



HPR400XD® Manual Gas

Preventive Maintenance Program



Instruction Manual

808650 | Revision 1 | English

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HPR400XD Manual Gas Preventive Maintenance Program

Instruction Manual

808650
Revision 1

English

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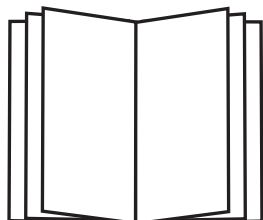
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WARNING!



READ THE SAFETY INFORMATION

Before operating or maintaining any Hypertherm equipment, read the *Safety and Compliance Manual* (80669C) for important safety information.

You can find the *Safety and Compliance Manual* in the “Downloads library” at www.hypertherm.com.

Preventive Maintenance Program	9
Overview	9
Cleaning and inspection schedule	10
Daily	11
Do a test of the inlet pressures	11
Examine all of the air filters	11
Do a check of the coolant level and condition	11
Examine and lubricate O-rings	12
Examine the water tube and torch	12
Weekly	13
Examine hoses and torch leads	13
Do tests for gas leaks	13
Do a check of the coolant flow	13
Do a check of the coolant level	13
Monthly	14
Clean inside the power supply	14
Clean inside the cooler	15
Examine the coolant system	15
Examine the main contactor	16
Examine the pilot arc relay	16
Do the coolant flow test	16
Examine the gas line connections	17
Examine the hoses	17
Examine the cables	17
Examine the ground connections	17
Examine the table-to-workpiece connection	17
Component replacement schedule	18
Cutting area and operation effects	21

External cutting area	21
Incoming air supply quality	22
Metal dust inside the power supply cabinet	22
Consumable use	23
Cut-cycle time	24
Find arc hour data on a Hypertherm CNC	25
Part numbers for HPR400XD Manual Gas cables and leads	26
Power supply to ignition console leads	26
Pilot arc lead	26
Negative lead	26
Ignition console power cable	26
Coolant hoses	27
Cooler to ignition console	27
Power supply to cooler cables	27
Control cable	27
Power cable	27
Power supply to gas console cables	27
Control cable	27
Power cable	27
Cable and gas hose assembly (gas console to off-valve)	28
Power supply to CNC interface cable	28
Torch lead	28
Work lead	28
Ohmic contact wire	28
Supply gas hoses	29
Air hose	29
Argon-hydrogen (H35) or nitrogen-hydrogen (F5) hose	29
Nitrogen or argon hose	29
Oxygen hose	29
System information	30
Model number	30
Serial number	30
System voltage	30
Coolant requirements	30
Notes	31
Maintenance log for HPR400XD Manual Gas plasma systems	32

Preventive Maintenance Program

Overview

Congratulations on the purchase of your Hypertherm plasma system.

Hypertherm plasma systems can operate in harsh conditions for many years. To maintain system performance, minimize operating costs, and lengthen system life, follow the maintenance procedures given in this Preventative Maintenance Program (PMP).

Hypertherm made this PMP specifically for your plasma system. The PMP has two parts: a cleaning and inspection schedule and a component replacement schedule.

If you have questions about how to maintain your plasma system, contact your OEM or regional Hypertherm Technical Service team. You can find contact information for each regional office at www.hypertherm.com on the “Contact us” page.

This document refers to your system’s instruction manual. If you do not have your instruction manual, you can find it in the Hypertherm downloads library:

1. Go to www.hypertherm.com.
2. Click **Downloads library**.
3. Enter your instruction manual's part number in the **Part number** field.
 - ❑ *HPR400XD Manual Gas Instruction Manual: 806170*

Cleaning and inspection schedule

This is a daily, weekly, and monthly schedule for cleaning and inspections. The PMP has instructions for each task. These instructions help your personnel understand what to do and what to look for during each task. In general, an operator can do the daily and weekly tasks, while maintenance personnel usually do the monthly tasks.

A monthly maintenance log is in the back of this manual. You can make photocopies of the maintenance log to record tasks.

