



# **SPONGE-JET** **170-CG Feed Unit**

## **USER MANUAL**



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**IMPORTANT NOTE:** While parts, systems, components, operational procedures may be the same between equipment models, the images provided in this manual may vary from model to model.

This manual represents the following models and their approximate working capacity:

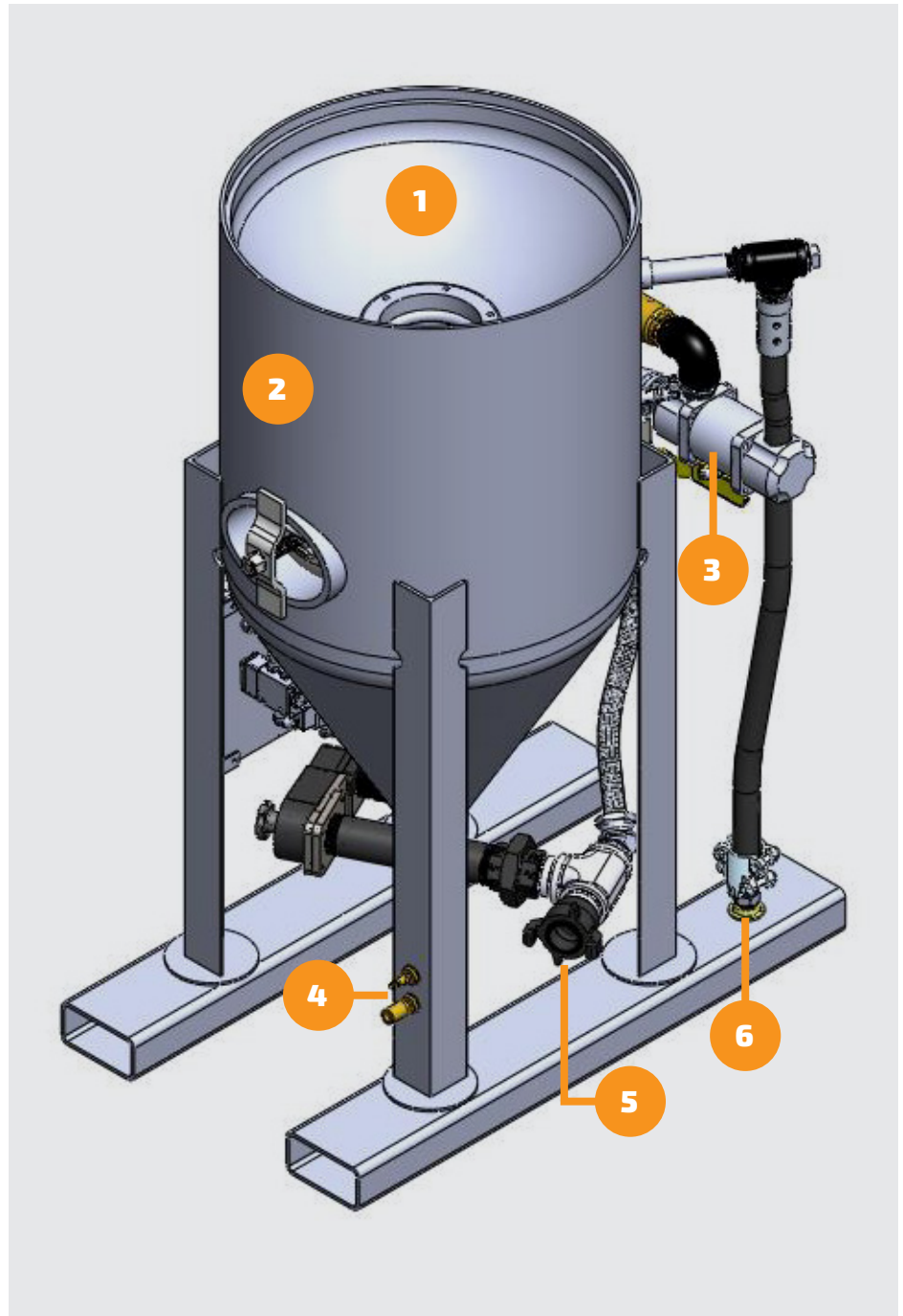
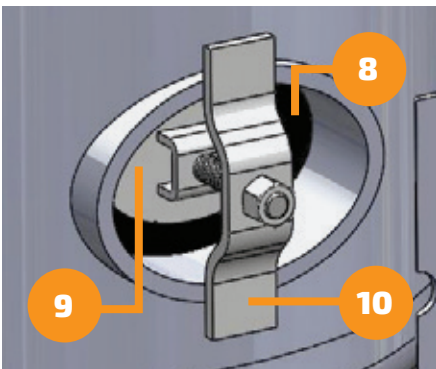
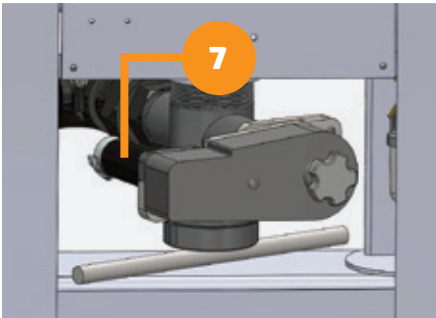
|                       |                                     |
|-----------------------|-------------------------------------|
| <b>Model:</b> 170-CG  | <b>Working Capacity:</b> 170 liters |
| <b>Model:</b> 170A-CG | <b>Working Capacity:</b> 170 liters |

English Language is Original Instructions.  
Translated from Original Instructions.

