SHELDONS ENGINEERING Inc.

SERIES 2300 -- INDUCTION VENTURI

INTRODUCTION

For many fume exhaust applications such as those involving hazardous fumes or vapours, the conventional exhaust methods of passing the gases through the fan case could be potentially very dangerous. With exhausts from perchloric fume hoods in particular a build-up of crystals can occur on duct walls and fans which is a definite explosive hazard.

To overcome this problem, Sheldons Engineering water wash Induction Venturi has been designed specifically to handle the hazardous exhaust conditions experienced with the use of anhydrous perchloric acid as an oxidizer in laboratory fume hoods.

METHOD OF OPERATION

By supplying a high velocity jet of air inside a specifically designed venturi a flow of gas can be induced at the inlet to the venturi. This induced flow can then be used to exhaust hazardous exhaust gases without any of the gas having to pass through the fan.

In the case of perchloric hood exhaust systems, a special safe guard against build-up of crystal formations on duct walls is provided by a flushing ring mounted at the top of the venturi. Water from the flushing ring runs down the walls of the venturi and into the duct work, washing away crystal formations. The flushing water runs directly into a wet hood designed specifically for handling water wash down systems.

OPTIONAL ACCESSORIES

-Roof Mounting Curb
-Auxiliary Flushing Rings, required when duct lengths exceed recommended values, to ensure complete and uniform coverage by water washdown.
-Motor Weather Hood
-Fan inlet Filter Box
-Fully Insulated Stack with Galvanize cladding
-Heat Traced water lines

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CONSTRUCTION

Venturi - Fabricated from 316L stainless Steel throughout, flanged at inlet and outlet, Air jet connection is slip fit for a flexible connection to the pressure blower. Water manifold ensures even flow to the flushing ring.

Blower - fabricated from mild steel and made direct drive Arrangement 4 for ease of maintenance. Blower is usually mounted alongside the venturi in any convenient position. Each venturi has its own blower designed for the rated performance as shown in the following pages, a cut-off damper provides some field adjustment of induced air flow. For outdoor use, a motor weather hood cover is available as an option. An inlet screen is supplied as standard equipment.

APPLICATION DATA

1. Perchloric acid is extremely unstable at room temperatures, decomposing rapidly to form an explosive mixture of gaseous products including chlorine dioxide. The decomposition may be spontaneous with violent explosion. It is important that precautions be taken in original exhaust system design to provide wash-down facilities in all duct work.

2. Both Induction Venturi, and duct work should be mounted vertically, to ensure that water from flushing rings clings to wall of the duct. Even when vertical, water tends to channel into rivulets after approximately 10 to 12 feet, and additional flushing rings are recommended for long duct runs if these are unavoidable.

3. Horizontal duct runs are not recommended, but if unavoidable should have stainless steel spray nozzles provided at regular intervals, (approximately 4 to 5 feet) for flushing the duct periodically with water. Drains should also be provided.

4. The use of organic materials for flange sealers or for nozzle pipe threads is extremely dangerous. The use of Teflon is suggested for these applications.

5. It is only necessary to use the flushing rings about twice a day for about 15 minutes. A value should be provided at the hood to control the flushing operation. The jet blower should be shut down during this operation.

6. Water pressure of approximately 2 psi is required at the flushing rings. Flow rate is about 10-15 USgpm.

7. Sheldons Induction Venturi may be mounted in any location in a vertical duct. If it is not at the high point in the system, then additional flushing rings must be mounted above the venturi to ensure all duct work is washed down.

