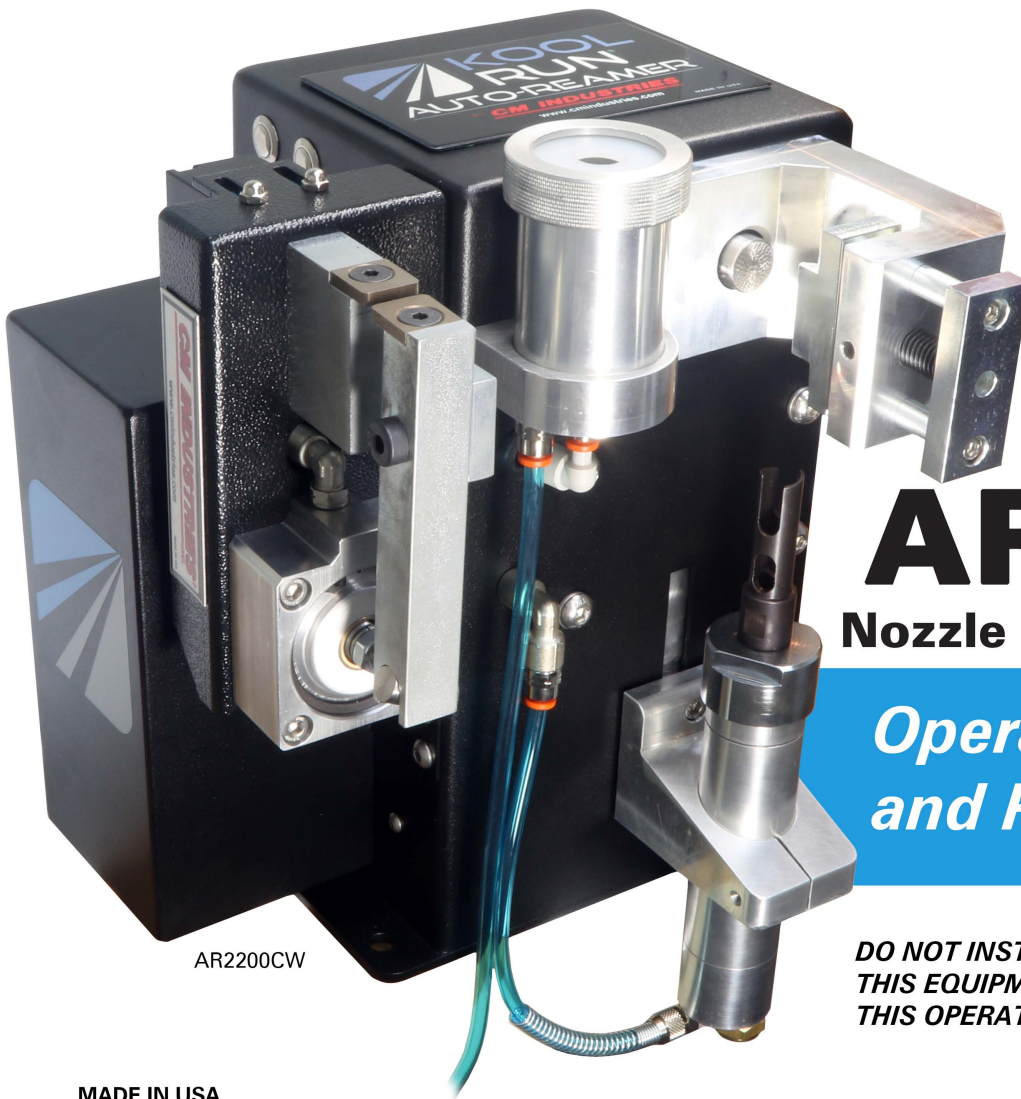




KOOL RUN[®]

Driven by Performance

AUTO-REAMER



AR2200CW

AR2200

Nozzle Cleaning Station

Operating Manual and Parts List

**DO NOT INSTALL, OPERATE, OR REPAIR
THIS EQUIPMENT WITHOUT READING
THIS OPERATING MANUAL**

MADE IN USA

CM INDUSTRIES
INC.

January 2026 v1.0

505 Oakwood Rd. Lake Zurich, IL 60047
ph: 847-550-0033 fx: 847-550-0444
email: sales@cmindustries.com
www.cmindustries.com

Operations Manual Index

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Introduction:

The CM Industries product you have purchased has been carefully manufactured, assembled and fully tested in our factory prior to shipment. This manual contains information on the operation of this CM Industries product. While every precaution has been taken to assure the accuracy of this manual, CM Industries, Inc. assumes no responsibility for errors or omissions. CM Industries, Inc. assumes no liability for damages resulting from the use of the information contained herein. CM Industries, Inc. shall have no liability to the buyer for consequential damages or be liable to the in tort for any negligent manufacture of the goods or for the omissions of any warning therefrom.

Warranty:

Warranty is extended to the original distributor purchasing the product from CM Industries, Inc. for resale. Any CM Industries product found defective because of material or workmanship under normal intended use within 90 days after installation will, at CM Industries discretion, be repaired, replaced, or credit issued for the purchase price of the product.

Upon notification from the original purchaser of a possible defect or failure, CM Industries, Inc. will issue instructions for the procedure to follow to return the merchandise to CM Industries, Inc. Appropriate adjustments will be made when the claim is verified. Genuine CM Industries parts must be used for safety and performance reasons or the warranty becomes invalid.

