DP3000 INSTALLATION PROCEDURES FOR ORIFICE ASSEMBLY

See diagram

1). Insert orifice assembly (insert) into DP 3000 body**, being sure the slot matches to the pin inside the body.** This is essential for proper alignment.

2). Apply "Blue Goop" to the threads of the extension tube and a small amount to the end of the extension tube where it seats against the orifice assembly (insert). The parts are all stainless steel and will gall together without the anti-seize compound.

3). Screw the DP 3000 body onto the extension tube. Tighten with wrench (~1/8" turn past hand tight corresponding to 55ft-lbs).

(NOTE: ALWAYS SECURE THE DP 3000 BODY TO THE EXTENSION TUBE BEFORE INSTALLING THE INLET SLEEVE.)

4). **Install the nozzle.** **(**Apply "Blue Goop" to the threads of the DP 3000 body prior to tightening the nut.)
Hold nozzle in place inside the insert while tightening the nut. A gap between the nozzle and the insert will cause the insert and/or nozzle to wear and/or fail prematurely. (Distance from nut to bottom of a 3" nozzle should = approximately 1.300".)

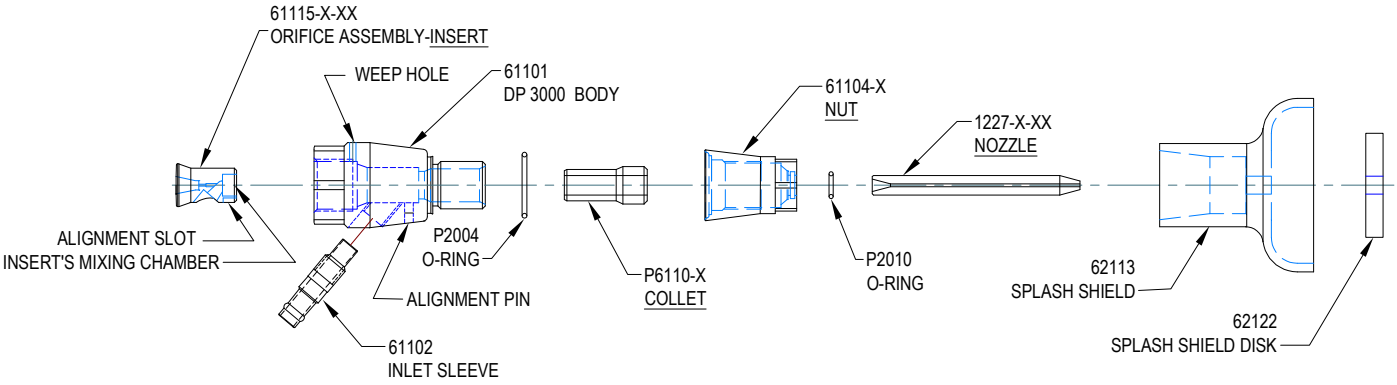
5). Apply "Blue Goop" to the threads of the inlet sleeve, **only after the DP 3000 body has been secured to the extension tube.** Screw inlet sleeve into the DP 3000 body using a wrench to **lightly snug** the inlet sleeve against the orifice assembly (insert).

****NOTE: INSERT, NOZZLE, NUT, AND COLLET SIZE MUST MATCH. (IF YOU ARE USING A .281" NOZZLE, THEN YOU MUST USE THE .281" INSERT, NUT,AND COLLET.)***

NOZZLE PART NUMBER	INSERT PART NUMBER	NOZZLE SIZE
1227-1-(X)	61115-1-(X)	.281" X 3"
1227-2-(X)	61115-2-(X)	.250" X 3"
1227-4-(X)	61115-4-(X)	.314" X 4"

*** It is advised to inspect the mixing chamber in the orifice assembly (insert) for wear if you are changing the nozzle and not the orifice assembly (insert).

