



Packaging Systems

Owner's Manual

AESFill AF1

Single headgear pump filling machine



****Note—Machine image may not be the same as what was purchased.**

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NOTICE REGARDING OSHA REGULATIONS

Sellers shall not be responsible for any failure of compliance which results from the location, operation, use or maintenance of the equipment or for alterations of the equipment by people other than the seller, or from an option or accessory to the equipment which was available to the buyer but omitted at the buyer's direction. Sellers shall not be responsible for designs or instructions furnished by the buyer or his agents. Seller makes no warranties with respect to noise and will not be responsible for any fines, penalties, or consequential damages.

Aesus Packaging Systems
Pointe-Claire (Montréal), Québec
Canada

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1. Warranty & Terms and Conditions of Sale

AESUS refers to Aesus Labelling Systems, Aesus Packaging Systems Inc, and DL Tech Inc.

GUARDING: Guarding provided may not suit your local requirements. Additional guarding is available at extra cost and can be provided to meet your requirements. Please examine the guarding included and advise us immediately should you require any changes.

PERFORMANCE GUARANTEES: The performance of Aesus machinery to do a particular task, at a particular speed, with a customer's products (caps, containers, labels, shrink sleeves, etc.) depends on many variables. These variables may also include the ambient temperatures, the environment, the quality of the components, the quality of the film or the labels, the backing paper, the design of the container, and possibly many other considerations. Aesus in the light of their experience attempt to provide what Aesus deems is an acceptable and/or affordable solution. Therefore, due to so many possible variables, Aesus cannot positively guarantee all aspects of performance. Customers are expected to perform a final acceptance test at Aesus's facility with as many of their components as possible, and Aesus will do their absolute best to help the customer find a solution to any challenging issues, only charging the customer at Aesus's cost for the work done in the attempt to find an acceptable solution.

TESTING: Quotations are always subject to final testing of bulk samples. Changes and additional costs incurred in order to achieve proper operation, or to reach estimated speeds of the machinery, after testing of bulk samples, will be charged at cost, when not otherwise agreed to in advance. In those cases where bulk samples are not supplied, equipment will be tested for normal functioning only. Performance on products not submitted whether expressed or implied cannot be guaranteed.

OTHER MANUFACTURERS: It should be understood that although Aesus will do their best to ensure that coders, vision systems, barcode readers, UV detection systems, etc., that are manufactured by others but integrated by Aesus, perform appropriately at installations and during FATs (should the customer have purchased FAT tests at Aesus, or with Aesus in attendance at the customer's facility), Aesus does not guarantee these items, nor will Aesus be held responsible to delivery delays caused by deficiencies of such systems. The customer should do their due diligence in the choice of coding and checking systems that are appropriate. Aesus may facilitate the process by purchasing these items on behalf of the customer, but it is understood that Aesus passes the warranty (ies) of these items to the customer upon delivery of the machine. If any of these systems fail to perform, the customer should deal directly with the supplier in question, although Aesus will do their best to help facilitate this process.

An "Aesus in attendance" run is a test of a duration that is acceptable to both Aesus and the customer (at suitable charges) at an Aesus facility or at the customer's facility, with qualified Aesus engineer(s) in attendance for the purpose of qualifying and accepting the machine (FAT).

SAMPLES AND TEST MATERIAL: In order to confirm the order and the estimated time for machine manufactures, representative samples of all materials and containers to be used on the machine must be available at the factory. Samples, as requested, are to be forwarded free of charge, freight prepaid to the factory by the customer, indicating minimum values for customs purposes where applicable. All samples will be returned with all the tested machinery. In the case where returning product will significantly increase the freight costs, the buyer will have the option of paying for proper disposal of their samples.

Normally a 15 minute "production run" of samples of each size bottle (or more), and adequate samples of products, band, or other consumables are required in order to ensure the proper operation of the machine. Samples must be sent free of charge, freight and duties prepaid to arrive within 30 days of order date. Late delivery of the samples will result in late delivery of the machine.

MATERIALS AND CONSUMABLES: Aesus assumes no responsibility for materials and consumables purchased by the buyer regardless of testing performed and recommendations made. Aesus recommends that the customer does not buy considerable quantities of consumables such as film, band, sleeving, caps, labels, etc. until final satisfactory tests have been conducted to prove suitability of such.

MACHINE ACCEPTANCE: When machinery is complete, the customer will be requested to visit the Factory for machine Acceptance Testing (FAT). All features will be demonstrated, as well as a five-minute continuous production run on all sizes of samples supplied. Additional charges apply for longer acceptance tests or when more than 3 product sizes are to be tested. The machine will be deemed to be complete and accepted by the customer when the manufacturer has demonstrated the machinery operating at the required speeds and quality specified.

ON-SITE ACCEPTANCE TESTING: Customers have the option of having the acceptance tests repeated at their facilities, by contracting for a representative of the original equipment manufacturer or Aesus to carry out the test on-site, at prevailing rates.

INSTALLATION LABOUR AND TRAINING: Installation of and training on equipment and accessories is not included and can be done by Aesus or by those of Aesus's agents and representatives on request at prevailing rates. Note that some equipment such as coders, vision systems, barcode readers, UV detection systems, etc., that are manufactured by others (OEMs) but integrated by Aesus, can be complicated and Aesus technicians may not be familiar with many aspects of these items. Customers should also consider engaging OEM trained technicians for these complicated systems. When equipment is not installed by us, Warranties shall be limited to replacement of defective parts, FOB supplier factories, supplied prepaid and credited on return of defective parts.

DAMAGE CLAIMS: Great care is taken in packing all machines, parts and accessories. All claims for breakage or damage whether concealed or obvious must be made to the carrier as soon as possible after receipt of the shipment.

WARRANTEE: Equipment and Component warranties are in accordance with those of the original equipment supplier, but for Aesus manufactured components shall be 12 months, based on single shift usage. Wear parts, and those parts found not to be installed according to the equipment manufacturers or Aesus instructions, abused, not used in accordance with the application originally intended, or modified without prior approval of the original equipment manufacturer or Aesus are excluded. Labour or travel to replace defective parts is not included.

The foregoing is the only warrantee made by the seller, and the seller specifically disclaim all other warranties, express or implied, including but not limited to, the implied warranties of marketability and fitness for a particular purpose.

LIMITS OF LIABILITY: Liability of the original Equipment supplier, Aesus's, its agents, distributors, and representatives, for any damages suffered by the buyer or its customers, whether in contract or otherwise, shall be limited to the amount paid to the seller by the buyer in reference to the equipment supplied, and in no case shall a seller be liable for any special, indirect, or consequential damages (including loss of goods, loss of profits, loss of opportunity, replacement costs or other) of buyers, any customer, or of any third party, even if sellers have been previously advised of the possibility of such damages.

RETURN OF GOODS: In no case can any material or equipment be returned to us without our prior written acceptance.

FORCE MAJEURE : Under no circumstances can Aesus or their representatives be responsible for delays caused by Force Majeure. Force Majeure includes strikes, wars, riots, floods, fires, earthquakes, and other such eventualities out of the control of Aesus or their representatives.

WAIVER: Our failure to insist upon any of these terms and conditions shall not be deemed a waiver of any rights that Aesus may have, and shall not be deemed a waiver of any subsequent breach or default in these terms and conditions.

PERMITS: Permits and inspections, when not specified, required for the installation and/or use of the equipment furnished, must be applied for by the buyer at their own expense.

TAXES, excises, or other charges imposed by any local, state, or federal authority, which have to do with or affect the goods herein ordered, shall be assumed and paid by the buyer. Bank charges and fees for legalization or certification of documents are not included.

SPECIFICATIONS: Specifications, machine designs, and features are subject to change without notice unless specifically agreed to in advance.

COPYRIGHT: This proposal, specifications, literature material, and all technical details are the property of Aesus and are supplied for the sole purpose of evaluating equipment to be supplied by Aesus. Any reproduction or redistribution without our prior written consent is strictly prohibited.

CLAIMS: Any claim for consequential or incidental damages and any claims, right of action and demands, regardless of how they are described, whether in law or equity, shall be interpreted according to the laws of the Province of Quebec, Canada and they shall be pursued solely in the Province of Quebec, Canada.

ACCEPTANCE AND USE OF MACHINERY:

Acceptance and/or use of this packaging machine include acceptance of all terms and conditions included herein.

Disclaimer and Limitation of Liability

IT IS UNDERSTOOD AND AGREED THAT SELLER'S LIABILITY FOR ANY DAMAGES SUFFERED BY BUYERS OR ITS CUSTOMERS, WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY THEORY, IN NEGLIGENCE OR OTHERWISE, SHALL BE LIMITED TO THE AMOUNT PAID TO SELLERS BY BUYER PURSUANT TO THE CONTRACT. UNDER NO CIRCUMSTANCES SHALL A SELLER BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS) OF BUYERS, ANY CUSTOMER, OR ANY OTHER THIRD PARTY, EVEN IF SELLERS HAS BEEN PREVIOUSLY ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

2. Installation

2.1 Unpacking the Machine

- ✓ The machine is packed in a single crate or box. Small accessories will be packed in separate cartons and included in the main machine crate. Large accessories, such as a feed tank stand, etc., would be packed in separate crates.
- ✓ Remove the top and sides of the crate. Place all small packages in a safe area. Carefully remove the main body of the AESFill AF1.
- ✓ Carefully inspect the machine for any damage during transport, and if found, notify the carrier immediately.

2.2 Installing the Machine

2.2.1 Front of AESFill AF1

The AESFill Body consists of one stainless steel encased unit. This body houses the drive of the AESFill AF1, which is an AC Inverter system with an exclusive frequency speed control. The machine is supplied to match your voltage but is convertible from 110/60/1 to 220/50–60/1. At this stage, please check the rating plate to see if it correctly matches your supply voltage.

The cabinet consists of the touch screen, the nozzle bar clamp and the carry handle.



Figure 2-1: Rating Plate—Example

2.2.2 Rear of AESFill AF1

The AF1 is equipped with the below marked items on the rear of the machine.

1. Exhaust Muffler so that the nozzles close smoothly.
2. Black and blue air hose connectors that connect to the nozzle with 6 mm hosing.
3. Rating Plate with the AF1 serial number and other specifications.
4. Air regulator that clean dry air should be attached with a minimum of 60PSI.



Figure 2-2: AESFill AF1

5. As standard the AF1 is equipped with a 12 L/min AESPump. Also available is the 24 L/min pump. The pump can be rotated 360 degrees around its axis.
6. Power cord plug and On/Off Switch. Please check the rating plate for the voltage of your machine.
7. There is a 19 pin communication port and a 5 pin communication port. The 5 pin communication port is for connecting to the foot pedal as well as networking AF1 machines together. The 19 pin communication port is for communication with different automation options such as gating and a dive kit. The 19 pin communication port is also used in networking AF1 machines together.

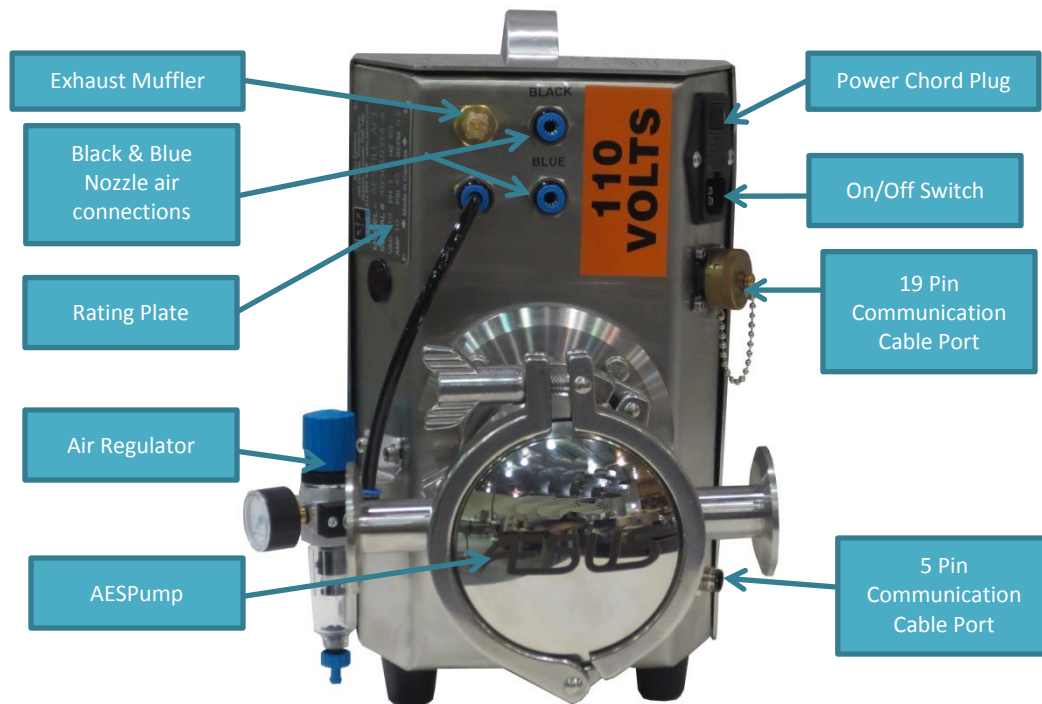


Figure 2-3: Rear of AESFill AF1

3. General Description

AESFill AF1 is a unique, compact single head liquid filling unit capable of combining with and networking up to 4 heads. Each unit has a soft touch control screen. As standard, volumes can be entered as low as 1/3 ounces. (10 cc) to volumes greater than 5 Gallons (20 Litres) effortlessly to give repeat fill with an accuracy of up to $\pm 0.5\%$. Just as easily, the fill speed can be entered to give gentle foamless filling.

The AESFill AF1 fillers can be networked together to make multi-head liquid filling systems; just plug each unit into power and connect units to each other with an interface cable, available at time of purchase or through our spare parts department, and they are networked.

Many units can be networked, but normally up to four units are connected in this manner. Machines with greater than four heads are usually purchased as AESFill automatic fillers.

If you find that manual filling using the AESFill AF1 fillers is too slow, you can add the automation package and the system can be automated over any conveyor. There are different options that can be added for different types of products such as neck dive for cleaner filling or full dive for foamy products. Contact us to learn more about the available options for the AESFill AF1.

The AESPump on the AESFill AF1 can rotate 360 degrees so that you can have your AESPump oriented in any direction. The pump is fastened onto the machine with sanitary clamp, which makes it very easy to remove while still attached to the nozzle, enabling the complete liquid contact system to be carried to the clean-up area. With a second pump and nozzle ready to go, changeover to another product is fast and easy.



