

AGS Suction Diffuser

SERIES W731-D



Victaulic Series W731-D AGS (Advanced Groove System) Suction Diffuser provides optimum flow conditions at the inlet side of the pump. Oversize body provides improved flow patterns around and through the basket. The larger debris pocket keeps any debris out of the flow path below the basket. Victaulic Series W731-D AGS suction diffuser is rated to the working pressure of the flange machined on the outlet end up to a maximum 300 psi/2065 kPa.

The Series W731-D is available with straight, single and double reduction flanged outlets. Flanges may be machined to match most global (ANSI, DIN, GB, JIS, and Australian) flange standards within the diffuser pressure rating.

The body and cap are cast from ductile iron. Located on each side of the body are ½"/15 mm NPT pressure taps upstream and downstream of the diffuser. A large drain port is provided to allow for easy service. Each body also includes a cast boss for easy installation of a support base. The diffuser is removable for ease of service and made from perforated stainless steel. Each basket is provided with a removable fine mesh filter for start up.



WARNING



WARNING

Always depressurize and drain system before disassembly. Failure to do so could result in serious personal injury, property damage, joint leakage or joint separation.



WARNING

- When grooving pipe for use with AGS products, Victaulic roll grooving tools must be equipped with AGS roll sets (RW for steel or RWX for stainless steel).
- Victaulic AGS products **MUST NOT** be installed on pipe that is prepared with original-type grooving roll sets.

Failure to follow these instructions will cause grooves that are not within Victaulic AGS specifications, resulting in joint failure, serious personal injury, and property damage.

When preparing pipe for AGS products, please contact Victaulic for groove specifications for AGS groove dimensions.

JOB/OWNER

System No. _____

Location _____

CONTRACTOR

Submitted By _____

Date _____

ENGINEER

Spec Sect _____ Para _____

Approved _____

Date _____

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AGS Suction Diffuser

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MATERIAL SPECIFICATIONS

Housing (body, coupling, end cap): Ductile iron conforming to ASTM A-536 Grade 65-45-12.

Coupling Gasket: (specify choice)*

Standard

- **Grade "E" FlushSeal® EPDM**

EPDM (Green color code). Temperature range –30°F to +230°F/–34°C to +110°C. Recommended for cold and hot water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. UL classified in accordance with ANSI/NSF 61 for cold +86°F/+30°C and hot +180°F/+82°C potable water service. NOT RECOMMENDED FOR PETROLEUM SERVICES.

Optional

- **Grade "T" FlushSeal nitrile**

Nitrile (Orange color code). Temperature range –20°F to +180°F/–29°C to +82°C. Recommended for petroleum products, air with oil vapors, vegetable and mineral oils within the specified temperature range. Not recommended for hot water services over +150°F/+66°C or for hot dry air over +140°F/+60°C.

* Services listed are General Service Recommendations only. It should be noted that there are services for which these gaskets are not recommended. Reference should always be made to the latest Victaulic Gasket Selection Guide for specific gasket service recommendations and for a listing of services which are not recommended.

Diffuser: Stainless steel, Type 304, frame and perforated sheet with $\frac{5}{32}$ "/4 mm diameter holes.

Start-up Pre-filter: 20 mesh stainless steel, Type 304.

Bolts/Nuts: Heat-treated plated carbon steel, trackhead meeting the physical and chemical requirements of ASTM A-449 and physical requirements of ASTM A-183.

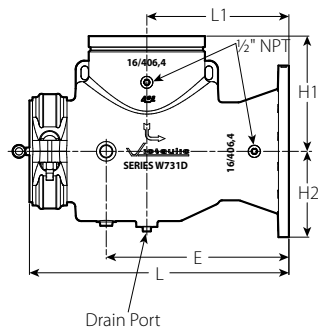
Support: Boss for support. See table on page 8 for size. (Support not supplied).

