

## **Continuous Feed Hopper**





10082182 | REVISION 000 ENGLISH



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# **Continuous Feed Hopper**

# **Operator Manual**

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For training and education resources, go to the Hypertherm Cutting Institute (HCI) online at www.hypertherm.com/hci.

Hypertherm products are designed and manufactured with a commitment to continuous quality control and safety. Contact a Hypertherm Technical Service Associate for information and support regarding the installation, operation, maintenance, and repair of this equipment.

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# **Product Warranty**

## Disclaimer

All product information contained in this manual is believed to be reliable as of the date of publication. The manual could contain technical inaccuracies or typographical errors and can be changed or updated without notice.

The descriptions, images, and diagrams shown in this manual are for general information. The actual equipment configuration could be different from the examples.

Product	Warranty coverage up to
Continuous Feed	15 months from the ship date, or 12 months from the date of proven installation, whichever
Hopper	occurs first.

Hypertherm's warranty does not extend to defects, failures, damages, deficiencies, or errors that are:

- not reported to Hypertherm within the warranty period; or
- the result of modification, abuse, misuse, noncompliance with the installation or operation instructions, unauthorized repair, inadequate maintenance, neglect, accident, or the use of unapproved parts; or
- the result of normal wear; or
- the result of the system being operated contrary to Hypertherm's instructions or stated limits of rated and normal use.

For information about the manufacturer's warranty, refer to the conditions of sale provided when the product was purchased.

Consumable parts are not included in this warranty. All third-party components are warrantied by the respective manufacturers and are not included in this warranty.

## **Product Stewardship**

Hypertherm maintains a global regulatory management system to make sure that products comply with regulatory and environmental requirements.

## **National and Local Safety Regulations**

National and local safety regulations shall take precedence over instructions supplied with the product. The product shall be imported, installed, operated, and discarded in compliance with national and local regulations applicable to the installation site.

# Safety

This section contains important safety information for the equipment. Careful observance of the safety information will help prevent physical injury, damage to the equipment, and extend the equipment life.

## Manuals

Copies of Hypertherm manuals can accompany the product in electronic and printed formats. Copies of the manuals are online, in all languages available for each manual.

- 1. Select https://www.hypertherm.com/en-US/resources/documents-library/.
- 2. Select the waterjet family from the drop-down list.
- 3. Expand the operator and instructions manual section.
- 4. Select the **product manual**.

A PDF of the document downloads to your device.

#### Note

These navigation instructions can change without notice.

All personnel who operate or have access to this equipment must know this information:

- · The use, limitations, and maintenance of personal protective equipment
- · The location of the written communication program and safety data sheets
- · How to recognize dangerous energy sources

## **User Qualification and Training**

Users must read and understand these instructions before installing, operating, or doing maintenance on this equipment.

Do not let an untrained person operate this equipment. Operators must be approved to operate and maintain this equipment.

Training should include:

- · How to start and stop the equipment during operation and in an emergency situation
- Conditions and procedures that can lead to injuries to personnel and damage to the equipment
- · How to operate all controls
- · How to identify and respond to a problem with the equipment
- · How to do maintenance procedures
- A copy of the operator manual

This list is not all-inclusive.

## **Equipment Labels**

The following safety labels can appear on the equipment. If ignored, physical injury, death, or equipment damage may occur. Read the safety information in the equipment operation guides before installing, operating, or maintaining the equipment.



#### **WARNING Flying Debris**

Eye protection is required for equipment operation and maintenance. Removing the abrasive feed hose from the hopper while under pressure will blow abrasive particles into the air, possibly getting into eyes, and could contaminate the machine.



#### **Wear Eye Protection**

Always wear approved safety glasses for equipment maintenance and operation. Regular glasses do not provide sufficient eye protection! The garnet abrasive is not a chemical irritant, but if not quickly washed out, it can injure an eye just as any sand would. In addition, the hopper could contain particles from the material or chemical irritants. Have an eyewash station located near the work area in the event abrasive material gets into the eyes.

Read the product labels and refer to product Safety Data Sheets (SDS) to identify properties and hazards of chemical products and materials referenced in this document. Handle in accordance with good industrial hygiene and safety practice. Use personal protective equipment as specified in the SDS.



#### Purge Cycle

The purge button removes abrasive material from the pressure pot.



#### Manufacture Date

The date the equipment was produced.



**Weight of Abrasive** The weight of abrasive material when the hopper is full.

## **Safety Precautions**

Always observe the following safety precautions while operating or servicing the equipment. Carefully operated, the equipment is a safe tool. When operated carelessly, serious injury can result. Never make unauthorized alterations to the equipment or components.

## Lockout/Tagout Procedure

Hypertherm recommends the implementation of practices and procedures to shut down equipment, isolate it from its energy source(s), and prevent the release of potentially hazardous energy while maintenance and servicing activities are being done.

## Safety Legend

The following safety signal word panels and paragraph notifications may appear throughout this and other documentation. Each provides safety issue identification and recommended actions to prevent the hazard. Be alert! Follow the recommended safety actions and precautions to prevent injury or damage to the equipment.

### **WARNING**

Identifies a hazardous situation which, if not avoided, could result in death or serious injury.

### **A**CAUTION

Identifies a hazardous situation which, if not avoided, could result in minor or moderate injury.

### NOTICE

Used to address practices not related to personal injury.