8. Jet blower can be mounted in any convenient location, and either indoor or outdoor air ducted to the venturi.

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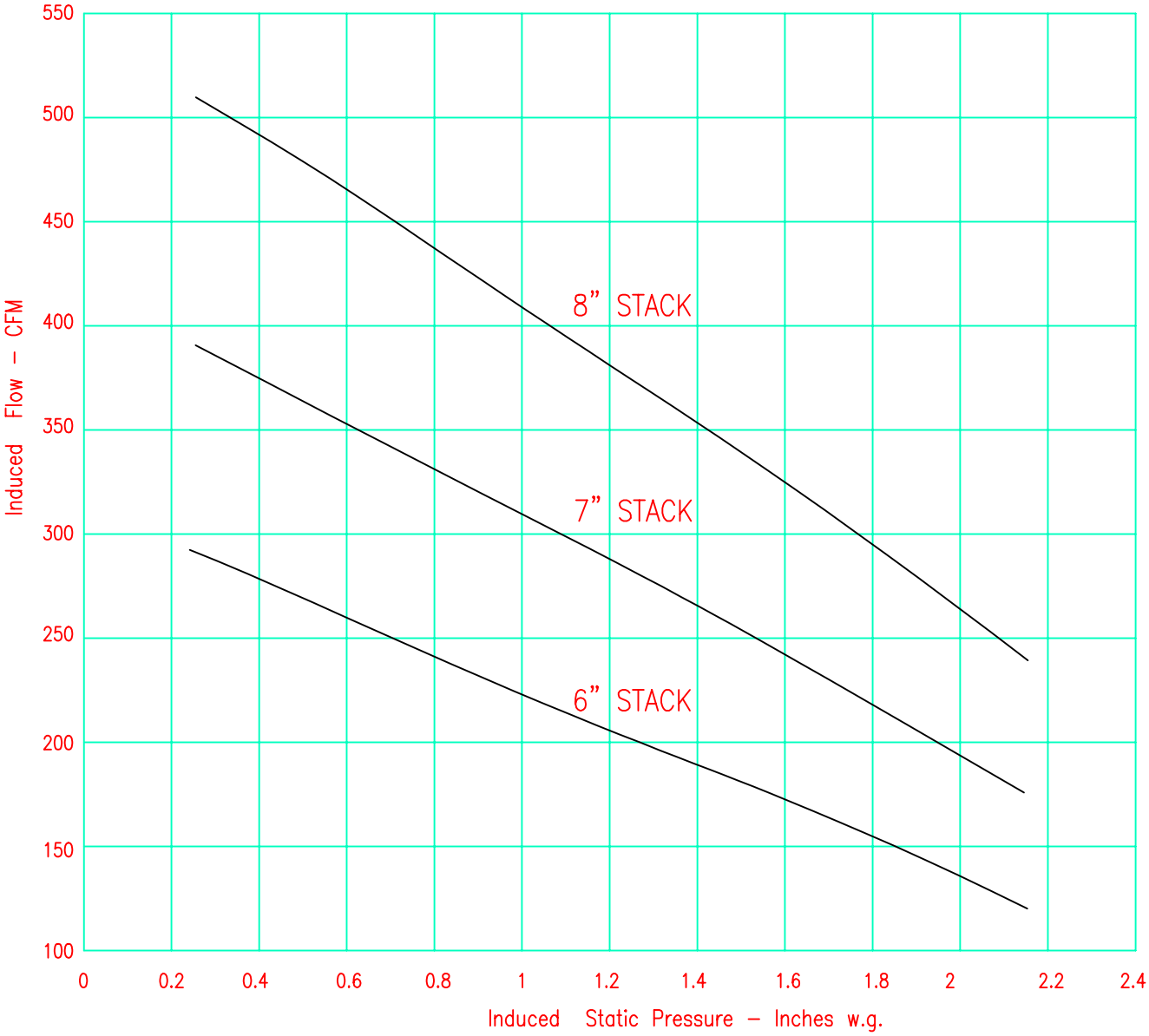
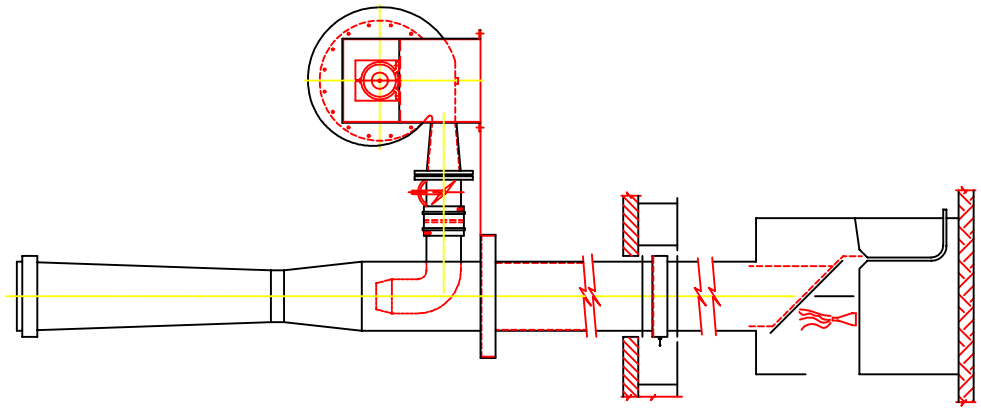
INDUCTION VENTURI SIZES 6,7 & 8





