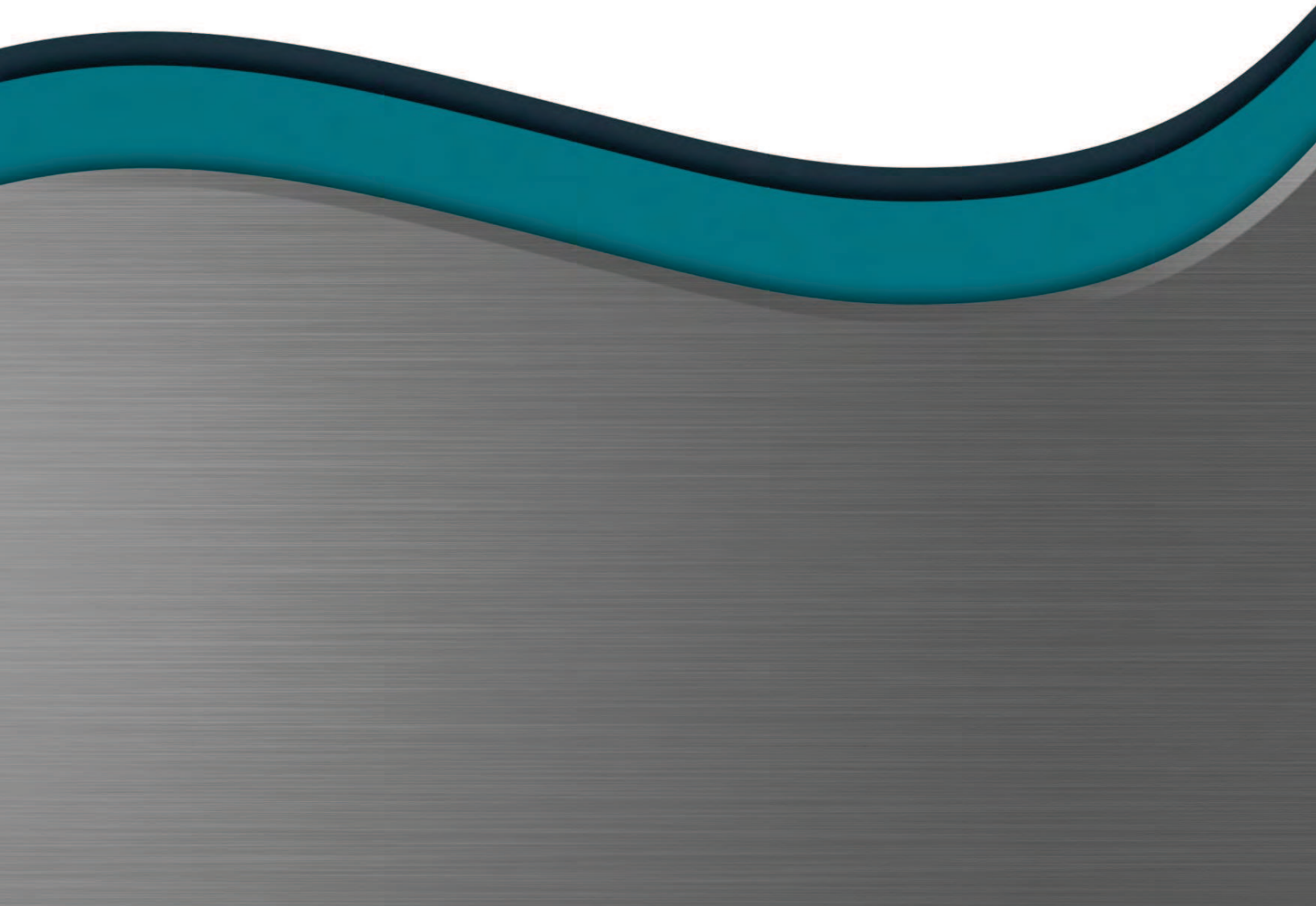
Flow

MACH 500
PRE-INSTALL GUIDE

JULY 2017



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Test your inlet water quality

We will send you an inlet water quality test kit. Instructions for testing are included in the kit. After we get your test results, your Project Manager will contact you to review the results in more detail.

Inlet water quality recommendation

Water quality plays a crucial role in determining how well an ultrahigh-pressure waterjet system operates. Maintain inlet water quality and temperature within the recommended parameters to ensure optimum performance of ultrahigh-pressure pumps and components.

Primary water

Use a municipal tap water supply source (or equivalent) for the primary water to the pump. Process water, boiler condensate, or untreated water sources are generally not acceptable. Do not use water treated by the deionization (DI) process.

Reverse osmosis (RO) process is acceptable under certain circumstances. RO can cause damage unless a proper bypass feature is put in place.

Primary water treatments

As impurities are removed from the water, it becomes more aggressive, seeking to replace the removed impurities with whatever it contacts. Excessive water treatment can be detrimental to components in the high-pressure water system.

Chillers

If the temperature of the inlet water to the pump does not fall within the range specified, a chiller may be required to achieve the expected pump maintenance cycles. The capacity of a chiller is determined by horsepower, application, and site-specific conditions.

Water softeners

Use a sodium ion exchange water softener system to treat water hardness. We recommend a dual sodium ion exchange system to allow for regular regeneration of the system and to provide a continuous supply of treated water.

The water softener system must have the capacity to handle 1.5 times the maximum flow rate of the pump. Both the exiting flow rate [liters (gallons) per minute] and the flow rate of liters (gallons) per duty cycle should be considered.

Most water utilities change the source of the water supply seasonally. This causes water hardness to change significantly. Select a softener that handles the highest expected hardness levels.

Water with unusually high iron levels may require additional water softening treatment from your local water treatment supplier.

Suspended particulate filtration

Filter the primary water supply for suspended particulate matter. Our pumps include filters for this purpose. Replace filter cartridges as specified in the manual and only use filters with absolute ratings.

We recommend you install a quality 1- or 2-stage 5-micron absolute pre-filter in the primary water source.

Cooling water for intensifier pumps does not have to be filtered.