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ANSI DIMENSIONS

Series W731-D With
ANSI Class 150 Flange



14" - 24" / 350-600 MM SIZES

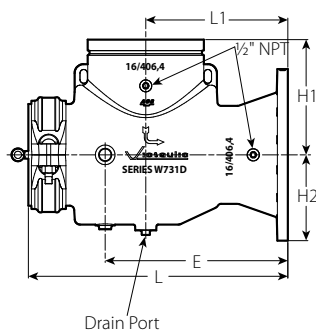
Size		Dimensions – Inches/mm						Approx. Wgt. Each
System Side Grooved	Pump Side Flange ANSI Class 150							
Nominal Size Inches/mm		L	L ₁	H ₁	H ₂	Drain Port Thread Size	E	Lbs/kg
14 350	10 250	29 737	16.1 410	14.4 365	8.1 205	1.5-11.5 NPT	21.3 540	328.9 149.2
	12 300	29 737	16.1 410	14.4 365	9.5 241	1.5-11.5 NPT	21.3 540	345.8 156.9
	14 350	29 737	16.1 410	14.4 365	10.6 268	1.5-11.5 NPT	21.3 540	367.6 166.7
16 400	12 300	36 914	19.6 497	15.9 403	9.5 241	1.5-11.5 NPT	25.2 639	464.5 210.7
	14 350	36 914	19.6 497	15.9 403	10.6 268	1.5-11.5 NPT	25.2 639	489.9 222.2
	16 400	36 914	19.6 497	15.9 403	11.8 300	1.5-11.5 NPT	25.2 639	514.2 233.2
18 450	14 350	39 991	21.7 550	17.2 438	10.6 268	1.5-11.5 NPT	27.6 700	788.6 357.7
	16 400	39 991	21.7 550	17.2 438	11.8 300	1.5-11.5 NPT	27.6 700	812.9 368.7
	18 450	39 991	21.7 550	17.2 438	12.6 321	1.5-11.5 NPT	27.6 700	828.3 375.7
20 500	16 400	43 1092	24.4 620	18.9 480	11.8 300	2-11.5 NPT	32.3 820	955.0 433.2
	18 450	43 1092	24.4 620	18.9 480	12.6 321	2-11.5 NPT	32.3 820	970.5 440.2
	20 500	43 1092	24.4 620	18.9 480	14.1 358	2-11.5 NPT	32.3 820	1019.0 462.2
24 600	18 450	47 1194	26.4 670	21.7 550	12.6 321	2-11.5 NPT	36.2 920	1255.8 569.6
	20 500	47 1194	26.4 670	21.7 550	14.1 358	2-11.5 NPT	36.2 920	1337.4 606.6
	24 600	47 1194	26.4 670	21.7 550	16.5 419	2-11.5 NPT	36.2 920	1401.3 635.6

