

**NG-D SERIES**



# SUCTION DIFFUSERS



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## SUCTION DIFFUSERS

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## SUCTION DIFFUSERS

SIZE: 2" to 12"

GENERAL DATA

ANSI 125 / ANSI 250

### PREFACE

The **NORTHAM** Suction Diffuser NG-D series is a device which directly mounts to the suction side of horizontal or vertical centrifugal pumps.

It is designed to reduce space and installation cost by replacing a conventional 90° elbow, 'Y' or basket strainer and long flow stabilizing piping on the suction side of the pump. It may also be used as a reducing elbow, should the suction piping be larger than the pump inlet.

The suction diffuser consists of a start-up strainer (removable fine mesh filter), permanent strainer, guide vane, body, body cover and drain plug.

The suction strainer helps to remove foreign objects and debris that may be hazardous to the pump or other system components, while providing the proper flow conditions to the pump.

The water flow is passed through an in-built strainer to remove suspended solids and then guided to the pump suction through flow stabilizing guide vane. Guide vanes reduces turbulence and resulting stress and vibration. Fine mesh filter is provided to prevent seal failure and instrumentation damage during commissioning.

### FEATURES

It's multi functional design saves space and installation costs by incorporating all conventional devices into a single device solution.

#### 90° ELBOW

Direct mounting to the suction flange of any pump allows the piping to turn 90°. This feature replaces a conventional elbow. In addition, suction diffuser can be mounted on a pump suction flange either in horizontal or in vertical position.

#### IN-LINE STRAINER

The in-line strainer is divided into a outer cylindrical start-up strainer and a star-shaped permanent strainer.

The start-up strainer is a fine mesh strainer which helps in removing unwanted metal and other foreign particles or objects when the pump is first started. This startup strainer is made out of galvanized steel and it is preferable to remove it after the first 15 days of service.

The permanent strainer is made out of 0.11 inch perforated 304 stainless steel sheet metal. It will protect the pump against metallic or other foreign particles and objects during the entire service life of the pump. The design of this strainer provide a large free flow area to reduce pressure drop. This feature replaces a conventional 'Y' or basket strainer.

#### GUIDE VANES

Flow stabilizing vanes on the outlet of suction diffuser allow the suction diffuser to bolt directly to the pump. This feature saves space and also reduces cost of a conventional long straight pipe. Integrally straightening guide vanes also reduces flow turbulence, thereby creating optimum flow conditions and minimize stress on pump components.

#### REDUCING ELBOW

The suction diffuser connects same size piping to the pump suction, but can also connect to inlet piping one size larger than the pump suction, eliminating a reducing elbow. Several models are available with inlet size one size larger then outlet.

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### STANDARD FEATURES INCLUDE:

- ▶ Available in ANSI 125 & ANSI 250 as per ASME B16.1, with flanged connections. Flanges with PN 16 & PN 25 are also available as per DIN standard EN 1092-2. Grooved end flanged connections are available on request.
- ▶ Available with equal or reduced outlet flanges.
- ▶ Cast on supporting pads for convenient mounting of standard I.D support foot.
- ▶ Drain/purge plug is used to drain the suction diffuser when required. It has an in-built magnet to trap small metallic particles.
- ▶ Available suction gauge port.
- ▶ 'O' ring seals body cover.
- ▶ Quick opening bolted body cover minimize down time while cleaning the strainer.

### APPLICATIONS

- ▶ HVAC system
- ▶ Water supply
- ▶ Pressure boosting systems
- ▶ Industrial applications
- ▶ Boiler feed and condensate transfer system.