Plumbing

We recommend that you use pipes and fittings made with copper or Schedule 80 PVC. Do not use pipes and fittings made with iron or aluminum. Use only quality hoses such as Push-Lok® or stainless steel.

Water flow rates

Primary water

Required primary water flow rate is determined by pump and orifice size.

Cooling water

Recommended cooling water flow rate is 11 L/min (3 gpm) per 50 hp (motor) at 15.5°C (60°F) inlet water temperature. This flow rate will increase as inlet water temperature increases.

Water quality by pump type

Direct drive pumps

General properties		
Temperature	—	5°–21°C (41°–70°F)
Clarity	—	clear
Color	—	colorless
Odor	—	none present
Electrical conductivity	—	100–400 µS/cm
pH	—	7–8.5
Total Dissolved Solids (TDS)	—	70–280 mg/l
Anions		
Chloride	Cl	0–100 mg/l
Silica	SiO_2	0–8 mg/l
Sulfate	SO_4	0–25 mg/l
Carbonate		
m-Alkalinity	$CaCO_3$	0–320 mg/l
Hardness	$CaCO_3$	0–30 mg/l 0–1.7 °dh
Cations		
Calcium	Ca	0–25 mg/l
Iron	Fe	0–0.1 mg/l
Magnesium	Mg	0–1 mg/l
Manganese	Mn	0–0.05 mg/l
Sodium	—	0–110 mg/l
Dissolved Gases		
Carbon Dioxide	CO_2	0–10 mg/l
Free Chlorine	Cl_2	0–0.1 mg/l
Oxygen	O_2	0–1 mg/l

4150 bar (60K) intensifier pumps

General properties		
Temperature	—	≤ 15°C (≤ 60°F)
Clarity	—	clear
Color	—	colorless
Odor	—	none present
Electrical conductivity	—	100–550 µS/cm
pH	—	7–8.5
Total Dissolved Solids (TDS)	—	70–380 mg/l
Anions		
Chloride	Cl	0–150 mg/l
Silica	SiO_2	0–15 mg/l
Sulfate	SO_4	0–50 mg/l
Carbonate		
m-Alkalinity	$CaCO_3$	0–320 mg/l
Hardness	$CaCO_3$	0–40 mg/l 0–2.3 °dh
Cations		
Calcium	Ca	0–30 mg/l
Iron	Fe	0–0.2 mg/l
Magnesium	Mg	0–5 mg/l
Manganese	Mn	0–0.1 mg/l
Sodium	—	0–150 mg/l
Dissolved Gases		
Carbon Dioxide	CO_2	0–20 mg/l
Free Chlorine	Cl_2	0–0.2 mg/l
Oxygen	O_2	0–2 mg/l

6500 bar (94K) intensifier pumps

General properties		
Temperature	—	≤ 15°C (≤ 60°F)
Clarity	—	clear
Color	—	colorless
Odor	—	none present
Electrical conductivity	—	100–400 µS/cm
pH	—	7–8.5
Total Dissolved Solids (TDS)	—	70–280 mg/l
Anions		
Chloride	Cl	0–100 mg/l
Silica	SiO_2	0–8 mg/l
Sulfate	SO_4	0–25 mg/l
Carbonate		
m-Alkalinity	$CaCO_3$	0–320 mg/l
Hardness	$CaCO_3$	0–30 mg/l 0–1.7 °dh
Cations		
Calcium	Ca	0–25 mg/l
Iron	Fe	0–0.1 mg/l
Magnesium	Mg	0–1 mg/l
Manganese	Mn	0–0.05 mg/l
Sodium	—	0–110 mg/l
Dissolved Gases		
Carbon Dioxide	CO_2	0–10 mg/l
Free Chlorine	Cl_2	0–0.1 mg/l
Oxygen	O_2	0–1 mg/l

Water properties

General properties

Clarity

Turbidity indicates the existence of very fine particles. Small particles can destroy orifices. Primary water should be clear.

Color

Color can derive from dissolved iron or from organic compounds. Primary water should be colorless.

Odor

Chlorine, organic solvent, and sulfur compounds can generate noticeable smell. Primary water should be odorless.

pH

With increasing pH, the formation of solids increases. Water hardness should be stabilized. With decreasing pH, cavitation damage can occur through off-gassing carbon dioxide.

Total Dissolved Solids (TDS)

Measure of the total amount of dissolved matter in water.

Anions

Chloride | Cl

Adds to solid content and increases the corrosiveness of water; in relative percentage presence with oxygen induces stress corrosion cracking.

Silica | SiO_2

With higher amounts of silicate and untreated water, the silicate has the tendency to crystallise under high pressure. This effect increases significantly as pressure increases.

Crystals reduce the life of orifices, check valves, and pressure control valves.

Sulfate | SO_4

Adds to solid content; combines with calcium to form calcium sulfate scale.

Carbonate

m-Alkalinity*

Acid neutralizing capacity of water. Foaming and carryover of solids, causes embrittlement of steel, can produce CO_2, a source of corrosion.

*Bicarbonate (HCO_3), Carbonate (CO_3), and Hydrate (OH) expressed as $CaCO_3$.

Hardness

Sum of all hardness constituents in water. Typically expressed as their equivalent concentration of calcium carbonate primarily due to calcium and magnesium in solution, but may include small amounts of metal. Non-carbonate hardness is due to sulfates and chlorides.

Cations

Calcium | Ca

When dissolved makes water hard; contributes to the formation of scale.

Iron | Fe

Discolors water or precipitation; source of scale and erosion.

Magnesium | Mg

When dissolved makes water hard; contributes to the formation of scale.

Manganese | Mn

Discolors water or precipitation; source of scale and erosion.

Sodium

Found naturally; introduced to water in the ion exchange water softening process.

Dissolved gases

Free Chlorine | Cl_2

Oxidizing agent; can attack elastomeric seals and damage reverse osmosis (RO) membranes.

Schedule training

How do I sign up for training?

Call 812.590.4922 or email techtraining@flowcorp.com at least four weeks before your preferred training dates to check availability and sign up.

Can I attend training before my system is installed?