#### Note

Used to provide supplementary information, emphasize a point or give a tip for easier operation.

# **Required Tools**

These tools are required to do the procedures described in this document.

## **Customer Supplied Tools**

lcon	Tool	Size(s)
	Safety gloves	
	Strap wrench	4—5 in. (102—127 mm)
	Torque wrench	76 lbf-in (9 N•m) 25 lbf-in (3 N•m) 36 lbf-ft (48 N•m)
	Deep socket	7/16 in. (11 mm), 1/2 in. (13 mm)
	Open-end wrench	5/16 in., 7/16 in., 1/2 in., 1-13/16 in., 2-1/16 in.,14 mm, 20 mm, 22 mm
	Medium strength threadlocker adhesive	
	Phillip screwdriver	3 in. (76 mm)
	Soft bristle brush	

lcon	ΤοοΙ	Size(s)
	Shop towels	
00	Clean, dry, compressed air	90—120 psi. (621—827 kPa)
	Flat tip screwdriver	5/16 in. (8 mm)
	Tube cutter	3/4 in. (19 mm)
	Empty container	5 gallon (19 liters)

# Overview

The continuous feed hopper uses pneumatic pressure to deliver a consistent supply of abrasive material that flows from the hopper through the abrasive feed hose. The abrasive hopper holds 600 lbs (272 kg) and supports all table systems. The hopper can easily be refilled without the need to stop cutting operations.

## Components

The continuous feed hopper's major components are described below.



Figure 1

[9] Abrasive hopper

- [1] Air quick disconnect fitting [7] Lid
- [2] Pinch valve air regulator 1 [8] Mesh screen
- [3] Pinch valve solenoid 1
- [4] Pressure relief valve [10] Pinch valve
- [5] Pressure pot air regulator 2 [11] Pressure pot
- [6] Pressure pot solenoid 2 [12] Pressure pot level sensor
- [13] Disconnect switch
- [14] Pressure pot purge button
- [15] Power cord
- [16] Low-level sensor

# Operation

### 

All operators must wear the applicable personal protective equipment when operating the equipment to prevent injury.

### NOTICE

The continuous feed hopper contains pressurized components and electrical voltage. Read and understand all safety guidelines before operating, doing maintenance, and installing equipment.



This section gives information to operate the continuous feed hopper.

Do these steps to operate the hopper:

- Examine the hopper for wear and damage.
- Prepare the hopper for operation.
- Fill the hopper with abrasive material.
- Turn on the hopper.
- Check the hopper pressure.
- Adjust the hopper pressure.
- Stop the hopper when the operation is complete or when not needed.

## **Examine the Hopper**

### NOTICE

#### All preventive maintenance work must be done by approved personnel to prevent damage to the equipment.

A regular examination for wear, damage, cracks, or leaks help the continuous feed hopper to maintain constant abrasive material flow.

Do these steps monthly to examine the continuous feed hopper.

- 1. Examine the **air regulators** [1] connections for air leaks (Figure 2).
- 2. Examine the **air solenoid valves** [2] connector, solenoid, spring, valve body, or manual spring for damage (Figure 2).
- 3. Do a puncture check on the lid [3] for holes (Figure 2).
- 4. Make sure the **mesh screen** [4] material is not separated (Figure 2).
- 5. Examine the **pinch valve** [5] for air leaks (Figure 2).
- 6. Make sure the pressure pot **inline filter** [6] is not dirty or clogged (Figure 2).
- 7. Examine the **pressure pot** [7] for air leaks and sensor failure (Figure 2).
- 8. Examine the **regulator water bowl** [8] for liquid above the maximum line (Figure 2). Refer to Drain the Regulator Water Bowl.

#### Note

Examine the abrasive feed hose, output connection, tube clamps, and pipe fittings for damage.







9. Make sure the **bonding strap** [1] is flat against the hopper, not curled or loose.



Figure 3

## **Prepare the Hopper**

Do these steps to prepare the continuous feed hopper for operation.

1. Connect the abrasive feed hose to the **abrasive output connection** [1].



Figure 4

- 2. Plug in the hopper.
- 3. Connect the primary power.
- 4. Connect the primary air.
- 5. Turn ON the primary power.
- 6. Turn ON the primary air.

## Fill the Hopper

The abrasive material must stay clean, dry, and moisture free to prevent hose blockage. The mesh screen filters debris from the abrasive material when the hopper is filled.

#### Note

Do not slide buckets on the mesh screen to prevent damage. If buckets are used to fill the hopper with abrasive material, turn the mesh screen to the opposite side. The mesh screen handle can be installed on the opposite side if needed.

Do these steps to fill the continuous feed hopper.

- 1. Remove the lid [1] and put on the frame notches [2].
- 2. Leave the **mesh screen** [3] on the hopper.
- 3. Put the abrasive material through the mesh screen [3].





Figure 5

4. Put the **lid** [1] on top of the hopper.

# Turn On the Hopper

Operate the continuous feed hopper only when the abrasive feed hose is connected, and the table hopper lid is closed. If the table hopper lid is not closed, debris and/or moisture can enter the abrasive delivery system and clog the nozzle. The hopper low-level sensor illuminates green when the hopper is filled, illuminates amber when the abrasive material reaches 180 lbs (82 kg). The hopper can be operated while being filled.

Do these steps to start the continuous feed hopper.