### TECHNICAL DATA

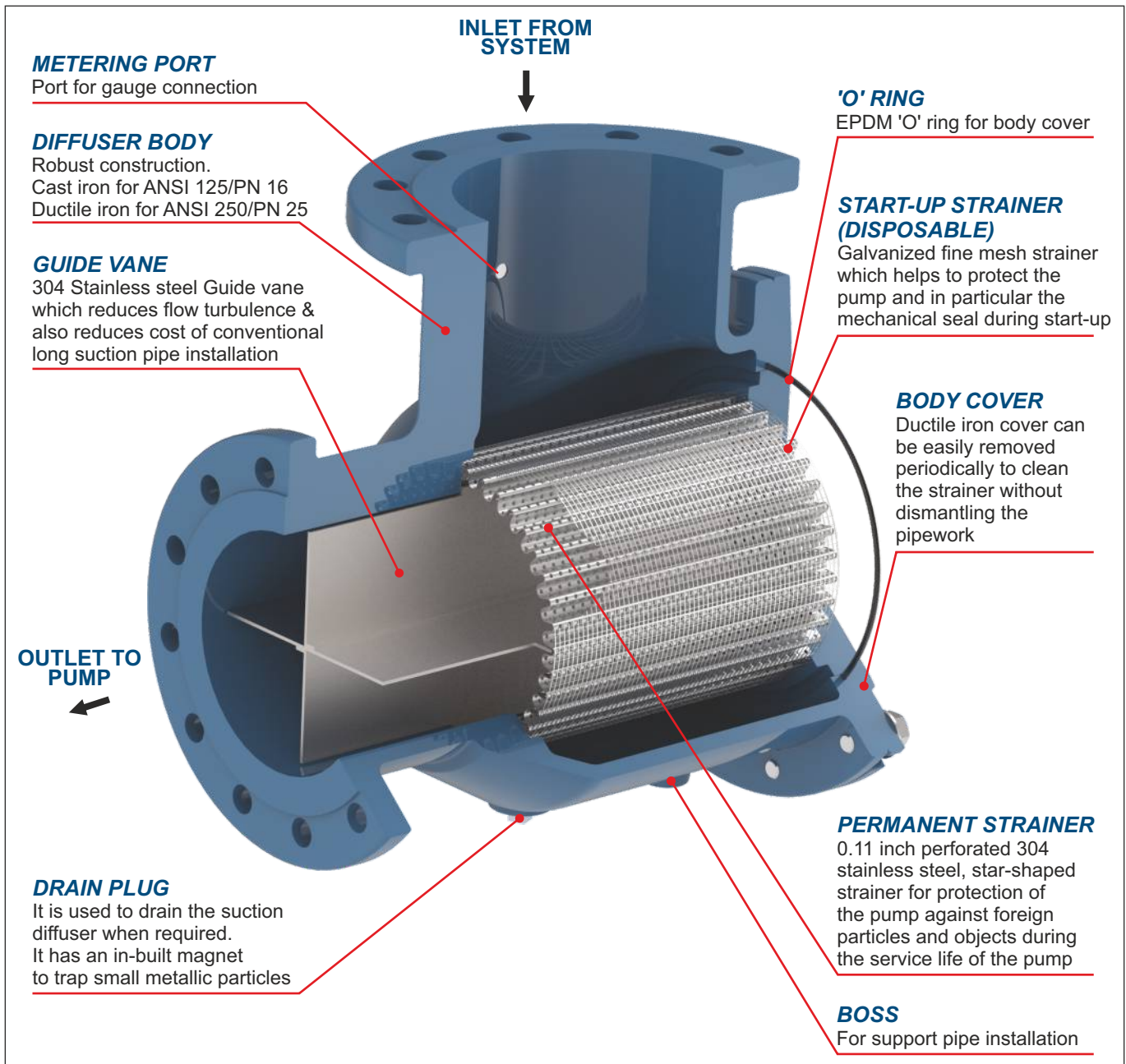
Connection size	2 inch to 14 inch
Pressure rating	125 psi and 250 psi (16 bar and 25 bar)

## SUCTION DIFFUSERS

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DESIGN FEATURES

ANSI 125 / ANSI 250



## MATERIAL OF CONSTRUCTION

Component	Material	
	ANSI 125/PN 16	ANSI 250/PN 25
Diffuser body	Cast iron	Ductile iron
Body cover	Ductile iron	Ductile iron
Permanent strainer (0.11 inch perforations)	304 Stainless steel	304 Stainless steel
Start-up strainer (fine mesh)	Galvanized steel	Galvanized steel
Guide vane (flow straightening vane)	304 Stainless steel	304 Stainless steel
Body cover 'O' ring	EPDM	EPDM