Yes. In fact, we highly recommend it!

What does training cover?

Students who come to our training center are given the opportunity to work on dedicated training equipment while learning to solve real-life application scenarios. Hands-on training with our application experts means you get the focused attention you deserve. When you leave our facility, you will have a strong understanding of your software and cutting applications.

Are there any prerequisites for training?

Software and applications training requires attendees to have a working knowledge of personal computers and Windows® operating systems.

How many people can attend training?

Every order is different. In most cases, two seats of training are included with your machine purchase.

Where is the training held?

Our flagship training center is located in Kent, WA.

For airport and hotel information, visit http://www.flowwaterjet.com/Service-Support/Training/Customer-Technology-Center. All travel related expenses are your responsibility.

Will I get any training during my installation?

Yes. Towards the end of installation, our Field Service Engineer (FSE) will provide approximately eight hours of familiarization training to operators and maintenance personnel.

Facility requirements

Clearances

Local codes and regulations will determine the actual distance that is required for clearances. Obstructions include lights, sprinkler heads, or HVAC.

Recommended clearance each side	1000 mm (39 in.)
Minimum vertical clearance	3810 mm (150 in.) unobstructed

Electrical

Pump	Amperage	Voltage
HyPlex Prime | 30 hp	60 amp	380V-480V
HyPlex Prime | 50 hp	80 amp	380V-480V
UltraJet 60i-S | 50 hp	80 amp	380V-480V
UltraJet 60i-D | 100 hp	140 amp	380V-480V
HyperJet 94i-S | 50 hp	80 amp	380V-480V
HyperJet 94i-D | 100 hp	140 amp	380V-480V

Is a phase converter required?

Your machine requires 3-phase power. If you have single-phase power, a phase converter is required.

Is a transformer required?

If your site does not have 380–480V power, a transformer is required. Transformer size shown is for your system only. Ancillary items, such as a chiller, could require a larger size transformer.

Pump hp	Transformer power rating
30 hp	75 KVA
50 hp	112.5 KVA
100 hp	150 KVA

If you have single-phase power or have to use a transformer, please contact your Project Manager!

Environment

Ambient temperature	15.5°–38°C (60°–100°F)
Recommended temperature	20° ± 3° C (68° ± 5° F)
Relative humidity	up to 90% @ 38°C (100°F), non-condensing
Airborne dust/contaminants	minimal
Radio frequency interference	minimal
Lighting	adequate to operate and service the machine

If large temperature changes occur within an undefined period, length variances exceeding specified tolerances could occur over the entire work envelope. The tolerances of parts cut in extreme heat will differ from those cut in extreme cold because of variances produced in both the machine's structure and expansion of the actual part.

Ethernet connection

Maximum cable length	76 m (250 ft)

If a longer length of cable is required, you must install a switch near the interface enclosure to amplify the signal. Otherwise, it may not be possible to connect the machine to your network, and this will limit our ability to support the machine via VPN.

Foundation

Everything starts with a great foundation and your waterjet is no exception! If you do not have an adequate foundation, the accuracy of your machine is affected.

Your foundation must be:

- Free of expansion joints in the area that you plan to put your machine. (The purpose of expansion joints is to concentrate foundation movement and imperfections to these specific areas.)
- Structurally reinforced and undivided to ensure even settling, should any settling occur.
- Level to 20 mm (3/4 in.) across the span of the machine.
- Able to support the weight of the machine when the catcher tank is filled with dirty water.

In abnormal cases where a poor foundation or unusual soil conditions are present, your machine could require an isolated monolithic foundation of adequate mass to resist both static and dynamic loads imposed by the machine. Consult a local structural engineer to obtain design input based upon your particular soil bearing and floor conditions.

Do you anchor the machine to the floor?

Yes, we will attach your machine to the foundation with ⅝ × 5 in. anchor bolts. When we do this, we might have to drill through rebar reinforcements in your foundation. If you mark where the rebar is prior to installation, we'll do our best to locate the machine around those marked areas.

If there are any conditions, such as a radiant heat floor, that could prevent our FSE from drilling into the foundation, please contact your Project Manager.

Weights

Weights shown are for a single bridge machine whose catcher tank is filled with water.

Model	Clean water	Mild steel dirty water	Stainless steel dirty water
2020	12,091 kg (26,655 lb)	30,258 kg (66,707 lb)	26,362 kg (58,118 lb)
2030	15,982 kg (35,235 lb)	42,245 kg (93,134 lb)	36,206 kg (79,821 lb)
2040	19,221 kg (42,374 lb)	52,436 kg (115,602 lb)	44,644 kg (98,424 lb)
2060	26,333 kg (58,055 lb)	75,377 kg (166,177 lb)	63,300 kg (139,552 lb)
2080	33,351 kg (73,526 lb)	96,663 kg (213,105 lb)	81,080 kg (178,750 lb)
3020	15,272 kg (33,669 lb)	41,116 kg (90,645 lb)	35,077 kg (77,333 lb)
3030	20,489 kg (45,170 lb)	58,030 kg (127,935 lb)	48,671 kg (107,301 lb)
3040	24,417 kg (53,830 lb)	71,967 kg (158,660 lb)	59,890 kg (132,035 lb)
3060	33,544 kg (73,952 lb)	104,008 kg (229,299 lb)	85,289 kg (188,030 lb)
3080	42,576 kg (93,864 lb)	133,538 kg (294,402 lb)	109,384 kg (241,151 lb)
4020	18,324 kg (40,397 lb)	51,065 kg (112,579 lb)	43,273 kg (95,402 lb)
4030	24,368 kg (53,721 lb)	71,980 kg (158,690 lb)	59,903 kg (132,065 lb)
4040	29,390 kg (64,793 lb)	89,715 kg (197,789 lb)	74,132 kg (163,434 lb)
4060	40,438 kg (89,151 lb)	129,907 kg (286,397 lb)	105,753 kg (233,146 lb)
4080	51,392 kg (113,300 lb)	166,886 kg (367,922 lb)	135,720 kg (299,211 lb)

