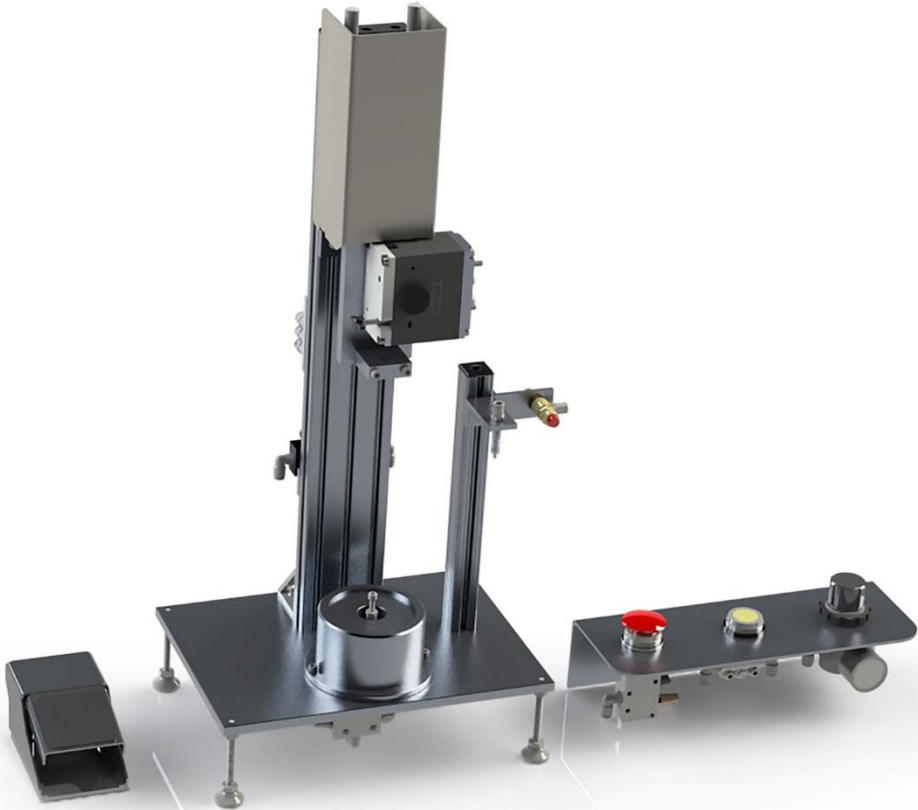


Tridak® Model 1060 User Guide

Syringe Filling System



About Tridak

Systems for fluid packaging.

Tridak manufactures fluid packaging systems for a variety of industries including industrial, medical, dental, pharmaceutical, and food preparation. Tridak's filling systems for syringes and cartridges provide significant productivity gains over manual and other more complicated and costly filling methods. The equipment is suited for all industry standard packaging as well as custom molded syringes and cartridges. Tridak possesses the capability to fabricate nozzles and multi-port dispensing manifolds that perfectly match the packages being filled. Single- and dual-component materials can be packaged in seconds, one at a time, or in multiples for higher volume throughput. The equipment accommodates various mix ratios. High-pressure filling equipment is available for packaging highly filled materials in tiny syringes or compoules.

Please note that most filling system applications are unique. Tridak does not warrant the fitness of the product for the intended application. Any warranty applicable to the product, its application and use is strictly limited to that contained in the Tridak standard Conditions of Sale. Tridak recommends that any intended application be evaluated and tested by the user to insure that desired performance criteria are satisfied. Tridak is willing to assist users in their performance testing and evaluation. Data sheets are available for pressure pots upon request.

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Introduction

Introduction to the User Guide

This guide describes how to assemble, use, clean, adjust, maintain and troubleshoot the Tridak® Model 1060 Syringe Filling System safely and efficiently.

Intended Audience

We prepared this user guide for experienced process engineers, technicians, and manufacturing personnel. If you are new to filling systems and do not understand the instructions, contact Tridak Equipment Engineering to answer your questions before using the equipment.

Safety



WARNING! *If you use this filling system without first reading and understanding the information in this user guide, injury can result. To reduce the risk of injury, read and ensure you understand the information in this user guide before assembling and operating a Tridak® filling system.*

General Safety Considerations

All users of Tridak® filling equipment should read and understand this user guide before assembling and using the equipment.

