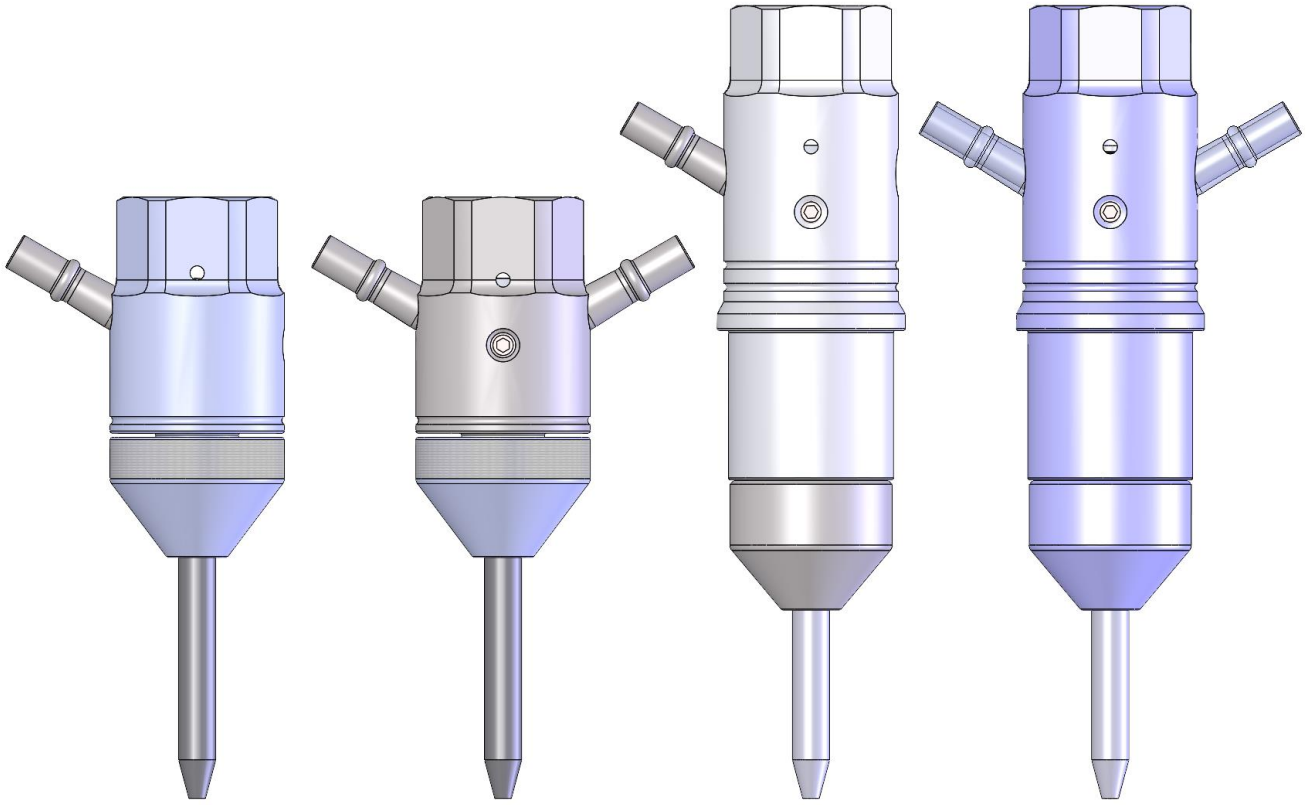
H2OJET
SHAPE TECHNOLOGIES GROUP®

INTEGRAL DIAMOND EDUCTOR®
IDE IED-EP



301329-1-XX
60K Single IDE®

301329-2-XX
60K Dual IDE®

391131-1-XX
94K Single IDE®

391130-1-XX
94K Dual IDE®

INSTALLATION AND OPERATION MANUAL

CONFIDENTIALITY NOTICE

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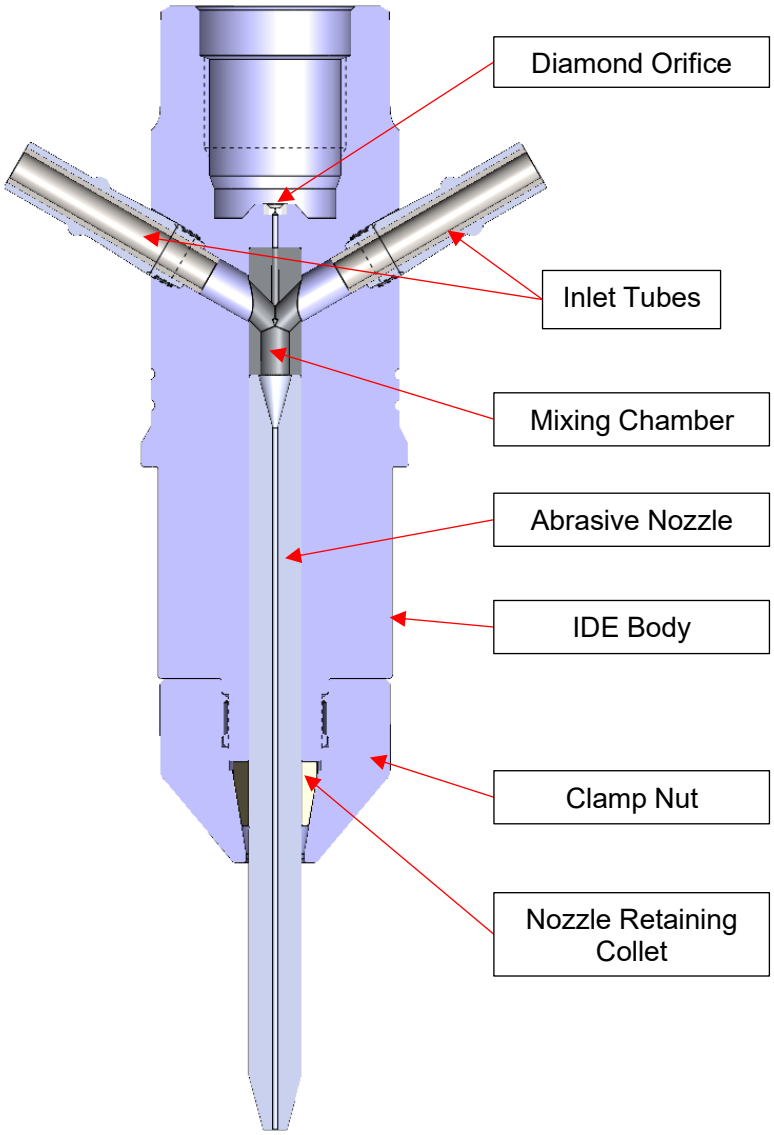
1. OVERVIEW

The Integral Diamond Eductor® or IDE provides a means to add abrasive to the water stream. The diamond orifice creates the Ultra- High Pressure (UHP) stream of cutting water. The abrasive is introduced below the orifice in the mixing chamber to create the High Pressure Abrasive Water Jet (AWJ) stream.