Plumbing

Mach 500

Air

Supply ..... dry and filtered to 10 microns
Capacity per Z-axis end effector..... 538 L/min @ 6.9–8.3 bar
..... (19 scfm @ 100–120 psi)
Interface type.....¾ in. BSPTF

Drain

Capacity per cutting head.....8 L/min @ 0 bar minimum
.....(2 gpm at 0 psi) minimum
Interface type..... 1 in. NPT

HyPlex Prime pump

Air

Supply ..... dry and filtered to 10 microns
Capacity..... 6.2–8.3 bar (90–120 psi)
Interface type..... ¼ in. NPTF

Drain

30 hp capacity..... 3.4 L/min @ 100°C
.....(0.9 gpm @ 212°F)
50 hp capacity..... 5.7 L/min @ 100°C
.....(1.5 gpm @ 212°F)
Interface type..... ½ in. NPTF

Water

30 hp capacity.....7.6 L/min @ 3.9 bar, 13–21°C
..... (2 gpm @ 57 psi, 55°–70°F)
50 hp capacity..... 11.4 L/min @ 4.5 bar, 5°–21°C
..... (3 gpm @ 65 psi, 55°–70°F)
Interface type..... ½ in. NPTF

UltraJet 60i-S & 60i-D pump

Drains

BLEED DOWN WATER

Capacity..... 4 L/min (1 gpm) intermittent
Interface type..... ½ in. NPTF

OIL WATER LEAKAGE

Capacity..... 4 L/min (1 gpm) intermittent
Interface type..... ½ in. NPTF

COOLING WATER OUT

50 hp capacity..... 15 L/min (4 gpm)
100 hp capacity ..... 30 L/min (8 gpm)
Interface type.....½ in. NPT

Water

COOLING WATER IN

50 hp capacity.....15 L/min @ ≥ 4 bar, 15°C
..... (4 gpm @ ≥ 60 psi, 60°F)
100 hp capacity .....30 L/min @ ≥ 4 bar, 15°C
..... (8 gpm @ ≥ 60 psi, 60°F)
Interface type.....½ in. NPT

FILTERED WATER IN

50 hp capacity.....8 L/min @ ≥ 2 bar, 21°C
..... (2 gpm @ ≥ 20 psi, 70°F)
100 hp capacity .....15 L/min @ ≥ 2 bar, 21°C
..... (4 gpm @ ≥ 20 psi, 70°F)
Interface type.....½ in. NPT

HyperJet 94i-S & 94i-D pump

Drains

BLEED DOWN WATER

Capacity..... 4 L/min (1 gpm) intermittent
Interface type..... ½ in. NPTF

OIL WATER LEAKAGE

Capacity..... 4 L/min (1 gpm) intermittent
Interface type..... ½ in. NPTF

COOLING WATER OUT

50 hp capacity..... 15 L/min (4 gpm)
100 hp capacity ..... 30 L/min (8 gpm)
Interface type.....½ in. NPT

Water

COOLING WATER IN

50 hp capacity.....15 L/min @ ≥ 4 bar, 15°C
..... (4 gpm @ ≥ 60 psi, 60°F)
100 hp capacity .....30 L/min @ ≥ 4 bar, 15°C
..... (8 gpm @ ≥ 60 psi, 60°F)
Interface type.....½ in. NPT

FILTERED WATER IN

50 hp capacity.....8 L/min @ ≥ 2 bar, 21°C
..... (2 gpm @ ≥ 20 psi, 70°F)
100 hp capacity .....15 L/min @ ≥ 2 bar, 21°C
..... (4 gpm @ ≥ 20 psi, 70°F)
Interface type.....½ in. NPT

PASER CF900 Abrasive Delivery System (ADS)

Air

Supply ..... dry and filtered to 10 microns
Air pressure/volume..... 6.9–8.3 bar @ 566 L/min
..... (100–120 psi @ 20 scfm)
Air line size .....≥ 20 mm (3/4 in.)
Interface type..... ¾ in. NPT

Final Filter system

Drain

Capacity..... 53 L/min (14 gpm)
Interface type.....½ in. JIC

UltraPierce vacuum assist

Air

Supply ..... dry and filtered to 10 microns
Additional capacity per Z-axis end effector..... 538 L/min @ 6.9–8.3 bar
..... (19 scfm @ 100–120 psi)

Install FlowXpert software

If your purchase includes FlowXpert, please follow the instructions below to get your software.

Please contact your Project Manager if the computer you want to download the software to is not able to connect to the internet.

Request your entitlement email

Before you request your entitlement email, please have your **sales order number** available to reference. Also, **how many software seats** are included in your purchase.

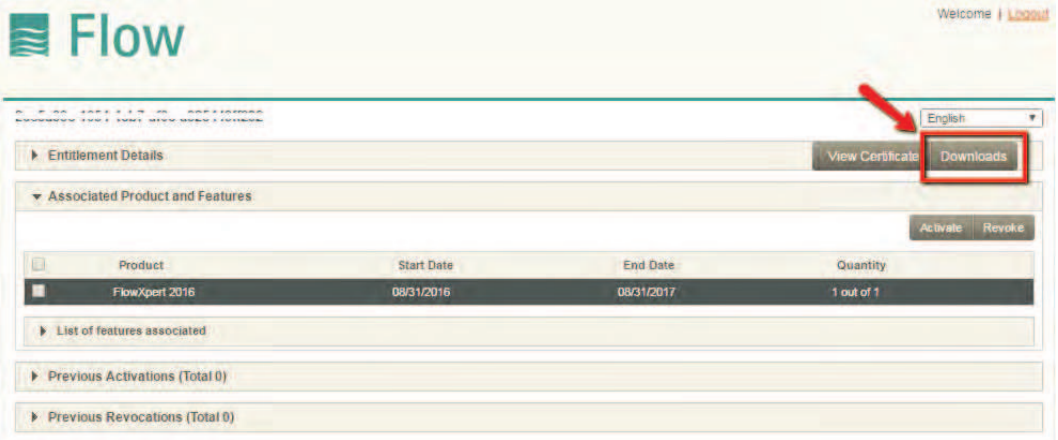
To get started, please contact Customer Service at **1.800.526.4810**, and select **Option 1** from the menu. When connected to Customer Service, let them know "**I need to get my FlowXpert entitlement email**," so you are routed to the correct person.

