AMCOL CORPORATION

3063-HMA2 BILLET SPRAYER WITH OVERSPRAY CONTAINMENT

Operator's Manual

Contents

AMCOL Corporation

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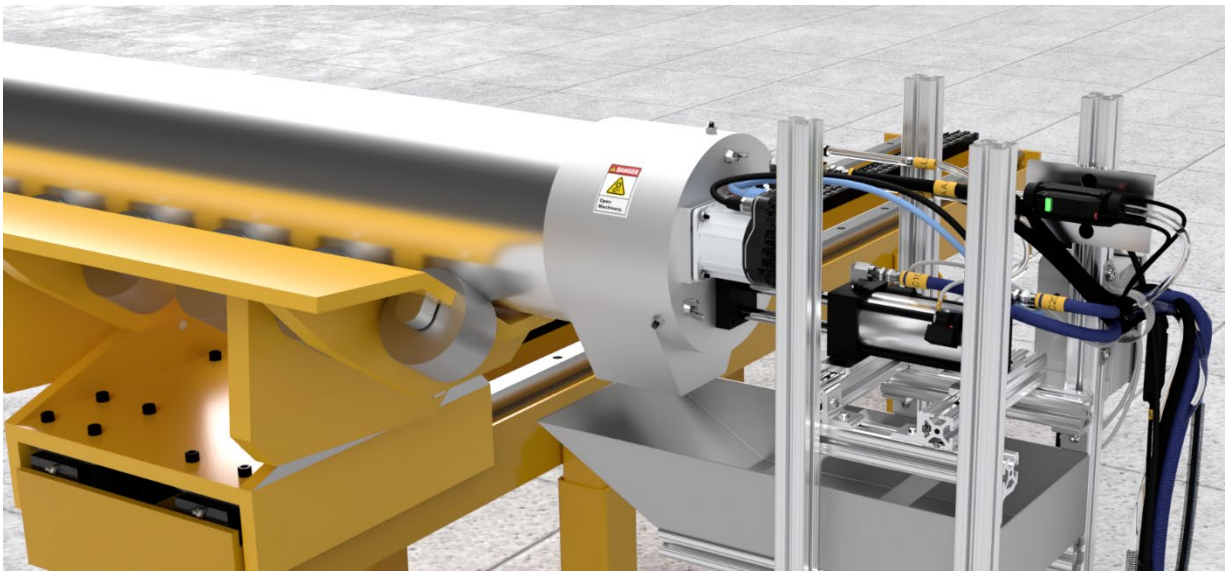
1 Introduction

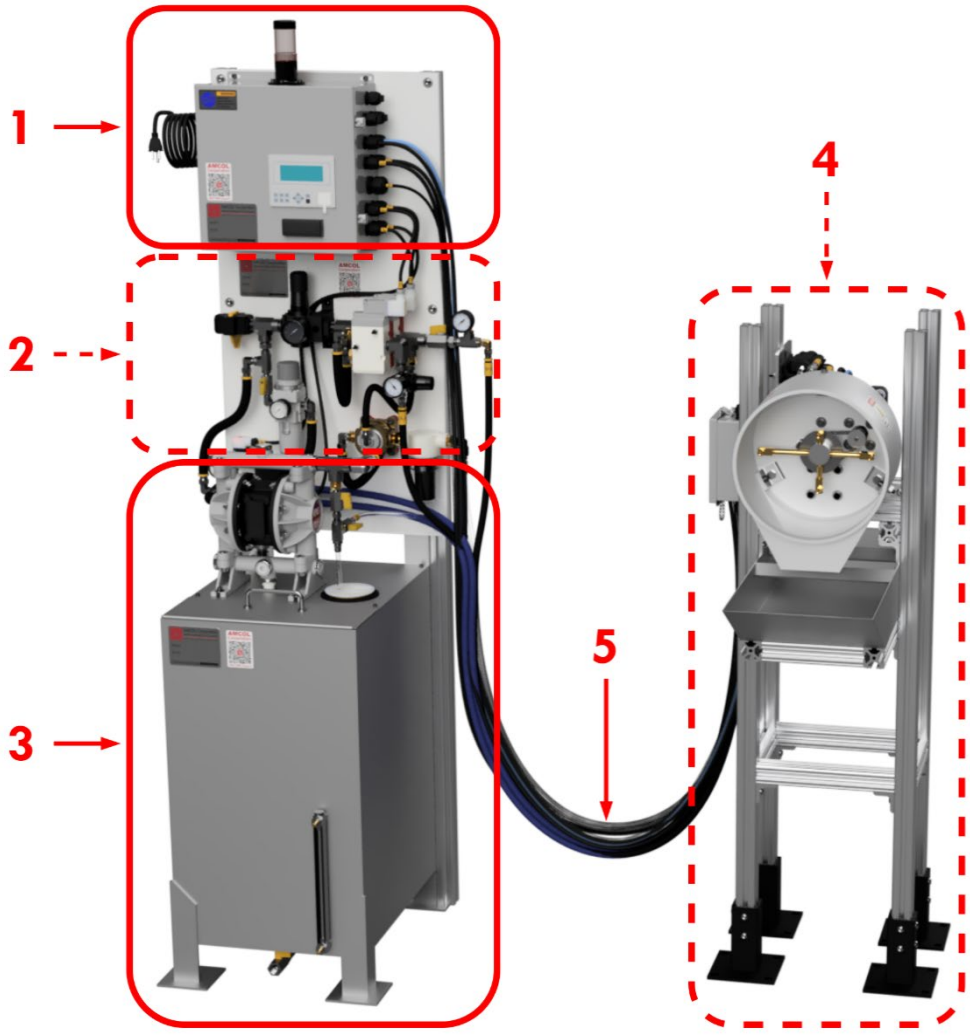
This manual features instructions regarding the installation, operation, and maintenance of the AMCOL 3063-HMA2 Billet Sprayer with Overspray Containment. For more information on the system and its components, please refer to the AMCOL 3063-HMA2 Billet Sprayer with Overspray Containment Technical Description.



2 Included Components

The following components are included with every standard 3063-HMA2 system:

1. ETC (Electronic Timing Controller) for the system, including an Allen Bradley PLC and LCD display, Keyence flow monitor controller, and a fault indicator light, located inside a sealed enclosure
2. Valve package for liquid, air, and cylinder controls mounted to a plate fixed to the reservoir
3. 30-gallon stainless steel floor mounted reservoir with filtered recirculation capability, a liquid air purge, and a low-level indicator switch
4. Fully adjustable T-slot mounted spray assembly including an overspray shroud and drain, an overspray collection tray, and a servo-driven rotating spray head utilizing the improved 034 atomizer
5. Interconnecting hose and cable assemblies



3 Installation

PRIOR TO GETTING STARTED

- ***WARNING! DO NOT DISASSEMBLE, REPAIR, OR REPLACE COMPONENTS OR SUBASSEMBLIES OF THIS SYSTEM WITHOUT FIRST DEENERGIZING THE SYSTEM AIR AND POWER SOURCE WITH LOCK AND TAG; THIS CAN BE TESTED BY VISUALLY INSPECTING THE PRIMARY AIR GAUGE (A) ON THE VALVE PACKAGE TO BE AT 0psi AND MANUALLY ATTEMPTING TO ACTUATE EITHER THREE-WAY AIR VALVE ON THE VALVE PACKAGE.***

- ***WARNING! BE SURE THAT THE PRESS IS PROPERLY GUARDED IN ORDER TO AVOID INADVERTENT OR UNINTENDED ACCESS TO THE SPRAY HEAD BY UNTRAINED PERSONNEL. REFERENCE ANSI B11.17 OR SIMILAR PRESS GUARDING STANDARD.***

- ***WARNING! BE SURE TO MOUNT THE RESERVOIR AND VALVE PACKAGE ASSEMBLY OUTSIDE OF THE GUARDED AREA, AS THEY WILL HAVE TO BE VIEWABLE AND ACCESSED DURING NORMAL PRESS OPERATION.***

- ***WARNING! DO NOT ATTEMPT TO ADJUST OR MODIFY NOZZLES, WHICH WILL BE WITHIN THE GUARDED AREA, WITHOUT DEENERGIZING THE PRESS WITH LOCK AND TAG.***

- ***WARNING! THE SYSTEM IS NOT DESIGNED OR CAPABLE OF DISPENSING FLAMMABLE OR COMBUSTIBLE LIQUIDS.***

- ***WARNING! USE PROPER EYE PROTECTION WITH SIDE SHIELDS WHEN IN THE AREA OF OPERATION. DURING TESTING AND SUBSEQUENT SYSTEM REPAIR, IT IS STRONGLY RECOMMENDED TO USE FULL-FACE SHIELD PROTECTION.***

- ***WARNING! THE SPRAY ASSEMBLY INVOLVES A CHAIN DRIVEN ROTATION NOZZLE THAT MAY UNEXPECTEDLY ACTUATE. DO NOT ACCESS THIS AREA WITHOUT FIRST DEENERGIZING THE COMPLETE SYSTEM AS NOTED ABOVE.***

Installation

1. Remove the complete system from the pallet and manually operate outside of the press area. This can be completed by confirming all components are connected according to the hose connections as indicated in the photos on the following page. Connect plant air to the valve package, plug in the ETC, and manually cycle the system by pressing the LEFT (<) arrow on the display. During manual operation, confirm that these components are set accordingly and that the spray volume and pattern is acceptable. If the settings specific to your operation are other than those recommended by AMCOL, they should be recorded and controlled for later access and training.

