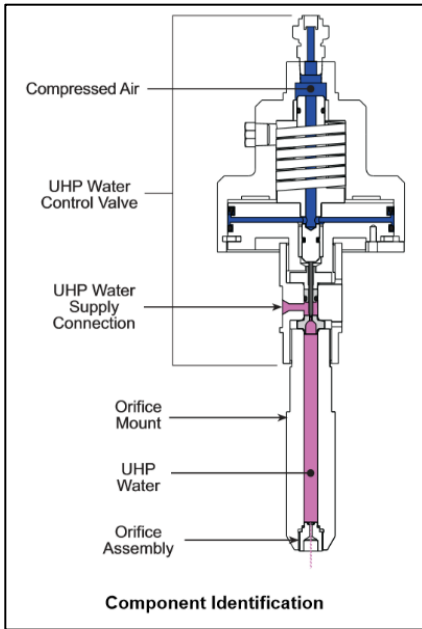


## Omnijet III Cutting Head Assemblies

The Omnijet III Cutting Head Assembly mounts directly to your motion system's Z-Axis or your remote assembly and houses the components used to direct the Ultra High Pressure (UHP) waterstream being delivered from your UHP pump. The Omnijet III Cutting Head is used when water only is required for your cutting application.



Omnijet III, 60K PSI Cutting Head Assembly

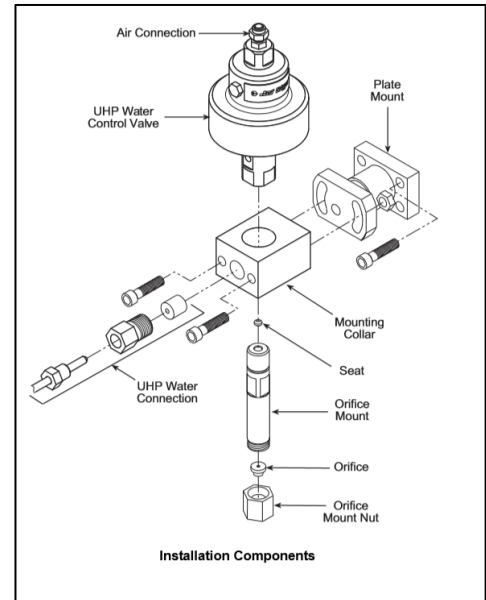
The primary components of a complete cutting head assembly include a UHP Control Valve (sometimes referred to as an On/Off Valve) and an Orifice Mount which houses the Orifice.

The UHP Water Control Valve turns the UHP water flow on and off and hence is often referred to as an On/Off Valve. Supplying compressed air to the UHP Water Control Valve opens a needle valve allowing UHP water to flow; removing the compressed air closes the needle valve and stops the flow of UHP water.

An Orifice Mount houses the Orifice that concentrates the water stream. The length of the Orifice Mount affects the length of the UHP water stream core and how fast the water stream can be turned on and off. The longer Mount generally delivers a more accurate cut; however, it requires a greater dwell time to

move to the next position on a part cut as the water stream must fully vacate the Mount prior to the move. Orifice Mounts are sold separately and can be changed based on application needs.

The Orifice size sets the diameter of the UHP water stream (also called kerf) and are available in a variety of jewel materials and sizes. *(See Jet Edge's Omnijet Water Orifices Catalog Page for information on selecting an Orifice.)* Fan Tip Orifices are also available for cleaning operations providing a 2" flared water stream in the shape of a flat fan.



Omnijet III, xP Cutting Head Assembly

Field Repair kits are available to simplify the ordering of components. Additionally, Jet Edge will do factory rebuilds to bring your cutting head back into factory specification.

