

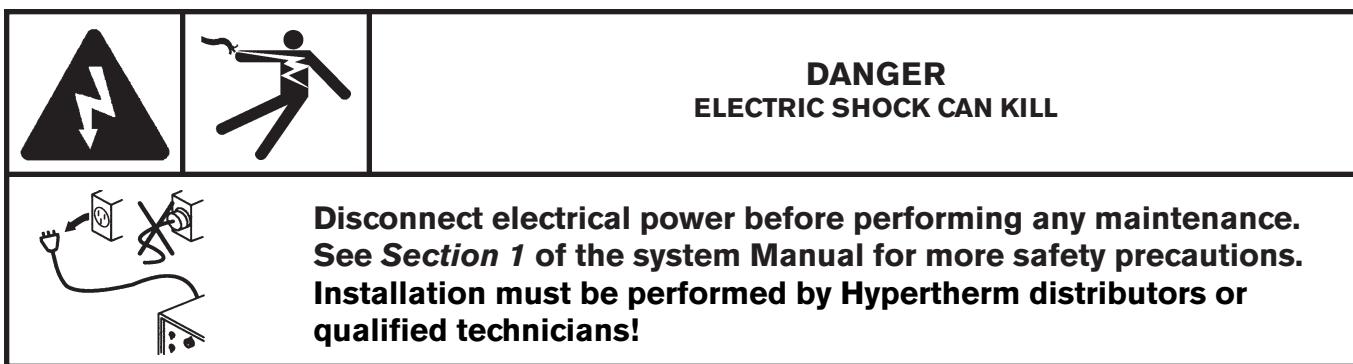
Coolant Pump Replacement

HPR and HSD

Field Service Bulletin

805520 – Revision 1 – february, 2009

Hypertherm®



Purpose

This field service bulletin enables a trained technician to replace the coolant pump in an HPR130, HPR260, HPR400XD or HSD 130 plasma system.

Kit 228170 contents (HSD130 and HPR130)

Part number	Description	Qty
031114	Pump: 70 gph 200 psi	1
129471	Clamp	1
027664	Filter element	1

Kit 228171 contents (HPR260 and HPR400XD)

Part number	Description	Qty
031138	Pump: 80 gph 200 psi	1
129471	Clamp	1
027664	Filter element	1

HPR AND HSD COOLANT PUMP REPLACEMENT

Introduction

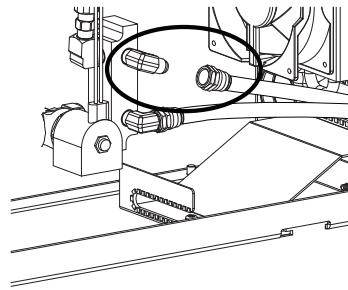
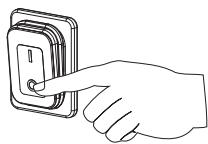
The 4 procedures described in this document should all be performed while replacing the coolant pump.

- Draining coolant from the system
- Flushing out the coolant system
- Clean and replace coolant system filters
- Replace the coolant pump

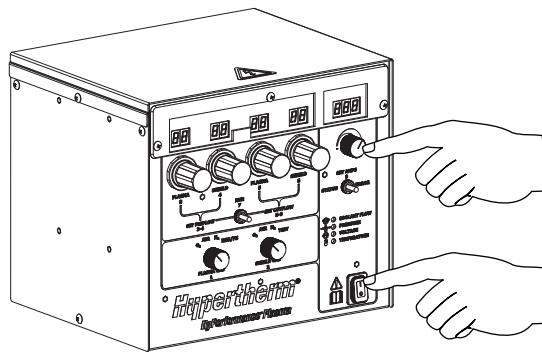
Drain the coolant

Drain the coolant from an HPR130 or HPR260 (manual gas system)

1. Turn OFF the power, and remove the return coolant hose (red tape) from the pump and put it in a 20 liter (5 gallon) container.



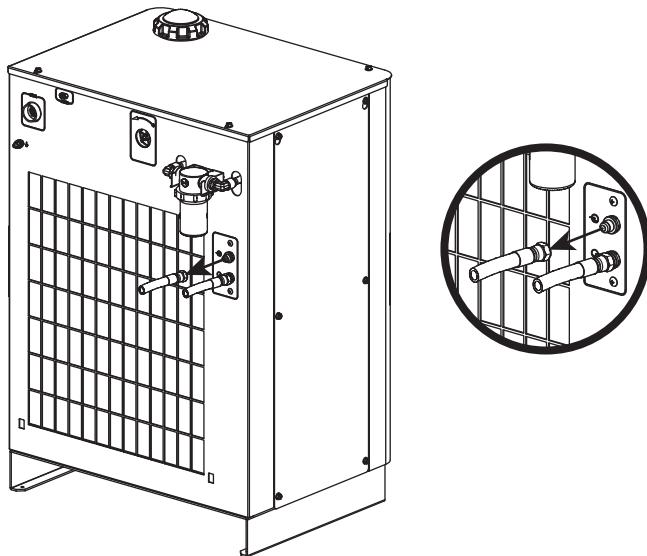
2. Press and hold the current selection knob (8) and turn ON the power switch. The pump will run continuously while (8) is pressed.



