

## Applications

- Process Industry
- Power industry
- Chemical Industry
- Oil and Gas
- Metals and Mining
- Water and Waste
- Pulp and Paper

# Suction Diffusers

Pressures to 790 PSIG  
Temperatures to 800°F

## FEATURES

- Filtration Down to 40 Microns
- Large Diffuser Screens
- Long and Short Neck Versions Available
- Fabricated Construction



## MATERIALS

- Carbon Steel
- Stainless Steel
- Other materials upon request

## END CONNECTIONS

- Flat Faced
- Raised Face
- Buttweld

## SIZES RANGES

- Fabricated-Custom sized to meet Requirements

## RATINGS

- ASME Class 150
- ASME Class 300



# FF SERIES FABRICATED SUCTION DIFFUSERS

PRESSURES TO 740 PSIG (51 BARG)  
TEMPERATURES TO 800°F (427°C)

**Strainer, flow straightener, elbow and pipe reducer for pump applications**

**Standard and custom engineered designs**

**Integral straightening vanes reduce turbulence to improve pump efficiency**

**One, three or five pipe diameters of flow straightening (Type 1, 3 or 5)**

**Standard, undersized or oversized outlet connections**

**Direct mount to the suction side of a pump in either horizontal or vertical position**

**Supporting pads for easy mounting of standard I.D. support foot**

**Drain connection with plug furnished as standard**

## APPLICATIONS

Pump Protection

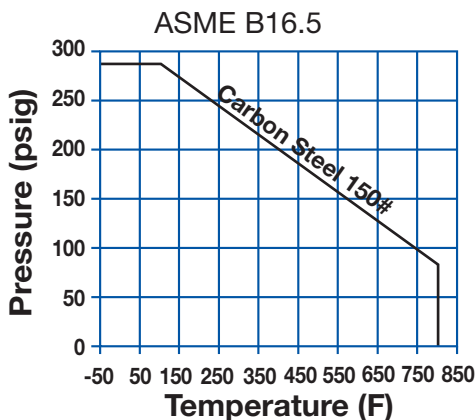
## APPLICABLE CODES

Designed and manufactured in accordance with ASME B31.1, ASME B31.3 and/or ASME Section VIII, Div. 1

CRN available in all Provinces

Welders certified to ASME Section IX

## PRESSURE/TEMPERATURE CHART



Contact Factory for higher ratings.

## MODELS see Ordering Code below

Type 1 - One pipe diameter of flow straightening

Type 3 - Three pipe diameters of flow straightening

Type 5 - Five pipe diameters of flow straightening

## OPTIONS

Customer specified materials, sizes and designs

Other flow straightening quality designs

Hinged or quick opening/operator assisted covers

Vent and/or differential pressure connections

ASME "U" stamped vessels on request

Other perforated screen and mesh liner baskets

Data Packages and MTR's available on request

## Fabricated Suction Diffuser Ordering Code

Model	Material	Inlet Size	Class	Con- nections	Dash	Cover	Perf.	Mesh
<b>F F 1</b>	<b>C</b>	<b>T</b>	<b>1</b>	<b>F</b>	<b>-</b>	<b>J</b>	<b>2</b>	<b>2</b>
1	2	3	4	5	6	7	8	9
10	11							

### Model - Position 1 - 3

FF1 - Type 1 - Standard Outlet  
FF2 - Type 1 - Undersized Outlet  
FF3 - Type 1 - Oversized Outlet  
FF4 - Type 3 - Standard Outlet  
FF5 - Type 3 - Undersized Outlet  
FF6 - Type 3 - Oversized Outlet  
FF7 - Type 5 - Standard Outlet  
FF8 - Type 5 - Undersized Outlet  
FF9 - Type 5 - Oversized Outlet  
FFZ - Custom Configuration

