

# NEWSBLAST

May 2003

## Hydro-Klean Equipment Cuts Downtime by 42%

Modern gasoline blends use up to 12% oxygenated hydrocarbons to reduce exhaust emissions from our car engines. The chemistry is simple, with some of the fuel molecules already having an oxygen bond; it gives a head start to the combustion process. For the last 10 years, many plants have been built to manufacture such additives - from both petrochemical and farm-based feedstocks. This story is about one such plant in Iowa, whose vertical evaporators

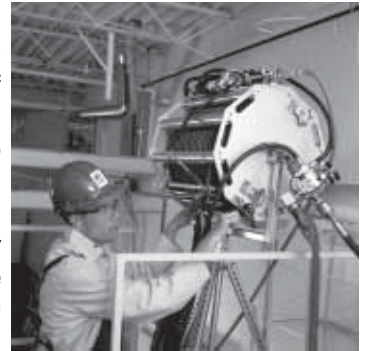


develop a scale deposit that must be frequently cleaned by waterblasting to restore heat transfer, and maintain full capacity. Since down time means lost sales, it's important that these units are thoroughly cleaned in the minimum possible time. Different industrial service contractors have tried different techniques to compete for the work. We are proud of our customer Hydro-Klean (Des Moines) for demonstrating how money can be made with StoneAge waterblast equipment.



Jason Lawrence  
Andy Merical  
Shawn Von Stein  
Tom Hay

Hydro-Klean sent the people doing the work to Durango, where we were able to demonstrate the HRS Powered Hose Reel. The HRS relieves the operator from the hazards and burden of hose handling when cleaning vertical tubes from the top tubesheet of the evaporator. He can advance the waterblast tool down the tubes, retract it under power, pressure up, or dump pressure - all from the handle controls on the unit. The tube surface receives 100% cleaning coverage from every angle, from start to finish. Convinced that this system was the answer, Hydro-Klean bought two systems. The first time they were used, cleaning time and water consumption for each 450 tube evaporator was reduced by 42% with the HRS. The difference of 4:45 hours, is worth \$ 24,000 worth of product - at current rack pricing for a typical plant (30 MMgal/year).



That's what we mean by delivering value to the customer with technology. Everybody wins - StoneAge sells equipment, Hydro-Klean sells advanced services, and the customer makes money on the increased production. So if you want to increase profits for yourself and your customer, call StoneAge. If you need an industrial service contractor who has perfected the win-win process, call Hydro-Klean. Thanks to Hydro-Klean's Brian Rinehart for this success story.



### New BRLM Lancing System Delivered to Onyx Corpus Christi

This new unit will go to work alongside their older LS lancing system to clean heat exchanger tubes in refineries, and plants along the Gulf Coast. It looks like it will fit onto the same trailer used for their old system. Thanks to Jetstream's Richard Padilla, shown here helping Onyx set up the new system.

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**WATERJET TOOLS**

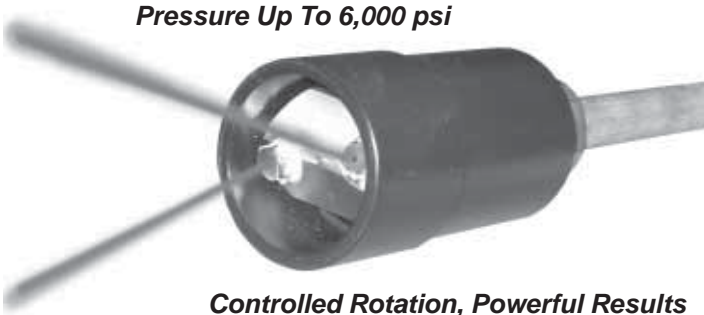
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# Hogwash™ Gun Nozzle - Boosts Productivity

Clean decks, docks, pools, marine growth, service stations, garages, drive-thru's, hydro-excavate