2. With the press in normal operation and while standing outside of the press guarding, observe potential areas for installation of the spray head, reservoir, and valve package assemblies. The spray head will move forward exactly 4" when the cylinder is actuated and should be nearly touching the billet when spraying to contain as much overspray as possible. The reservoir and valve package must be outside the press guarding and ideally within sight of the operator, but out of the general traffic area.

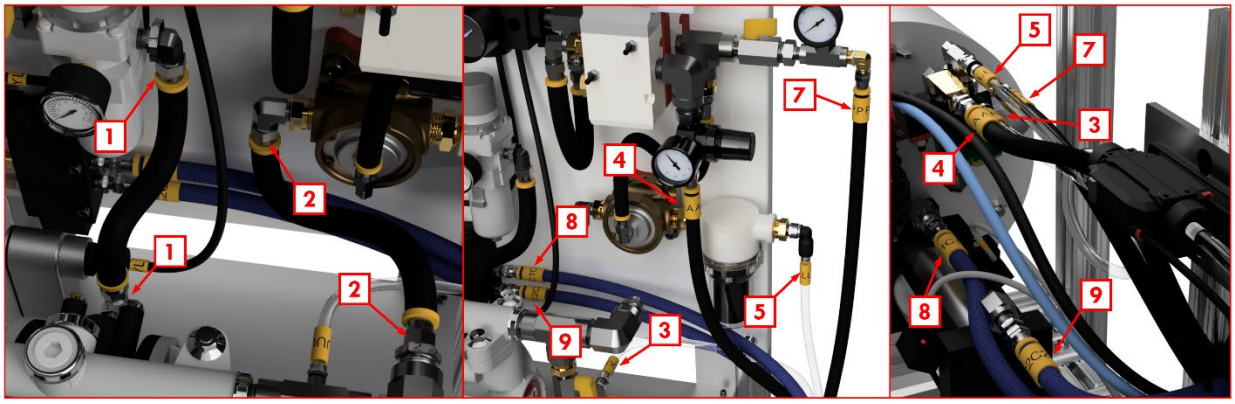
3. Deenergize, lock, and tag the press, then place the spray head nozzle in the expected position to properly assess the exact placement of this assembly. Exit the lock and tag area and reactivate the press with the spray head in position to determine that the spray head is in a position to avoid damage during normal press operation. The edge of the overspray cover should be centered to a billet 4" from the billet face. Once the exact location is determined, mark the location and install using the mounting holes in the feet of the spray assembly.

4. Secure the reservoir and valve pack assembly in position.

5. Connect a clean, dry, ½" air line to the air inlet of the valve package. Be sure that this air source is properly locked and tagged prior to beginning your installation. Do not energize until all hoses have been properly installed and attached.

6. Connect any disconnected hoses as supplied with the system. Numbers and labels on each hose are included to indicate the correct connection.

Hose 1 – Plant air from valve package to reservoir air inlet
Hose 2 – Liquid from reservoir to liquid safety switch on valve package
Hose 3 (U) – Liquid from 034 Atomizer returning to reservoir return port
Hose 4 (A) – Regulated air to atomizing air on 034 Atomizer
Hose 5 (L) – Liquid from valve package to atomizer on spray assembly
Hose 7 (P) – Air from the valve package to air pilot on 034 Atomizer
Hose 8 (C1) – Extending air from the top port of the 4-way valve to the cylinder
Hose 9 (C2) – Retracting air from the bottom port of the 4-way valve to the cylinder

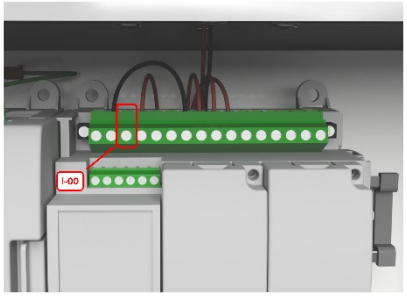


Reservoir Valve Package Back of Spray Head

7. Energize the air source, plug in the ETC, and manually cycle the system by pressing the LEFT (<) arrow on the display.

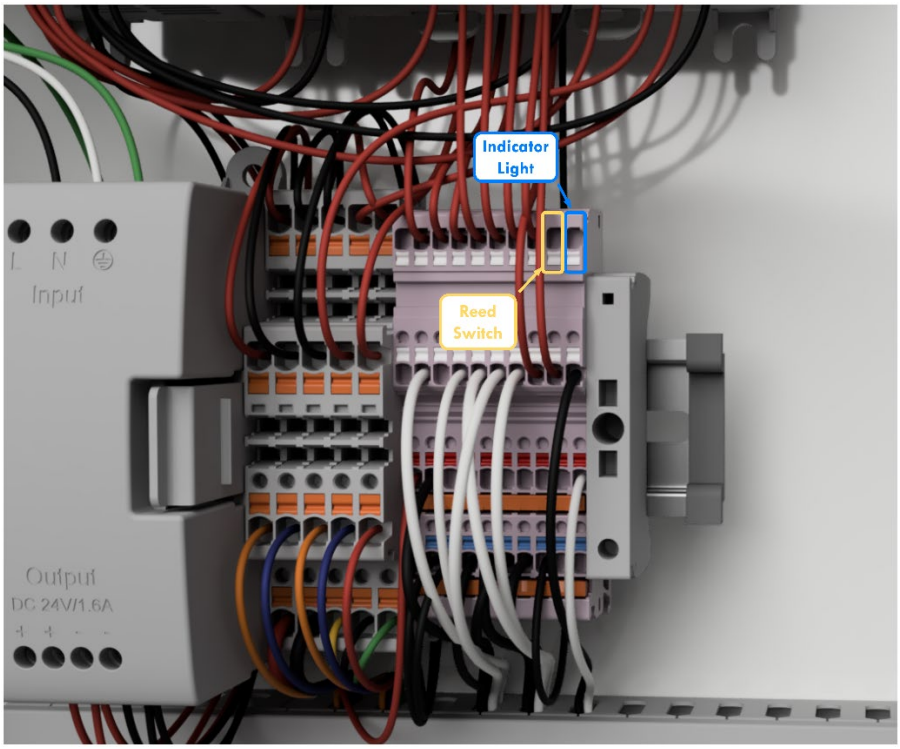
8. Adjust the system settings as necessary on the display, using Section 4 Recommended Settings as a baseline. If the settings specific to your operation are other than those recommended by AMCOL, they should be recorded and controlled for later access and training. Deenergize the air source and disconnect power to the ETC.

9. Wire the 24V DC control signal output from the press PLC to input I-00 on the PLC inside the ETC.



10. Connect the output from the rear reed switch (RS2) to the press PLC using the open terminal block (9) inside the ETC enclosure. This output signals that the cylinder is fully retracted at the end of the spray cycle of the 3063-HMA2. There also are additional open terminals for -24V DC connections.

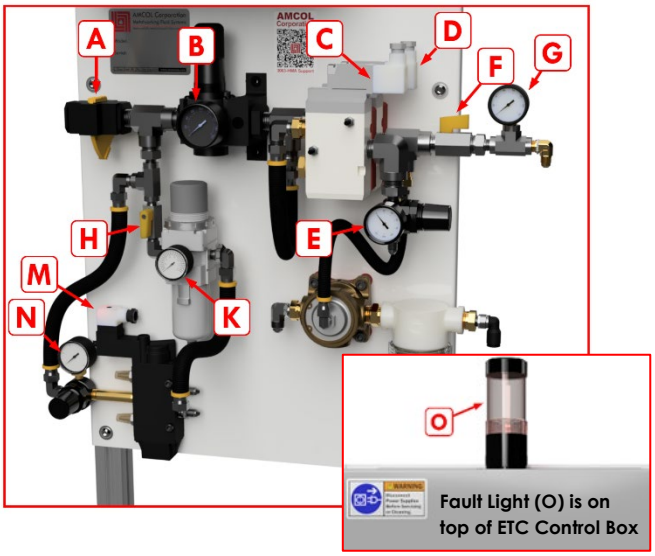
(RECOMMENDED) Additionally, connect the output from the fault indicator light from the open terminal block (10) inside the ETC to an input on the press PLC for informational and fault handling purposes. This signal will be +24V DC when active (light ON).



11. Reenergize the air source to the system, and the spray system should be operational in automatic mode.

4 Operation

System Operating Cycle



1. **System Idle and Ready to Spray** – System Air Pressure (B) is steady at 60 psi, and the double diaphragm pump is cycling one time every 2 seconds.

2. **Energize Cylinder Valve (M)** – The Cylinder Control Regulator (N) should read 40 psi. The light on the Cylinder Valve (M) should be on. The spray head should move forward, and the light on the front reed switch should turn on. If the cylinder does not fully extend for any reason, the Fault Light (O) will flash.

3. **Energize Air Timing Valve (C)** – The Atomizing Air Pressure (E) will immediately go to 40 psi and hold steady. The System Air Pressure (B) will remain virtually unchanged at 60 psi. The spray head will begin rotating and air (no liquid) will be coming out of the spray tips. If there is any liquid during this part of the spray cycle, there are issues with valve closure at the end of the prior cycle. If the motor is not spinning for any reason, the Fault Light (O) will flash.

4. **Energize Liquid Timing Valve (D)** – After 0.5 seconds, energize the LTV (D). The Air Pilot Pressure Monitor (G) will immediately match the System Air Pressure (B). The Liquid Safety Switch and pilot on 034 Atomizer are both open, thus allowing liquid through the 0.020 flow restrictor (L see page 12), into the air stream in the atomizer, through the spinner head and spray tubes, and out of the spray tips. The Keyence flow monitor should detect flow at this stage. If flow is not detected, the Fault Light (O) will flash.