Figure 3-1: AF1 Machine

4. AESPump

The AESPump consists of 17 pieces:

1. 1 Face Plate
2. 1 O-Ring BunaN (Other materials available)
3. 1 Pump Body
4. 2 Tri-Clover Sanitary Clamps (1–3" Dia. & 1–2" Dia.)
5. 2 Gears
6. 1 Stainless Steel Drive Shaft (4 1/8", 10.5 cm)
7. 1 Stainless Steel Idler Shaft (2 1/2", 6.4 cm)
8. 1 U-Cup Drive Shaft Seal
9. 1 Stainless Steel Gear Chamber
10. 2 Stainless Steel Bushing Holders
11. 4 Bushings (3 short, 1 long)

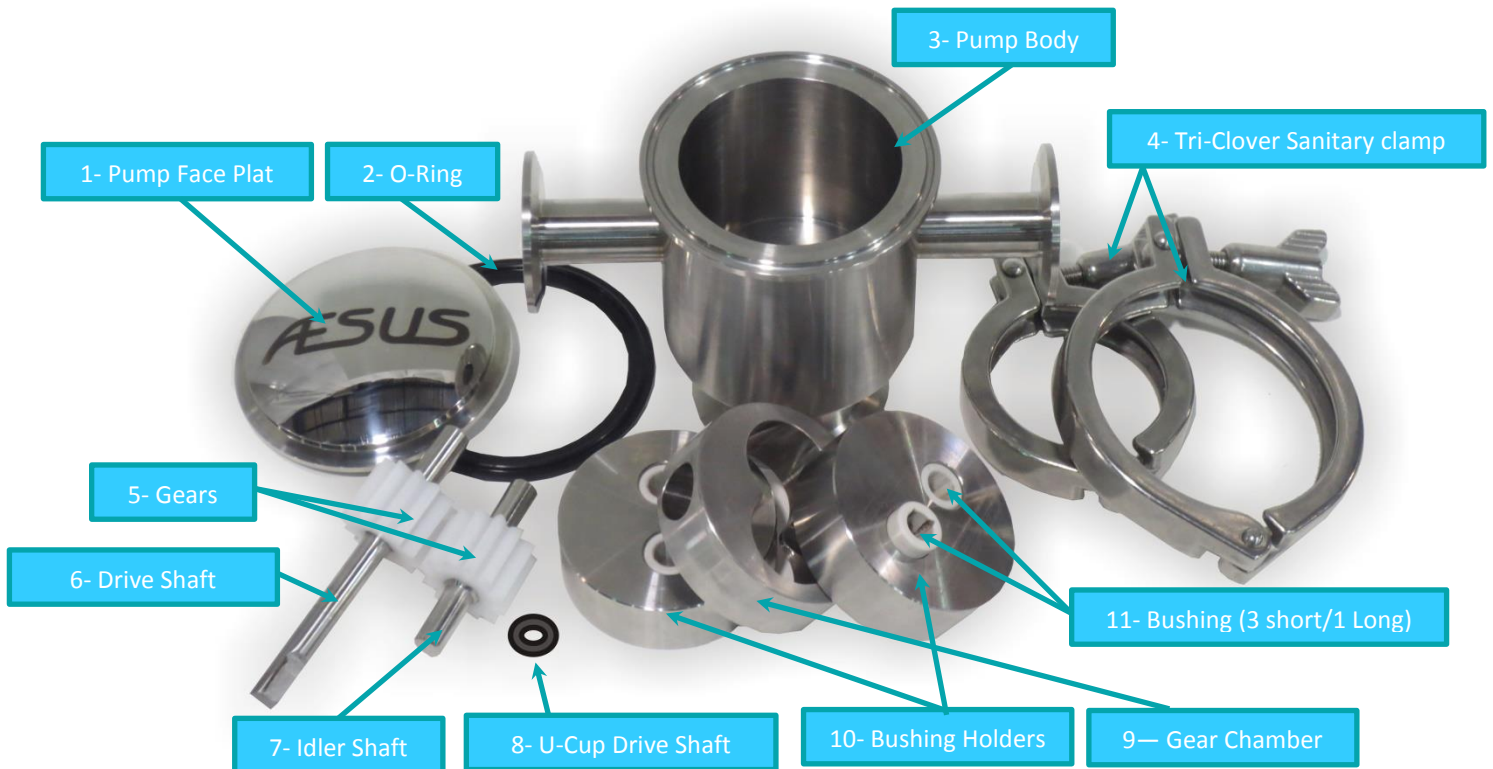
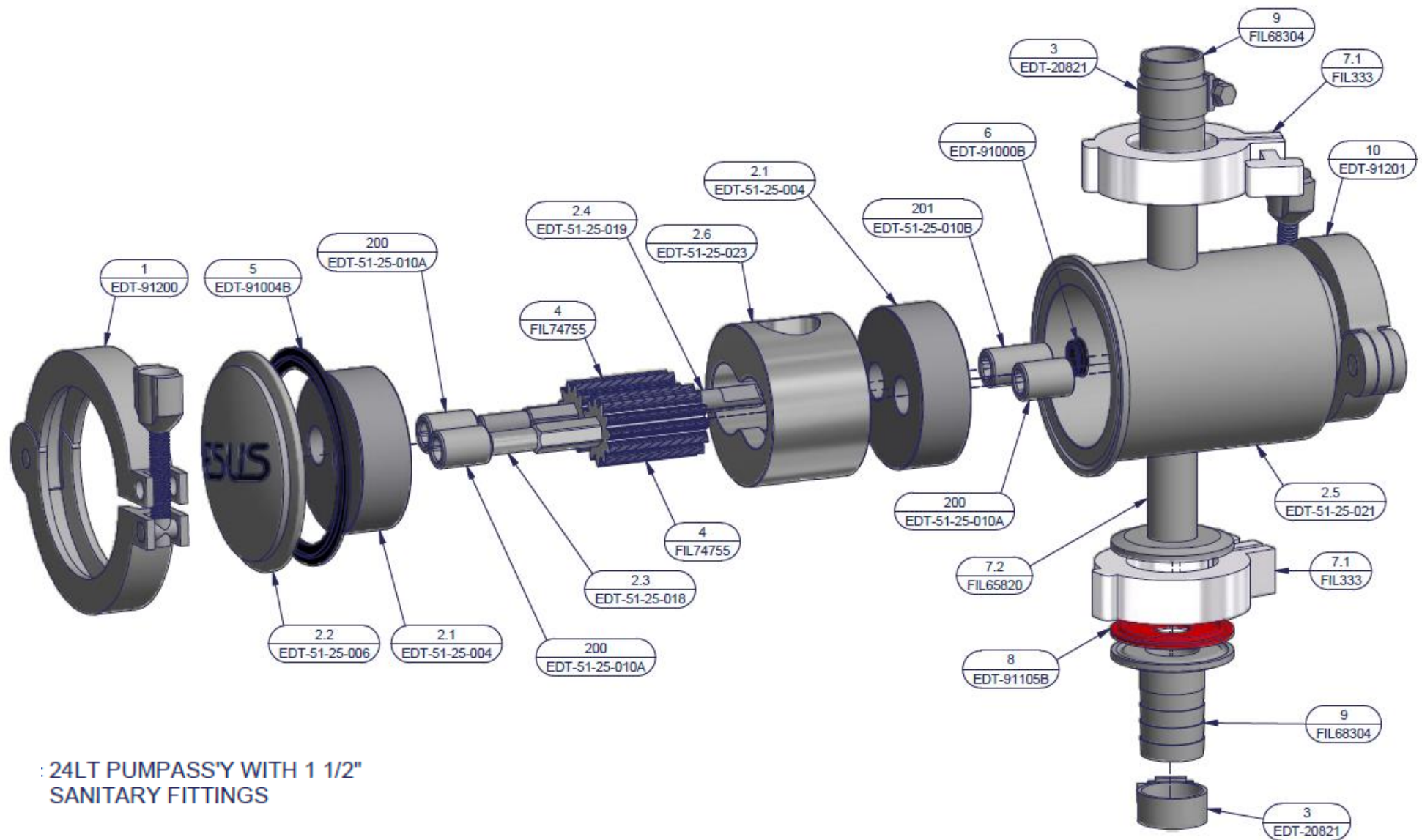
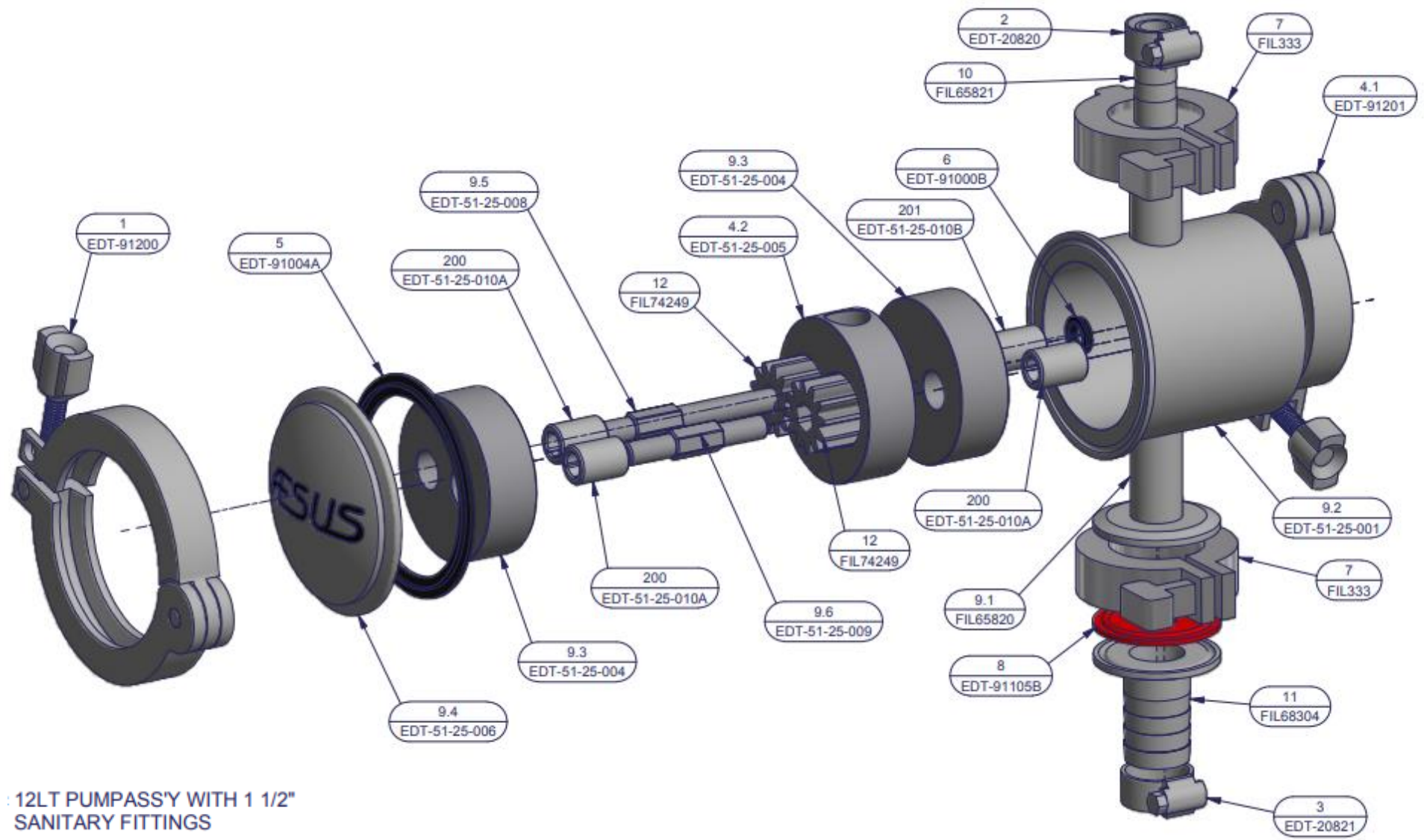


Figure 4-1: AESPump body



: 24LT PUMPASS'Y WITH 1 1/2"
SANITARY FITTINGS



12LT PUMP ASSY WITH 1 1/2" SANITARY FITTINGS

4.1 To assemble the pump

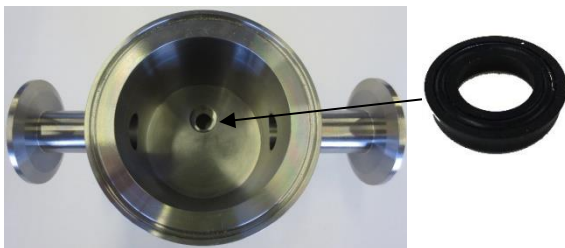


Figure 4-2: Pump Assembly

1. If removed, replace the U-cup drive shaft seal by inserting the small diameter edge of the seal back into the drive shaft hole recess.



Figure 4-3: Pump Assembly 1

2. If removed, replace the longer bushing and one of the smaller bushings into one of the bushing holders.
3. Place this bushing holder into the pump vault making sure that the longer bushing inserts into the drive shaft hole recess at the bottom of the pump vault. Both bushings should be flush with the top of the bushing holder.



Figure 4-4: Pump Assembly 2

4. Place the drive shaft (longer shaft) through the long bushing and the shaft seal. The hexagonal section of the shaft should come up against the end of the bushing insert.
5. Similarly, place the Idler shaft into the other hole.



Figure 4-5: Pump Assembly 3

6. Slide both gears onto the shafts making sure that they locate on the hexagonal sections of the shafts.
7. Place the gear chamber into the pump vault on top of the bushing holder.



Figure 4-6: Pump Assembly 4

8. If removed, insert the two other short bushings into the second bushing holder. Now slide the second bushing holder over the two shafts. When this piece is in place, it should be just above the top flange of the pump body.



Figure 4-7: Pump Assembly 5

9. Place the end cap sealing ring on the top flange of the pump vault. Place the end cap on top of the seal. Fasten the 3" (7.5 cm) sanitary clamp and tighten approximately two turns after contact to seal the end cap to the pump vault.



Figure 4-8: Pump Assembly 6

In order to attach the pump to the docking plate on the filler you will need to use the smaller 2" (5 cm) sanitary clamp. There is a circular groove in the bottom of the AESPump and a matching ridge on the top of the docking plate on the AESFill AF1.

Place the AESPump on top of the docking plate and use the sanitary clamp to fasten the two pieces together. No sealing

ring is required for this connection. You can rotate the pump to any orientation that you need.



Figure 4-9: Pump Assembly 7

Remember, the inlet and the outlets of the pump are identified by the arrow on the bottom of the pump body.

4.2 Nozzle

4.2.1 Standard Nozzles

The nozzle consists of 11 pieces:

- 1 Quick Connect Air Fitting
- 1 90 degree Quick Connect Air Fitting
- 1 Air Tubing Duo (Black and Blue)
- 1 Air Cylinder
- 1 Nozzle Stem with Set Screw
- 1 Stem O-Ring Top
- 1 Stem O-Ring Bottom
- 1 Nozzle Body
- 1 Clamp with Handle
- 1 Nozzle Spout O-Ring
- 1 Nozzle Spout
- 1 Nozzle Stem

4.2.2 To assemble the nozzle:

****Note:** Before assembly, all O-rings should be wetted with an approved lubricant, or at least with the product being filled.

1. Install the O-rings onto the nozzle stem. Assemble the plunger onto the air cylinder. The position of the plunger within the completed nozzle must be adjusted by threading more or less of the air cylinder into the stem. This is to set the correct closed position of the nozzle stem.
2. Screw in the small set screw, carefully aligning it with the groove on the air cylinder, screw it in all the way snug and then loosen it by $\frac{1}{4}$ turn. The set screw should be loose, but in far enough so as not to protrude. This way the stem will hang centrally, and not be forced over to one side.
3. Screw the air cylinder/nozzle stem unit into the nozzle body. Again do not tighten, leave it a minimum $\frac{1}{2}$ thread loose, at a handy orientation for the airlines.
4. Place the O-Ring into the Nozzle Spout and then slide it onto the plunger. You may need to push the plunger up so it is easier to get the nozzle spout on. Now screw the nozzle spout onto the nozzle body.