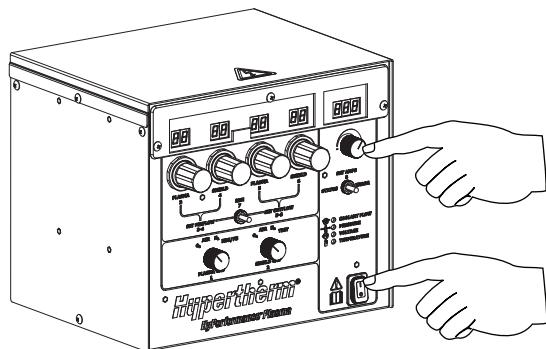
3. Run the pump until the coolant stops flowing and immediately release the current selection knob (8).

Drain the coolant from an HPR400XD (manual gas system)

1. Turn OFF all power to the system.
2. Remove the return coolant hose (red washer on the cooler fitting) from the rear of the cooler and put it in a 20 liter (5 gallon) container.



3. Press and hold the current selection knob (8) and turn ON the power switch. The pump will run continuously while (8) is pressed.

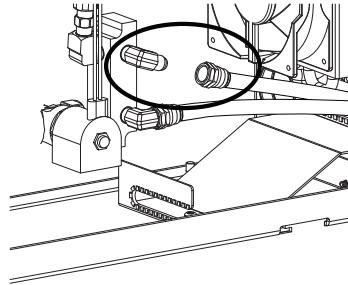
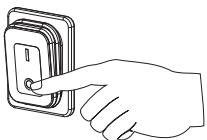


4. Run the pump until the coolant stops flowing and immediately release the current selection knob (8).

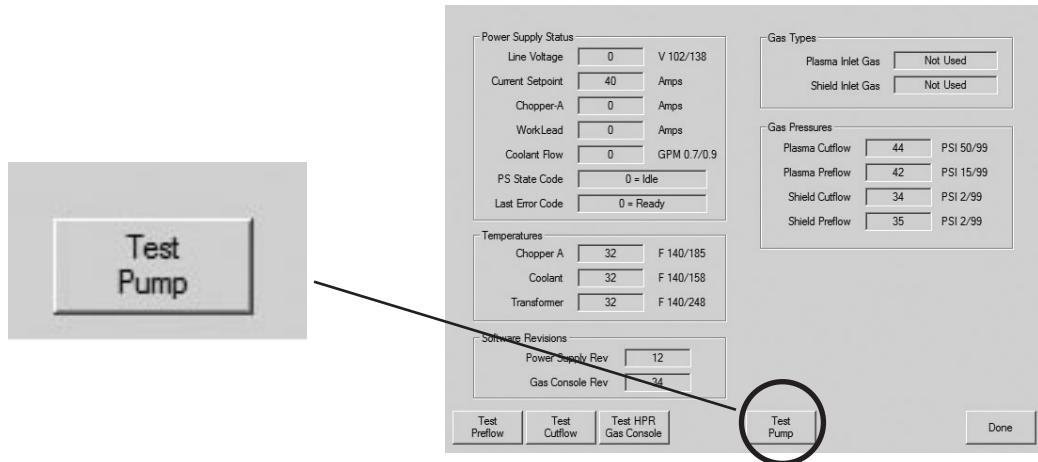
HPR AND HSD COOLANT PUMP REPLACEMENT

Drain the coolant from an HPR130 or HPR260 (auto gas system)

1. Turn OFF the power, and remove the return coolant hose (red tape) from the pump and put it in a 20 liter (5 gallon) container.