TYPICAL INSTALLATION

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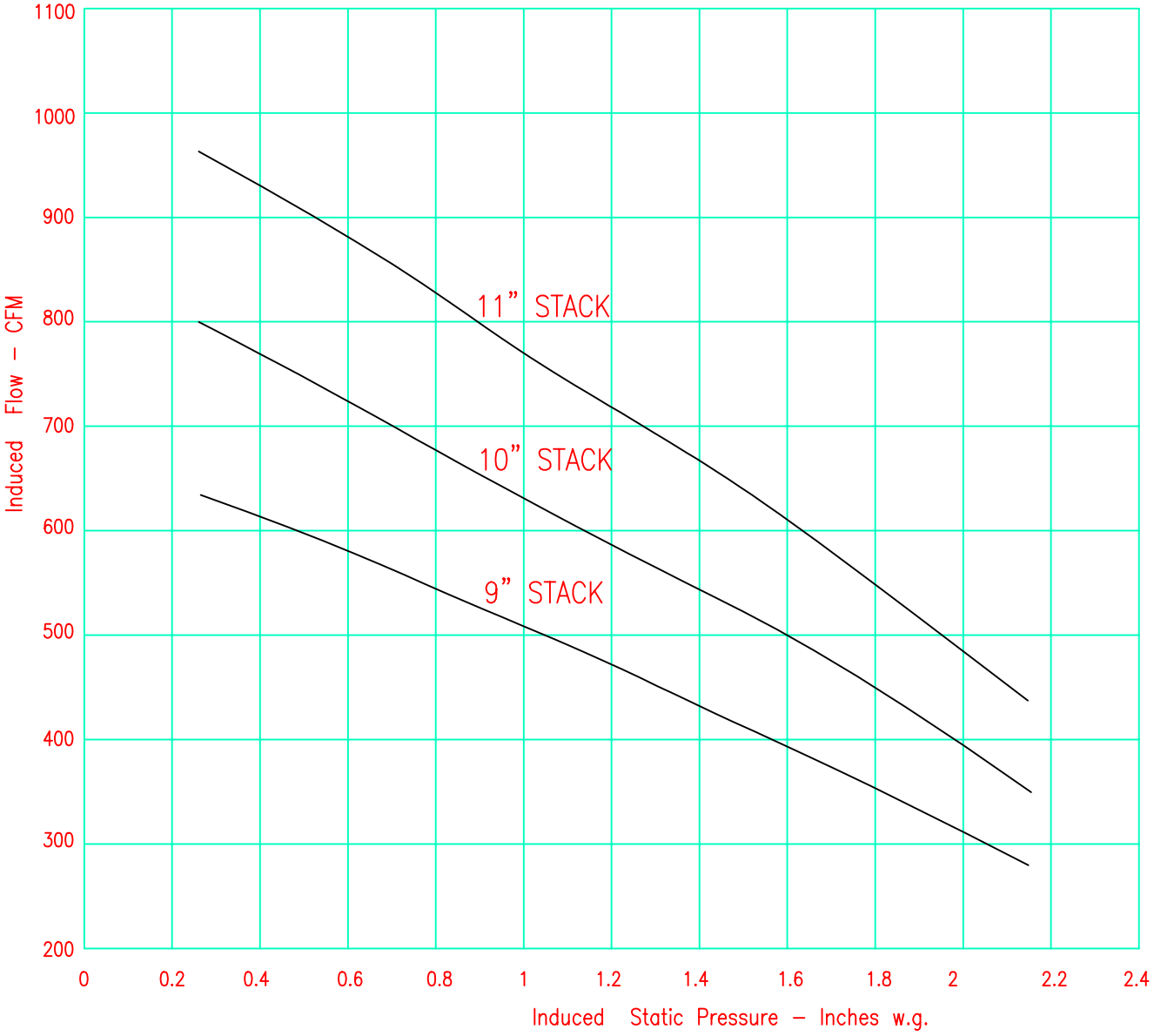
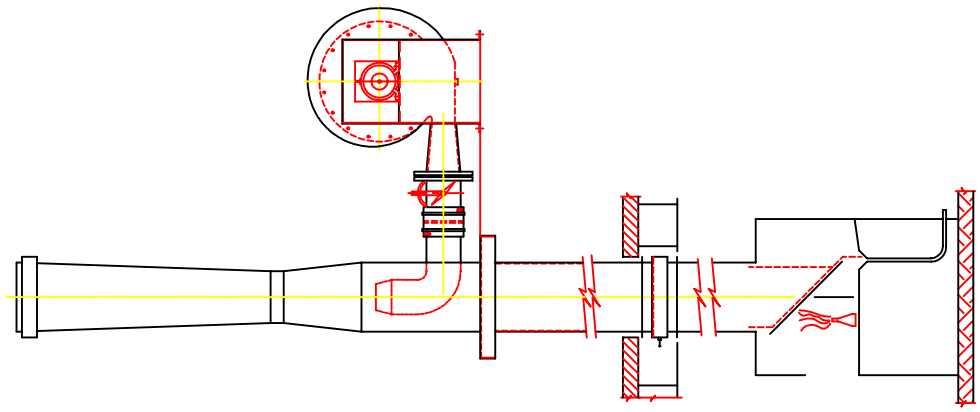
INDUCTION VENTURI SIZES 9,10 & 11