5. **Deenergize Liquid Timing Valve (D)** – After 0.75 seconds, deenergize the LTV(D). The Air Pilot Pressure Monitor (G) will immediately go to 0 psi. The Liquid Safety Switch and 034 Atomizer are now closed.

6. **Liquid Cleanout of Spray Head** – Liquid in the 034 Atomizer, spinner head, spray tubes, and spray tips is now cleaned out completely prior to ending the spray cycle. This part of the spray cycle takes 2 seconds when the system is operating properly.

7. **Deenergize Air Timing Valve (C)** – The Atomizing Air Pressure (E) will immediately go to 0 psi, and the rotating head will stop. There should be no liquid dripping from the spray tips.

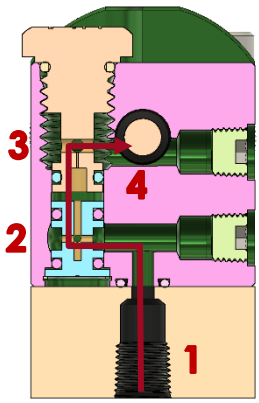
8. **Deenergize Cylinder Valve (M)** – The Cylinder Control Regulator (N) should read 0 psi, and the light on the Cylinder Valve (M) should be off. The spray head should be retracted, and the light on the rear reed switch should turn on, signaling the end of the spray cycle.

9. **System Idle and Ready to Spray** – System Air Pressure (B) is steady at 60 psi, and the double diaphragm pump is cycling one time every 2 seconds.

034 Atomizer

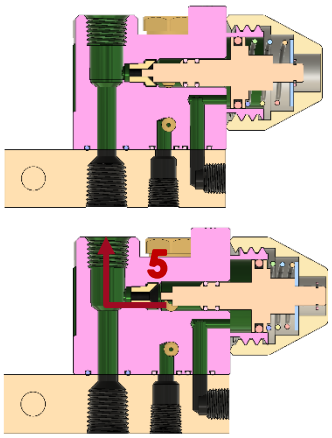
The new 034 atomizer operates using a dual flow restrictor design to meter fluid output, which is then controlled by an air piloted poppet assembly.

When the liquid safety switch on the valve pack is opened, fluid enters through the liquid inlet port (1), travels through the brass nozzle metering seat (2), flows upward into the 0.020-flow restrictor (3), and fills the poppet assembly chamber (4).

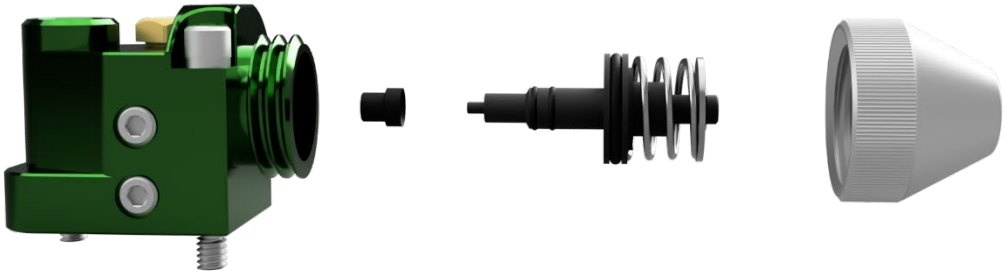


When the air pilot valve is opened, air is supplied to the pilot port on the atomizer, forcing the poppet open. This allows the metered liquid to flow through the nozzle seat (5) and into the atomizing air stream, which travels out of the atomizer, through the spinner assembly, and out of the spray nozzles.

When the air pilot valve is closed, the poppet assembly spring returns to the closed position, stopping fluid output from the atomizer.



This new design also shares components with the 204 Atomizer for the 3049 Shear Sprayer system and greatly improves repairability. Unscrewing the gray poppet cap allows the entire poppet assembly to be easily removed for rebuilds or replacements.



Liquid Air Purge

The Liquid Air Purge is an accessory that allows for manually actuated pumping of the liquid from the reservoir, through the valve package, to the 034 Atomizer, and back to the liquid reservoir. The purpose of this function is to remove any air pockets from any point in the liquid line and should be done whenever there are inconsistencies with flow or billet coating. To complete the process:

1. Close the Air Pilot Line using the Air Pilot Shutoff (F).

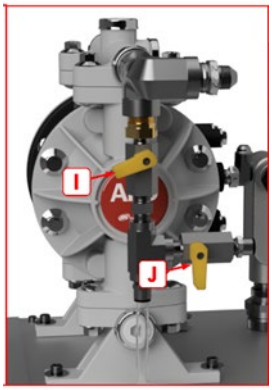
2. Manually actuate the Liquid Timing Valve (D). The Air Pilot Pressure Monitor should read 0 psi.

3. Close the Fluid Recirculation Ball Valve (I).

4. Open the Air Purge Return Valve (J) on the liquid reservoir.

5. Open the reservoir top to observe the fluid as it is returned from the 034 Atomizer.

6. Manually actuate the Liquid Timing Valve (D) while observing the liquid as it is returned back to the reservoir. The liquid flow may become sporadic or inconsistent. Continue this procedure until the flow is continuous and consistent. Liquid should shut off immediately when the Liquid Timing Valve (D) is deactivated.



Diaphragm pump on fluid reservoir.

7. Close the Liquid Air Purge Valve (J) located on the liquid reservoir.

8. Open the Fluid Recirculation Ball Valve (I) to <10% open as indicated in the recommended system settings.

9. Reopen the Air Pilot Shutoff (F) before operating.

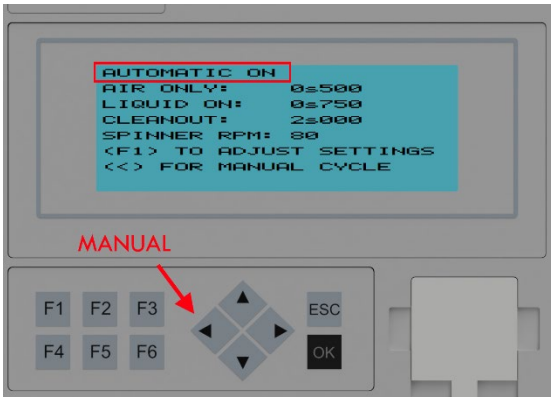
The same process can be used to troubleshoot all three valves associated with the Liquid Spray Timing.

ETC Operation

Screen Display

The LCD screen located on the front of the ETC displays the current system status and active settings on the main screen (top left). Other screens allow for adjustment to the system settings and viewing faults. The status will change from "Idle/Ready" to "Automatic" or "Manual" during the spray cycle, depending on the operation method.

Operating Modes

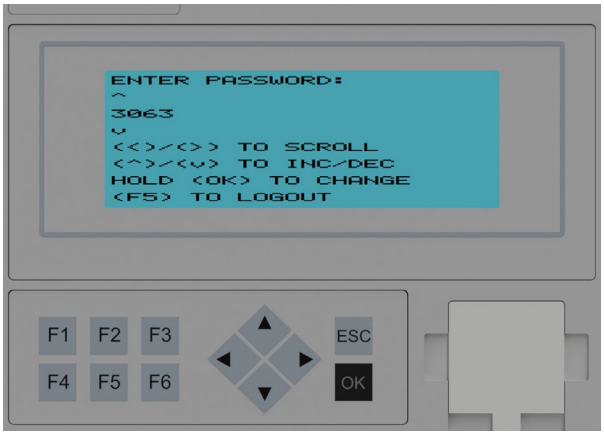


Automatic: The 3063-HMA2 is wired into the press PLC or some other 24V DC control signal at input I-00. This is the standard mode of operation for the 3063-HMA2.

Manual: The 3063-HMA2 will actuate for one full spray cycle when the left arrow (<) is pressed. This should only be used for setup, testing, and troubleshooting.

Logging In

To access the adjustment screen, a 4-digit numeric PIN must be entered on the login screen (F6). By default, the PIN is **3063.** The left (<) and right (>) arrows select the passcode digit, and the up (^) and down (v) arrows increment and decrement the value. When the correct PIN is entered, pressing OK will activate admin privileges. Modifying the PIN and holding OK will change the PIN.



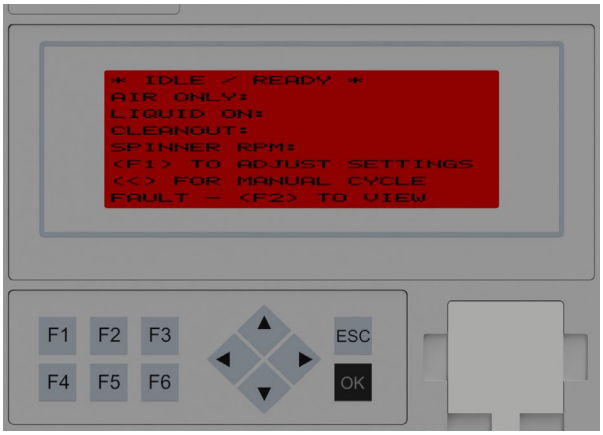
Changing Cycle Timings

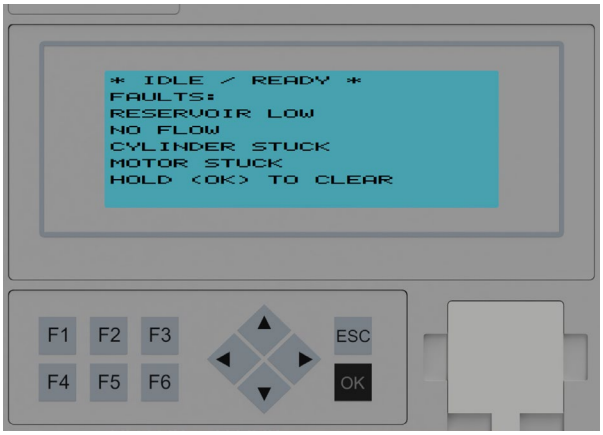
System timings can be changed on the adjustment screen (F1) when logged into the system.