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SERIES W731-D

DIN DIMENSIONS

Series W731-D with
PN10/PN16 Flange



DN350 – DN600 MM SIZES

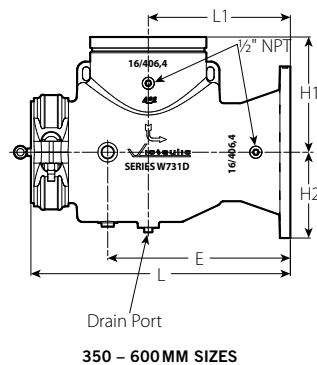
Size		Dimensions – millimeters/inches						Approx. Wgt. Each
System Side Grooved	Pump Side Flange PN10/ PN16							
	mm/Inches	L	L ₁	H ₁	H ₂	Drain Port Thread Size	E	kg/ Lbs.
350 14	× 250 10	737 29	410 16.1	365 14.4	205 8.1	1.5-11 ISO 7-1	540 21.3	149.2 328.9
	300 12	737 29	410 16.1	365 14.4	241 9.5	1.5-11 ISO 7-1	540 21.3	156.9 345.8
	350 14	737 29	410 16.1	365 14.4	268 10.6	1.5-11 ISO 7-1	540 21.3	166.7 367.6
400 16	× 300 12	914 36	497 19.6	403 15.9	241 9.5	1.5-11 ISO 7-1	639 25.2	210.7 464.5
	350 14	914 36	497 19.6	403 15.9	268 10.6	1.5-11 ISO 7-1	639 25.2	222.2 489.9
	400 16	914 36	497 19.6	403 15.9	300 11.8	1.5-11 ISO 7-1	639 25.2	233.2 514.2
500 20	× 400 16	1092 43	620 24.4	480 18.9	300 11.8	2-11 ISO 7-1	820 32.3	433.2 955.0
	450 18	1092 43	620 24.4	480 18.9	321 12.6	2-11 ISO 7-1	820 32.3	440.2 970.5
	500 20	1092 43	620 24.4	480 18.9	358 14.1	2-11 ISO 7-1	820 32.3	462.2 1019.0
600 24	× 450 18	1194 47	670 26.4	550 21.7	321 12.6	2-11 ISO 7-1	920 36.2	569.6 1255.8
	500 20	1194 47	670 26.4	550 21.7	358 14.1	2-11 ISO 7-1	920 36.2	606.6 1337.4
	600 24	1194 47	670 26.4	550 21.7	419 16.5	2-11 ISO 7-1	920 36.2	635.6 1401.3

AGS Suction Diffuser

SERIES W731-D

GB DIMENSIONS

Series W731-D with GB Flange



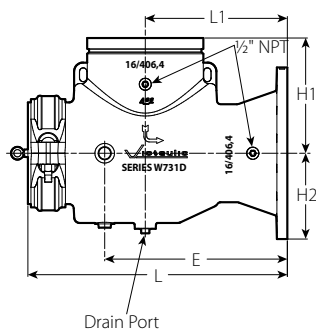
Size		Dimensions – millimeters/inches						Approx. Wgt. Each
System Side Grooved	x Pump Side Flange GB							
	mm/ Inches	L	L ₁	H ₁	H ₂	Drain Port Thread Size	E	kg/ Lbs.
350 14	x	250 10	737 29	410 16.1	365 14.4	205 8.1	1.5-11 ISO 7-1	540 21.3
		300 12	737 29	410 16.1	365 14.4	241 9.5	1.5-11 ISO 7-1	540 21.3
		350 14	737 29	410 16.1	365 14.4	268 10.6	1.5-11 ISO 7-1	540 21.3
400 16	x	300 12	914 36	497 19.6	403 15.9	241 9.5	1.5-11 ISO 7-1	639 25.2
		350 14	914 36	497 19.6	403 15.9	268 10.6	1.5-11 ISO 7-1	639 25.2
		400 16	914 36	497 19.6	403 15.9	300 11.8	1.5-11 ISO 7-1	639 25.2
500 20	x	400 16	1092 43	620 24.4	480 18.9	300 11.8	2-11 ISO 7-1	820 32.3
		450 18	1092 43	620 24.4	480 18.9	321 12.6	2-11 ISO 7-1	820 32.3
		500 20	1092 43	620 24.4	480 18.9	358 14.1	2-11 ISO 7-1	820 32.3
600 24	x	450 18	1194 47	670 26.4	550 21.7	321 12.6	2-11 ISO 7-1	920 36.2
		500 20	1194 47	670 26.4	550 21.7	358 14.1	2-11 ISO 7-1	920 36.2
		600 24	1194 47	670 26.4	550 21.7	419 16.5	2-11 ISO 7-1	920 36.2

