

# DiaLine4 Cutting Head Installation and Maintenance Guide

## Introduction

The **DiaLine4 Cutting Head** is engineered as a direct replacement for the Flow® Paser® 4 cutting head. This cutting head is designed specifically for diamond orifices to provide improved cutting performance and superior life.

## DiaLine4 Head Assembly and Installation



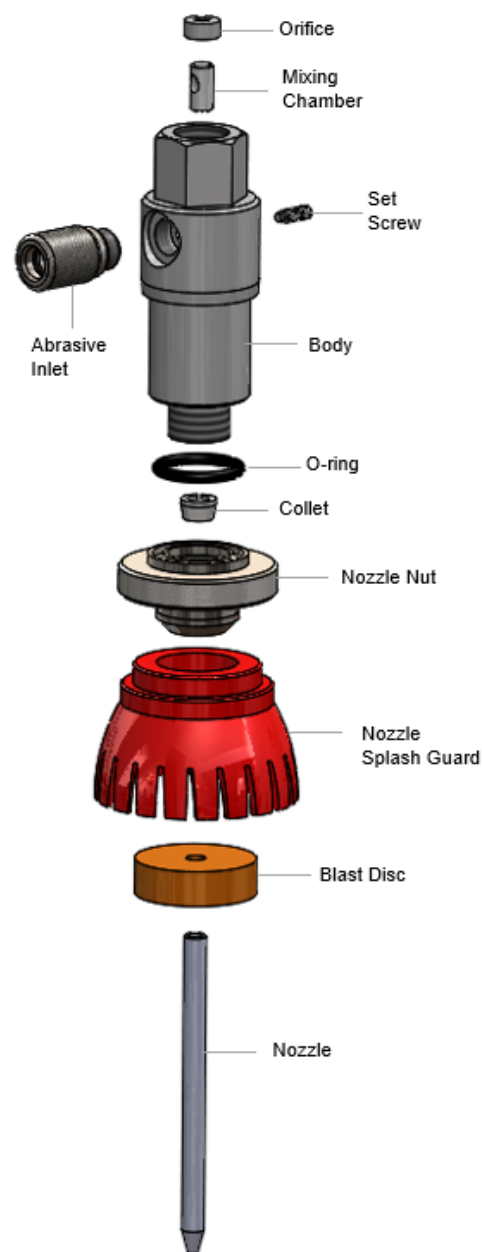
**DANGER:** Before installing or servicing this cutting head, turn off the electrical power and release water pressure and hydraulic pressure from the system



**NOTE:** Always use HP lubricants, such as Blue Goop® or Pure Goop® on metal-to-metal mating surfaces such as threads and the nozzle body contact area.



**NOTE:** Make sure that the top of the head and bottom of the nozzle body are clean and free of debris, clean surfaces if necessary.



## Installation:

1. Remove the collet from the inside of the nozzle nut.
2. Slide the collet onto the end of the nozzle, making sure the tapered end of the collet is facing the tapered end of the nozzle.
3. Slide the nozzle into the abrasive body until it stops against the mixing chamber.
4. Slide the collet up the nozzle until it stops against the bottom of the abrasive body.
5. Thread the nozzle nut onto the abrasive body, ensuring the collet remains seated against the abrasive body.
6. Hand tighten the nozzle nut.
7. Press the splash guard over the nozzle nut.  
*Note: A gap between the nozzle nut and the splash guard should be present when fully assembled. This gap allows leverage for easy removal during disassembly.*
8. Press the blast disc over the nozzle and into the recess in the splash guard.
9. Thread the DiaLine4 head onto the bottom of the nozzle body and tighten to seal.
10. Push the abrasive tube completely into the abrasive inlet.

## DiaLine4 Maintenance Information

### Replacing the Orifice

1. Remove the DiaLine4 head from the nozzle body.
2. Turn the DiaLine4 head upside down and tap it on a workbench until the orifice falls out.
3. Thoroughly clean the abrasive body and nozzle body using isopropyl alcohol or similar cleaner.
4. Insert the new orifice, flat side down, into the abrasive body.
5. Reinstall the Dialine4 head onto the nozzle body.