Specific Safety Considerations

Using Safe Operating Pressures

Pressurizing the components in the dispensing system beyond the maximum recommended pressure can result in the rupturing of components and serious personal injury. To minimize the risk of rupturing components and injury, do not exceed the maximum operating pressure of the components in your filling system.

Preventing Injection Injury

Discharging fluids or compressed air with a dispensing tip against your skin can cause very serious injection injury. To minimize the risk of injection injury, do not place the dispensing tip in contact with your skin.

Personal Protective Equipment

Operators are recommended to wear any personal protective equipment specified by their company's safety policy for the materials used during filling. Personal protective equipment should be in place and used at all times before pressurizing the system and when handling any potentially hazardous materials.

Product Overview

Description of the Model 1060 Syringe Filling System

The Model 1060 syringe filling system is designed to fill syringes, one at a time, quickly and accurately from a material reservoir. The system can be used with several different material reservoirs including cartridge reservoirs, bottle reservoirs, and pail reservoirs. The system utilizes a Model 830 disposable fluid path valve to make material changeover fast and easy, while eliminating most cross-contamination.

Special Features and Benefits of the Model 1060

This machine features several design features to make filling simple, quick, and clean, including:

- Disposable fluid path valve with disposable wetted components that help minimize the possibility of material contamination and simplify clean-up and maintenance
- Disposable fluid path can be capped and remain attached to the material cartridge for storage
- Adjustable suck-back feature allows for a clean dispense of stringy and tacky materials
- Can be adjusted to accommodate different height and diameter syringes
- Adjustable pneumatic stop assures accurate and repeatable fills
- Argon filling station to fill syringe nozzle dead space prior to material filling

