

# BLAST-TEC PRO™

Rotating Turbo Nozzles

## Optimization & Troubleshooting Guide

REV A



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## **!WARNING!**

- Ensure you have read and understand the operating parameters of this nozzle prior to use.
- Always wear protective gear when using this product.
- Do not point nozzles at people or animals. Serious injury can result from high-pressure water from this nozzle.
- Be sure pump is shut off and disconnected prior to performing maintenance or replacing this nozzle.
- This nozzle is not intended for chemical application. Running chemicals through the nozzle may reduce the life of the nozzle.
- Select the nozzle size based on intended application and performance.
- A high-pressure filter attached to the inlet will increase the life of this nozzle.

**For Support Call:  
952-808-3640**

**Or Find Us On The Web:  
[www.hydrflexinc.com](http://www.hydrflexinc.com)**

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# PRODUCT OVERVIEW

The Blast-Tec Pro Rotating Turbo Nozzle was designed specifically for high-pressure, high-impact vehicle wash applications, including: wheel blasters, undercarriage wash, rinsing, and high pressure cleaning.

- **Greater Impact:** The Blast-Tec Pro blasts a 0° straight water stream at 800-1200 PSI, while the stream rotates at 1500-2500 RPM to provide a 24° or 30° cone of coverage.
- **Less Water** – Improved stream quality results in greater impingement, allowing you to use a smaller nozzle size and/or reduce the number of nozzles used while getting the same impact as nozzles with higher GPM flow rates.
- **Heavy Duty** – Corrosion-resistant stainless steel housing and precision machined tungsten carbide wear surfaces offer long life and smooth operation.
- **Long Lasting** – The minimal number of components reduces complexity for better reliability. Made with durable materials, the Blast-Tec Pro lasts up to five times longer than ceramic turbo nozzles. Repair kits are also available for extended life and lower overall operating costs.

## PRODUCT LINE DESCRIPTION

(See page 5 for part numbers):

**Blast-Tec Pro 324** – Nozzle with 24° cone of coverage. Available with either ¼" BSPP or ¼" FNPT inlet connections.

**Blast-Tec Pro 430** – Nozzle with 30° cone of coverage. Available with either ¼" BSPP or ¼" FNPT inlet connections.

**Repair Kits:** Instead of replacing your entire nozzle, repair kits may be used for extended nozzle life. Each repair kit includes a dome screen, mini rotor assembly, and seat retainer assembly.

### Accessories:

**¼" MBSPP x ¼" MNPT Knuckle Ball Joint Adapter** – gives you the flexibility to point your nozzle directly at problems areas such as mirrors, etc. Adjustable ball easily swivels for custom nozzle positioning, adding up to 20 degrees actuation.

**¼" MBSPP x 1/8" MNPT Adapter, Brass** - 3000581

**¼" MBSPP x 1/4" MNPT Adapter, Brass** - 3000572

**¼" MBSPP x 3/8" MNPT Adapter** - 3000988

## SPECIFICATIONS

**Operating Pressure at Nozzle:** 800-1200 PSI.

**!WARNING!** The correct water pressure is what causes the rotor assembly to rotate properly. Setting pressure too low may cause failure to rotate or laser. Setting pressure too high may cause nozzle to fail prematurely.

**Water Temperature:** 120°F Max.

**Water Quality:** Must be PH neutral. 5.5 - 8.5 PH

**Water Filtration:** 100 micron filtration recommended.

**Optimal Operating Distance:** 12" – 32" from substrate.

**Inlet Connection:** ¼" BSPP or NPT. Attach nozzle to proper mating fitting using thread lubricant and these specs:

- ¼" NPT Brass or Stainless: 1-3 turns past finger tight
- ¼" BSPP Brass or Stainless: 15 ft-lbs

**Torque spec on assembling nozzle:**

- Housing: 12.5 ft-lbs.
- Inlet to housing 15 ft-lbs.

# NOZZLE SELECTION AND SIZING

Proper nozzle selection should take into consideration the type of application, your pressure setting, distance from the substrate, and the nozzle number size.

**Pump Capacity** – Your pump must be capable of producing 1000 PSI for the total GPM flow rate of all the nozzles required for the application. For example, a wheel blaster with three #4 Nozzles (2 GPM per nozzle) on each the driver's and passenger's side (total of 6 nozzles) will require pump capacity of 12 GPM at 1000 PSI.