Settings can be modified by pressing the right arrow (>) to navigate to the desired setting, causing the setting name to flash. The timing value can be increased using the up arrow (∧) or decreased using the down arrow (∨). Settings can be increased or decreased in 50ms (0.05s) increments. Settings cannot be decreased below their minimum value (see Recommended Settings).

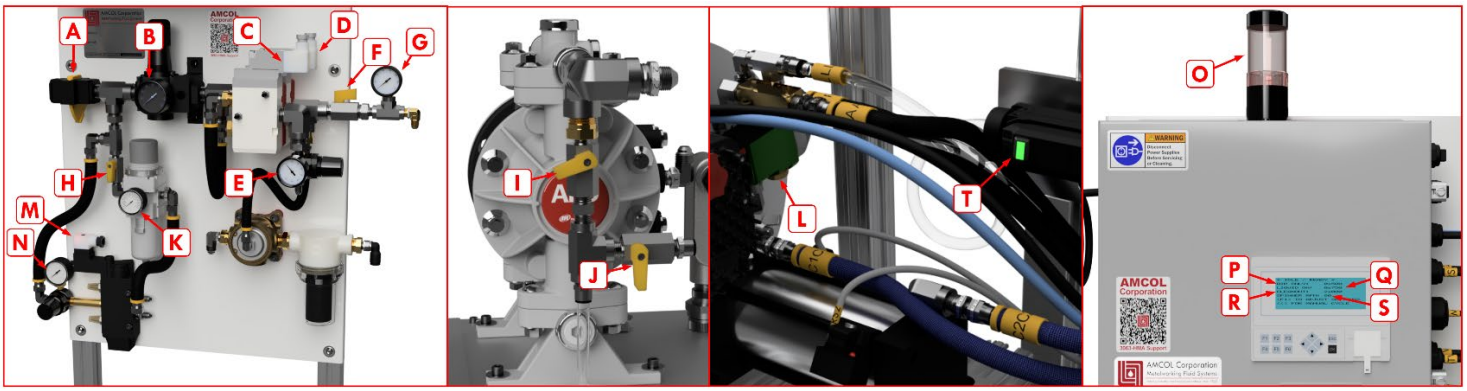
Fault Light

The fault light will flash whenever the reservoir is low ('RESERVOIR LOW'), no flow is detected ('NO FLOW'), the cylinder is not moving ('CYLINDER STUCK'), or the motor is not moving ('MOTOR STUCK'). The main display will turn red, and a fault message will appear on the main screen. The active faults can then be viewed on the fault screen (F2). The indicator light will continue flashing until the errors are cleared by holding the OK button down on the LCD screen. These errors **will not** stop the system from attempting to cycle normally and should be addressed as soon as possible.





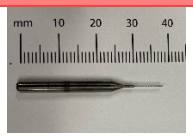
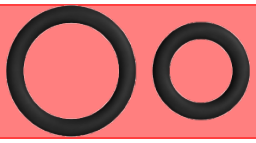
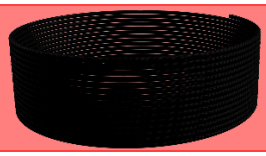
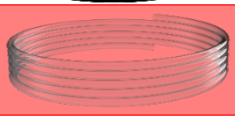
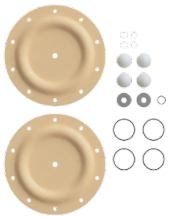
5 Recommended Settings

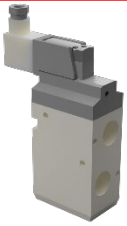


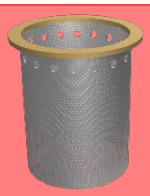
Item ID	Description	Recommended Settings
A	System Shutoff	**Open during normal operation – Close to perform repairs**. Has lock and tag eyelet.
B	System Air Pressure	**60psi**. This is the valve package inlet pressure. It can be set with no valves energized.
C	Air Timing Valve (ATV)	Energize for **at least 0.5 seconds before energizing the Liquid Timing Valve (D), and leave energized until 2.0 seconds after deenergizing the LTV**. Actuating this valve sends air through the atomizer to the spray tips and to the motor used to drive the spinner.
D	Liquid Timing Valve (LTV)	**At least 0.5 seconds after energizing the Air Timing Valve (C), energize the liquid timing valve for 0.75 seconds or more.** Limit the time to 3 rotations of the spinner. This valve opens the liquid safety switch on the valve package and the air pilot located on the 034 Atomizer.
E	Atomizing Air Pressure	**40psi**. This is the air pressure used to atomize and propel fluid at the spray tips on the spinner head.
F	Air Pilot Shutoff	**Open during normal operation**. Closed only when completing Liquid Air Purge procedure (see section 4).
G	Air Pilot Pressure Monitor	**Set using System Air Pressure (B) (60psi)**. This gauge is for monitoring and troubleshooting only. If this gauge is reading something other than the System Air Pressure, or that it is moving slowly during the Liquid Timing (D) sequence, there is a system malfunction.
H	Pump Shutoff	**Open during normal operation**. Allows for quick shut off of the reservoir pump in the event of an emergency involving a leaking valve, hose, or strainer.
I	Fluid Recirculation Ball Valve	**<10% Open (30 cycles per minute).** This valve adjusts the recirculation flow back to the reservoir and pressure to the nozzle. As this valve is opened, the flow rate to the reservoir increases and the liquid pressure to the nozzle is reduced.
J	Air Purge Return Valve	**Closed during normal operation**. This valve is used to purge the liquid line of any air that entered as a result of changing/cleaning the filter or repairing/replacing any liquid hoses.
K	Pump Inlet Pressure	**45psi**. Increase to increase liquid volume by increasing pump flow and outlet pressure. Liquid pressure at the 034 Atomizer **must be at or above the Atomizing Air Pressure (E)** to avoid back pressure inconsistencies.
L	034 Atomizer with Flow Restrictor	**Not adjustable**. Air and liquid are mixed within the 034 Atomizer body which is actuated by an internal air pilot. Liquid output is determined based on the size of a machined port vs fluid pressure. (0.020 is standard for HMA2 systems)
M	Cylinder Valve	**Energized during the entire spray cycle**. Actuating this valve extends and retracts the cylinder, causing the spray head to move.
N	Cylinder Control Regulator	**40psi**. This is the air pressure used to actuate the cylinder.
O	Fault Light	**Off during normal operation**. If the indicator light is flashing, there is a problem with the system – the reservoir is low, the cylinder is stuck/not moving, or there was no flow during the spray cycle.
P	Air Only Time	**0.5 seconds.** This delay before spraying liquid allows the motor to begin spinning and the fluid to be properly atomized for an even coating on the billet face.
Q	Liquid On Time	**0.75 seconds.** Determines the amount of time liquid is sprayed during the spray cycle. Can be increased for more fluid output.
R	Cleanout Time	**2 seconds.** This time allows for any excess fluid in the atomizer, spinner, and nozzles to be cleaned out.
S	Spinner RPM	**80 RPM.** Can be set between 40-120rpm. Slower speeds may require an increase in Liquid On Time (Q) in order to coat the entire billet. Faster speeds can result in a less even coating. Adjust as necessary for a thin, even coating.
T	Flowmeter Indicator	**Green when the LTV is open.** Whenever fluid is flowing through the flowmeter, the green light will be on.

6 Maintenance

Recommended Spares

	Description	Part Number	Quantity
	034 Atomizer with 0.020 Fixed Orifice and Fittings for HMA	3063-034C-HMA *	1 each
	034/204 Rebuild Kit	A4008279	1 each
	034 0.020 Flow Restrictor w/O-Rings	A3031801-01-AC0200	1 each
	Clean Out Tool, 0.0145" (0.3683mm)	2841A84*	1 each
	034 Flow Restrictor O-Ring Kit	034-FR-OK *	5 each
	Spinner Nozzle with Triple Seal	025-SNTS	1 each
	P/H Fire Res. Hose (1/4")	821FR-4-BLK**	20 feet
	P/H Fire Res. Hose (3/8")	821FR-6-BLK**	5 feet
	Urethane Hose (3/8")	U-64	20 feet
	Rebuild Kit for 66605J-34B Diaphragm Pump	637140-4B	1 each

	Check Balls, ¾" PTFE, for 66605J-34B DP	93100-4	4 each
	3 Way Poppet Valve with Coil (24V DC)	VP742-5DZ1-04TA	1 each
	4 Way Poppet Valve with Coil (24V DC)	K71DA00KS6KV21W2	1 each
	140 psi Pressure Gauge (1/8" Back Mount)	18-013-212	1 each
	160 psi Pressure Gauge (1/4" Back Mount)	18-013-209	1 each
	Servo Motor Extension for Chain Drive with Screws	12-SME-C-AC*	1 each
	Clear Bowl for 1/2" Inline Strainer with Gasket	9875K11-AC*	2 each
	80 Mesh Replacement Screen for T-Strainer (SS)	9875K82	1 each

	Replacement Reservoir Recirculation Strainer	01387-AC	1 each
	1/2" Polypropylene Pump with PTFE Check Balls (1)	66605J-34B-AC3	1 each
	Liquid Safety Switch	01285-HMY	1 each

* Strongly recommended
** May be purchased locally

Preventative and Predictive Maintenance

Daily

- Observe fluid level and fill as necessary.
- Check fluid dilution using Misco PA201 Digital Refractometer (information regarding the Misco PA201 can be found on pg. 15). Correct dilution as necessary.
- Observe all air pressure settings and gauges to be consistent as per the liquid and air timing sequence. Use these gauges to confirm that all air valves are properly opening and closing. System air should never significantly change as each valve opens and closes.
- Observe ½" Inline Strainer for sediment and solids. Clean or replace strainer (80 Mesh Replacement Screen) if required. Identify root cause.
- Observe Reservoir Recirculation Strainer for sediment and solids. Clean or replace strainer if required. Identify root cause.
- Observe spray alignment, quality, and quantity. Make any adjustments or repairs as necessary.