## OmniJet III 60K PSI Cutting Head Assemblies

### OmniJet III, 60K PSI Cutting Head Assembly, Long Mount (PN 56364)



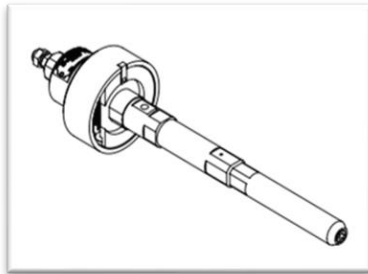
The OmniJet III Cutting Head Assembly with Long Mount consists of a UHP Water Control Valve (PN 110893) and a 6.1" Orifice Mount (PN 36969) for waterjet cutting. It is the most popular cutting head for precision cutting. One Sapphire Orifice .008" I.D. (PN 36874008) is included.

### OmniJet III, 60K PSI Cutting Head Assembly, Standard Mount (PN 56022)



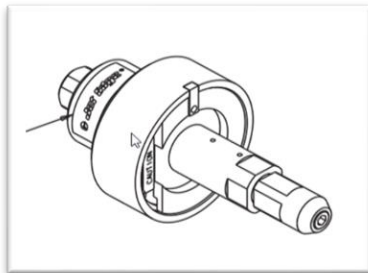
The OmniJet III Cutting Head Assembly, Standard Mount consists of a UHP Water Control Valve (PN 110893) and a 4.4" Orifice Mount (PN 36827) for waterjet cutting. One Sapphire Orifice .008" I.D. (PN 36874008) is included.

### OmniJet III, 60K PSI Cutting Head Assembly, Long Mount with 3.5" Extension (PN 111044)



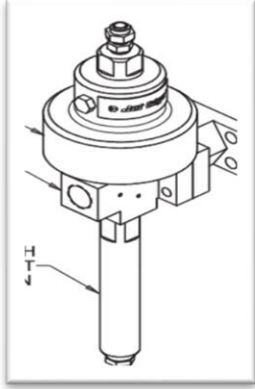
The OmniJet III Cutting Head Assembly with Long Mount 6.1" and 3.5" Extension is used when the Mount needs to be extended to reach the cutting surface. A UHP Control Valve (PN 110893) is attached to the Long Mount 6.1" (PN 36969) along with the 3.5" Extension (PN 111042) in this assembly. One Sapphire Orifice .008" I.D. (PN 36874008) is included.

### OmniJet III, 60K PSI Cutting Head Assembly, Fast Acting (PN 56217)



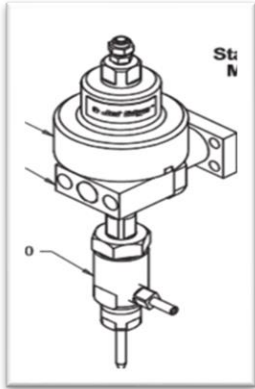
The OmniJet III Fast Acting Cutting Head Assembly utilizes a short 2.65" Orifice Mount (PN 37339) and a Quick Exhaust Valve attached to the Water Control Valve (PN 110893). When combined, this allows for faster on/off control of the water stream. This Cutting Head Assembly is preferred when there are fewer continuous cuts and more transversing of the cutting head. One Sapphire Orifice .008" I.D. (PN 36874008) is included.

## OmniJet III, 60K PSI Cutting Head Assembly, Precision Mount (PN 100842)



The OmniJet III Precision Mount Cutting Head Assembly utilizes a 6.1" Orifice Mount (PN 36969) with the UHP Control Valve (PN 110893) for waterjet cutting. The valve body and precision mount utilize a channel and rail slotting system to ensure high precision locating of the Cutting Head Assembly and does not require an additional Mounting Collar. Orifices are sold separately.

## OmniJet III, 60K PSI Cutting Head Assembly, Precision Mount with Permailign II Abrasive Orifice Assembly (PN 56426)



This OmniJet III Precision Mount incorporates a Permailign II Abrasive Cutting Head Assembly (PN 100150) into the UHP Control Valve (PN 110893). You maintain all of the benefits of precision mounting as you convert your water only Cutting Head Assembly into an Abrasive Cutting Assembly. One Sapphire Orifice .012" (PN 100159012) and one Nozzle .035" ID x 3" Long x .250" OD (PN 107113) are included.