**Or Use This Formula To Calculate:**

$$\text{Pump Capacity} = (\text{Quantity of Nozzles}) \times \left( \text{Nozzle \#} \sqrt{\frac{\text{Application Pressure (PSI)}}{4000}} \right)$$

**BSPP vs NPT Inlet Connection:**

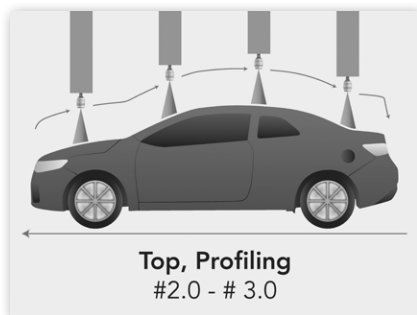
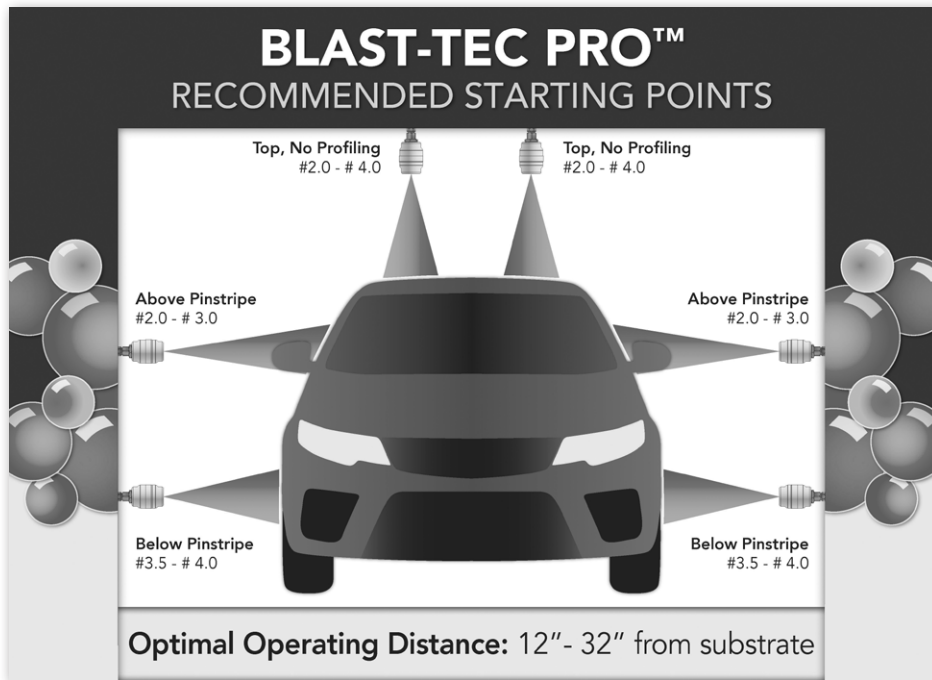
To meet the needs of the majority of our customers, Blast-Tec Pro Nozzles are available with either ¼" NPT or BSPP inlet connections.

- BSPP Connection – Has an o-ring seal and can be hand-tightened
- NPT Connection – Requires thread tape

**Recommendations by Application:**

- High Pressure Rinse – Use a higher flow nozzle, position further away from the vehicle
  - *Tip – Our 30° nozzle will provide better vehicle coverage.*
- High Pressure Cleaning – Use a lower flow nozzle, position closer to the vehicle, and/or use more nozzles
  - *Tip – Our 24° nozzle will provide better cleaning power.*