Table 1

Maintenance task or activity	Daily	Weekly	Monthly
Do a test of the inlet pressures	X		
Examine all of the air filters	X		
Do a check of the coolant level and condition	X		
Examine and lubricate O-rings	X		
Examine the water tube and torch	X		
Examine hoses and torch leads		X	
Do tests for gas leaks		X	
Do a check of the coolant flow		X	
Do a check of the coolant level		X	
Clean inside the power supply			X
Clean inside the cooler			X
Examine the coolant system			X
Examine the main contactor			X
Examine the pilot arc relay			X
Do the coolant flow test			X
Examine the gas line connections			X
Examine the hoses			X
Examine the cables			X
Examine the ground connections			X
Examine the table-to-workpiece connection			X

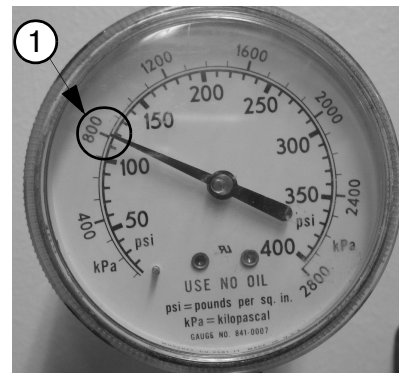
Daily

Do a test of the inlet pressures

1. With the gas flowing in test preflow mode, make sure that the pressure at the regulator is set to 8 bar (115 psi).
2. Repeat the test in cutflow mode, and make sure that the regulator is set to 8 bar (115 psi).



For instructions about setting supply regulators, see *Setting the supply regulators* in your system's instruction manual.



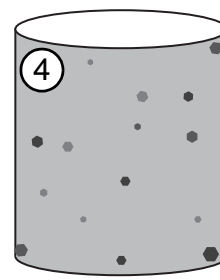
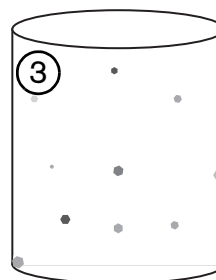
Examine all of the air filters

Examine all of the air filters for contamination.

- ❑ If you find moisture or oil, replace the air filter.
- ❑ If you find a moderate quantity of solid contamination, such as dust, blow air through it or use suction to clean the filter.
- ❑ If you find a large quantity of solid contamination, replace the air filter.



See *Air filter element replacement* in your system's instruction manual for replacement instructions.

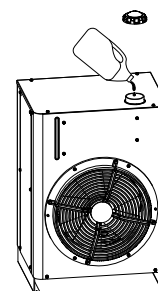


Do a check of the coolant level and condition

Make sure that the coolant tank in the cooler is full:

1. Look at the sight glass on the outside of the cooler.
2. If the level is below the fill line, add coolant (028872) to the fill line.
3. Record the number of gallons your system requires in *Coolant requirements* on page 30.

Examine the coolant tank for contamination. If you find any contamination, drain the tank and replace the coolant. See *Draining the coolant system* in your system's instruction manual for instructions.



Preventive Maintenance Program

Examine and lubricate O-rings

1. Examine all of the O-rings on the torch and consumables for damage.
2. If you find damage, replace the O-ring.



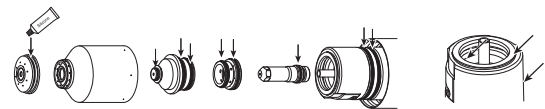
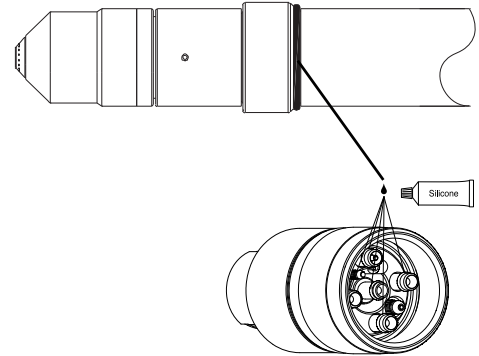
Receptacle O-rings and torch O-rings for the torch main body are available as part of kit 428252. Other O-rings are included with the consumables.

3. Apply a thin film of silicone lubricant (027055) to all O-rings.



The O-rings should look shiny. Too much lubricant can prevent gas flow.

4. Install all O-rings so they fit snugly.
5. Examine all threaded consumables, and remove any dirt from the threads.



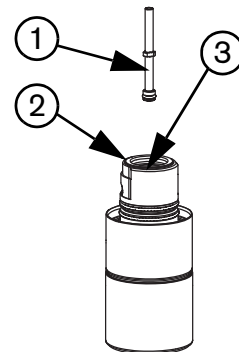
Examine the water tube and torch

1. Examine the water tube for bends and pitting.
2. Examine the nozzle and electrode mating surfaces on the torch main body for damage or pitting.
3. Use a clean cloth to clean the internal and external surfaces of the torch. Use a cotton swab to clean internal surfaces that are not easy to get to.