Quarterly

- Completely empty reservoir. Wash with water. Refill.
- Change Clear Bowl and Gasket for ½" Inline Strainer.
- Inspect Check Balls, ¾" PTFE, for 66605J-34B Diaphragm Pump.

Yearly

- Replace 034 atomizer with Fixed Orifice and Fittings and Spinner Nozzle with Triple Seal assembly.
- Replace all air regulator pressure gauges.
- Replace all liquid and air hoses.
- Rebuild or replace double diaphragm pump.
- Disassemble, inspect, and repair or replace the three-way and four-way air operated solenoid valves on valve package.

Depressurize and lock and tagout the complete system prior to any work.

7 System Troubleshooting

Check in order as listed.

No Liquid/No Flow

- The reservoir is empty or low. Pump will pulse very fast with this condition.

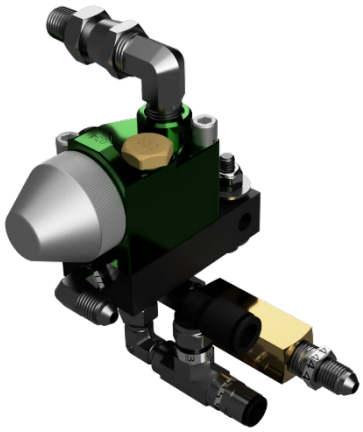
- System Air Pressure (B) is too low during spray cycle. Adjust to 60 psi. Be sure to observe the gauge before and during the spray cycle. The gauge pressure should not in any way be affected by the air consumed by the diaphragm pump during the spray cycle; if this occurs, the main air supply is somehow limited and does not offer enough flow for proper operation of the system. Troubleshoot main air supply.

- Fluid Recirculation Ball Valve (I) on reservoir is not restricted, or Air Purge Return Valve (J) is open. Fluid pressure will be too low to overcome the Atomizing Air Pressure (E). Adjust.

- Air has inadvertently entered the liquid line. Complete air purge of the liquid line (see section 4).

- The Safety Switch is not opening. This can be tested by closing Air Pilot Shutoff (F), closing Fluid Recirculation Ball Valve (I), opening Air Purge Return Valve (J), and manually actuating Liquid Timing Valve (D). Fluid should circulate freely and continuously back to the reservoir.

- 034 Atomizer is not opening, or Flow Restrictor is clogged. Check that the Air Pilot Pressure Monitor (G) reads 60 psi. Depressurize and lock and tagout the complete system prior to any work. Remove the Flow Restrictor and clean using #2841A84: Clean Out Tool (or a 0.0145" drill bit or brush). Use a light oil on the O-ring to facilitate reinstallation.



- The air pump on the reservoir is malfunctioning. Open Fluid Recirculation Ball Valve (I) and allow pump to operate. There should be a steady pulsating flow of liquid with no leaking of air or liquid from the pump itself. Refer to pump manual (Model 66605J-34B Aro Ingersol Rand) for repair and troubleshooting.

Too Much Liquid

- Liquid safety switch and 034 Atomizer are actuated for too long. Shorten Liquid Valve (D) timing.
- Pump pressure on reservoir (K) too high. Set to 45 psi.
- Flow Restrictor has been bypassed due to a leaky, damaged, or missing O-ring, or from chemical erosion of the 034 Atomizer. Replace or repair as needed.

Too Little Liquid or Poor Coating

- 46 ILX EJECTEZE concentration is too diluted.
- Opposite of Too Much Liquid (as referenced above).
- Hose, filter, nozzle, or flow restrictor partially clogged.
- The location of the rotating head is too far away. Locate the edge of the spray cover exactly 4" from the face of the billet.
- Rotating head is not centered to the billet, or not appropriately sized for billet.

Fluid Runs on or Is Not Atomized During Part or All of the Spray Cycle

- Air Timing Valve (C) is not correct. Must be open during the complete spray cycle. A visual inspection of the Spray Pressure Regulator gauge (E) allows for a visual inspection of the timing sequence.
- Liquid Timing Valve (D) cycle is too long.
- Liquid Timing Valve is malfunctioning. Troubleshoot by first observing the Air Pilot Pressure Monitor (G) to ensure pressure goes up and down quickly with the actuation of the Liquid Timing Valve.
- Liquid Safety Switch is malfunctioning. Follow the Liquid Air Purge as directed in section 5. After manual actuation has ended, the pump should be quickly shut down.
- 034 Atomizer is not properly closing. Disassemble, clean, or replace.

PA201 Refractometer

The PA201 Refractometer, manufactured by Misco, is a handheld testing instrument used to check and monitor dilution ratios of liquid concentrates that are mixed with water. It is operated by placing a drop or two of fluid in the titanium bowl, then pressing the activation button. A microprocessor will then deliver a nearly instantaneous digital readout on an LCD display.

This numerical reading can be correlated to a specific dilution for a given product using a cross-reference chart or logarithmic formula.

Calibration is automatic and does not require the use of special calibration solutions or tools. See the Misco PA201 Refractometer reference manual for additional information.

The Misco PA201 Refractometer is based on the Brix scale reading system. There are many different types and makes of Refractometers that can be used as a substitute. Be sure that whatever system is used is reliable and easy to operate.

For optimal performance, AMCOL Recommends:

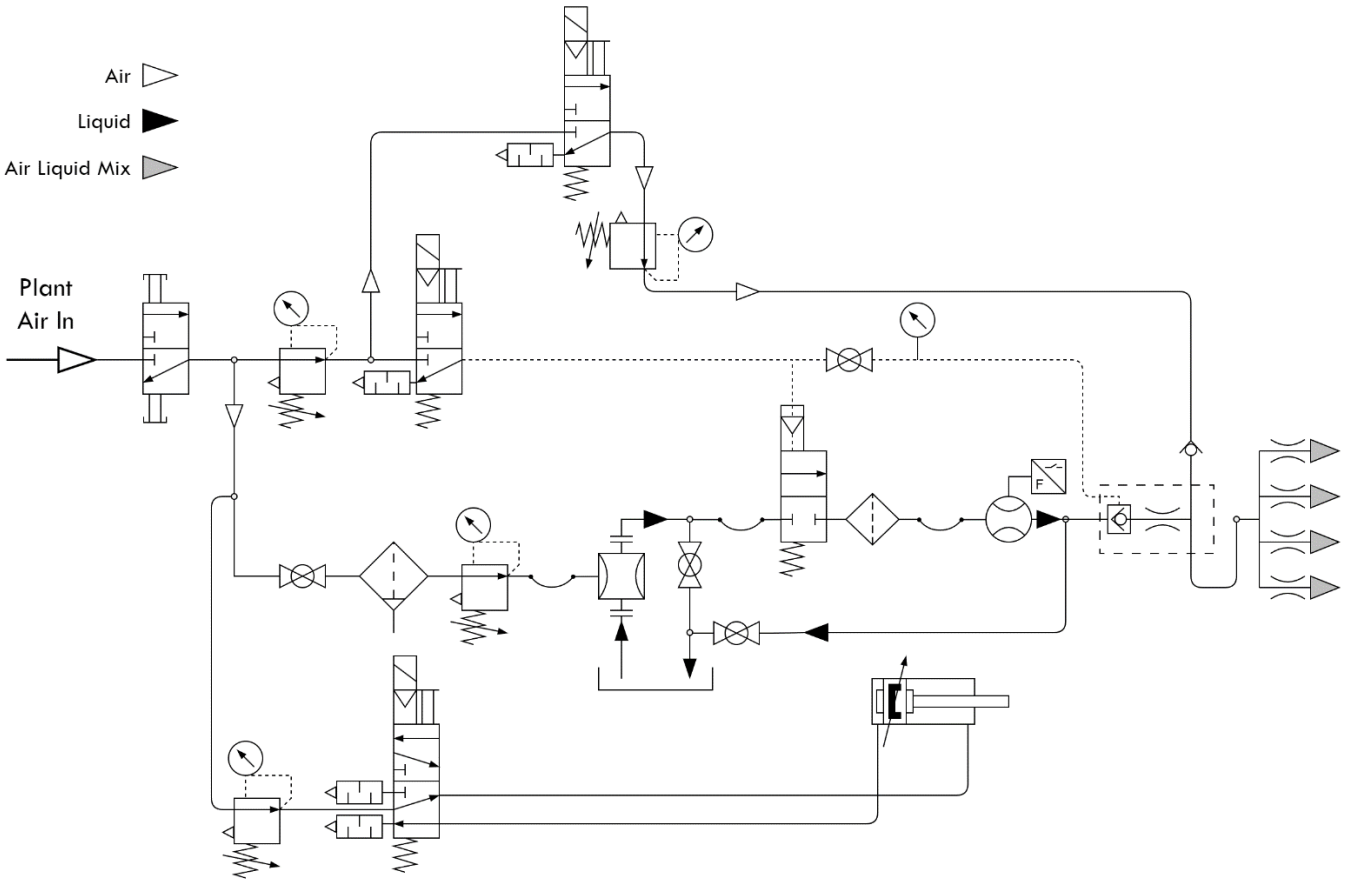
46 ILX EJECTEZE

Release Agent for Non-ferrous Extrusion

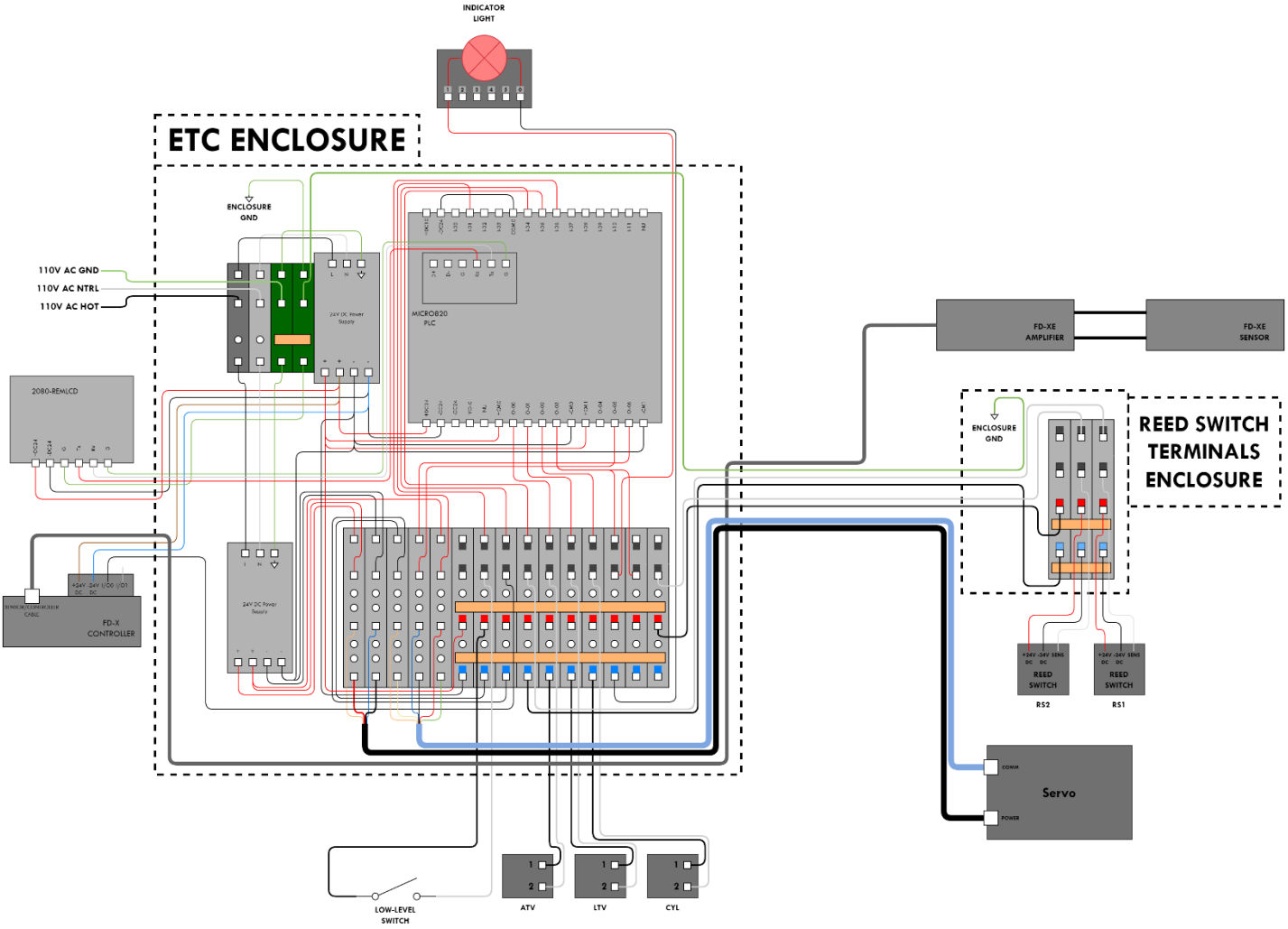
Proven technology, refined over decades.

8 System Schematics

PNEUMATIC DIAGRAM

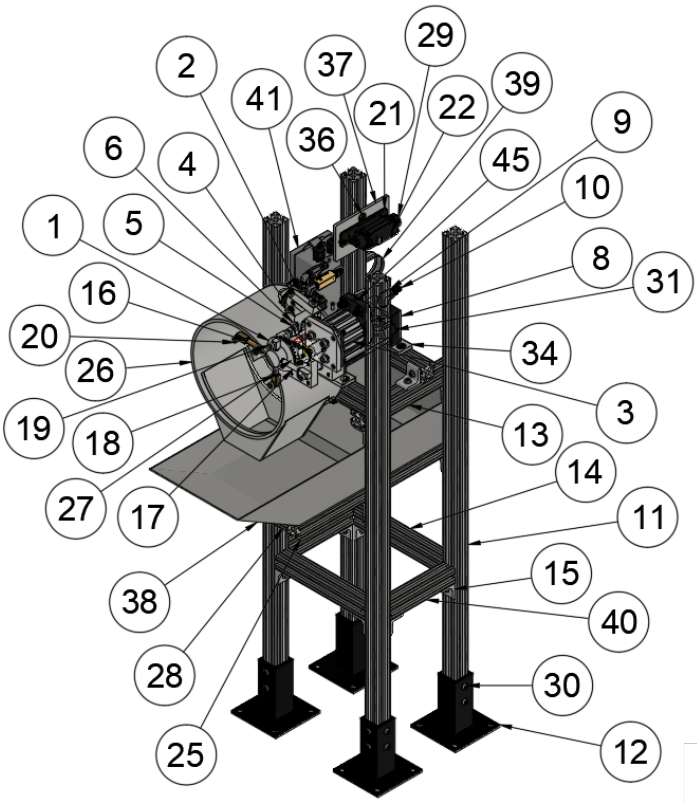


ELECTRICAL DIAGRAM



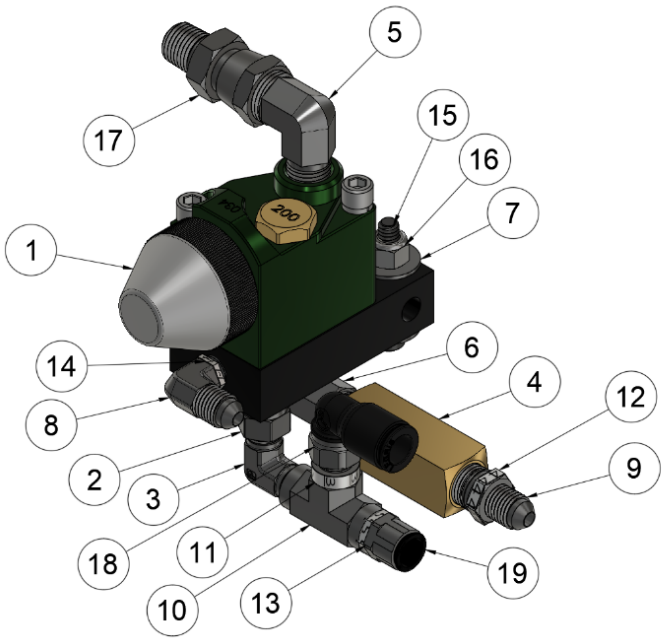
9 Drawings

Spray Head — 3063-HMA2-SA-10



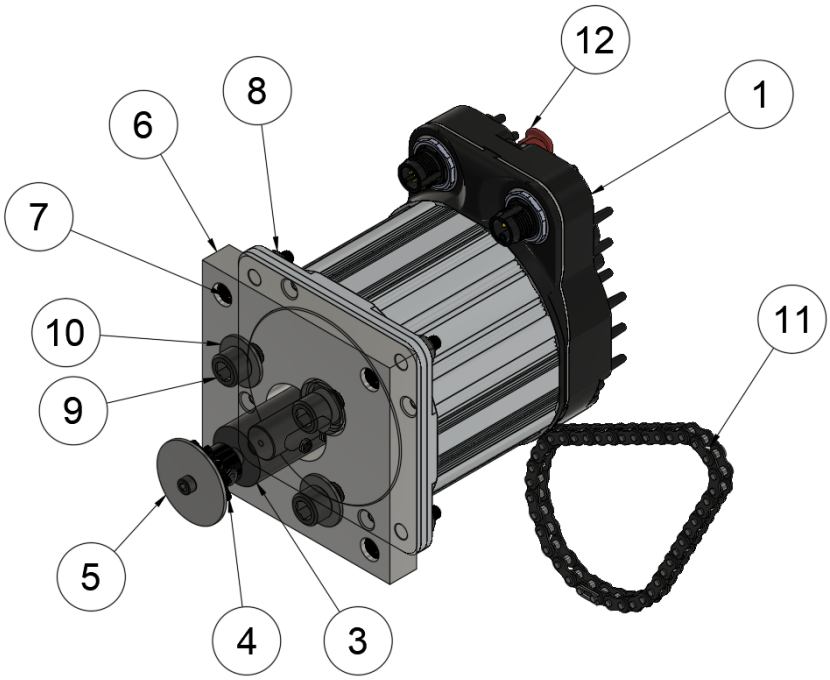
PARTS LIST			PARTS LIST		
ITEM	QTY	PART NUMBER	ITEM	QTY	PART NUMBER
24	2	8CNNMZ	1	1	13-SNTS-HS-C-SB
25	2	47065T103-17.5	2	1	3063-034C-HMA
26	1	3063-HMA2-COV-10-AC	3	1	14-SMA-HMA2
27	4	31NUFW	4	1	3063-HMA-034-BKT2
28	1	47065T103-7	5	1	25C87SHC
29	1	FD-XC20R1	6	6	25NUFW
30	68	47065T229	7	1	25CNNEZ
31	2	CS7-31	8	1	NE04A-E02-AMCM0
32	1	MMMSDR8	9	2	4-PC-18
33	1	MMMSDR9	10	2	4-4-37-2
34	2	3063-HMA-CYL-MP	11	4	47065T103-48
35	4	91253A621	12	4	EB-41
36	6	91253A580	13	2	47065T103-10.25
37	1	3063-HMA-FM-MP	14	4	47065T103-10
38	1	3063-HMA-CT-10	15	22	47065T845
39	1	9429T39	16	1	215PNL-2-30
40	2	47065T103-7.25	17	1	215PNL-2-25
41	1	3063-HMA-JB	18	1	215PNL-2-15
42	4	91251A383	19	1	WT4070M-01225-C
43	3	3063-LB-RS1-SM	20	3	FWT4070-01225-C
44	3	3063-LB-RS2-SM	21	1	OP-88294
45	1	SERVO-USB-COVER	22	1	FD-XS20E
			23	2	8C100SHC

