



TORCH WIZARD®
NOZZLE CLEANING STATIONS

INSTALLATION & OPERATION MANUAL

Installation,
Maintenance
and Warranty
Information

Models

EL-NCS-A-20-SC

EL-NCS-AC-20-SC

EL-NCS-20-SC

EL-NCS-C-20-SC



SHIP DATE

SERIAL #



**FAMILY OWNED
AMERICAN MADE**

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2.0 INSTALLATION

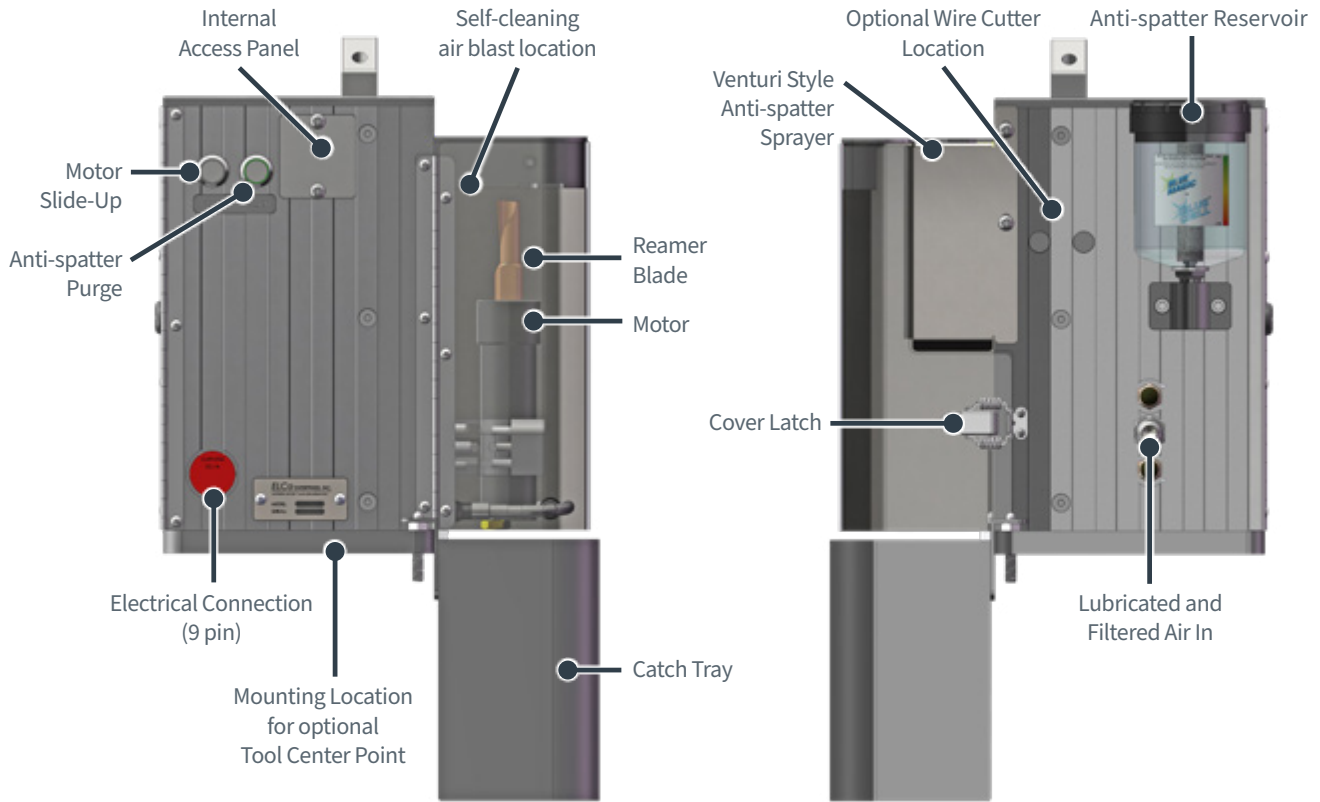


Figure 1: Torch Wizard Components with Venturi Style Anti-spatter Spray System (EL-NCS-A-20-SC shown)

2.1 MOUNTING THE TORCH WIZARD®

Select a location within the robotic workcell that provides the robot with the shortest approach points. It is important to consider the robot work envelope and any fixed obstructions or potential interference.