1. Turn ON the hopper.



Figure 6

2. Make sure the hopper **low-level sensor** [1] LED is green.



Figure 7

3. Make sure the pressure pot level sensor [1] is green.



Figure 8

## **Check the Hopper Pressure**

The continuous feed hopper pressure pot is automatically filled and pressurized. The pinch valve automatically opens and closes to keep the pressure pot chamber filled with abrasive material. The air connection on top of the pressure pot forces abrasive material through the abrasive tube to the table's abrasive hopper.

#### Note

Operate the continuous feed hopper only when the abrasive feed hose is connected, and the table hopper lid is closed. If the table hopper lid is not closed debris and/or moisture can enter the delivery system and clog the nozzle. Make sure the pinch valve air regulator is set to 90 psi (621 kPa) and the pressure pot valve air regulator is set to 50 psi (345 kPa).

Do these steps to check the hopper pressure.

1. Make sure the primary air supply is connected to the **air regulator fitting** [1]. Refer to Prepare the Hopper.



Figure 9

- 2. Fill the hopper with abrasive material. Refer to Fill the Hopper.
- 3. Make sure the **pinch valve** [1] and the **pressure pot** [2] air connections are correctly attached.



Figure 10

#### Note

The abrasive material flow is delayed when the abrasive tube is first filled. It is permitted to temporarily increase the pressure pot air regulator from 50 psi (345 kPa) to 80 psi (552 kPa) to start abrasive material flow. Then return to 50 psi (345 kPa).

- 4. Turn ON the continuous feed hopper. Refer to Turn On the Hopper.
- 5. Make sure the pressure pot **level sensor** [1] is green.

#### Note

The PLC monitors when the pressure pot is full, cycles the system and provides constant abrasive material flow to the table hopper. The pressure pot level sensor [1] illuminates amber when the pressure pot is empty. The pressure pot will fill automatically.



Figure 11

6. Fill the hopper when the **low-level sensor** [1] turns amber. Refer to Fill the Hopper.



Figure 12

# Adjust the Hopper Pressure

Operate the continuous feed hopper when the hopper abrasive feed hose is connected, and the table hopper lid is closed. If the table hopper lid is not closed debris and/or moisture can enter the abrasive delivery system and clog the nozzle. Make sure the pinch valve air regulator is set to 90 psi (621 kPa) and the pressure pot air regulator is set to 50 psi (345 kPa) to maintain a 40 psi (276 kPa) pressure difference.

Do these steps to adjust the air pressure regulators.

1. Make sure the primary air supply is connected to the **air regulators fitting** [1]. Refer to Prepare the Hopper.



Figure 13

2. Adjust the **pinch valve air regulator** [1] to 90 psi (621 kPa).



Figure 14

3. Adjust the **pressure pot air regulator** [1] to 50 psi (345 kPa).

#### Note

Refer to the applicable waterjet manufacturer's documentation for abrasive material flow requirements.



Figure 15

# Stop the Hopper

### **A**CAUTION

All operators must wear applicable personal protective equipment when operating the equipment to prevent injury.

Do these steps to stop the continuous feed hopper.

1. Turn OFF the continuous feed hopper.



Figure 16

- 2. Turn OFF the primary power.
- 3. Close the primary air supply valve.
- 4. Clean the work area to remove all debris.



# **Preventive Maintenance**

### NOTICE

All preventive maintenance work must be done by approved personnel to prevent damage to the equipment.

A preventive and scheduled maintenance is recommended for the continuous feed hopper. This maintenance includes adjustments, cleaning, repairs, and replacement of parts.

Follow the maintenance schedule to keep the equipment reliable. The frequency of most maintenance activities depends on the length of time the equipment has been in operation. However, harsher than usual environmental conditions can require more frequent scheduled maintenance activities than shown in the maintenance schedule.

## **Preventive Maintenance Schedule**

Use the following maintenance activities and schedules to develop a satisfactory equipment maintenance program. Reference documents and videos that give instructions to do specific tasks.

#### Note

• The expected life of components can change based on specified use cases and environmental conditions.

Task	Frequency	Reference
Pinch valve		
Examine the air regulator connections for air leaks.	Monthly	Replace the Air Regulator
Examine the pinch valve for air leaks.	Monthly	Replace the Pinch Valve
Examine the tubing at the pinch valve fittings for loose connections.	Monthly	
Examine the bonding strap for loose connection.	Annually	Examine the Hopper Bonding Strap
Replace the pinch valve when the valve body, end caps, rubber sleeve, or pipe fitting is damaged.	Annually	Replace the Pinch Valve
Pressure pot	1	<u></u>
Replace the failed pressure pot sensor.	As required	Replace the Pressure Pot Level Sensor
Replace the inline air filter if dirty or blocked.	Annually	Replace the Pressure Pot Air Filter
Pressure relief valve		
Examine the pressure, make sure the air pressure is 90 psi (621 kPa) or lower.	Monthly	Check the Hopper Pressure
Abrasive hopper		
Replace the failed low-level sensor.	As required	Replace the Low- Level Sensor
Remove the abrasive material from the hopper if debris or water is in the abrasive material.	As required	Empty the Hopper
Make sure the bonding strap is put flat against the hopper, not curled or loose.	Annually	Examine the Hopper Bonding Strap
Air regulator assembly		
Drain the air regulator water bowl if liquid is above the MAX line	Monthly	Drain the Regulator Water Bowl
Make sure the air connection at the air solenoid valve is not loose. Replace if the solenoid does not operate or air does not get to the solenoid.	Monthly	Replace the Air Solenoid Valve

## **Replace the Pinch Valve**

### **A**CAUTION

The continuous feed hopper is a pressurized system. Before maintenance or service is done, release the pressure in the hopper to prevent injury.