**Standard** Outlet is one size smaller than the inlet.

**Undersized** Outlet is two sizes smaller than the inlet.

**Oversized** Outlet is the same size as the inlet.

### Material - Position 4

C - Carbon Steel  
L - Low Temp CS  
V - 304 SS  
T - 316 SS  
M - Monel  
Z - Other

### Inlet Size - Position 5

H - 2	S - 12
J - 2½	T - 14
K - 3	U - 16
M - 4	V - 18
N - 5	W - 20
P - 6	X - 22
Q - 8	Y - 24
R - 10	Z - Other
1 - 28	3 - 36
2 - 30	4 - 40

### Class - Position 6

A - 125  
1 - 150  
2 - 250  
3 - 300  
Z - Other

### Connection - Inlet Position 7

F - Flat Face Flange  
J - Ring Joint  
R - Raised Face Flange  
Z - Other

### Dash - Position 8

Note:

Standard Connections  
RF inlet x FF outlet

### Cover - Position 9

B - Bolted  
C - C-Clamp  
J - Bolted w/ Hinge'  
D - Davit Bolted  
H - T-Bolt Hinged  
T - Threaded Hinged  
Y - Yoke Hinged  
Z - Other

1. J-Hinged Cover is standard.

2. For other screen materials, contact factory.

### Perf. - Position 10

#### 304SS Material<sup>2</sup>

A - None	5 - 5/32"
B - 3/64"	6 - 3/16"
1 - 1/32"	7 - 7/32"
2 - 1/16"	8 - 1/4"
3 - 3/32"	9 - 3/8"
4 - 1/8"	Z - Other

### Mesh<sup>2</sup> - Position 11

A - None	6 - 60
1 - 10	7 - 80
2 - 20	8 - 100
3 - 30	9 - 120
4 - 40	Z - Other
5 - 50	

# FF SERIES FABRICATED SUCTION DIFFUSERS

## SPECIFICATION

Suction Diffuser shall mount directly to the suction side of the pump in either a horizontal or vertical position. The Suction Diffuser shall be manufactured in accordance with ASME B31.1, ASME B31.3 and /or ASME Section VIII, Div. I. The Suction Diffuser shall be available with reduced outlet sizes. The Suction Diffuser shall be \_\_\_\_\_ inlet by \_\_\_\_\_ outlet and shall have a \_\_\_\_\_ perforated screen. The Suction Diffuser shall have the equivalent of \_\_\_\_\_ pipe diameters of flow straightening. The Suction Diffuser shall be SSI FF Series.

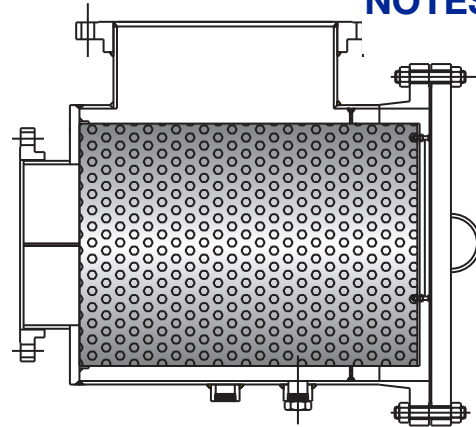
## MATERIALS OF CONSTRUCTION\*-(Std Carbon Steel Body)

Body .....	SA106-B CS
Cover .....	SA105 CS
Flanges .....	SA105 CS
Reducer Plate .....	SA516-70 CS
Coupling .....	SA105 CS
Plug .....	SA105 CS
Screen <sup>1</sup> .....	304 SS
Cover Gasket <sup>1</sup> .....	304 SS Spiral Wound
Stud .....	SA193-B7 CS
Nut .....	SA194-2H CS

\* Other materials are available upon request.  
Standard materials are subject to change.  
Please contact factory for Certified drawings.