- ▶ Mount the Torch Wizard® to a stable platform that is parallel to the floor for best results (an optional stand is available). Use the (4) 11/32 mounting holes provided on base of the Torch Wizard® to secure the unit to the platform.
- ▶ It is recommended that (4) M8 – 1.25 SHCS (Socket Head Cap Screws) are used to mount the Torch Wizard® to the platform (the optional stand provides M8 – 1.25 tapped holes for mounting).

BOLT PATTERN (same for all models)

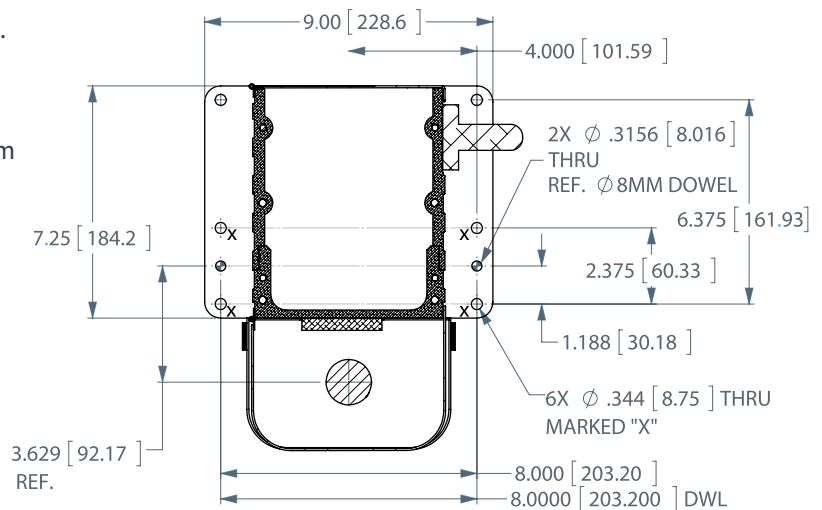


Figure 2

2.2 PNEUMATIC CONNECTION

We recommend “Push-to Lock” style fittings on the Torch Wizard® for supplying air to the unit. Use an air line with a 5/16" outside diameter to supply air to the Torch Wizard®. There is just one location that supplies air to the unit (refer to Fig. 3).

Air Supply Requirements

Air **must** be filtered and regulated with a Filter/Regulator/Lubricator with auto-drain functionality and **lubricated**.

- ▶ Use an Air Supply Line with an inside diameter of 1/2", connect to the 1/4" N.P.T. female inlet located on the side of the Reamer.
- ▶ Minimum 80 psi recommended at 16 CFM (5.0 – 7.0 BAR at 450 LPM) at the Reamer during operation.
- ▶ **Lubricator Adjustment:** Set the lubricator to deliver one drop of pneumatic oil for every two minutes of operation. **Do not over-lubricate.**



Figure 3

Use of unfiltered, dirty air may result in damage to the unit and will void the warranty.

2.3 ELECTRICAL CONNECTION

The complete sequence of the Torch Wizard® Nozzle Cleaning Station must be started and controlled by a robot controller, programmable logic controller (PLC), or other superior control system.