Make sure that you do not leave any cotton fibers on the inner surfaces of the torch main body.

4. Use compressed air to remove any remaining particles from the torch main body.



Weekly

Examine hoses and torch leads

1. Examine all air hoses, coolant hoses, and torch leads for:
 - ☐ Scrapes, cuts, or holes
 - ☐ Chemical spills or burns
 - ☐ Kinks or bends
2. Replace any hoses or leads that have damage.

See *Part numbers for HPR400XD Manual Gas cables and leads* on page 26 for lengths and part numbers.

Do tests for gas leaks

For more information, see *Gas leak tests* in the *Maintenance* section of your system's instruction manual.

Do a check of the coolant flow

Find the flow rate shown on the gas console. Record the coolant flow.

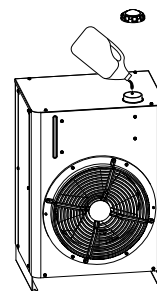
For more information, see *Test 6 – bucket test at the pump* in the *Maintenance* section of your system's instruction manual.

If the flow rate is below 2.9 L/min (0.75 g/min), contact your maintenance department to service the coolant system.



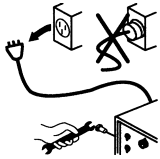
Do a check of the coolant level

Make sure that the coolant tank in the cooler is full:

1. Look at the sight glass on the outside of the cooler.
2. If the level is below the fill line, add coolant (028872) to the fill line.
3. Record the number of gallons your system requires in *Coolant requirements* on page 30.




Monthly

		<p>WARNING!</p> <p>ELECTRIC SHOCK CAN KILL</p>
		<p>Disconnect electric power before performing any maintenance.</p> <p>All work requiring removal of the power supply cover must be performed by a qualified technician.</p> <p>Read the <i>Safety and Compliance Manual</i> (80669C) for important safety information.</p>

Clean inside the power supply

1. Turn OFF the power to the power supply.
2. Remove the top and side panels of the power supply.
3. Blow out or vacuum any accumulation of dust and particles from:
 - ☐ The top and side panels
 - ☐ The inside of the power supply
 - ☐ The fans
4. Remove dust and particles from circuit boards.

 Be careful not to damage the circuit boards.
5. Install the top and side panels before you turn ON the power.

Clean inside the cooler

1. Turn OFF the power to the cooler.
2. Remove the top and side panels.
3. Blow out or vacuum any accumulation of dust and particulates from:
 - ❑ The top and side panels
 - ❑ The inside of the cooler
 - ❑ The fans
4. Remove dust and particulates from circuit boards.



Be careful not to damage the circuit boards.

5. Install the top and side panels before you turn ON the power.

Examine the coolant system

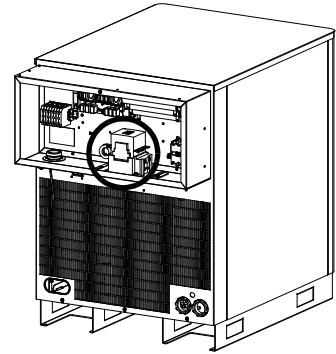
Examine the coolant system for coolant leaks at all connections. Make sure you examine:

- The ignition console
- The torch main body
- The internal connection in the power supply
- All of the connections to cooler

Preventive Maintenance Program

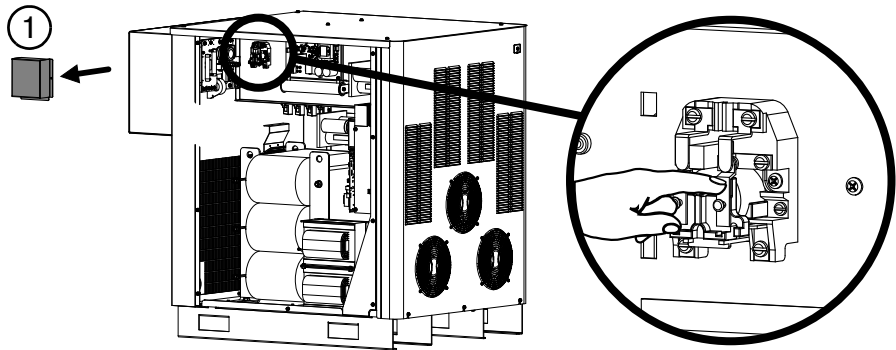
Examine the main contactor

1. Examine the contacts in the main contactor for black or rough surfaces.
2. If you find too much of this condition, replace the main contactor.