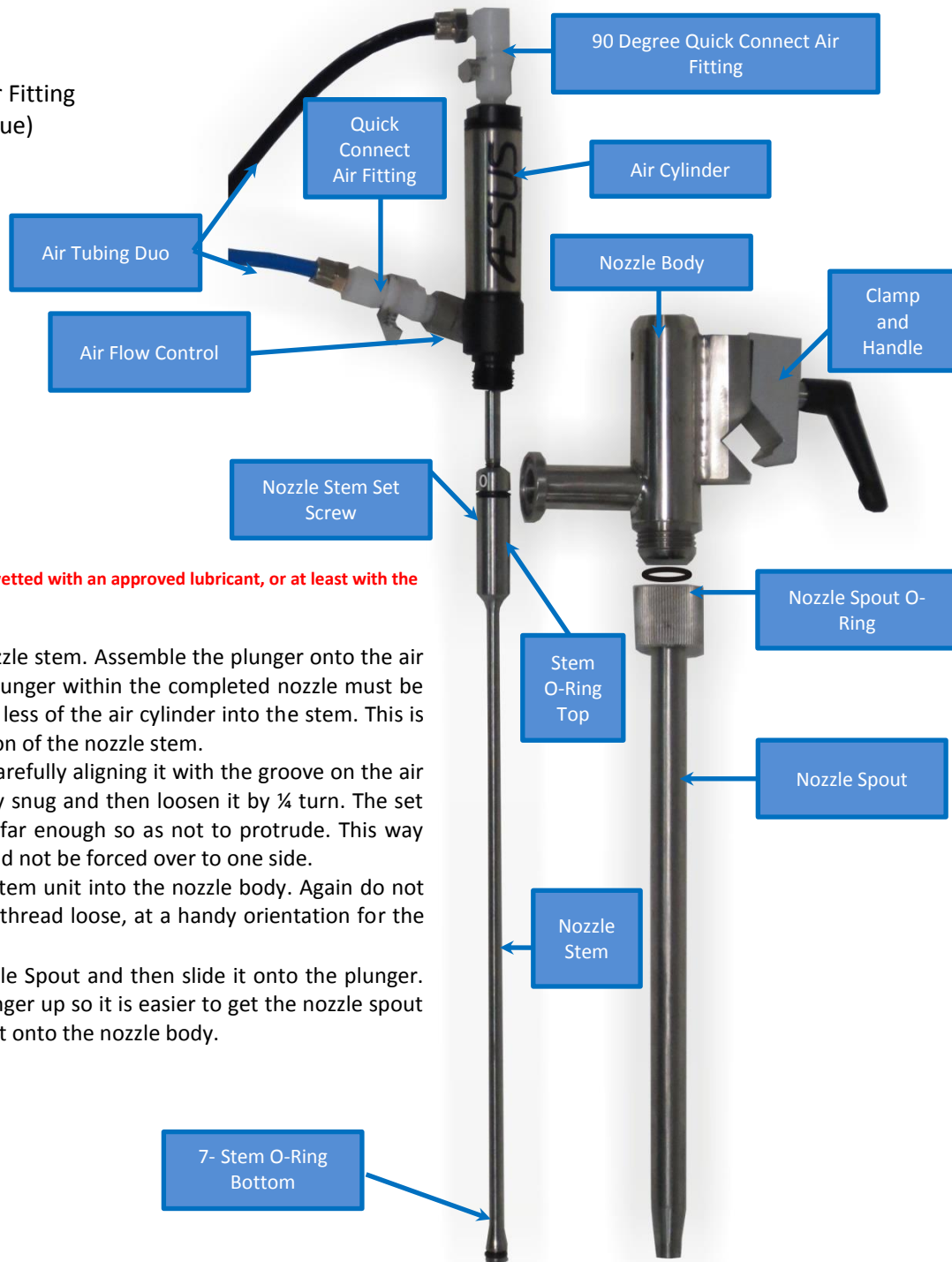
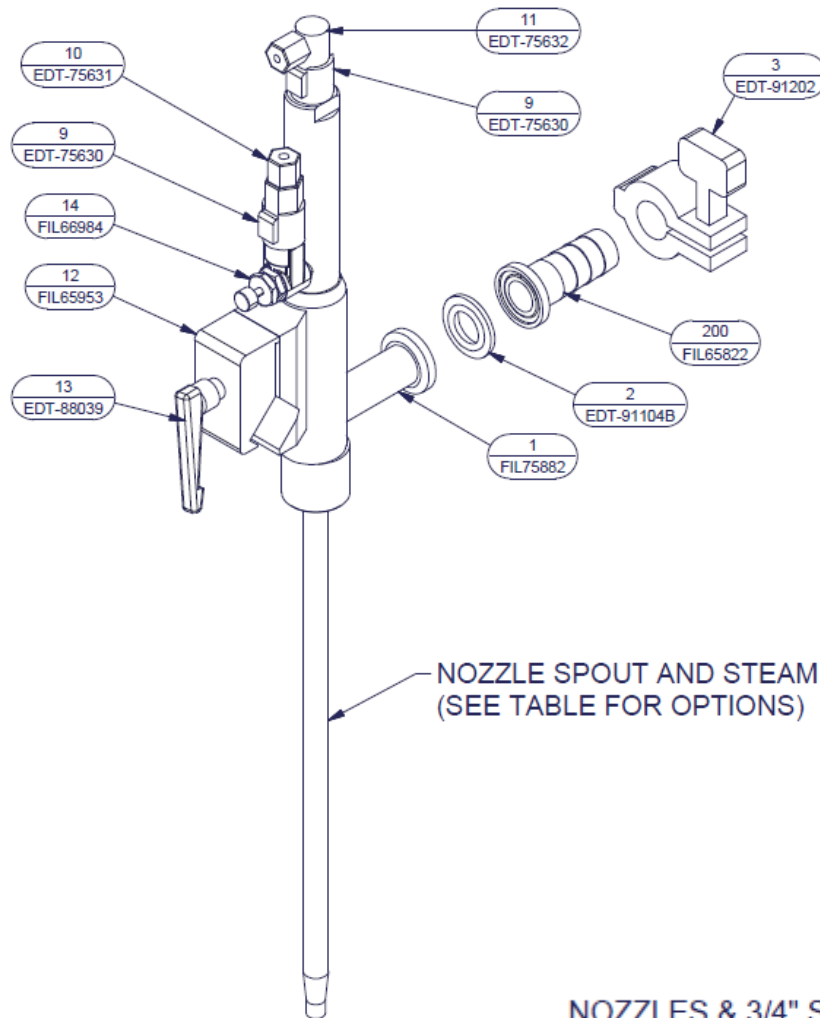
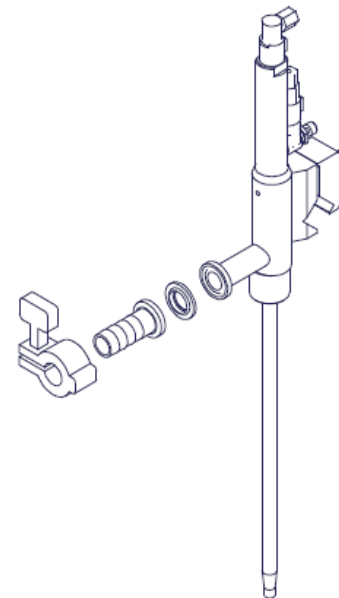


Figure 4-10: Standard Nozzle Assembly



NOZZLES SPOUT & STEM OPTIONS				
OUTSIDE DIA.	IBSO	OBSO	ITSO	BALLCHECK
1/8" (3mm)	N/A	N/A	ASFIL65080	N/A
3/16" (5mm)	N/A	N/A	ASFIL65081	ASFIL74196
1/4" (6mm)	N/A	N/A	ASFIL64580	ASFIL74211
5/16" (8mm)	N/A	N/A	ASFIL65082	N/A
3/8" (10mm)	ASFIL64521	ASFIL65072	ASFIL65083	N/A
7/16" (11mm)	ASFIL64522	ASFIL65073	N/A	N/A
1/2" (13mm)	ASFIL64523	ASFIL65074	N/A	N/A
5/8" (16mm)	ASFIL64524	ASFIL65075	N/A	N/A
3/4" (19mm)	ASFIL64525	ASFIL65076	N/A	N/A
7/8" (22mm)	ASFIL64526	ASFIL65077	N/A	N/A
1" (25mm)	ASFIL65079	ASFIL65078	N/A	N/A



NOZZLES & 3/4" SANITARY FITTINGS

4.2.3 Custom Nozzles

The 1 ½" nozzle is comprised of 14 parts.

1. Quick Connect air fitting (Part EDT-75630)
2. Adjustable Handle (Part EDT-88039)
3. Tri-clover Seal (Part EDT-91105B)
4. Tri-clover clamp (Part FIL333)
5. Flow Control (Part FIL66984)
6. Stem Top O ring (Part FIL85948)
7. Stem bottom O ring (Part FIL85949)
8. Spout O ring (Part FIL85955)
100. Air cylinder (Part FIL85951)
200. Nozzle clamp (Part FIL65953)
201. Nozzle stem (Part FIL85898)
500. Nozzle body (Part FIL85953)
501. Nozzle spouts (Part FIL85954)
700. Nozzle stem set screw (Part BOU9102)



Figure 4-11: 1 ½" Nozzle

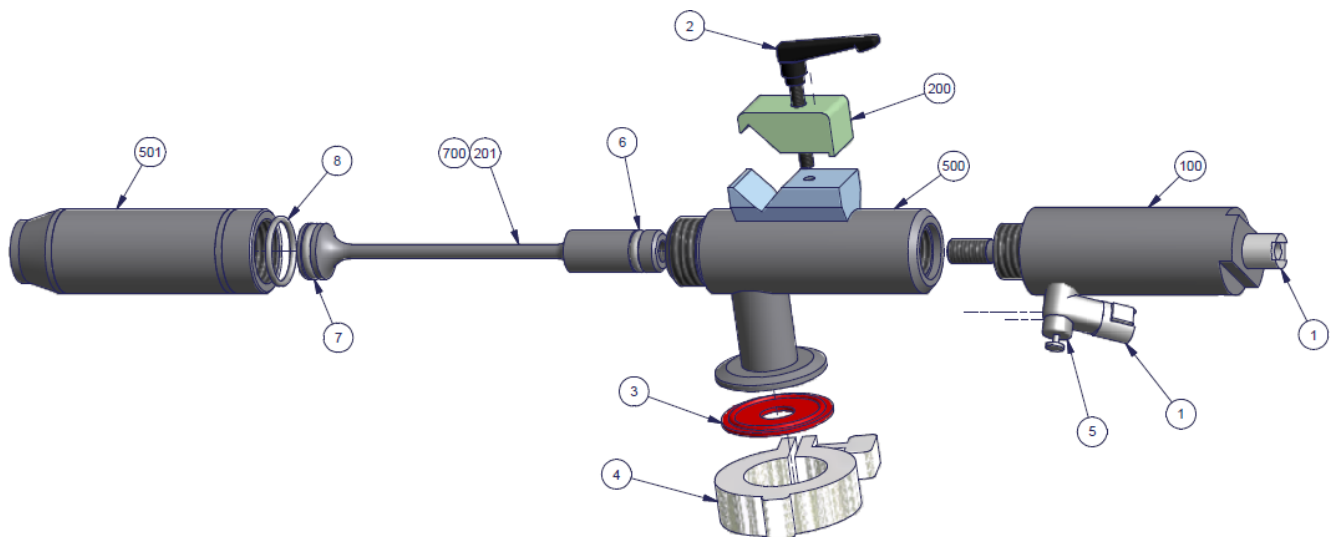


Figure 4-12: 1 ½" Custom Nozzle Assembly

4.3 Positioning the Equipment

As shown below, the AESFill AF1 can be positioned on any flat surface to facilitate your filling operation. It is better to position any infeed tank so that it is at the same level as the pump to make priming easier. If your product is very thick, it may be best to use an overhead hopper instead of a filling tank.

As shown below, when attaching multiple AESFill AF1s to a holding tank, do not use “tees” or Y-connections. This can result in inadequate supply volume, causing inconsistent fills, and may cause starvation to a pump, resulting in damage. Each AESFill AF1 should have its own connection to the tank.

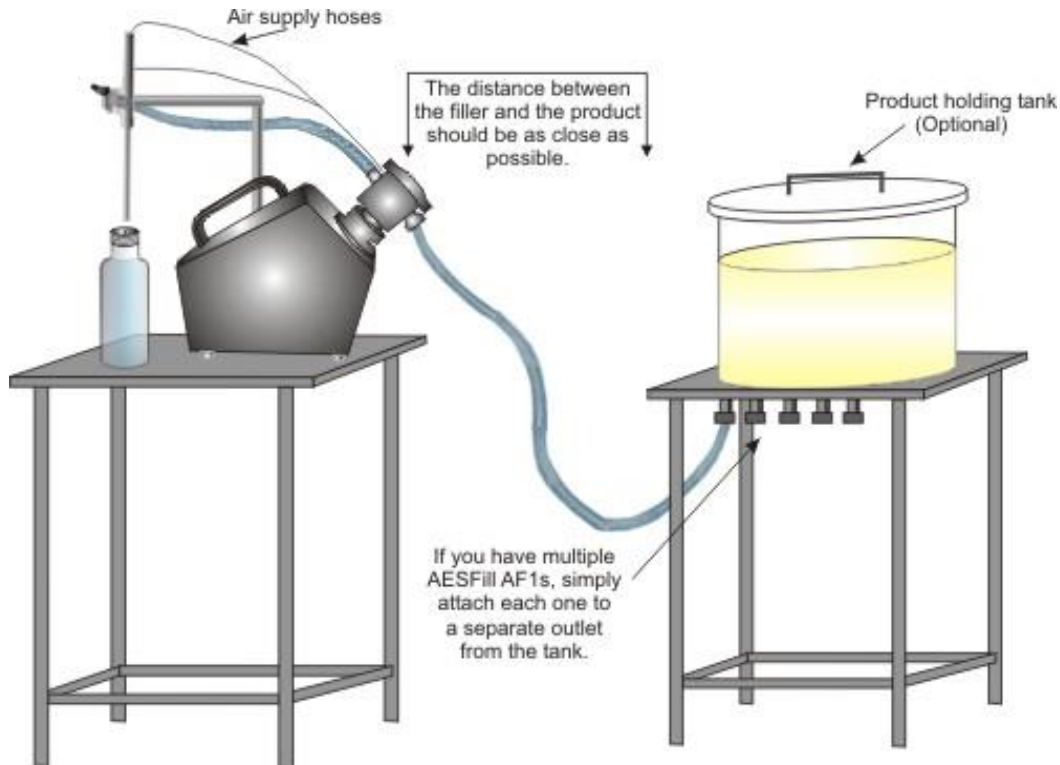


Figure 4-13: Position of the equipment

4.3.1 Height Adjustments

You can raise and lower the nozzle bar attached to the AESFill AF1, so that the nozzle is at the appropriate height for the bottles that you are filling by loosening the black ratchet handle and sliding the nozzle bar up or down.

4.4 Connections

The AESFill AF1 has 6 connections:

Main Power

The main power inlet is located at the back of the machine. Depending on your requirements, the machine has been configured to handle either 110 V or 220 V, 50/60 Hz. Check the rating plate to see if it matches your supply. **If it does not, call Aesus.**

Compressed Air

The air supply should at least be 60 psi. The air inlet is located on the back of the machine to the left side of the air regulator.

Black and blue air connectors while supply air to the nozzle. For IBSO Nozzles, the black hose goes to the top of the nozzle air cylinder and the blue hose goes to the side of the nozzle air cylinder.

Communication Ports

There are 2 communication ports located on the back of the machine. One is a 5 pin port and the other is a 19 pin port.

5 pin port is used to control a foot pedal as well as daisy chaining / networking multiple AF1 units together.

19 pin port is used to daisy chains / network multiple units together as well as controlling optional automation items such as gating, diving, neck clamp and a drip tray.

When using an AESFill AF1 on its own, you can connect the foot switch into the 5 pin port.

When multiple AESFill AF1 units are used, they are connected together via a communication cable from the 5 pin port to the 19 pin port. In this case, the foot switch Would be connected to the unoccupied 5 pin port.

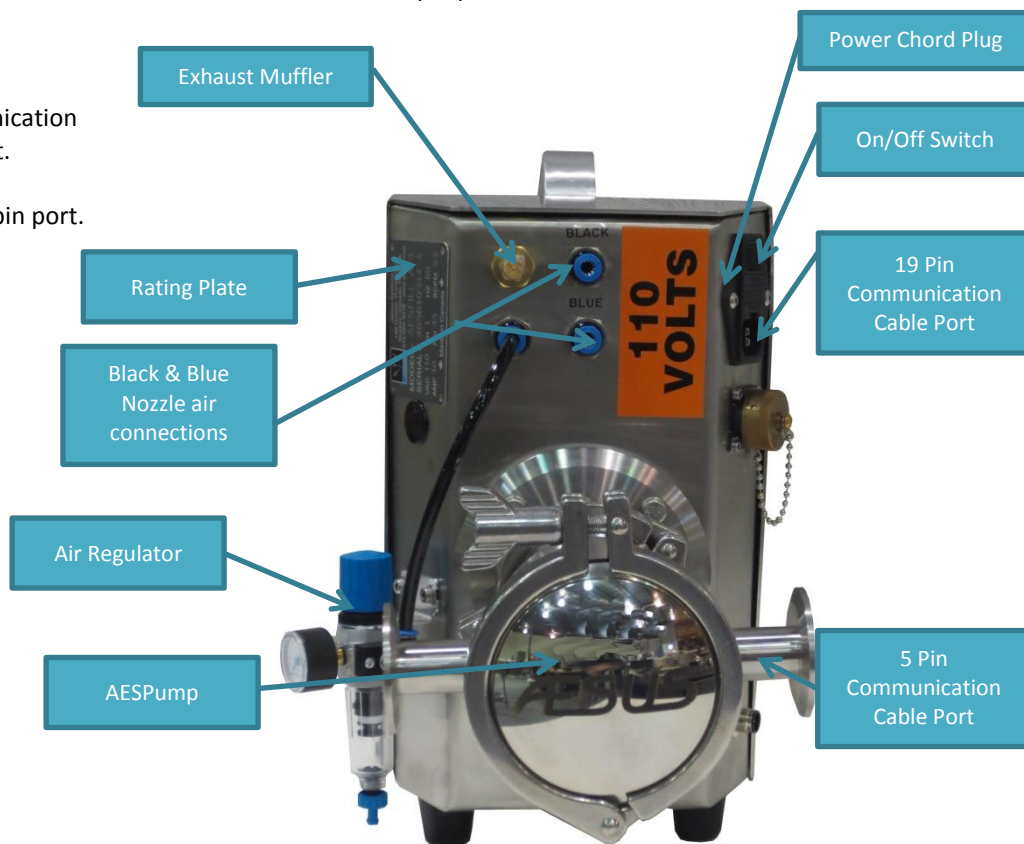


Figure 4-14: Pump

4.5 Air Supply & Lubrication

On the back of the machine there is a filter regulator. The filter cleans the air, the regulator controls the outlet pressure.

The air valve solenoid inside the cabinet controls the air going to the air cylinder. At the appropriate time, when the nozzle needs to be opened or closed, the air is directed out of one connection or the other.

The Black tagged connector on the rear of the machine connects with the black hose to the top of the nozzle. The blue tagged connector connects with the blue hose to the side of the nozzle. (Reverse for O.B.S.O. type nozzles.)

The connector installed on the machine is for 6 mm hose. This connector is screwed into the filter/regulator. The filter/regulator will accept any 1/8 NPT fitting. So from the compressor, either uses a 1/4 in or 3/8 inch hose so a BARB adaptor from 1/8 inch NPT to barb (whatever size the hose ID is) will work correctly.

Periodically you must drain any water or debris that collects in the filter.