Specifications:

AIR REQUIREMENT:

80-120 PSI @ 8 S.C.F.M. (MIN) CLEAN SHOP AIR

REAMER STROKE: 2"

DIMENSIONS: 6-1/2" X 6" X 12"

WEIGHT: 28 LBS. AR2200

32 LBS. AR2200 w/ WC-95E

ELECTRICAL REQUIREMENTS:

(4) ROBOT OUTPUTS AND (1) ROBOT INPUT

OUTPUT: 0V DC SWITCHABLE GROUND

OUTPUT: 24V DC CONTINUOUS SUPPLY

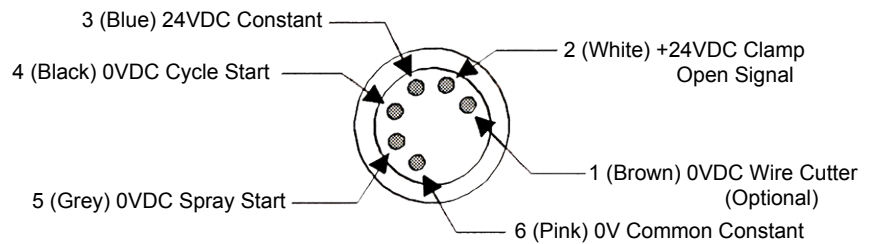
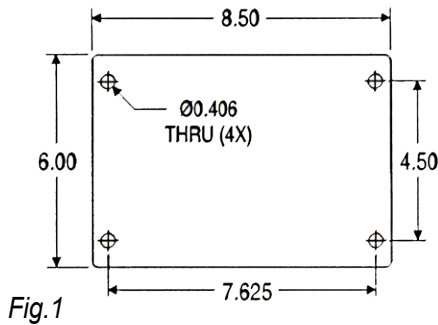
INPUT: 24V DC SIGNAL RETURN

NOTE: WIRED FOR STANDARD "SINKING" LOGIC

Installation/Setup:

Step 1: Mounting

Mount the nozzle cleaning station within easy access of the robot. For proper operation, a solid, vibration free stand or mount is required. Mounting dimensions are shown below in Fig. 1.



NOTE: WIRING SHOWN FOR STANDARD "SINKING" LOGIC

Step 2: Electrical Connection

Electical connection information for the nozzle cleaning station cordset is given in Fig. 2.

NOTICE:

Line 1 (brown wire) on cordset must be connected to a robot output capable of supplying a timed "ground". This ground "pulse" determines the length of time the wire cutting action will take place. (Optional)

Line 2 (white wire) on cordset must be connected to a robot input of receiving a +24VDC signal from the nozzle cleaning station. This "cycle status signal" informs the robot when the clamp is open.

Line 3 (blue wire) on cordset must be connected to a robot output capable of supplying a continuous 24VDC.

Line 4 (black wire) on cordset must be connected to a robot output capable of supplying a timed "ground". This ground "pulse" determines the length of time the reaming action will take place.

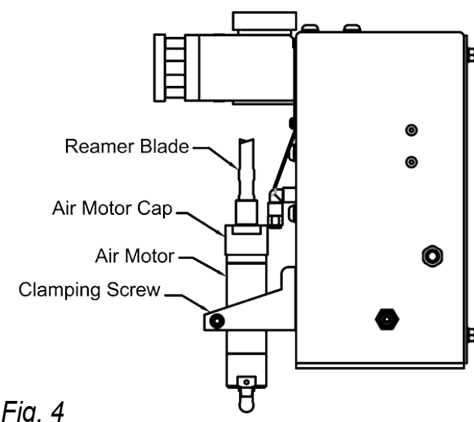
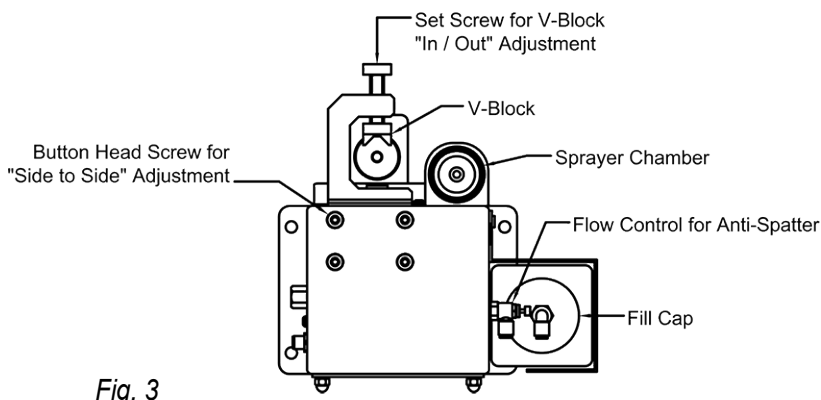
Line 5 (grey wire) on cordset must be connected to a robot output capable of supplying a timed "ground". This ground "pulse" determines the length of time the spraying action will take place.

Step 3: Air Supply

The nozzle cleaning station requires 80-120 psi clean shop air (@ 8 S.C.F.M.) minimum for proper operation. The unit is equipped with a 1/4" NPT female fitting for the air supply connection.