Examine the pilot arc relay

1. Remove the cover of the pilot arc relay.
2. Examine the contacts inside the relay for black or rough surfaces.
3. If you find too much of this condition, replace the pilot arc relay.
4. Install the cover of the pilot arc relay.



Be careful that you do not pinch the wires between the cover and the center panel.

Do the coolant flow test

- Do the coolant flow test and record the coolant flow rate. You can find the coolant flow rate on the gas console. For more information, see *Do a check of the coolant flow* on page 13.
- If the flow rate is below 2.9 L/min (0.75 g/min), do the coolant flow test in *Coolant flow tests* in the *Maintenance* section of your system's instruction manual. You may need to service the coolant system or replace the coolant pump or motor.
- The flow alarm turns on when the flow rate is below 2.3 L/min (0.6 g/min). For more information, see *Testing the flow sensor* in the *Maintenance* section of your system's instruction manual.
- Examine the coolant tank for contamination. If you find any contamination, flush the tank. See *Do a check of the coolant level and condition* on page 11 for instructions.
- Make sure that you use the correct Hypertherm coolant (028872) or use water that meets the requirements in *Water purity requirements* in the *Installation* section of your system's instruction manual.

Examine the gas line connections

Spray all of the gas line connections with soapy water. If bubbles appear on a gas line, tighten or replace it as necessary. See *Part numbers for HPR400XD Manual Gas cables and leads* on page 26 for lengths and part numbers.



CAUTION!

Do not clean brass connections with ammonia-based cleaners. Ammonia causes brass to crack and become brittle.

Examine the hoses

Examine each hose for kinks or sharp bends that can restrict gas flow or cause damage to the hose.

If the cutting table uses a power track system to support the leads that go from the power supply to the gas console or torch, look at the position of the leads in the track. Make sure the leads do not twist or kink. This can cause a restriction.

Examine the cables

Examine all cables for scratches or unusual wear. If the outside insulation is cut or has any other damage, replace the cable. See *Part numbers for HPR400XD Manual Gas cables and leads* on page 26 for lengths and part numbers.

Examine the ground connections

Make sure that all components of the system are individually grounded to a driven earth ground. See the *Installation and Grounding* section of your system's instruction manual.

Examine the table-to-workpiece connection

Examine the work lead (+) connection where the work lead (+) connects to the cutting table.

Make sure that there is no paint, oil, or dirt on the workpiece. This type of contamination prevents a clean metal-to-metal contact between the work lead and the cutting table or workpiece. It can also cause arc-transfer problems.

Component replacement schedule

This is a list of components and their recommended replacement schedules. The schedule uses total arc hours to estimate when to replace a component. The use of cumulative arc hours is the most accurate method to estimate when you need to replace a component.

If you have a Hypertherm CNC, you can find the total number of arc hours on the CNC. See *Find arc hour data on a Hypertherm CNC* on page 25. You can also find cumulative arc hours on a serial communication link between your CNC and power supply.

If you do not have a Hypertherm CNC and your CNC cannot track arc hours, use the guide below to estimate arc hours per year. This guide uses the average number of 8-hour shifts that the system operates on an average work day. For more information about calculating arc hours, contact your table manufacturer.

Average shifts per day	Estimated arc hours per year
1	500
2	1,000
3	1,500

Your cutting area and operations can have an effect on this schedule. See *Cutting area and operation effects* on page 21.

Record information about your system and its replacement requirements in the following places:

- *Part numbers for HPR400XD Manual Gas cables and leads* on page 26
- *System information* on page 30
- *Notes* on page 31