****WARNING—DISCONNECT AIR SUPPLY BEFORE SERVICING FILTER****

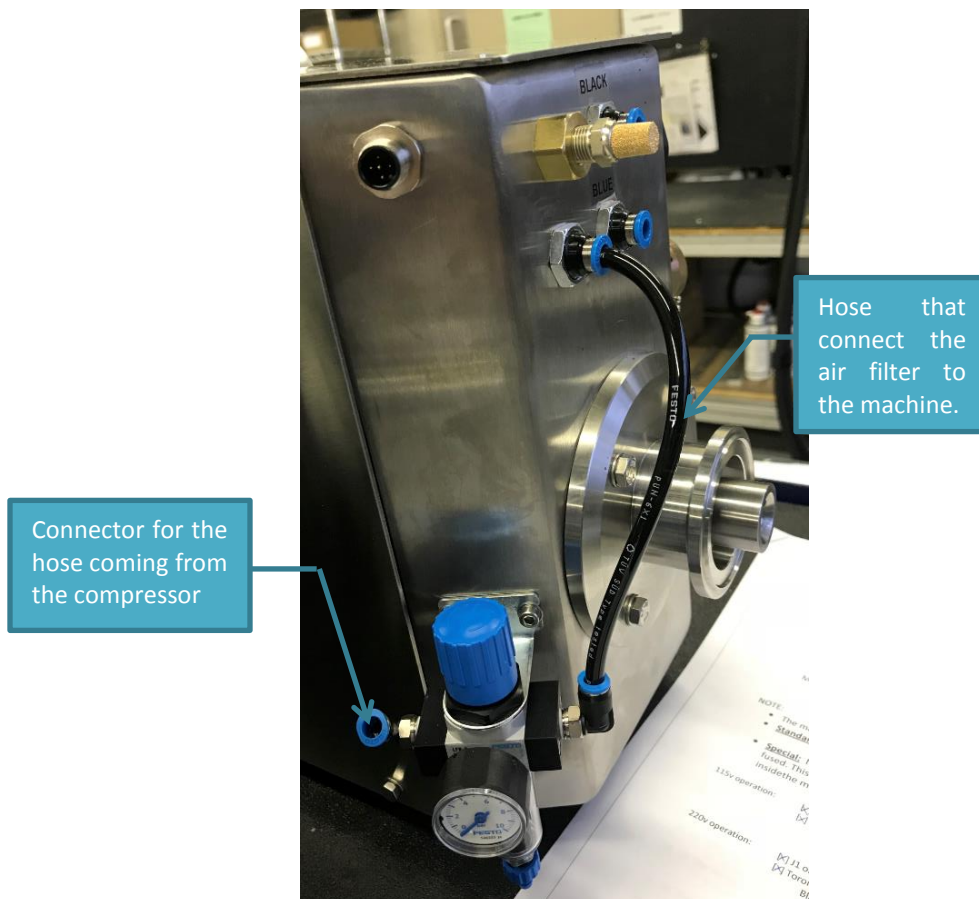


Figure 4-15: Air filter connection

5. Quick Setup

5.1 Quick Setup in 5 Easy Steps

5.1.1 Nozzle

1. Attach the nozzle to the nozzle bar.
2. Attach the **black** air hose from the black tagged fitting on the rear of the machine to the top of the nozzle.



Figure 5-1: Fittings

3. Attach the **blue** air hose from the blue tagged fitting on the rear of the machine to the side of the nozzle.
4. Attach a source of dry air (at least 60 psi) to the inlet of the filter-regulator assembly.
5. Adjust the regulator to deliver 60 psi. The nozzle plunger should now be in the closed (down) position, shutting the nozzle.



Figure 5-2: Nozzles

5.1.2 Pump

Using the triclover fittings, attach the hoses to the pump. You can identify the inlet and outlet fittings of the pump using the arrow engraved on the back face of the pump.

1. Attach one end of the large diameter hose to the inlet fitting on the pump. Place the other end of this hose into a suitable supply container.



Figure 5-3: Flow of the pump

2. Attach one end of the small diameter hose to the outlet fitting on the pump. The other end of this hose attaches to the inlet of the nozzle.



Figure 5-4: Outlet Fittings

3. Tighten all fitting clamps.

5.1.3 Foot switch

Plug the foot switch cable into the matching connector on the AF1. Plug the machine into a source of 117 VAC. Power up the machine via the rocker switch located on the rear panel of the AF1.

5.1.4 Screen Setup

The screen should power up, display the version screen for a few seconds and then go to the RUN screen.



Figure 5-5: Screen

To change any parameters, such as fill quantity, motor speed, nozzle response time and the auto-recycling function, please refer to the **Screens** section.

To prime the system, see the **Quick and Easy Priming** directions below.

5.2 Quick & Easy Priming

1. Plug the vacuum primer device in the tube installed on the machine at this effect. If the air is plugged and active on the machine, the device is ready to use.



Figure 5-6: Plug the vacuum primer device

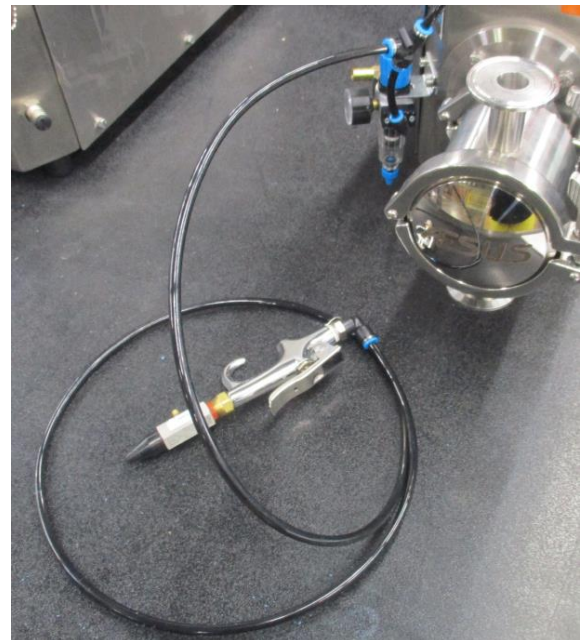


Figure 5-7: Vacuum primer device plugged

2. Make sure the nozzle is open. Use the screen in the front of the machine to open the nozzle.



Figure 5-8: First screen



Figure 5-9: Turn on the nozzle

3. Put the end of the vacuum primer device to the end of the nozzle to prime and press the detent to active the vacuum.

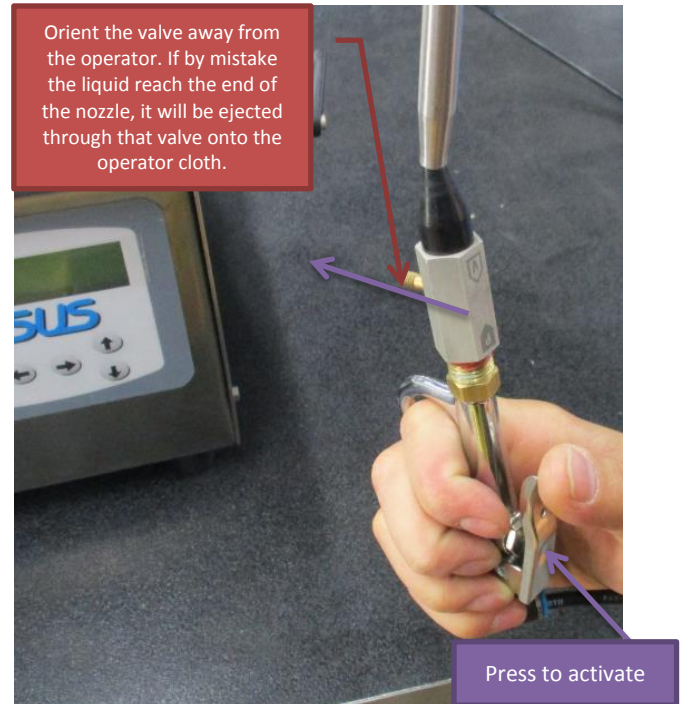


Figure 5-10: Put vacuum primer to nozzle

4. Kept the vacuum primer device active until the liquid reach the end of the tube that link the tank to the pump at the back of the filler.



Figure 5-11: Tube at the back of filler

****IMPORTANT: Close the nozzle using the same screen used to open it BEFORE releasing the detent of the vacuum primer device. Otherwise air will re-enter the machine.****

6. Setup for Machine with Conveyor and Gate Indexing System

****NOTE: The image contain up to 12 nuzzle and pump, but the setup steps are the same if the machine contains 1 or 12 pumps.**

6.1 Neck Clamps (Optional)

The AESFill machine is equipped with neck clamps that allow each bottle to be perfectly placed and held in place during the filling. It assures that each bottle is directly underneath the nozzle every time.

The neck clamps are attached to the same placement bar which provides the height position and the IN/OUT position.



Figure 6-1: Placement bar Adjustment

Each neck clamp needs to be positioned individually depending on the size of bottles used on the machine.

Follow the next step to adjust everything correctly:

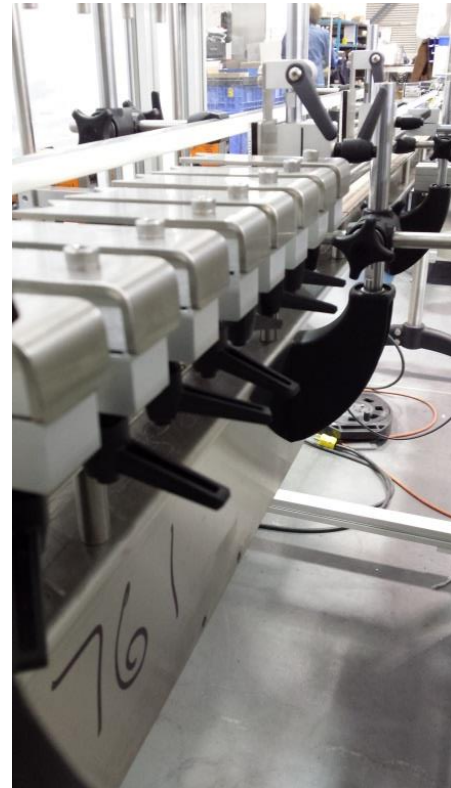


Figure 6-2: Neck clamps Sideway adjustment 1

- a. Using the containers as a guide, lower the nozzle bar so that the neck clamps are aligned with the neck of the container.

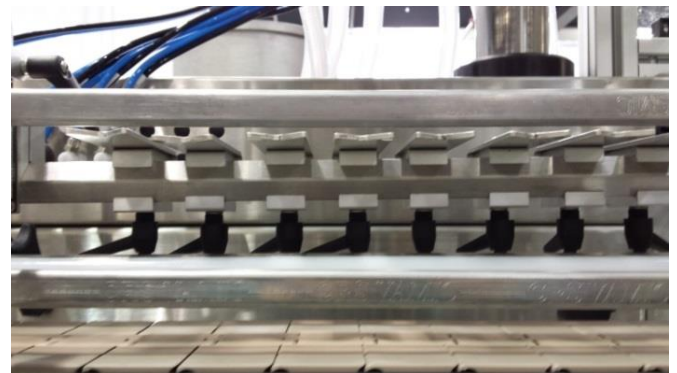


Figure 6-3: Neck clamps Sideway adjustment 2

- b. If the neck clamp is not already activated, activate the Neck Clamp. Adjust the bar all the way back to ensure that upon activation, the neck clamp will not hit the containers that are being set up.



Figure 6-4: Neck clamps Sideway adjustment 3

****NOTE: The pictures included in this section may not be exactly the same as your machine depending on your configuration.**

- c. Move the entire neck clamp assembly in so that you can adjust the individual neck clamps to their associated container. Tighten the ratchet handle. The neck clamp should be centred with the neck of the container.



Figure 6-5: Neck clamps Sideway adjustment 4

****NOTE: The pictures included in this section may not be exactly the same as your machine depending on your configuration.**

- d. Turn the conveyor on and test the neck clamps. You may need to fine-tune the neck clamp positions after the conveyor is moving.

6.2 Nozzle Barre Adjustment

The nozzle barre is used to attach the nozzle. This barre will move automatically in synch with the gating system, but the general height of the barre needs to be manually adjusted to fit the size of the bottle to fill.

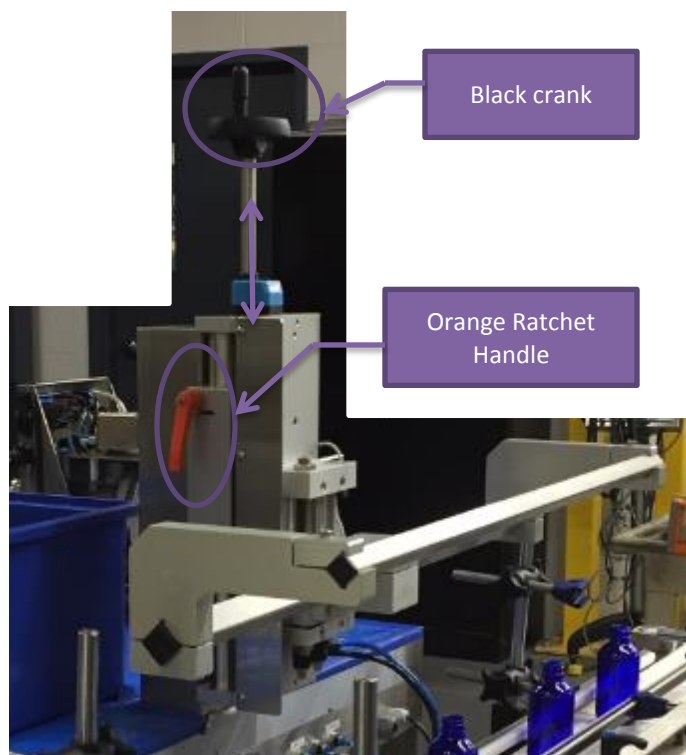


Figure 6-6: Nozzle barre adjustment

To adjust:

1. Unscrew the orange ratchet handle.
2. Use the black crank to adjust the height.
3. Tighten the orange ratchet handle to fix the nozzle barre position.

6.3 Nozzles Adjustment

Like for the neck clamp, the nozzles need to be adjusted so they are perfectly aligned with the opening of the bottles. Each nozzle needs to be individually adjusted in the sideways position along the nozzle bar.



Figure 6-7: Nozzles adjustment

****NOTE: The pictures included in this section may not be exactly the same as your machine depending on your configuration.**

Follow the next step to adjust the nozzles correctly:

- Unscrew the black handle of each nozzle.
- Align each nozzle with the centre of the neck of the container it will fill when the neck clamp is engaged.
- Tighten the black handle to fix the nozzle position.
- Repeat for all nozzles.
- Turn off the neck clamp in the setup screen.



Figure 6-8: Nozzles adjustment 2

6.4 Guide rails adjustments

The AESFill comes with a conveyor to get the bottle to the filling machine. For each different size of bottle the guide rails need to be correctly adjusted.

Each guard rail will need to be adjusted in height and in the IN/OUT position.

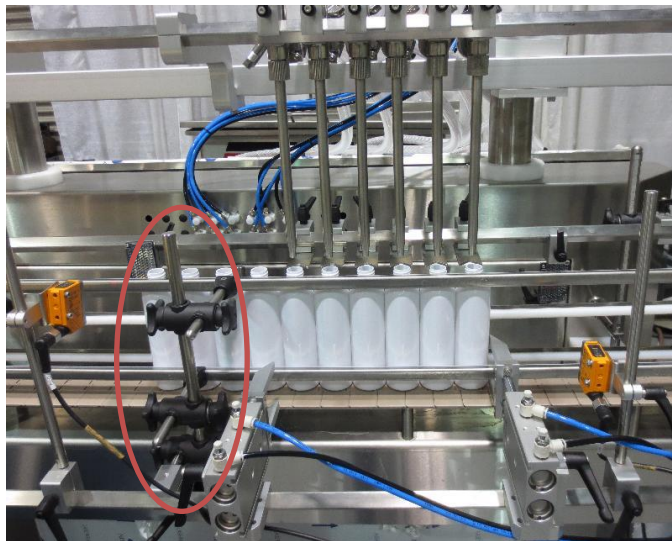


Figure 6-9: Guide rails Adjustment

****NOTE: The pictures included in this section may not be exactly the same as your machine depending on your configuration.**

- Put some container on the conveyor underneath the nozzles.
- Unscrew every black knob that controls the rails movement.

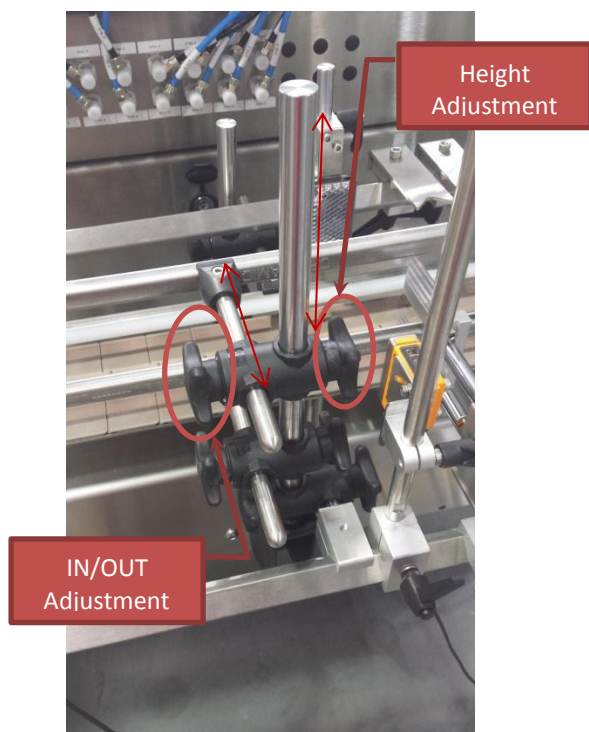


Figure 6-10: Guide rails Adjustment 2

- c. Adjust the two bottom guide rails so the containers are centred underneath each individual nozzle.
- d. Tighten the black knob to fix the bottom guide rails position.
- e. Then adjust the top front guide rail so that it is positioned on a convenient portion of the neck of the container.
- f. Tighten those black knobs as well.