TYPICAL INSTALLATION

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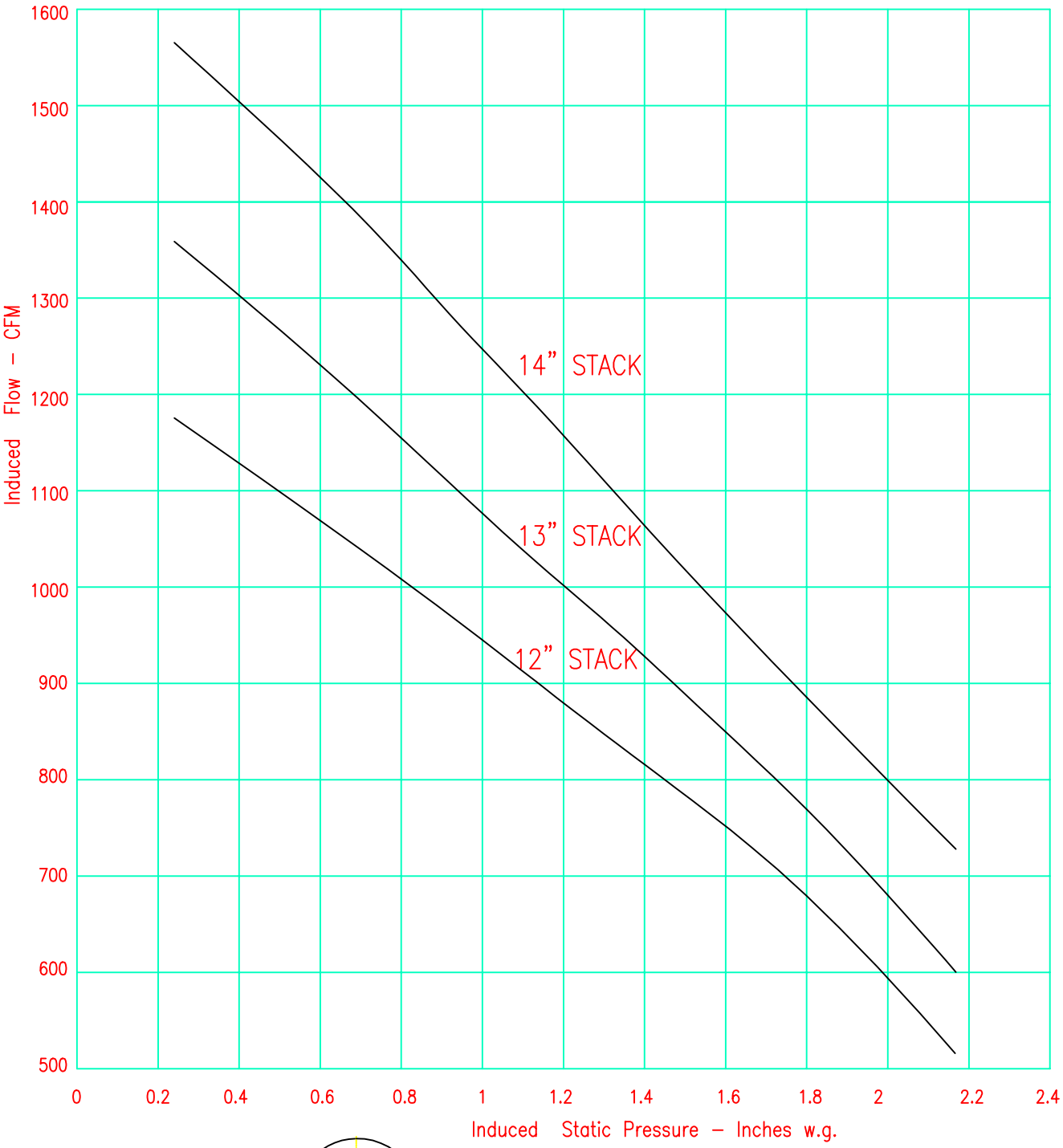
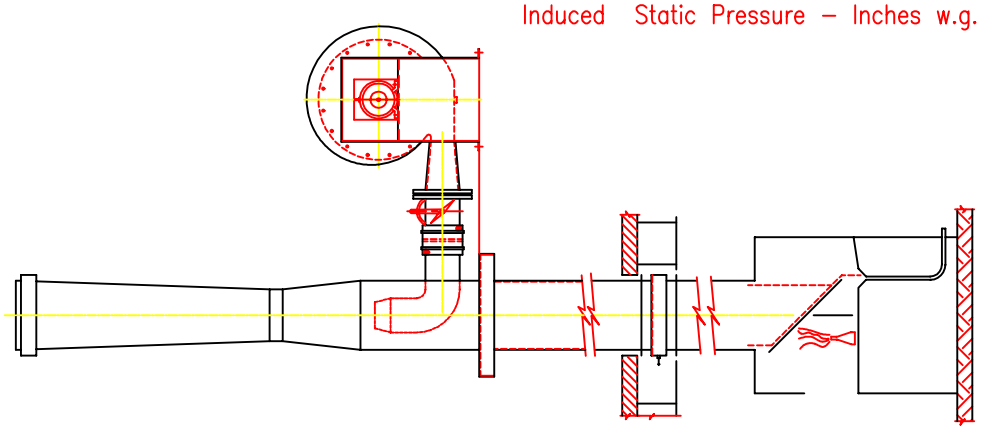
INDUCTION VENTURI SIZES 12,13 & 14