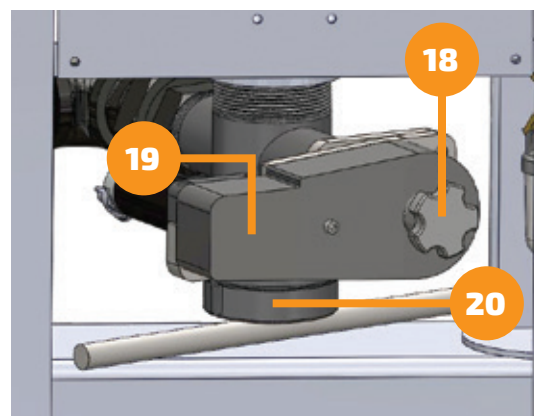
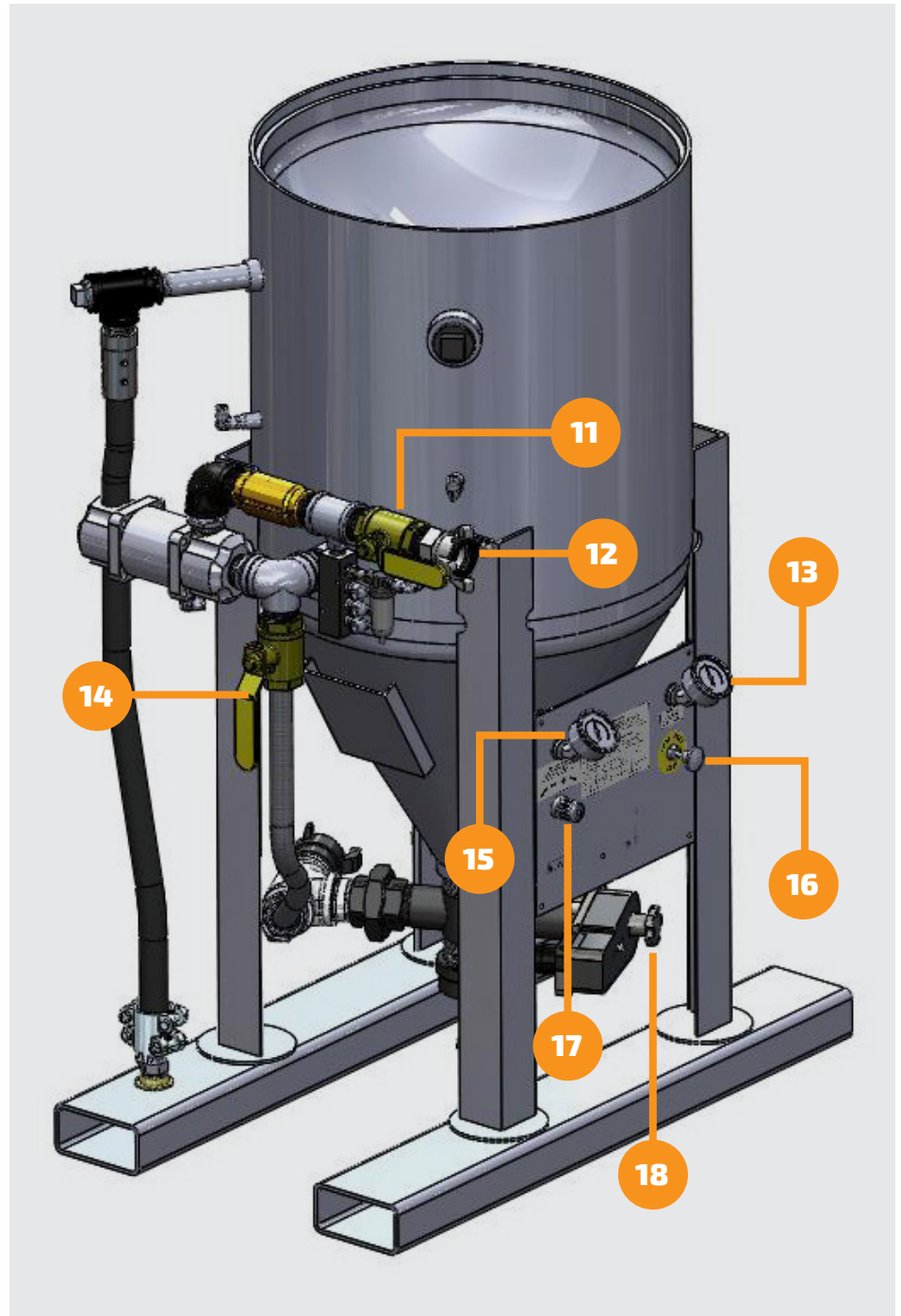
# 1.0

## BASIC COMPONENTS

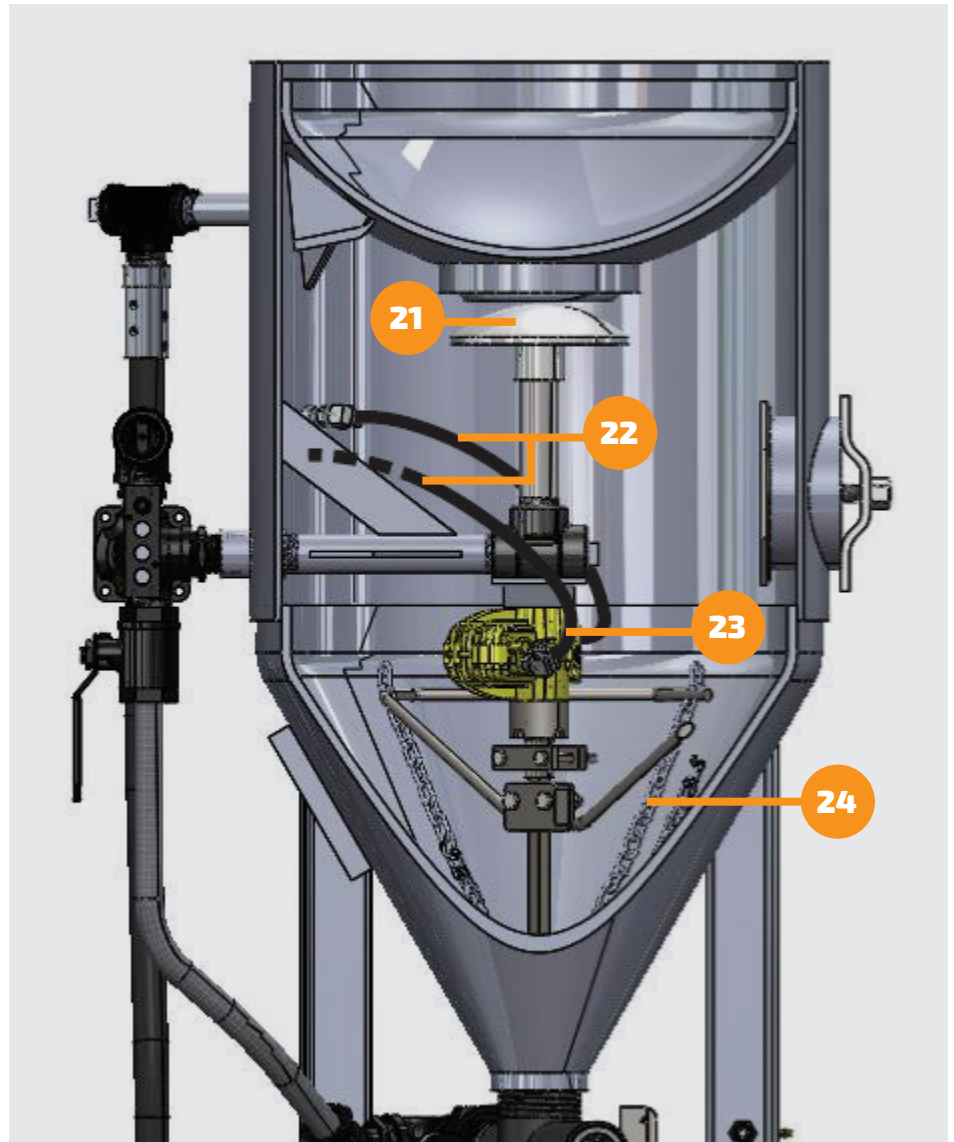
- 1 Hopper
- 2 Pressure Vessel
- 3 Combo Valve
- 4 Twinline Quick Connect Fittings
- 5 Blast Hose Connection
- 6 Relief Valve Port
- 7 Air Motor
- 8 Gasket
- 9 Handhole Cover
- 10 Crab Assembly



- 11 Main Air Ball Valve
- 12 Supply Line Connection
- 13 Line Pressure Gauge
- 14 Choke Valve
- 15 Media Feed Gauge
- 16 Emergency Stop Button
- 17 Media Feed Adjustment
- 18 Manual Rotation Knob
- 19 Auger Chain Guard
- 20 Clean Out Trap



- 21 **Pop-up**
- 22 **Actuator Control Line**
- 23 **Media Actuator**
- 24 **Actuator Tree and Chain**
- 25 **Blast Hose**
- 26 **Nozzle Holder**
- 27 **Nozzle**
- 28 **Twinline**
- 29 **Twinline Connection**
- 30 **Deadman Handle**





## 2.0

# SAFETY CHECKLIST

**The safety of you and others is extremely important.**

There are important safety messages in this manual and on your product. Always read and obey safety messages.