Figure 6-11: Bottle placement

****NOTE:** The pictures included in this section may not be exactly the same as your machine depending on your configuration.

6.5 Gates adjustments

This filling machine is equipped with a set of gates to control the infeed of bottles under the nozzles and also allow the right amount of bottle to be filled at the same time.

Those gates need to be adjusted in the sideways position along the conveyor.



Figure 6-12: Gates final position

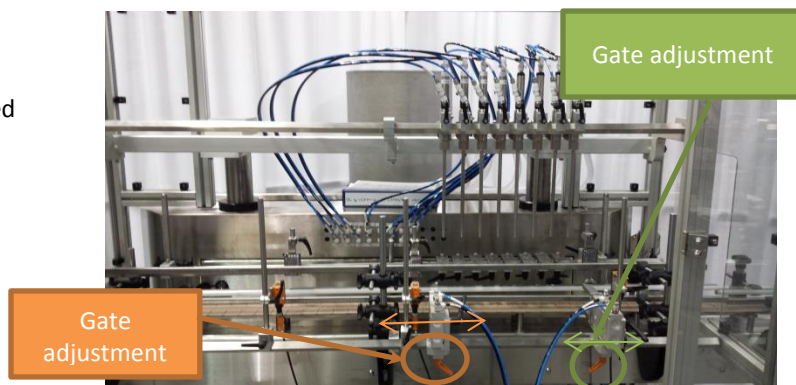


Figure 6-13: Infeed/Outfeed gate adjustment

- a. Adjust the gates so that the container(s) are located in the filling area of the machine.
- b. Place the number of containers to be filled onto the conveyor between the two gates.
- c. Adjust the outfeed gate so that it extends slightly past the centre of the container.

6.6 1st Container Sensor

Please note that depending on your container type and your machine, the exact type of sensor may differ.



Figure 6-14: Outfeed gate adjustment

- i. Adjust the 1st container sensor 1" back from the container, below the neck.



Figure 6-15: Outfeed gate adjustment

- ii. Adjust the 1st container sensor 1" from the side of the container.
- iii. This adjustment will change depending on the actual container in use. These specifications are only a guide, not exact rules.



Figure 6-16: Outfeed gate adjustment

- iv. Teach the sensor (if needed) in order to learn the type of container that is in front of it.
- v. In order to teach this sensor, press the Off button without a container in front of it. The light will flash once it is learned. Repeat with a container in front of the sensor and press the On button.

It may be necessary to teach the sensor several times until it reads properly. If it is not possible to get a good reading, it may be required to re-adjust the sensor position relative to the container. When you are filling, the colour of the fill can affect sensor operations. If this occurs, simply re-teach the sensor to get a good reading.

Please note that this 1st container sensor must go off between each container and should not stay triggered for the whole set of containers. If the sensor does not go off between the containers, please reposition it so that it does go off. Normally the best place to position the sensor is near the neck since there is a space between containers.

6.7 Gap Sensor

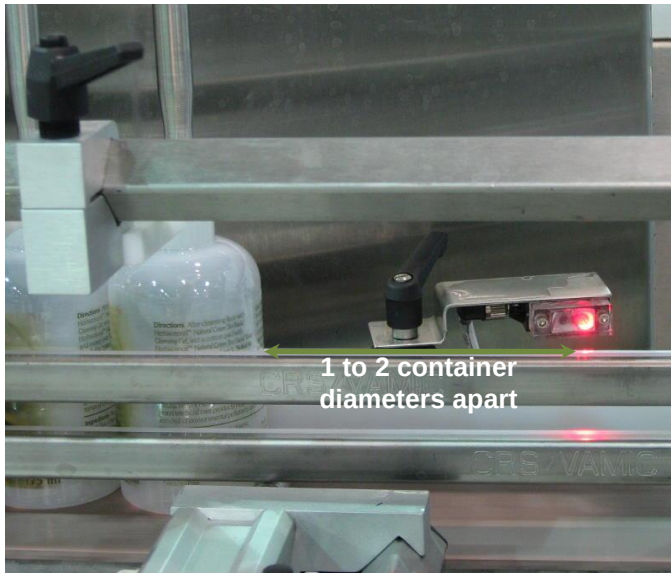


Figure 6-17: Outfeed gate adjustment

- vi. The gap sensor should be located 1 to 2 container diameters downstream from the outfeed gate.



Figure 6-18: Outfeed gate adjustment

- vii. Teach the sensor as needed.
- viii. Place a container in front of the gap sensor, and confirm that the sensor light turns on when it detects the container.

6.8 Backup Sensor

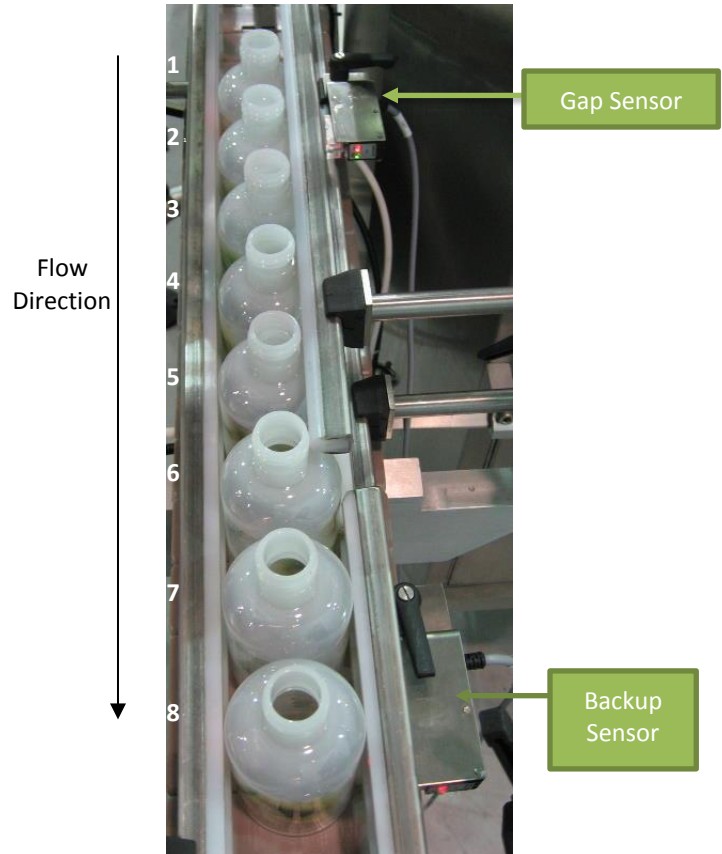


Figure 6-19: Outfeed gate adjustment

- ix. Open the outfeed gate from the Setup Screen by pressing the Activate Outfeed Gate button.
- x. If for example 4 containers are being filled, the backup sensor needs to be placed at least 4 container widths downstream from the gap sensor.
- xi. Teach the backup as needed
- xii. It may be necessary to teach the backup sensor multiple times such that the sensor stays activated while the filled containers are moving past. This may take some time and patience.
- xiii. Close the outfeed gate.
- xiv. Retract the neck clamp.

****NOTE:** The pictures included in this section may not be exactly the same as your machine depending on your configuration.

7. Pump Screens

Below, shows the screen hierarchy for the AF1C. To access and scroll through the settings press the menu key repeatedly. When extra options are available for that setting, press the marked arrow to access the extra options. Use the Up/Down arrows to change the feature's setting.

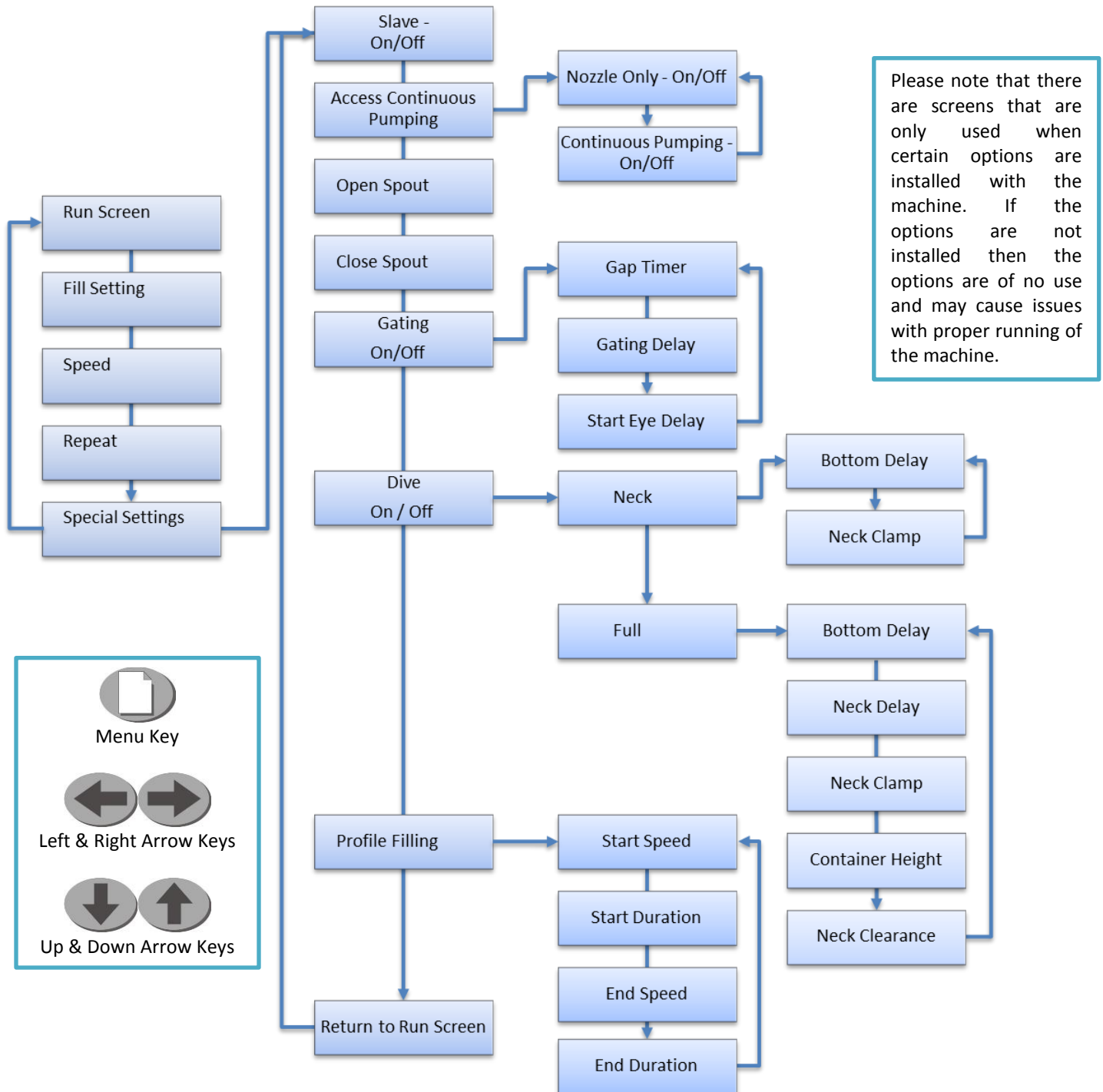


Figure 7-1: Diagram des Screens

7.1 Home screen / Run screen



Figure 7-2: Home Screen

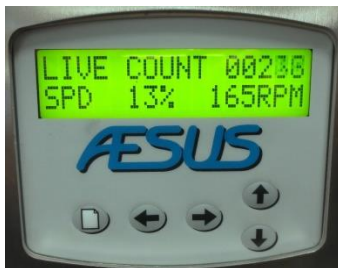


Figure 7-3: Run Screen

You see the programmed fill volume and the set filling speed.

When running the screen shows the Live Count, the Current Speed % and the current RPM of the motor.

Press the menu key to access settings. By pressing the Menu Key when inside different screen levels, it will return you to the previous level's next parameter.

Press the Up & Down arrow keys simultaneously to manually start a cycle. Press the Up & Down arrow keys simultaneously to stop the cycle.

In order to do a **Master Reset** to the factory default settings, push and hold the 4 arrow keys at the same time. All programmed values will be Reset to Off and/or to their default setting.

7.2 Fill Setting



Figure 7-4: Fill Screen

Use left and right keys to change digits, up and down keys to change setting. Keep fingers pressed for rapid action. Change is instantaneous.

Press the Menu key to access more Settings

7.3 Speed



Figure 7-5: Speed Screen

Use up and down keys to adjust percentage of full speed (1700 RPM). Keep fingers pressed for rapid action. Change is instantaneous.

Press the Menu key to access more Settings

7.4 Repeat Fill



Figure 7-6: Repeat Fill Screen

Use up and down arrows to adjust the time delay between fills in semi-automatic mode. Setting to "0" turns off semi-automatic mode. Keep fingers pressed for rapid action. Change will affect the next delay.

Press the Menu key to access more Settings

7.5 Go to Special Settings



Figure 7-7: Special Screen

Press the menu key to go back to RUN SCREEN. Use the arrow to the right key to access Special Settings.

7.6 Slave



Figure 7-8: Slave Screen

Use the up and down arrow keys to switch the function from **Off** to **ON** in sequence.

In **Slave** mode the filler will start filling as soon as it gets a signal from the **Master** and then will stop and do nothing else until it gets a new signal from the Master.

7.7 Access continuous pumping



Figure 7-9: Pumping

Use the arrow to the right key to access priming and continuous pumping functions.

Press the Menu key to access more Settings

7.8 Nozzle only



Figure 7-10: Nozzle Screen

Use up and down arrow keys to open and shut alternately the nozzle.

Press arrow to the right key to go to continuous pumping.

Press arrow to the left to go to continuous pumping main menu.

7.9 Continuous pumping



Figure 7-11: Pumping Screen

Use the arrow up or arrow down keys to turn alternately on and off the continuous pumping function. The foot pedal can also be used for remote action.

7.10 Open spout



Figure 7-12: Spout

Use the up and down arrow keys to adjust a pre-opening delay to allow the nozzle to be fully open before starting the pump. For most liquids, a setting of 1/10 seconds is desired. Keep fingers pressed for rapid action. Change is instantaneous.

Press the Menu key to access more Settings

7.11 Close spout



Figure 7-13: Close Spout

Use the up and down arrow keys to adjust a close delay for the nozzle. This will allow any built up pressure to evacuate prior to shutting the nozzle. This is mostly used for very thick products and is usually set to 0 for most liquids. Keep fingers pressed for rapid action. Change is instantaneous.

Press the Menu key to access more settings

7.12 Gating (Optional)



Figure 7-14: Gating Screen

Use the up and down arrow keys to toggle on and off the gating functions. When networking units together, use this setting only on the master unit. When gating is set to ON and timers for the gating function are made available through the right arrow key.

Press the menu key to access more settings.

7.12.1 Gap timer



Figure 7-15: Gap timer Screen

Use the up and down arrow keys to adjust the gap timer. This timer will create a gap between filled and empty containers by activating the gap (upstream) gate for the duration of this timer. This will create the space required by the downstream gate to safely intercept the empty containers once the filled containers have exited the filling area.

Press the arrow to the right key to access more gating related settings.

Press the arrow to the left key to return to the gating main menu.

7.12.2 Gating delay



Figure 7-16: Gating Delay Screen

Use the up and down arrow keys to adjust the gating delay. This will set a timer before activating the gating sequence after the fill is completed.

Press the arrow to the right key to access more gating related settings.

Press the arrow to the left key to return to the Gap timer screen.

7.12.3 Start eye delay

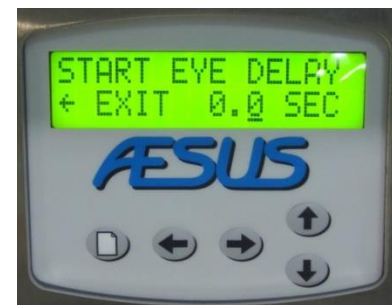


Figure 7-17: Start eye delay Screen

Use the up and down arrow keys to adjust the start eye delay. This delay is set to allow time for containers to enter the filling area without starting a fill cycle unless the filling area is full of empty containers. It should be set a bit longer than the time taken by a container to travel in front of the start eye detector.

Press the arrow to the left key to return to the gating delay screen.