## SUCTION DIFFUSERS

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MODEL CODE

ANSI 125 / ANSI 250

NG

D

040

030

A

### Pressure rating

Code	Class
A	ANSI 125 (125 psi)
B	ANSI 250 (250 psi)
C	PN 16 (16 bar)
D	PN 25 (25 bar)

### Pump connection size

Code	Size
020	2" (50 mm)
025	2½" (65 mm)
030	3" (80 mm)
040	4" (100 mm)
050	5" (125 mm)
060	6" (150 mm)
080	8" (200 mm)
100	10" (250 mm)
120	12" (300 mm)
140	14" (350 mm)

### System connection size

Code	Size
020	2" (50 mm)
025	2½" (65 mm)
030	3" (80 mm)
040	4" (100 mm)
050	5" (125 mm)
060	6" (150 mm)
080	8" (200 mm)
100	10" (250 mm)
120	12" (300 mm)
140	14" (350 mm)

### Product type

Code	Type
D	Suction diffuser

### Series name

Code	Series
NG	General product

#### Example:

NG-D-040-030-A = General product series, Suction diffuser, 4" System connection size, 3" Pump connection size, ANSI 125 Pressure rating.

## SUCTION DIFFUSERS

SIZE: 2" to 12"

ORDER INFORMATION

ANSI 125 / ANSI 250

PUMP CONNECTION SIZE	SYSTEM CONNECTION SIZE	ORDER NO. / MODEL CODE	
		ANSI 125	ANSI 250
2"	2"	NG-D-020-020-A	NG-D-020-020-B
2"	2½"	NG-D-025-020-A	NG-D-025-020-B
2"	3"	NG-D-030-020-A	NG-D-030-020-B
2½"	2½"	NG-D-025-025-A	NG-D-025-025-B
2½"	3"	NG-D-030-025-A	NG-D-030-025-B
3"	3"	NG-D-030-030-A	NG-D-030-030-B
3"	4"	NG-D-040-030-A	NG-D-040-030-B
4"	4"	NG-D-040-040-A	NG-D-040-040-B
4"	5"	NG-D-050-040-A	NG-D-050-040-B
4"	6"	NG-D-060-040-A	NG-D-060-040-B
5"	5"	NG-D-050-050-A	NG-D-050-050-B
5"	6"	NG-D-060-050-A	NG-D-060-050-B
6"	6"	NG-D-060-060-A	NG-D-060-060-B
6"	8"	NG-D-080-060-A	NG-D-080-060-B
8"	8"	NG-D-080-080-A	NG-D-080-080-B
8"	10"	NG-D-100-080-A	NG-D-100-080-B
10"	10"	NG-D-100-100-A	NG-D-100-100-B
10"	12"	NG-D-120-100-A	NG-D-120-100-B
12"	12"	NG-D-120-120-A	NG-D-120-120-B
12"	14"	NG-D-140-120-A	NG-D-140-120-B

