



**PACKAGING
MACHINES
AUSTRALIA**



ICP-M2RV with BUF USER MANUAL

2 Head Automatic Volumetric Filling Machine with BUF attachment

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Table of Contents

1	INTRODUCTION	3
2	SAFETY	3
3	CONTROL FUNCTIONS	5
3.1	OFF/ON SWITCH	5
3.2	ADJUST/RUN SWITCH	5
3.3	RUN/FLUSH SWITCH	5
3.4	EMERGENCY STOP BUTTON (E-STOP)	6
3.5	GATE DELAY TIMER	6
3.6	BUF DELAY TIMER	6
3.7	SENSORS OFF/ON (OPTIONAL)	6
3.8	BUF UP	7
3.9	BUF DOWN	7
3.10	FILL	8
3.11	RECHARGE	8
3.12	HANDWHEEL AND DIGITAL SCALE	9
4	SETUP PROCEDURE	10
4.1	ASSEMBLY	10
4.1.1	HOPPER	10
4.1.2	INLET CONNECTION	10
4.2	ALIGNMENT TO CONVEYOR	10
4.3	CONNECTION OF COMPRESSED AIR SUPPLY	11
4.4	EMERGENCY SAFETY STOP SYSTEM	12
4.5	MECHANICAL ADJUSTMENTS	13
4.5.1	CONTAINER GATES	13
4.5.2	NO-BOTTLE/NO-FILL (NB/NF) CONTAINER SENSOR SWITCH	14
5	PREPARING MACHINE FOR FILLING	15
5.1	BEFORE YOU RUN PRODUCT IN THE MACHINE	15
5.2	CONNECTING PRODUCT SUPPLY	15
5.3	INSTALLING OR CHANGING NOZZLES	15
5.4	ADJUSTING THE NOZZLE AND BUF HEIGHT	16
5.4.1	BUF ARM ADJUSTMENT	17
5.5	FLUSHING/PURGING THE MACHINE	18
5.6	FILL VOLUME ADJUSTMENT	19

6	OPERATING & ADJUSTMENTS	20
6.1	CONTINUOUS CYCLING	20
6.2	RE-START AFTER AN EMERGENCY STOP	20
6.3	FILLING RATE	20
6.4	RECHARGE RATE	21
6.5	FINE-TUNING	21
6.6	SETTING THE BUF DELAY TIMING	22
6.7	TIMING OF THE BUF TO FILL SPEED	22
7	PREVENTATIVE MAINTENANCE	23
7.1	GENERAL	23
7.2	SEALS	23
7.3	DAILY MAINTENANCE	24
7.4	WEEKLY MAINTENANCE	24
7.5	3 MONTHLY MAINTENANCE	24
7.5.1	FILLING MACHINE	24
7.5.2	BUF ASSEMBLY	25
7.5.3	PNEUMATICS	25
8	DISMANTLING PRODUCT VALVE AND CYLINDER ASSEMBLY	25
8.1	FLUSH CLEANING	25
8.2	DISMANTLING	26
8.2.1	ROTARY VALVE MODEL	26
8.2.2	REMOVE SPOOL VALVE	27
8.3	DISMANTLING PRODUCT PISTON ASSEMBLY & VALVE	28
8.3.1	PISTON GLIDE RING REMOVAL	29
8.4	RE-FITTING PRODUCT PISTON	30
8.5	INSTALLING CYLINDER AND VALVE INTO MACHINE	31
9	ELETRIC SENSOR BOX	32
9.1	POWERING THE ICP SENSOR BOX	32
9.2	SETTING UP THE SICK GTB6 SENSOR	32
9.3	WIRING DIAGRAM ICP SENSOR BOX	34
10	SPARE PARTS AND CONSUMABLES	35

1 INTRODUCTION

ICP-M2RV Auto Multi filler with Bottom-Up Fill (BUF) attachment.

This high-quality, heavy-duty machine, built and designed in Australia by ICP packaging Machines Australia.

ICP-M2RV incorporates two volumetric filling cylinders with rotary valves, filling two containers at once.

Purpose-built for automatic operation attached to a conveyor. It comes complete with gates and whiskers and is designed to work with an ICP conveyor or can be installed on any conveyor of your choice.

ICP-M2RV includes a rotary valve set up that allows filling of products up to 60deg C, adjustable nozzle heads of multiple sizes to suit customer requirements and can be set up with hopper or direct inlet connection.

WARNING

**BEFORE USING THE MACHINE IN PRODUCTION IT IS
ESSENTIAL THAT ALL WETTED PARTS
BE CLEANED BY THE CUSTOMER TO THEIR
SPECIFICATIONS.
WETTED PARTS MAY CONTAIN PARTICLES LEFT OVER
FROM THE MANUFACTURING PROCESS.**

2 SAFETY

ICP Packaging machines are custom-built machines constructed for an application and/or purpose outlined by the customer and the requirements to fulfil a project.