## OmniJet III, 60K PSI Cutting Head Assemblies

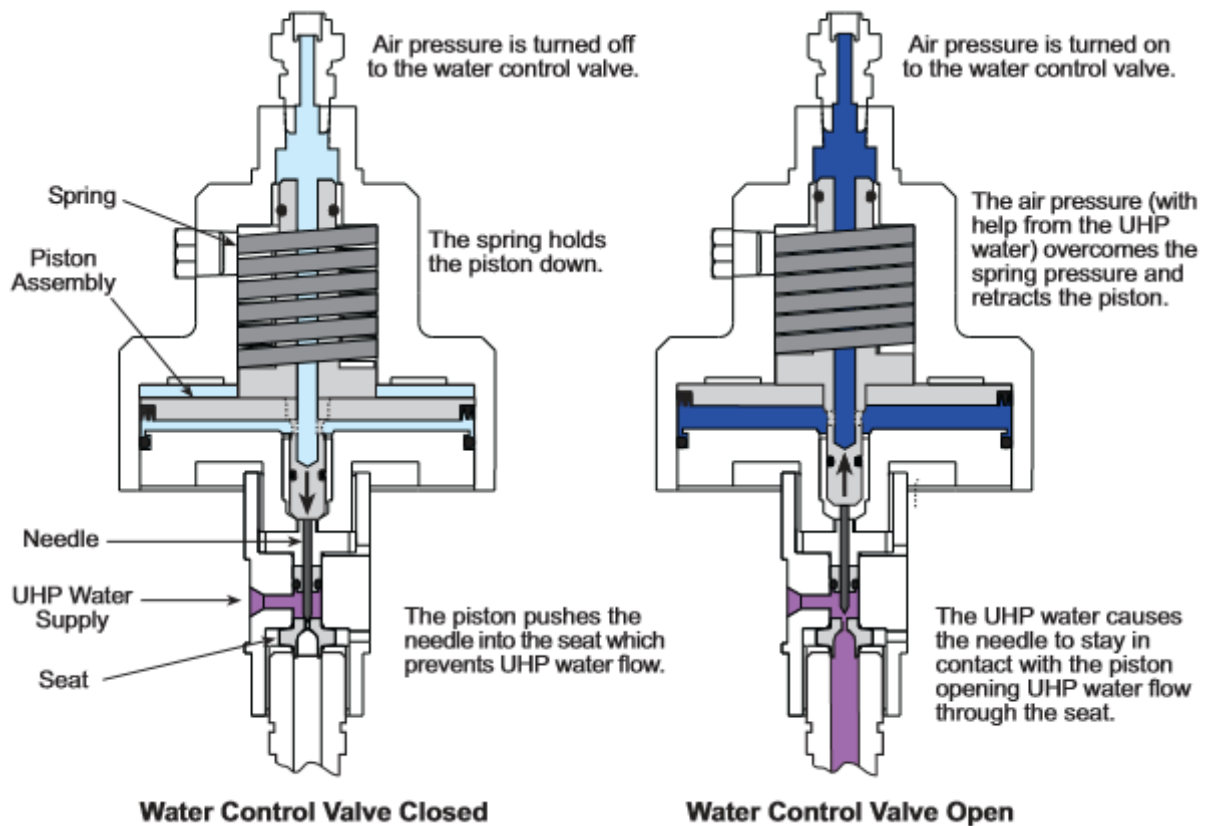
Part Number	Description
56364	OmniJet III Cutting Head Assembly, Long Mount
56022	OmniJet III Cutting Head Assembly, Standard Mount
111044	OmniJet III Cutting Head Assembly, Long Mount with 3.5" Extension
56217	OmniJet III Cutting Head Assembly, Fast Acting
100842	OmniJet III Cutting Head Assembly, Precision Mount
56426	OmniJet III Cutting Head Assembly, Precision Mount w/Permailign II Abrasive Orifice Assembly

## OmniJet III UHP Control Valves

### UHP water control valve

The ultra high pressure (UHP) water control valve is a pneumatic valve, it uses compressed air to turn the UHP water flow on and off. The equipment in which the UHP water control valve is installed controls the compressed air supplied to the air valve. The air valve is a normally closed valve. The air valve operates a needle valve to start and stop the flow of UHP water.