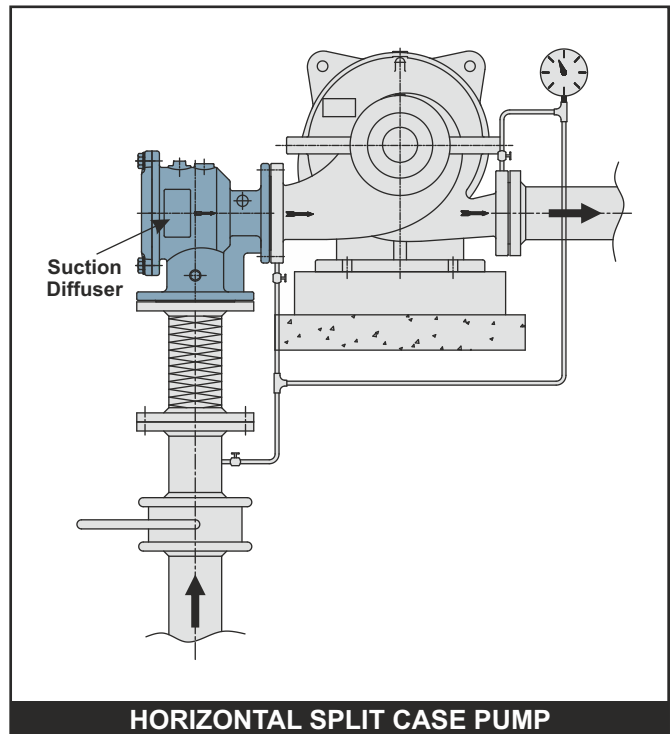
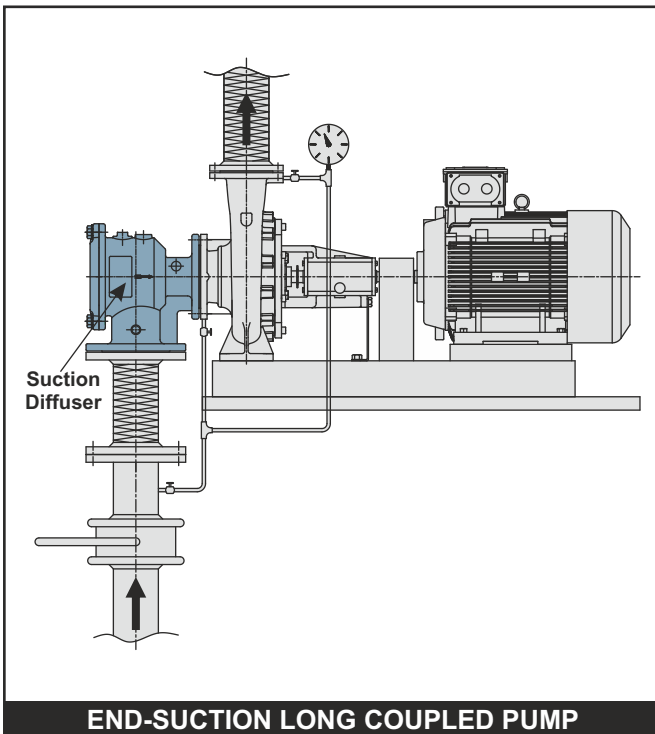
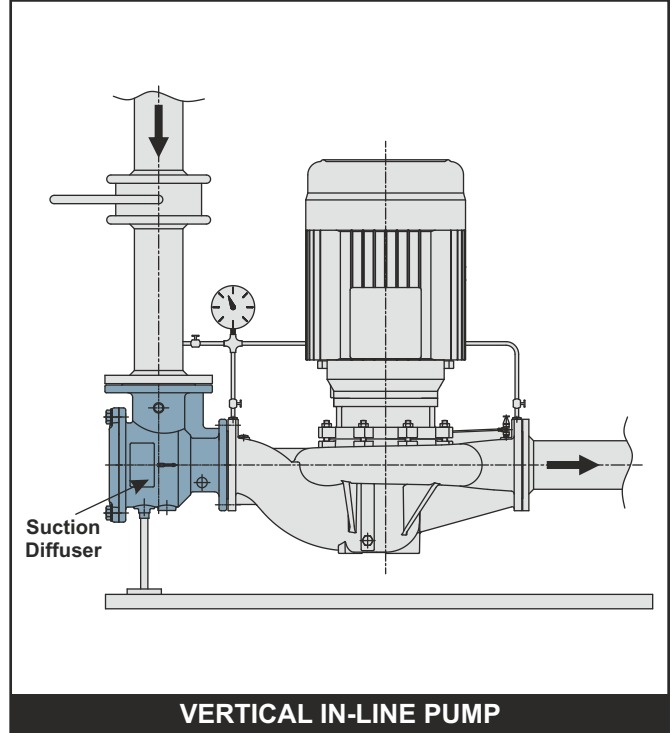
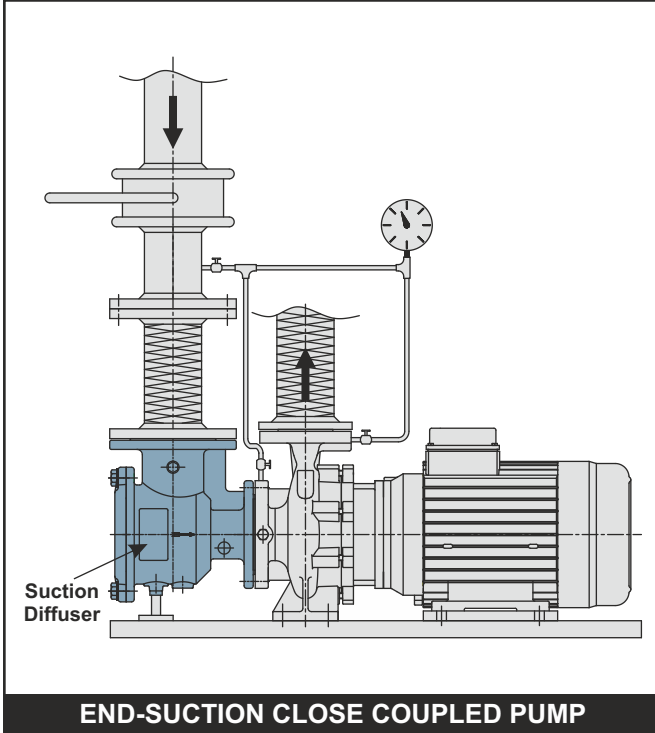