### NOTICE

All preventive maintenance work must be done by approved personnel to prevent damage to the equipment.

The abrasive material flow causes wear and reduces the pinch valve life expectancy. Pinch valve maintenance is necessary to replace with the recommended frequency from the maintenance schedule.

Do these steps to replace the pinch valve.

- 1. Turn OFF the continuous feed hopper. Refer to Stop the Hopper.
- 2. Remove the air quick disconnect fitting [1].



Figure 17

3. Remove the **pinch valve air connection** [1].



Figure 18

4. Remove the abrasive output pipe [2] and the ground U-clamp [1].

#### Note

Place an empty container under the abrasive output pipe and the pressure assembly.







Figure 19

5. Remove the **pressure assembly** [1].









- **- - -**

6. Remove the **pinch valve** [1] from the hopper.





Figure 21

7. Install the **new pinch valve** [2] and the **air connection** [1].

#### Note

Apply pipe tape to brass nipples on both sides of pinch valve.





8. Install the **pressure assembly** [1].





9. Torque the **pipe fittings** [1] and the **U-bolts** [2]. Refer to Torque Values Table.







Figure 24

10. Connect the primary air supply to the air quick disconnect fitting.

- 11. Turn ON the primary power and air supply. Refer to Prepare the Hopper.
- 12. Start the hopper. Refer to Turn On the Hopper.

## **Replace the Pressure Pot**

### **A**CAUTION

The continuous feed hopper is a pressurized system. Before maintenance or service is done, release the pressure in the hopper to prevent injury.

### NOTICE

#### All preventive maintenance work must be done by approved personnel to prevent damage to the equipment.

The pressure pot uses abrasive material flow to the table hopper. Replace the pressure pot when the pressure plates, tensions bolts, pipe fittings, or the abrasive outlet port are damaged.

Do these steps to replace the pressure pot.

- 1. Turn OFF the hopper. Refer to Stop the Hopper.
- 2. Remove the air quick disconnect fitting [1].



Figure 25

3. Remove the pressure pot air connection [1].



Figure 26

4. Remove the **abrasive output pipe** [2] and the **ground U-clamp** [1].

#### Note

Place an empty container abrasive output pipe and the pressure assembly.







Figure 27

5. Remove the **pressure assembly** [1].









- 6. Remove the **pressure pot sensor** [1]. Refer to Replace the Pressure Pot Level Sensor.





Figure 29

7. Remove the **pressure pot** [1] from the hopper.



Figure 30

8. Install the new **air filter** [1] and the **pressure pot** [2]. Refer to Replace the Pressure Pot Air Filter.

#### Note

Apply pipe tape to brass nipples on both sides of the pressure pot.





Figure 31

9. Install the **pressure assembly** [1].



Figure 32

10. Torque the **U-bolt nuts** [1] and **tension rod bolts** [2]. Refer to Torque Values Table.

#### Note

Make sure to apply a thin layer of threadlocker to the tension rod bolts.









Figure 33

11. Connect the **pressure pot sensor** [1]. Refer to Replace the Pressure Pot Level Sensor.





Figure 34

- 12. Connect the primary air supply to the air quick disconnect fitting.
- 13. Turn ON the primary power and air supply. Refer to Prepare the Hopper.
- 14. Start the hopper. Refer to Turn On the Hopper.

## **Replace the Pressure Pot Air Filter**

### **A**CAUTION

The continuous feed hopper is a pressurized system. Before maintenance or service is done, release the pressure in the hopper to prevent injury.

### NOTICE

#### All preventive maintenance work must be done by approved personnel to prevent damage to the equipment.

The pressure pot uses an air filter to prevent abrasive material dust back-flow when the pressure pot releases pressure. Replace the inline air filter if dirty or blocked.

Do these steps to replace the inline air filter.

- 1. Turn OFF the continuous feed hopper. Refer to Stop the Hopper.
- 2. Remove the **air quick disconnect fitting** [1].



Figure 35

3. Remove the pressure pot air connection [1].



Figure 36

4. Remove the **inline air filter** [1].

#### Note

The inline filter will show dirt accumulation.



Figure 37

5. Remove and discard the **tube fittings** [1].



Figure 38

6. Install the new inline air filter [1] and tube fittings [2].



Figure 39

- 7. Connect the primary air supply to the air quick disconnect fitting.
- 8. Turn ON the primary power and air supply. Refer to Prepare the Hopper.
- 9. Start the hopper. Refer to Turn On the Hopper.

## **Replace the Pressure Pot Level Sensor**

### **A**CAUTION

The continuous feed hopper is a pressurized system. Before maintenance or service is done, release the pressure in the hopper to prevent injury. Fully empty the hopper of abrasive material before the sensor is replaced. Refer to Empty the Hopper.

### NOTICE

#### All preventive maintenance work must be done by approved personnel to prevent damage to the equipment.

The continuous feed hopper uses a sensor to monitor the abrasive material level inside the pressure pot chamber. Replace the sensor or connector when damaged, and clean the sensor when excessive abrasive material are on the pointed end.