This is a safety alert symbol. This symbol alerts to hazards that can injure or kill you and/or others. The safety alert symbol and words like "Caution" and "Danger" precede all safety messages. These words mean:

**WARNING:** Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

**CAUTION:** Indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

**Survey environment for hazards; read manual and instructions before operating and follow ALL safety practices in accordance with ALL applicable local regulations.**

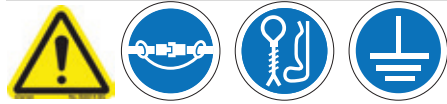
**ENSURE CAPACITY OF THE CUSTOMER-INSTALLED OVER-PRESSURE RELIEF VALVE EQUALS OR EXCEEDS CAPACITY OF THE COMPRESSED AIR SUPPLY.**

**Location and usage of the Emergency Stop Button should be understood before operation. Pushing in the Emergency Stop Button stops operation; Pulling it out allows for operation. DO NOT pull Emergency Stop Button and press Deadman until ALL operators are fully prepared to blast and nozzle(s) are under operator control.**



This Unit is a pressurized system. Only trained operators should adjust, maintain and repair it. Visit [www.spongejet.com](http://www.spongejet.com) for information on training.

**Inbound pressure should never exceed the listed Maximum Working Pressure on the data plate.** To prevent electrostatic buildup and possible electric discharge, the unit and work piece must be properly grounded/bonded.



### WARNING

**Secure ALL safety restraints. Whip-check, safety pins, wire, grounding straps and hose couplings must be properly secured before operating. Failure to do so may result in serious injury or death.**



### WARNING

**Eye, hearing and respiratory personal protective equipment required for operators and others in close proximity to blasting. Failure to do so may result in serious injury.**



### WARNING

**Sudden media discharge and loud noise. Keep hands and face free from area. ALWAYS use proper respiratory, hearing and eye protection equipment.**

**The operator and anyone within 1m (3ft) of the nozzle can be exposed to sound emission in excess of 120 dB(A).**

**Never** point the **Blast Nozzle** towards yourself or others.



### WARNING

ONLY use Sponge-Jet approved positive-feed deadman control handles. DO NOT reverse twinlines. Failure to comply will override safety controls, cause unintentional start-up and unreliable shutdown—which may lead to serious injury or death.

Inspect ALL equipment prior to each shift.

**Never** operate the unit with any worn or malfunctioning components.

**Never** weld or make modifications to the pressure vessel as this will void certifications.

**All pneumatic lines** should be inspected for holes, wear and proper fit.

Safety pins (wire) and whip-checks should be fitted at all Air Supply Hose and **Blast Hose** couplings to prevent accidental disconnection.



### WARNING

Hand-hole **MUST** be securely fastened. Improper seal may result in serious injury.

Do not operate without the **Auger Chain Guard** in place.



### WARNING

Do not operate with guards removed. Moving parts may cut, pinch, or crush. Keep clear of moving parts.



### WARNING

Pressurized system. Release air pressure before servicing. Failure to comply may result in serious injury.



### WARNING

Secure ALL safety restraints. Whip-check, safety pins, wire, grounding straps and hose couplings must be properly secured before operating. Failure to do so may result in serious injury or death.

Keep hands clear from Pop-up when Deadman is first being pressed.



### WARNING

Pinch point. Moving unit may cut, pinch or cause dismemberment, keep clear of moving parts.

3.0

REQUIREMENTS

3.1

Air Supply/Compressor

Clean, dry, compressed air must be supplied in adequate volume and pressure to accommodate nozzle size at the desired blast pressure.

Inbound pressure is typically **8.6bar (125psi) or 10bar (145psi) depending on the vessel rating\***.

*\*Vessel rating is located on the unit's data-plate.*

**NOTE:** High-humidity environments require additional moisture separators.



(METRIC) M3/MIN REQUIREMENTS

| Nozzle Size     |           | 4.1bar | 4.8bar | 5.5bar | 6.2bar | 6.9bar | 8.3bar |
|-----------------|-----------|--------|--------|--------|--------|--------|--------|
| No. 6<br>9.5mm  | Nozzle    | 3.6    | 4.0    | 4.6    | 4.9    | 5.5    | 6.2    |
|                 | Feed Unit | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    |
|                 | Reserve   | 0.9    | 1.0    | 1.1    | 1.2    | 1.3    | 1.5    |
|                 | Total     | 5.6    | 6.2    | 6.8    | 7.2    | 8.0    | 8.8    |
| No. 7<br>11mm   | Nozzle    | 4.8    | 5.5    | 6.1    | 6.8    | 7.2    | 8.5    |
|                 | Feed Unit | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    |
|                 | Reserve   | 1.2    | 1.3    | 1.5    | 1.6    | 1.7    | 1.9    |
|                 | Total     | 7.1    | 7.9    | 8.7    | 9.5    | 10.0   | 11.5   |
| No. 8<br>12.5mm | Nozzle    | 6.3    | 7.1    | 7.9    | 8.7    | 9.6    | 11.1   |
|                 | Feed Unit | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    |
|                 | Reserve   | 1.5    | 1.7    | 1.8    | 2.0    | 2.1    | 2.4    |
|                 | Total     | 9.0    | 9.9    | 10.9   | 11.9   | 12.8   | 14.7   |
| No. 10<br>15mm  | Nozzle    | 10.1   | 11.4   | 12.8   | 14.3   | 15.5   | 17.3   |
|                 | Feed Unit | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    |
|                 | Reserve   | 2.2    | 2.5    | 2.8    | 3.1    | 3.3    | 3.7    |
|                 | Total     | 13.4   | 15.1   | 16.7   | 18.5   | 20.0   | 22.1   |
| No. 12<br>18mm  | Nozzle    | 14.2   | 16.3   | 18.4   | 19.8   | 22.6   | 28.6   |
|                 | Feed Unit | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    |
|                 | Reserve   | 3.1    | 3.5    | 3.9    | 4.2    | 4.8    | 5.9    |
|                 | Total     | 18.3   | 20.9   | 23.4   | 25.1   | 28.5   | 35.7   |