2. Turn ON the pump manually using the manual pump control button on your CNC screen.

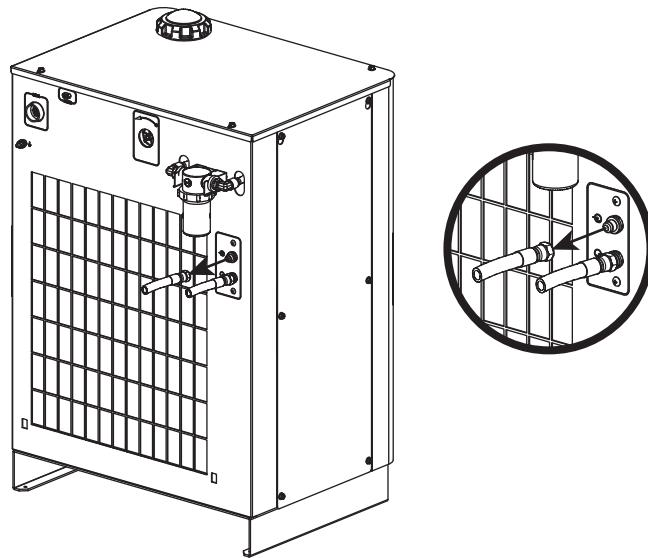


Power Supply Status				
Line Voltage	0 V 102/138			
Current Setpoint	40 Amps			
Chopper-A	0 Amps			
WorkLead	0 Amps			
Coolant Flow	0 GPM 0.7/0.9			
PS State Code	0 = Idle			
Last Error Code	0 = Ready			
Gas Types				
Plasma Inlet Gas	Not Used			
Shield Inlet Gas	Not Used			
Gas Pressures				
Plasma Cutflow	44 PSI 50/99			
Plasma Preflow	42 PSI 15/99			
Shield Cutflow	34 PSI 2/99			
Shield Preflow	35 PSI 2/99			
Temperatures				
Chopper A	32 F 140/185			
Coolant	32 F 140/158			
Transformer	32 F 140/248			
Software Revisions				
Power Supply Rev	12			
Gas Console Rev	24			
Test Preflow	Test Cutflow	Test HPR Gas Console	Test Pump	Done

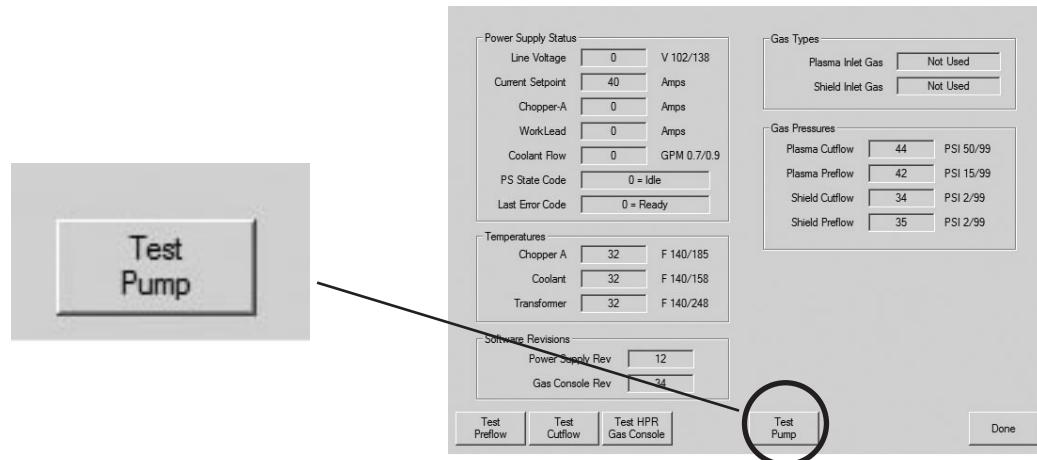
3. Turn OFF the pump when the coolant stops flowing.

Drain the coolant from an HPR400XD (auto gas system)

1. Turn OFF all power to the system.
2. Remove the return coolant hose (red washer on the cooler fitting) from the rear of the cooler and put it in a 20 liter (5 gallon) container.