The IDE is available in single and dual abrasive inlet versions, and available in ratings of 60 KSI and 94 KSI.

WARNING

Failure to follow the outlined maintenance and installation guidelines may result in component failure, causing equipment damage.

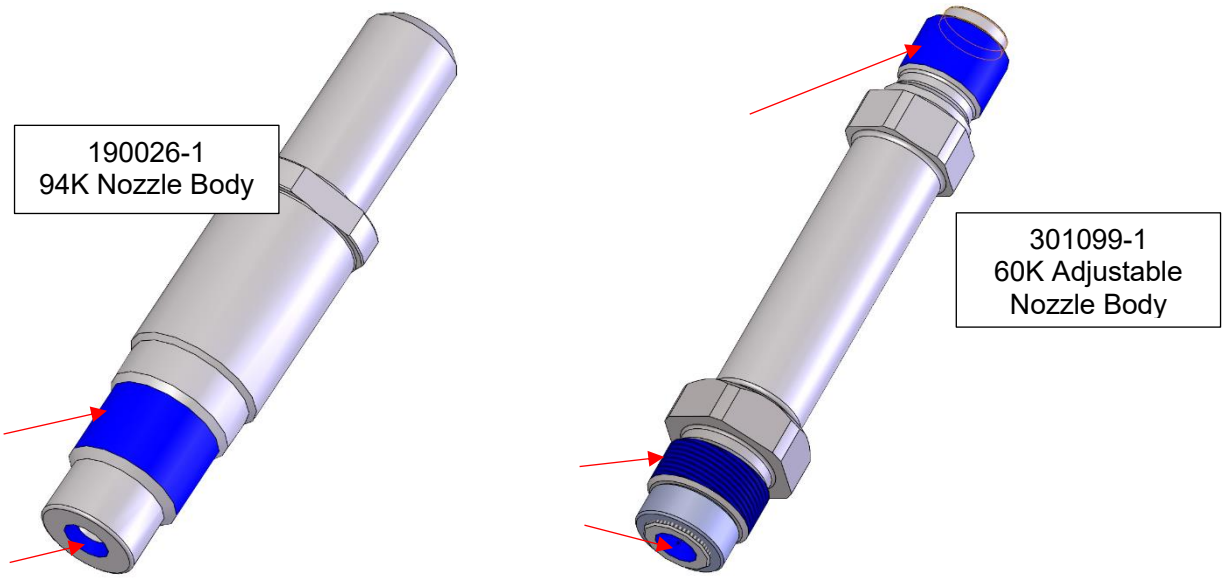
2. SAFETY

The IDE cutting head is part of a waterjet system, which outputs extremely high water pressure, and only properly trained personnel should operate this device. Safety glasses, hearing protection, and gloves should be worn at all times while working on or around any waterjet equipment.