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SERIES W731-D

JIS DIMENSIONS

Series W731-D with
JIS 10K Flange



DN350A – DN600A MM SIZES

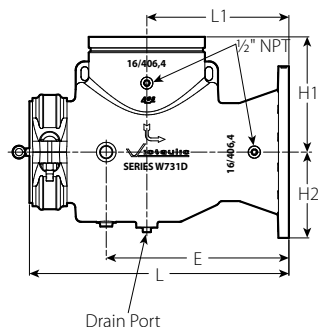
Size		Dimensions – millimeters/inches						Approx. Wgt. Each
System Side Grooved	Pump Side Flange 10K							
		mm/Inches	L	L ₁	H ₁	H ₂	Drain Port Thread Size	kg/Lbs.
350A 14	× 250A 10		737 29	410 16.1	365 14.4	205 8.1	1.5-11 ISO 7-1	149.2 328.9
	× 300A 12		737 29	410 16.1	365 14.4	241 9.5	1.5-11 ISO 7-1	156.9 345.8
	× 350A 14		737 29	410 16.1	365 14.4	268 10.6	1.5-11 ISO 7-1	166.7 367.6
400A 16	× 300A 12		914 36	497 19.6	403 15.9	241 9.5	1.5-11 ISO 7-1	210.7 464.5
	× 350A 14		914 36	497 19.6	403 15.9	268 10.6	1.5-11 ISO 7-1	222.2 489.9
	× 400A 16		914 36	497 19.6	403 15.9	300 11.8	1.5-11 ISO 7-1	233.2 514.2
450A 18	× 350A 14		991 39	550 21.7	438 17.2	268 10.6	1.5-11 ISO 7-1	357.7 788.6
	× 400A 16		991 39	550 21.7	438 17.2	300 11.8	1.5-11 ISO 7-1	368.7 812.9
	× 450A 18		991 39	550 21.7	438 17.2	321 12.6	1.5-11 ISO 7-1	375.7 828.3
500A 20	× 400A 16		1092 43	620 24.4	480 18.9	300 11.8	2-11 ISO 7-1	433.2 955.0
	× 450A 18		1092 43	620 24.4	480 18.9	321 12.6	2-11 ISO 7-1	440.2 970.5
	× 500A 20		1092 43	620 24.4	480 18.9	358 14.1	2-11 ISO 7-1	462.2 1019.0
600A 24	× 450A 18		1194 47	670 26.4	550 21.7	321 12.6	2-11 ISO 7-1	569.6 1255.8
	× 500A 20		1194 47	670 26.4	550 21.7	358 14.1	2-11 ISO 7-1	606.6 1337.4
	× 600A 24		1194 47	670 26.4	550 21.7	419 16.5	2-11 ISO 7-1	635.6 1401.3

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SERIES W731-D

AS Table "E" DIMENSIONS

Series W731-D With
Australian Standard Flange Table "E"



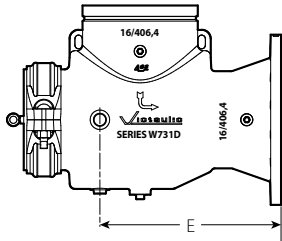
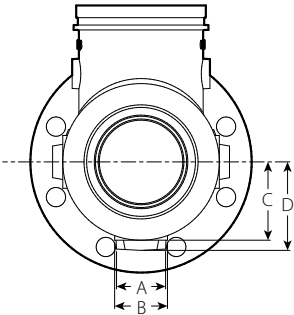
14" - 24" / 350-600 MM SIZES

