

AIR CONSUMPTION CHART

SCFM USAGE for AIR JET & NOZZLE ORIFICES at VARIOUS PRESSURES: Suction & Direct-Pressure Systems

PSI ↓	<u>Suction (syphon) Systems</u>				<u>Direct-Pressure Systems</u>							
	<i>Air Jet / Nozzle ID</i>				<i>Nozzle ID (New nozzle) / Size Number</i>							
	1/8	5/32	3/16	7/32	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8
	1/4	5/16	3/8	7/16	#2	#3	#4	#5	#6	#7	#8	#10
20	*	*	*	*	6	15	27	42	55	72	96	146
25	--	--	--	--	7	16	30	46	63	85	112	173
30	10	15	24	31	8	18	32	50	73	99	129	202
35	--	--	--	--	9	20	37	57	82	112	146	228
40	12	19	29	38	10	22	41	64	91	124	163	254
45	--	--	--	--	12	24	45	70	100	137	179	278
50	15	23	35	45	13	26	49	76	109	149	194	303
60	17	27	39	52	14	30	55	88	126	170	224	356
70	19	31	45	59	15	33	61	101	143	194	252	404
80	21	37	50	66	17	38	68	113	161	217	280	452
90	23	38	56	73	19	41	74	126	173	240	309	504
100	26	42	62	80	20	45	81	137	196	254	338	548
120	*	*	*	*	25	55	97	152	220	300	392	611
140†	*	*	*	*	28	62	111	173	249	340	443	692

<i>Suction (syphon) Systems</i>	<i>Direct-Pressure Systems</i>
<ul style="list-style-type: none"> ✓ Simple. ✓ Less wear & easier to maintain. ✓ Initial equipment cost is lower. ✓ Easiest to automate. ✓ Continuous—no refilling. 	<ul style="list-style-type: none"> ✓ Fastest; Most efficient. Least HP per job. ✓ Labor savings & low compressor usage. ✓ Effective at longer range, best for ID work. ✓ Widest variety of nozzles & lances. ✓ Best control: blast pattern, intensity, finish. ✓ Potentially aggressive; Use of extreme media

USE OF THE AIR CONSUMPTION CHART FOR TESTING SAMPLE PARTS:

1. Determine the proper pressure for the media and workpiece and set pressure regulators accordingly.
2. Determine available horsepower or SCFM. Compare Suction and Direct-Pressure at the same SCFM (energy input).
3. From the chart, determine the maximum air-jet (Suction) or nozzle (Direct-Pressure) orifice size from SCFM and pressure.
4. Test sample with Suction system, then Direct-Pressure, recording time to complete same surface area and the finish results.
5. Calculate the man-hours per-day usage estimated for each system. Total the Cost-Per-Day for each system (see below).

ESTIMATING THE COSTS OF BLASTING:

COMPRESSED AIR (HP used) x (Elect. Rate)	MEDIA Usage x Breakdown x \$/lb.	LABOR Rate + Benefits	TOTAL (Per Hour)
(.746 x SCFM/4.5) / (0.8 x 0.8 x \$0.____/KwHr.)	_Lb/min x 60 x _% x \$____/lb	\$____/Hr. + \$____/Hr.	= \$____

RULES-OF-THUMB

- ◆ Figures are based upon one nozzle. For multiple nozzle automation systems, multiply by number of nozzles.
 - ◆ For Direct-Pressure systems, size air requirements for the next larger nozzle to accommodate wear. Use boron-carbide nozzles for harsh media.
 - ◆ For systems with pulse-style self-cleaning dust collectors, add pulse-air to blast-air consumption.
 - ◆ Utilize only 75 to 80% of the compressor's capacity.
 - ◆ Blast hose size for Direct-Pressure should be 3 to 4 times the nozzle ID. Use 5/8" blast hose with Suction.
- * Blasting with suction at these pressures is least efficient.
- † Maximum working pressure: 125 PSI.

**COMPRESSOR HORSEPOWER:
4 TO 4.5 SCFM = 1 HP**

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