**Recommended Starting Points:**

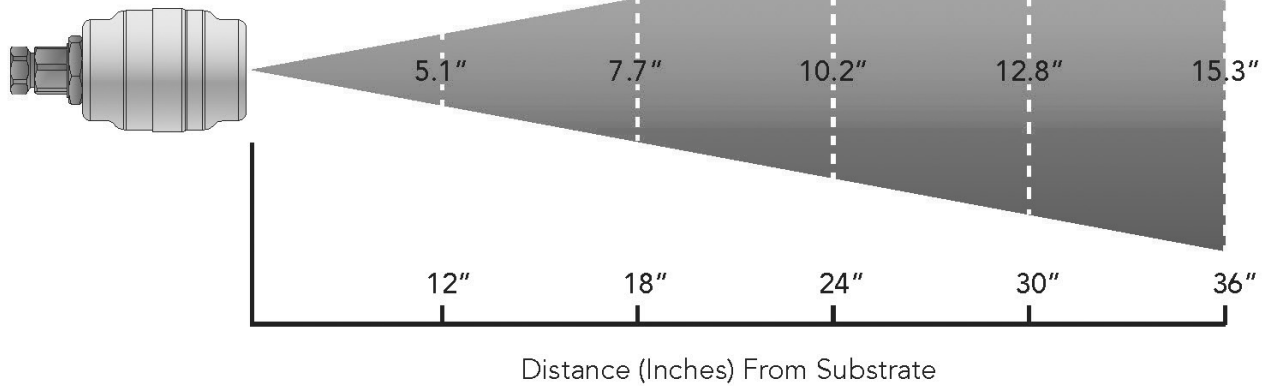


## !WARNING!

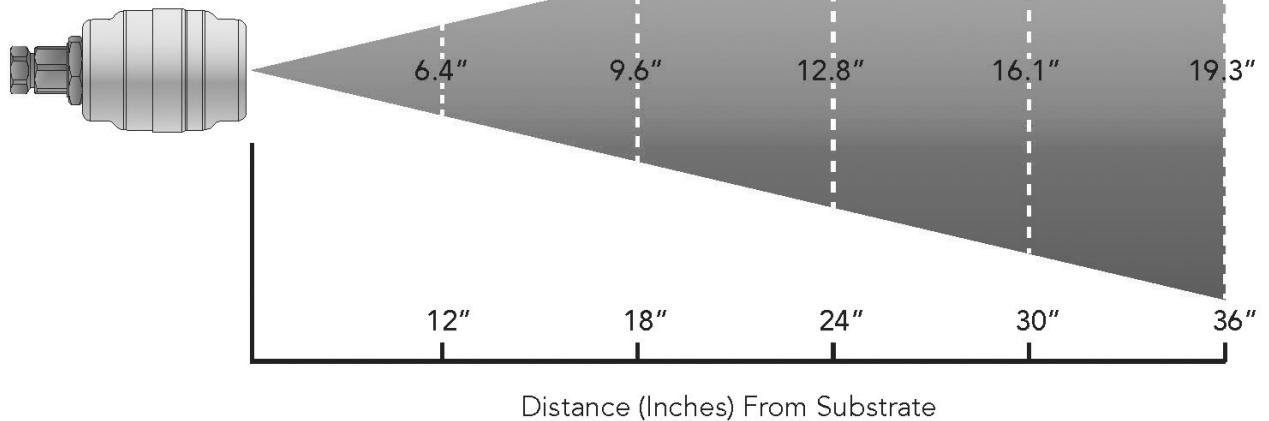
*It is not recommended to use high-pressure valve to split your high-pressure pump flow to multiple applications. This may cause a pressure spike at the nozzle and can pop threads or crack the nozzle body causing premature failure.*

## VEHICLE COVERAGE / NOZZLE SPACING / DISTANCE FROM SUBSTRATE:

### 24° Cone



### 30° Cone



## !WARNING!

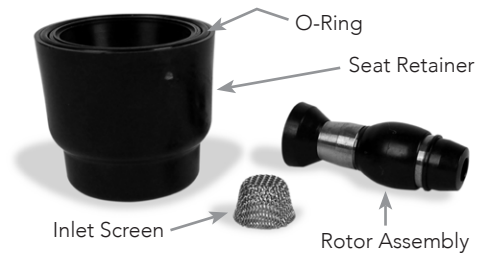
*The closer to the substrate, the higher the impact of the nozzle. Positioning the nozzle too close to the substrate may cause damage. If reduced impingement is required, use a nozzle with less flow. Ex. If using a # 4.0 has too high impact, switch to a smaller nozzle such as a # 3.0 or # 2.0. DO NOT REDUCE WATER PRESSURE BELOW 800 PSI AS A WAY TO REDUCE IMPINGEMENT.*

# HOW TO INSTALL A REPAIR KIT

Instead of replacing your whole nozzle, you may be able to use a repair kit for extended life and lower overall operating costs. This kit replaces only the common wear parts of the nozzle.

**Repair Kit Includes:** Inlet screen, Mini-rotor Assembly, and Seat Retainer Assembly.

**Tools Required:** Small screwdriver, and needle nose pliers.



**Step 1:** Unscrew nozzle body (not inlet panel nut). Dispose of the existing rotor assembly and seat retainer assembly.



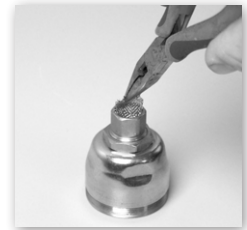
**Step 2:** Insert new seat retainer with o-ring and rubber boot.