Electrical Draw: 0.5 Amps

See Electrical Schematic on page 13 for detailed wiring information

2.4 ADJUSTING THE V-BLOCK

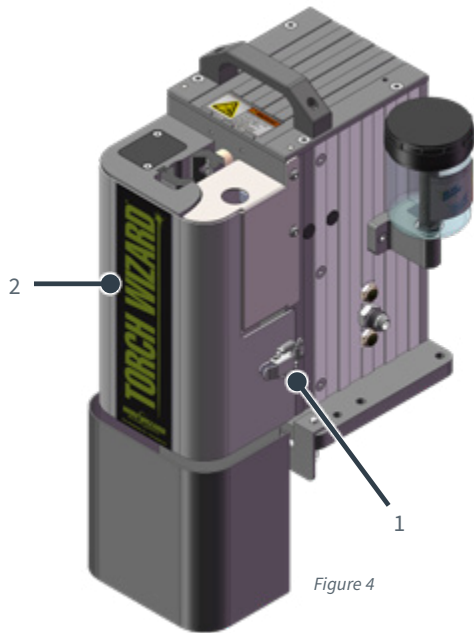


Figure 4

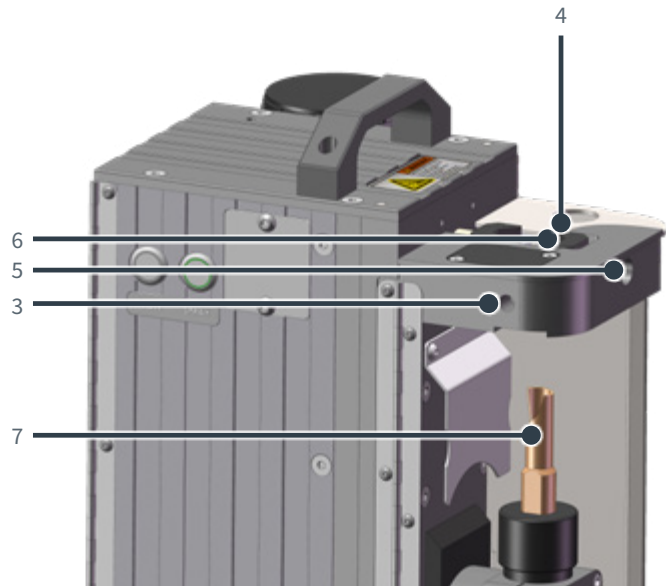
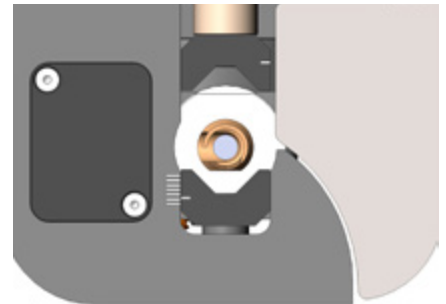


Figure 5

The Torch Wizard® Nozzle Cleaning Station incorporates an adjustable V-Block feature. This feature eliminates the need to replace the V-Block when changing to different diameter gas nozzles. To adjust the V-Block, follow the procedure below (along with Figs. 4 and 5). **Ensure that there is no air pressure or electrical power to the unit before performing this procedure.**

1. Open the Stainless Steel Guard (2) by unlocking the latch.
2. Install the reamer blade (7). Use the slim profile wrench provided to hold the motor in place when securing the reamer blade.
3. Loosen Set Screw (3).
4. Loosen the Low Head Socket Head Cap Screw in the clamp (4).
5. Adjust the V-Block (6) using the Adjuster Screw (5) so that when the air motor is at its upper point, the reamer is centered in the gas nozzle. To check this, hold a gas nozzle in V-Block and raise the air motor slide by hand.
6. Tighten Low Head Socket Head Cap Screw (4).
7. Tighten Set Screw (3).
8. Replace the Stainless Steel Guard and Catch Tray (2) and tighten screws, or leave open if performing the initial setup and proceed to reamer adjustment.



The graphic above represents the approximate location of the V-Block when set up for a gas nozzle with a 1 inch outside diameter.

2.5 REAMER ADJUSTMENT

In order to ensure adequate cleaning of the gas nozzle, it is essential that the correct reamer insertion depth is obtained.