Customer Service will set you up to download our software and send your entitlement email. This email contains an Entitlement ID and the link to download and activate your software.

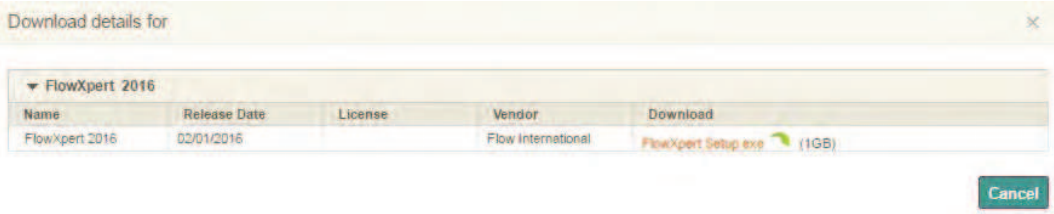
Download and activate your software

1. Click on the link in the email from noreply@sentinelcloud.com.
2. Select **EID**, enter your **Entitlement ID**, and then click **Login**.

3. Click **Downloads**.



4. In the **Download** column, select the software you want to install, and then click the .exe file to begin the download.



5. Click **Logout**.
6. Right-click the .exe file, click **Run as admin**, and then follow the prompts in the InstallShield wizard.
7. After installation in complete, the Software Registration wizard starts. Enter your **Entitlement ID (EID)**, click **I would like to activate a license via the internet (Online)**, and then click **Next**.
8. Select the product to activate, and then follow the remaining prompts in the Software Registration wizard.

Customer-supplied items

During installation, please provide the following items:

- Clean, 5-gallon bucket (Used when FSE bleeds down abrasive lines)
- Forklift
- Ladder [2 m (7 ft)]
- Hoses, fittings, and clamps for your plumbing connections
- Hydraulic oil
- WD-40® multi-use product (12 oz)
- Clean, lint-free rags

Forklift requirements

Item	Capacity	Fork length	Fork spacing	Fork pocket (H × W)
Table & catcher tank	5000 kg (10,000 lb)	2000 mm (84 in.)	1100 mm (44 in.)	220 × 73 mm (9 × 3 in.)
High-pressure pump	2500 kg (5000 lb)	1800 mm (72 in.)	—	—
Ebbco equipment	1500 kg (3000 lb)	1500 mm (60 in.)	—	—
Garnet	1500 kg (3000 lb)	1800 mm (72 in.)	—	—

Hydraulic oil requirements

Pump	What type?	How much?
HyPlex Prime	Shell Morlina® S3 100 or equivalent ISO 100 oil	4 L (4.2 qt)
UltraJet 60i-S	Shell Tellus® S2 MX 46 or equivalent ISO VG 46 oil	106 L (28 gal)
UltraJet 60i-D	Shell Tellus® S2 MX 46 or equivalent ISO VG 46 oil	140 L (37 gal)
HyperJet 94i-S	Shell Tellus® S2 MX 46 or equivalent ISO VG 46 oil	106 L (28 gal)
HyperJet 94i-D	Shell Tellus® S2 MX 46 or equivalent ISO VG 46 oil	140 L (37 gal)

Review your payment schedule

Every contract with us is unique. You'll want to make sure to follow your payment schedule to avoid delays in shipping and installation.

If you have any questions or concerns about your payment schedule, please contact your Project Manager or Credit Manager.

Schedule personnel

During installation, the following personnel must be available:

Who?	Day 1	Day 2	Day 3	Day 4	Day 5
Forklift or crane operator to place equipment.	✓	✓	—	—	—
Support personnel to assist with installation as required.	✓	✓	✓	✓	✓
Electrician to attend kick-off meeting and verify voltage.	✓ P.M.	✓ A.M.	—	—	—
Plumber to attend kick-off meeting and do final connections.	✓ P.M.	✓	—	—	—
Operators and maintenance personnel for familiarization training.	—	—	—	✓ P.M.	✓ A.M.

Typical installation timeline

This is a typical timeline of how your installation proceeds throughout the week.

DAY	A.M.	P.M.
1	FSE travel	▪ Kickoff meeting ▪ Machine layout ▪ Start catcher tank install
2	Finish catcher tank install	Install base & bridge
3	▪ Electrical hook-up ▪ Install roll-around control & ADS	▪ Power machine ▪ Install software
4	▪ Level the catcher tank ▪ Calibration	Familiarization training for operators and maintenance personnel
5	Familiarization training for operators and maintenance personnel	FSE travel

Schedule your installation

Schedule your installation at least three weeks before your desired installation date. Make sure the date you select coincides with the completion of your pre-installation tasks.

We recommend that you allow at least one week (from the date of your final equipment delivery) to complete these tasks.

Special considerations

When you schedule your installation, please let us know if any of the following apply:

- Is a security background check required prior to entering the site?
- Is a safety briefing or training required prior to entering the site?
- Are electronic devices allowed at the site? Electronic devices include items such as laptops, mobile phones, tablets, and USB flash drives.
- Is this a union shop that requires coordination of trades?
- Any other protocols or requirements that we must be aware of prior to our arrival.

Plan your layout

We'll provide you with pre-install drawings that show the dimensions and space requirements for your system. Electrical and plumbing requirements are also included on the drawings. Plan your layout based on the drawings.

Contact your Project Manager immediately if you:

- Did not get your pre-install drawings.
- Have concerns that the layout shown on the drawing will not work at your facility.
- Have to install ancillary equipment for your machine from an outside vendor.

Pre-install drawing numbers

Here's a handy list of pre-install drawing numbers for you to reference. If you don't have the drawing you're looking for, give us a call. We'd be happy to send you the pre-install drawing you need.