- When air pressure is introduced to the air chamber of the air valve, the air pressure pushes the piston to overcome the spring pressure. UHP water pushes the needle out of the seat.
- When the air pressure is removed, the spring in the air valve extends the needle into the seat stopping the UHP water flow.



## OmniJet III 60K PSI Control Valves

### OmniJet III, 60K PSI Control Valve, W/O Orifice Mount (PN 110893)



The OmniJet III Control Valve is the valve used on the Standard Mount (PN 56022), Long Mount (PN 56364) and Precision Mount (PN 100842) Cutting Head Assemblies without an orifice mount. Several Orifice Mounts, a Permalign Abrasive Head or other adapters may be attached to the Control Valve. It is designed for flows up to 4 gpm at 55K psi (16 lpm at 3,88 bar).

### OmniJet III, 60K PSI Control Valve, High Flow (PN 102576)

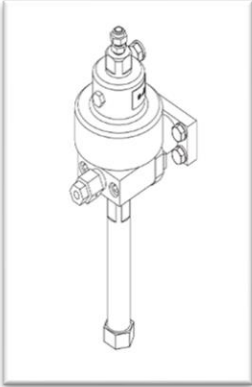


The High Flow OmniJet is a pneumatically actuated On/Off Valve that controls the flow of ultra high pressure (UHP) water to another device. This valve is often used for remote on/off control of the Hp water for cleaning and cutting accessories used in cleaning and cutting applications. This High Flow Valve is designed for flows up to 7 gpm at 55Kpsi (26 lpm at 16 bar).

### OmniJet III, 60K PSI UHP Control Valves

<i>Part Number</i>	<i>Description</i>
110893	OmniJet III UHP Control Valve, w/o Orifice Mount
102576	OmniJet III UHP Control Valve, High Flow

## OmniJet III xP Cutting Head Assemblies



### **OmniJet III xP 90K PSI Cutting Head Assembly, Standard Mount (PN 106090)**

The OmniJet III xP Cutting Head Assembly with a Standard Mount consists of a UHP Water Control Valve (PN 106265) and a 6.17" Orifice Mount (PN 106091) for waterjet cutting. Orifices are sold separately.

### **OmniJet III, xP Cutting Head Assemblies**

<b>Part Number</b>	<b>Description</b>
106090	OmniJet III xP Cutting Head Assembly, Standard Mount

## OmniJet III, xP UHP Control Valves

### **OmniJet III xP 90K PSI UHP Control Valve (PN 106265)**

The OmniJet III xP Control Valve is the same valve used on the Standard Mount Cutting Head Assembly without an orifice mount. A Standard or long Orifice Mount may be attached to the Control Valve.