3. Turn ON the pump manually, using the manual pump control button on your CNC screen.

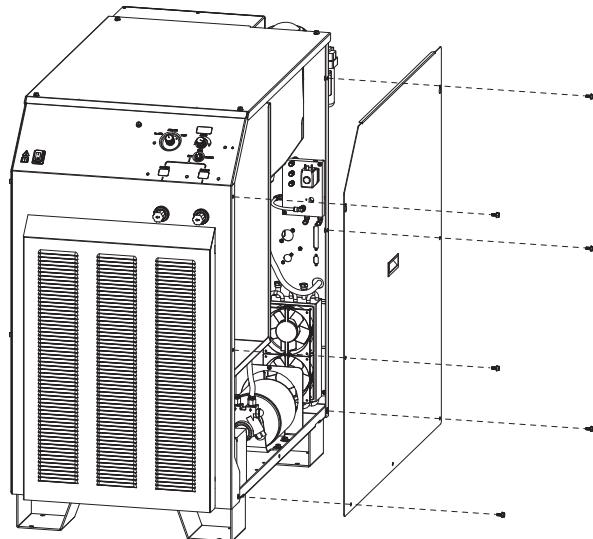


4. Turn OFF the pump when the coolant stops flowing.

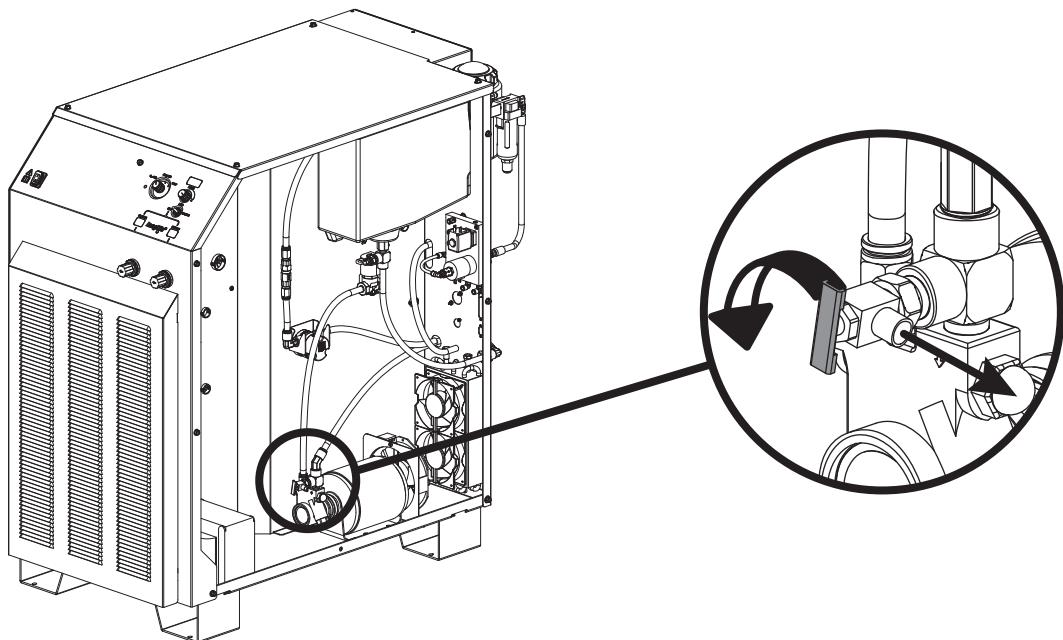
HPR AND HSD COOLANT PUMP REPLACEMENT

Drain the coolant from an HSD130 system

1. Turn OFF the power, and remove the right-side panel from the power supply.



2. Locate the coolant drain valve and use a 20 liter (5 gallon) container to catch the coolant. Coolant will flow as soon as the drain is opened. Close the drain valve when the coolant stops flowing. Always dispose of coolant according to local and national codes.



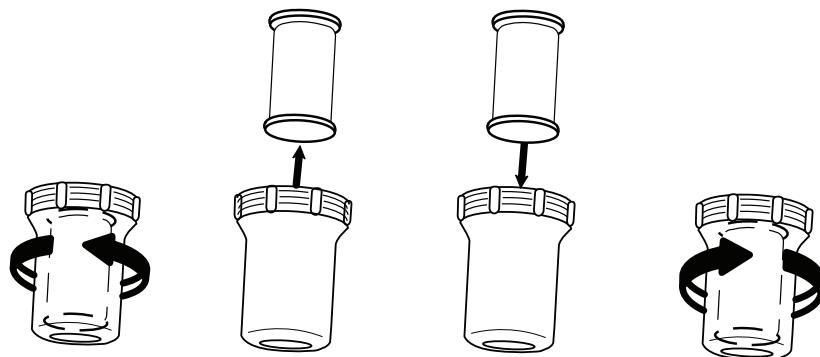
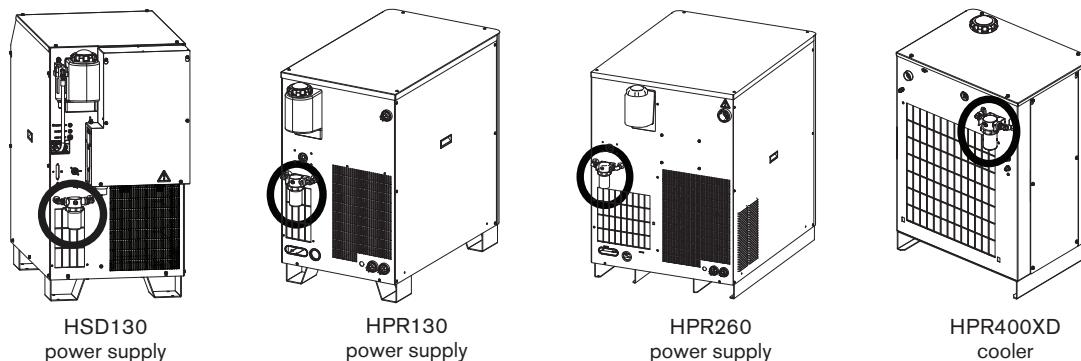
Flush the coolant system (all systems)

Performing the maintenance described below can help extend the life of the coolant pump.