## (IMPERIAL) CFM REQUIREMENTS

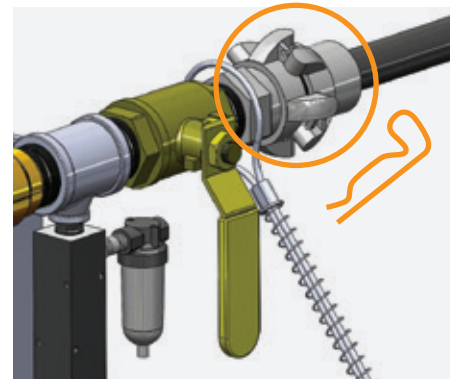
| Nozzle Size                   |              | 60psi<br>4.1bar | 70psi<br>4.8bar | 80psi<br>5.5bar | 90psi<br>6.2bar | 100psi<br>6.9bar | 120psi<br>8.3bar |
|-------------------------------|--------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|
| <b>No. 6</b><br><b>3/8in</b>  | Nozzle       | 126             | 143             | 161             | 173             | 196              | 220              |
|                               | Feed Unit    | 40              | 40              | 40              | 40              | 40               | 40               |
|                               | Reserve      | 33              | 37              | 40              | 43              | 47               | 52               |
|                               | <b>Total</b> | <b>199</b>      | <b>220</b>      | <b>241</b>      | <b>256</b>      | <b>283</b>       | <b>312</b>       |
| <b>No. 7</b><br><b>7/16in</b> | Nozzle       | 170             | 194             | 217             | 240             | 254              | 300              |
|                               | Feed Unit    | 40              | 40              | 40              | 40              | 40               | 40               |
|                               | Reserve      | 42              | 47              | 51              | 56              | 59               | 68               |
|                               | <b>Total</b> | <b>252</b>      | <b>281</b>      | <b>308</b>      | <b>336</b>      | <b>353</b>       | <b>408</b>       |
| <b>No. 8</b><br><b>1/2in</b>  | Nozzle       | 224             | 252             | 280             | 309             | 338              | 392              |
|                               | Feed Unit    | 40              | 40              | 40              | 40              | 40               | 40               |
|                               | Reserve      | 53              | 58              | 64              | 70              | 76               | 86               |
|                               | <b>Total</b> | <b>317</b>      | <b>350</b>      | <b>384</b>      | <b>419</b>      | <b>454</b>       | <b>518</b>       |
| <b>No. 10</b><br><b>5/8in</b> | Nozzle       | 356             | 404             | 452             | 504             | 548              | 611              |
|                               | Feed Unit    | 40              | 40              | 40              | 40              | 40               | 40               |
|                               | Reserve      | 79              | 89              | 98              | 109             | 118              | 130              |
|                               | <b>Total</b> | <b>475</b>      | <b>533</b>      | <b>590</b>      | <b>653</b>      | <b>706</b>       | <b>781</b>       |
| <b>No. 12</b><br><b>3/4in</b> | Nozzle       | 500             | 575             | 650             | 700             | 800              | 1,010            |
|                               | Feed Unit    | 40              | 40              | 40              | 40              | 40               | 40               |
|                               | Reserve      | 108             | 123             | 138             | 148             | 168              | 210              |
|                               | <b>Total</b> | <b>648</b>      | <b>738</b>      | <b>828</b>      | <b>888</b>      | <b>1,008</b>     | <b>1,260</b>     |

## 3.2

## Air Supply Requirements

This Unit uses a 50mm (2in) standard pipe typically fitted with a 50mm (2in) universal 4-lug coupling.

Larger hoses decrease pressure loss.



| Nozzle | Orifice        | Recommended Air Line I.D. |
|--------|----------------|---------------------------|
| #6     | 9.5mm (3/8in)  | 50mm (2in)                |
| #7     | 11mm (7/16in)  | 50mm (2in)                |
| #8     | 12.5mm (1/2in) | 76mm (3in)                |
| #10    | 16mm (5/8in)   | 76mm (3in)                |
| #12    | 19mm (3/4in)   | 76mm (3in)                |

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## 3.3

### Blast Hoses

Extensions up to 30m (100ft) should have minimum 38mm (1.5in) I.D.

Extensions over 30m (100ft) should have minimum 50mm (2.0in) I.D. Blast Hose Extension. Larger hoses decrease pressure loss.

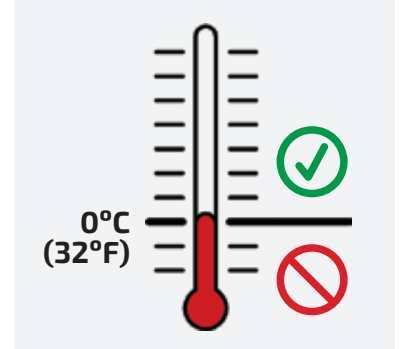
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## 3.4

### Ambient Temperature

Ambient temperature should be above 0° Celsius (32° Fahrenheit).

**NOTE:** Ice build-up from moisture may require thawing prior to operation.



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## 3.5

### Containment

Sponge-Jet Sponge Media™ must be contained to be efficiently recycled. Use plastic sheeting or mesh. Projects involving hazardous materials, high wind load or other challenging conditions may require more complex containment and negative air dust collection.

**NOTE:** Pre-cleaning the blast area can minimize dust and debris which can also cause equipment malfunctions.

**Always follow local, state and federal guidelines concerning proper containment, ventilation and monitoring procedures.**



#### **WARNING**

**Eye, hearing and respiratory personal protective equipment required for operators and others in close proximity to blasting. Failure to do so may result in serious injury.**

This equipment is designed to be operated in a manner consistent only with the instructions contained in this manual.

## Before Feed Unit Pressurization and Operation

Verify the Emergency Stop Button is pressed.

**All pneumatic lines** should be inspected for holes, wear and proper fit.

Safety pins (wire) and whip-checks should be fitted at all Air Supply Hose and **Blast Hose** couplings to prevent accidental disconnection.



### WARNING

Hand-hole **MUST** be securely fastened. Improper seal may result in serious injury.

Do not operate without the **Auger Chain Guard** in place.



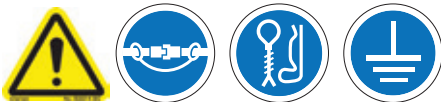
### WARNING

Do not operate with guards removed. Moving parts may cut, pinch, or crush. Keep clear of moving parts.



### WARNING

Pressurized system. Release air pressure before servicing. Failure to comply may result in serious injury.



### WARNING

Secure **ALL** safety restraints. Whip-check, safety pins, wire, grounding straps and hose couplings must be properly secured before operating. Failure to do so may result in serious injury or death.

Keep hands clear from Pop-up when Deadman is first being pressed.



### WARNING

Pinch point. Moving unit may cut, pinch or cause dismemberment, keep clear of moving parts.



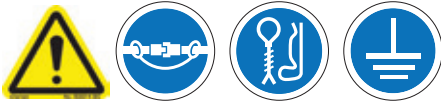
### WARNING

Eye, hearing and respiratory personal protective equipment required for operators and others in close proximity to blasting. Failure to do so may result in serious injury.

## 4.1

## Operation of Unit

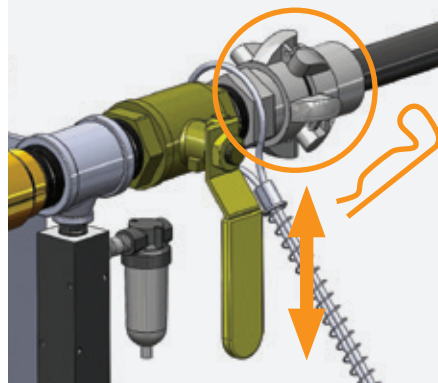
Inspect all **Blast Hose** and connections. Repair or replace worn or damaged components. Ensure all couplings are equipped with coupling gaskets, safety pins and whip-checks. Confirm all are properly installed.