Table 2

Item Number	Quantity	Component	Cumulative number of arc hours											
			500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000
428263	1	Torch rebuild and filter kit without coolant*	X	X	X	X	X	X	X	X	X	X	X	X
428264	1	Torch rebuild and filter kit with coolant*	X	X	X	X	X	X	X	X	X	X	X	X
028872	4 – 6	Coolant (in gallons)**	X	X	X	X	X	X	X	X	X	X	X	X
428270	1	Kit: Electronics*** 200 V – 240 V		X		X		X		X		X		X
428272		380 V – 600 V												
003249	1	Inrush contactor		X		X		X		X				X
220705	1	Quick-disconnect torch receptacle				X				X				X
228171	1	Kit: Coolant pump with clamp				X				X				X
	1	Torch lead†				X				X				X
006113	1	Coolant check valve						X						X
027079	3	10-inch fan						X						X
027658	1	Cooler heat-exchange fan						X						X
127039	8	6-inch fan						X						X
229235	1	Coolant flow switch						X						X
228230	1	Kit: Coolant pump motor with clamp						X						X
228993	1	Kit: Coolant solenoid valve						X						X
	1	Gas lead†						X						X
	1	Pilot arc lead†						X						X
041802	1	Power board (PCB2)											X	
041817	1	Ignition board (PCB IGN)											X	
006109	6	Gas solenoid valve†											X	
228984	2												X	
129854	1	High-frequency transformer (T1)											X	
005263	4	Gas pressure sensor												X
229213	1	I/O board												X
129792	4	Chopper												X

Preventive Maintenance Program

- * This kit includes the air filter (011110), coolant filter (027664), and torch rebuild kit (428252).
- ** The number of gallons you need depends on the length of the leads. See your system's instruction manual for more information, then record this number in *Coolant requirements* on page 30.
- *** Kit 428270 includes a pilot arc relay (003149), contactor (003218), and torch main body (220706). Kit 428272 includes a pilot arc relay (003149), contactor (003233), and torch main body (220706). See your system's instruction manual for the correct voltage, then record this number in *System voltage* on page 30.
- † Record the part numbers for cables and leads in *Part numbers for HPR400XD Manual Gas cables and leads* on page 26 so you can refer to this information when you replace these components.
- * The gas solenoid valves that are connected to the air lines must be maintained. The quantity of gas solenoid valves given is the quantity of valves connected to the air lines not the total quantity of valves in the system.

Cutting area and operation effects

The component replacement schedule is for reference only. Your cutting area conditions and operations can have an effect on your component replacement schedule.

These topics give the most common conditions and operations that increase the wear on some components in your plasma system. This wear decreases system performance and component life. If any of these conditions or operations apply, change your replacement schedule as suggested.

How much you need to change your schedule depends on how bad the condition is. If you have questions about your replacement schedule, contact your OEM or regional Hypertherm Technical Service team.

External cutting area

Consumables and torch assemblies stored in dirty cutting areas with no protection can collect contamination, such as dirt and metal dust. If this contamination gets into the torch or coolant, it can cause the following problems:

- Prevent O-rings and seals on the torch heads and receptacles from sealing
- Increase wear on torch heads and receptacles
- Increase wear on the coolant pump
- Cause unsatisfactory operation of the coolant flow switch



It can help to flush the coolant system or clean the flow switch. But, it can be necessary to replace the coolant switch to fully repair the operation of the coolant loop system.

The best solution is to store consumables and torch assemblies in a clean, protective space. Another solution is to use compressed air to clean these parts before you use them.

If you cannot store your consumables and torch heads in a protective space, you can replace the following components more frequently.

Description	Part number
HPRXD quick-disconnect torch receptacle	220705
HPRXD quick-disconnect torch	220706
Kit: Coolant pump with clamp	228171
Coolant flow switch	229235

Preventive Maintenance Program

Incoming air supply quality

To maintain system performance, it is important that the incoming air supply is clean. If the air supply has dirt, oil, or water in it, components can become clogged or defective. An air supply of bad quality can cause the following problems:

- Decrease air flow
- Increase system errors (044, 053, 057, or 058)
- Decrease cut quality and performance

Oil in the torch head can cause a fire when the oil reacts with the oxygen cutting process. Also, unwanted material in pressure sensors can cause false pressure readings.

The best solution, if possible, is to improve the quality of the air supply. Contact your OEM or regional Hypertherm Technical Service team if you need advice on how to improve the quality of your air supply.

If you cannot change your air supply quality, you can replace the following components more frequently.

Description	Part number
Air filter element	011110
HPRXD quick-disconnect torch	220706
Gas solenoid valve	006109
Kit: Gas solenoid valve	228984
Gas pressure sensor	005263

Metal dust inside the power supply cabinet

Plasma cutting makes metal dust. If metal dust collects inside the plasma power supply, it can decrease the life of the fans and coolant pump motor.