Do these steps to replace the pressure pot sensor.

- 1. Make sure to clean the pressure pot. Refer to Clean the Pressure Pot.
- 2. Turn OFF the continuous feed hopper. Refer to Stop the Hopper.
- 3. Remove the air quick disconnect fitting [1].



Figure 40

4. Remove the **air connection** [1].



Figure 41

5. Remove the **sensor electrical connector** [1].



Figure 42

6. Remove the **level sensor** [2] from the pressure pot chamber [1].





Figure 43

7. Torque the new **level sensor** [1] and attach the **electrical connector** [2]. Refer to Torque Values Table.



- 8. Connect the primary air supply to the quick disconnect fitting.
- 9. Turn ON the primary power and air supply. Refer to Prepare the Hopper.
- 10. Start the hopper. Refer to Turn On the Hopper.

## **Replace the Low-Level Sensor**

### **A**CAUTION

The continuous feed hopper is a pressurized system. Before maintenance or service is done, release the pressure in the hopper to prevent injury.

### NOTICE

#### All preventive maintenance work must be done by approved personnel to prevent damage to the equipment.

The continuous feed hopper uses a sensor to monitor the abrasive material levels inside the hopper. Replace the sensor or connector when damaged, and clean the sensor when excessive abrasive material are on the pointed end.

Do these steps to replace the low-level sensor.

- 1. Remove abrasive material from the hopper. Refer to Empty the Hopper.
- 2. Turn OFF the continuous feed hopper. Refer to Stop the Hopper.
- 3. Remove the **air quick disconnect fitting** [1].



Figure 45

4. Remove the **low-level sensor** [1] electrical connector.





Figure 46

5. Remove the low-level sensor [2] from the hopper [1].



Figure 47

6. Torque the new **low-level sensor** [1] and attach the **electrical connector** [2]. Refer to Torque Values Table.



#### Note

Make sure the sensor illuminates green when the hopper is filled and amber when the hopper is empty.

- 7. Connect the primary air supply to the quick disconnect fitting.
- 8. Turn ON the primary power and air supply. Refer to Prepare the Hopper.
- 9. Start the hopper. Refer to Turn On the Hopper.

## **Replace the Air Regulator**

### **A**CAUTION

The continuous feed hopper is a pressurized system. Before maintenance or service is done, release the pressure in the hopper to prevent injury.

### NOTICE

#### All preventive maintenance work must be done by approved personnel to prevent damage to the equipment.

The continuous feed hopper air regulator can require replacement to provide consistent airflow. Replace the air regulator when air leaks, air pressure changes or not constant.

Do these steps to replace the air regulator.

- 1. Turn OFF the continuous feed hopper. Refer to Stop the Hopper.
- 2. Remove the **air regulator fitting** [1].





3. Remove the **air regulator** [1].







#### 4. Install the new air regulator [1].





Figure 51

- 5. Connect the primary air supply to the quick disconnect fitting.
- 6. Turn ON the primary power and air supply. Refer to Prepare the Hopper.
- 7. Adjust the air regulator pressure. Refer to Adjust the Hopper Pressure.
- 8. Start the Hopper. Refer to Turn On the Hopper.

## **Replace the Air Solenoid Valve**

### **A**CAUTION

The continuous feed hopper is a pressurized system. Before maintenance or service is done, release the pressure in the hopper to prevent injury.

### NOTICE

#### All preventive maintenance work must be done by approved personnel to prevent damage to the equipment.

The air solenoid values operate the pinch value and pressure pot. Replace the air solenoid value when the air ports, electrical connectors, or the solenoid coils are damaged.

Do these steps to replace the air solenoid valve.

- 1. Turn OFF the hopper. Refer to Stop the Hopper.
- 2. Remove the air quick disconnect fitting [1].



Figure 52

3. Remove the air connection [1] and the power connector [2].





Figure 53

4. Remove the **air solenoid valve** [1].



5. Install the new **air solenoid valve** [1], attach the **power connector** [2] and the **air connector** [3].



Figure 55

- 6. Connect the primary air supply to the quick disconnect fitting.
- 7. Turn ON the primary power and air supply. Refer to Prepare the Hopper.
- 8. Start the hopper. Refer to Turn On the Hopper.

## **Recycle and End of Product Life**

At the end of the life of the product or its parts, recycle, or discard parts, and materials in accordance with local regulations.

# **Spare Parts List**

Genuine Hypertherm parts are the factory-recommended replacement parts for the continuous feed hopper. The Hypertherm warranty will not cover damage caused by nongenuine Hypertherm parts.

To order parts, contact Hypertherm customer service.

## **Standard Spare Parts List**

Description	Part Number
Preventive maintenance kit	10082247
Pinch valve	10080565
Air filter Kit	10082248
Push to connect tube fitting elbow	
Push to connect tube fitting	
Inline filter	
Tubing 1/4 in., 15 in.	
1/2 in. Hose kit	10082249
Hose, 100 ft., 1/2 in.	
Barb 1/2 in.	
Hose clamp	
3/4 in. Hose kit	10082250
Hose, 100 ft., 3/4 in.	
Barb 3/4 in.	
Hose clamp	
PLC assembly, programmed	10082251
Output nipple kit	10082252
14 in. nipple	
Coupler	
U-bolt	
Pressure regulator kit	10082253
Pressure regulator	
Pipe fitting street elbow	
Push to connect tube fitting elbow	
Tubing 1/4 in., 9 in.	
Pressure relief valve	
Screen assembly	10080585

Description	Part Number
Lid assembly	10080609
Power supply, 24V 30W	10081070
Air solenoid valve	10069083
Pinch valve, packaged	10080565
Pinch valve	
Capacitive level sensor	10080559
Control panel assembly	10081068
Pressure chamber assembly (no sensors, no filter)	10080470

## Troubleshooting

This section provides information for troubleshooting common issues that can occur during operation.