Step 4: Reamer Tooling

1. Choose the appropriate size reamer blade for your welding nozzle I.D. (see page 7 for available sizes). To remove/install reamer blade: Use an adjustable wrench to hold the top of the air motor cap, then use a 17mm wrench to remove the reamer, in a counter-clockwise direction. Considerable force may be needed to remove the reamer blade (as much as 20 ft. lbs.) as the blade self-tightens during use. Installation is the opposite of removal.



Step 5: Nozzle Alignment / Nozzle Clamp Adjustment

1. Correct alignment of the welding nozzle is critical to the proper operation of the unit. The clamping V-Block must be adjusted according to the nozzle diameter, so as to center the nozzle above the reamer when the clamp is closed. The V-Block is adjusted by turning the set screw behind the V-Block in or out as shown in Fig. 3.
2. The “side to side” alignment of the clamping unit with respect to the reamer is set at the factory and normally will not require adjustment. However, if realignment is necessary, the entire clamping unit can be moved from “side to side” by loosening the (4) socket head cap screws located on the inside of the nozzle cleaning station holding the clamping cylinder to clamping block assembly.
3. Insertion depth of the reamer blade into the welding nozzle is controlled by the robot torch/nozzle. Adjustments should be made by the robot torch operator with the robot torch with respect to the nozzle placement into the clamping unit.

Caution: Use caution to avoid possible interference with the reamer to the robot torch head or nozzle components when setting this adjustment. Additional adjustment can be accomplished by loosening the clamp screw on the reamer motor clamping arm and moving the motor up or down (see Fig. 4).

Caution: Use caution to avoid possible interference between the reamer blade and clamping device.

Step 6: Anti-Spatter Solution

1. Anti-Spatter solution is added to the unit by removing the fill cap on top of the bottle (see Fig. 3). The bottle capacity is approximately 1 quart.

Operation:

Step 1: Robot Programming / Ream Function

1. The cycle time for nozzle cleaning (reaming) is controlled by the robot program. With the ground “on” on Line 4 (see Fig. 2), the reamer starts upward travel, the blade begins rotating, and the clamp secures the welding nozzle in place. With the ground still applied, the reamer reaches the top of its stroke (cleaning position), and remains there as long as the ground is “on”. When the ground is turned “off”, the reamer will begin its downward travel, continuing to rotate with the clamp still closed. Upon reaching the bottom of its stroke (home position), the blade will stop rotating and the clamp will open.
2. Line 2 (see Fig. 2) is a “cycle status” line which informs the robot of the clamp status. When the clamp is open, the robot will see a 24VDC signal on this line. As the clamp is closed (during the cleaning cycle), Line 2 will read 0VDC. The robot program should not allow any robot movements when Line 2 is a 0VDC.

Step 2: Robot Programming / Spray Function

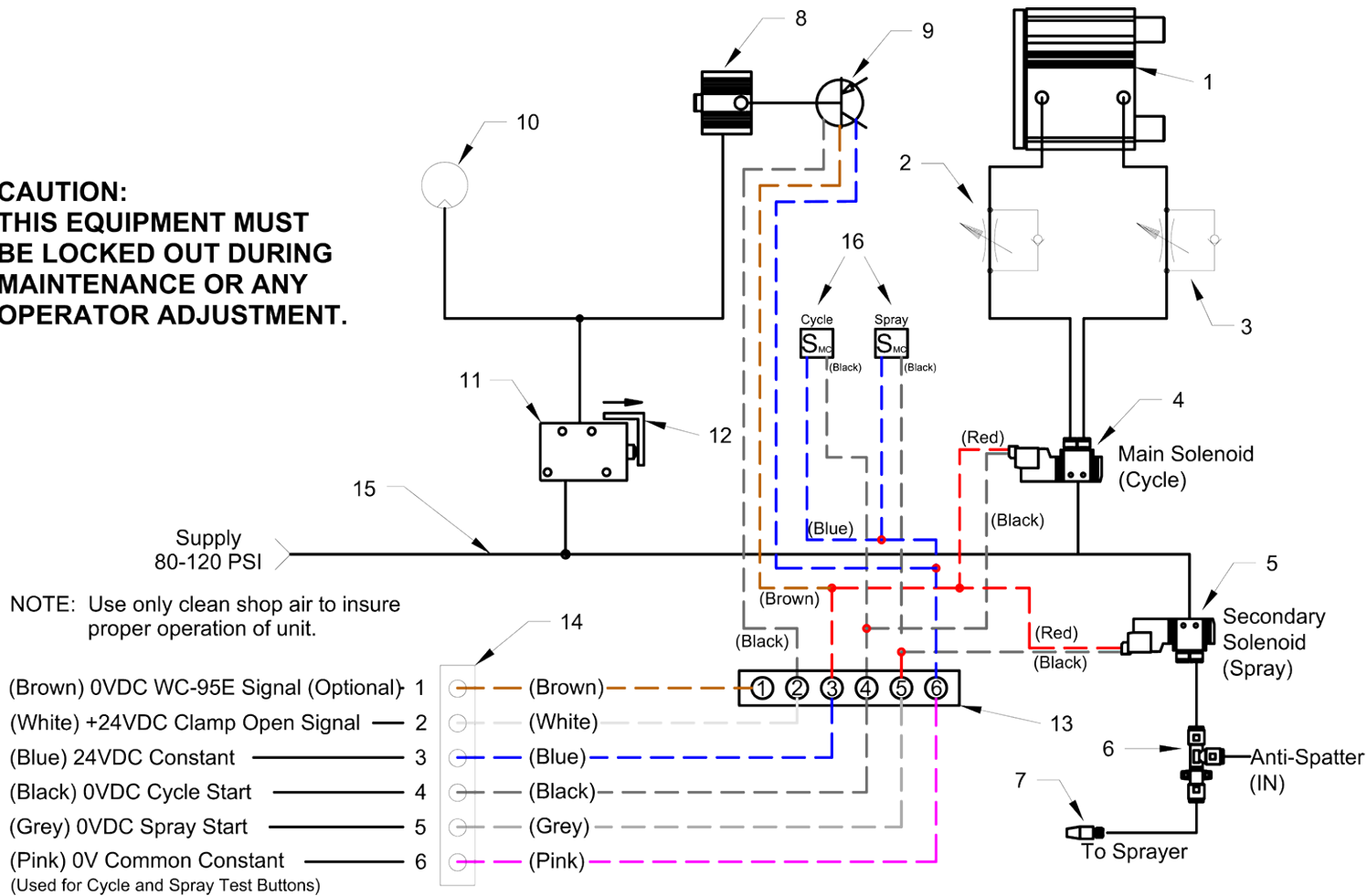
1. The anti-spatter sprayer is activated by the same type of signal as the “cycle” Line 4 (see Fig. 2). The robot should be programmed by Line 5, to move directly over the sprayer body to spray either before or after the reaming process. With the ground “on” on Line 5 (see Fig. 2), the sprayer will dispense anti-spatter until the ground is turned “off”. Spray dispensation should be determined by the robot operator.
2. The amount of anti-spatter delivered can be controlled in (2) ways. First, the length of time that the Line 5 is activated to ground “on”, and second is the adjustment of the flow control located on the side of the unit directly above the anti-spatter bottle. The flow control can be used to richen or lean the anti-spatter mixture.