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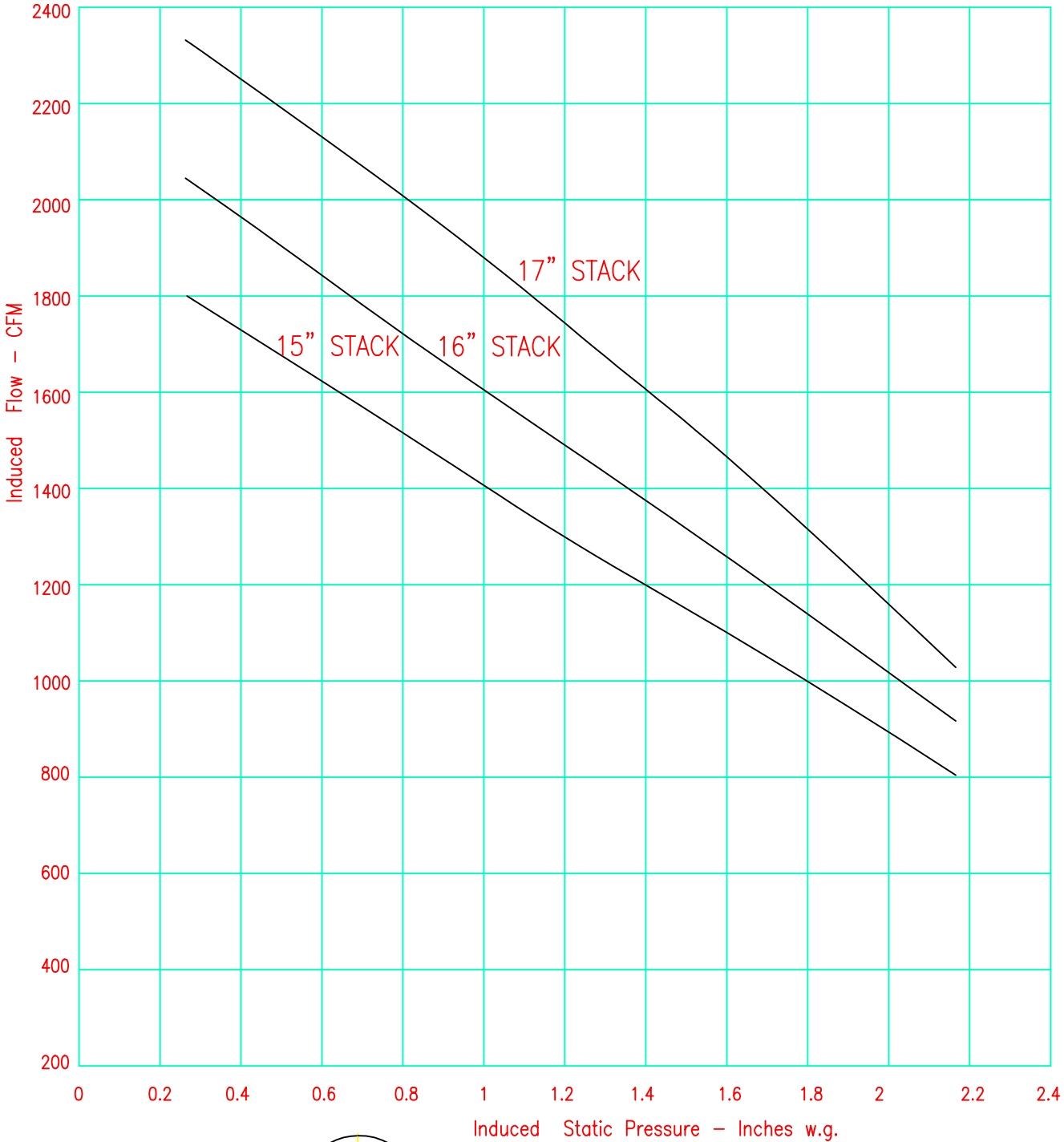
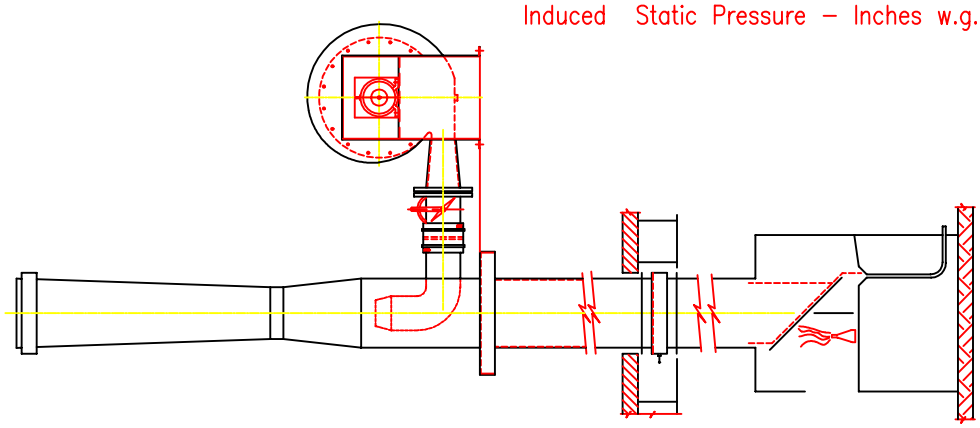
INDUCTION VENTURI SIZES 15,16 & 17