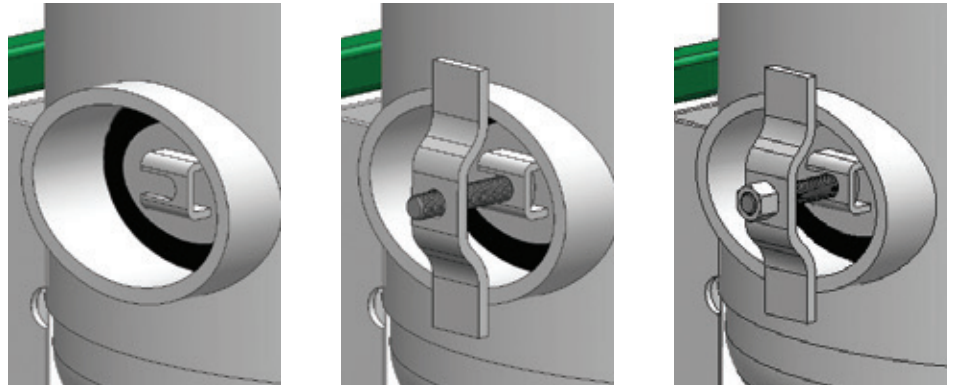
### WARNING

**Secure ALL safety restraints. Whip-check, safety wire, grounding straps and hose couplings must be properly secured before operating. Failure to do so may result in serious injury or death.**

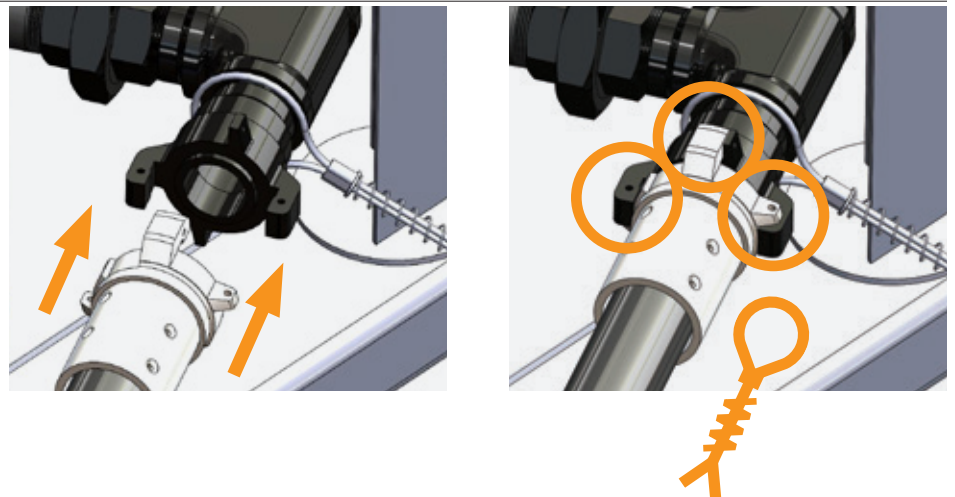
Connect compressor to **Supply Line Connection** and secure safety pins and whip-check.



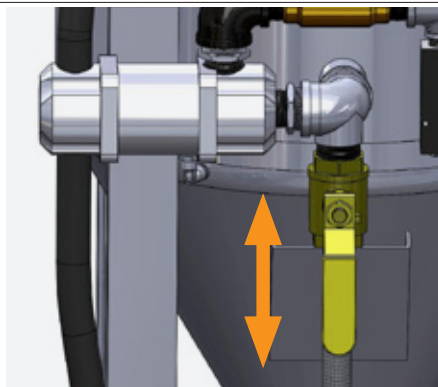
Attach **Handhole Cover** with gasket.



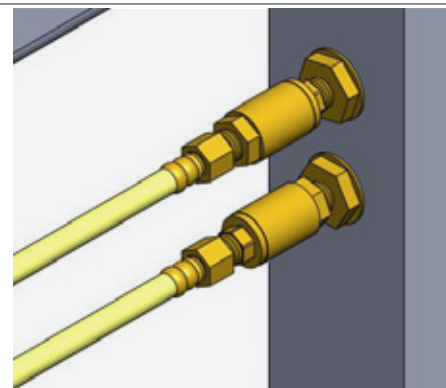
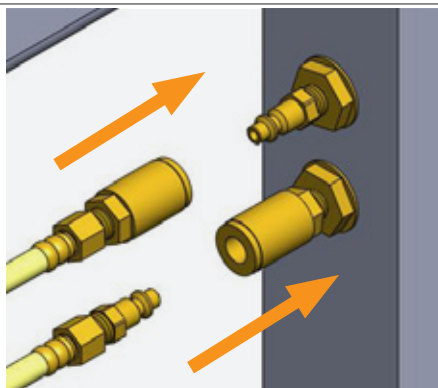
Connect **Blast Hose** and secure with twisted wire.



Confirm **Choke Valve** is open.



Connect Return and Supply  
**Twinline Quick Connect Fittings.**



Fill Feed Unit through **Hopper.**



**WARNING**

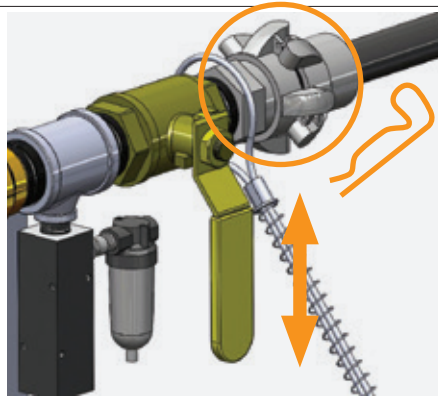
Pinch point. Moving part may cut, pinch or cause dismemberment, keep clear of moving pop-up.



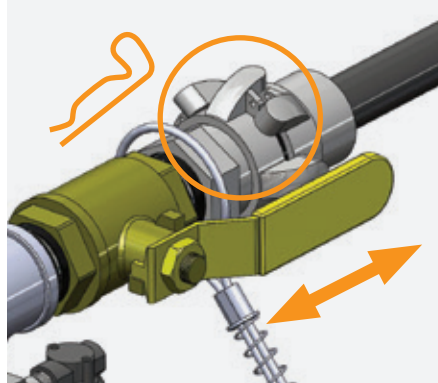
**WARNING**

Eye, hearing and respiratory personal protective equipment required for operators and others in close proximity to blasting. Failure to do so may result in serious injury.

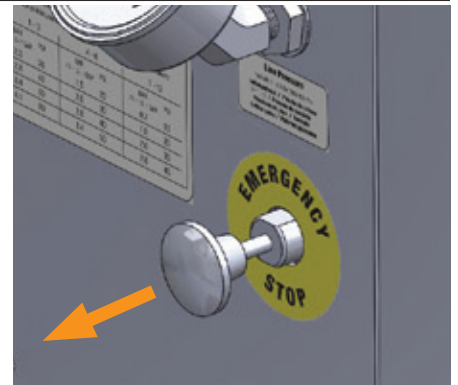
Check **Main Air Ball Valve** is in closed position then charge supply line.