Pressure Up To 6,000 psi



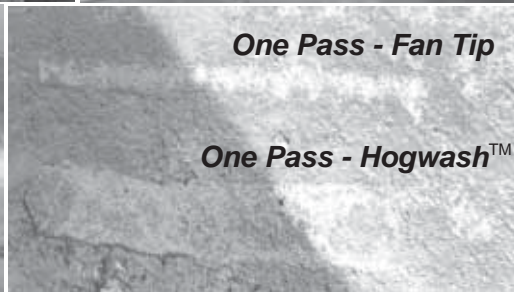
Controlled Rotation, Powerful Results



Rotating Jets for More Coverage  
Without Losing Power



One Pass - Fan Tip



One Pass - Hogwash™



Now  
Available

Quality jets, controlled rotation, and no-leak high pressure seals are the secrets to jetting power. You've seen what it can do with the **Warthog™ Sewer Nozzles** - the same benefits are now possible for hand-held surface cleaning guns. The **Hogwash™** triples the coverage compared to a fan tip without sacrificing power. So whether you need greater productivity, faster hydro-excavation, or more thorough cleaning - **Hogwash™** is the answer!

**WJTA**  
WaterJet Technology  
Association



## WJTA Conference - Don't Miss It!

### Sunday August 17, 2003 - Seminars

Intro. to Waterjetting - Dr. David Summers, U. of Mo. - Rolla  
Waterjet Fundamentals - Andrew Conn, Conn Consulting  
Waterblast Equipment - Dr. Michael Woodward, Gardner Denver  
Waterblast Applications - John Wolgamott, StoneAge Inc.  
Contractor Practices - Tim Bonvillian, HydroChem Ind. Serv.  
Safety - Dr. David Summers, U. of Mo. - Rolla  
Welcome Reception, Exhibits open

**When & Where** - August 17-19, Adam's Mark Hotel  
Houston, Texas.

**Hotel Reservations** - 800-436-2326, or 713-978-7400. Request special rate for WJTA Conference.

**Attendee Registration** - Call or check the website for schedule of registration prices, and form.

### Monday & Tuesday August 18-19, 2003 - Conference

Live Demonstrations - 8:00 - 10:00 AM  
Exhibits Open - 10:00 AM - 5:00 PM  
R&D Paper Presentations - 1:30 - 5:00 PM  
Contractor Topic - 2:00 - 3:00 PM  
WJTA Membership Meeting - 5:00 - 6:00 PM Monday  
Awards Presentation & Party- 7:30 - 10:30 PM Monday

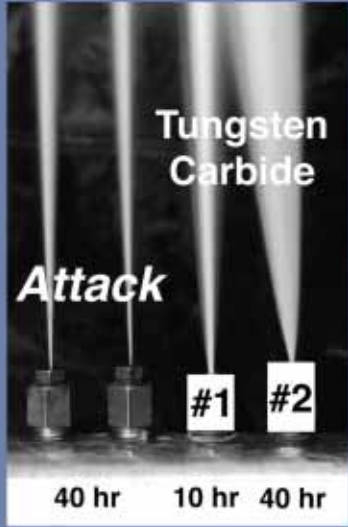
Waterjet Technology Association • 917 Locust Street, Suite 1100 • St. Louis, MO 63101-1419  
Phone 314-241-1445 • FAX 314-241-1449 • E-Mail [wjta@wjta.org](mailto:wjta@wjta.org)

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# ATTACK TIPS™



**AP2 - 1/8 npt**

**APF4 - 1/4 npt**

**AP4 - 1/4 npt**

**Hardened and Polished Stainless Steel Nozzle**

Thanks to high efficiency nozzle design and StoneAge's unique 7-step manufacturing process, the *Attack™ Tips* are the best quality, longest lasting tips we have found. The flow straightener corrects power-robbing turbulence, insuring excellent jet quality. StoneAge tests show that the *Attack™* outlasts tungsten carbide jets. The difference in life is especially dramatic in small orifice sizes. APF4 Model fits flush in 1/4 npt ports.