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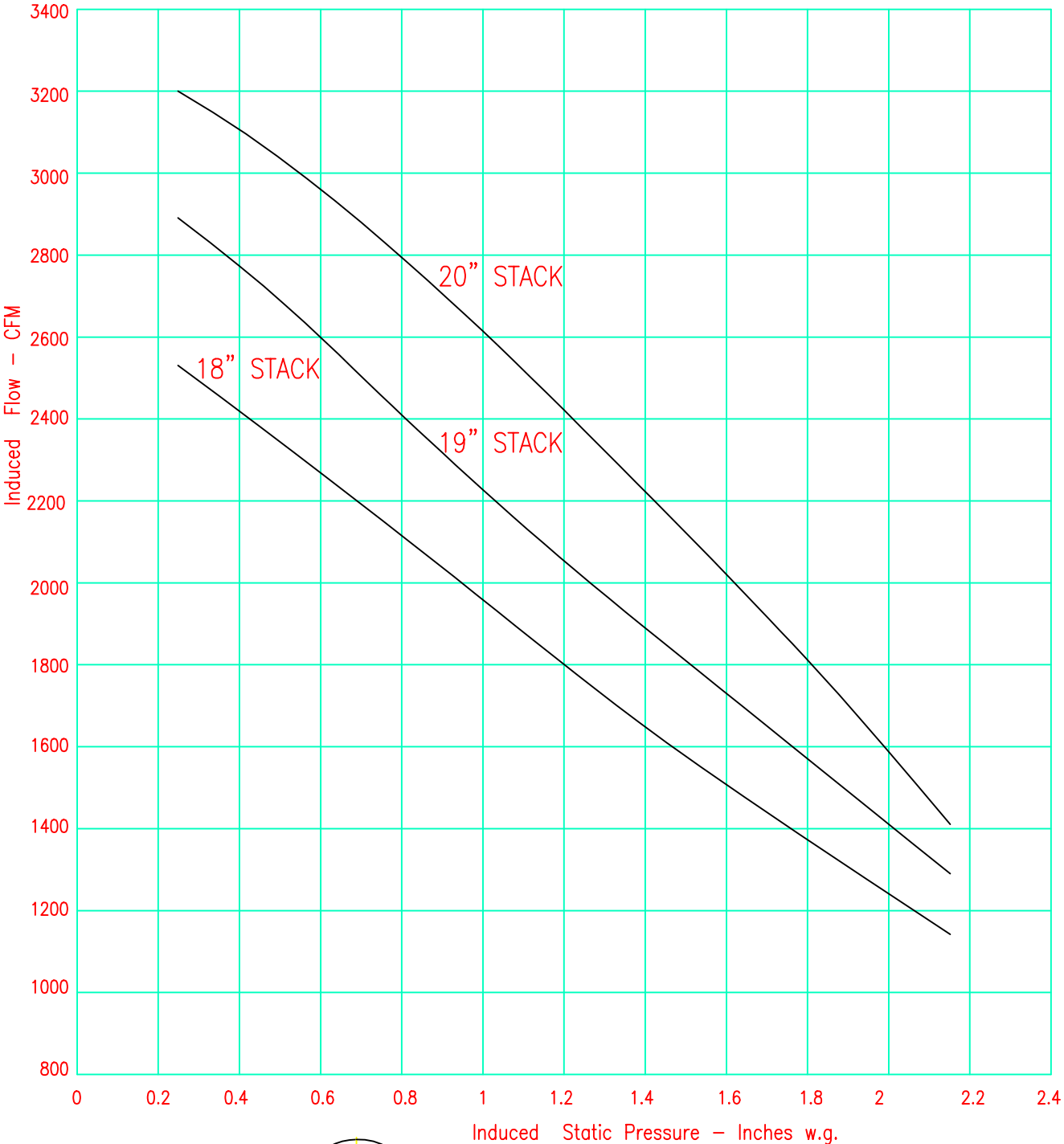
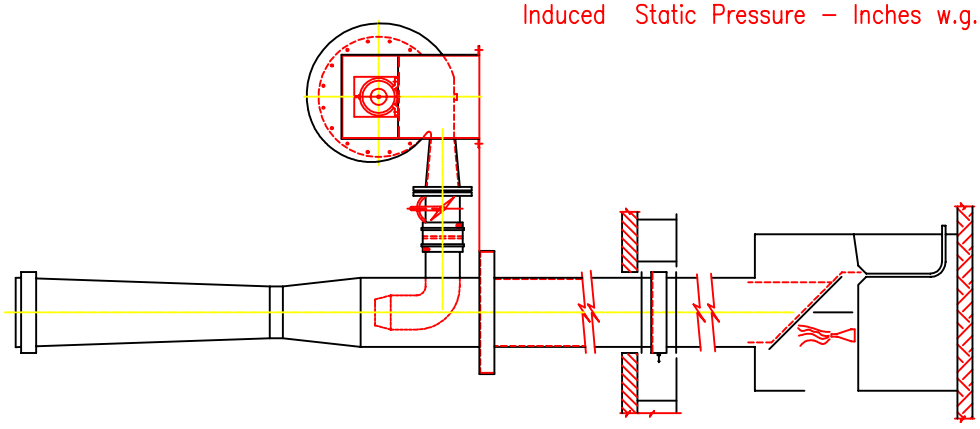
INDUCTION VENTURI SIZES 18,19 & 20