3. INSPECTION AND ASSEMBLY

Inspect the tapered face of the nozzle body for damage such as galling or jetting erosion. If a damaged nozzle body is used, it can cause irreversible damage to the IDE sealing surfaces.

Apply even coat of Blue Goop to the conical surface and all external threads of the nozzle body shown below. This prevents galling between the mating surfaces and extends the life of the IDE.



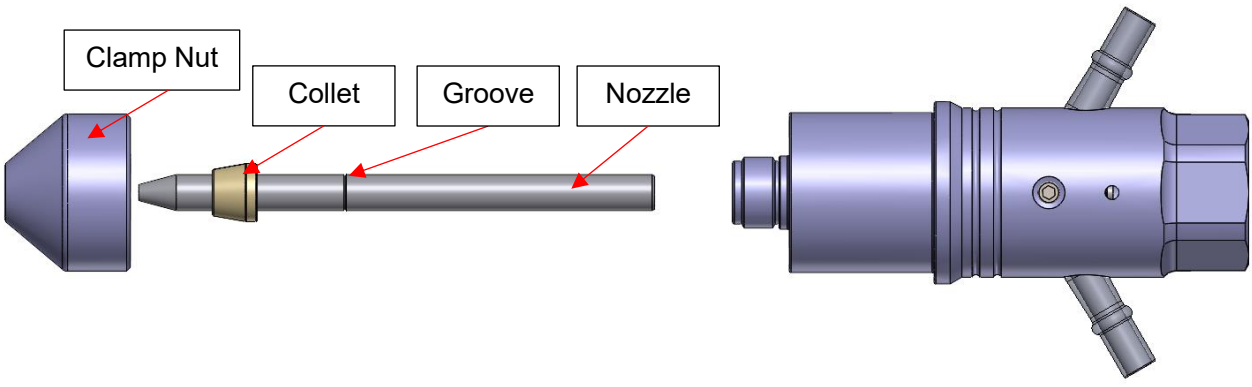
Thread the nozzle body into the IDE body. Torque to 35 ft-lb. with a torque wrench.

Insert abrasive nozzle into IDE body until fully seated.

Slide collet over nozzle until fully seated against IDE. Groove should be showing below collet. Note, the groove is only used on the 94K IDE. For 60K applications, the nozzle does not have a groove.

Hand tighten clamp nut.

Press abrasive feed tube(s) securely onto inlet tube(s). If only one abrasive inlet is used on a dual port IDE, keep the supplied red cap on the unused inlet tube.