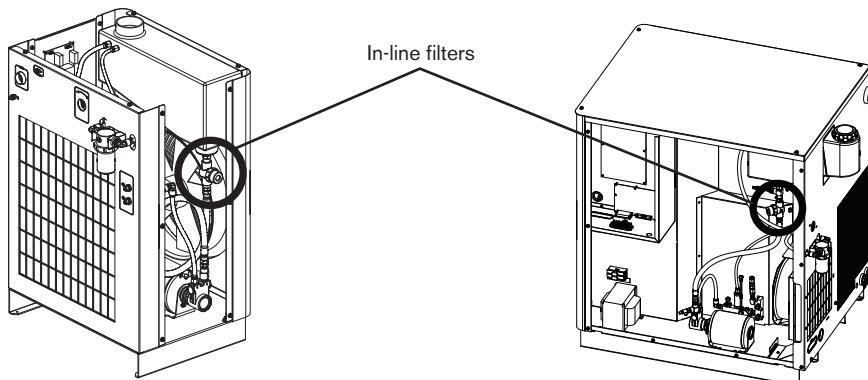
1. Fill the coolant system with water
2. Run the pump for 5 minutes
3. Drain the water from the system
4. Repeat steps 1 through 3

Clean and replace filters

Replace the coolant filter element on the rear of the power supply (HPR130, HPR260, and HSD130), or on the rear of the cooler (HPR400XD)

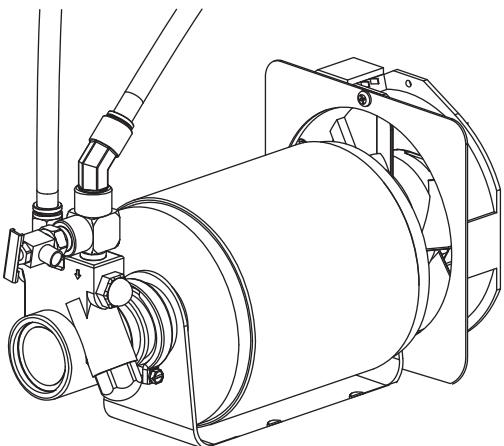


Clean the in-line filter located under the coolant tank (HPR260 and HPR400XD)