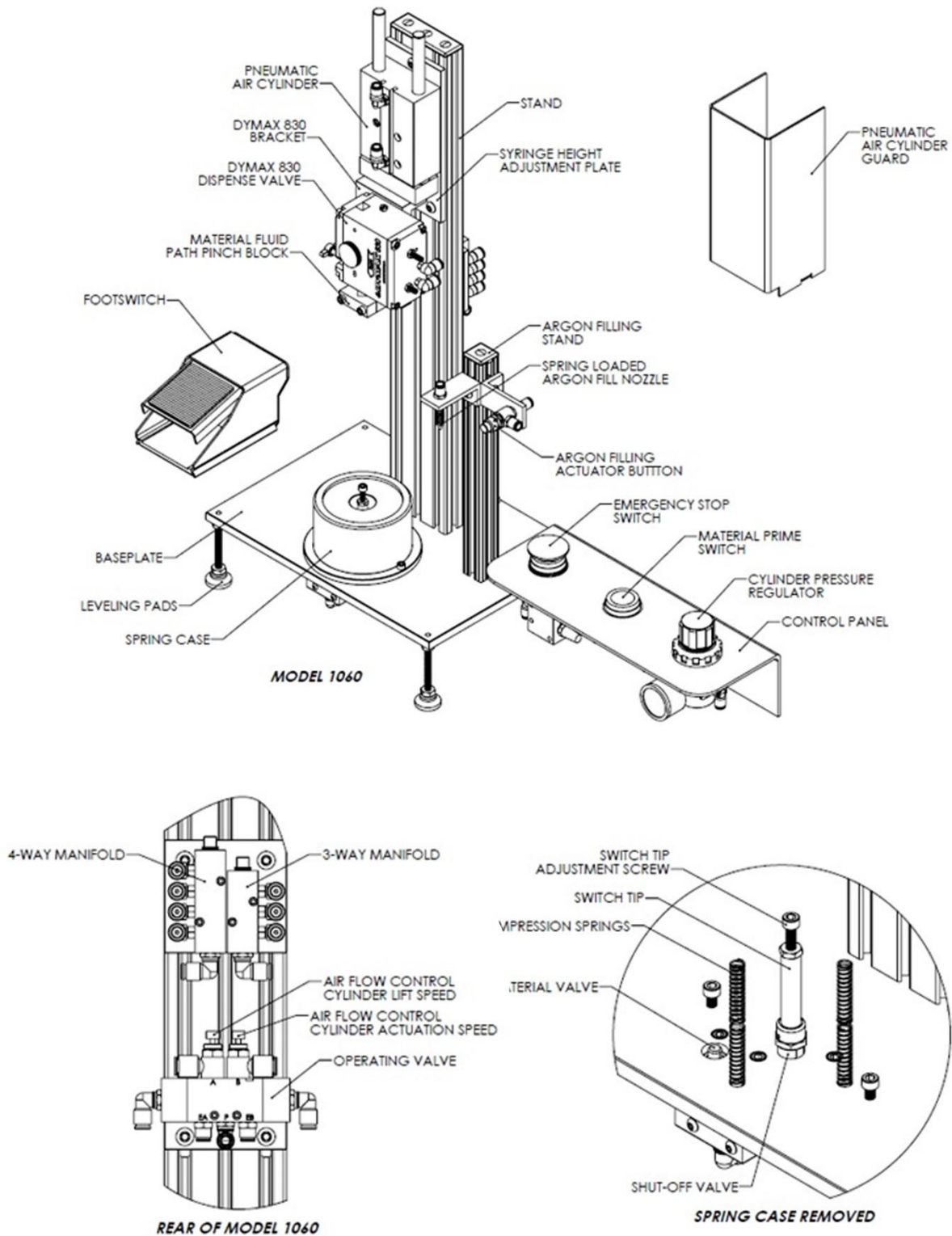
Description of Main Components

The main components of the Model 1060 Syringe Filling System include:

1. **Utility Inputs** – The main inputs to the filling system.
 - 80-100 PSI clean dry air
 - Material supply line with adequate pressure to move material into system
2. **Air Cylinder** – The air cylinder controls the motion of the machine head and pinches the syringe in place during operation. This then presses on mechanical switches that control when to fill the syringe as well as when to shut the machine off after the cycle is complete.
3. **Operating Valve** – The operating valve controls the direction of the air cylinder and is controlled by the position of the material valve and shut-off valve.

4. **Air Manifold** – The air manifolds are used to split and share air throughout the machine. The 4-way manifold operates at the input air pressure, while the 3-way manifold runs at the air pressure set with the air regulator on the control panel.
5. **Foot Pedal** – The foot pedal is used to commence the machine fill cycle.
6. **Air Regulator** – The air regulator enables you to control the air pressure in the air cylinder and mechanical control valves. The air regulator includes:
 - 0-150-psi (0-1 MPa) pressure gauge is installed on the air regulator
 - Pressure control knob that enables you to adjust the pressure of the air entering the air cylinder and mechanical control valves. 20-25 psi recommended for most applications.
7. **Compressed Air Lines** – The air line consists of polyurethane tubing designed for compressed air use. Air lines are color codes for specific air functions of the machine as follows:
 - Blue Tubing – Compressed air for all machine functions
 - Green Tubing – Argon gas supply from argon fill button to argon fill nozzle
 - Yellow Tubing – Compressed air for foot pedal operation
 - Orange Tubing – Valve exhaust air away from machine
8. **Air Flow Controls** – Air flow controls are adjustable air fittings to allow end user to adjust the air speed to the main air cylinder in both up and down directions.
9. **Model 830 Valve** – A disposable fluid path valve used to dispense material from the material reservoir. This valve features suck-back, allowing drip-free dispensing from fill-to-fill. For questions relating to the Model 830 valve, refer to the enclosed Model 830 Valve User Guide.
10. **Fluid Path** – The fill tube and fittings used to deliver fluid material from bulk reservoirs to syringes. It is constructed of black, light-blocking polyethylene tubing compatible with many types of commercial and medical fluids. Un-pigmented clear tubing is also available.
11. **Tube Support** – Supports the disposable fluid path during dispensing and allows the valve pistons to compress the fluid path as needed to control fluid flow and suck-back.
12. **Argon Fill Station** – The argon filling station is a filling apparatus that is designed to help displace ambient air from the dead space of the syringe will filling the space with argon before the material fill process.
13. **Spring-Loaded Syringe Tensioning Base** – The spring-loaded syringe tensioning base is used to create a spring preload between the syringe and the fill nozzle. This will ensure a sealed fit during the filling operation.
14. **Emergency Stop Switch** – The emergency stop switch is used in case of an emergency malfunction or unintended start of the machine. Depressing the emergency stop switch will lift the air cylinder and return the machine to cycle start position. The machine will also not start cycle again until emergency stop switch is reset.
15. **Material Prime Switch** – The material prime switch is used to open the 830 valve to allow flow of material through the nozzle tip. The prime switch can be used to manually fill the syringe when in place, or to prime the material line when either a new material line is installed, or when the pressure pot is changed.