1 Recommended Spare Parts.

## NOTES:



Connections:  
10" x 6" - 24" x 24" RF Inlet x FF Outlet

## SCREEN OPENINGS

SIZE	STANDARD SCREEN	MATERIALS
All	1/8" Perf.	304 SS

## OPEN AREA RATIOS with Standard Perforated Screen

Opening 40%, 1/8" Diameter

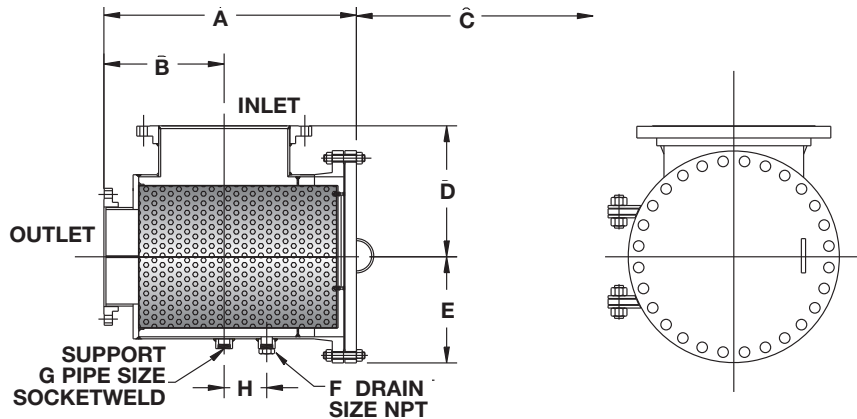
Size Inlet X Outlet	Nominal Outlet Area (in <sup>2</sup> )	Gross Screen Area (in <sup>2</sup> )	Free Screen Area (in <sup>2</sup> )	Open Area Ratio (OAR)
10 x 6	28.89	455	182	6.3
10 x 8	50.03	455	182	3.6
10 x 10	78.85	700	280	3.6
12 x 8	50.03	524	210	4.2
12 x 10	78.85	700	280	3.6
12 x 12	113.10	811	324	2.9
14 x 10	78.85	700	280	3.6
14 x 12	113.10	811	324	2.9
14 x 14	137.89	1162	465	3.4
16 x 12	113.10	811	324	2.9
16 x 14	137.89	1162	465	3.4
16 x 16	182.65	1275	510	2.8
18 x 14	137.89	1162	465	3.4
18 x 16	182.65	1275	510	2.8
18 x 18	233.71	1470	588	2.5
20 x 16	182.65	1275	510	2.8
20 x 18	233.71	1470	588	2.5
20 x 20	291.04	2454	982	3.4
24 x 18	233.71	1470	588	2.5
24 x 20	291.04	2454	982	3.4
24 x 24	424.56	2454	982	2.3

OAR = Free Screen Area divided by Nominal Outlet Area.  
Free Screen Area = Opening % times Gross Screen Area.  
Values shown are approximate. Contact factory for exact ratios.