7.13 Dive (Optional)

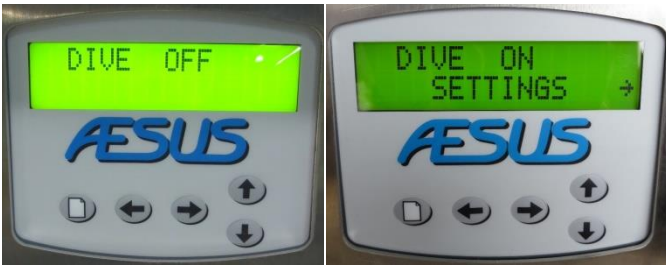


Figure 7-18: Dive Screen

Use the up and down arrow keys to switch the function from **Off** to **ON** in sequence.

When the dive is set to ON settings and timers for the dive function are made available through the right arrow key.

Press the menu key to access more settings.

7.13.1 Neck Dive



Figure 7-19: Neck dive Screen

Use the up and down arrow keys to toggle between neck and full dive options.

The **Neck** dive consists of a 2 inch air cylinder that is activated for the duration of the fill of all the pumps on. ***This feature is only for the optional 2 inch air cylinder.***

Press the arrow to the right key to access more dive related settings.

Press the arrow to the left key to go back to the dive main screen.

7.13.2 Bottom delay



Figure 7-20: Bottom Delay Screen

Use the up and down arrow keys to adjust the bottom delay value.

The bottom delay, programmed in 1/10 of a second, is used at the end of the fill to allow the last drop to exit the nozzle before lifting the nozzle bar and gating the containers.

Press the arrow to the left key to go back to the Neck / Full-dive screen.

7.13.3 Neck clamp



Figure 7-21: Neck Clam Screen

Use the up and down arrow keys to toggle on and off the neck clamp function. The neck clamp is a centring device that maintains the containers centred under the nozzles before the nozzle bar dives.

Press the arrow to the left key to go back to the neck delay screen.

7.13.4 Full Dive



Figure 7-22: Full-dive Screen

Use the up and down arrow keys to toggle between neck and full dive options.

The **Full** dive consists of a 10-inch rack driven by a servo motor following the level of liquid dispensed by the master pump. You will need to adjust the slave pumps speeds in order for them to fill at the same rate as the master. Once at the neck the dive will wait until all the pumps have completed their respective fills before continuing the sequence.

Press the arrow to the right key to access more dive related settings.

Press the arrow to the left key to go back to the dive main screen.

7.13.5 Bottom delay



Figure 7-23: Bottom Delay Screen

Use the up and down arrow keys to adjust the bottom delay value.

The bottom delay is programmed in increments of 100 pulses representing 4 turns of the gears and are used to let the liquid reach the nozzle before starting the rise of the nozzle bar. As the nozzle bar speed is directly linked to the dispense

speed of the pump, changing the pump speed will adjust the bottom delay time as well.

If **full** dive is selected press the arrow to the right key to access other full-dive related settings.

Press the arrow to the left key to go back to the Neck / Full-dive screen.

7.13.6 Neck delay



Figure 7-24: Neck Delay Screen

Use the up and down arrow keys to adjust the delay after the fill is completed and before the nozzle bar rises bringing the nozzles out of the containers and starting the gating sequence.

Press the arrow to the right key to access more dive related settings.

Press the arrow to the left key to go back to the Bottom delay screen.

7.13.7 Neck clamp



Figure 7-25: Neck Clamp Screen

Use the up and down arrow keys to toggle on and off the neck clamp function. The neck clamp is a centring device that maintains the containers centred under the nozzles before the nozzle bar dives.

Press the arrow to the right key to access more dive related settings.

Press the arrow to the left key to go back to the neck delay screen.

7.13.8 Container height



Figure 7-26: Container height Screen

Use the up and down arrow keys to adjust the height of the filling stop point this is where the nozzle will be when the filling is completed. The setting can vary from 25 mm to 200 mm. The full length of the nozzle is 200 mm.

Press the arrow to the right key to access more dive related settings.

Press the arrow to the left key to go back to the neck clamp screen.

7.13.9 Neck clearance



Figure 7-27: Neck Clearance Screen

Use the up and down arrow keys to adjust the travel of the nozzle bar to clear the neck and let the containers exit the filling area. The setting can vary from 5 mm to 50 mm.

Press the arrow to the left key to go back to the Container height screen.

7.14 Profile Filling



Figure 7-28: Profile Filling Screen

Use the up and down arrow keys to toggle the profile filling function on and off. When the profile filling is set to on, you can access the profile filling settings by pressing the arrow to the right key.

Press the menu key for options.

7.14.1 Pump speed at start



Figure 7-29: Pump Speed Screen

Use the up and down arrow keys to adjust the speed of the pump at the start of the fill, from 1 to 100 percent of the programmed filling speed, until the liquid reaches the tip of the nozzle to prevent splashing and foaming.

Press the arrow to the right key to access more profile filling related settings.

Press the arrow to the left key to go back to the profile filling main screen.

7.14.2 Slow start duration



Figure 7-30: Slow start Screen

Use the up and down arrow keys to adjust the duration of the slower pump speed at the start of the fill, from 1 to 50 percent of the programmed fill setting, until the liquid reaches the tip of the nozzle to prevent splashing and foaming.

Press the arrow to the right key to access more profile filling related settings.

Press the arrow to the left key to go back to the Pump speed at the start screen.

7.14.3 Pump speed at end



Figure 7-31: Pump Speed Screen 2

Use the up and down arrow keys to adjust the speed of the pump at the end of the fill, from 1 to 100 percent of the programmed filling speed, slowing down the filling speed at the end of the fill will prevent splashing and spitting, allowing you to fill closer to the container top.

Press the arrow to the right key to access more profile filling related settings.

Press the arrow to the left key to go back to the Slow start duration screen.

Press the arrow to the left key to go back to the Pump speed at the end screen.

7.14.4 Slow end duration

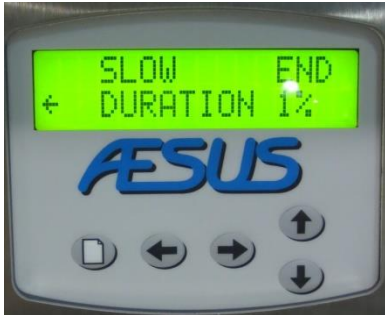


Figure 7-32: Slow end Screen

Use the up and down arrow keys to adjust the duration of the slower pump speed at the end of the fill, from 1 to 50 percent of the programmed fill setting, you will need to adjust this setting according to the thickness and fluidity of the product keeping in mind the filling speed to achieve the desired speed at the end of the fill.

7.15 *Return to RUN SCREEN*

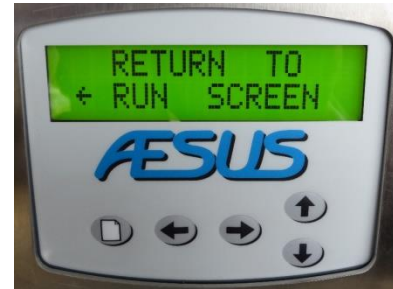


Figure 7-33: Return Screen

Press the arrow to the left key to return to the standard run (Home) screen.

Press the menu key to stay in the special settings and access the slave function screen.

8. AF1 Remote Screens (OPTIONAL)

8.1.1 Remote Screen

The remote screen can be placed anywhere on the frame of the machine.



Figure 8-1: Remote Screen

Blue Bouton: Reset.

Red Bouton: Fast stop, which stops the machine instantly.

8.1.2 Main Screen (Run Screen)



Bottom banner

Figure 8-2: Main Screen

From the HMI Main Screen, you can access to either of the following actions:



Start: To start the machine.



Stop: To stop the automatic operation of the machine.



Aesus Logo: To open the configuration menu ().



Cycle count: Monitor the lifting system's position

Alarms: To open the Alarms page ().

Login: To login with a specific username (Section 8.1.3).

Cycle count: Set and monitor the cycle counter.

8.1.2.1 Bottom banner

The bottom banner is comprised of five (5) icons that will lead you to different menu.



Figure 8-3: Bottom banner



The help screen.



The pump setup pages (Section 8.1.6).



The dive setup page (Section 8.1.4).



The indexing system setup page (Section 8.1.8).



The main screen (Section 8.1.1).

8.1.2.2 Configuration menu

The configuration menu allows you to setup the different part of the machine.



Figure 8-4: Configuration menu

Neck Clamp: This enables or disables the neck clamp from running in the filling sequence. If you do not need a neck clamp, you can turn it off or on as necessary.

Indexing System: This enables or disables the indexing system from working during the filling sequence. If you do not need the indexing system, you can turn it off or on as necessary.

Conveyor Stop: If you want to stop the conveyor for setup purposes, you may do this by selecting on/Off.

Dive: You can turn the diving On or Off.

NECK: Nozzle will dive to neck level, fill, wait for the bottom delay and go back up.

FULL: Nozzle dive to bottom position, wait for bottom delay, start rising, end filling and lifting at neck position, wait for neck delay and go back up.

8.1.2.3 Alarms Screen

This is the screen that appears if you press the alarms button from the main screen.

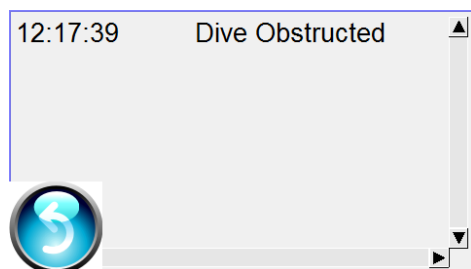


Figure 8-5: Alarms screen

8.1.3 Login Screen

It allows entering and altering password settings on the system. It can be accessed from the MAIN Screen. Refer to *Figure 8-6*.

Press the login button on the right to access this screen. The popup menu appears and allows you to switch between user accounts. The username that is currently logged in, is displayed in the black box at the top under User Name.

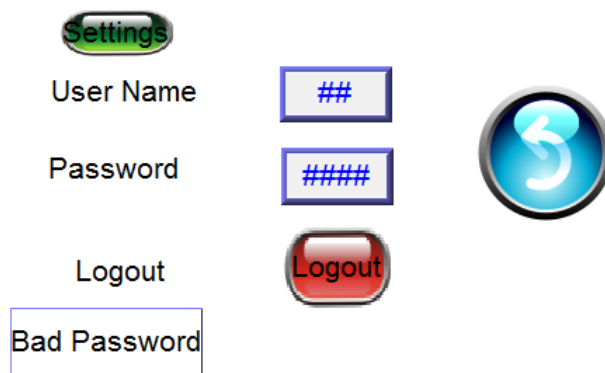


Figure 8-6: Login Menu

From the popup Login Menu:

User name: Log into the machine with one of the user accounts.

Logout: Log out of the current user account.

Password: Enter the password related to the user name chosen.

: Return to the Main Screen.

Settings: Go to the setting page.

8.1.4 Dive setup screens

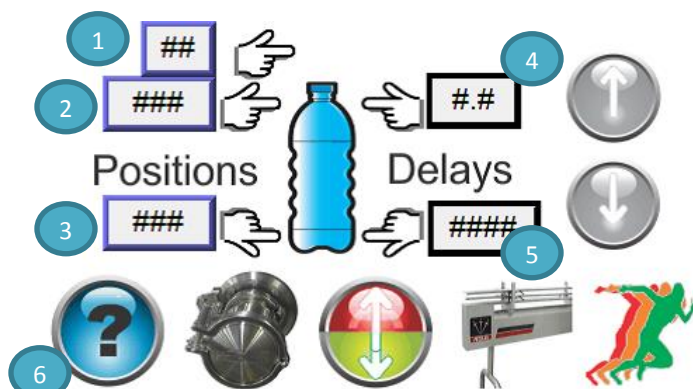


Figure 8-7: Dive Setup Screen

- 1: Enter the recorded setting for the Top position.
- 2: Enter the recorded setting for the Neck position.
- 3: Enter the recorded setting for the Bottom position.
- 4— **Neck Delay:** Delay before exiting the container after the filling action has been completed.
- 5— **Bottom Delay:** Delay in pulse before the nozzles start rising after the pumps have started.
- 6: Bottom banner

8.1.5 Gating Setup Screen (Optional)

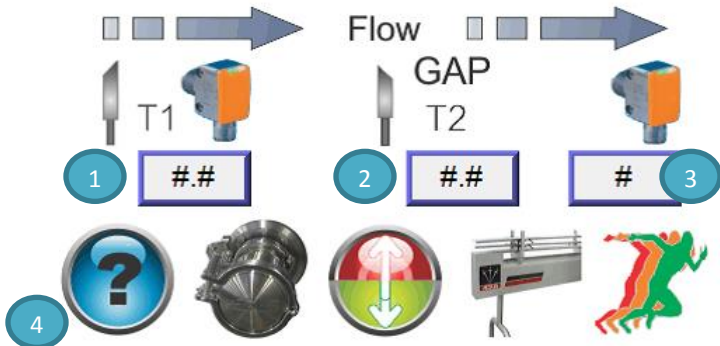


Figure 8-8: Gating Setup Screen (Optional)

- 1— **Start eye delay:** Delay before the machine acknowledges container presence or starts diving while the start eye is activated.
- 2- **Gap delay in standard gating mode:** Delay between the release of the filled and empty containers to allow the downstream gate to intercept the empty containers.
- 3— **Count in counting mode:** Number of containers to index at every cycle.
- 4: Bottom banner.

8.1.6 Pump Main Setup Screen

From page 1 of the pump setups screens it is possible to select the pump number for which you want to see the settings.



Figure 8-9: Pump Main Setup Screen

8.1.6.1 Pump 1 Setup Screen



Figure 8-10: Pump 1 Setup Screen

Pre-Open Delay (ms): This is the time delay between the opening of the nozzles, and the pumps beginning to rotate. This delay is handy where it is desired to relieve some pressure in the hose from the pump to the nozzle prior to commencing a fill. The action may reduce or eliminate a sudden gush of products when the nozzles open at the beginning of a fill.

Close delay (ms): This is the time delay between the end of a fill and the closing of the nozzles. This delay is handy where it is desired to relieve some pressure in the hose from the pump to the nozzle at the end of a dispense. The action may reduce or eliminate a sudden gush of products when the nozzles open again at the beginning of the next fill. This effect may also be useful in reducing or eliminating back flow of pressurized products from the pump outlet hose back through the pump gears all the way to the supply tank. If the pressure is not eliminated, and there are varying pauses between fills, residual pressure in the hose may contribute to varying and unexpected variations in fills.

Volume (Pulse): The amount of liquid in pulses that the pump needs to dispense every time.

Speed (%): You can enter the speed at which you want to run your pumps. You enter a value between 200 and 1700 RPM.

Prime:

Pressing will open the nozzle and start pumping continuously.

Releasing will stop the pump and shut the nozzle.

Bottom banner: To change menu

8.1.6.2 Pump 2 Setup Screen (Optional)



Figure 8-11: Pump 2 Setup Screen

Pre-Open Delay (ms): This is the time delay between the opening of the nozzles, and the pumps beginning to rotate. This delay is handy where it is desired to relieve some pressure in the hose from the pump to the nozzle prior to commencing a fill. The action may reduce or eliminate a sudden gush of products when the nozzles open at the beginning of a fill.

Close delay (ms): This is the time delay between the end of a fill and the closing of the nozzles. This delay is handy where it is desired to relieve some pressure in the hose from the pump to the nozzle at the end of a dispense. The action may reduce or eliminate a sudden gush of products when the nozzles open again at the beginning of the next fill. This effect may also be useful in reducing or eliminating back flow of pressurized products from the pump outlet hose back through the pump gears all the way to the supply tank. If the pressure is not eliminated, and there are varying pauses between fills, residual pressure in the hose may contribute to varying and unexpected variations in fills.

Volume (Pulse): The amount of liquid in pulses that the pump needs to dispense every time.

Speed (%): You can enter the speed at which you want to run your pumps. You enter a value between 200 and 1700 RPM.

Prime:

Pressing will open the nozzle and start pumping continuously.

Releasing will stop the pump and shut the nozzle.

Bottom banner: To change menu

8.1.6.3 Pump 3 Setup Screen (Optional)



Figure 8-12: Pump 3 Setup Screen

Pre-Open Delay (ms): This is the time delay between the opening of the nozzles, and the pumps beginning to rotate. This delay is handy where it is desired to relieve some pressure in the hose from the pump to the nozzle prior to commencing a fill. The action may reduce or eliminate a sudden gush of products when the nozzles open at the beginning of a fill.

Close delay (ms): This is the time delay between the end of a fill and the closing of the nozzles. This delay is handy where it is desired to relieve some pressure in the hose from the pump to the nozzle at the end of a dispense. The action may reduce or eliminate a sudden gush of products when the nozzles open again at the beginning of the next fill. This effect may also be useful in reducing or eliminating back flow of pressurized products from the pump outlet hose back through the pump gears all the way to the supply tank. If the pressure is not eliminated, and there are varying pauses between fills, residual pressure in the hose may contribute to varying and unexpected variations in fills.