Figure 1. Main Components of the Model 1060



Machine Setup and Adjustments

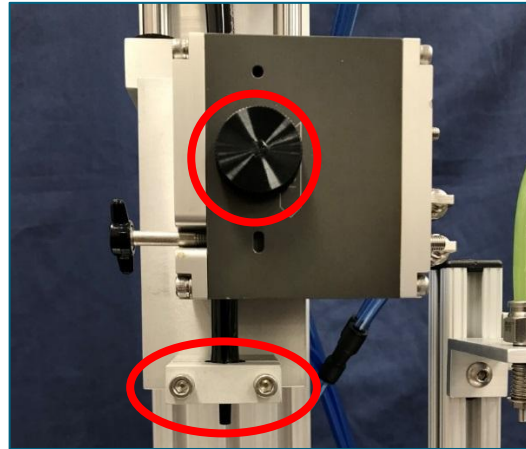
Setting Filling Station Height

1. Disconnect the Main Air Supply to ensure the system does not accidentally start while setting the filling station height. Also, turn off the air to Material Reservoir and relieve the residual air pressure before continuing.
2. Remove the Air Cylinder Guard by removing the two Mounting Screws (Figure 2). The Model 830 Valve and the Material Fluid Path Pinch Block will also need to be temporarily removed to remove the Air Cylinder Guard.
3. Install the Fluid Path and Material Nozzle Tip into the Model 830 Valve and Material Fluid Path Pinch Block (Figure 3).

Figure 2. Remove 2 Mounting Screws



Figure 3. Fluid Path & Nozzle Installation



4. Loosen 3 bolts on the cylinder mount adapter (Figure 4).

NOTE: Support the weight of the cylinder assembly so that it does not drop accidentally.

Figure 4. Loosen 3 Bolts on Cylinder Mount Adapter

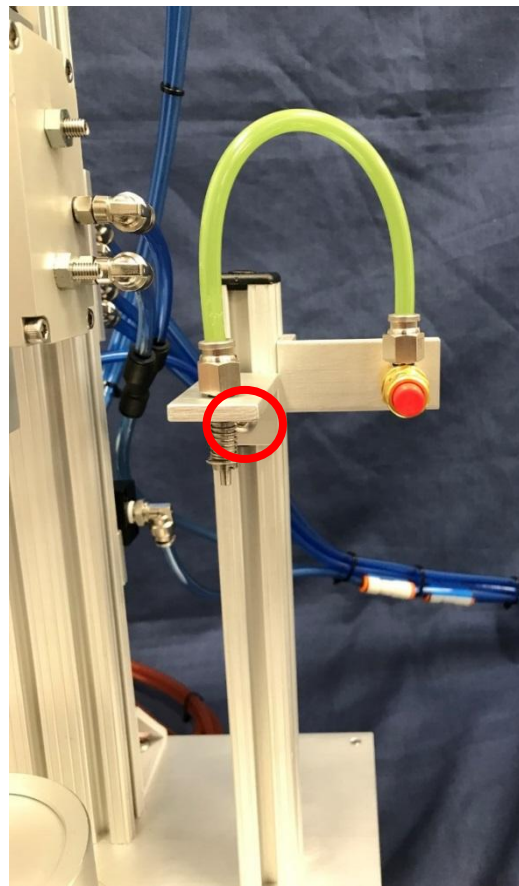


5. Lift cylinder mount adapter until adequate clearance is gained to insert the material nozzle into the syringe inlet.
6. Lower the cylinder assembly and syringe slowly until the syringe slightly preloads the spring pad.
7. Tighten the 3 bolts on the cylinder mount adapter to lock the filling system height. Ensure there is still preload in the spring pad from the syringe when inserted.
NOTE: Ensure that the cylinder is firmly in the home position during setup to allow for correct preload.
8. Replace the air cylinder guard.