Step 3: Feed Rate Adjustment

1. Feed rate “up” or “down” can be controlled by adjusting the flow control fittings (see item 8 in Parts Breakdown) located inside the unit. The top fitting controls the speed of the “up” direction. The bottom fitting controls the speed of the “down” direction.

Wiring Schematic for AR2200 Auto-Reamer

CAUTION:
THIS EQUIPMENT MUST
BE LOCKED OUT DURING
MAINTENANCE OR ANY
OPERATOR ADJUSTMENT.



| Item # | Part # | Description |
|--------|------------|--|
| 1 | 650-25-236 | Motor Lift Cylinder |
| 2 | 650-25-256 | Cylinder Speed Adjustment Fitting (Down) |
| 3 | 650-25-256 | Cylinder Speed Adjustment Fitting (Up) |
| 4 | 650-25-251 | Solenoid Valve (Cycle) |
| 5 | 650-25-251 | Solenoid Valve (Spray) |
| 6 | 650-25-716 | Vacuum Valve |
| 7 | 650-25-714 | External Spray System Assembly (AR2200S) |
| 8 | 650-25-748 | Clamping Block Cylinder |
| 9 | 650-25-749 | Proximity Switch |
| 10 | 650-25-105 | Pneumatic Motor Assembly |
| 11 | 650-25-247 | Mechanical Valve |
| 12 | 650-25-237 | Valve Actuating Bracket |
| 13 | 650-25-273 | Terminal Block |
| 14 | 650-25-260 | Plug, 6-Poles |
| 15 | 650-25-275 | 1/4" Tubing - Clear Blue |
| 16 | 650-25-360 | Momentary Test Buttons |

REAM FUNCTION:

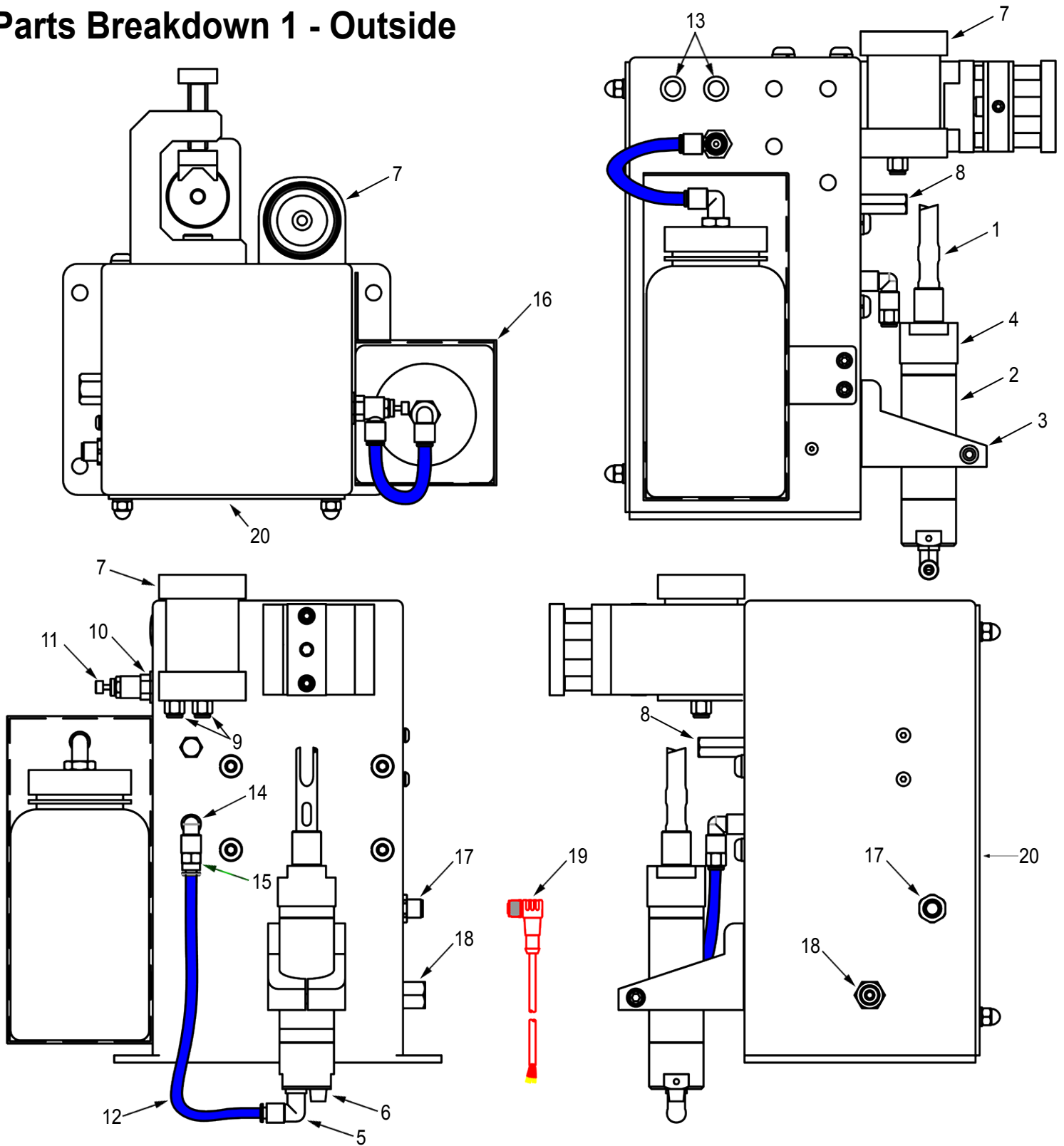
| OPERATION SEQUENCE | VALVE ACTION | CYCLE STATUS |
|---------------------------|----------------|-------------------------|
| GROUND "OFF" (LINE 4) | VALVE 11 "ON" | REAMER OFF, CLAMP OPEN |
| GROUND "ON" (LINE 4) | VALVE 4 "ON" | REAMER UPWARD TRAVEL |
| HOLD GROUND "ON" (LINE 4) | VALVE 11 "OFF" | REAMER ON, CLAMP CLOSED |
| " " " " " " | " " " " " " | REAMER AT TOP OF STROKE |
| GROUND "OFF" (LINE 4) | VALVE 4 "OFF" | REAMER DOWNWARD TRAVEL |
| " " " " " " | VALVE 11 "ON" | REAMER OFF, CLAMP OPEN |

SPRAY FUNCTION:

| OPERATION SEQUENCE | VALVE ACTION | CYCLE STATUS |
|-------------------------|---------------|--------------|
| TORCH IN SPRAY POSITION | VALVE 5 "ON" | SPRAYER ON |
| TORCH AWAY | VALVE 5 "OFF" | SPRAYER OFF |