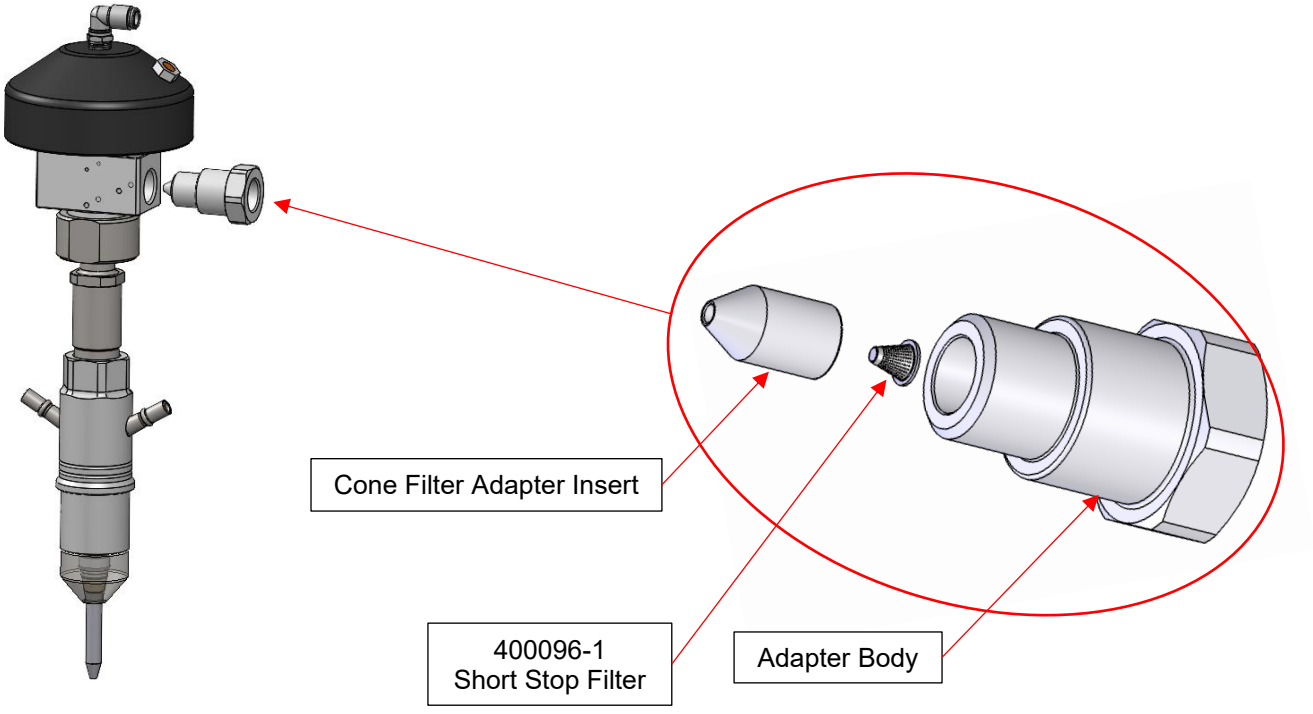


4. SHORT STOP FILTER

The Short Stop Filter (SSF) filters high pressure water of debris to protect the on/off valve poppet, seat, and orifice. This is especially important for systems that are older, systems where up-time is critical, and systems running expensive diamond orifices.

Using the Short Stop Filter to protect the diamond from foreign objects that may be in the cutting water (especially important after pump rebuilds or HP tubing maintenance) is required for warranty claims.

The following diagram is representative of the typical installation of the short stop filter. The dual port 94K IDE cutting head valve is shown.



Part Number	Description
400096-1	Short Stop Filter, .006"
301026-1	Short Stop Filter Assy, Coned Insert, 3/8"
301026-2	Short Stop Filter Assembly, 3/8"F x 3/8"M
301026-3	Short Stop Filter Assembly, w/ Adapter 1/4"F x 3/8"M
391026-3	Short Stop Filter 94K, Assembly, 1/4"F x 1/4"M

5. TROUBLESHOOTING

If the water jet stream quality has degraded or the nozzle clogs during operation, stop and lock out the machine. Ensure all pressure has been removed from the system. Follow the below troubleshooting guide.

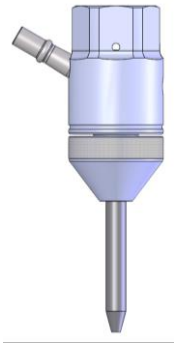
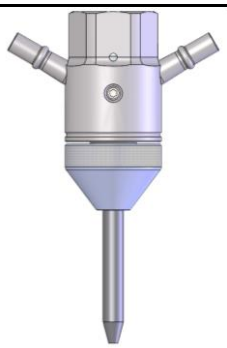
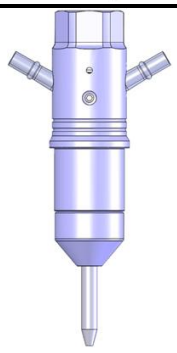
⚠ WARNING

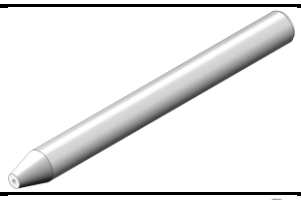
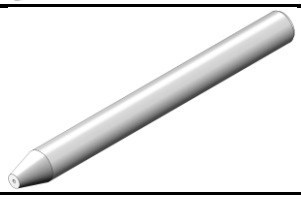
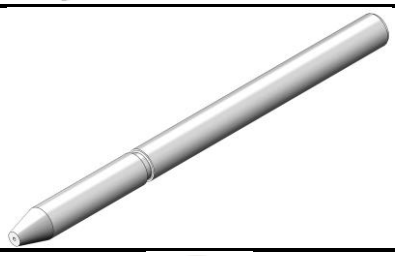
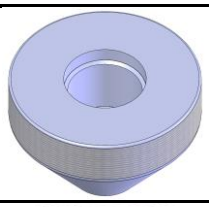
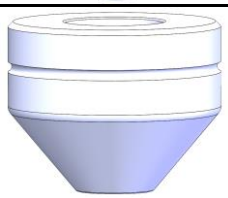
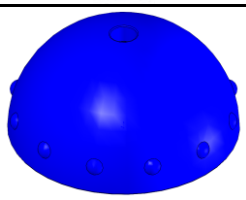
A 60K or 94K psi cutting stream will be produced by the IDE, even without the abrasive nozzle in place. DO NOT approach the water stream while the waterjet is running. The water stream will cause injury.