The main power supply, chopper, or heat exchanger fans can operate more slowly, or failure of the fans can occur. This can cause temperature-related errors (065, 066, 067, or 071). The coolant pump motor can become too hot and operate incorrectly.

The best solution to extend the life of the fans and coolant pump motor is to clean inside of the power supply. For instructions, see *Clean inside the power supply* on page 14.

If metal dust has collected inside your power supply, you can replace the following components more frequently.

Description	Part number
6-inch fan	127039
10-inch fan	027079
Heat-exchange fan	027658
Kit: Coolant pump motor with clamp	228230

Consumable use

If you let consumables reach complete failure, they can melt. Copper pieces can then break off and go into the coolant. In the coolant, these pieces can cause the following problems:

- Decrease coolant flow
- Increase coolant flow errors (093)
- Cause damage to the consumables
- Cause coolant to leak at the check valve when you change the consumables
- Cause inaccurate coolant flow readings
- Decrease the life of the coolant pump
- Decrease the life of the check valve

When you do maintenance, examine the coolant filter for copper pieces. If you find copper pieces in the coolant filter, replace both the filter and coolant. If a coolant flow error (093) occurs after you replace the filter and coolant, use the troubleshooting procedure in your system's instruction manual to find the correct action.

The best solution is to follow the usage guidelines for your consumables. However, if overuse occurs, you can replace the following components more frequently.

Description	Part number
Coolant	028872
HPRXD quick-disconnect torch receptacle	220705
HPRXD quick-disconnect torch	220706
Coolant filter element	027664
Kit: Coolant pump with clamp	228171
Coolant check valve	006113
Coolant flow switch	229235

Cut-cycle time

When the cut-cycle is very short, relays operate more frequently. The system also pierces more frequently. Examples of this type of cycle are when you cut many small holes or make markings for numbers and letters. These types of operations can cause the following problems:




- Increase wear on pilot arc relay contact pads
- Increase wear on the starting components, such as the high-frequency transformer and the high-frequency ignition board
- Increase misfires and error codes (020 or 021)

If your cut-cycle is short, you can replace the following components more frequently.

Description	Part number
Pilot arc relay	003149
Contactor (200 V – 240 V)	003218
Contactor (380 V – 600 V)	003233
HPRXD quick-disconnect torch	220706
High-frequency transformer	129854
High-frequency ignition board (PCB)	041817

Find arc hour data on a Hypertherm CNC

To find arc hour data with Phoenix™ software (versions 7.0, 8.0, and 9.0), from the CNC Main screen, go to **Setups > Diagnostics > HPR System**.

-  If you do not see the **HPR System** softkey, make sure that the HPR and station are ON.
-  If a control board in the plasma system is replaced, the **Arc On Statistics** values are reset to 0.
-  An HPR system with a Manual Gas console but without serial communication does not have this screen.

Arc On Statistics	
Arc On Time	<input type="text" value="0"/> hours
System On Time	<input type="text" value="0"/> hours
Total Starts	<input type="text" value="0"/>
Total Start Errors	<input type="text" value="0"/>
Total Ramp Errors	<input type="text" value="0"/>

Make sure that you have the latest Phoenix software and plasma system software so that you have the most accurate **Arc On Time** information.

- To find the Phoenix software version number go to **Setups > Diagnostics**.
- To find the plasma system software version number go to **Setups > Diagnostics > HPR System**.

Software Versions	
Operating System	5.01.2600 SP3
Operator Interface	9.75.2
Virtual Device Driver	
Motion Control Card	6.00.0
SERCOS Slaves	Not Found
Hypertherm Network	2.03

Software Revisions	
Power Supply	<input type="text"/>
Gas Console	<input type="text"/>

Part numbers for HPR400XD Manual Gas cables and leads

Power supply to ignition console leads

Pilot arc lead

Part number	Length	Part number	Length
123683*	1.5 m (5 ft)	123823	20 m (65 ft)
123820	3 m (10 ft)	123735	25 m (82 ft)
123821	4.5 m (15 ft)	123668	35 m (115 ft)
123666	7.5 m (25 ft)	123669	45 m (150 ft)
123822	10 m (35 ft)	123824	60 m (200 ft)
123667	15 m (50 ft)	123825	75 m (250 ft)

* This cable is for use with systems that have the ignition console mounted on the power supply.