Size		Dimensions – Inches/mm						Approx. Wgt. Each
System Side Grooved	Pipe Side AS Flange Table "E"							
Nominal Size mm/Inches		L	L ₁	H ₁	H ₂	Drain Port Thread Size	E	kg/Lbs.
350 14	250 10	737 29	410 16.1	365 14.4	205 8.1	1.5-11 ISO 7-1	540 21.3	149.2 328.9
	300 12	737 29	410 16.1	365 14.4	241 9.5	1.5-11 ISO 7-1	540 21.3	156.9 345.8
	350 14	737 29	410 16.1	365 14.4	268 10.6	1.5-11 ISO 7-1	540 21.3	166.7 367.6
400 16	300 12	914 36	497 19.6	403 15.9	241 9.5	1.5-11 ISO 7-1	639 25.2	210.7 464.5
	350 14	914 36	497 19.6	403 15.9	268 10.6	1.5-11 ISO 7-1	639 25.2	222.2 489.9
	400 16	914 36	497 19.6	403 15.9	300 11.8	1.5-11 ISO 7-1	639 25.2	233.2 514.2
450 18	350 14	991 39	550 21.7	438 17.2	268 10.6	1.5-11 ISO 7-1	700 27.6	357.7 788.6
	400 16	991 39	550 21.7	438 17.2	300 11.8	1.5-11 ISO 7-1	700 27.6	368.7 812.9
	450 18	991 39	550 21.7	438 17.2	321 12.6	1.5-11 ISO 7-1	700 27.6	375.7 828.3
500 20	400 16	1092 43	620 24.4	480 18.9	300 11.8	2-11 ISO 7-1	820 32.3	433.2 955.0
	450 18	1092 43	620 24.4	480 18.9	321 12.6	2-11 ISO 7-1	820 32.3	440.2 970.5
	500 20	1092 43	620 24.4	480 18.9	358 14.1	2-11 ISO 7-1	820 32.3	462.2 1019.0
600 24	450 18	1194 47	670 26.4	550 21.7	321 12.6	2-11 ISO 7-1	920 36.2	569.6 1255.8
	500 20	1194 47	670 26.4	550 21.7	358 14.1	2-11 ISO 7-1	920 36.2	606.6 1337.4
	600 24	1194 47	670 26.4	550 21.7	419 16.5	2-11 ISO 7-1	920 36.2	635.6 1401.3

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SERIES W731-D

SERIES W731-D AGS SUCTION DIFFUSER –
SUPPORT AND TAP BOSS LOCATION



Inlet Size Inches/mm	Support Locations Three Places Inches/mm				
	A#	B#	C	D	E
14 350	1.80 45.7	2.70 68.6	8.53 216.7	9.05 229.9	21.3 540
16 400	1.80 45.7	2.70 68.6	9.73 247.1	10.25 260.4	25.2 639
18 450	2.80 71.1	4.00 101.6	11.05 280.7	11.57 293.9	27.6 700
20 500	2.80 71.1	4.00 101.6	12.25 311.2	12.77 324.4	32.3 820
24 600	2.80 71.1	4.00 101.6	14.65 372.1	15.17 385.3	36.2 920

Listed as diameters.

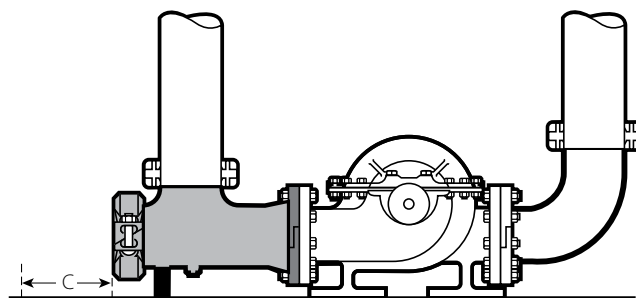
AGS Suction Diffuser

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ASSEMBLY CLEARANCE

The recommended basket access requirements and support leg pipe diameters are listed in the following table.