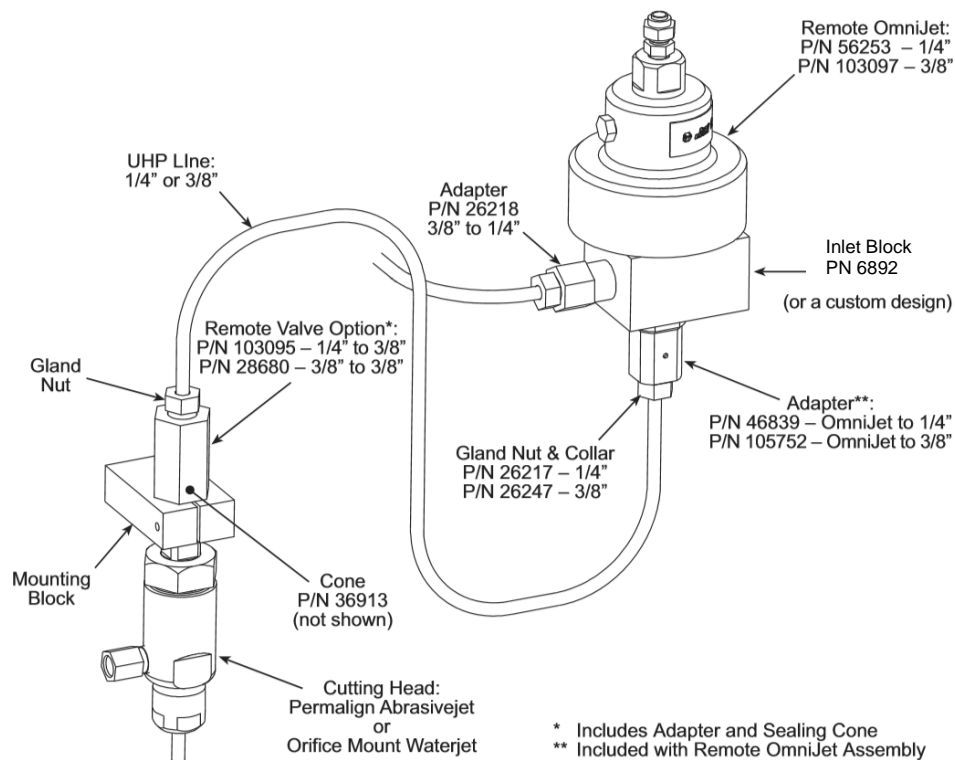
### **OmniJet III, xP UHP Control Valves**

<b>Part Number</b>	<b>Description</b>
106265	OmniJet III xP Control Valve

## OmniJet III Remote UHP Control Valve

The OmniJet III Remote UHP Control Valve separates the water control valve from the cutting head (i.e. Orifice Mount and Orifice) and can be mounted remotely from the cutting heads. The OmniJet III Remote UHP Control Valve is typically used when multiple cutting heads must be positioned near each other or in situations where there is no room for the UHP Control Valve to stack on the cutting heads. This application allows one UHP Control Valve to regulate the water flow to multiple cutting heads. Consideration must be given to the size and number of orifices vs. the available water flow from the UHP Control Valve when selecting this option.

The OmniJet III Remote Control Valve is available in 1/4" and 3/8" configurations. Use the 1/4" configuration when the Remote Control Valve is located at a fixed position and the cutting head is located where its position might be adjusted across the spreader bar (the 1/4 inch UHP water line allows for some flex). Use the 3/8" configuration when the Remote Control Valve and the cutting head are in fixed positions. A single OmniJet III Remote Control Valve can supply multiple cutting heads up to a flow of 2 gpm (7.5 lpm). For higher flow rates use the OmniJet III, 60K PSI Control Valve, High Flow (PN 102576).