## SUCTION DIFFUSERS

SIZE: 2" to 12"

TYPICAL INSTALLATION

ANSI 125 / ANSI 250

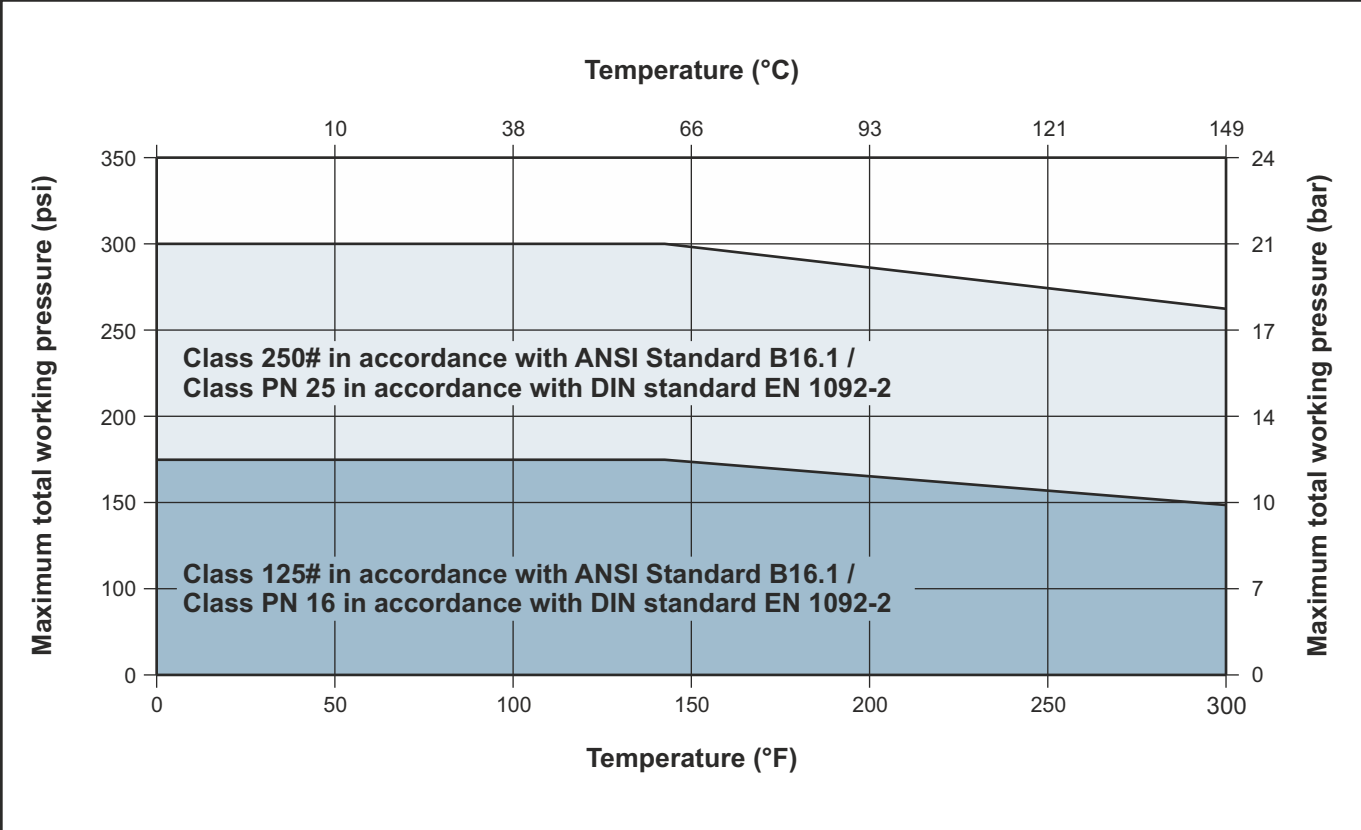


## SUCTION DIFFUSERS

SIZE: 2" to 12"