**NOTE:** If the Orifice does not come out using this method, the mixing chamber can be used to remove the orifice. See below for detailed instructions.

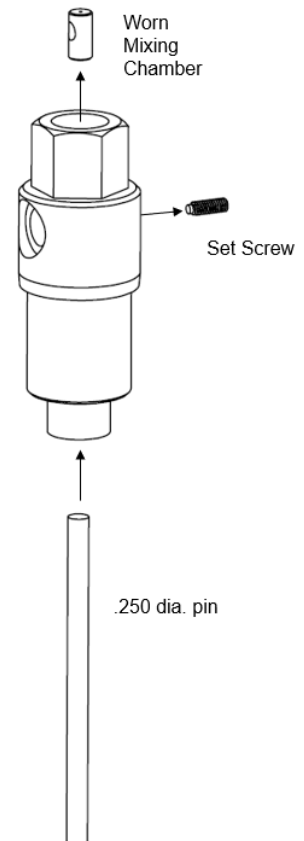
### Replacing the Mixing Chamber



**NOTE:** The mixing chamber may require replacement after extended use. When replacing the diamond orifice, the mixing chamber should also be replaced.

1. Remove the DiaLine4 head from the nozzle body.
2. Remove the inlet connector, nozzle nut, and nozzle from the abrasive body.
3. Loosen the set screw on the opposite side of the abrasive body from the abrasive inlet.
4. Push the orifice and mixing chamber up through the top of the abrasive body with a .250 dia. pin.
5. Reinstall the orifice and hold it in place.
6. Insert the new mixing chamber into the abrasive body from the bottom until it presses against the bottom of the orifice.
7. Align the abrasive inlet hole of the chamber with the inlet hole of the abrasive body.
8. Tighten the set screw to secure the mixing chamber.
9. Reassemble the DiaLine4 head and reinstall the head back onto the nozzle body.