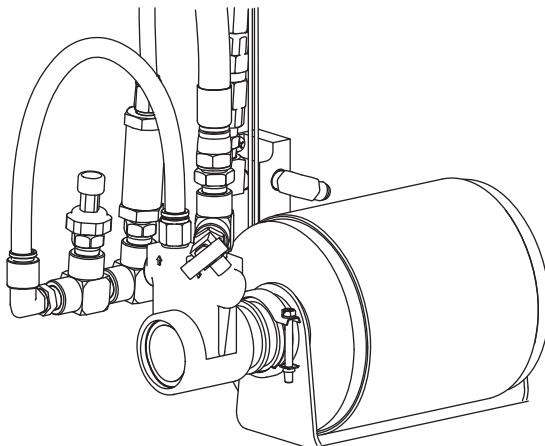


HPR AND HSD COOLANT PUMP REPLACEMENT

Replace the pump



HSD pump/motor assembly



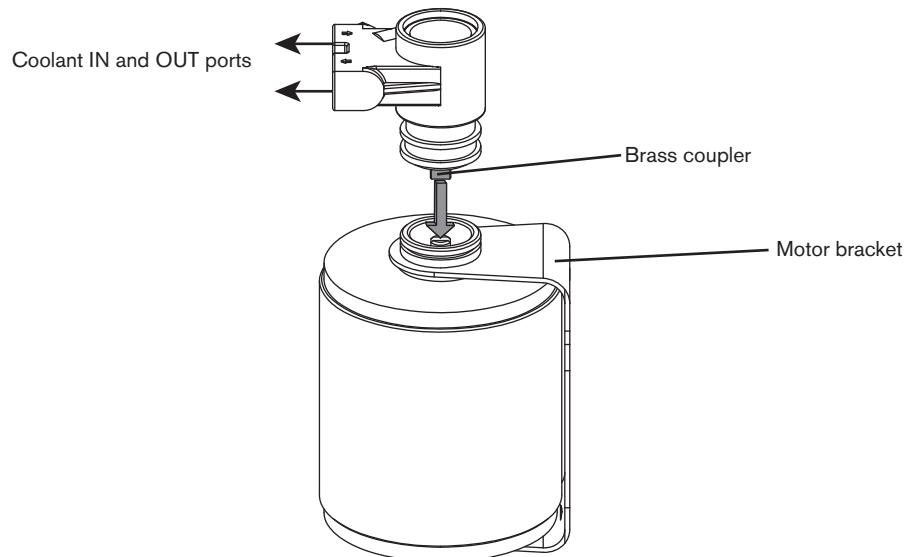
HPR pump/motor assembly

Notes:

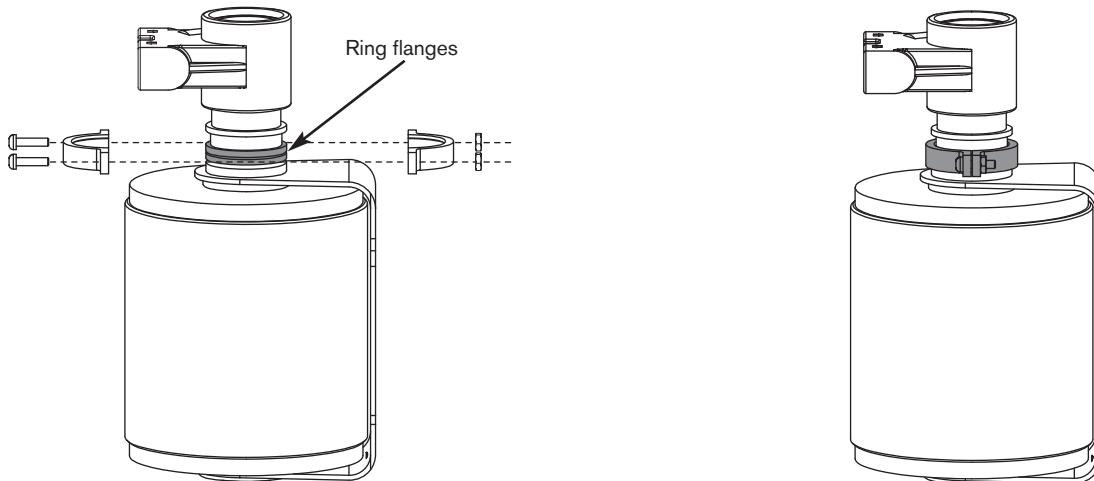
- Do not remove the shipping plugs from the port until the fittings are ready to be installed.
 - Carefully remove any burrs or raised metal from the pump to make sure that the pump will seat correctly and be aligned properly with the motor.
 - Use Loctite pipe sealant #57141 on all mating fittings.
1. Disconnect all hoses and wires from the pump and motor assemblies.
 2. Remove the pump and motor from the power supply.
 3. Loosen the clamp that secures the pump to the motor. Discard the old clamp.
 4. Remove the old pump and the brass coupler that is between the shaft of the motor and the pump. Discard the old pump and coupler.
 5. Remove the brass coupler from the new pump. A small piece of foam is used to keep the coupler in place during shipping. It MUST be removed before installation.
 6. Insert the coupler back into the new pump.

Note: the motor should be vertical when you attach the new pump. This will help assure that the pump and motor flanges are flush against each other. If the new pump is attached when the motor is horizontal, the alignment may be off. This will cause excessive vibration and shorten the life of the pump and motor.

7. Align the brass coupler with the slot in shaft of the motor. Install the pump while making sure the brass coupler fits into the slot in the shaft of the motor. Orient the pump as shown below. The coolant IN and OUT ports on the pump should be facing the opposite direction of the motor bracket



8. Make sure that the ring flange on the pump and the motor are flush against each other and attach the 129471 clamp around the entire circumference of the pump and motor flanges. Secure the clamp bolts using 29-30 inch-pounds of torque.



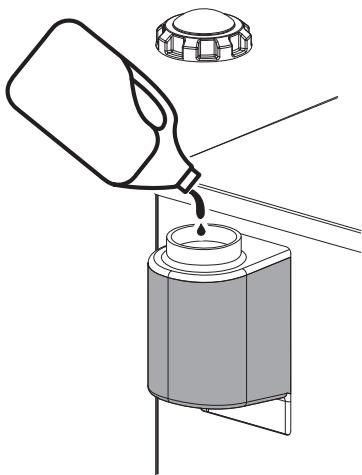
9. Re-install the pump/motor assembly in the power supply.
10. Reconnect all hoses and wires to the pump and motor assemblies.