PRESSURE vs TEMPERATURE RATINGS

ANSI 125 / ANSI 250

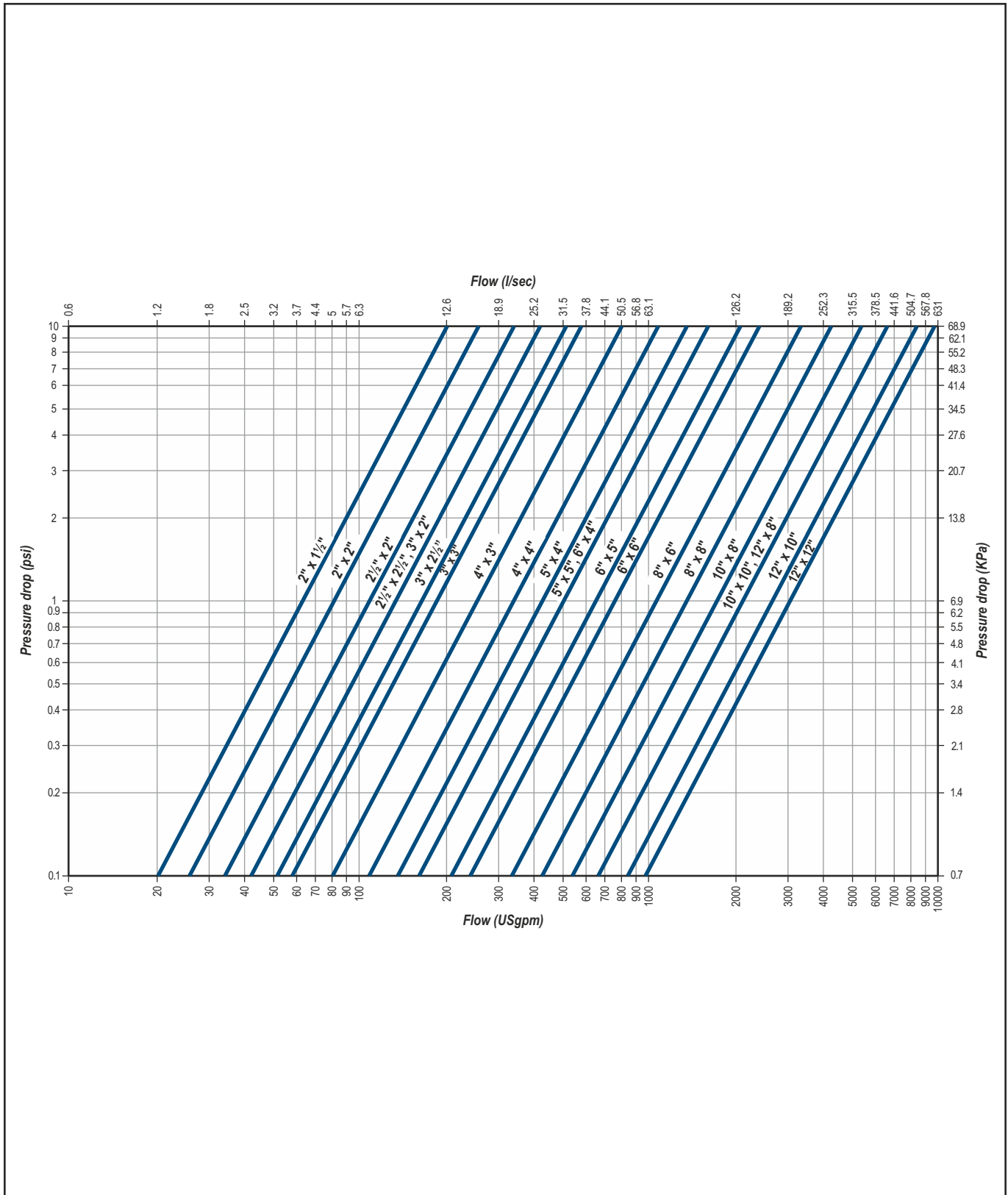


## SUCTION DIFFUSERS

SIZE: 2" to 12"