Open **Main Air Ball Valve**.



Pull the **Emergency Stop Button** to the open position.



To begin blasting, unlock **Deadman Handle** by pressing down safety flap.

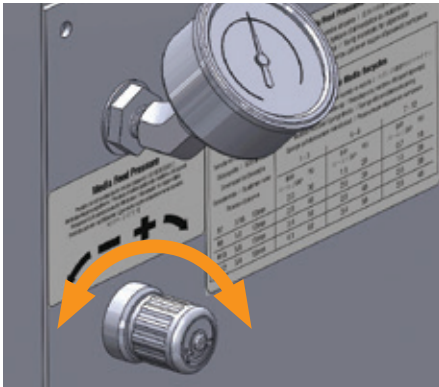




Press **Deadman Handle** down and wait 5 to 10 seconds for Sponge Media to flow.

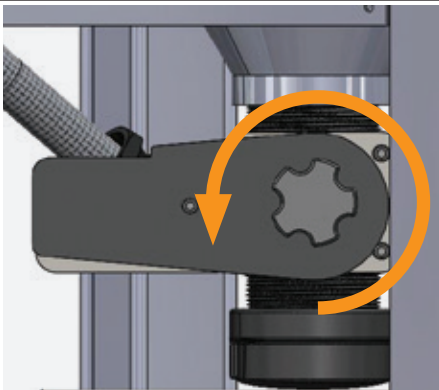


Adjust **Media Feed Pressure** to desired levels.



| Typical Media Feed Pressures | Nozzle Size      | Sponge Media Recycles |     |     |     | Working Mix |     |
|------------------------------|------------------|-----------------------|-----|-----|-----|-------------|-----|
|                              |                  | 1-3                   |     | 4-6 |     | 7-12        |     |
|                              |                  | bar                   | psi | bar | psi | bar         | psi |
|                              | #7 10mm (7/16in) | 2.0                   | 30  | 1.5 | 20  | 0.7         | 10  |
|                              | #8 12mm (1/2in)  | 2.8                   | 40  | 2.0 | 30  | 1.5         | 20  |
|                              | #10 15mm (5/8in) | 3.4                   | 50  | 2.8 | 40  | 2.0         | 30  |
|                              | #12 18mm (3/4in) | 4.1                   | 60  | 3.4 | 50  | 2.8         | 40  |

Confirm **Manual Rotation Knob** is rotating. Prepare surface to desired condition.



## 4.2

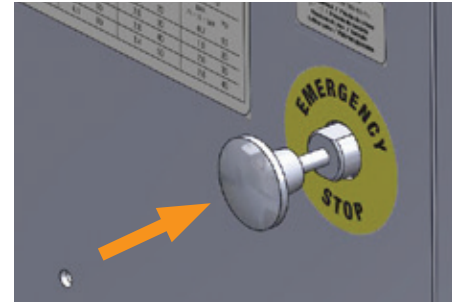
## (Non-Maintenance) Shutdown of Unit

For normal shutdown during operation...

Release **Deadman Handle**.

OR

Push in **Emergency Stop Button**.



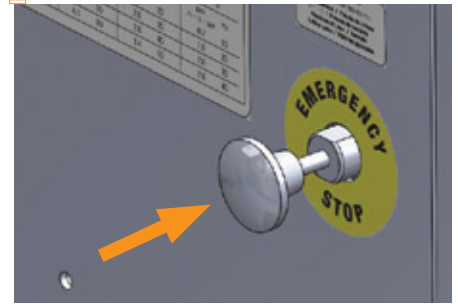
## 4.3

## (Maintenance/Long-Term) Shutdown of Unit

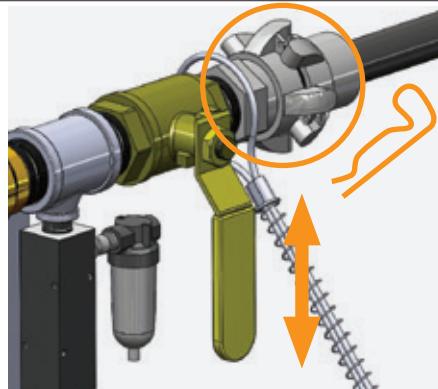
For shutdowns to conduct inspection, maintenance or for extended non-use...

Release Deadman Handle, then push in **Emergency Stop Button**.

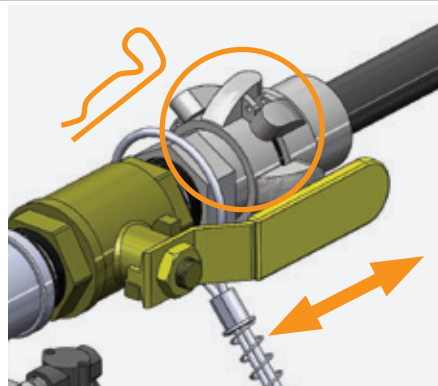
Shut off inbound supply of air from its source.



Shut off **Main Air Ball Valve**.



Open **Main Air Ball Valve**.



Point **Blast Nozzle** at working substrate (away from people); press safety flap and then press **Deadman Handle** down.

Keep **Deadman Handle** pressed down until all remaining air is vented.



### WARNING

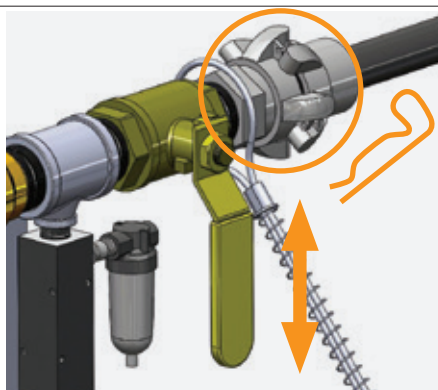
Pressurized system. Release air pressure before servicing. Failure to comply may result in serious injury.

Once all **Control Panel** gauges read "0", confirm that the supply line to the Unit is depressurized.

**IMPORTANT:** if **Control Panel** gauges read anything other than "0" repeat Section 4.4 until all **Control Panel** gauges read "0"psi.



Close **Main Air Ball Valve**.



## 5.0

# MAINTENANCE

Routine maintenance is required to provide long and reliable equipment life. This Unit must be shut down and fully depressurized prior to any maintenance.



### WARNING

Pressurized system. Release air pressure before servicing. Failure to comply may result in serious injury.

## 5.1

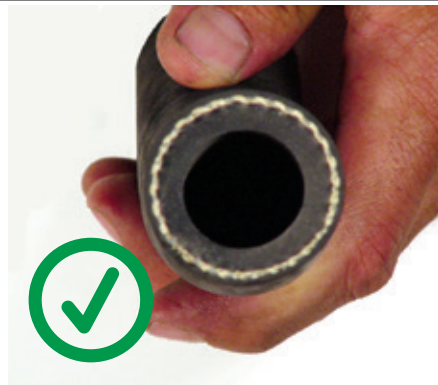
### Prior to each use

Inspect **Blast Nozzle** for wear. Once nozzle throat has worn 1.5mm (1/16in) beyond its original intended diameter, it should be replaced.