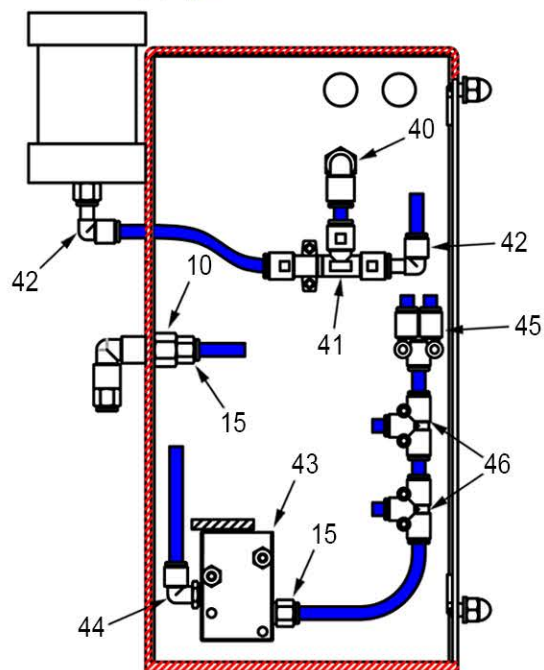
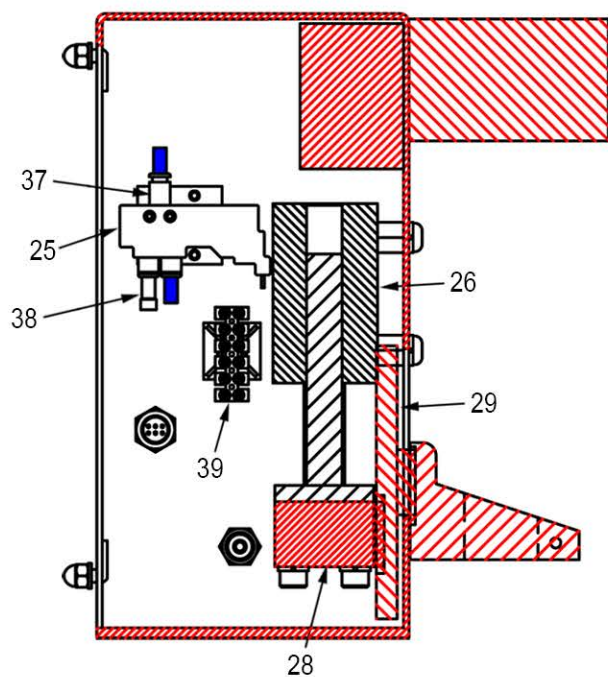
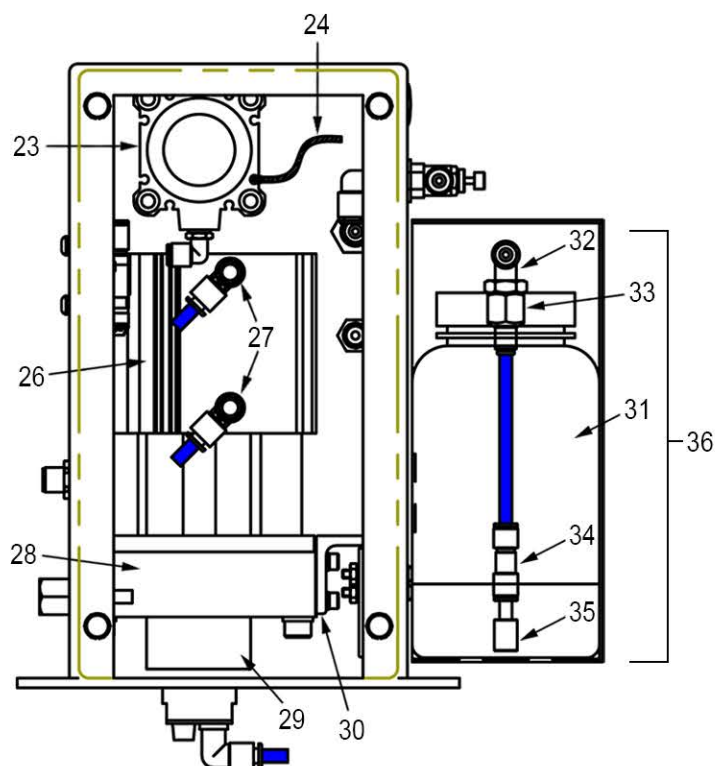
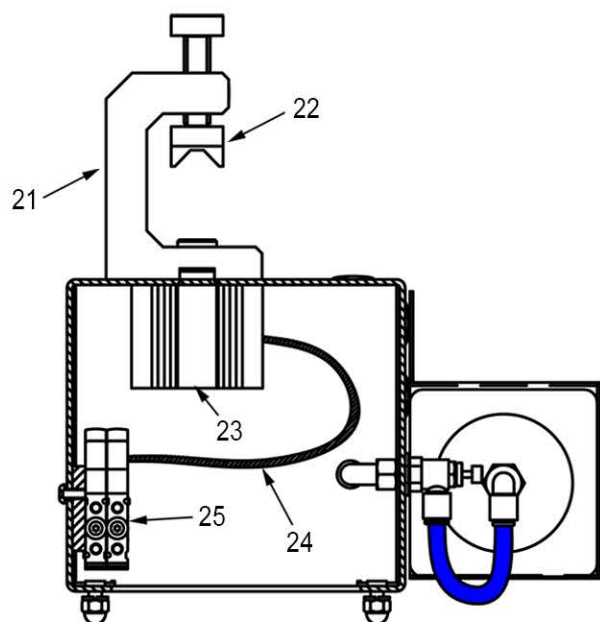
NOTE: WIRING SHOWN FOR STANDARD "SINKING" LOGIC

Parts Breakdown 1 - Outside



| Item # | Part # | Description | Item # | Part # | Description |
|--------|------------|--|--------|------------|--|
| 1 | | See Reamer Chart on page 7 | 11 | 650-25-715 | Flow Control - Anti-Spatter |
| 2 | 650-25-105 | Pneumatic Motor Assembly | 12 | 650-25-275 | 1/4" Tubing |
| 3 | 650-25-701 | Motor Clamp Block | 13 | 650-25-360 | Momentary Test Buttons |
| 4 | 650-25-126 | Motor Cap | 14 | 650-25-734 | Fitting, Female Elbow 1/8" x 1/8" |
| 5 | 650-25-272 | Fitting, Elbow 1/4" NPT x 1/4" Compression | 15 | 650-25-733 | Fitting, Male Connector 1/8" x 1/4" Push |
| 6 | 650-25-725 | Motor Muffer | 16 | 650-25-752 | Bottle Box |
| 7 | 650-25-714 | External Spray System Assembly (AR2200S) | 17 | 650-25-260 | Receptacle 6-Pin |
| 8 | 650-25-271 | Sprayer Body (AR2200) | 18 | 650-25-717 | Bulkhead Connector 1/4" NPT x 1/4" Push |
| 9 | 650-25-718 | Fitting, Male Connector for Spray Tip | 19 | 650-25-283 | Cordset, 4m std. (650-25-358, Cordset 6m - optional) |
| 10 | 650-25-736 | Adaptor, 1/8" M x 1/8" F | 20 | 650-25-214 | Rear Cover Plate |