Machinery is built with safety measures to protect the machine from damage and limit the risk of injury to the user. However, it is imperative that any user who intends to operate this equipment have a sound understanding of pneumatic-based equipment, has thoroughly read this manual, and is confident in the safe operation of the equipment.

It is also recommended that the company or persons in possession of the equipment perform their own risk assessment and install any guarding measures that they deem necessary for the safety of the operators and the environment to which the equipment will be used.



3 CONTROL FUNCTIONS



3.1 OFF/ON SWITCH

ON/OFF is the main switch for starting and stopping the machine and should be used to start and stop the machine under normal operating conditions.

3.2 ADJUST/RUN SWITCH

RUN position is used for the standard operation of the filler to run the cycle.

ADJUST position, when selected, will allow the user to adjust the fill volume of the cylinders. In this position, the main pneumatic cylinder and the product cylinders stop in the fully forward position, taking the pressure off the adjuster plate inside the machine and enabling adjustment to be made via the Volume Adjusting Handwheel.

3.3 RUN/FLUSH SWITCH

RUN position is used for the standard operation of the filler to run the cycle.

FLUSH position, this function is designed to allow the user to prime or flush the machine. When activated, it will put the BUF in the upward position and hold there whilst cycling the filling process.

3.4 EMERGENCY STOP BUTTON (E-STOP)

E-STOP When this button is depressed, the air is "dumped" from the Main Cylinder, the Product Valves return to their "inlet" positions, and the machine stops. The button is released by turning the knob CLOCKWISE.

NOTE: When resetting the **E-STOP**, ensure to put the machine in **OFF** first

3.5 GATE DELAY TIMER

GATE DELAY - delays the changing of the gates after the filling process. The gates will change when the timer times out, and the filled bottles will index along the conveyor, presenting empty bottles beneath the nozzle.

To adjust any timer:

INCREASE turn clockwise– lengthen the delay time of gates

DECREASE turn anticlockwise - shorten the delay time

TIP: If using standard nozzles and finding slight drip after fill, increasing the timer delay will allow the drip to finish before advancing to the next container.

3.6 BUF DELAY TIMER

BUF DELAY - delays the **BUF (Bottom Up Fill)** before rising upwards.

To adjust any timer:

INCREASE turn clockwise - lengthen the delay time before BUF rises

DECREASE turn anticlockwise - shorten the delay time

TIP: When setting the delay, it is best to adjust it so that the nozzle is always above the line of the product when filling. i.e. don't allow the nozzle to be submerged in the product as this will result in drips between fills.

3.7 SENSORS OFF/ON (OPTIONAL)

Sensors, if optioned, will activate the electric sensor box putting power to the electronic sensors.

3.8 BUF UP

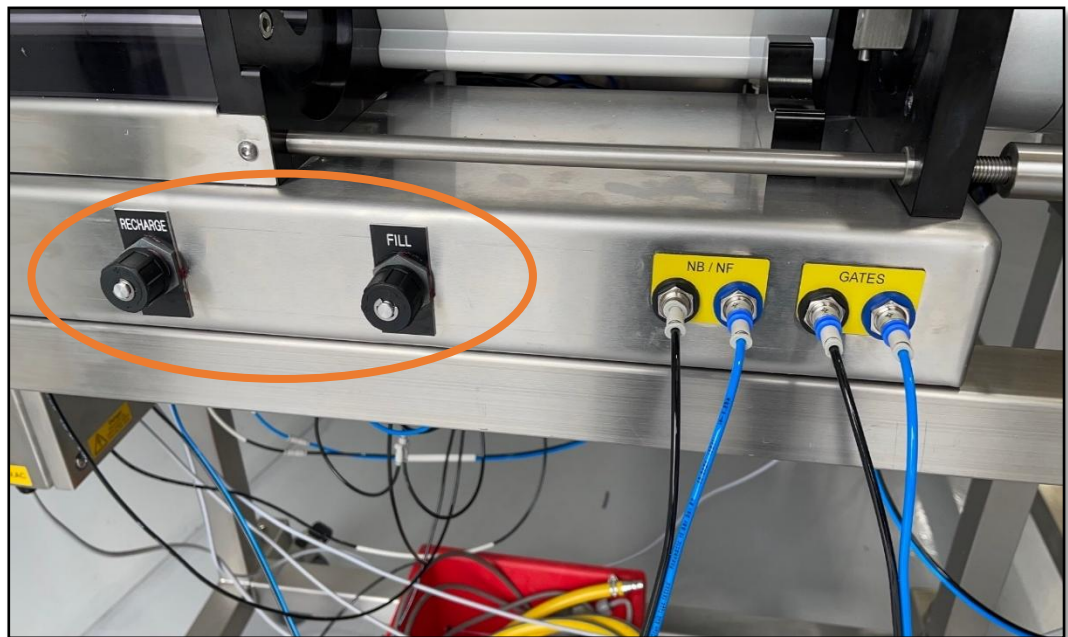
BUF UP dial on the left side of the main control panel. Dial controls the speed of the "UP" movement of the Bottom Up Fill (BUF). Adjusting the dial clockwise will slow down up movement, anticlockwise will increase.