Setting Argon Station Height

1. Loosen the screw on the argon fill bracket (Figure 5).
2. Lift the bracket up until adequate space is achieved to position the syringe below the argon nozzle.
3. Lower the bracket and ensure the argon nozzle enters the syringe nozzle inlet.
4. Continue to lower the bracket into the syringe to preload the argon nozzle spring.
5. Tighten the argon nozzle bolt to set the bracket height.
6. Test the functionality of the setup but removing and inserting the syringe into the argon filling station.
7. Adjust if needed, using steps 1-6.

Figure 5. Argon Fill Station Setup



Making Fill Volume Adjustments

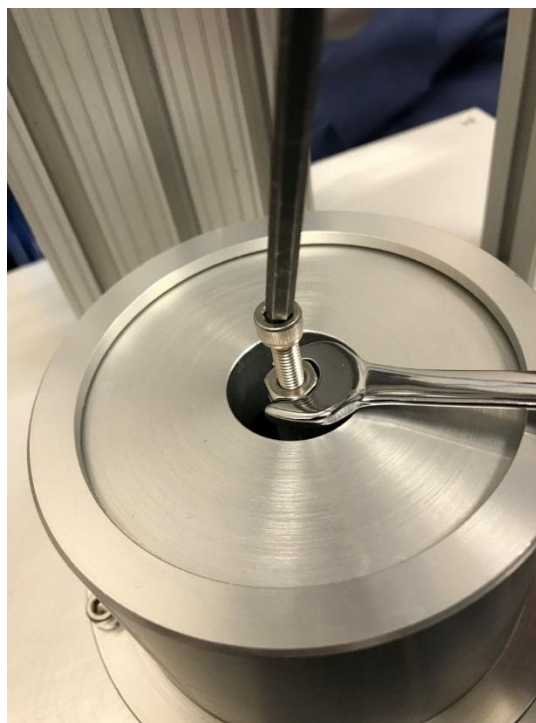
1. Loosen the switch tip nut (Figure 6).
2. Adjust the switch tip bolt up or down to increase or decrease the fill volume to meet fill requirements.

NOTE: Raising the switch tip bolt will decrease the fill volume, and lowering the switch tip bolt will increase the fill volume.

3. Tighten the switch tip nut once the bolt height is set.
4. The piston will contact the top of the switch tip bolt head to shut off the machine once the fill volume is achieved during the fill cycle.
5. Trial fills may be necessary to fine tune the switch tip bolt height to achieved the required fill volume.

NOTE: See Fluid Fill Operation Section for instruction on material filling.

Figure 6. Adjusting the Syringe Fill Volume – 3/8” Wrench



Operation

Argon Fill Operation

1. Ensure argon is supplied to the argon filling station inlet before proceeding.
2. Insert syringe into the argon fill station by tilting the syringe and inserting the syringe outlet nozzle around the spring-loaded argon nozzle.
3. Compress the spring upwards until the syringe can be tilted into a vertical position. The syringe is now properly installed.
4. Press the argon fill button until the desired argon fill is achieved.
5. To remove the syringe, compress the spring upwards until the bottom of the syringe can be tilted outward and lowered out of the argon fill station.
6. Cap the syringe if required.
7. Repeat steps 1-4 as required.

Fluid Fill Operation

1. Ensure the fluid line is installed and primed.
2. Insert the main air line into the 4-way manifold on the rear of machine (Figure 7). The air cylinder will retract into the home position.
3. Insert the syringe by setting the base of the syringe on top of the spring pad.
4. Press downward on the syringe to compress the spring pad until the syringe can be tilted past the fluid nozzle.

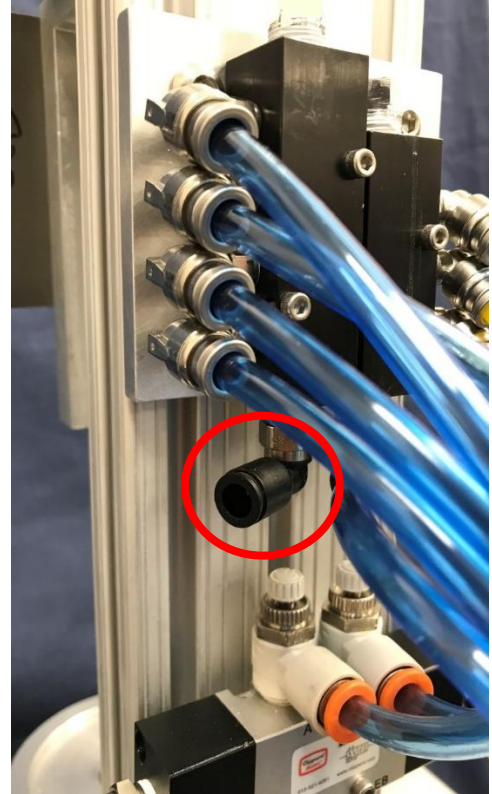
NOTE: Do not fully lower the spring pad or the fluid fill switch will activate and fluid will be dispensed.