PRESSURE DROP CHART

ANSI 125 / ANSI 250

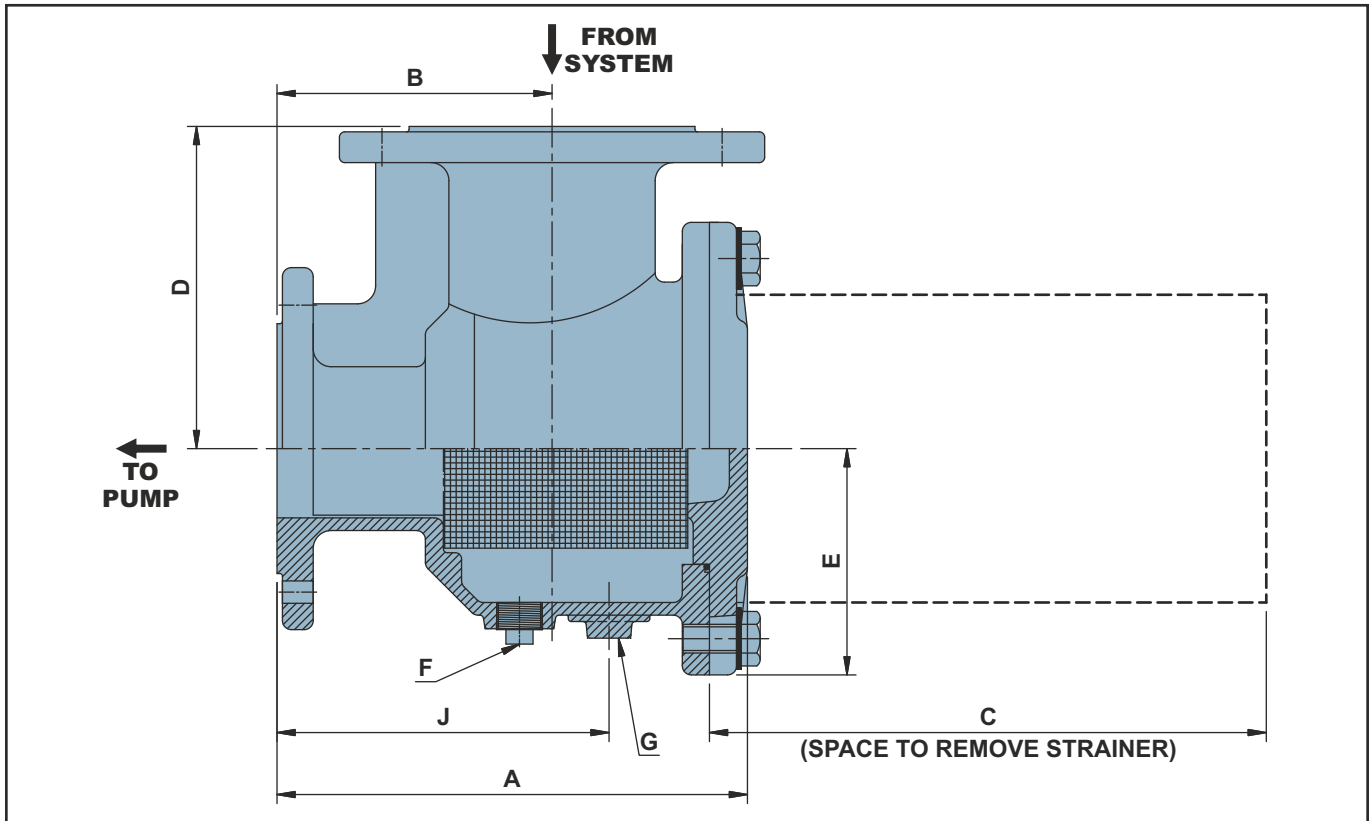


## SUCTION DIFFUSERS

SIZE: 2" to 12"

DIMENSIONS

ANSI 125 / ANSI 250



TYPE	FLANGE SIZE [inch]		STRAINER FREE AREA [sq.inch]	A [inch]	B [inch]	C [inch]	D [inch]	E [inch]	F	G [inch]	J [inch]	WEIGHT [lbs]
	PUMP SIDE	SYSTEM SIDE										
NG-D-020-020	2	2	35	8.98	5.00	9.84	6.26	4.33	1/2" NPT	0.98	6.36	9
NG-D-025-020	2	2½	35	8.98	5.00	9.84	6.26	4.33	1/2" NPT	0.98	6.36	10
NG-D-030-020	2	3	35	8.98	5.00	9.84	6.26	4.33	1/2" NPT	0.98	6.36	11
NG-D-025-025	2½	2½	35	9.49	5.51	10.83	6.26	4.33	1/2" NPT	0.98	6.87	10
NG-D-030-025	2½	3	35	9.49	5.51	10.83	6.26	4.33	1/2" NPT	0.98	6.87	11
NG-D-030-030	3	3	50	10.51	5.98	11.81	7.01	4.92	3/4" NPT	0.98	7.22	15
NG-D-040-030	3	4	50	10.51	5.98	11.81	7.01	4.92	3/4" NPT	0.98	7.22	15
NG-D-040-040	4	4	88	12.40	7.01	12.80	7.99	5.43	3/4" NPT	1.26	9.13	20
NG-D-050-040	4	5	88	12.40	7.01	12.80	7.99	5.43	3/4" NPT	1.26	9.13	21
NG-D-060-040	4	6	88	12.40	7.01	12.80	7.99	5.43	3/4" NPT	1.26	9.13	22