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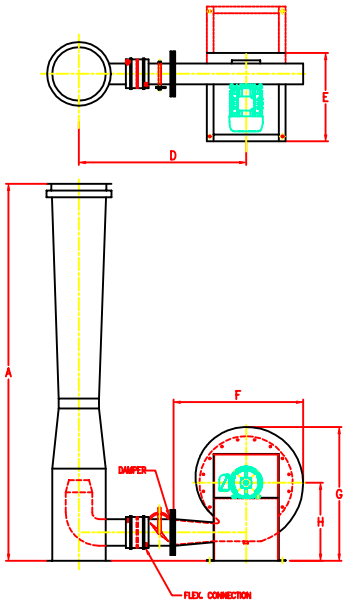
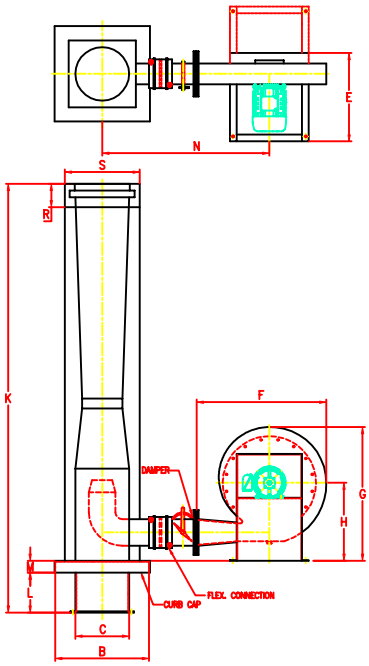