5. Align the syringe outlet nozzle with the fluid nozzle and release tension on the spring-loaded pad to preload the syringe. The syringe is now installed and ready for fluid fill.
6. Press the foot pedal to begin the fluid fill cycle.
7. Fluid fill will move the syringe piston down until the fluid fill trip switch is depressed. Once this occurs, the machine will cycle off, the fluid fill will cease, and the air cylinder will retract to home position.
8. To remove the syringe from the filling machine, first twist the syringe slightly in either direction to break the sealed press fit.
9. Press down on the syringe to lower the spring pad enough to clear the fluid nozzle.

NOTE: Do not fully lower the spring pad or the fluid fill switch will activate and fluid will be dispensed.

10. Tilt the syringe toward the operator and lift to remove from the filling machine.
11. Cap syringe if required.
12. Repeat steps 1-11 as required.

Figure 7. Main Air Supply Inlet (1/4" OD Tubing)



Cleaning and Maintenance

Cleaning Machine Surfaces

Clean anodized machine surfaces with isopropyl alcohol or other material safe cleaners. If using autoclave or similar heat or steam cleaning system, remove all air tubing, air fittings and 830 valve before cleaning the unit.

Material Changeover

The disposable fluid path in the Model 830 valve allows for easy and quick material changeover. To switch your system over from dispensing one material to dispensing a new material, simply replace the fluid path tube in the dispensing valve, as well as the material nozzle. You will also need to replace the material reservoir on the system. The new material can be placed in a new material reservoir or the existing reservoir can be cleaned and the material replaced. Please refer to your material reservoir manual for instructions on how to properly clean the reservoir. If using a bottle or pail reservoir, material change out will simply require swapping the bottle or pail.

Troubleshooting

Issue	Recommendation
Air cylinder not actuating	Check 80-100psi consistent, clean dry air supply
	Emergency stop switch depressed
	Check air supply to foot pedal
	Check valve material/air supply lines are correctly connected to valve
Syringe will not fit into filling station	Check cylinder mount adapter height
	Readjust cylinder mount adapter height if necessary
	Check spring-loaded tensioning base is correctly setup
Syringe will not fit into argon station	Check argon fill bracket height
	Readjust argon fill bracket height if necessary
	Check spring-loaded argon nozzle is installed correctly
No material flow	Check valve material/air supply lines are correctly connected to valve
	Check 80-100psi consistent, clean dry air supply
	Check air supplied to material reservoir
	Adjust valve to increase material flow
	Fluid line is clogged
	Emergency stop switch depressed
	Refer to 830 valve User Guide

Issue	Recommendation
No argon flow	Check argon supply flow and pressure
	Argon line is clogged
	Argon nozzle is clogged
	Argon filling button is not operating correctly
	Argon tubing leak
Machine will not reset after fill	Check 80-100psi consistent, clean dry air supply
	Check air supply to shut-off switch valve
	Check material is flowing into the syringe
	Emergency stop switch depressed

For non-common problems, please contact Tridak Equipment Engineering before proceeding further.