Fill the system with coolant

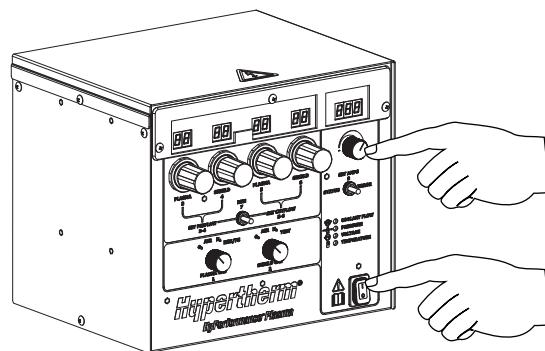
Fill the HPR130 or HPR260 power supply with coolant (manual gas system)

All HPR130 and HPR260 systems will take 11.4 – 15.1 liters (3 to 4 gallons) of coolant depending on the length of the torch leads and if the system has a local or remote ignition console.

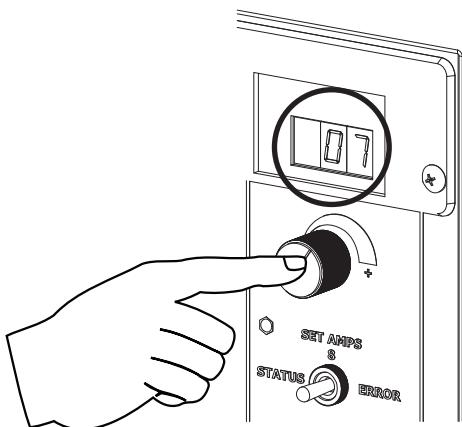
1. Add coolant to the power supply until the tank is full.



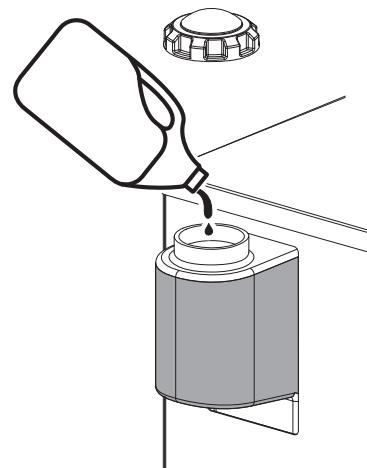
2. Press and hold the current selection knob (8) and press power switch on the gas console. The pump will run continuously while (8) is pressed.



3. The current display shows the flow rate. When the flow rate is constant and greater than 0.6 gpm, release the knob. The display will show the current again. The pump will continue to run.

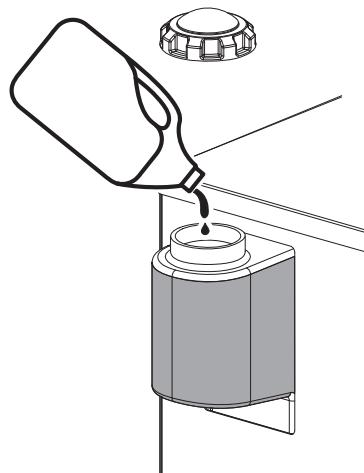


4. Turn OFF the system and add coolant to the power supply until the tank is full. Replace the filler cap.



Fill the HPR130 or HPR260 power supply with coolant (auto gas system)

1. Add coolant to the power supply until the tank is full.

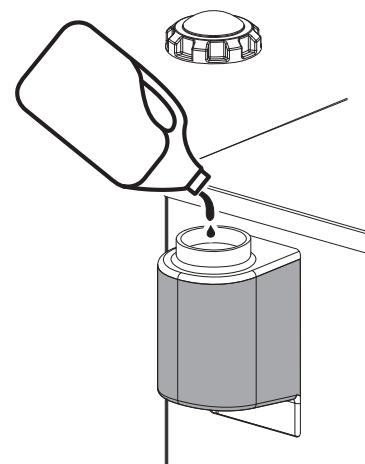


2. Turn ON the power supply using the remote ON/OFF switch or the CNC.

3. Locate the CNC screen for manual pump control. The pump needs to run to fill the leads.

Power Supply Status	
Line Voltage	0 V 102/138
Current Setpoint	40 Amps
Chopper-A	0 Amps
WorkLead	0 Amps
Coolant Flow	0 GPM 0.7/0.9
PS State Code	0 = Idle
Last Error Code	0 = Ready
Temperatures	
Chopper A	32 F 140/185
Coolant	32 F 140/158
Transformer	32 F 140/248
Gas Types	
Plasma Inlet Gas	Not Used
Shield Inlet Gas	Not Used
Gas Pressures	
Plasma Cutflow	44 PSI 50/99
Plasma Preflow	42 PSI 15/99
Shield Cutflow	34 PSI 2/99
Shield Preflow	35 PSI 2/99
Software Revisions	
Power Supply Rev	12
Gas Console Rev	34
<input type="button" value="Test Preflow"/>	<input type="button" value="Test Cutflow"/>
<input type="button" value="Test HPR Gas Console"/>	<input type="button" value="Test Pump"/>
<input type="button" value="Done"/>	