## Orifice Flow Chart, gpm

Orifice, ID in. mm	Pressure, 000 psi • Pressure, bar										Flow Rating
	2 138	4 276	6 414	8 552	10 690	12 827	14 966	16 1103	18 1241	20 1380	
.018 0.46	0.39	0.55	0.68	0.78	0.87	0.96	1.0	1.1	1.2	1.2	0.6
.020 0.51	0.48	0.68	0.83	0.96	1.1	1.2	1.3	1.4	1.5	1.5	0.7
.022 0.56	0.58	0.82	1.0	1.2	1.3	1.4	1.5	1.6	1.7	1.8	0.8
.024 0.61	0.69	0.98	1.2	1.4	1.6	1.7	1.8	2.0	2.1	2.2	1.0
.026 0.66	0.81	1.2	1.4	1.6	1.8	2.0	2.1	2.3	2.4	2.6	1.1
.029 0.74	1.0	1.4	1.7	2.0	2.3	2.5	2.7	2.9	3.0	3.2	1.4
.032 0.81	1.2	1.7	2.1	2.5	2.8	3.0	3.3	3.5	3.7	3.9	1.7
.035 0.89	1.5	2.1	2.6	3.0	3.3	3.6	3.9	4.2	4.4	4.7	2.1
.038 0.97	1.7	2.5	3.0	3.5	3.9	4.3	4.6	4.9	5.2	5.5	2.5
.042 1.07	2.1	3.0	3.7	4.2	4.7	5.2	5.6	6.0	6.4	6.7	3.0
.047 1.19	2.7	3.8	4.6	5.3	5.9	6.5	7.0	7.5	8.0	8.4	3.8
.052 1.32	3.3	4.6	5.6	6.5	7.3	8.0	8.6	9.2	9.8	10	4.6
.057 1.45	3.9	5.5	6.8	7.8	8.7	9.6	10	11	12	12	5.5
.063 1.60	4.8	6.8	8.3	9.6	11	12	13	14	14	15	6.8
.069 1.78	5.7	8.1	9.9	12	13	14	15	16	17	18	8.1
.075 1.91	6.8	9.6	12	13	15	17	18	19	20	21	9.6
.082 2.08	8.1	12	14	16	18	20	21	23	24	26	12
.090 2.29	9.8	14	17	20	22	24	26	28	29	31	14
.098 2.49	12	16	20	23	26	28	31	33	35	37	16
.106 2.69	14	19	23	27	30	33	36	38	41	43	19
.115 2.92	16	23	28	32	36	39	42	45	48	50	23
.125 3.18	19	27	33	38	42	46	50	53	56	60	27
.135 3.43	22	31	38	44	49	54	58	62	66	69	31
.145 3.68	25	36	44	51	57	62	67	72	76	80	36
.155 3.94	29	41	50	58	65	71	77	82	87	92	41
.165 4.19	33	46	57	66	73	80	87	93	98	100	46