Volume (Pulse): The amount of liquid in pulses that the pump needs to dispense every time.

Speed (%): You can enter the speed at which you want to run your pumps. You enter a value between 200 and 1700 RPM.

Prime:

Pressing will open the nozzle and start pumping continuously.

Releasing will stop the pump and shut the nozzle.

Bottom banner: To change menu

8.1.6.4 Pump 4 Setup Screen (Optional)



Figure 8-13: Pump 4 Setup Screen

Pre-Open Delay (ms): This is the time delay between the opening of the nozzles, and the pumps beginning to rotate. This delay is handy where it is desired to relieve some pressure in the hose from the pump to the nozzle prior to commencing a fill. The action may reduce or eliminate a sudden gush of products when the nozzles open at the beginning of a fill.

Close delay (ms): This is the time delay between the end of a fill and the closing of the nozzles. This delay is handy where it is desired to relieve some pressure in the hose from the pump to the nozzle at the end of a dispense. The action may reduce or eliminate a sudden gush of products when the nozzles open again at the beginning of the next fill. This effect may also be useful in reducing or eliminating back flow of pressurized products from the pump outlet hose back through the pump gears all the way to the supply tank. If the pressure is not eliminated, and there are varying pauses between fills, residual pressure in the hose may contribute to varying and unexpected variations in fills.

Volume (Pulse): The amount of liquid in pulses that the pump needs to dispense every time.

Speed (%): You can enter the speed at which you want to run your pumps. You enter a value between 200 and 1700 RPM.

Prime:

Pressing will open the nozzle and start pumping continuously.

Releasing will stop the pump and shut the nozzle.

Bottom banner: To change menu

8.1.7 Pump 1 Profile Filling Setup Screen

This screen allows the setting of different pumping speed for one dispense. Example if you want to start fast and finish filling more slowly.

If you change the set speed or volume, these settings will adjust accordingly.

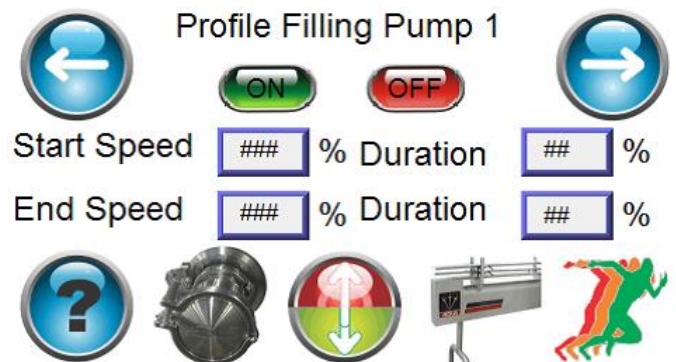


Figure 8-14: Pump 1 Profile Filling Setup Screen

ON/OFF: Enables or disables the profile filling for pump 1.

Start Speed (%): This represents a % of the pump set speed for the beginning of the dispense process for pump 1.

Duration (%): This represents a % of the full-filling volume for which you want to keep the start speed for pump 1.

End Speed (%): This represents a % of the pump set speed for the end of the dispense process for pump 1.

Duration (%): This represents a % of the full-filling volume for which you want to keep the end speed for pump 1.

****NOTE: The combine % of both duration can be more than 100%.**

  : Allow to go back to the previous page or go to the next.

Bottom Banner: Change menu

8.1.7.1 Pump 2 Profile Filling Setup Screen (Optional)

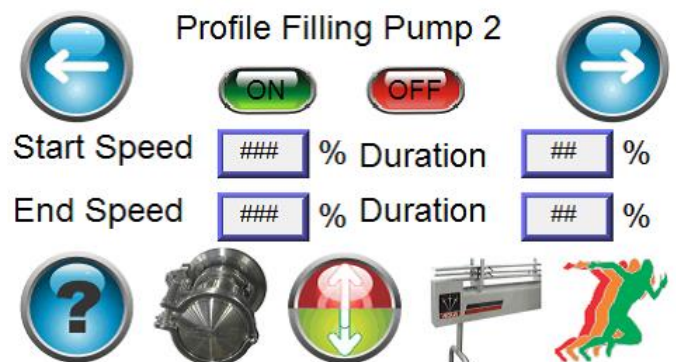


Figure 8-15: Pump 2 Profile Filling Setup Screen

ON/OFF: Enables or disables the profile filling for pump 2.

Start Speed (%): This represents a % of the pump set speed for the beginning of the dispense process for pump 2.

Duration (%): This represents a % of the full-filling volume for which you want to keep the start speed for pump 2.

End Speed (%): This represents a % of the pump set speed for the end of the dispense process for pump 2.

Duration (%): This represents a % of the full-filling volume for which you want to keep the end speed for pump 2.

****NOTE: The combine % of both duration can be more than 100%.**



: Allow to go back to the previous page or go to the next.

Bottom Banner: Change menu

8.1.7.2 Pump 3 Profile Filling Setup Screen (Optional)

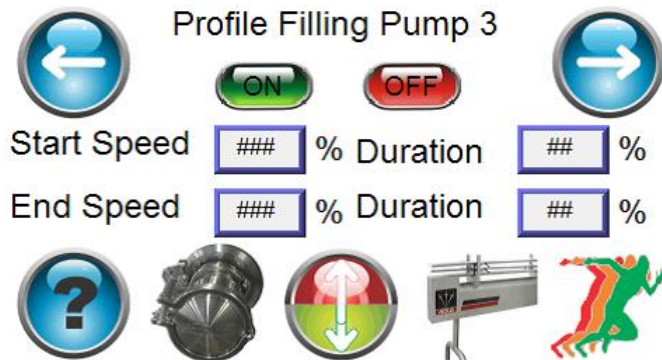


Figure 8-16: Pump 3 Profile Filling Setup Screen

ON/OFF: Enables or disables the profile filling for pump 3.

Start Speed (%): This represents a % of the pump set speed for the beginning of the dispense process for pump 3.

Duration (%): This represents a % of the full-filling volume for which you want to keep the start speed for pump 3.

End Speed (%): This represents a % of the pump set speed for the end of the dispense process for pump 3.

Duration (%): This represents a % of the full-filling volume for which you want to keep the end speed for pump 3.

****NOTE: The combine % of both duration can be more than 100%.**



: Allow to go back to the previous page or go to the next.

Bottom Banner: Change menu

8.1.7.3 Pump 4 Profile Filling Setup Screen (Optional)

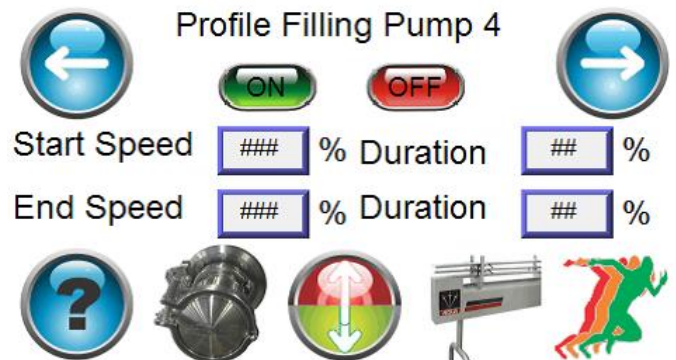


Figure 8-17: Pump 4 Profile Filling Setup Screen

ON/OFF: Enables or disables the profile filling for pump 4.

Start Speed (%): This represents a % of the pump set speed for the beginning of the dispense process for pump 4.

Duration (%): This represents a % of the full-filling volume for which you want to keep the start speed for pump 4.

End Speed (%): This represents a % of the pump set speed for the end of the dispense process for pump 4.

Duration (%): This represents a % of the full-filling volume for which you want to keep the end speed for pump 4.

****NOTE: The combine % of both duration can be more than 100%.**



: Allow to go back to the previous page or go to the next.

Bottom Banner: Change menu

8.1.8 Profile Lifting Setup Screen

The Profile Lifting makes it possible for the nozzle to follow the liquid level as it rises inside the container. 3 steps can be used but only 2 can be programmed.

The height of the nozzle bar is always calculated at every filling pulse. It will lift in a linear fashion between steps until it reaches the next step.

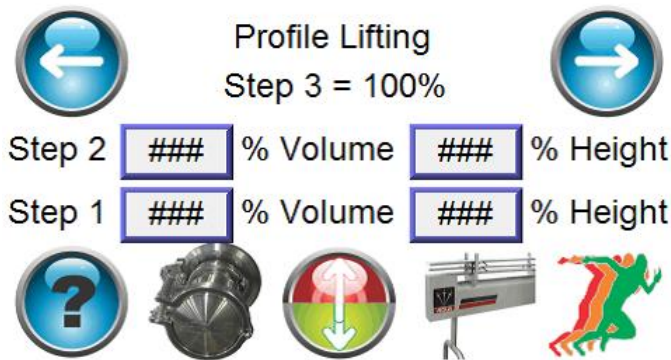


Figure 8-18: Profile Lifting Setup Screen

Step 3: Is always 100% of volume at 100% neck height.

Step 2: Settings are always equal to or greater than step 1.

Step 1: It will only start once the bottom delay is over.



: Allow to go back to the previous page or go to the next.

Bottom Banner: Change menu

Example:

Step 3 100% volume at 100% heights

Step 2 90% volume at 25% heights

Step 1 40% volume at 45% heights

The sequence of events will be:

1. Container(s) presence confirmed.
2. Nozzle(s) go down.
3. Start filling.
4. The bottom delay will take place followed by the steps.
5. Step 1 40% of the remaining volume will be dispensed during the travelling to the first position at 25% of the neck height.
6. At the end of step 2, 90% of the volume will have been dispensed and the nozzles will be at 45% of the total travelling distance.

The remaining 10% of the volume will be dispensed during the travelling of the nozzle of the last 55% of the container neck height (long thin neck).

8.1.9 Test Screen

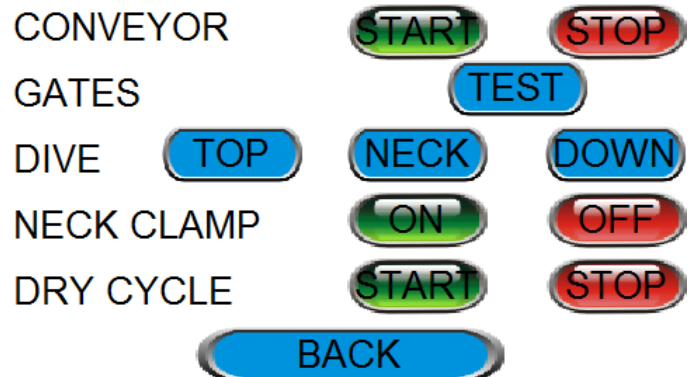


Figure 8-19: Test Screen

Conveyor START/STOP: Start or stop the testing of the conveyor alone.

Gates TEST: Test the gates.

Dive TOP: Send the nozzle to the top position to test it.

Dive NECK: Send the nozzle to the Neck position to test it.

Dive DOWN: Send the nozzle to the down position to test it.

Neck clamp ON/OFF: Clamp or UN-clamps the clamps to test them.

Dry Cycle START/STOP: Start or stop a dry run of the filling sequence.

Back: Go back to the main menu

9. Feed Tanks

You may have requested a feed tank be supplied with your AESFill AF1 unit(s). If you have multiple fillers, the feed tank should have multiple outlets on the bottom. Each AESFill AF1 should be attached to its own outlet at the bottom of the tank. Do not attach more than one pump to an individual outlet, as this can cause pump starvation, leading to inaccurate filling, and possible pump damage.

If you are filling from a drum or barrel, place the infeed hose as close to the bottom as possible. It is advisable to cut the hose at an angle to avoid it sucking itself to the bottom of the drum.

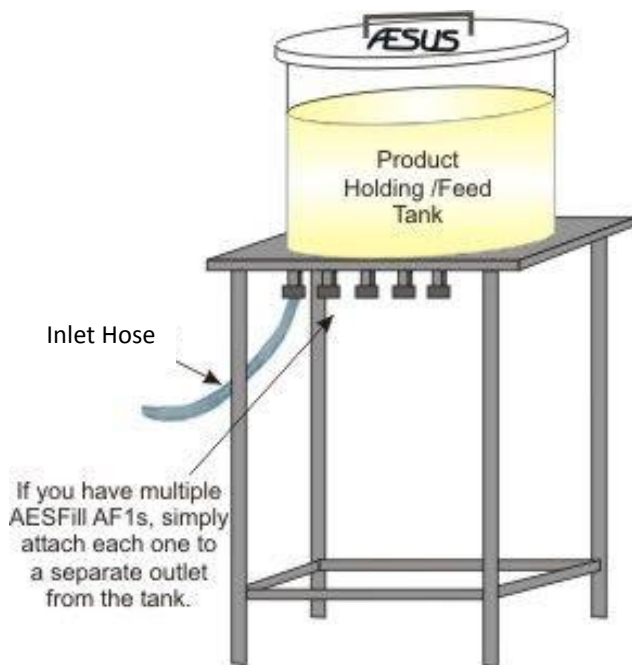


Figure 9-1: Tanks

10. Nozzle Types

The standard nozzle supplied with the AESFill AF1 is a No-Drip Nozzle, which is available in several standard diameters, and can be customized to meet your special needs. These nozzles have an air cylinder operated by an air solenoid requiring compressed air.

A ball check nozzle can be provided if the standard No-Drip nozzle is not required. However, the design of ball check nozzles limits the available sizes to a maximum of 7/16" (11 mm) diameter.

There are different kinds of shut off nozzles. The standard nozzle that we provide is an IBSO nozzle. Below are characteristics of the different types of nozzles:

1. **IBSO (Internal Bottom Shut-off)** Nozzles are supplied as standard. They are available in the diameters listed in the table:

Select the largest diameter possible, that will fit into the neck(s) of your container(s). The larger the diameter, the faster the fill speed. Extra sizes may be desired to optimize fill speeds.

Below are two pictures of the tip of the nozzle. On the left, the nozzle is in the open position; on the right it is closed.

Table 1: Nozzles size

INCH	MM
3/8	9.5
7/16	11
1/2	13
5/8	16
3/4	19
7/8	22



Figure 10-1: Nozzles

2. **OBSO (Outside Bottom Shut-off)** Nozzles are similar in construction to IBSO nozzles, except the plunger moves downwards to open, reducing restriction in the nozzle tube. This nozzle is usually only used if the increased output is required for greater fill speeds and/or for extremely viscous liquids. The disadvantages are:
 - a. Extra clearance must be provided between the nozzle end and the bottom of the bottle, or the plunger could hit and possibly break the bottle.
 - b. The closing action of the plunger tends to form more of a drip with certain products when the filling cycle is complete. OBSO nozzles are available in the same range of sizes as the IBSO nozzles.
3. **ITSO (Internal Top Shut-off)** Nozzles are usually used in small diameters for small necked bottles. The plunger closes inside the top of the nozzle and does not go to the bottom of the nozzle tube.

10.1 Exchanging Nozzles & Pumps

Cleaning a nozzle and pump is not difficult. However, many customers order extra nozzles and pumps so they can quickly change over to a new product with a fresh pump and nozzle while the other set is being cleaned.

The pump and nozzle can be removed from the machine all in one piece and taken to the clean-up areas, then disassembled there.

If the product is very viscous or needs a solvent in order to effect cleaning, the solvent can be run through the AESFill AF1 in order to begin the cleaning process. (Based on compatibility with the elastomeric seals.)



Figure 10-2: Nozzle 2

10.2 Cleaning

10.2.1 Cleaning the Nozzle

1. Disassemble the nozzle.
2. Remove the O-rings from both the nozzle and valve assembly.
3. Wash components individually with an approved cleaning agent*
4. Thoroughly dry all components before reassembly.
5. Lubricate O-rings with lubricant recommended below.**

10.2.2 Cleaning the Pump

1. Disassemble the pump.
2. Remove the cover seal and shaft seal inside the pump body.
3. Wash components individually with an approved cleaning agent*
4. Thoroughly dry all components before reassembly.
5. Lubricate O-rings with lubricant recommended below.**

*We do not recommend any particular cleaning solutions as product and local regulations may differ.

****Note: When reassembling the pump and nozzle it is wise to apply a thin coat of approved lubricant to the pump shaft at the seal and to the nozzle O-rings, or else the parts may wear rapidly.**

** "Superlube grease" by Sinco Chemical Corp or other approved lubricant

NOTE: Even though this product is U.S.D.A. approved, please ensure that regulating bodies and company protocols accept this choice.



Figure 10-3: Disassembling pumps

11. Changeover

11.1 Simple Changeover

The simple changeover is called simple, because it is just that. The only hitch in the process is that you need a second complete pump/nozzle assembly for each AESFill AF1 machine.

1. Turn off the AESFill AF1 machine.
2. Disconnect the air hoses from the nozzle.
3. Loosen the nozzle clamp and slide the nozzle off the bar.
4. Loosen the screw on the 2" tri-clover clamps that attaches the AESPump to the docking plate and remove the clamp and the AESPump.
5. Place the nozzle/pump aside to be cleaned.
6. Take the second pump/nozzle assembly and attach it to the docking plate and to the nozzle bar.
7. Reattach the air hoses to the air cylinder on the nozzle.
8. Turn the AESFill back on and program in the necessary speed and volume.