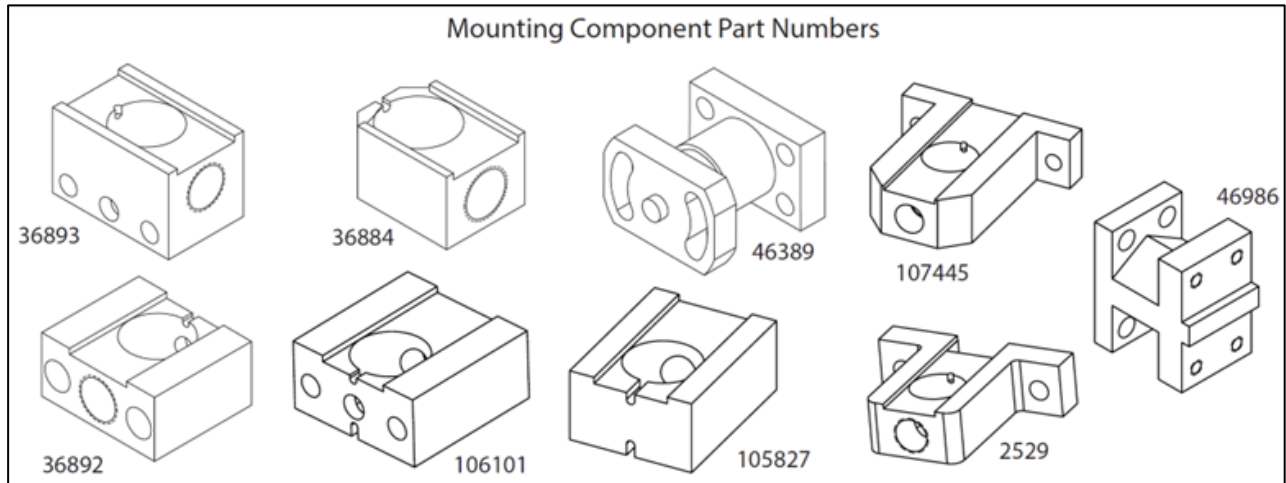
Remote OmniJet Connections

### OmniJet III, 60K PSI Remote UHP Control Valves

Part Number	Description
56253	OmniJet III Remote UHP Control Valve, 1/4" Outlet
103097	OmniJet III Remote UHP Control Valve, 3/8" Outlet

## OmniJet III Cutting Head Mounting Methods

There are several types of Cutting Head Mounts for the OmniJet III Cutting Head Assembly. The most common ones are: The Plate Mount (PN 46389) allows the OmniJet to be attached to a flat surface and pivot side to side up to 30 degree's each way. This Plate Mount is usually how the OmniJet is attached to a Z-axis assembly; The Precision Mount OmniJet Plate Mount (PN 46986) has the same mounting dimensions as Plate Mount (PN 46389), however, the inlet collar is incorporated into the the valve body. Additionally, there are several collar types that allow a 3/8" UHP water connection to the OmniJet. These collars attach either to a Plate Mount or directly to your mounting surface. Side inlet and front inlet collars can also be mounted to the Plate Mount. A non-mounting collar (PN 36884 and PN 105827) is available for applications where the OmniJet is secured by other means.



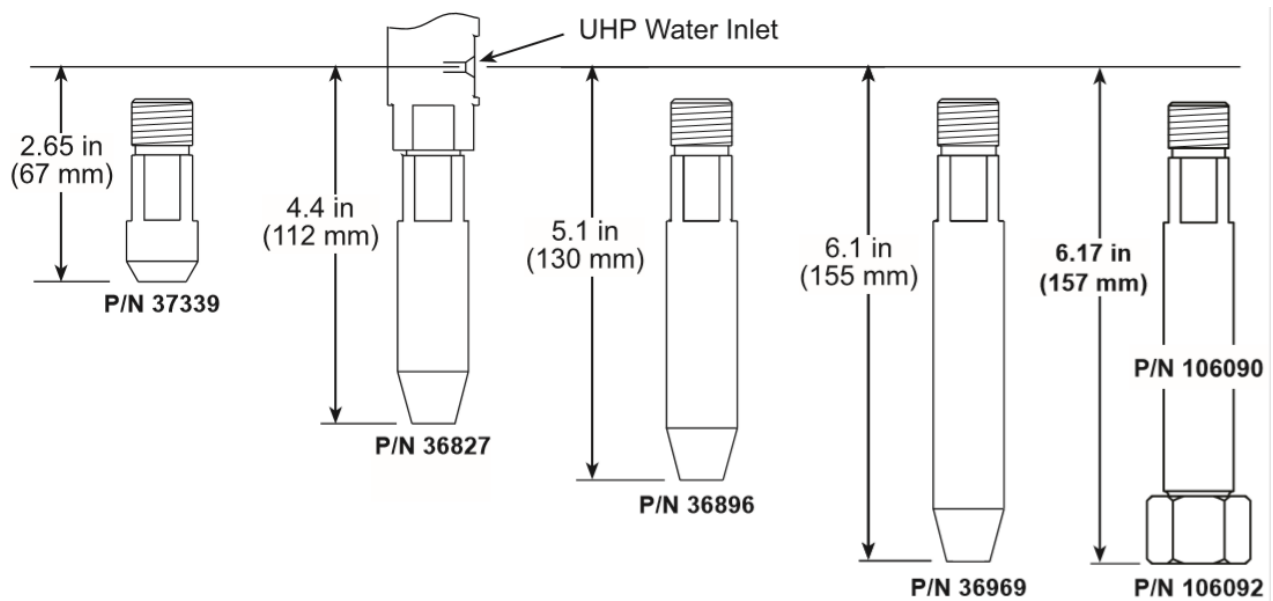
### OmniJet III, 60K PSI and xP Mounting Components