Outlasts  
Tungsten Carbide

More Powerful  
Performance

Intensive QC  
Means Quality

Orifice Sizes  
For All Jetting  
Jobs

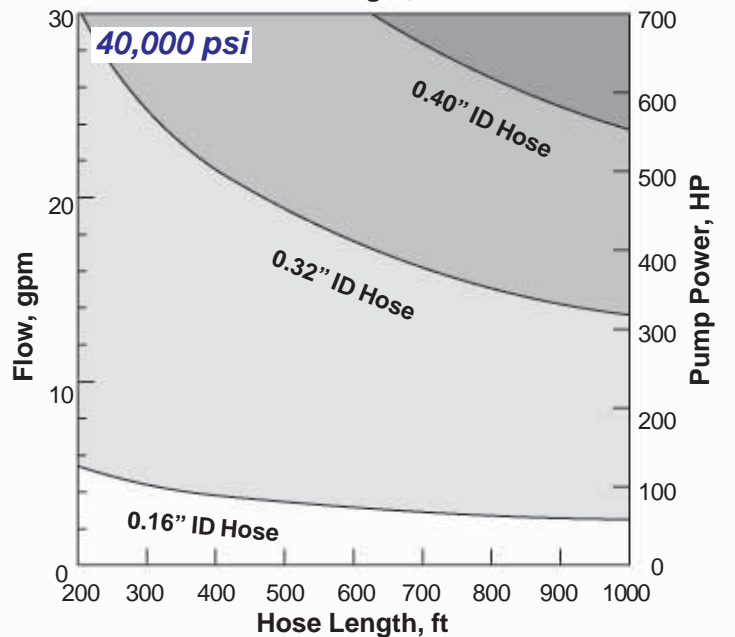
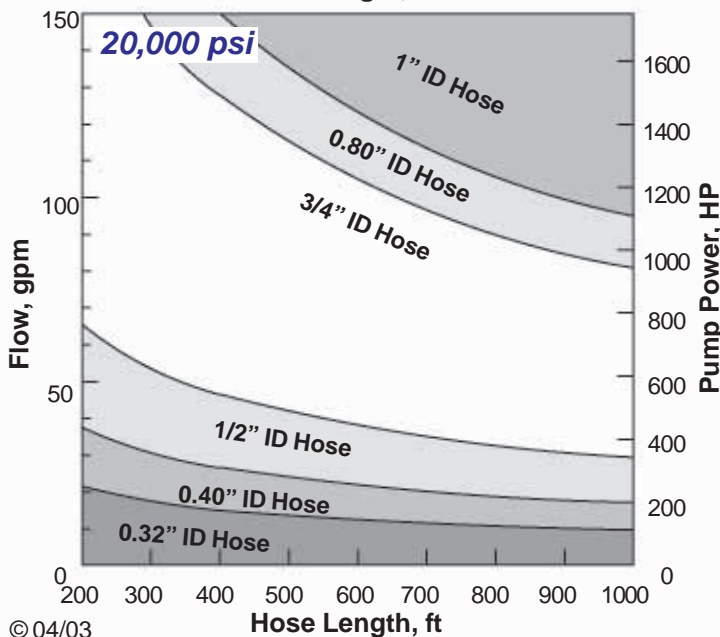
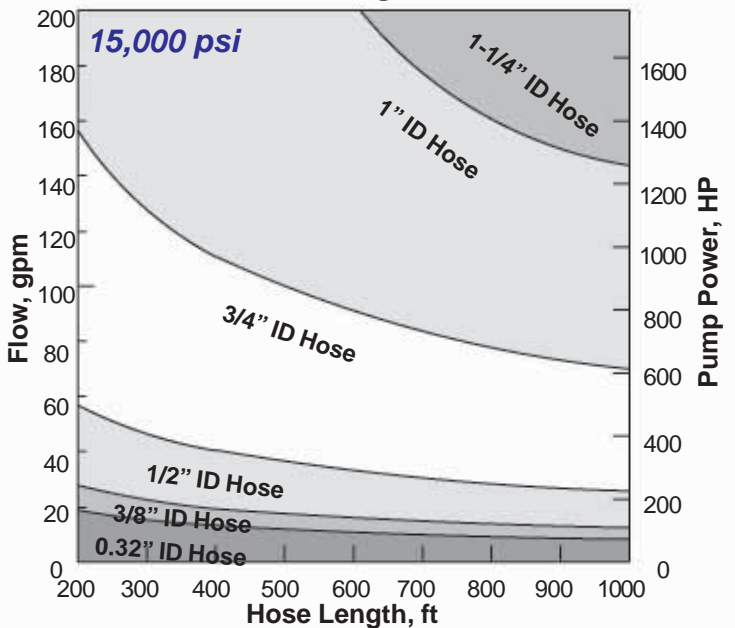