Recommended Minimum Clearance Required to Remove Diffuser Basket														
ANSI			DIN			GB		JIS		AS Table "E"				
Size Inches/mm	Clearance "C" Inches/ mm		Size mm/Inches	Clearance "C" mm/ Inches		Size mm/Inches	Clearance "C" mm/ Inches	Size mm/Inches	Clearance "C" mm/ Inches	Size mm/Inches	Clearance "C" mm/ Inches			
14 350	10 250	20 508	350 14	250 10	508 20	350 14	250 10	508 20	350A 14	250A 10	508 20	350 14	250 10	508 20
	12 300	20 508		300 12	508 20		300A 12	508 20		300 12	508 20			
	14 350	20 508		350 14	508 20		350A 14	508 20		350 14	508 20			
16 400	12 300	23 584	400 16	300 12	584 23	400 16	300 12	584 23	400A 16	300A 12	584 23	400 16	300 12	584 23
	14 350	23 584		350 14	584 23		350A 14	584 23		350 14	584 23			
	16 400	23 584		400 16	584 23		400A 16	584 23		400 16	584 23			
18 450	14 350	26 660	500 20	400 16	711 28	500 20	400 16	711 28	450A 18	350A 14	660 26	450 18	350 14	660 26
	16 400	26 660		450 18	711 28		400A 16	660 26		400 16	660 226			
	18 450	26 660		500 20	711 28		450A 18	660 26		450 18	660 26			
20 500	16 400	28 711	600 24	450 18	813 32	600 24	450 18	813 32	500A 20	400A 16	711 28	500 20	400 16	711 28
	18 450	28 711		500 20	813 32		450A 18	711 28		450 18	711 28			
	20 500	28 711		600 24	813 32		500A 20	711 28		500 20	711 28			
24 600	18 450	32 813							600A 24	450A 18	813 32	600 24	450 18	813 32
	20 500	32 813					500A 20	813 32		500 20	813 32			
	24 600	32 813					600A 24	813 32		600 24	813 32			



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FLOW DATA

C_v and K_v Values

Values for flow of water at +60°F/+16°C are shown in the table below.

Formulas for C_v/K_v Values:

$$\Delta P = \frac{Q^2}{C_v^2}$$

$$Q = C_v \times \sqrt{\Delta P}$$

Where:

Q = Flow (GPM)

ΔP = Pressure Drop (psi)

C_v = Flow Coefficient

$$\Delta P = \frac{Q^2}{K_v}$$

$$Q = K_v \times \sqrt{\Delta P}$$

Where:

Q = Flow (m³/h)

ΔP = Pressure Drop (bar)