Part Number	Description
36893	OmniJet III Side Inlet Collar
36884	OmniJet III Non-mounting Inlet Collar
46389	OmniJet III Plate Mount with Tilt
107445	OmniJet III Front Inlet Height Sensing
36892	OmniJet III Front Inlet Collar
106101	Omni Jet III xP Front Inlet Collar
105827	Omni Jet III xP Non-mounting Inlet Collar
2529	OmniJet III On/Off Valve Carriage Mount
46986	OmniJet III Precision Mount Plate Mount



## OmniJet III Orifice Mounts

The Orifice Mount is attached to the UHP Water Control Valve and is a component of the OmniJet III Cutting Head Assembly. The Orifice Mount combined with an Orifice, concentrates the water stream. The length of the Orifice Mount affects the length of the water stream core and how fast the water stream can be turned on and off. The longer mount delivers a more accurate cut and is preferred for cutting thicker materials more accurately and to a higher finish, however it requires a greater dwell time while the water is evacuated from the nozzle. A short Orifice Mount length reduces that dwell time and shortens the total cycle time from cut finish to the start of the next cut.



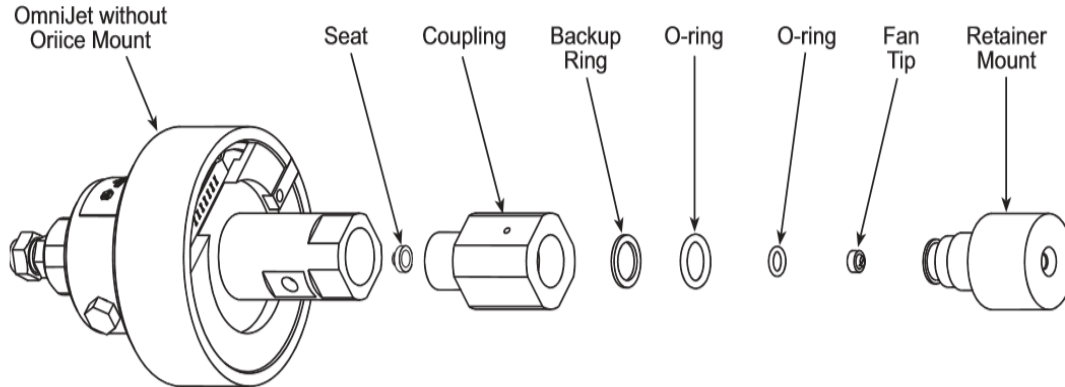
### OmniJet III, 60K PSI and xP Orifice Mounts

Part Number	Description
37339	Mount Short, Orifice, OmniJet III, 2.65" (Inlet to Tip)
36827	Mount Std, Orifice, OmniJet III, 4.4" (Inlet to Tip)
36896	Mount Long, Orifice, OmniJet III, 5.1 (Inlet to Tip)
36969	Mount Long, Orifice, OmniJet III, 6.1" (Inlet to Tip)
111042	Mount Extension Adapter, 3.5"
106091	Mount Std, Orifice, OmniJet III xP 6.17' (Inlet to Tip)