### NOTICE

All maintenance work must be done by approved personnel to prevent damage to the equipment.

### Issues

The following table lists most problems encountered during operation. Each condition is provided with the most likely causes listed first. If the problem continues with the system after following these procedures, contact customer service. Refer to the Solutions section to match the corrective action number listed below with the steps suggested to correct an issue.

Conditions and Possible Causes	Corrective Actions	
Abrasive flow stopped		
Power off	1	
No compressed air	2	
Output pipe clogged	3	
Pinch valve open, sensor stuck on	4, 5	
Abrasive empty	6, 7	
Air pressure set too low	9	
Solenoid failure	10	
Abrasive tube is empty	14	
Abrasive flow is erratic		
Air pressure set too low	9	
Pressure pot air regulator set to high	9	
Static build-up in the tank	8	

Conditions and Possible Causes	Corrective Actions	
Wet abrasive material	3	
Dust coming from hopper lid		
Pinch valve not sealing	2, 9, 10, 12	
Inlet filter blocked, pressure not released	11	
Level sensor LEDs not turning on		
Sensor failed, replace sensor	4	
Power off	1	
Fill buckets damaging mesh screen		
Do not slide buckets on mesh screen	13	

## Solutions

Refer to Issues for a list of problems encountered. If the problem continues after doing the solution, contact Hypertherm Technical Support.

Corrective Action	Description
1	Reset the power and restart equipment. Make sure the cord is plugged in to the powered outlet.
2	Air compressor turned off or air hose disconnected.
3	Debris or water got into abrasive, clean out the output pipe. Make sure to use the screen and lid to protect the hopper from debris.
4	Sensor failure. Replace the Pressure Pot Level Sensor.
5	Debris in the tank blocking sensor, clean pressure pot. Purge the Pressure Pot.
6	Examine the low-level sensor, fill tank. Fill the Hopper.
7	Abrasive is present and the pinch valve is closed. Examine the pressure pot sensor and pinch valve air solenoid.
8	Examine bounding connections in the tank, and from tank to frame to electrical box.
9	Air pressure regulators not set to 90 psi (621 kPa) or 50 psi (354 kPa). Adjust the Hopper Pressure.
10	Solenoid does not operate, air not getting to solenoid. Replace the Air Solenoid Valve.
11	Inlet filter blocked, replace filter and make sure directional arrow is correct on installation. Replace the Pressure Pot Air Filter.
12	Replace pinch valve. Replace the Pinch Valve.
13	Reverse the mesh screen to make sure the perforated plate is on the top.
14	Temporarily increase the pressure pot air regulator from 50 (345 kPa) to 80 (552 kPa) to begin abrasive material flow.

# **Specifications**

When applicable, measurements are given in metric units or International System of Units (SI) units followed by US Customary units in parentheses, 1 bar (15 psi), 10 mm (3/8 in.) and 115 N·m (85 lbf-ft). This equipment is manufactured in the USA and a metric equivalent is not always available because of imprecise conversion.

## **Environmental Conditions**

The continuous feed hopper should be operated in a dry, clean, and well-ventilated area and moisture free at an adequate storage temperature.

Description	Specifications
Ambient air temperature for operations	-25-65° C (-13-149° F)
Relative humidity	5-95% non-condensing
Ambient air temperature for storage temperature	-30-70° C (-22-158° F)

## **Electrical Power**

### **A**WARNING

Do not operate the continuous feed hopper in environments with an explosive gas, vapors or dust atmosphere. Always follow local electrical and environmental codes and regulations to prevent injury.

The continuous feed hopper uses alternating current electrical power.

Description	Specifications
Alternating current	110/230VAC 50/60 Hz single phase

## **Connect the Industrial Grade Plug**

For regions other than North America, Hypertherm recommends an industrial grade to include a:

- 16 A, 250 VAC, 2-pole, 3-wire- IP44 or better.
- first-make last-break protective bonding contact (earthing contact).
- industrial grade plug suitably rated for its intended use and complies with local, regional, or national electrical codes.
- suitably rated plug-in accordance with EN 60309-1, -2 or IEC 60309-1, -2 can fulfill these requirements.



Figure 56

## **Compressed Air**

The continuous feed hopper uses air pressure to supply the abrasive material. The abrasive material flows through an abrasive feed hose to the table hopper.

Description	Minimum	Maximum
Pressure	90 psi (6 bar)	150 psi (10 bar)

## **Torque Values Table**

The continuous feed hopper uses specific torque specifications for the pinch valve and pressure pot to make sure these components are attached.