# FF SERIES

## FABRICATED SUCTION DIFFUSERS

### DIMENSIONS & WEIGHTS



**DIMENSIONS\*** inches (mm) **AND WEIGHTS** pounds (kg)

Inlet	Outlet	A			B			C'	D	E	F	G	H	Weight <sup>2</sup>
		TYPE 1	TYPE 3	TYPE 5	TYPE 1	TYPE 3	TYPE 5							
<b>Standard Outlet</b>														
10 (250)	8 (200)	22 <sup>3</sup> / <sub>16</sub> (575)	26 <sup>3</sup> / <sub>16</sub> (676)	30 <sup>3</sup> / <sub>16</sub> (778)	11 <sup>1</sup> / <sub>8</sub> (283)	15 <sup>1</sup> / <sub>8</sub> (384)	19 <sup>1</sup> / <sub>8</sub> (486)	17 <sup>1</sup> / <sub>8</sub> (441)	12 <sup>3</sup> / <sub>16</sub> (321)	8 (203)	1 (40)	1 (40)	4 <sup>1</sup> / <sub>8</sub> (105)	339 (154)
12 (300)	10 (250)	25 <sup>1</sup> / <sub>16</sub> (656)	30 <sup>1</sup> / <sub>16</sub> (783)	35 <sup>1</sup> / <sub>16</sub> (910)	13 <sup>3</sup> / <sub>8</sub> (333)	18 <sup>3</sup> / <sub>8</sub> (460)	23 <sup>3</sup> / <sub>8</sub> (587)	18 <sup>1</sup> / <sub>16</sub> (478)	12 <sup>3</sup> / <sub>8</sub> (327)	10 <sup>1</sup> / <sub>2</sub> (267)	1 <sup>1</sup> / <sub>2</sub> (40)	1 <sup>1</sup> / <sub>2</sub> (40)	4 <sup>3</sup> / <sub>8</sub> (121)	530 (240)
14 (350)	12 (300)	26 <sup>3</sup> / <sub>16</sub> (670)	32 <sup>3</sup> / <sub>16</sub> (822)	38 <sup>3</sup> / <sub>16</sub> (975)	13 <sup>3</sup> / <sub>8</sub> (346)	19 <sup>3</sup> / <sub>8</sub> (499)	25 <sup>3</sup> / <sub>8</sub> (651)	21 <sup>1</sup> / <sub>2</sub> (546)	15 <sup>1</sup> / <sub>4</sub> (387)	11 <sup>1</sup> / <sub>4</sub> (298)	1 <sup>1</sup> / <sub>2</sub> (40)	1 <sup>1</sup> / <sub>2</sub> (40)	5 <sup>1</sup> / <sub>4</sub> (133)	808 (366)
16 (400)	14 (350)	32 <sup>3</sup> / <sub>16</sub> (821)	39 <sup>3</sup> / <sub>16</sub> (998)	46 <sup>3</sup> / <sub>16</sub> (1,176)	16 <sup>3</sup> / <sub>4</sub> (425)	23 <sup>3</sup> / <sub>4</sub> (603)	30 <sup>3</sup> / <sub>4</sub> (781)	26 <sup>3</sup> / <sub>4</sub> (679)	16 <sup>3</sup> / <sub>4</sub> (413)	12 <sup>1</sup> / <sub>2</sub> (318)	2 (50)	2 (50)	5 <sup>1</sup> / <sub>2</sub> (140)	1086 (493)