Symptom	Solution
Reduced cut power **Slow cutting speed**	• Verify you are getting the expected water pressure out of the pump. • Remove SSF and check for blockages. Clean or replace as needed. • Inspect mixing tube for wear. Take particular note of any uneven wear at the exit. Replace mixing tube if worn. • Inspect diamond under magnification for any blockages or chips in the diamond orifice. • Inspect plenum for excessive wear. Replace IDE if found. • Verify abrasive flow rate is as expected. Check that abrasive feed tube is clear and dry.
Poor abrasive flow **Uneven abrasive flow**	• Verify the abrasive feed tube is clear and dry. Moisture or Water in the abrasive hose will cause clogging and needs to be removed. • Ensure the abrasive hose is short and direct to the IDE. Ensure no loops are present and minimize low spots in the feed tube. • Ensure abrasive bulk hopper and mini hopper are dry. An air dryer may be needed for the compressed air feeding the bulk hopper. • Verify proper dwell time between turning abrasive off and turning water off is sufficient to clear abrasive out of the line before the water shuts off. • On dual port IDE's, make sure the second inlet tube is capped if not used.
Water backs up into abrasive feed hose	• Verify proper dwell time between turning abrasive off and turning water off is sufficient to clear abrasive out of the line before the water shuts off. • On dual port IDE's, make sure the second inlet tube is capped if not used. • Remove abrasive mixing tube and ensure it is not plugged. If plugged, try to blow it out with compressed air. Replace as needed. If plugged, verify quality and cleanliness of the abrasive. • Verify that water does not drip out of mixing tube tip while the cutting head is off (deadhead). If water drips out, repair the on/off valve with a repair kit.

6. PARTS LIST

To facilitate parts ordering, refer to the table below:

Part Number	Description	Available Dash Numbers (-XX)*	ID (in.)	Part Image
301329-1-XX 301329-1-XX-SSF	IDE-III, Single Port IDE-III, Single Port w/ Short Stop Filter	-06 -07 -08 -09 -10 -11 -12 -13 -14 -15 -16 -17 -18	0.006” 0.007” 0.008” 0.009” 0.010” 0.011” 0.012” 0.013” 0.014” 0.015” 0.016” 0.017” 0.018”	
301329-2-XX 301329-2-XX-SSF	IDE-III, Dual Port IDE-III, Dual Port w/ Short Stop Filter	-07 -10 -11 -12 -13 -14 -16 -18	0.007” 0.010” 0.011” 0.012” 0.013” 0.014” 0.016” 0.018”	
391131-1-XX	IDE, 94K, Single Port	-10 -11 -14 -15	0.010” 0.011” 0.014” 0.015”	
391130-1-XX 391130-1-XX-SSF	IDE, 94K, Dual Port IDE, 94K, Dual Port w/ Short Stop Filter	-07 -08 -09 -10 -11 -12 -13 -14 -15 -16 -17 -18	0.007” 0.008” 0.009” 0.010” 0.011” 0.012” 0.013” 0.014” 0.015” 0.016” 0.017” 0.018”	

Part Number	Description	Available Dash Numbers (-XX)*	ID (in.)	Part Image
1000008-XX-3	3” Standard Nozzle	-30 -35 -40 -50	0.030” 0.035” 0.040” 0.050”	
1000013-XX-3	3” Premium Nozzle	-30 -40 -50 -60	0.030” 0.040” 0.050” 0.060”	
1000013-XX-4	4” Premium Nozzle	-30 -40 -50 -60	0.030” 0.040” 0.050” 0.060”	
100171-281	IDE Retaining Collet	N/A	0.281”	
100172-1	60K IDE Clamp Nut	N/A	N/A	
190172-1	94K IDE Clamp Nut	N/A	N/A	
400222-1	Splash Guard	N/A	N/A	

** Other sizes available upon request.*

7. REVISION TABLE

DATE	REV. ID.	DESCRIPTION OF CHANGE	WRITTEN BY	CHECKED BY	APPROVED BY
11/19/2025	0	First Publication	NPI	M.H.	M.H.