The reamer insertion depth will vary based upon the nozzle, tip and diffuser on the torch. In general, the reamer can be inserted up until it is approximately 1/16" to 1/8" away from making contact with the diffuser (see example in Fig. 6b). Removing the nozzle from the torch to ensure the proper depth and clearance from the diffuser is recommended. **It is imperative that the reamer not make contact with the gas diffuser as this will cause damage to both the reamer and the gas diffuser. The Torch Wizard® is not designed to clean the contact tip or gas diffuser.**

To adjust the reamer depth, use the following procedure and refer to Fig. 6a: **(Ensure that there is no air pressure or electrical power to the unit before performing this procedure).**

1. Remove the Stainless Steel Guard (refer to Fig. 4 and the procedure for adjusting the V-Block on page 5).
2. With one hand, hold a gas nozzle in the V-Block at the position that will be used when programming the robot. With the other hand, raise the reamer and check the insertion depth of the reamer bit (1).
3. If the insertion depth is incorrect, loosen the Socket Head Cap Screws (2). Move the Air Motor (3) up or down to obtain the correct insertion depth. If the motor will not move, screw in the Jack Screws (4) to loosen the motor clamp.
4. Back out the Jack Screws (4) if necessary, and tighten the Socket Head Cap Screws (2). Repeat steps 1 – 3 until the correct insertion depth is obtained.

Note: The air motor on this reaming station has a max torque of 7.3 ft/lbs @ 90 psi at the motor.

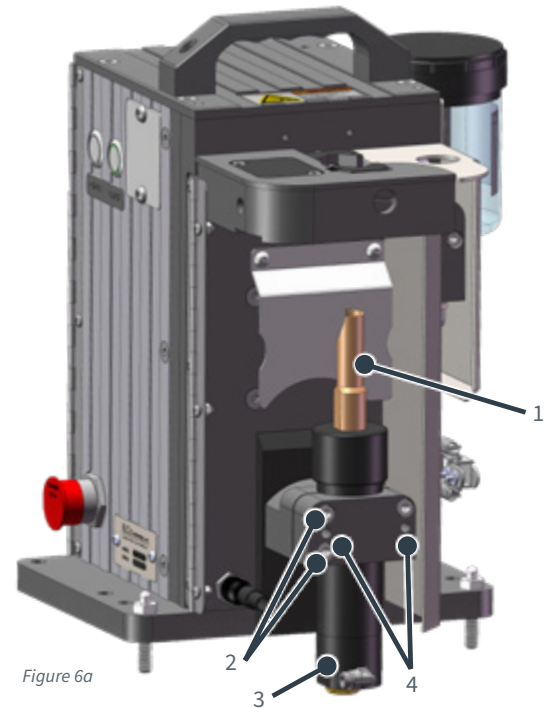


Figure 6a

Blade depth should be set to ream just below the gas holes in the diffuser



Figure 6b
Example of typical reamer insertion depth. End of blade should be set just below the gas holes on the diffuser. This location will vary based on the torch design.

Figure 6b

Positioning Robot

The robot **must** be positioned such that the O.D. of the nozzle rests evenly against the V-Block. Failure to program the robot so that the nozzle rests against the V-Block could result damage to the robot due to reactionary forces transmitted to the robot axes when the nozzle is clamped with the air cylinder.

See page 13 for the electrical schematic for your Torch Wizard® model.

WARNING: Ensure that the adjustable V-Block and the air motor have been correctly set prior to positioning the robot and running the Torch Wizard® in the automatic mode. Refer to sections 2.4 Adjusting V-Block and 2.5 Reamer Adjustment. **Failure to adjust these two items properly will result in damage to Torch Wizard® and possibly the robot.**

2.6 ANTI-SPATTER DISPENSING

The Torch Wizard with Anti-Spatter option provides the user with the ability to ream then spray the nozzle using a venturi style sprayer. The anti-spatter solution is supplied from the anti-spatter reservoir (included with unit).