Item	Drawing
2020 machine	059849
2030 machine	059851
2040 machine	059854
3020 machine	059590
3030 machine	059866
3040 machine	059867
3060 machine	059874
4020 machine	059415
4030 machine	059868
4040 machine	059869
4060 machine	059892
HyPlex Prime pump	052284
UltraJet 60i-S or 60i-D pump	060106
HyperJet 94i-S or 94i-D pump	050498
PASER CF900 Abrasive Delivery System	058655

Unload your equipment

WARNING! Unload all equipment from the truck(s) with a properly rated forklift in accordance with local regulations. We recommend that you have flaggers and spotters present while you unload the equipment.

Inspect for damage

When your equipment arrives, inspect it for damage. Report any shipping damage to Flow and to the carrier immediately. Record all shipping damage on the carrier's Bill of Lading so you that you are eligible for a carrier claim. We recommend you take pictures of all equipment damage for your records. If possible, please send those pictures to your Project Manager.

Crates for the bridge, base, and roll-around control have two ShockWatch indicators on them. Red indicates rough handling. If it's red, make a note on the Bill of Lading, and then inspect the product.

Remove crating & packaging

⇒ Remove the crate panels with pry bars, hammers, and a drill.

⇒ **Uncrate your equipment indoors!** Equipment exposed to outdoor elements could get damaged.

⇒ Dispose of all crating and packaging in accordance with local regulations.

WARNING! Put equipment in position with a properly rated forklift in accordance with local regulations. We recommend that you have flaggers and spotters present while you put the equipment in position.

Uncrate and put the pump in position

HyPlex Prime pump

1. Uncrate the pump, and then remove all packaging.
2. Put the anti-vibration mat on the floor, in the position shown for the pump on the pre-install drawing.
3. Put the pump in the center of the mat.

Do I have to use the anti-vibration mat?

Yes. This mat is essential for pump stability and reducing vibration.

UltraJet 60i-S or 60i-D pump

1. Uncrate the pump, and then remove all packaging.
2. Put the pump in the position shown on the pre-install drawing.

HyperJet 94i-S or 94i-D pump

1. Uncrate the pump, and then remove all packaging.
2. Put the pump in the position shown on the pre-install drawing.

Uncrate and put the ADS in position

1. Uncrate the ADS, and then remove all packaging.
2. Put the ADS in the position shown on the pre-install drawing.

Uncrate ancillary items and put in position

If you have ancillary items that will be located to the rear of the machine, uncrate these items and put them in position.

Put the rear catcher tank in position

Remove all packaging, and then put the rear catcher tank in the position shown on the pre-install drawing.

CAUTION! There are sharp objects inside the catcher tank. Exercise caution while removing packaging and putting the catcher tank in position.

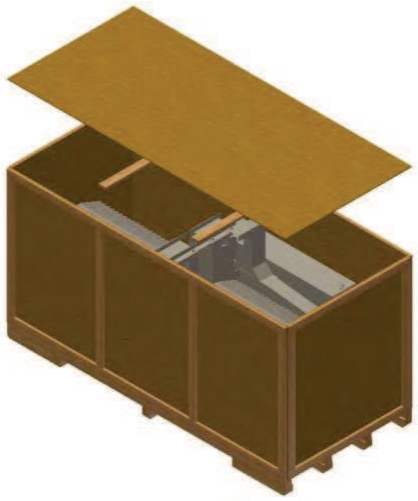
STOP! Do not put the other catcher tank section in position until instructed to do so by our FSE during installation.

Which section is the “rear” catcher tank?

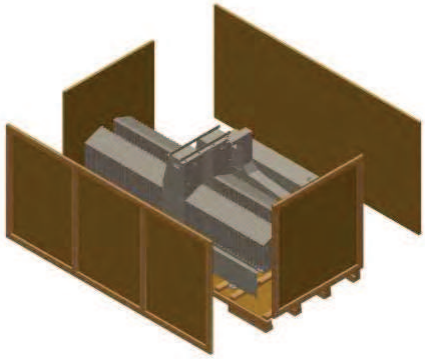
The rear catcher tank is the section that has the inlet air and drain ports on it.

Uncrate the base

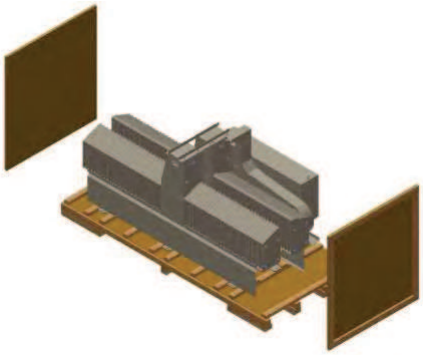
1. Remove the blue plastic from the top of the crate, and then remove the top panel.



2. Remove the front and rear panels.



3. Remove the side panels.



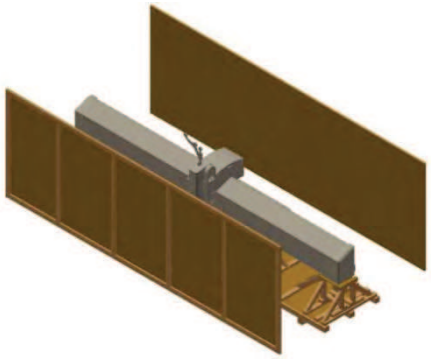
STOP! Do not remove any more panels or packaging from this crate until instructed to do so by our FSE during installation.

Uncrate the bridge

1. Remove the blue plastic from the top of the crate, and then remove the top panel.

2. Remove the side panels.

3. Remove the front and rear panels.



STOP! Do not remove any more panels or packaging from this crate until instructed to do so by our FSE during installation.

Uncrate the roll-around control

1. Remove the blue plastic from the top of the crate, and then remove the top panel.

2. Remove the side panels.

3. Remove the front and rear panels.

STOP! Do not remove any more panels or packaging from this crate until instructed to do so by our FSE during installation.

Install utilities

Electrical

⇒ Have a qualified electrician install electrical power for your system in accordance with National Electric Code (NEC) standards or local regulations, whichever takes precedence.

⇒ Provide all of the materials for your connections including electrical wires, conduits, and clamps.