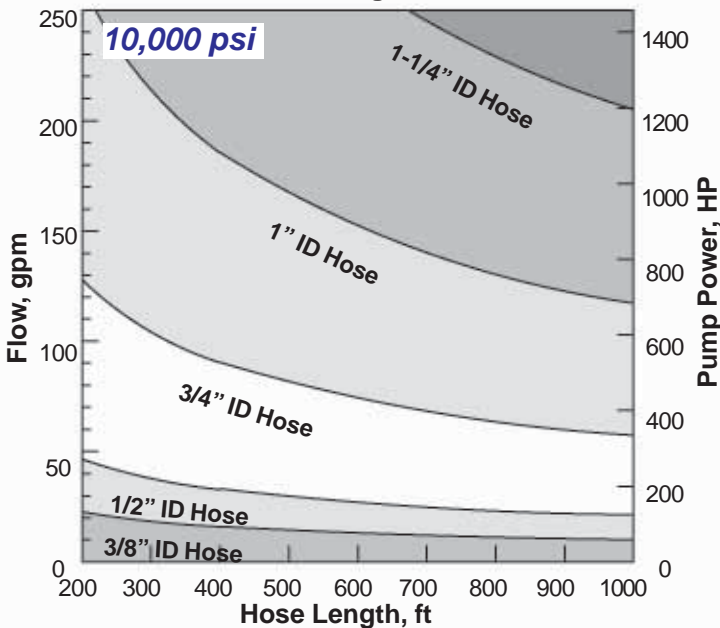
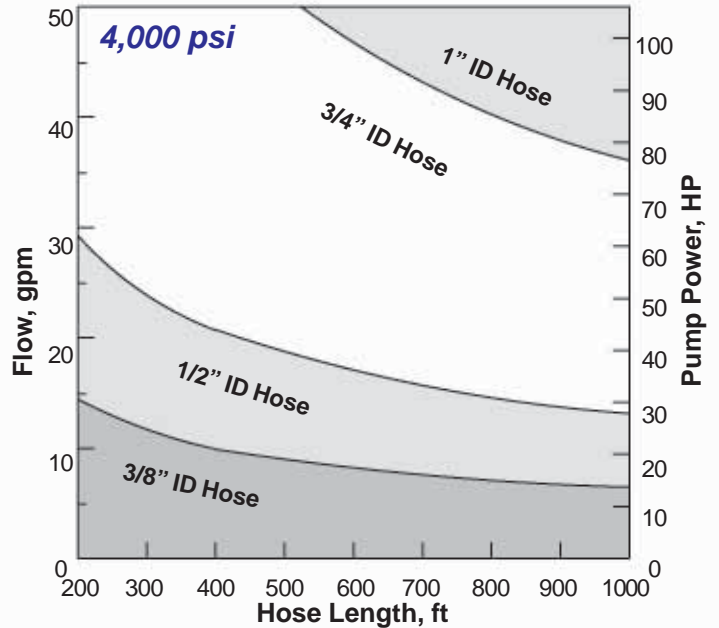
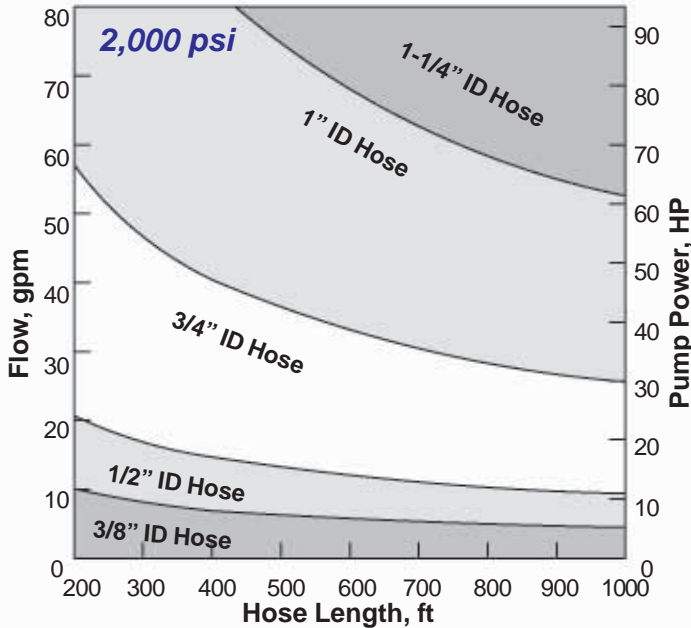
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Durango, CO  
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# Hose Size Selection