18 (450)	16 (400)	32 <sup>3</sup> / <sub>16</sub> (827)	40 <sup>3</sup> / <sub>16</sub> (1,030)	48 <sup>3</sup> / <sub>16</sub> (1,233)	10 <sup>3</sup> / <sub>2</sub> (270)	18 <sup>3</sup> / <sub>2</sub> (473)	26 <sup>3</sup> / <sub>2</sub> (676)	26 <sup>3</sup> / <sub>2</sub> (676)	17 <sup>3</sup> / <sub>2</sub> (448)	13 <sup>3</sup> / <sub>4</sub> (349)	2 (50)	2 (50)	6 <sup>1</sup> / <sub>2</sub> (165)	1256 (570)
20 (500)	18 (450)	32 <sup>3</sup> / <sub>16</sub> (816)	41 <sup>3</sup> / <sub>16</sub> (1,045)	50 <sup>3</sup> / <sub>16</sub> (1,273)	23 <sup>3</sup> / <sub>2</sub> (588)	32 <sup>3</sup> / <sub>2</sub> (816)	41 <sup>3</sup> / <sub>2</sub> (1,045)	25 <sup>3</sup> / <sub>4</sub> (641)	20 <sup>3</sup> / <sub>2</sub> (511)	16 (406)	2 (50)	2 (50)	2 <sup>3</sup> / <sub>2</sub> (73)	1793 (813)
24 (600)	20 (500)	40 (1,016)	50 (1,270)	60 (1,524)	21 <sup>3</sup> / <sub>2</sub> (537)	31 <sup>3</sup> / <sub>2</sub> (791)	41 <sup>3</sup> / <sub>2</sub> (1,045)	32 <sup>3</sup> / <sub>2</sub> (826)	22 (559)	17 <sup>1</sup> / <sub>2</sub> (444)	2 (50)	2 (50)	9 (227)	3545 (1,608)
<b>Undersized Outlet</b>														
10 (250)	6 (150)	21 <sup>1</sup> / <sub>8</sub> (556)	24 <sup>1</sup> / <sub>8</sub> (632)	27 <sup>1</sup> / <sub>8</sub> (708)	11 <sup>3</sup> / <sub>8</sub> (298)	14 <sup>3</sup> / <sub>8</sub> (375)	17 <sup>3</sup> / <sub>8</sub> (451)	17 <sup>1</sup> / <sub>16</sub> (440)	11 <sup>1</sup> / <sub>8</sub> (283)	8 (203)	1 (25)	1 (25)	4 (102)	261 (118)
12 (300)	8 (200)	22 <sup>1</sup> / <sub>8</sub> (572)	26 <sup>1</sup> / <sub>8</sub> (673)	30 <sup>1</sup> / <sub>8</sub> (775)	11 <sup>1</sup> / <sub>4</sub> (286)	15 <sup>1</sup> / <sub>4</sub> (387)	19 <sup>1</sup> / <sub>4</sub> (489)	18 <sup>1</sup> / <sub>16</sub> (478)	12 <sup>3</sup> / <sub>8</sub> (327)	9 <sup>1</sup> / <sub>2</sub> (241)	1 <sup>1</sup> / <sub>2</sub> (40)	1 <sup>1</sup> / <sub>2</sub> (40)	4 <sup>3</sup> / <sub>8</sub> (118)	437 (198)
14 (350)	10 (250)	25 <sup>1</sup> / <sub>8</sub> (657)	30 <sup>1</sup> / <sub>8</sub> (784)	35 <sup>1</sup> / <sub>8</sub> (911)	13 <sup>3</sup> / <sub>8</sub> (333)	18 <sup>3</sup> / <sub>8</sub> (460)	23 <sup>3</sup> / <sub>8</sub> (587)	18 <sup>1</sup> / <sub>8</sub> (480)	14 (356)	10 <sup>1</sup> / <sub>2</sub> (267)	1 <sup>1</sup> / <sub>2</sub> (40)	1 <sup>1</sup> / <sub>2</sub> (40)	5 <sup>1</sup> / <sub>4</sub> (133)	670 (304)