⇒ Identify and suppress all sources of unusually high electrical noise. Noise sources could include welders, dielectric heaters, large current switching devices, and RF transmitters.

Plumbing

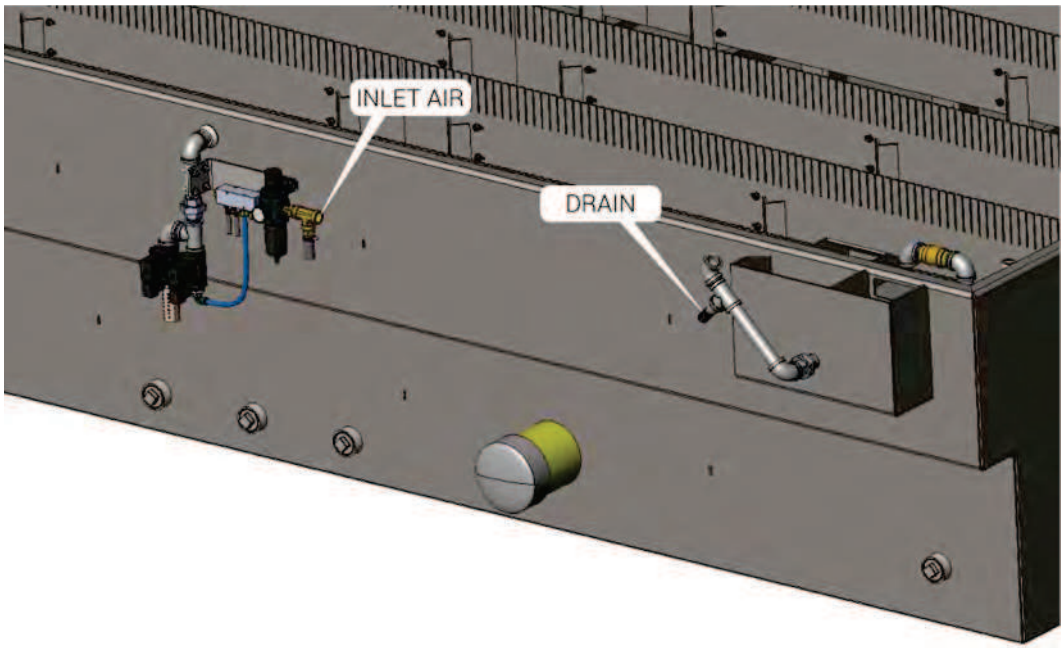
⇒ Stub out the air, drain, and water lines prior to the arrival of our FSE.

⇒ Provide all pipes, hoses, fittings, and clamps for your plumbing connections.

⇒ For high-pressure pumps, install manual shut-off valves on the inlet/cooling water line(s). Locate valves as close as possible to the pump interface connection to make them easier to service.

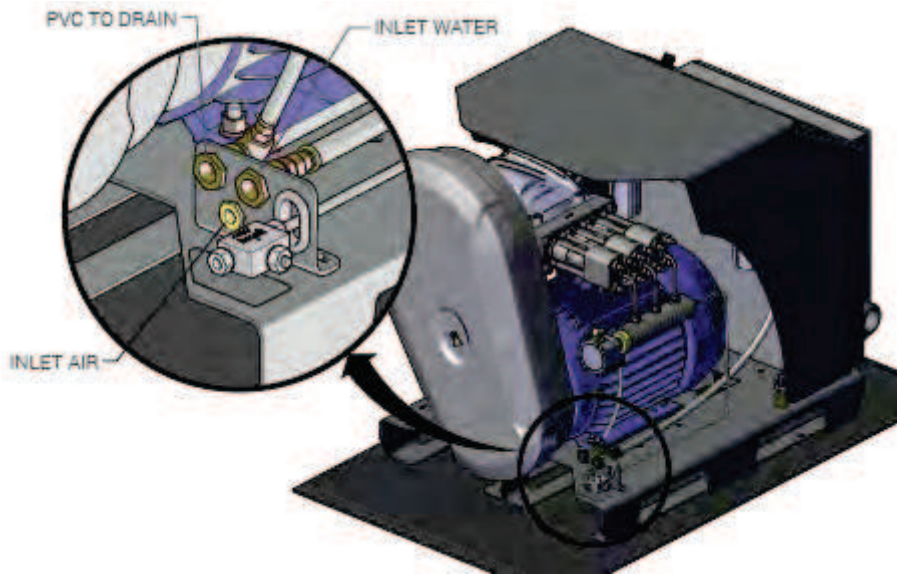
Mach 500

- Connect inlet air at the recommended specifications.
- Connect a drain line directly to an outlet drain at the recommended specifications.



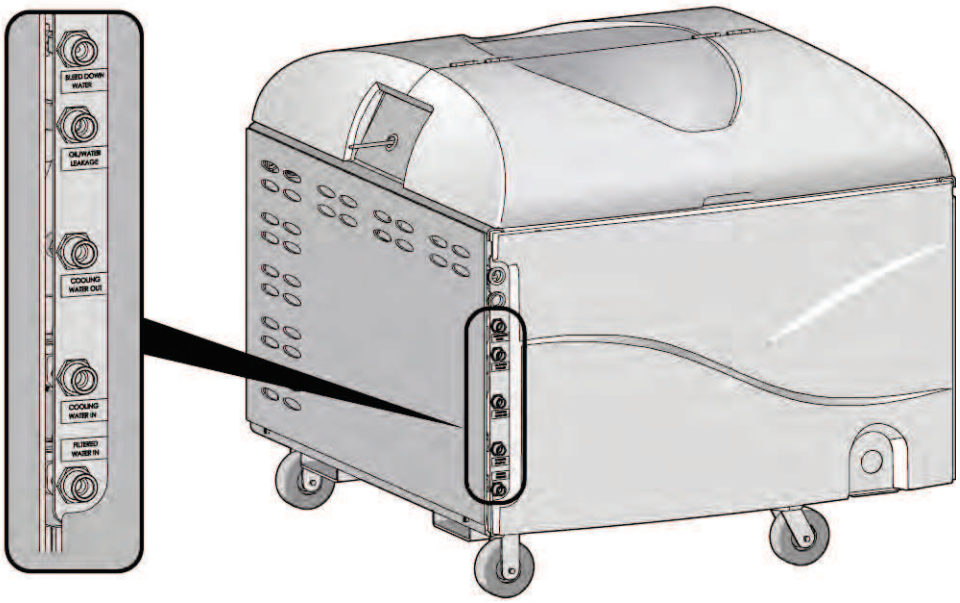
HyPlex Prime pump

- Connect inlet air at recommended specifications.
- Connect the inlet water line at recommended specifications.
- Connect a drain line directly to an outlet drain at recommended specifications.