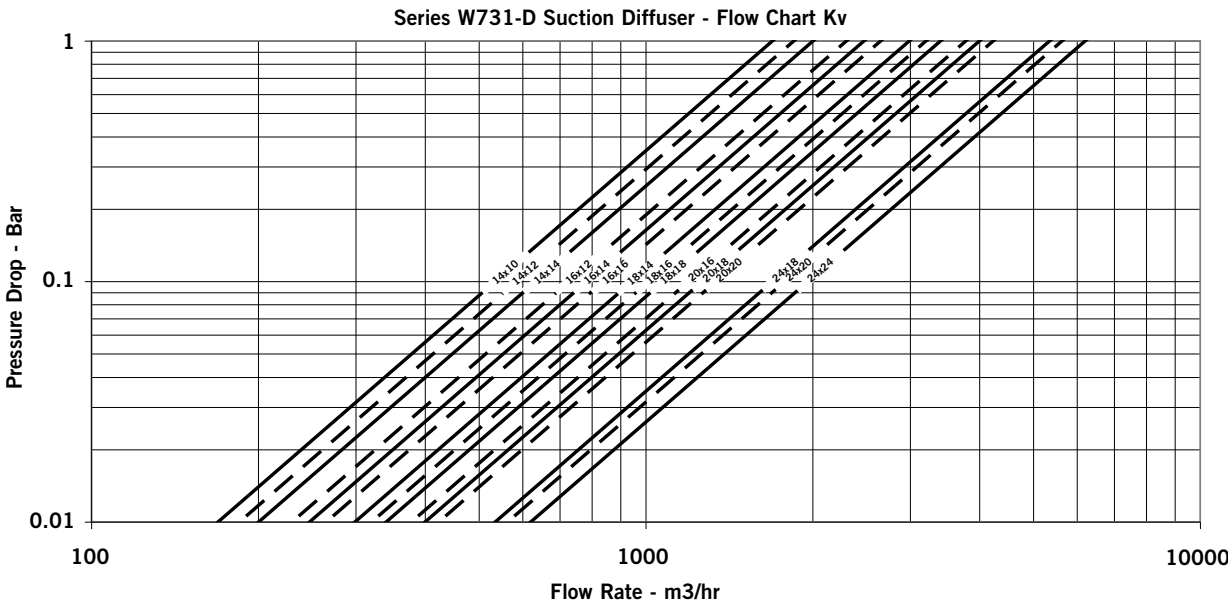
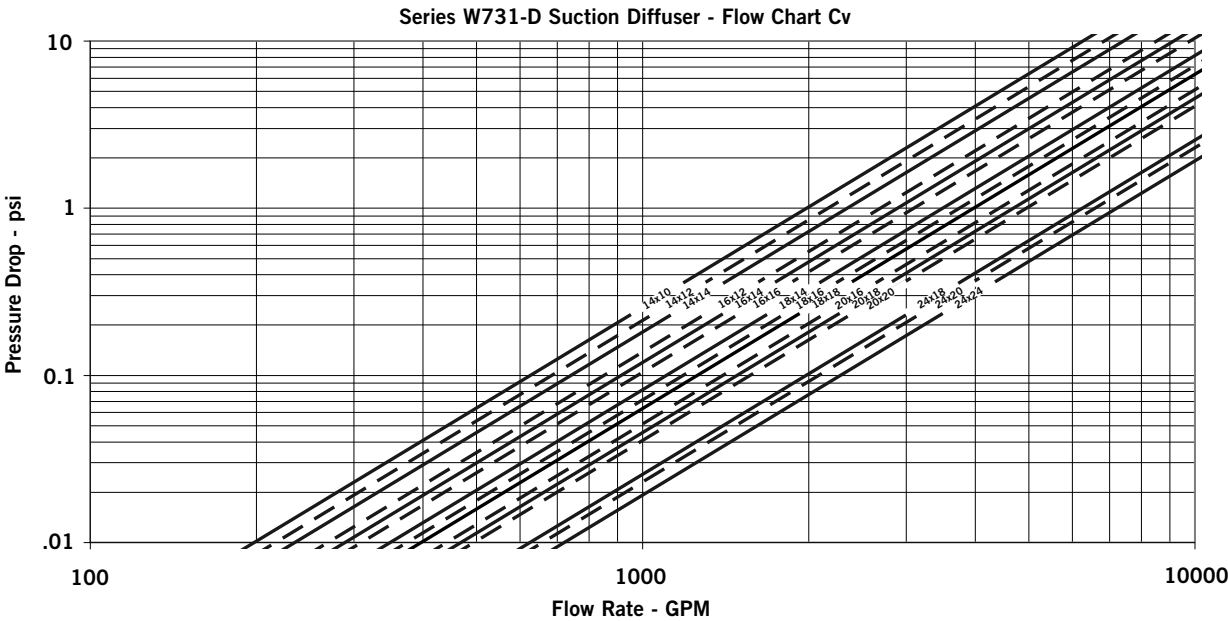
K_v = Flow Coefficient

Size			
Inches/mm			Cv/Kv Values
14 350	×	10	1984
		250	1716
		12	2170
		300	1877
		14	2350
16 400	×	350	2033
		12	2700
		300	2336
		14	2900
		350	2509
		16	3100
		400	2682
		18	3500
		450	3028
		16	3750
		400	3244
		18	3980
		450	3443
		20	4430
		500	3832
		18	4700
		450	4066
		20	4960
		500	4290
		24	6270
24 600	×	450	5424
		20	6600
		500	5709
		24	7230
		600	6254

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PERFORMANCE DATA



AGS Suction Diffuser

SERIES W731-D

INSTALLATION

Reference should always be made to Victaulic Field Installation Instructions for the product you are installing. Handbooks are included with each shipment of Victaulic products for complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

WARRANTY

Refer to the Warranty section of the current Price List or contact Victaulic for details.

NOTE

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

For complete contact information, visit www.victaulic.com

20.20 5500 REV B UPDATED 12/2010

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