16 (400)	12 (300)	26 <sup>1</sup> / <sub>8</sub> (667)	32 <sup>1</sup> / <sub>8</sub> (819)	38 <sup>1</sup> / <sub>8</sub> (972)	13.63 (346)	19 <sup>3</sup> / <sub>8</sub> (499)	25 <sup>3</sup> / <sub>8</sub> (651)	21 <sup>1</sup> / <sub>2</sub> (546)	15 <sup>1</sup> / <sub>2</sub> (394)	11 <sup>1</sup> / <sub>4</sub> (298)	2 (50)	2 (50)	5 <sup>1</sup> / <sub>8</sub> (129)	913 (414)
18 (450)	14 (350)	29 <sup>1</sup> / <sub>16</sub> (744)	36 <sup>1</sup> / <sub>16</sub> (922)	43 <sup>1</sup> / <sub>16</sub> (1,100)	16 <sup>3</sup> / <sub>4</sub> (425)	23 <sup>3</sup> / <sub>4</sub> (603)	30 <sup>3</sup> / <sub>4</sub> (781)	26 <sup>3</sup> / <sub>4</sub> (679)	16 <sup>3</sup> / <sub>8</sub> (416)	12 <sup>1</sup> / <sub>2</sub> (318)	2 (50)	2 (50)	5 <sup>3</sup> / <sub>8</sub> (149)	1058 (480)
20 (500)	16 (400)	32 <sup>3</sup> / <sub>16</sub> (827)	40 <sup>3</sup> / <sub>16</sub> (1,030)	48 <sup>3</sup> / <sub>16</sub> (1,233)	17 <sup>3</sup> / <sub>16</sub> (437)	25 <sup>3</sup> / <sub>16</sub> (640)	33 <sup>3</sup> / <sub>16</sub> (843)	26 <sup>3</sup> / <sub>16</sub> (676)	17 <sup>3</sup> / <sub>16</sub> (454)	13 <sup>3</sup> / <sub>4</sub> (349)	2 (50)	2 (50)	6 <sup>3</sup> / <sub>8</sub> (168)	1452 (659)
24 (600)	18 (450)	32 <sup>3</sup> / <sub>16</sub> (816)	41 <sup>3</sup> / <sub>16</sub> (1,045)	50 <sup>3</sup> / <sub>16</sub> (1,273)	17 (432)	26 (660)	35 (889)	25 <sup>3</sup> / <sub>8</sub> (651)	23 <sup>3</sup> / <sub>8</sub> (607)	16 (406)	2 (50)	2 (50)	7 <sup>1</sup> / <sub>8</sub> (198)	2382 (1,080)
<b>Oversized Outlet</b>														
10 (250)	10 (250)	25 <sup>1</sup> / <sub>16</sub> (656)	30 <sup>1</sup> / <sub>16</sub> (783)	35 <sup>1</sup> / <sub>16</sub> (910)	13 <sup>3/<sub>8</sub> (333)</sup>	18 <sup>3/<sub>8</sub> (460)</sup>	23 <sup>3/<sub>8</sub> (587)</sup>	18 <sup>1</sup> / <sub>16</sub> (478)	13 <sup>3/<sub>8</sub> (346)</sup>	10 <sup>1</sup> / <sub>2</sub> (267)	1 (25)	1 (25)	5 <sup>1</sup> / <sub>8</sub> (135)	420 (190)