Auto-Reamer Part Breakdown - Inside



| Item # | Part # | Description | Item # | Part # | Description |
|--------|------------|---|--------|------------|---|
| 21 | 650-25-747 | Clamping Block | 34 | 650-25-287 | Check Valve |
| 22 | 650-25-230 | V-Block | 35 | 650-25-288 | Filter, Anti-Spatter |
| 23 | 650-25-748 | Clamping Block Cylinder | 36 | 650-25-291 | Anti-Spatter Bottle Assembly |
| 24 | 650-25-749 | Proximity Switch | 37 | 650-25-278 | Fitting, Male Connector 10-32 x 1/4" Push |
| 25 | 650-25-251 | Solenoid Valve (2), Cycle & Spray | 38 | 650-25-737 | Plug, 1/4" |
| 26 | 650-25-236 | Motor Lift Cylinder | 39 | 650-25-273 | Terminal Block |
| 27 | 650-25-256 | Fitting, Flow Control, Cylinder Speed Adjust. | 40 | 650-25-729 | Fitting, Elbow 1/8" F x 1/4" Push |
| 28 | 650-25-703 | Motor Clamp Block Base | 41 | 650-25-716 | Vacuum Valve, 1/4" Tube |
| 29 | 650-25-702 | Motor Clamp Block Slide Plate | 42 | 650-25-731 | Fitting, Plug-In Elbow, 1/4" Push |
| 30 | 650-25-239 | Valve Actuating Bracket | 43 | 650-25-247 | Mechanical Valve |
| 31 | 650-25-290 | Anti-Spatter Bottle | 44 | 650-25-264 | Fitting, Elbow 1/8" NPT x 1/4" Push |
| 32 | 650-25-730 | Fitting, Elbow 1/4" x 1/4" Push | 45 | 650-25-735 | Fitting, Union "Y", 1/4" Push |
| 33 | 650-25-732 | Fitting, Female Connector 1/4" x 1/4" Push | 46 | 650-25-268 | Fitting, Union "T", 1/4" Push |

Ordering Information

AR2200CW



650 - 25 - 800

800 - AR2200A
801 - AR2200C
802 - AR2200CW
805 - AR2200S
806 - AR2200SW

AR2200A - Auto-Reamer, Ream Only, No Sprayer
AR2200C - Auto-Reamer w/ Anti-Spatter Sprayer Collection System
AR2200CW- Auto-Reamer w/ Anti-Spatter Sprayer Collection System & Wire Cutter
AR2200S - Auto-Reamer w/ Anti-Spatter Sprayer
AR2200SW- Auto-Reamer w/ Anti-Spatter Sprayer & Wire Cutter

Reamer Blade Sizes Available

1 Blade Reamers

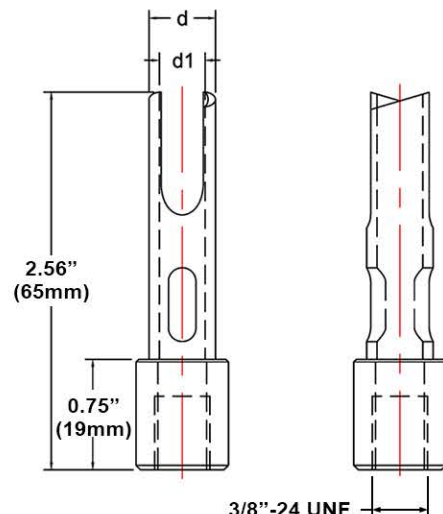
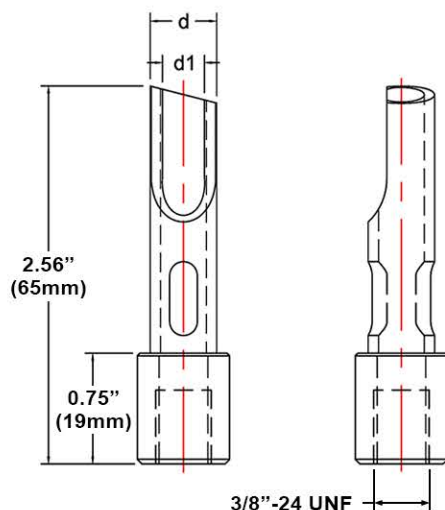
| Part Number | d=O.D. (mm) | d1=I.D. (mm) | Nozzle Size |
|---------------|----------------|-----------------|--------------|
| 651-09-07 | 9 | 7 | 3/8" - 10mm |
| 651-10-08 | 10 | 8 | 3/8" - 10mm |
| 651-10.5-08 | 10.5 | 8 | 7/16" - 11mm |
| 651-11-07 | 11 | 7 | 7/16" - 11mm |
| 651-11-08.5 | 11 | 8.5 | 7/16" - 11mm |
| 651-12-07 | 12 | 7 | 1/2" - 13mm |
| 651-12-09 | 12 | 9 | 1/2" - 13mm |
| 651-12-10 | 12 | 10 | 1/2" - 13mm |
| 651-12.5-09 | 12.5 | 9 | 1/2" - 13mm |
| 651-12.5-10 | 12.5 | 10 | 1/2" - 13mm |
| 651-13-09 | 13 | 9 | 14mm |
| 651-14-09 | 14 | 9 | 9/16" - 15mm |
| 651-14-11 | 14 | 11 | 9/16" - 15mm |
| 651-14-12 | 14 | 12 | 9/16" - 15mm |
| 651-14.5-12.5 | 14.5 | 12.5 | |
| 651-15-09 | 15 | 9 | 5/8" - 16mm |
| 651-15-11 | 15 | 11 | 5/8" - 16mm |
| 651-15-13 | 15 | 13 | 5/8" - 16mm |
| 651-15.5-08 | 15.5 | 8 | 5/8" - 16mm |
| 651-15.5-13 | 15.5 | 13 | 5/8" - 16mm |
| 651-16-11 | 16 | 11 | 16mm |
| 651-17-11 | 17 | 11 | 11/16"- 17mm |
| 651-17-14 | 17 | 14 | 11/16"- 17mm |
| 651-18-11 | 18 | 11 | 3/4" - 18mm |
| 651-18-13 | 18 | 13 | 3/4" - 18mm |
| 651-18-15 | 18 | 15 | 3/4" - 18mm |
| 651-18.5-13 | 18.5 | 13 | 3/4" - 19mm |
| 651-19-15 | 19 | 15 | 3/4" - 19mm |