Thoroughly inspect **Blast Hose** components and connections.

Replace hose. Ensure all couplings are properly equipped with coupling gaskets, wire and whip-checks.

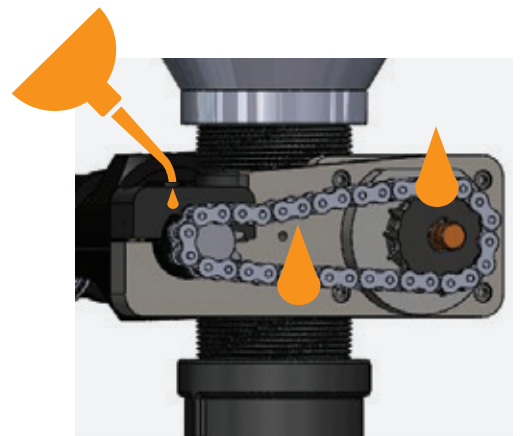
## 5.2 Performed monthly (or as needed)



Remove **Auger Chain Guard** and inspect **Auger Drive Chain**.

Apply lightweight lubricating oil as necessary.

Replace **Auger Chain Guard**.





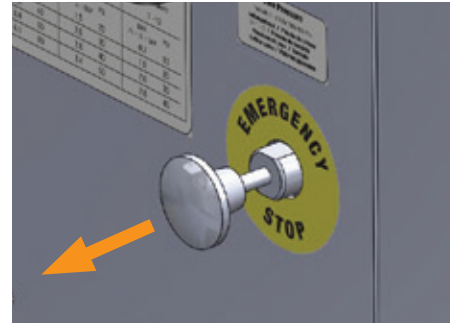
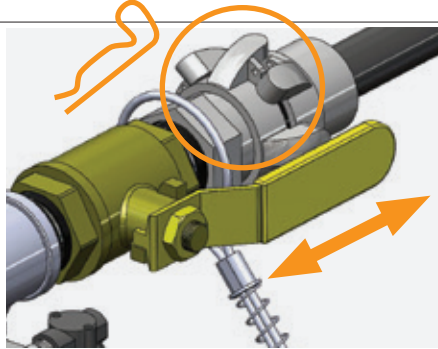
## 6.0

## TROUBLESHOOTING

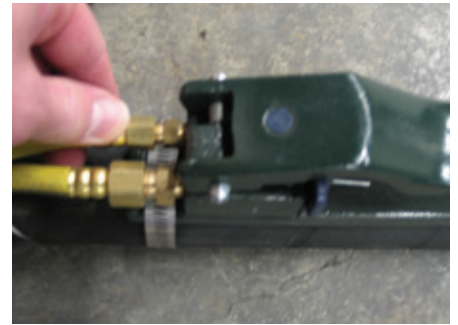
### Unit does not operate when Deadman Handle is depressed

Check **Main Air Ball Valve** is open.

Check **Emergency Stop** Button is pulled out.



Check all **Twinline Quick Connect Fittings** are connected and secure.



Check for damage to **Twinline**.



Check **Line Pressure** is above 1bar(15psi) when **Deadman** is pressed down.



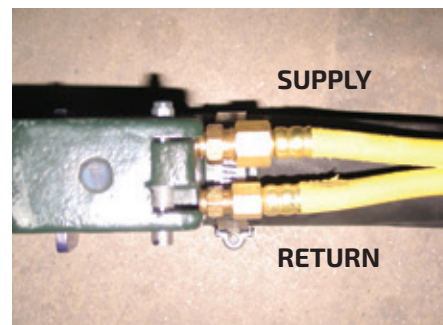
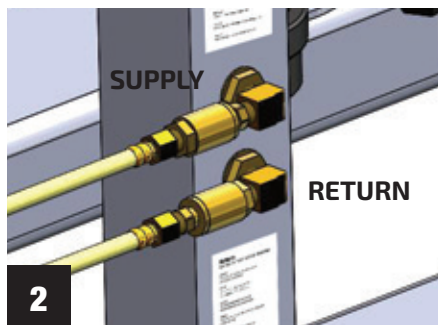
## Air will not stop exiting nozzle when Deadman Handle is released

Push **Emergency Stop Button** (in).



**IF UNIT STOPS**, likely problems are:

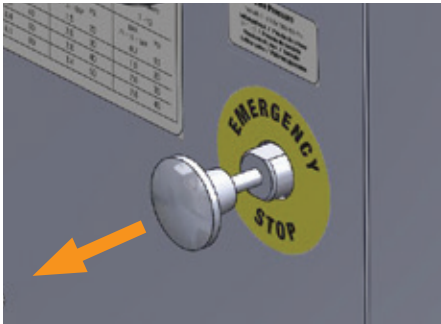
1. Incorrect **Deadman**.  
Replace with Sponge-Jet **Deadman**.
2. **Twinline** air lines from unit to **Deadman** have been reversed.
3. **Deadman** is broken; replace with Sponge-Jet **Deadman**.





# Auger will not begin rotating

Check **Emergency Stop** Button is pulled out.

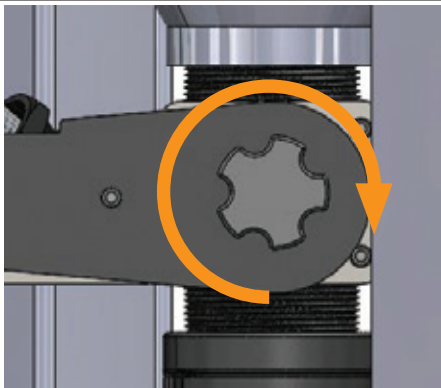


Confirm **Media Feed Pressure** Gauge reads consistently with **Typical Media Feed Pressure** chart at right.

| Nozzle Size      | Sponge Media Recycles |     |     |     | Working Mix |     |
|------------------|-----------------------|-----|-----|-----|-------------|-----|
|                  | 1-3                   |     | 4-6 |     | 7-12        |     |
|                  | bar                   | psi | bar | psi | bar         | psi |
| #7 10mm (7/16in) | 2.0                   | 30  | 1.5 | 20  | 0.7         | 10  |
| #8 12mm (1/2in)  | 2.8                   | 40  | 2.0 | 30  | 1.5         | 20  |
| #10 15mm (5/8in) | 3.4                   | 50  | 2.8 | 40  | 2.0         | 30  |
| #12 18mm (3/4in) | 4.1                   | 60  | 3.4 | 50  | 2.8         | 40  |

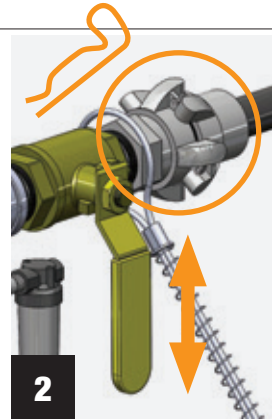
Turn **Manual Rotation Knob** Regulator Handle clockwise to start the rotation.

If excessive force is required, clear obstruction (see next section).



# Auger stops rotating during normal operation

1. Release **Deadman Handle** and depressurize unit.
2. Close **Main Air Ball Valve**.
3. Press **Emergency Stop** Button (in).

