogging and may be used to determine when cleaning is required.

Trouble shooting guides and diagnostic techniques

Leakage

- After pressurizing, inspect cover and other joints for leakage. Gasket replacement or cover tightening is necessary if leakage occurs.

Required Filtration is Not Taking Place

- If the required filtration is not taking place, ensure the screen is installed in the correct position, that being flush to the screen seating surfaces.

CAUTION SHOULD BE TAKEN DUE TO POSSIBLE EMISSION OF PROCESS MATERIAL FROM PIPING. ALWAYS ENSURE NO LINE PRESSURE EXISTS WHEN OPENING COVER
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F (519) 623-8807

ALBERTA
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