2 Blade Reamers

| Part Number | d=O.D. (mm) | d1=I.D. (mm) | Nozzle Size |
|----------------|----------------|-----------------|--------------|
| 652-09-07 | 9 | 7 | 3/8" - 10mm |
| 652-10-07 | 10 | 7 | 3/8" - 10mm |
| 652-10.5-08 | 10.5 | 8 | 7/16" - 11mm |
| 652-11-07 | 11 | 7 | 7/16" - 11mm |
| 652-11-08.5 | 11 | 8.5 | 7/16" - 11mm |
| 652-12-07 | 12 | 7 | 7/16" - 12mm |
| 652-12-09 | 12 | 9 | 1/2" - 13mm |
| 652-12-10 | 12 | 10 | 1/2" - 13mm |
| 652-12.5-09 | 12.5 | 9 | 1/2" - 13mm |
| 652-12.5-10 | 12.5 | 10 | 1/2" - 13mm |
| 652-13-09 | 13 | 9 | 14mm |
| 652-13-10 | 13 | 10 | 14mm |
| 652-13-10.5 | 13 | 10.5 | 14mm |
| 652-14-09 | 14 | 9 | 9/16" - 15mm |
| 652-14-11 | 14 | 11 | 9/16" - 15mm |
| 652-15-09 | 15 | 9 | 5/8" - 16mm |
| 652-15-10.5-80 | 15 | 10.5 | 5/8" - 16mm |
| 652-15-11 | 15 | 11 | 5/8" - 16mm |
| 652-15-11-80 | 15 | 11 | 5/8" - 16mm |
| 652-15-12 | 15 | 12 | 5/8" - 16mm |
| 652-15-12.5 | 15 | 12.5 | 5/8" - 16mm |
| 652-15-12.5-80 | 15 | 12.5 | 5/8" - 16mm |
| 652-15.5-13 | 15.5 | 13 | 5/8" - 16mm |
| 652-16-11 | 16 | 11 | 16mm |
| 652-16-11-80 | 16 | 11 | 16mm |
| 652-16-12.5 | 16 | 12.5 | 16mm |
| 652-17-11 | 17 | 11 | 11/16"- 17mm |
| 652-17-14 | 17 | 14 | 11/16"- 17mm |
| 652-17-15 | 17 | 15 | 11/16"- 17mm |
| 652-17-15-80 | 17 | 15 | 11/16"- 17mm |
| 652-18-11 | 18 | 11 | 3/4" - 18mm |
| 652-18-13 | 18 | 13 | 3/4" - 18mm |
| 652-18-15 | 18 | 15 | 3/4" - 18mm |
| 652-18.5-13.5 | 18.5 | 13.5 | 3/4" - 18mm |
| 652-19-15 | 19 | 15 | 3/4" - 19mm |

Custom sizes available upon request

*Part #'s ending in "-80" have an OAL of 3.15" (80mm).





WARNING

Read and follow the manufacturer's instructions, employer's safety practices, and Material Safety Data Sheets (MSDSs).

Only qualified personnel should install, use, or service this material and/or equipment.



WELDING SPARKS can cause fire or explosion

- Do not weld near flammable material
- Do not weld on closed containers.
- Remove combustibles from the work area and/or provide a fire watch.
- Avoid oily or greasy clothing as a spark may ignite them.



ARC RAYS can injure eyes and burn skin

- Always wear correct eye, ear, and body protection
- Always wear a welding helmet with the proper grade filter lens. Protect yourself and others from spatter arc flash rays by using protective screens, barriers and welding curtains.
- Always wear protective gloves and clothing to cover exposed skin. This will aid in the prevention of arc and spatter burns.



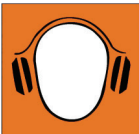
ELECTRIC SHOCK can kill.

- Always wear dry installing gloves
- Do not touch live electrical parts.
- Always disconnect power source before hooking up or changing electrodes, nozzles and other parts.



FUMES AND GASES can be hazardous to your health.

- Keep your head out of the fumes
- Use enough ventilation or exhaust at the arc to keep fumes and gases from your breathing zone, and general area.
- Fumes from cutting and welding can deplete air quality, causing injury or death. Always wear an air supplied respirator in confined areas, or if breathing air is not safe.



LOUD NOISE can damage hearing.

- Always wear protective hearing devices to ensure protection when noise levels exceed OSHA standards

CALIFORNIA PROPOSITION 65 WARNING

This product contains chemicals, including lead, known to the State of California to cause cancer, birth defects, or other reproductive harm. Wash hands after use.

(California Health & Safety Code Section 25249.5)