12 (300)	12 (300)	26 <sup>3/<sub>16</sub> (670)</sup>	32 <sup>3/<sub>16</sub> (822)</sup>	38 <sup>3/<sub>16</sub> (975)</sup>	13 <sup>3/<sub>4</sub> (346)</sup>	19 <sup>3/<sub>4</sub> (499)</sup>	25 <sup>3/<sub>4</sub> (651)</sup>	21 <sup>1/<sub>2</sub> (546)</sup>	15 <sup>3/<sub>8</sub> (384)</sup>	11 <sup>3/<sub>8</sub> (298)</sup>	1 <sup>1/<sub>2</sub> (40)</sup>	1 <sup>1/<sub>2</sub> (40)</sup>	4 <sup>1</sup> / <sub>16</sub> (119)	650 (295)
14 (350)	14 (350)	32 <sup>3/<sub>16</sub> (816)</sup>	39 <sup>3/<sub>16</sub> (994)</sup>	46 <sup>3/<sub>16</sub> (1,172)</sup>	16 <sup>3/<sub>4</sub> (425)</sup>	23 <sup>3/<sub>4</sub> (603)</sup>	30 <sup>3/<sub>4</sub> (781)</sup>	26 <sup>3/<sub>4</sub> (679)</sup>	16 (406)	12 <sup>1/<sub>2</sub> (318)</sup>	1 <sup>1/<sub>2</sub> (40)</sup>	1 <sup>1/<sub>2</sub> (40)</sup>	5 (127)	964 (437)
16 (400)	16 (400)	32 <sup>3/<sub>16</sub> (827)</sup>	40 <sup>3/<sub>16</sub> (1,030)</sup>	48 <sup>3/<sub>16</sub> (1,233)</sup>	17 <sup>3/<sub>16</sub> (437)</sup>	25 <sup>3/<sub>16</sub> (640)</sup>	33 <sup>3/<sub>16</sub> (843)</sup>	26 <sup>3/<sub>16</sub> (676)</sup>	17 <sup>3/<sub>16</sub> (445)</sup>	13 <sup>3/<sub>4</sub> (349)</sup>	2 (50)	2 (50)	8 <sup>1</sup> / <sub>16</sub> (205)	1280 (580)
18 (450)	18 (450)	32 <sup>3/<sub>16</sub> (816)</sup>	41 <sup>3/<sub>16</sub> (1,045)</sup>	50 <sup>3/<sub>16</sub> (1,273)</sup>	17 (432)	26 (660)	35 (889)	25 <sup>3/<sub>4</sub> (641)</sup>	19 <sup>3/<sub>8</sub> (505)</sup>	16 (406)	2 (50)	2 (50)	5 <sup>1</sup> / <sub>8</sub> (151)	1572 (713)
20 (500)	20 (500)	40 (1,016)	50 (1,270)	60 (1,524)	21 <sup>3/<sub>2</sub> (537)</sup>	31 <sup>3/<sub>2</sub> (791)</sup>	41 <sup>3/<sub>2</sub> (1,045)</sup>	32 <sup>3/<sub>2</sub> (826)</sup>	21 <sup>3/<sub>2</sub> (549)</sup>	17 <sup>1/<sub>2</sub> (444)</sup>	2 (50)	2 (50)	8 (203)	2560 (1,161)
24 (600)	24 (600)	41 <sup>3/<sub>16</sub> (1,051)</sup>	53 <sup>3/<sub>16</sub> (1,356)</sup>	65 <sup>3/<sub>16</sub> (1,661)</sup>	22 <sup>3/<sub>2</sub> (562)</sup>	34 <sup>3/<sub>2</sub> (867)</sup>	46 <sup>3/<sub>2</sub> (1,172)</sup>	34 <sup>3/<sub>2</sub> (886)</sup>	23 <sup>3/<sub>2</sub> (606)</sup>	17 <sup>1/<sub>2</sub> (444)</sup>	2 (50)	2 (50)	7 <sup>1</sup> / <sub>8</sub> (198)	3600 (1,633)