Anti-spatter Dispensing with the Reservoir

The Anti-spatter Reservoir dispensing option is shipped loose. On models ordered with the reservoir, simply attach the bowl to the connection point on the side of the unit. For all others, use the following procedure and refer to Fig. 7a on how to attach the reservoir bottle to the Torch Wizard®:

1. Open the back cover by loosening the two screws. Remove the Bulkhead Connector.
2. Attach Reservoir to Reaming Station using the two supplied bolts.
3. Insert the anti-spatter tube (the one that was connected to the bulkhead) into the fitting on the Reservoir assembly.
4. Reattach back cover and ensure all screws and fittings are tight.

Once the Reservoir has been secured, remove the Fill Cap and fill the Reservoir with **Blue Magic®** or **Blue Chill®** anti-spatter solution.

The use of other anti-spatters will void the warranty on sprayer components. This is due to the corrosiveness of many anti-spatters, which is not found in either Blue Magic® or Blue Chill®.

The anti-spatter liquid volume and air volume have been factory set and should be evaluated before making any adjustments to the system. You may also adjust the length of the spray time when programming the unit.

Anti-spatter Volume Adjustment

Note: In most cases, the factory setting for the anti-spatter spray should be sufficient, this setting should only be adjusted if absolutely necessary.

To adjust the anti-spatter volume, unlock the two panel latches on the back cover and open to reveal the interior of the reaming station. The anti-spatter volume can be adjusted using the volume control knob located on the left side of the unit (Fig. 7c). Turn the control knob clockwise to reduce the air flow and increase the amount of anti-spatter, turn it counter-clockwise to increase the air flow and reduce the amount of spatter. Settings can be tested by pressing the manual Spray button on the side of the unit, and visibly observed from the sprayer (Fig. 7b). Replace cover when desired setting is achieved.



Figure 7a
Anti-spatter Reservoir Attachment

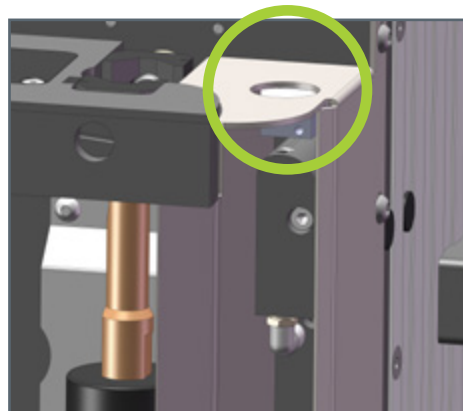


Figure 7b
Anti-spatter Spray Block



Figure 7c
Anti-spatter Adjustment

7.0 OPTIONAL COMPONENTS & ACCESSORIES



Cobot Guarding Kit for Reamer & Wire Cutter
EL-NCS-CGK-C



REDUCE DOWNTIME & COST

By using a multi-station bulk anti-spatter dispensing system



TORCH WIZARD® ROBOTIC NOZZLE CLEANING STATIONS STANDARD MODELS

Part No.	Description
EL-NCS-A-20	Reaming Station with integrated anti-spatter spray
EL-NCS-AC-20	Reaming Station with integrated anti-spatter spray and wire cutter
EL-NCS-A-20-SC	Reaming Station with self-cleaning air blast and integrated anti-spatter spray
EL-NCS-AC-20-SC	Reaming Station with self-cleaning air blast, integrated anti-spatter spray and wire cutter
EL-NCS-A-TA-20-CL	Reaming Station for tandem arc torches with Cloos® nozzles
EL-NCS-A-TA-20-FR	Reaming Station for tandem arc torches with Fronius® nozzles
EL-NCS-A-TA-20-TR	Reaming Station for tandem arc torches with Tregaskiss® nozzles
EL-NCS-20	Reaming station without anti-spatter for aluminum, no wire cutter
EL-NCS-C-20	Reaming station without anti-spatter for aluminum, with wire cutter
EL-NCS-20-SC	Reaming station with self-cleaning air blast for aluminum, no wire cutter
EL-NCS-C-20-SC	Reaming station with self-cleaning air blast for aluminum, with wire cutter