At maximum flow, pressure drop is 1/3 of initial pressure, power loss is 1/3.

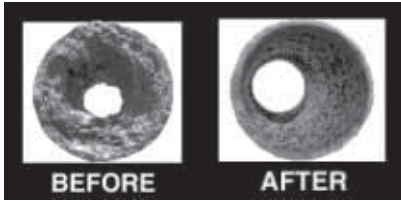
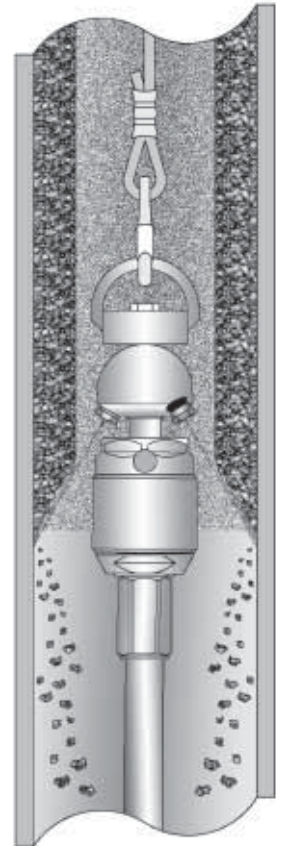


## Baron's Jet Tec - Making Drains Drain on Florida's Gulf Coast



Richard Baron has been in the plumbing and jet cleaning business for over 30 years. He visited the StoneAge booth at the Nashville Show two years ago and bought his **Warthog™ Sewer Nozzle**. He says, "Everything your people promised was true. StoneAge is the very best jet head I have ever used. My jobs take less than half the time to do, and I don't have to keep changing jet heads on the job to get a better cleaning." His **Warthog™** is dependable too. "I had several months of use on my first unit (before maintenance was necessary). It took less than 15 minutes, and I was back in business."

Baron's Jet Tec was called to Seagate (a luxury 15-story condominium on Longboat Key near Sarasota on Florida's Gulf Coast) to remedy blockages that other drain cleaners had repeatedly failed to clear. These are 20 year old, 4" diameter cast iron kitchen stacks. Unit owners were plagued with repeat blockages and soap suds. Baron's Jet Tec cleaned the entire stack from the roof out to the main sewer, using StoneAge's **Warthog™ WS-1/2**. The stacks were full of grease, scale, and mineral deposits, with less than 1-1/2 inches open flow. First try was not entirely successful. Jetting from the top down, so much debris was removed, that it plugged the drains and stopped progress. So StoneAge made a custom pulling ring to allow the nozzle to be pulled up from bottom to top using a cable and winch. Richard Baron wrote us saying, "To my amazement the pipe looked brand new and I had cleaned a 15-story stack in less than 6 hours. That was six hours of sheer awe. I felt like a kid with a new bike." Stacks were video inspected to confirm that the piping was brought back to its original inside diameter. It's the sort of job that has built Baron's reputation in the area for getting impossible jobs done. Restoring drains to new condition, when others find no alternative to replacement; Baron's saves clients big bucks!



## Warthog Rescues Other Sewer Nozzles

Insight CCTV got a call from a customer with a problem in New Zealand. They had used a conventional multi-jet non-rotating nozzle to clean silt out of a 300 mm ID (12 inch) drain line. It got stuck in a severe root mass and could not be retrieved. There was so much silt, that the TV camera could not get to it for inspection. The customer tried all the penetrator type nozzles he had - but none would free the stuck nozzle.

Insight CCTV had a **Warthog™ WH-3/4** set up to demonstrate on a 40 HP pump, and quickly re-jetted for the customer's 150 HP unit. Not only did it remove most of the roots; but it also dug out the stuck nozzle, and a lot of silt that the original nozzle failed to clean.

We thank Warren Fisher at Insight CCTV for this success story. They are located about 60 miles South of Auckland,

and distribute **Warthog™ Sewer Nozzles** to drain cleaning contractors and municipalities all over the country. Results count, and that's what his customers get with their **Warthog™ Sewer Nozzles**.