1. Distance required for screen removal.

2. Weight shown for Type 1. For Type 3 and 5 multiply Type 1 weight by 1.1 and 1.2, respectively.

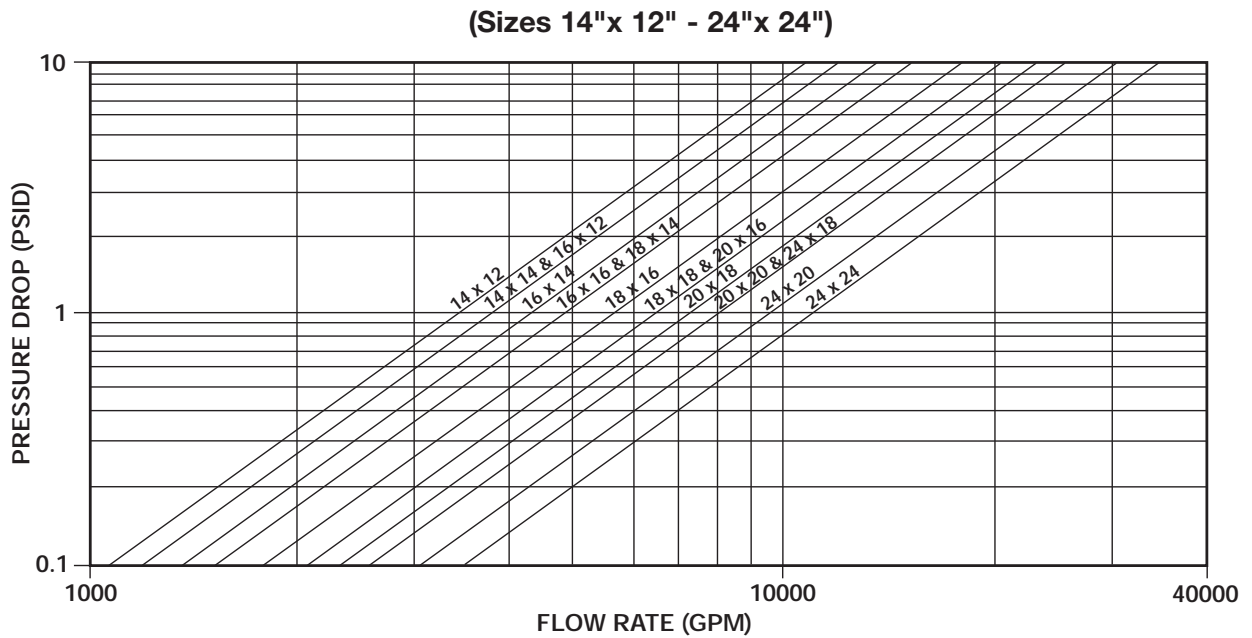
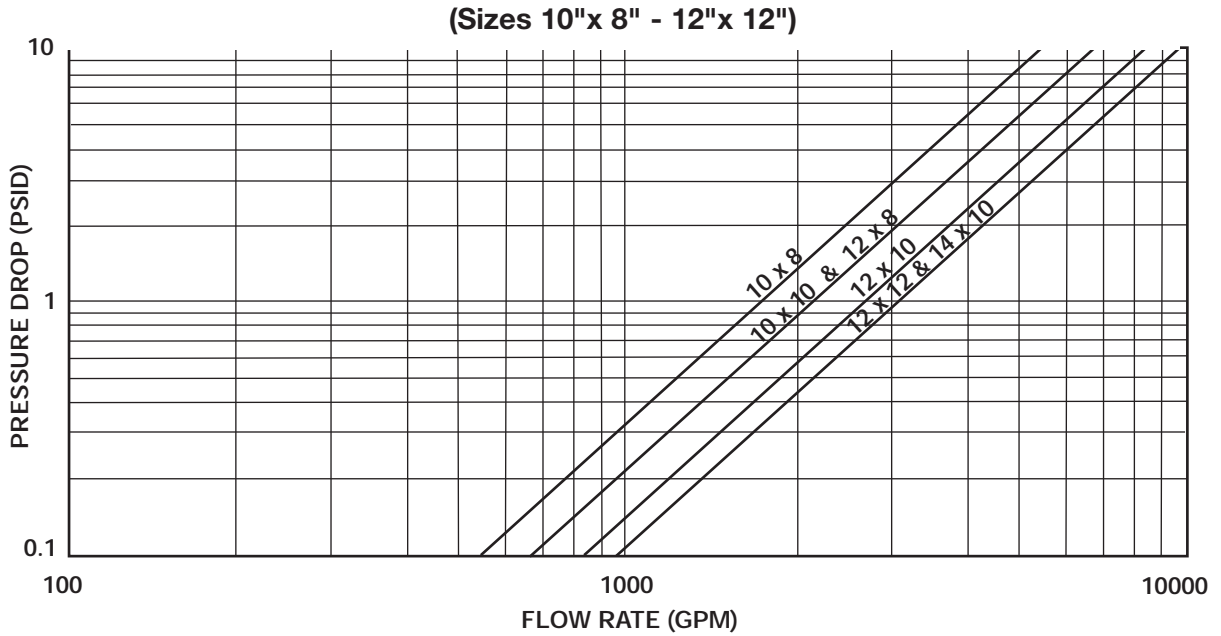
\* Dimensions are subject to change. Contact factory for certified drawings when required. Custom dimensions available upon request.

# FF SERIES

## FABRICATED SUCTION DIFFUSERS

### PRESSURE DROP VS FLOW RATE

Water Service, Clean Basket, 1/32" - 1/4" Perforated Screen\*



\* For other viscous liquids or mesh liners, contact factory.