Negative lead

Part number	Length	Part number	Length
123418	3 m (10 ft)	123996	25 m (82 ft)
023382	4.5 m (15 ft)	123997	35 m (115 ft)
023078	7.5 m (25 ft)	023081	45 m (150 ft)
123994	10 m (35 ft)	023188	60 m (200 ft)
023079	15 m (50 ft)	023815	75 m (250 ft)
123995	20 m (65 ft)		

Ignition console power cable

Part number	Length	Part number	Length
123865*	2.1 m (7 ft)	123836	20 m (65 ft)
123419	3 m (10 ft)	123425	22.5 m (75 ft)
123834	4.5 m (15 ft)	123736	25 m (82 ft)
123420	6 m (20 ft)	123426	30 m (100 ft)
123670	7.5 m (25 ft)	123672	35 m (115 ft)
123422	9 m (30 ft)	123938	37.5 m (125 ft)
123835	10 m (35 ft)	123673	45 m (150 ft)
123423	12 m (40 ft)	123837	60 m (200 ft)
123671	15 m (50 ft)	123838	75 m (250 ft)

* This cable is for use with systems that have the ignition console mounted on the power supply.

Coolant hoses

Cooler to ignition console

Part number	Length	Part number	Length
128499	1.5 m (5 ft)	128078	25 m (82 ft)
028652	3 m (10 ft)	028444	30 m (100 ft)
028440	4.5 m (15 ft)	028896	35 m (115 ft)
028441	7.5 m (25 ft)	028445	45 m (150 ft)
128173	10 m (35 ft)	028637	60 m (200 ft)
028442	15 m (50 ft)	128985	75 m (250 ft)
128984	20 m (65 ft)		

Power supply to cooler cables

Control cable

Part number	Length	Part number	Length
123844	1.5 m (5 ft)	123839	4.5 m (15 ft)
123784	3 m (10 ft)		

Power cable

Part number	Length	Part number	Length
123979	1.5 m (5 ft)	123981	4.5 m (15 ft)
123980	3 m (10 ft)		

Power supply to gas console cables

Control cable

Part number	Length	Part number	Length
123784*	3 m (10 ft)	123841	20 m (65 ft)
123839	4.5 m (15 ft)	123737	25 m (82 ft)
123963	6 m (20 ft)	123738	35 m (115 ft)
123691	7.5 m (25 ft)	123739	45 m (150 ft)
123840	10 m (35 ft)	123842	60 m (200 ft)
123711	15 m (50 ft)	123843	75 m (250 ft)

* This cable is for use with systems that have the gas console mounted on the power supply.

Power cable

Part number	Length	Part number	Length
123785*	3 m (10 ft)	123848	20 m (65 ft)
123846	4.5 m (15 ft)	123740	25 m (82 ft)
123964	6 m (20 ft)	123676	35 m (115 ft)
123674	7.5 m (25 ft)	123677	45 m (150 ft)
123847	10 m (35 ft)	123849	60 m (200 ft)
123675	15 m (50 ft)	123850	75 m (250 ft)

* This cable is for use with systems that have the gas console mounted on the power supply.

Preventive Maintenance Program

Cable and gas hose assembly (gas console to off-valve)

Part number	Length	Part number	Length
128989	3 m (10 ft)	128967	10 m (35 ft)
128990	4.5 m (15 ft)	128786	15 m (50 ft)
228339	6 m (20 ft)	128991	20 m (65 ft)
128782	7.5 m (25 ft)	228864	25 m (82 ft)

Power supply to CNC interface cable

Part number	Length	Part number	Length
123210	3 m (10 ft)	123851	20 m (65 ft)
123211	4.5 m (15 ft)	123217	22.5 m (75 ft)
123212	6 m (20 ft)	123741	25 m (82 ft)
123022	7.5 m (25 ft)	123218	30 m (100 ft)
123213	9 m (30 ft)	123742	35 m (115 ft)
123214	10 m (35 ft)	123219	37.5 m (125 ft)
123215	12 m (40 ft)	123220	45 m (150 ft)
123216	13.5 m (45 ft)	123852	60 m (200 ft)
123023	15 m (50 ft)	123853	75 m (250 ft)
123494	16.5 m (55 ft)		