Atomizer — 3063A-034C-HMA



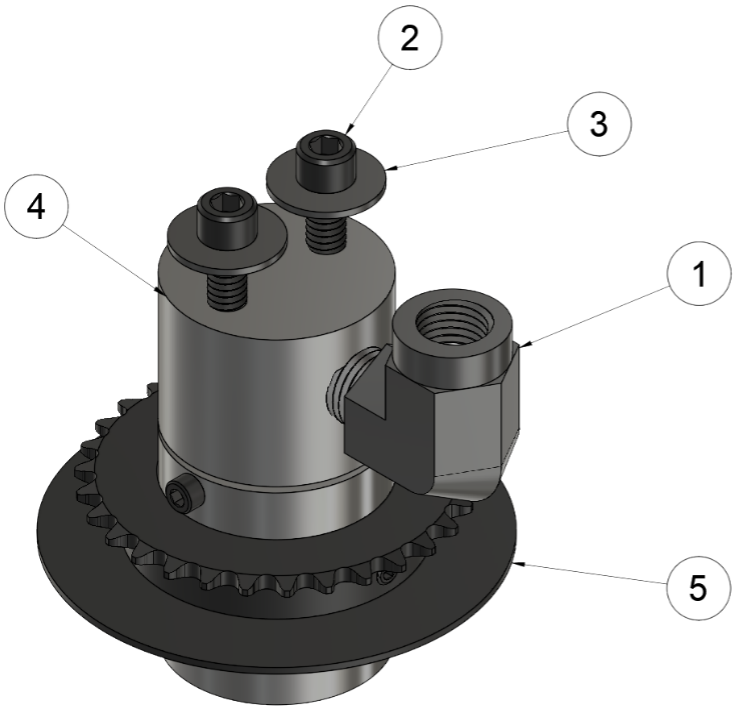
PARTS LIST		
ITEM	QTY	PART NUMBER
1	1	034-0200-AC
2	1	0107-2-2
3	1	2-PC-17
4	1	JC-2
5	1	6-37-6
6	1	4-PC-17
7	4	25NUFW
8	1	4-37-6
9	1	4-4-37-2
10	1	2-PC-25
11	1	MMMSDR3
12	1	MMMSDR4
13	1	MMMSDR5
14	1	MMMSDR7
15	2	25C150SHC
16	2	25CNNEZ
17	1	6-F6X-S
18	1	3109 60 11
19	1	3175 60 11

Servor Motor Assembly — 14-SMA-HMA2



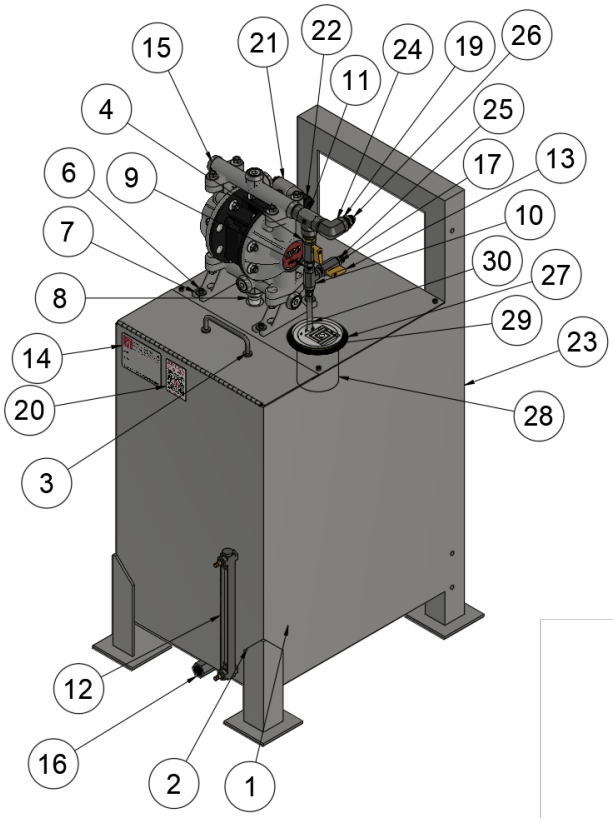
PARTS LIST		
ITEM	QTY	PART NUMBER
1	1	CPM-MCVC-3421H-RLS
2	1	96717A180
3	1	12-SME-C-AC
4	1	25B11-AC
5	1	6ULA7
6	1	SMMP
7	4	10F100SHC
8	4	10FNNMZ
9	4	31C75SHC
10	4	25NUFW
11	1	230C10300-AC21
12	1	SERVO-USB-COVER

Spinner Assembly — 13-SNTS-HS-C-SB



PARTS LIST		
ITEM	QTY	PART NUMBER
1	1	4-PC-18
2	2	25C62SHC
3	2	25NUFW
4	1	025-SNTS
5	1	30-25KW-AC

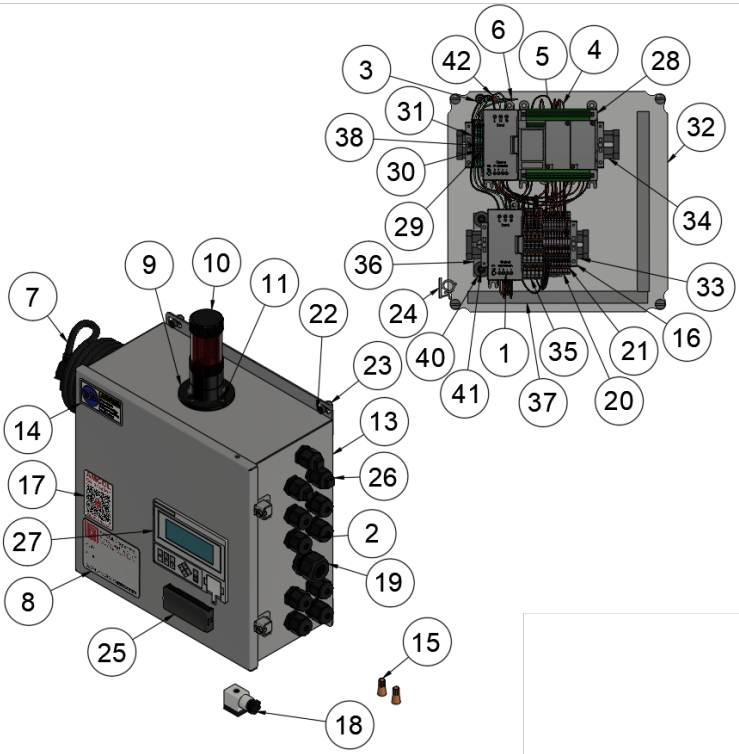
Reservoir — 3063-NP30-HMA



PARTS LIST		
ITEM	QTY	PART NUMBER
25	2	3175 60 14
26	1	6-8-37-2
27	1	8451A47
28	1	01387-AC
29	1	01387-CAP
30	1	U-64

PARTS LIST		
ITEM	QTY	PART NUMBER
1	1	4464K38
2	1	4830K186
3	1	11665A21
4	1	209P-8-4
5	4	25CNNEZ
6	4	25C87SHC
7	4	25NUFW
8	1	44875-AC2
9	1	4-PC-11
10	1	4-PC-25
11	1	8-PC-25
12	1	B-1579-1
13	2	MV608-4
14	1	2-SEP
15	1	66605J-34B-AC3
16	1	MV609-8
17	1	MMMSDR3
18	1	MMMSDR1
19	1	MMMSDR2
20	1	LABEL-3063-HMA SUPPORT
21	1	LLI-622-30NP
22	1	69915K54
23	1	2000-R30-TANK-AC2
24	1	8-PC-18