Description	Component	Specifications
Pinch valve	Top and bottom pipe fittings	1.5–2.5 Turn from finger tight
Pinch valve	U-bolts	25 lbf-in. (3 N•m)
Pressure pot	Tension rod bolts	76 lbf-in. (9 N•m)
Pressure pot	Proximity sensors	36 lbf-ft. (48 N•m)
Pressure pot	Outlet port	1.5–2.5 Turns from finger tight
Pressure pot	Top pipe fitting	1.5–2.5 Turn from finger tight
Pressure pot	Outlet port pipe fitting	2–3 Turns from finger tight
Hopper	Low-level proximity sensor	36 lbf-ft. (48 N•m)

## **Dimensions and Weights**

The continuous feed hopper dimensions include the pallet, shipment, and operating dimensions and weights.

Description	Specification
Length	40 in. (102 cm)
Width	35 in. (89 cm)
Height	57 in. (145 cm)
Shipping Weight	225 lb. (102 kg)
<b>Operating Weight</b>	825 lb. (374 kg)

# Installation

This section provides procedures and information for installing the continuous feed hopper.

### **A**CAUTION

Empty the hopper before it is moved. A full hopper is heavy and can fall when moved. Always empty the hopper before it is moved to prevent injury.

### NOTICE

All installation work must be done by approved personnel to prevent damage to the equipment.

## **Equipment Location**

The continuous feed hopper must be installed on a solid level foundation and within 100 feet (30 m) of the cutting table. Keep the surrounding area clear of debris to allow access to the hopper, and primary air supply.

### **WARNING**

Do not operate the continuous feed hopper in environments with an explosive gas, vapors or dust atmosphere. Always follow local electrical and environmental codes and regulations to prevent serious injury.

### **A**CAUTION

Empty the hopper before it is moved. A full hopper is heavy and can fall when moved. Always empty the hopper before it is moved to prevent injury.

## **Receive and Unpack the Hopper**

### **A**CAUTION

Empty the hopper before it is moved. A full hopper is heavy and can fall when moved. Always empty the hopper before it is moved to prevent injury.

- 1. Examine the shipping package for damage.
- 2. Remove the hopper from the shipping pallet.
- 3. Make sure the hopper is not damaged. If the hopper is damaged, a claim must be filed with the carrier.
- 4. Make sure delivery and shipping documents match the hopper ordered.
- 5. Report hopper component shortages or damages within 10 days.
- 6. Move the hopper to the installation location.
- 7. Use a forklift to pick up the hopper from the front or rear position.

#### Note

Make sure the hopper [1] points forward with the abrasive outlet pipe [2] in the front or rear position.



Figure 57

8. Use a forklift or pallet jack to pick up the hopper on the left or right side.

#### Note

Make sure to face the hopper [1] left side with the abrasive outlet pipe [2] in the left or right position.



Figure 58

## Install the Hopper



Empty the hopper before it is moved. A full hopper is heavy and can fall when moved. Always empty the hopper before it is moved to prevent injury.

Do these steps to install the continuous feed hopper.

1. Use the **frame access holes** [1] located in all four corners to attach the frame to the floor.



Figure 59

- 2. Make sure the cutting table hopper is easy to access. Refer to Equipment Location.
- 3. Turn OFF the primary power to the cutting table.
- 4. Turn OFF the primary power to the high-pressure pump.

- 5. Select the location for the hopper. Refer to Equipment Location.
- 6. Do a check for debris inside the **hopper** [1], as material can shift in transport.



Figure 60

7. Fill the hopper. Refer to Fill the Hopper.



Figure 61

- 8. Connect the primary air supply to the air quick disconnect fitting.
- 9. Connect the abrasive feed hose to the table hopper.
- 10. Turn ON the primary power and air supply. Refer to Prepare the Hopper.
- 11. Start the hopper. Refer to Turn On the Hopper.

# Service

## 

All operators must wear the applicable personal protective equipment when operating, maintaining, or servicing the equipment to prevent injury.

### NOTICE

All maintenance work must be done by approved personnel to prevent damage to the equipment.

## **Prepare the Hopper for Service**

Do these steps to prepare the hopper for service.

- 1. Turn OFF the primary power and air supply. Refer to Stop the Hopper.
- 2. Clean the work area to remove debris.







3. Remove the **air quick disconnect fitting** [1].



Figure 62

4. Clean the work area to remove debris.







## **Turn the Abrasive Outlet Port**

### **A**CAUTION

The continuous feed hopper is a pressurized system. Before maintenance or service is done, release the pressure in the hopper to prevent injury.

### NOTICE

#### All preventive maintenance work must be done by approved personnel to prevent damage to the equipment.

The continuous feed hopper outlet port is turned to provide an alternate abrasive material flow direction through the side of the hopper frame to the table hopper.

Do these steps to turn the abrasive outlet port.

- 1. Prepare the hopper for service. Refer to Prepare the Hopper for Service.
- 2. Remove the **air quick disconnect fitting** [1].



Figure 63

3. Remove the abrasive feed hose from the **abrasive output connection** [1].





Figure 64

#### 4. Loosen the **tension plate bolts** [1].





Figure 65

5. Remove the **U-bolts** [1] from the abrasive hopper frame.





Figure 66

6. Use the pressure pot end cap [1] or reducing bushing [2] to turn the abrasive outlet pipe [3].

#### Note

The pressure pot end cap or reducing bushing is turned clockwise without loosening the pipe fittings.