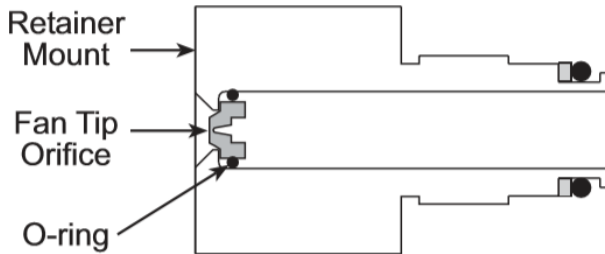
## OmniJet III Fan Tip Orifices

A fan tip is used for cleaning operations. It produces a flared water stream in the shape of a flat fan. The water stream has approximately a 2 inch (50 mm) width when the fan tip is 2 inches (50 mm) from the material. The Fan Tip Adaptor Kit replaces the Orifice Mount on the OmniJet III Cutting Head. See the Fan Tip Water Flow Chart below for appropriate sizing.

### Fan Tip Orifice Adaptor Kit (PN 102297)



### Fan Tip Orifice Installed



### **OmniJet III Fan Tip Orifices, 36K PSI Max Rated**

Part Number	Description
102297	OmniJet III Fan Tip, Orifice Adaptor Kit
108885	Fan Tip Orifice, .010"
36491	Fan Tip Orifice, .012"
36335	Fan Tip Orifice, .015"
35887	Fan Tip Orifice, .018"
35650	Fan Tip Orifice, .026"
26834	Fan Tip, Seal Kit



## OmniJet III Cutting Head Assemblies

### **Fan Tip Orifice Flow Rates, 36K PSI Max Rated**

<i>Fan Tip Water Flow (gpm)</i>				
<b>Fan Tip Size</b>	<b>Water Pressure* (psi)</b>			
	<b>20,000</b>	<b>25,000</b>	<b>30,000</b>	<b>35,000</b>
0.012 inch	0.425	0.475	0.520	0.562
0.015 inch	0.664	0.742	0.813	0.878
0.018 inch	0.956	1.069	1.171	1.265
0.026 inch	1.199	2.230	2.443	2.639

\*Note: Fan tips are rated for water pressure up to 36,000 psi (2,490 bar)

### **Fan Tip Orifice Flow Rates, 2,400 BAR Max Rated**

<i>Fan Tip Water Flow (lpm)</i>				
<b>Fan Tip Size</b>	<b>Water Pressure* (bar)</b>			
	<b>1,400</b>	<b>1,800</b>	<b>2,200</b>	<b>2,400</b>
0.012 inch	1.621	1.838	2.032	2.166
0.015 inch	2.532	2.871	3.174	3.384
0.018 inch	3.647	4.135	4.571	4.873
0.026 inch	7.608	8.627	9.537	10.964

\*Note: Fan tips are rated for water pressure up to 2,490 bar (36,000 psi)

**Omnijet III Repair Kits**

Leakage of the water seal around the needle is usually indicated by seepage from the top weep hole in the Valve Body. Whenever the Omnijet is taken apart for servicing, inspect all parts for wear and replace worn parts as required. Repair kits are available for the providing of routine maintenance that might include replacing the needle, needle bearing high pressure seal, HP seat or Air Valve Assembly seals. Contact Jet Edge for additional information on Omnijet III routine maintenance. See Jet Edge Maintenance Training Video: Omnijet III Cutting Head Rebuild for additional information.

**Omnijet III, 60K PSI Repair Parts**

<b>Part Number</b>	<b>Description</b>
56496	Omnijet III 60k, Replacement Air Valve Assembly
110821	Omnijet III Bleed Down Repair Kit with Valve Body
104497	Omnijet III Bleed Down Repair Kit
36873	Omnijet III Bleed Down Tool
25750	Precision Lube
28339	High-pressure Lubricant

**Omnijet III, xP Repair Parts**

<b>Part Number</b>	<b>Description</b>
110427	Omnijet III xP Replacement Air Valve Assembly
110821	Omnijet III Bleed Down Repair Kit with Valve Body
104497	Omnijet III Bleed Down Repair Kit
36873	Omnijet III Bleed Down Tool
25750	Precision Lube
28339	High-pressure Lubricant