When correctly set the nozzles should rise at the same time as the product fills in the container, keeping just above the fill at all times.

3.9 BUF DOWN

BUF DOWN dial on the left side of the main control panel. Dial controls the speed of the "DOWN" movement of the Bottom Up Fill (BUF). Adjusting the dial clockwise will slow down the movement, anticlockwise will increase.





3.10 FILL

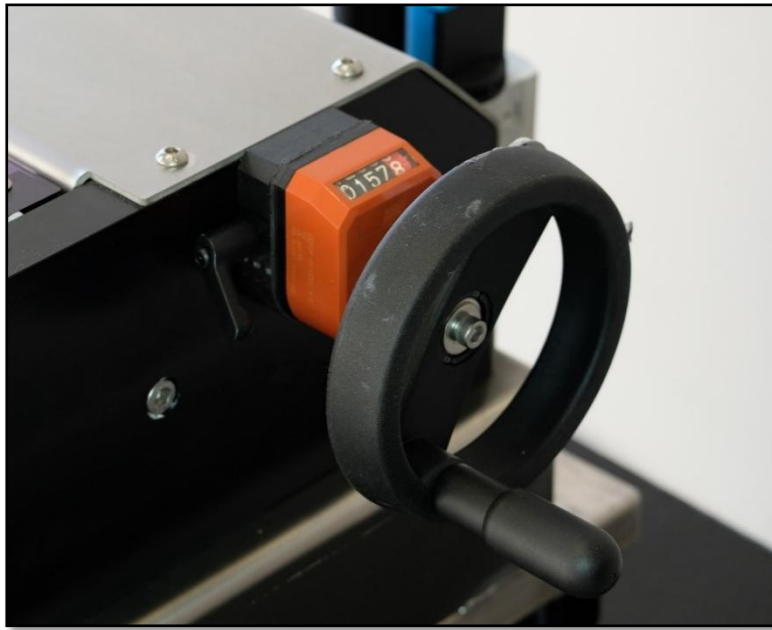
FILL dial adjustment will control the pneumatic cylinder speed that pushes the product out the nozzle on the filling cycle. Adjusting the dial clockwise will slow down the fill, anticlockwise will increase the filling speed.

Adjust fill speed to suit the product you are filling. Running too fast can result in the splashing of the product. It's best to start slow and increase the speed to a point where you get a smooth, even flow.

3.11 RECHARGE

RECHARGE dial controls the speed at which the product is sucked in from the source (Hopper or inlet connection).

Adjust to suit the viscosity of the product you are filling. Running too fast can result in air bubbles in the system and/or strain on the machine. Start slow and build up to a speed that is comfortable for the machine.



3.12 HANDWHEEL AND DIGITAL SCALE

The handwheel at the back of the machine controls the fill volume, and the digital scale gives you the ability to fine-tune the fill volume easily and to be able to return to a noted volume without having to re-calibrate the fill volume.

The Dial indicator (digital scale) is millimetre accurate to the stroke length of the air-cylinder. The air-cylinder stroke length is 160mm max. Therefore, the maximum scale possible on the machine is 160.

Ensure to lock off the handle once adjusted to limit any possible movement whilst the machine is in operation.

NOTE: only needs to be lightly nipped up “do not overtighten”.