MODELS WITH INTEGRATED ETHERNET

Part No.	Description
EL-NCS-AE-20	Reaming Station with Ethernet and integrated anti-spatter spray
EL-NCS-ACE-20	Reaming Station with Ethernet, integrated anti-spatter spray and wire cutter
EL-NCS-AE-20-SC	Reaming Station with Ethernet, self-cleaning air blast, integrated anti-spatter spray
EL-NCS-ACE-20-SC	Reaming Station with Ethernet, self-cleaning air blast, int. anti-spatter spray and wire cutter

TORCH WIZARD® OPTIONAL ACCESSORIES

Part No.	Description
EL-NCS-STAND	29.5" (749 mm) Stand (custom heights available) for EL-NCS models
EL-NCS-FRL-14	Filter/Regulator/Lubricator
EL-NCS-CGK	Cobot Guarding Kit for Reamer Only
EL-NCS-CGK-C	Cobot Guarding Kit for Reamer and Wire Cutter
EL-NCS-TB-20	Testing and Diagnostic Box for 20 and 20-SC models (9-pin)
EL-NCS-TCP-F-R	Tool Center Point Mount (attaches to reaming station stand)
EL-NCS-WCS-12	Integrated Wire Cutter (included on AC models)
EL-NCS-WCS-SA-12	Stand Alone Wire Cutter
EL-NCS-CC9-20-3	9 Pin, 20 ft Power/Control Cable

TORCH WIZARD® REAMER BLADES

Part No.	Description	Diameter	Flutes	Thread	Height
EL-NCS-13MM	Reamer Blade	13 mm	2	Female	2.558"
EL-NCS-TL-13MMF	Reamer Blade	13 mm	1	Female	2.687"
EL-NCS-TS-13MMF	Reamer Blade	13 mm	1	Female	2.433"
EL-NCS-15MM	Reamer Blade	15 mm	2	Female	2.558"
EL-NCS-17MM-L	Reamer Blade (ID: .402")	17 mm	2	Female	3.564"
EL-NCS-17MM-1-L	Reamer Blade (R: .329")	17 mm	2	Female	3.564"
EL-NCS-17MM-A	Reamer Blade (R: .467")	17 mm	2	Female	2.634"
EL-NCS-500	Reamer Blade	1/2"	2	Female	2.558"
EL-NCS-TL-50F	Reamer Blade	1/2"	1	Female	2.687"
EL-NCS-TS-50F	Reamer Blade	1/2"	1	Female	2.433"
EL-NCS-625	Reamer Blade	5/8"	2	Female	2.558"
EL-NCS-TL-62F	Reamer Blade	5/8"	1	Female	2.687"
EL-NCS-TS-62F	Reamer Blade	5/8"	1	Female	2.433"
EL-NCS-750	Reamer Blade	3/4"	2	Female	2.558"

Blades compatible with PowerBall® Torch Consumables

BLUE MAGIC® ANTI-SPATTER

Part No.	Description
EAS1000-C32	32 oz Spray Bottle
EAS1000-C1	1 gal Bottle
EAS1000-C5	5 gal Container
EAS1000-C	55 gal Drum
EAS1000-CT	275 gal Bulk Tote
EAS1000-C-CON-1L	1 l (33 oz) Concentrate
EAS1000-C-CON-5	5 gal Concentrate
EAS1000-C-CON	55 gal Concentrate
EAS1000-DP	Manual Drum Pump (55 gal)
EAS1000-DW	Drum Wrench (55 gal)

BLUE CHILL® ANTI-SPATTER

Part No.	Description
EAS1000-BC32	32 oz Spray Bottle
EAS1000-BC1	1 gal Bottle
EAS1000-BC5	5 gal Container
EAS1000-BC	55 gal Drum
EAS1000-BCT	275 gal Bulk Tote

20 ft. (7.6 m) power/control cable included. The reamer bit required is based on the I.D. of the gas nozzle being used.



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