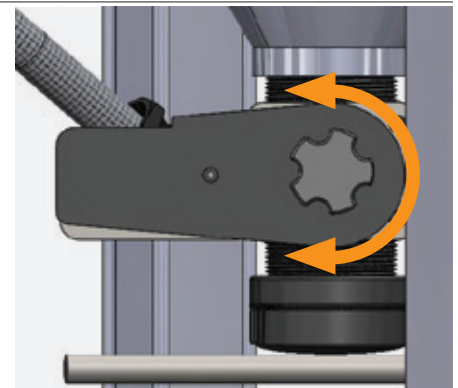
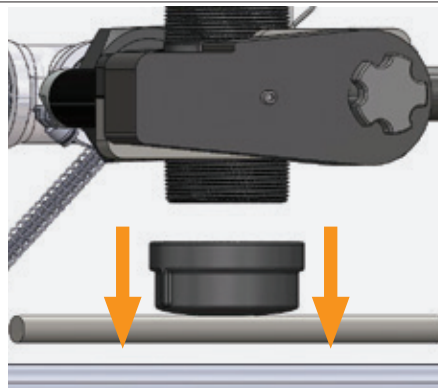


Remove **Clean Out Trap**.

Rotate **Manual Rotation Knob** clockwise and counter-clockwise until obstruction falls out.

**Auger** should move smoothly.

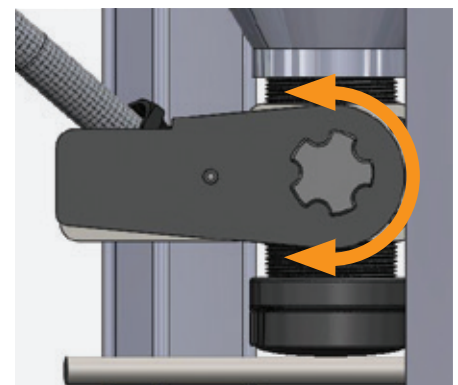
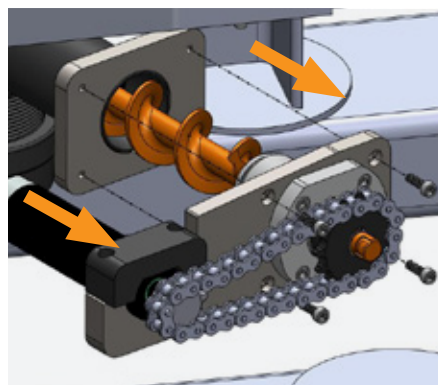
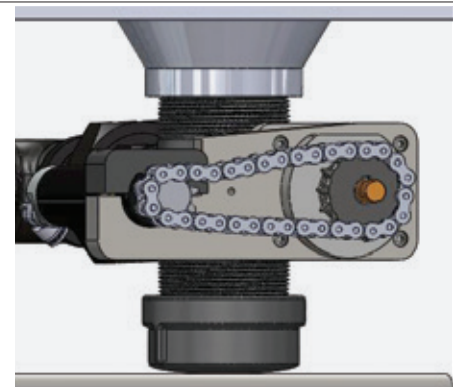
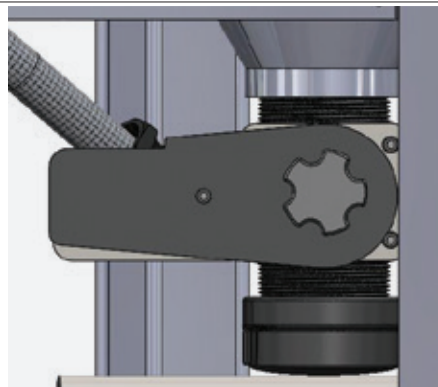
Replace **Clean Out Trap**.



If obstruction cannot be cleared:

Remove **Auger Chain Guard**. Remove four outside screws, pull **Auger** from unit and remove obstruction.

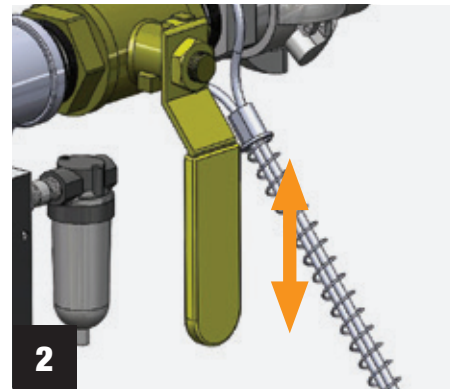
Reassemble **Auger**; replace four outside screws, and test for smooth rotation. Re-install **Auger Chain Guard**.



## Air flow through nozzle suddenly stops

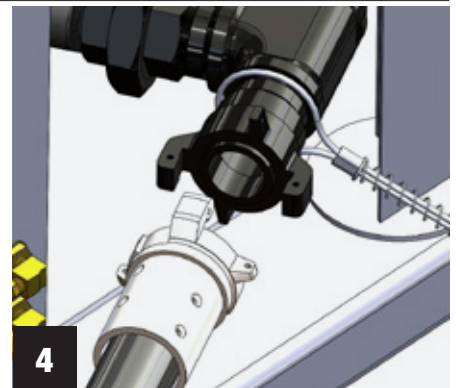
1. Do not restart. Press **Emergency Stop** Button (in) immediately.

2. Depressurize unit and close **Main Air Ball Valve**.



3. Remove **Blast Nozzle** from **Blast Hose**; inspect for and remove obstructions.

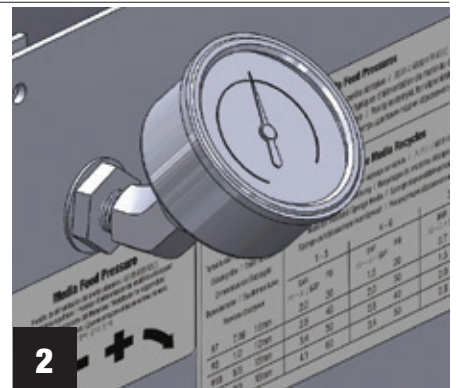
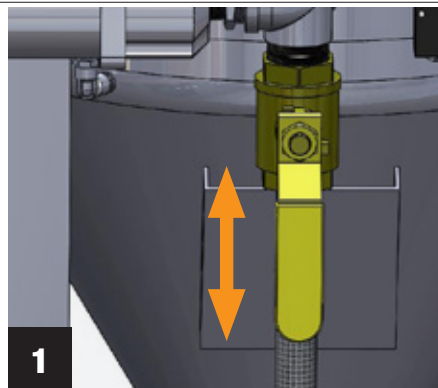
4. Disconnect all **Blast Hose** connections; inspect for and remove obstructions



## Too much Sponge Media exits Nozzle or is pulsing

1. Check **Choke Valve** is in open position; or parallel to pipe.

2. Check **Media Feed Pressure** Gauge is below 3.4bar (50psi). Resume Blasting.



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## Blast Pressure increases and decreases continuously or Unit exhausts intermittently while blasting

1. Check for damage to **Twinline** and for air leaks at all fittings and connections.

Repair, replace or tighten as necessary.



## NOTES

## MODEL

## SERIAL