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CHANGE SERVICE REQUESTED

## Is Your Hose Wasting Jet Power?

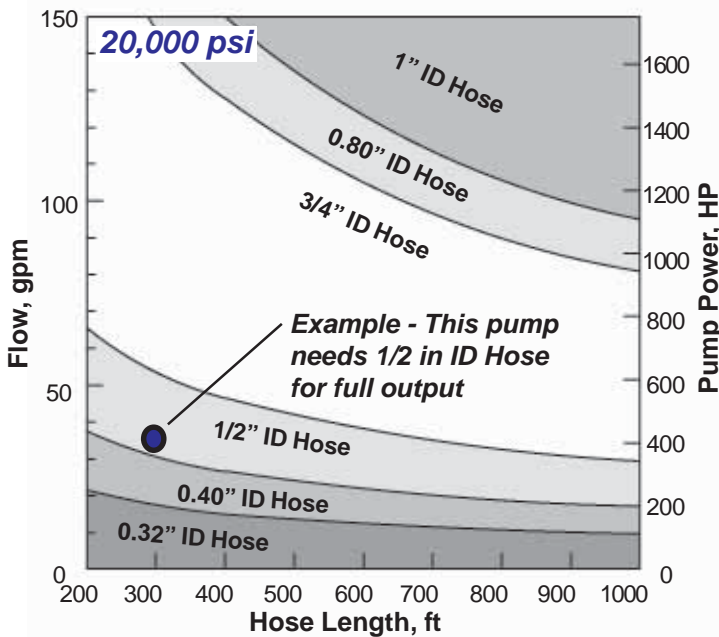
Jetting power depends on both the flow and pressure delivered to the nozzle at the end of the hose. Since every gallon of flow put in the hose comes out the other end, it's obvious that you want all the flow you can get. But pressure can be lost due to viscosity of the water as it goes through the hose. So if the hose is too restricting, power actually goes down with a flow increase. With too long a hose, or too small a hose, it's easy to lose over half the power put out by your expensive pump. So how do you know if your hose is too long, or too small? With a specific hose, maximum power is delivered at the following flow:

$$F_{MAX} = (1377 \times \text{Press.} \times \text{Hose ID}^5 / \text{Hose Length})^{1/2}$$

gpm
psi
in.
ft

This formula assumes hose diameter stretches 8% under pressure.

See the back of the **Attack™ Nozzle Chart** for hose selection.



tion charts. Maximize power by using the highest flow available, but don't go higher than the line illustrated for your hose. For example, with a 450 HP, 36.5 gpm, 20,000 psi pump - with 300 ft. of 0.4 in. ID hose; power goes up until flow exceeds 30.6 gpm. So this pump is best operated throttled back to 30.6 gpm. A bigger diameter or shorter hose is required to effectively use this pump's maximum capability.  $F_{MAX}$  for common pump and hose combinations is calculated below:

Hose ID in.	Pressure psi	$F_{MAX}$ , gpm Hose Length, ft		
		200'	500'	800'
3/8	2000	8.3	5.3	4.2
3/8	4000	11.8	7.5	5.9
3/8	10000	18.6	11.8	9.3
3/8	15000	22.8	14.4	11.4
3/8	20000	26.4	16.7	13.2
3/8	40000	37.3	23.6	18.6
1/2	2000	17.1	10.8	8.6
1/2	4000	24.2	15.3	12.1
1/2	10000	38.2	24.2	19.1
1/2	15000	46.8	29.6	23.4
1/2	20000	54.1	34.2	27.0
3/4	2000	47.1	29.8	23.6
3/4	4000	66.7	42.2	33.3
3/4	10000	105.4	66.7	52.7
3/4	15000	129.1	81.6	64.5
3/4	20000	149.0	94.3	74.5
1	2000	96.8	61.2	48.4
1	4000	136.8	86.5	68.4
1	10000	216.4	136.8	108.2
1	15000	265.0	167.6	132.5

So if your pump isn't getting the job done at full throttle, maybe the hose is to blame. Try a bigger diameter hose, or re-jet and throttle back to a flow no greater than  $F_{MAX}$ .

For a thorough discussion of basic principles for powerful jetting, get the "4 Keys" article from our website "Information Center". Or call us for a copy.



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