**Step 3:** Insert rotor assembly with the nozzle side facing down.



**Step 4:** Use a needle nose pliers to remove the old inlet screen and throw away. *(You may need to use a screwdriver to loosen the screen so you can grab onto it)*



**Step 5:** Use the screwdriver to push the new inlet screen into place.



**Step 6:** Screw nozzle back together hand tight.



# TROUBLESHOOTING

PROBLEM	ANSWERS
My nozzle stream is failing to rotate (Lasering).	1. Check your pressure. For proper rotation, pressure for this nozzle should be set at a minimum of 800 PSI at nozzle. (1200 PSI Max.)
	2. Check inlet screen for debris. Clean and/or replace.
	3. Take nozzle apart, check for clogs in the rotor. Clean and/or replace.
	4. Nozzle may fail to rotate based on normal wear and tear. Try inserting a repair kit.
	5. The cross holes on the nozzle inlet may have eroded due to particulate or high-acid reclaim water. Replace nozzle.
Water is going around the nozzle and not through it (Blow-By).	1. May have a loose body or loose connection. Tighten the nozzle body and inlet connection.
	2. Check inlet screen for debris. Clean and/or replace.
	3. Take nozzle apart, check for clogs in the rotor. Clean and/or replace.
	4. Nozzle may fail based on normal wear and tear. Try inserting a repair kit.
	5. The cross holes on the nozzle inlet may have eroded due to particulate or high-acid reclaim water. Replace nozzle.
No flow, low flow, or not enough impingement.	1. Increase your pump pressure. (Pump must remain between 800 PSI (min) and 1200 PSI (max). Check for desired result.
	2. Move applicator or nozzle closer to the substrate. Check for desired result.
	3. Change nozzle to a larger nozzle size (higher flow rate). Check for desired result.
Too much impingement, nozzle is causing damage.	1. Decrease your pump pressure. (Pump must remain between 800 PSI (min) and 1200 PSI (max). Check for desired result.
	2. Change nozzle to a smaller nozzle size (lower flow rate). Check for desired result.
	3. Move applicator or nozzle further from the substrate. Check for desired result.

# PART NUMBER TABLE

ROTATING NOZZLE ORDER GUIDE		BLAST-TEC PRO 324 24° ANGLE			BLAST-TEC PRO 430 30° ANGLE		
Nozzle Number	Flow Rate (@1000 PSI)	¼" BSP Inlet	¼" NPT Inlet	Repair Kit	¼" BSP Inlet	¼" NPT Inlet	Repair Kit
2.0	1.00 gpm	1001106	1001600	1000273	1001631	1001620	1001640
3.0	1.50 gpm	1001107	1001601	1001088	1001632	1001621	1001641
3.5	1.75 gpm	1001108	1001602	1000274	1001633	1001622	1001642
4.0	2.00 gpm	1001109	1001603	1001089	1001634	1001623	1001643
4.5	2.25 gpm	1001110	1001604	1001090	1001635	1001624	1001644
5.0	2.50 gpm	1001111	1001605	1001091	1001636	1001625	1001645
5.5	2.75 gpm	1001112	1001606	1001092	1001637	1001626	1001646
6.0	3.00 gpm	1001113	1001607	1001093	1001638	1001627	1001647

ACCESSORIES	
3000581	¼" BSPP x ½" MNPT Adapter, Brass
3000572	¼" BSPP x ¼" MNPT Adapter, Brass
1001755	¼" BSPP x ¼" NPT Knuckle Ball Joint Adapter, Brass
3000988	¼" MBSPP x ¾" MNPT Adapter

# BLAST-TEC PRO™ WARRANTY

## ROTATING NOZZLE

Hydra-Flex Inc. (HFI) Rotating Nozzles are warranted to be free from defects in material and workmanship under normal use and service. "Normal use and service" means not in excess of the recommended pressures, temperatures and chemicals of handling fluids not compatible with component materials. This warranty shall not apply to any accessory which has been repaired or altered to affect the performance or reliability of the product.

Warranty does not apply to a) freight damage, b) freezing damage, c) damage caused by parts or accessories not obtained from or approved by Hydra-Flex Inc., d) damage from misuse and/or misapplication, e) damage due to poor water quality, f) normal wear of moving parts, components affected by moving parts or surfaces meant to wear.

Period of warranty shall be 90 days from the date product is shipped from Hydra-Flex Inc.'s facility. Liability of manufacturer under the foregoing warranty is limited to repair or replacement of that product at the option of Hydra-Flex Inc., which according to our investigation was deemed defective at time of shipment. This warranty is in lieu of all other warranties, expressed or implied, including any warranty of merchantability and/or any and all other obligations or liabilities on the part of Hydra-Flex Inc. Return merchandise authorization number, to return units for repair or replacement, must be granted in advance of return.



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