#### Removing the Mixing Chamber

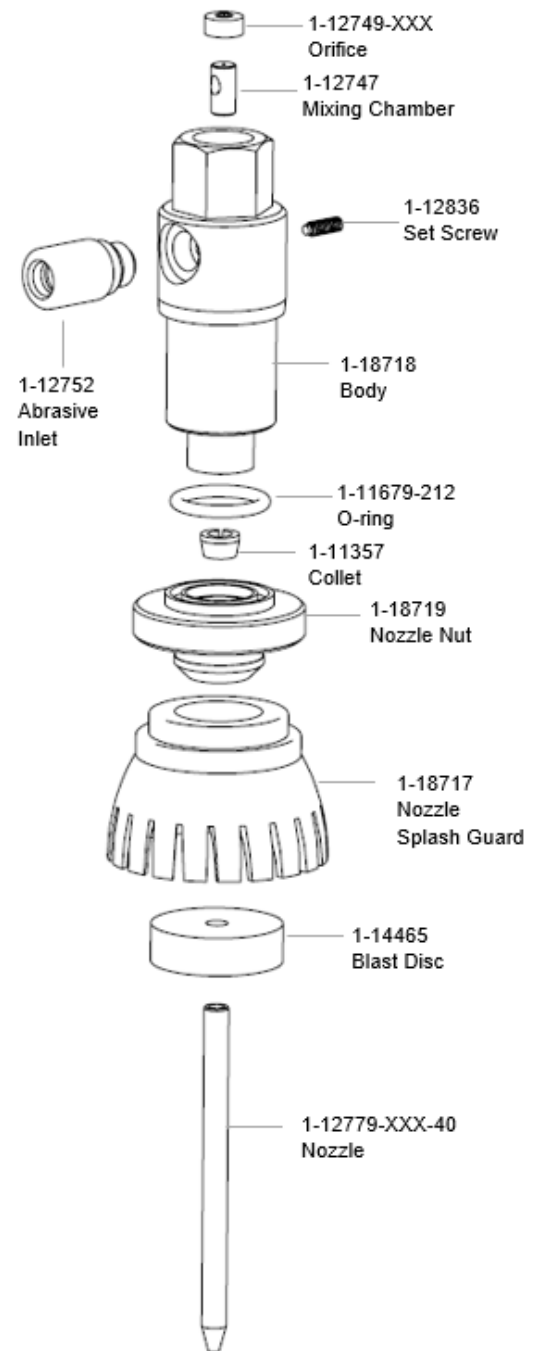


## DiaLine4 Parts

### 1-18741 Dialine4 Assembly

1-18741 Dialine4 Assembly	
1-11357	Collet
1-11679-212	O-ring, -212
1-12747	Mixing Chamber
1-12752	3/8" Abrasive Inlet
1-12836	Set Screw
1-14465	Blast Disc
1-18717	Nozzle Splash Guard
1-18718	Abrasive Body
1-18719	Nozzle Nut
Dialine4 Orifices	
1-12749-XXX	Diamond Orifice (Recommended)
1-22835-XXX	Ultra Sapphire Orifice
1-12835-XXX	Ruby Orifice
Dialine4 Nozzles .281 non-ringed	
1-12779-XXX-40	.281 Nozzle, Roctec® 100
1-11277-XXX-40	.281 Nozzle, Roctec® 500

-XXX with nozzles denotes internal diameter (e.g., -030 nozzle has a 0.030" inside diameter)



## Warranty and Water Quality Information

### Warranty:

In order to maximize the life of your DiaLine4 Diamond AccuStream recommends the use of our Thimble style filter. A 600-hour warranty on the Diamond orifice is offered to those customers using the thimble filter and whose water quality meets the requirements below.

### Filtration:

The thimble filter is a small stainless filter with very small holes drilled in a unique pattern to capture any foreign debris which might damage the orifice. The **Thimble Filter** (optional), is strongly recommended to protect the orifice from **larger** particulates in the water. The assembly threads into the valve body just above the head and help to protect the orifice from any damage. If in-line filters are not used it is imperative that the high-pressure lines be purged after any work on the pump or HP plumbing.

### Inlet Cutting Water Requirements and Testing

The inlet water should have a pH of **6 to 8** and be clear, odorless, and free of biological materials. To ensure the incoming water will not have an adverse affect on the diamond life, the water quality can be tested with the TDS meter.

In other cases it should be analyzed for the following:

- pH
- Silica Content
- Total Dissolved Solids (TDS)



### Water Treatment Guidelines:

Testing your inlet cutting water with a TDS meter allows you to quickly and effectively monitor the quality of your inlet water and make adjustment accordingly

Unsatisfactory	Optimal	Satisfactory	Unsatisfactory
Lower than 0.005% (50 ppm)	0.005% to 0.015% (50 ppm to 150 ppm)	0.015% to 0.022% (150 ppm to 220 ppm)	Higher than 0.022% (220 ppm)
Use nonmetallic or stainless steel fittings		A reverse osmosis system can be used to removed TDS	A reverse osmosis system should be used to removed TDS



**NOTE:** Do not treat to 5 ppm or less: Water of this high of purity is overly aggressive and will damage stainless steel components.

### Maximizing diamond and ruby orifice life

1. When changing an orifice, make sure you have clean hands and a clean work area.
2. When a new orifice is installed the adapter above the orifice has no water contained inside. You need to open the cutting head and bring the water pressure up gradually as to not pressure shock the top of the orifice.
3. Too much abrasive being fed to the cutting head will cause premature orifice failure. Confirm you are not using excessive amounts of abrasive.
4. At the end of your cut, shut the abrasive off first. This will clear out the abrasive feed line and help stop abrasive migrating up toward the orifice, causing premature failure. The time should be .5 second. This may not be possible if you are cutting material that delaminates.
5. If the orifice life suddenly goes down, check to see if you have a high-pressure inline filter. If it is clogged it will start to come apart and take out your orifice.
6. Purging the lines may be necessary after changing high-pressure components as contaminants may cause your orifice to fail soon after doing maintenance the intensifier.