Figure 67

7. Turn the **abrasive outlet pipe** [2] to align with one of the four **U-bolts** [1] locations.



Figure 68

8. Loosely install the **U-bolts** [1] in the new location.



Figure 69

9. Start at the top, and torque the **tension rod bolts** [1]. Refer to Torque Values Table.









Figure 70

#### 10. Torque the **U-bolts** [1]. Refer to Torque Values Table.







Figure 71

- 11. Connect the primary air supply to the air quick disconnect fitting.
- 12. Turn ON the primary power and air supply. Refer to Prepare the Hopper.
- 13. Start the hopper. Refer to Turn On the Hopper.

## **Drain the Regulator Water Bowl**

### **A**CAUTION

All operators must wear the applicable personal protective equipment when operating, maintaining, or servicing the equipment to prevent injury.

### NOTICE

#### All maintenance work must be done by approved personnel to prevent damage to the equipment.

Make sure water in the drain regulator water bowl is not above the liquid MAX line.

Do these steps to remove liquid from the drain regulator water bowl.

- 1. Prepare the hopper for service. Refer to Prepare the Hopper for Service.
- 2. Open the **manual drain valve** [3] to remove water.
- 3. Make sure the **regulator water bowl** [1] level is below the **MAX line** [2].
- 4. Clean out the regulator water bowl.



5. Close the manual drain valve [3].



Figure 72

- 6. Connect the primary air supply to the quick disconnect fitting.
- 7. Turn ON the primary power and air supply. Refer to Prepare the Hopper.
- 8. Start the hopper. Refer to Turn On the Hopper.

## **Digital Pressure Transducer**

### NOTICE

All maintenance work must be done by approved personnel to prevent damage to the equipment.

#### Note

Water vapors will pass through the air regulator and could condense into a liquid form downstream as air temperature decreases. Install an air dryer if water condensation could have a dangerous effect.

A digital pressure transducer with a 1/8 in. NPT port can be installed on the rear of each **air pressure regulator** [1] to monitor gauge pressure levels.



Figure 73

## **Purge the Pressure Pot**

### NOTICE

#### All maintenance work must be done by approved personnel to prevent damage to the equipment.

The continuous feed hopper uses a purge button to remove abrasive material from the pressure pot.

Do these steps to purge the pressure pot.

- 1. Make sure to attach the pressure pot air connection [2].
- 2. Make sure the **pressure pot level sensor** [3] is green. Refer to Check the Hopper Pressure.
- 3. Press the **purge button** [1] to purge the pressure pot.



Figure 74

## **Empty the Hopper**

### **A**CAUTION

All operators must wear the applicable personal protective equipment when operating, maintaining, or servicing the equipment to prevent injury.

### NOTICE

#### All maintenance work must be done by approved personnel to prevent damage to the equipment.

#### Note

The abrasive material inside the hopper can also be drained by operating the equipment until empty.

Do these steps to remove abrasive material from the continuous feed hopper.

- 1. Prepare the hopper for service. Refer to Prepare the Hopper for Service.
- 2. Remove the abrasive feed hose from the waterjet table hopper.

#### Note

Refer to the applicable waterjet manufacturer's documentation to remove the abrasive feed hose from the waterjet table hopper.

- 3. Start the hopper. Refer to Turn On the Hopper.
- 4. Operate the hopper until empty.

#### Note

Place an empty container under the abrasive output pipe and the pressure assembly.

5. Stop the hopper. Refer to Stop the Hopper.

## **Replace the Abrasive Feed Hose**

### **A**CAUTION

All operators must wear the applicable personal protective equipment when operating, maintaining, or servicing the equipment to prevent injury.

### NOTICE

All maintenance work must be done by approved personnel to prevent damage to the equipment.

#### Note

Refer to the applicable waterjet manufacturer's documentation to replace the abrasive feed hose.

Do these steps to replace the abrasive feed hose.

- 1. Prepare the hopper for service. Refer to Prepare the Hopper for Service.
- 2. Remove the abrasive material from the abrasive feed hose. Refer to Remove Abrasive Material from the Abrasive Feed Hose.

## **Remove Material from the Abrasive Feed Hose**

### NOTICE

#### All maintenance work must be done by approved personnel to prevent damage to the equipment.

Do these steps to remove the abrasive material from the abrasive feed hose.

- 1. Prepare the hopper for service. Refer to Prepare the Hopper for Service.
- 2. Remove the abrasive material from the abrasive feed hose.
- 3. Remove the abrasive feed hose from **abrasive output connector** [1].





Figure 75

4. Use clean, dry air to remove abrasive material from inside the abrasive feed hose.



5. Connect the abrasive feed hose to the **abrasive output connector** [1].





Figure 76

6. Connect the abrasive feed hose to the waterjet equipment.

#### Note

Refer to the applicable waterjet manufacturer's documentation to remove the abrasive material from the abrasive feed hose.

- 7. Connect the primary air supply to the quick disconnect fitting.
- 8. Turn ON the primary power and air supply. Refer to Prepare the Hopper.
- 9. Start the hopper. Refer to Turn On the Hopper.

# **Declaration of Conformity**

To read the EU Declaration of Conformity in English and other languages:

- 1. Select https://www.hypertherm.com/en-US/resources/documents-library/.
- 2. Select the **waterjet family** in the drop-down list.
- 3. Choose the **Continuous Feed Hopper**.
- 4. Expand the regulatory information section.
- 5. Select the **EU Declaration of Conformity** for your product.

A PDF of the document downloads to your device.