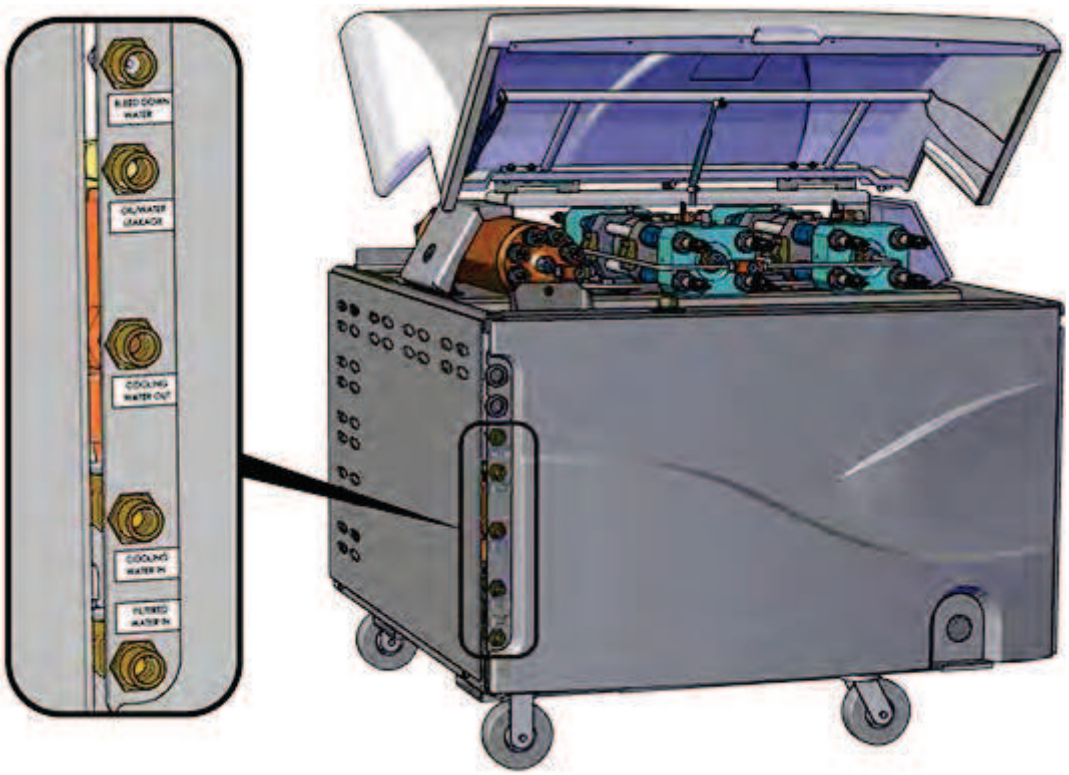
UltraJet 60i-S or 60i-D pump

- Connect two inlet water lines at the recommended specifications.
- Connect three drain lines at the recommended specifications.



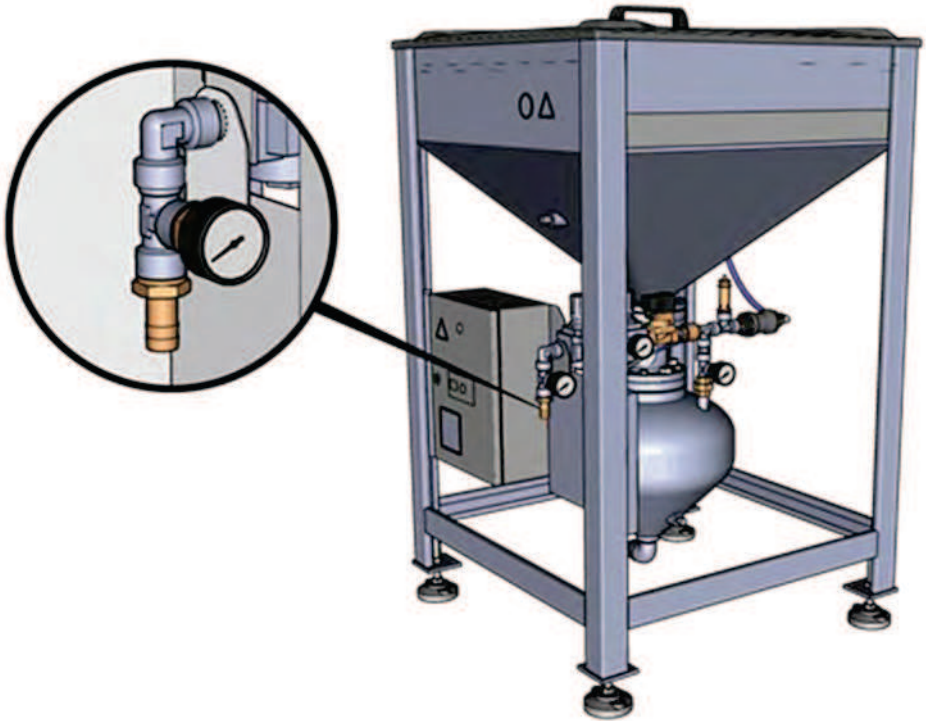
HyperJet 94i-S or 94i-D pump

- Connect two inlet water lines at the recommended specifications.
- Connect three drain lines at the recommended specifications.



PASER CF900 Abrasive Delivery System

Connect inlet air at recommended specifications.



Final Filter system

Connect a drain line directly to an outlet drain at recommended specification.