DIAGRAM of DP 3000



NOTE: ORIFICE ASSEMBLY-INSERT, NOZZLE, NUT, & COLLET ALL NEED TO MATCH

STARTING PARAMETERS:

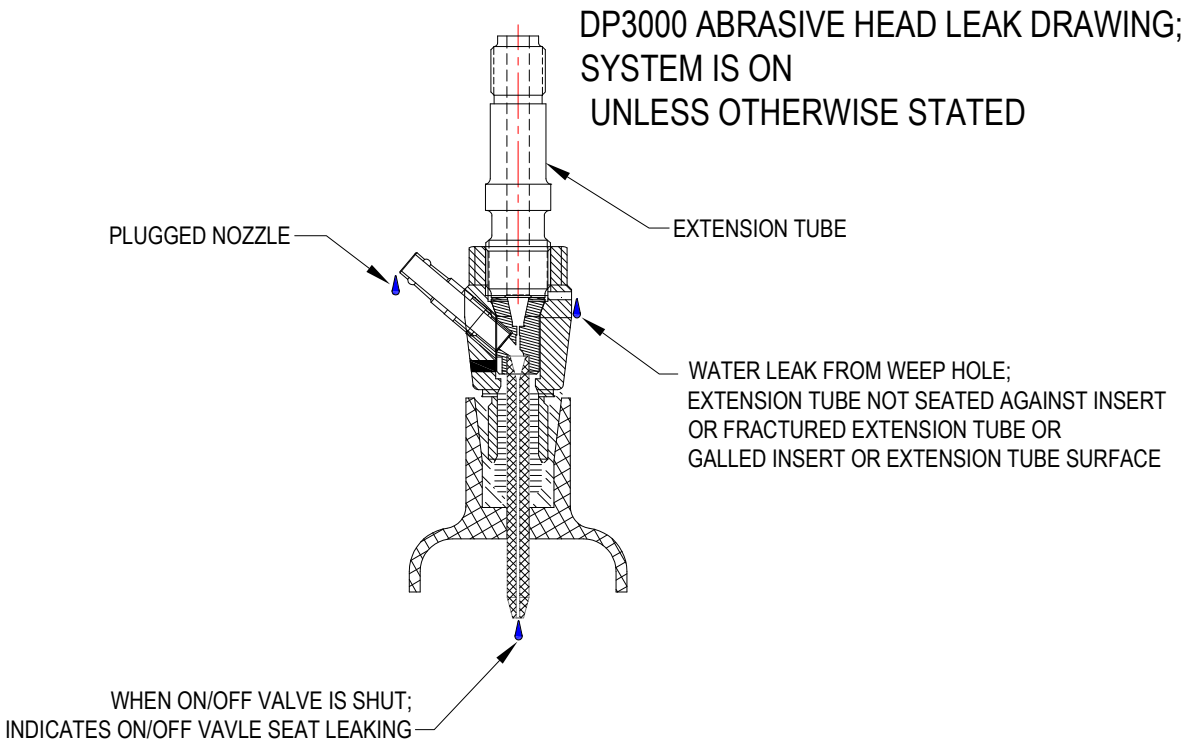
The DP 3000 Abrasive Head is one of the most precise and consistent abrasive heads in the market today. It typically uses less garnet with the same cutting speeds as its counterparts. It is the only abrasive head available where one gets a new mixing chamber each time the orifice assembly is replace. This is like getting a new abrasive head with each new orifice assembly (insert) used.

Excessive wear can occur if the inside nozzle diameter is too small for the orifice sized used. A standard ratio of 3:1 is recommended to get the most life out of your nozzles and orifice assemblies (inserts) without reducing speed or quality of cut. We recommend an orifice size of 0.010” when using an inside nozzle diameter of 0.030”. We recommend using an orifice size of 0.013” when using an inside nozzle diameter of 0.040”. There are many dynamic variables including depth of cut and hardness of material, so feel free to play a little. Each job will have a different optimum combination of nozzle and orifice sizes.