Torch lead

Part number	Length	Part number	Length
228291	2 m (6 ft)	228295	7.5 m (25 ft)
228292	3 m (10 ft)	228296	10 m (35 ft)
228293	4.5 m (15 ft)	228297	15 m (50 ft)
228294	6 m (20 ft)		

Work lead

Part number	Length	Part number	Length
123418	3 m (10 ft)	123996	25 m (82 ft)
023382	4.5 m (15 ft)	123997	35 m (115 ft)
023078	7.5 m (25 ft)	023081	45 m (150 ft)
123994	10 m (35 ft)	023188	60 m (200 ft)
023079	15 m (50 ft)	023815	75 m (250 ft)
123995	20 m (65 ft)		

Ohmic contact wire

Part number	Length	Part number	Length
123983	3 m (10 ft)	123988	15 m (50 ft)
123984	6 m (20 ft)	123989	23 m (75 ft)
123985	7.5 m (25 ft)	123990	30 m (100 ft)
123986	9 m (30 ft)	123991	45 m (150 ft)
123987	12 m (40 ft)		

Supply gas hoses

Air hose

Part number	Length	Part number	Length
024671	3 m (10 ft)	024740	25 m (82 ft)
024658	4.5 m (15 ft)	024676	30 m (100 ft)
024659	7.5 m (25 ft)	024744	35 m (115 ft)
024765	10 m (35 ft)	024678	45 m (150 ft)
024660	15 m (50 ft)	024680	60 m (200 ft)
024766	20 m (65 ft)	024767	75 m (250 ft)

Argon-hydrogen (H35) or nitrogen-hydrogen (F5) hose

Part number	Length	Part number	Length
024768	3 m (10 ft)	024741	25 m (82 ft)
024655	4.5 m (15 ft)	024742	35 m (115 ft)
024384	7.5 m (25 ft)	024743	45 m (150 ft)
024769	10 m (35 ft)	024771	60 m (200 ft)
024656	15 m (50 ft)	024772	75 m (250 ft)
024770	20 m (65 ft)		

Nitrogen or argon hose

Part number	Length	Part number	Length
024210	3 m (10 ft)	024739	25 m (82 ft)
024203	4.5 m (15 ft)	024116	30 m (100 ft)
024134	7.5 m (25 ft)	024451	35 m (115 ft)
024211	10 m (35 ft)	024120	45 m (150 ft)
024112	15 m (50 ft)	024124	60 m (200 ft)
024763	20 m (65 ft)	024764	75 m (250 ft)

Oxygen hose

Part number	Length	Part number	Length
024607	3 m (10 ft)	024738	25 m (82 ft)
024204	4.5 m (15 ft)	024206	30 m (100 ft)
024205	7.5 m (25 ft)	024450	35 m (115 ft)
024760	10 m (35 ft)	024159	45 m (150 ft)
024155	15 m (50 ft)	024333	60 m (200 ft)
024761	20 m (65 ft)	024762	75 m (250 ft)

System information

Model number _____

Serial number _____

System voltage

- ☐ 200 V/208 V
- ☐ 220 V
- ☐ 240 V
- ☐ 380 V (CCC)
- ☐ 400 V (CE)
- ☐ 415 V (CE)
- ☐ 440 V
- ☐ 480 V (CSA)
- ☐ 600 V (CSA)

Coolant requirements

- ☐ 11.4 L (3 gal)
- ☐ 15.1 L (4 gal)
- ☐ 18.9 L (5 gal)
- ☐ 22.7 L (6 gal)
- ☐ 26.5 L (7 gal)
- ☐ Other:

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Maintenance log for HPR400XD Manual Gas plasma systems

Daily tasks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Do a test of the inlet pressures																																
Examine all of the air filters																																
Do a check of the coolant level and condition																																
Examine and lubricate O-rings																																
Examine the water tube and torch																																
Weekly tasks	Week beginning:						Week beginning:						Week beginning:						Week beginning:						Week beginning:							
Examine hoses and torch leads																																
Do tests for gas leaks																																
Do a check of the coolant flow																																
Do a check of the coolant level																																
Monthly tasks																																
circle one: January February March April May June July August September October November December																																
Clean inside the power supply							Notes:																									
Clean inside the cooler																																
Examine the coolant system																																
Examine the main contactor																																
Examine the pilot arc relay																																
Do the coolant flow test																																
Examine the gas line connections																																
Examine the hoses																																
Examine the cables																																
Examine the ground connections																																
Examine the table-to-workpiece connection																																