DUCT MOUNTED



CURB MOUNTED

DIMENSIONS – INCHES

VENTURI SIZE	A	B DIA.	C DIA.	D	E	F	G	H	J SQ	K	L	M	N	R	S	MOTOR HP @ 1750 RPM
23–06	39	9	6	25 –1/2	20–7/8	32–5/16	32–1/4	19	18–1/2	53	12	2	27–1/2	6	10	1/2
23–07	44–1/2	10	7	26	20–7/8	32–5/16	32–1/4	19	19–1/2	58–1/2	12	2	28	6	11	3/4
23–08	50–1/2	11	8	25	20–7/8	34–3/4	40–3/4	24–3/4	20–1/2	64–1/2	12	2	27	6	12	1
23–09	56	12	9	25–1/2	20–7/8	34–3/4	40–3/4	24–3/4	21–1/2	70	12	2	27–1/2	6	13	1
23–10	62	13	10	29–1/2	20–7/8	34–3/4	40–3/4	24–3/4	22–1/2	76–1/2	12	2–1/2	31–1/2	6	14	1
23–11	67	14	11	30	20–7/8	34–3/4	42	26	23–1/2	81–1/2	12	2–1/2	32	6	15	1–1/2
23–12	73	15	12	31	20–7/8	34–3/4	42	26	24–1/2	88	12	3	33	6	16	1–1/2
23–13	80	16	13	31–1/2	23–1/4	32–5/16	34	20–3/4	25–1/2	95	12	3	33–1/2	6	17	1–1/2
23–14	85	17	14	38	28–1/2	34–3/4	42–3/4	26–3/4	26–1/2	100	12	3	40	6	18	2
23–15	90	18	15	38–1/2	28–1/2	34–3/4	42–3/4	26–3/4	27–1/2	105–1/2	12	3–1/2	40–1/2	6	19	3
23–16	96	19	16	39	28–1/2	34–3/4	42–3/4	26–3/4	28–1/2	111–1/2	12	3–1/2	41	6	20	3
23–17	103	20	17	28–1/2	30–5/8	30–13/16	45–1/4	20	29–1/2	118–1/2	12	3–1/2	30–1/2	6	21	3
23–18	109	21	18	29	30–5/8	30–13/16	45–1/4	20	30–1/2	125	12	4	31	6	22	3
23–19	115	22	19	29–1/2	30–5/8	30–13/16	45–1/4	20	31–1/2	131	12	4	31–1/2	6	23	5
23–20	121	23	20	30	30–5/8	30–13/16	45–1/4	20	32–1/2	137	12	4	32	6	24	5

ITEM NO.	IDENTIFICATION	NO. REQD.	FAN SIZE	CLASS	ARRGT.	FIG. NO.	PERFORMANCE							MOTOR DATA			
							CFM	O.V.	SP	R.P.M.	TEMP.	BHP	HP	RPM	CURRENT	FRAME	TYPE	SPECIAL FEATURES

CUSTOMER _____

P.O.# _____

JOB NAME _____

LOCATION _____

SERIES 2300 SIZES 6 - 20
INDUCTION VENTURI

SHELDONS ENGINEERING INC.
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sales@sheldonsengineering.com

FURNISHED FOR SALES PURPOSES–DIMENSIOBS NOT CERTIFIED BY S.E.	DATE	SUBMITTED BY	SALES OFFICE
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