The less garnet you use the more life you will get out of your waterjet components that are exposed to the garnet including your nozzles and inserts (houses the mixing chamber). Likewise, the smaller orifice you use, the less load on your waterjet pumping system that results in longer lasting components. It is prudent to find out when the cutting quality is significantly diminished in light of saving money on expenditures. The DP 3000 abrasive head is designed to quickly disconnect for replacements of inserts (houses the orifice) and nozzles. Experience operators typically set aside ≤1/2” thick cuts of mild steel for a nozzle size of 0.030” with an orifice size of 0.010”; while using a nozzle size of 0.040” with an orifice size of 0.13-0.15” for thicker cuts of mild steel. Typically, the DP 3000 Abrasive Head uses 20% less garnet flow rate than other

abrasive heads. We suggest you start your garnet flow rate at where you have it set and reduce the garnet flow rate until you notice a difference in cutting quality. Typically, you may have run garnet at 1 pound per minute and discover that you can reduce your flow rate to 0.8 pounds per minute. This is a significant savings on operating costs as garnet is the highest expenditure in abrasive cutting with the exception of downtime required to replace worn components. We encourage adjusting your garnet flow rate until an optimum rate is obtained. Enjoy your new cutting head and feel free to call with any problems or suggestions at our toll free number of 1-866-302-3284.

TROUBLE-SHOOTING FOR WATER LEAKS



TROUBLE-SHOOTING TABLE:

SYMPTOMS	CAUSES	SOLUTIONS
WATER LEAK FROM WEEP HOLE	1. EXT. TUBE NOT SEATED AGAINST INSERT 2. EXTENSION TUBE OR INSERT SURFACE GALLED 3. FRACTURED EXTENSION TUBE BODY	1. TIGHTEN EXTENSION TUBE OR REPLACE WORN PARTS 2. REMOVE BURRS ON EXTENSION TUBE OR INSERT FACE BY LIGHTLY SANDING; BE SURE TO CLEAN ANY RESIDUE FROM THE COMPONENTS BEFORE USE OR REPLACE WORN PARTS. 3. REPLACE EXTENSION TUBE
WATER LEAK FROM INLET SLEEVE	1. PLUGGED NOZZLE	1. TURN NOZZLE OVER; TURN ON WATER (NOT ABRASIVE) TO CLEAR BLOCKAGE; TURN NOZZLE BACK OVER TO RESUME CUTTING; IF STILL PLUGGED, REPLACE NOZZLE
WATER LEAK AT END OF NOZZLE WHEN ON/OFF VALVE SHUT	1. ON/OFF VALVE SEAT LEAKING	1. INSPECT AND REPLACE PARTS
STREAM MISALIGNED	1. CRACKED OR MISALIGNED JEWEL 2. DIRT OR FOREIGN MATERIAL 3. DAMAGED COLLET	1. REPLACE INSERT 2. REMOVE FOREIGN PARTICES; RE-INSTALL NOZZLE OR REPLACE NOZZLE 3. REPLACE COLLET
WIDE STREAM	1. DAMAGED JEWEL 2. INSERT MIXING CHAMBER WORN 3. NOZZLE WORN	1. REPLACE INSERT 2. REPLACE INSERT 3. REPLACE NOZZLE
IMPROPER WEAR IN JEWEL BOTTOM (MIXING CHAMBER)	1. DAMAGED JEWEL 2. WORN INLET SLEEVE	1. REPLACE INSERT 2. INSPECT & REPLACE INLET SLEEVE IF THE BOTTOM INSIDE DIAMETER MEASURES 0.160” OR GREATER
GARNET NOT FEEDING	1. O-RING IN NUT DAMAGED OR MISSING CAUSING A VACCUM LEAK AROUND COLLET 2. GARNET FLOW RATE EXCEEDS DP 3000 HEAD CAPACITY	1. INSPECT AND REPLACE O-RING 2. DISCONNET ABRASIVE FROM DP 3000 HEAD AND PLACE OPEN END IN PLASTIC BAG. ADJUST GARNET FLOW RATE UNTIL ONE MINUTE OF GARNET FLOW FILLS THE PLASTIC BAG TO THE WEIGHT OF ONE POUND. THIS WILL ROUGHTLY CORRESPOND TO 1LB/MIN FLOW RATE. RECONNECT AND ADJUST FLOW RATE UNTIL GARNET IS FEEDING PROPERLY. MAKE SURE GARNET FEEDING SYSTEM IS CLEAN AND DRY (FREE OF WATER) BEFORE RESUMING OPERATIONS