NG-D-050-050	5	5	114	14.17	8.03	14.76	9.06	6.54	1" NPT	1.26	10.55	28
NG-D-060-050	5	6	114	14.17	8.03	14.76	9.06	6.54	1" NPT	1.26	10.55	29
NG-D-060-060	6	6	162	17.64	10.51	17.72	10.98	7.40	1" NPT	1.97	13.58	39
NG-D-080-060	6	8	162	17.64	10.51	17.72	10.98	7.40	1" NPT	1.97	13.58	41
NG-D-080-080	8	8	270	21.46	12.99	20.67	12.99	8.86	1" NPT	1.97	17.36	65
NG-D-100-080	8	10	270	21.46	12.99	20.67	12.99	8.86	1" NPT	1.97	17.36	68
NG-D-100-100	10	10	475	24.76	14.49	23.62	14.49	10.14	1" NPT	1.97	18.58	89
NG-D-120-100	10	12	475	24.76	14.49	23.62	14.49	10.14	1" NPT	1.97	18.58	93
NG-D-120-120	12	12	780	30.00	17.99	27.56	17.99	13.17	1" NPT	1.97	22.99	155
NG-D-140-120	12	14	780	30.00	17.99	27.56	17.99	13.17	1" NPT	1.97	22.99	161

NOTE: ALL DIMENSIONS ARE INCHES UNLESS OTHERWISE NOTED.











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*Product Improvement and changes are a continuous process at 'Northam'. The data given in this publication is therefore subject to revision.*