11.2 Normal Changeover

The only difference between the normal changeover and the simple changeover is that you need to clean your nozzle and your pump before you can change to another product.

11.3 Determining Volume & Speed

In order to determine the correct speed and volume, follow these steps:

1. Place a catch tray below the nozzle that you are going to test.
2. Input a fill volume number that will overfill the bottle.
3. Place an empty bottle under the nozzle.
4. Press the foot switch.
5. When the container is almost full, press the foot switch again. The required fill setting will be displayed on the AF1. Check the fill quantity. If it is too much or too little, adjust the fill volume accordingly and try again. Adjust the volume & speed until it fills to the quantity & speed you want.
6. Write down the volume and speed for the size of bottles and the type of liquid so you have a starting point for next time.
7. Be aware that the first 5 fills after a long period of rest (more than 10 minutes) may be different.
8. You can now begin filling your bottles.

12. Networking Multiple AF1s Together

AF1s are wonderful stand-alone units for liquid filling but once production increases you may need to add more fillers together in order to fill faster. The AF1 is equipped with the ability to network together so that the start signal will start all of the AF1s that are networked at the same time. Up to 4 AF1's can be networked together.

When networking AF1 machines together, you will need a 5 pin to 19 pin cable. This cable is not supplied with the machine, but can be purchased through our spare parts department.

Connect the machines together using the 5 to 19 pin cable. On the machine with the empty 5 pin port connects the foot switch pedal. The machine that has the empty 19 pin port (or the 19 pin port used for the automation kit), this machine is considered the Master AF1. All other AF1s should have the Slave Option turned ON.

If you have an optional automation kit, connect the automation kit with the provided 19 pin cable to the empty 19 pin port.

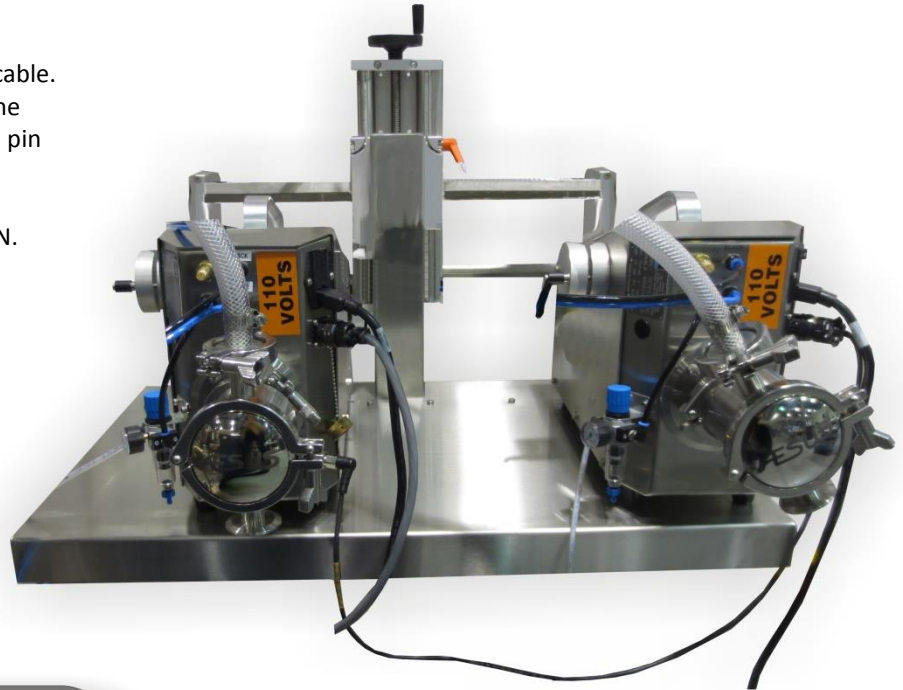


Figure 12-1: 5 to 19 Pin Cable

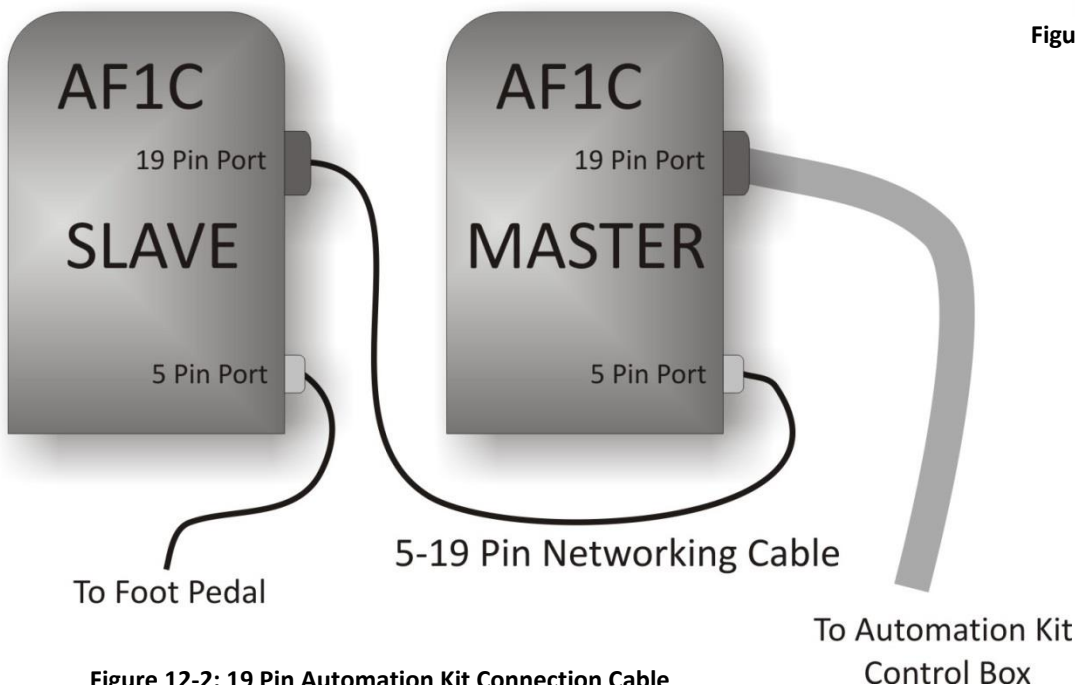


Figure 12-2: 19 Pin Automation Kit Connection Cable

13. Troubleshooting

13.1 General Troubleshooting

****REMOVE POWER BEFORE PERFORMING ANY SERVICE****

Table 2: Troubleshooting and quick solutions

Fault	Reason	Remedy
Machine will not start. No power at the machine.	Fuse blown	➤ Check fuse in your supply line and in the machine. It should be a 3 AG type, 10 amp slow blow for 110 volts supplied. It should be a 3 AG type, 5 amp slow blow for 220 volts supplied.
Machine will not start with foot switch.	Foot switch or cable damaged	➤ Check foot switch and contacts. ➤ To determine if foot switch or cable is faulty, start fill by pressing up and down arrows on the control panel simultaneously.
Machine runs slow during pump stroke. Appears overloaded.	Very viscous liquid. Nozzles too small. Very hot liquid.	➤ Warm the liquid. ➤ Use larger diameter nozzles. ➤ Do not fill too fast. ➤ Use OBSO nozzles. ➤ Purchase hot fill gears
Motor starts under great strain, then fuses blow. Machine seizes under load.	Check for obstructions Shut off nozzles not opening	➤ Remove any obstruction. ➤ Verify air supply and connections on shut off nozzles if fitted. ➤ Pumping against a closed shut off nozzle may cause damage to machine.
Excessive product leakage from pump docking plate	Worn pump shaft seal	➤ Check pump drive shaft seals and inspect shafts for wear or damage. Replace if necessary. It is always a good idea to change the long bushing at the same time as the shaft seal.
Product leakage from vent hole on nozzle body	Worn O-ring	➤ Check O-ring at the top of the nozzles stem for wear or damage. Replace if necessary.

13.2 Inconsistent Fills

****REMOVE POWER BEFORE PERFORMING ANY SERVICE****

Table 3: Troubleshooting and quick solution 2

Cause	Reason	Remedy
Air entering pumping systems.	Hoses not securely tightened.	➤ Tighten clamps and check for air and liquid leaks.
Nozzle diameter too large.	Surface tension of liquid too low.	➤ Use smaller nozzle, but speed of filling may have to be reduced to avoid splashing.
Difficult liquid.	Liquid too viscous	➤ Warm liquid. ➤ Use overhead hopper.
Nozzle stem plunger not moving fast enough.	Air hoses not attached to air cylinders. Air pressure too low.	➤ Attach the air hoses from the AESFill AF1 to the Air Cylinder. ➤ Adjust air pressure to the AESFill AF1.
Fill volume not increasing	Encoder out of adjustment.	➤ Check gap between sensor and encoder gear on the back of the motor inside the cabinet. It should be set to 0.020 inches.
Inconsistent Fill Volume	Seals, Gears and/or Bushings have too much wear.	➤ Replace the seals first and see if it fixes the problem. ➤ Replace the gears and see if these fix the problem. ➤ Replace the Bushings and see if it fixes the problem.

13.3 Dripping Nozzle

****REMOVE POWER BEFORE PERFORMING ANY SERVICE****

Table 4: Troubleshooting and quick solution 3

Cause	Reason	Remedy
Air entering pumping systems.	Hose has come out of products in supply tanks. Supply tank is empty. Faulty seals. Air leaks at hose couplings.	➤ Be sure that suction hose is always completely submerged. All air must be purged from the pump before accurate fills can be achieved. ➤ Check seals for damage or incorrect assembly. Replace if necessary. ➤ Tighten all hose clamps.
Cavitation.	AESFill is running too fast causing air pockets to form in inlet hose. Suction hose stuck to bottom of supply tanks or blocked	➤ Run the AESFill very slowly. Speed the machine up only to the maximum speed at which precision fills are still obtained. ➤ Unblock hose or cut the end of the hose diagonally.
Pump leaking. Product dripping from shaft area.	Faulty seal.	➤ Check seals for damage and proper installation. Replace if required.
Product contains air bubbles.	It is impossible to obtain accurate fills with aerated products.	➤ De-aerate products.
Product dribbles from the nozzle after end of fill	Worn O-rings Nozzle closing too slowly	➤ Check O-ring at bottom tip of nozzle's stem for wear or damage. Replace if necessary. ➤ Adjust the flow control attached to the side connection on the nozzle.

****NOTE:** There are many variables that may affect the final dispensed quantity, such as:

- Varying viscosities
- Varying head pressures in the supply tank
- Bubbles in the product
- Elasticity in the hose
- Distance from supply tank
- Varying temperatures
- Multiple users on the same product supply line
- Wear of pump gears

In general, repeatable fill conditions will contribute to repeatable fill quantities.

If the above items do not remedy the problem with your machine, or your problem is not shown, please contact us and we will help you.

14. General Maintenance

This is intended as a guide only. Actual maintenance intervals and service schedule will depend upon conditions of use. Product properties, production environment, quality of compressed air and other variables may contribute to establishing a suitable preventive maintenance schedule.

14.1 *Before Each Production Run*

- ✓ Ensure that all clamps and fittings are tight.
- ✓ Always ensure a clean dry source of compressed air with a minimum 80 psi. Ensure that the air filter bowl at the rear of the machine is empty of accumulated moisture from the air supply. If required, place a suitable container under the filter and slowly open the drain at the bottom of the bowl.

14.2 *After Each Production Run*

****LEAVING PRODUCT IN THE PUMP OR NOZZLE FOR EXTENDED PERIODS IS NOT RECOMMENDED AS THE SERVICE LIFE OF SEALS AND INTERNAL COMPONENTS MAY BE COMPROMISED****

1. Turn off the machine.
2. Dismantle the nozzle and clean all parts as required for the product.
 - a. Inspect and replace any O-rings that show signs of wear.
3. Dismantle the pump and clean all parts as required for the product.
4. Inspect and replace any O-rings that show signs of wear.
 - a. Pay particular attention to the shaft seal pressed into the recess inside the pump body. It can be removed by carefully pressing out with a blunt tool, such as the dulled tip of a small screwdriver from the outside of the pump body. Be careful not to damage the inside contact surface of the shaft seal. If the shaft seal is worn, or the drive shaft shows signs of wear at the seal location, both should be replaced in order to avoid product leakage past the seal. If the application permits, smear a small amount of food-grade grease (LOCTITE # 51252 or equivalent) on the round sections of the drive and idler shafts before assembly.
 - b. Replace any worn or damaged parts to ensure operator safety and to maintain proper intended functionality of the machine and its accessories.
5. Clean completely all machine surfaces using only a mild detergent. Avoid solvents especially on plastic surfaces.

Note: The motor is permanently lubricated and requires no maintenance.
The nozzle air cylinder does not require lubrication in the air supply.

14.3 *Pneumatic Controls for Shut-Off Nozzles*

Care should be taken to make sure that the filter bowl on the filter regulator is cleaned at regular intervals and is not allowed to become clogged or filled with water, thus allowing water or other contaminants to pass through the pneumatic circuitry.

15. Recommended Spare Parts

Please contact our spare parts department for an exact list of recommended spare parts for your specific machine:

Tel. 514-694-3439
parts@aesius.com.

Table 5: Recommended spare parts

Item #	Qty	Part Description
Electrical		
31066	2	10 A Slow Blow Fuse—110 V Machines
44003	2	5 A Slow Blow Fuse—220 V Machines
AESPump		
EDT-91003 (Y) Y = Based on your material selection	3	Polypack Ucup Select material: Buna-N, Viton, EPDM
EDT-91004 (Y) Y = Based on your material selection	1	3" Tri-Clover pump end cap seal Select material: Buna-N, Viton, EPDM
FIL74249	2	12 L Gears Acetron
FIL74755	2	24 L Gears Acetron (Used only if you have a 24L Pump)
EDT-51-25-043A	2	6 L Gears Acetron (Conversion of 12L pumps to 6L pump only. You also need the blank inserts below).
EDT-51-25-027A	4	6 L Blank Inserts
EDT-51-25-010A	3	Short Bushing
EDT-51-25-010B	1	Long Bushing
EDT-91105 (Y) Y = Based on your material selection	3	1 ½" Tri-Clover Seal O-Rings Select material: Buna-N, Viton, EPDM
EDT-91104 (Y) Y = Based on your material selection	1	¾ "Tri-Clover Seal O-Rings (Depending on your nozzle, you may not need this seal. This is only if you have a ¾" tri-clover fitting on your nozzle.) Select material: Buna-N, Viton, EPDM
Nozzle		
EDT-91102 (Y) Y = Based on your material selection	1	O-Ring for Nozzle Spout Select material: Buna-N, Viton, EPDM
EDT-911ZZ (Y) Y = Based on your material selection Z = This number will change based on the size of your nozzle. Nozzle size is determined by the outside diameter of the long portion of the spout and not the tip.	1	O-Ring for Nozzle Stem Tip Select material: Buna-N, Viton, EPDM 3/8" EDT-91110 (B = Buna / V = Viton / E = EPDM) 7/16" EDT-91111 (B = Buna / V = Viton / E = EPDM) 1/2" EDT-91112 (B = Buna / V = Viton / E = EPDM) 5/8" EDT-91103 (B = Buna / V = Viton / E = EPDM) 3/4" EDT-91114 (B = Buna / V = Viton / E = EPDM) 7/8" EDT-91106 (B = Buna / V = Viton / E = EPDM)
EDT-91101 (Y) Y = Based on your material selection	1	O-Ring for Nozzle Stem Top Select material: Buna-N, Viton, EPDM,
EDT-75632	1	Air Coupling Insert 90—1/4"
EDT-75631	1	Air Coupling Insert 1/4"
EDT-75630	2	Panel Mount Bulkhead 1/4" x 1/4"
EDT-77123	1	Nozzle Air Cylinder
Options		
ELE106459	1	Backup Sensor Reflects Clear, M12-4P, Keyence
ELE897	2	2 AMP FUSE ATMR

ELE1230	2	6 AMP FUSE ATMR
ELE1232	2	8 AMP FUSE ATMR

16. Contact Information

For Spare Parts or Technical Help please contact us, quoting the machine serial number:

Aesus Packaging Systems, Inc.

188 Oneida Drive
Pointe-Claire, Québec
H9R 1A8
Canada

514-694-3439
Fax: 514-694-4107

contactus@aesius.com
www.aesius.com



17. Some of the other Machinery Manufactured by Aesus Packaging Systems

Some other Machines Manufactured by Aesus

See the rest at www.aesus.com



Wrap and Panel Labellers



Top and Bottom Labellers



Single Spindle Cappers



Retorquers



Print and Apply Labellers



Neck Banders



Body Banders



Shrink Tunnels



Bottle Blowers



Conveyors



Pack of Tables



Auger Fillers



Label Heads



Feed Tanks



Automatic Fillers



Turntables