Spare Parts

BOM Item Number	Tridak Drawing Number	Description
1	T18655	BASE, 1060
4	D10145	VALVE, 830, MAIN
5	T18656	V BLOCK, BASE, MODEL 1060
6	T15231	VBLOCK, TOP, 1000
9	T18657	SPRING PRESSURE PAD, 1060
10	T18658	SPRING CASE, 1060
11	T17329	FOOTSWITCH, ASSY, PNEU, 1001
13	T18659	CYLINDER MOUNT ADAPTER, 1060
14	T18660	VALVE MOUNT, 1060
17	T18661	VALVE ADAPTER, 1060
18	T18662	ARGON FILL BRACKET, 1060
20	T18663	ARGON BUTTON FILL BRACKET, 1060
23	T18664	AUXILIARY CONTROL PANEL, 1060
27	T18668	80/20 1030-S PROFILE
28	T18669	80/20 1002-S PROFILE
50	T18665	ARGON NOZZLE, 1060
54	T18666	MANIFOLD MOUNT, 1060
56	T18667	SWITCH TIP, 1060
62	T18671	MATERIAL VALVE BRACKET, 1060
65	T18670	SHUTOFF VALVE BRACKET, 1060
68	T18699	AIR SLIDE GUARD, 1060

Additional Figures

Figure 8. Material Valve and Shut-Off Valve

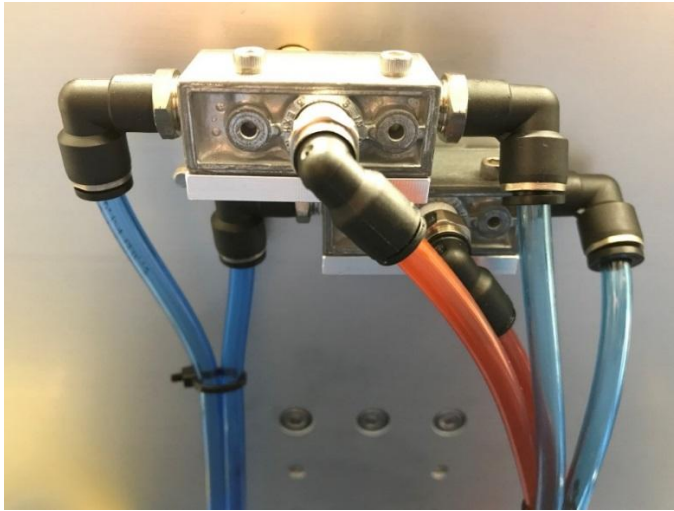


Figure 9. Rear of Machine, Manifolds, Operating Valve

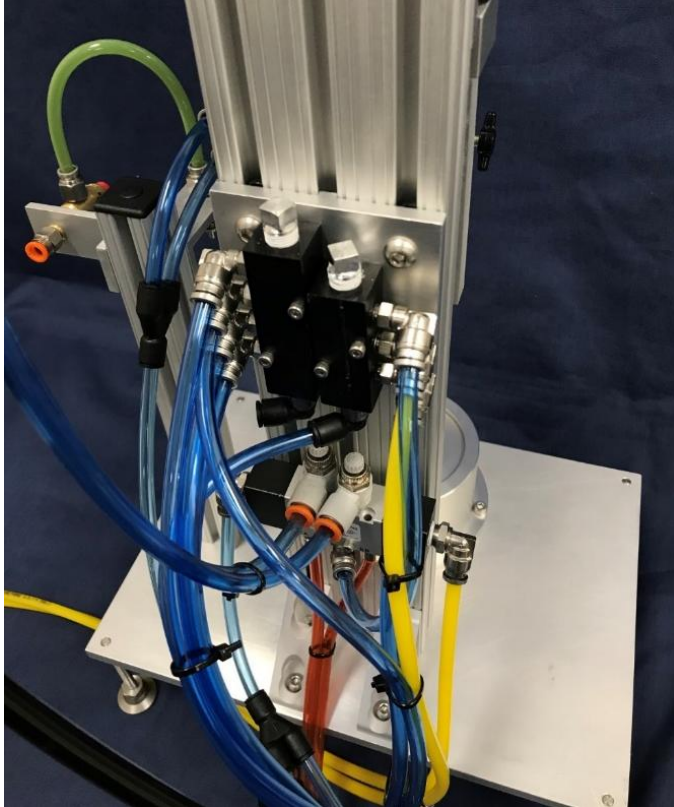


Figure 10. Operating Valve and Flow Controls



Warranty

From date of purchase, Tridak Corporation offers a one-year warranty against defects in material and workmanship on all system components with proof of purchase and purchase date. Unauthorized repair, modification, or improper use of equipment may void your warranty benefits. The use of aftermarket replacement parts not supplied or approved by Tridak Corporation, will void any effective warranties and may result in damage to the equipment.

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