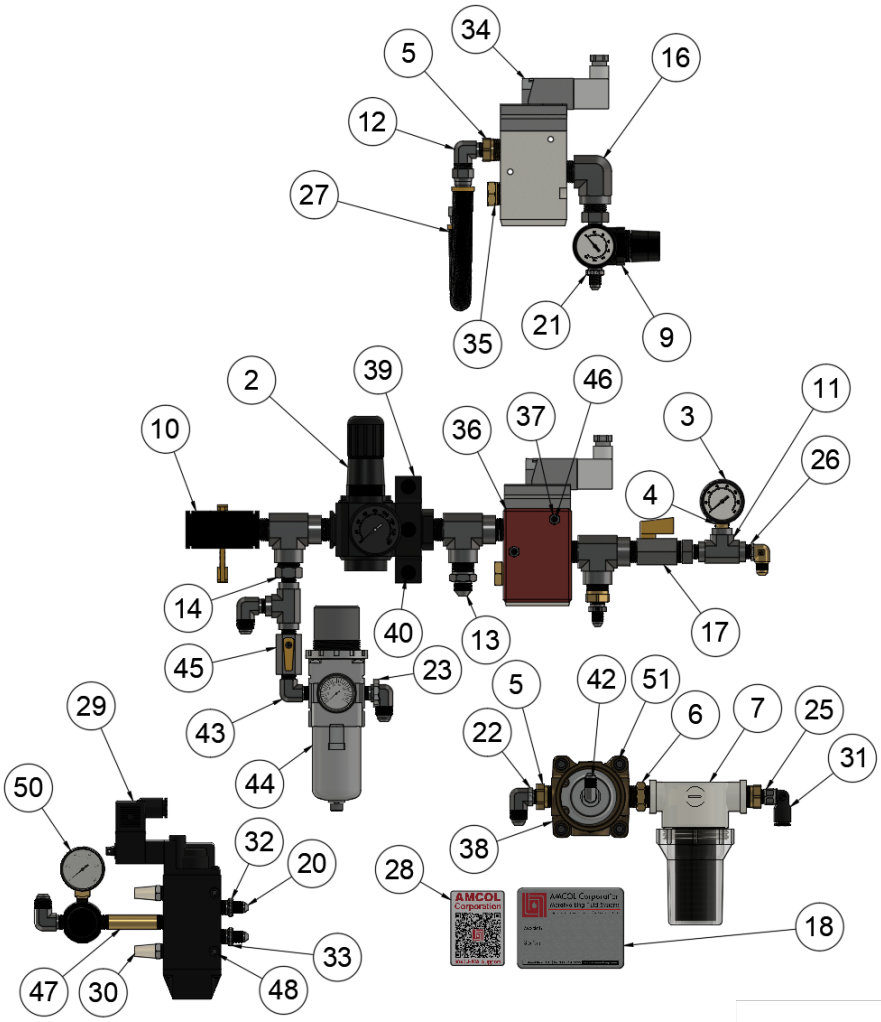
ETC — 3063-ETC-HMA2-24



PARTS LIST		
ITEM	QTY	PART NUMBER
25	1	FD-XA5E
26	3	69915K54-PLUG
27	1	2080-REMLCD
28	1	2080-LC20-20QBB
29	2	1492-PG2T
30	1	1492-P2T
31	1	1492-P2T-BL
32	1	A 12P12-AC8
33	1	8961K15-6
34	1	8961K15-8
35	5	1492-PD3
36	4	8961K23
37	2	7578K42-9
38	1	1492-CJP2-2
40	8	25NUFW
41	8	25C62SHC
42	1	8054T13-W

PARTS LIST		
ITEM	QTY	PART NUMBER
1	2	2080-PS120-240VAC
2	12	69915K54
3	1	7113K612
4	1	8054T13-R
5	1	8054T13-B
6	1	8054T13-G/Y
7	1	70355K33
8	1	2-SEP
9	1	854J-BSFC
10	1	854J-24GL4
11	4	10F50SHC
12	4	10FNNMZ
13	1	A-1212CH-AC7
14	1	LB-2410
15	2	7108K2
16	4	1492-EAP35
17	1	LABEL-3063-HMA SUPPORT
18	1	E-01013-61 (24VDC)
19	1	5302N12
20	10	1492-PS2-3
21	2	1492-CJP2-20-AC10
22	4	25C50SHC
23	12	25CNNEZ
24	1	7565K46

Valve Package — 3063A-MVO-24-HMA2



PARTS LIST			PARTS LIST		
ITEM	QTY	PART NUMBER	ITEM	QTY	PART NUMBER
30	2	ASP-2	1	2	005297
31	1	3109 60 14	2	1	01140
32	1	MMMSDR8	3	1	18-013-212
33	1	MMMSDR9	4	1	209P-4-2
34	2	VP742-5DZ1-04TA	5	4	209P-8-4
35	2	9833K11	6	1	216P-8
36	2	VP742-SPACER	7	1	2P132
37	2	10FNNMZ	8	1	2-PC-18
38	1	01285-HMY	9	2	342-25-020
39	1	7390K33	10	1	48115K85
40	2	25C75SFH	11	2	4-PC-25
41	4	25CNNEZ	12	5	6-37-6
42	1	4-37-6	13	1	6-8-37-2
43	1	4-PC-17	14	3	8-4-PC-11
44	1	AW30-N02BG-Z-A	15	3	8-PC-24
45	1	MV608-4	16	1	8-PC-18
46	2	91251A907	17	1	MV608-8
47	1	215PNL-4-30	18	1	2-SEP
48	2	25C175SHC	19	1	149F-4-4
49	4	31CNNEZ	20	4	4-4-37-2
50	1	3847K14	21	1	MMMSDR4
51	4	31C150SHC	22	1	MMMSDR2
52	1	01285-HMY-SPACER	23	1	MMMSDR1
			25	1	MMMSDR5
			26	1	MMMSDR7
			27	1	SP-HOS
			28	1	LABEL-3063-HMA SUPPORT
			29	1	K71DA00KS6KV21W2

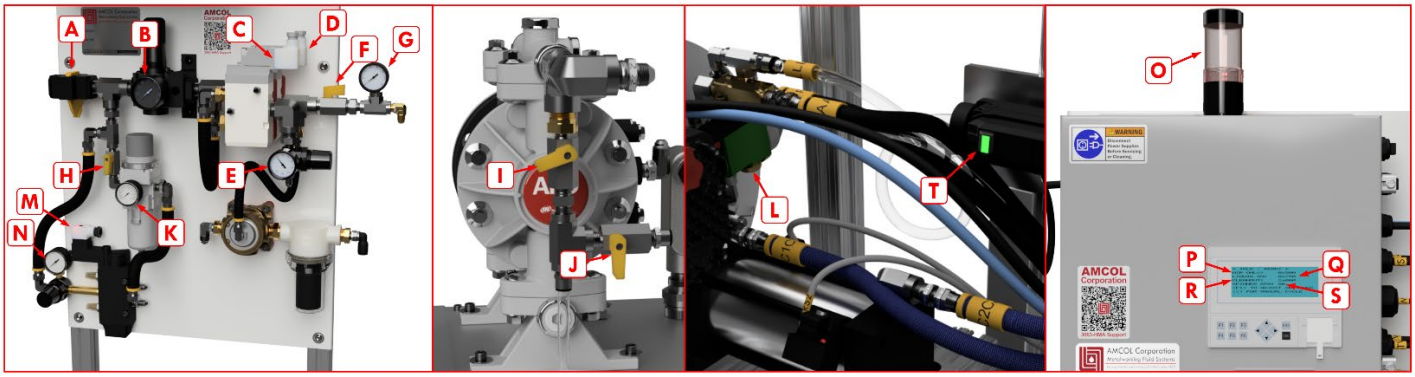
AMCOL Corporation

3063-HMA Support

AMCOL Corporation

21435 Dequindre, Hazel Park, MI 48030	248-414-5700	fax: 248-414-7489	www.amcolcorp.com

Quick Reference



System Settings:	
System Air Pressure (B)	60psi
Atomizing Air Pressure (E)	40psi
Air Pilot Pressure Monitor (G)	60psi
Fluid Recirculation Ball Valve (I)	10% open
Pump Inlet Pressure (K)	45psi
Cylinder Control Regulator (N)	40psi
Air Only Time (P)	0.5 seconds
Liquid On Time (Q)	0.75 seconds
Cleanout Time (R)	2 seconds
Spinner RPM (S)	80 RPM

Liquid Air Purge:

1. Close the Air Pilot Line using the Air Pilot Shutoff (F).
2. Close the Fluid Recirculation Ball Valve (I).
3. Open the Air Purge Return Valve (J) on the liquid reservoir.
4. Manually actuate the Liquid Timing Valve (D) while observing the liquid as it is returned to the reservoir. Continue until the flow is continuous and consistent.
5. Close the Liquid Air Purge Valve (J) located on the liquid reservoir.
6. Open the Fluid Recirculation Ball Valve (I) to <10% open.
7. Close the Liquid Air Purge Valve (J) located on the liquid reservoir.
8. Reopen the Air Pilot Shutoff (F) before operating.

ETC Operation:	
(ESC)	Return to main screen
(F1)	Adjustment screen (when logged in)
(F2)	Fault viewing screen
(F6)	Login screen
(^)	Increase value
(v)	Decrease value
(>)	Scroll through settings
(<)	Manual override (scroll on login screen)
(OK)	Hold to clear faults (hold to change PIN on login screen when logged in)

Daily Maintenance:

- Observe fluid level and fill as necessary.
- Check fluid dilution using Misco PA201 Digital Refractometer.
- Observe all air pressure settings and gauges to be consistent as per the liquid and air timing sequence. Use these gauges to confirm that all air valves are properly opening and closing. System air should never significantly change as each valve opens and closes.
- Observe ½" Inline Strainer for sediment and solids. Clean or replace strainer (80 Mesh Replacement Screen) if required. Identify root cause.
- Observe Reservoir Recirculation Strainer for sediment and solids. Clean or replace strainer if required. Identify root cause.
- Observe spray alignment, quality, and quantity. Make any adjustments or repairs as necessary.