4. Turn OFF the system and add coolant to the power supply until the tank is full. Replace the filler cap.



HPR AND HSD COOLANT PUMP REPLACEMENT

Fill the HPR400XD cooler with coolant (auto and manual gas system)

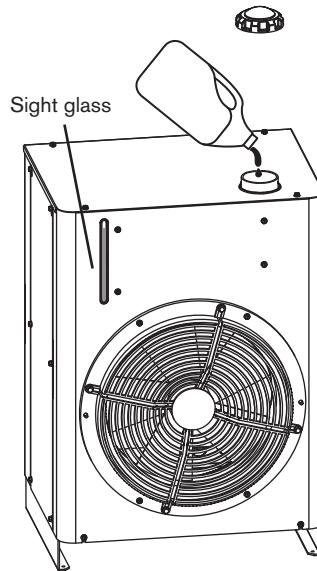
The cooling system's capacity is 15.5 to 34.5 liters (4 to 9 gallons) of coolant, depending on the length of the torch leads and coolant hoses.

Caution: Using the wrong coolant can cause damage to the system. Refer to *torch coolant requirements* in this section for more information.



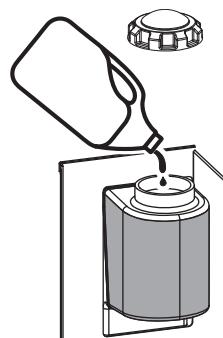
Do not over fill the coolant tank.

1. Remove the filler cap and add coolant until the level in the sight glass reaches full.
2. Turn ON the power supply using the remote ON/OFF switch, the switch on the gas console, or through the CNC. The coolant level in the tank will drop as the coolant circulates through the system, and an error code (060 or 093) may occur.
3. Turn OFF the power.
4. Add coolant to the cooler until the level in the sight glass reaches full, and turn ON the power.
5. Repeat this process as many times as necessary, until the pump can be run continuously. This will allow coolant to completely fill the coolant loop and purge any air from the system.
6. Replace the filler cap.

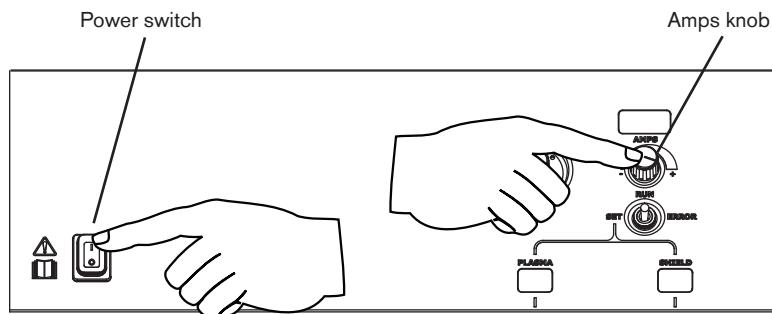


Fill the HSD130 power supply with coolant

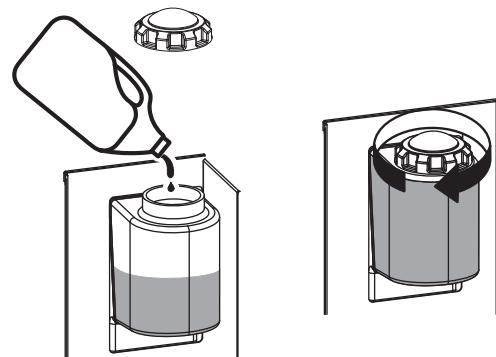
1. Add coolant until the tank is full.



2. Press and hold the Amps knob on the power supply control panel and turn ON the power to the power supply. This allows the user to override the 5-second pump time-out and fill the torch leads with coolant for the first time. Release the amps knob after 60 seconds. If the coolant flow switch is satisfied, the pump will continue to run and you are done. If the pump turns off, turn OFF the power to the power supply and repeat the process.



3. The level of coolant in the tank will have dropped. Turn OFF the system and add coolant until the tank is full. Replace the filler cap.



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