NOTE: the red digit is a 10th of a mm. I.e. Setting the scale to 32 = **320**

4 SETUP PROCEDURE

4.1 ASSEMBLY

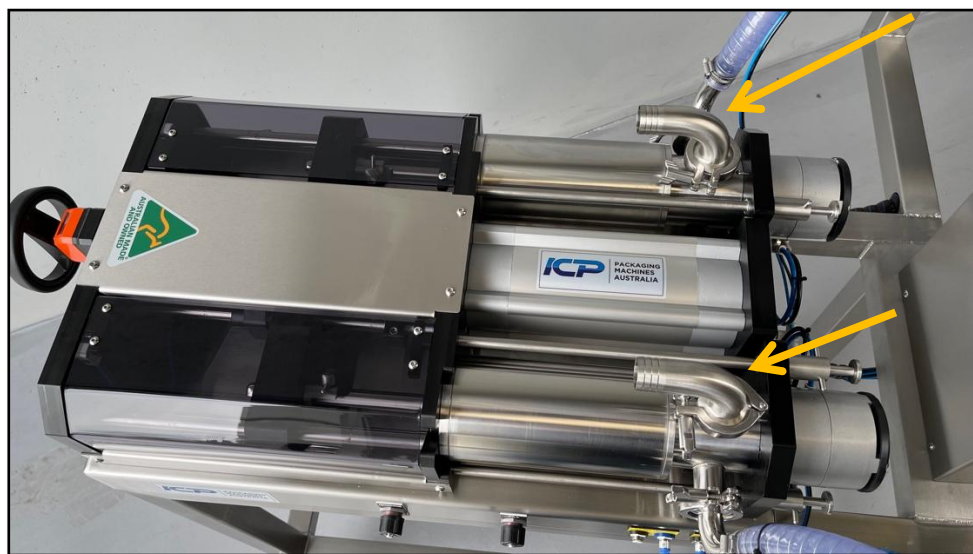
The ICP-M2RV can be set up with multiple different options. For example, different cylinder sizes, hopper or inlet feed, and numerous nozzle options to suit your project.

4.1.1 HOPPER

Hopper choice will vary depending on the setup for your machine – if you have a custom two-port hopper, this will fit directly on top of the valve bodies with a 1.5" tri-clamp and Teflon or EPDM seal. Other standard hoppers will connect via a (2 in 1) connector to allow a single inlet hopper.

4.1.2 INLET CONNECTION

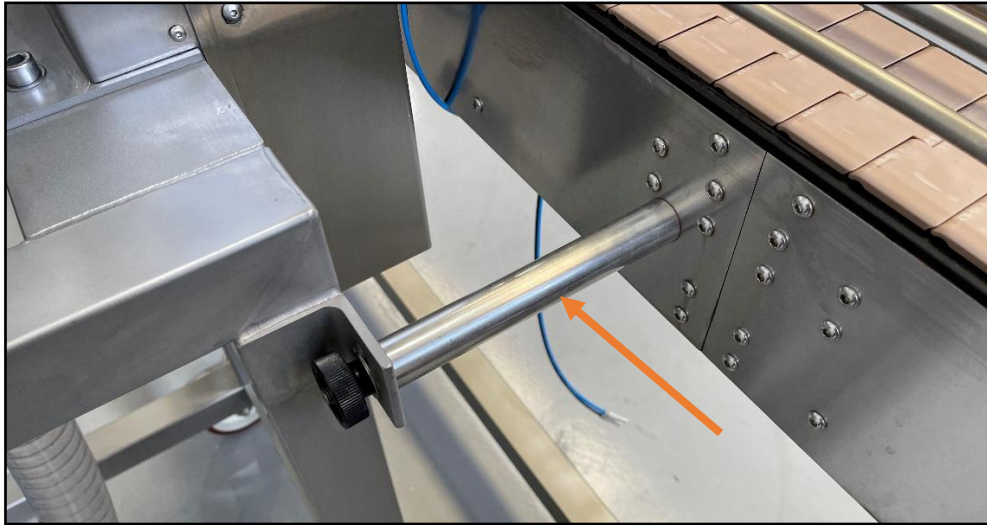
Inlet connection can be installed to the top of the valve bodies (as pictured) and can be directly connected to the source or connected via a (2 in 1) manifold attachment.



4.2 ALIGNMENT TO CONVEYOR

The ICP-M2RV can easily be pushed up to any conveyor, simply locking the castor wheels when the nozzles are aligned with the centre of the conveyor belt.

With an ICP Conveyor, the connection is via supplied locking rods attaching the ICP-M2RV filler to the conveyor at a set distance (centre of conveyor)



4.3 CONNECTION OF COMPRESSED AIR SUPPLY

Ensure that the Control Panel switches are in the following positions:

ON/OFF switch - **OFF**

ADJUST/RUN switch - **RUN**

EMERGENCY STOP switch – **RELEASED**

WARNING: ENSURE THAT ALL INLET AND OUTLET PORTS FROM THE MACHINE ARE COVERED, OR HOPPER AND/OR INLET CONNECTIONS ARE ATTACHED BEFORE CONNECTING AIR TO THE MACHINE.



IMPORTANT THAT NO OBJECTS ARE INSERTED INTO THE VALVE PORTS AT ANY TIME. DOING SO CAN RESULT IN SEVERE DAMAGE TO THE MACHINE AND OR SERIOUS PERSONAL INJURY.

Connect the main compressed air supply line via a NITO or similar connection fitting on the Air Pressure Regulator/Filter. Located on the rear corner of the machine. Ensure that the Hand Valve is turned to EXH (off position).

Adjust air pressure to 600 kPa (87 psi) via the knob on the Filter/Regulator Unit.

ICPM2RV requires a constant 87psi to the machine. It is also recommended that the air supply has a dryer installed.



NOTE: The machine's design doesn't require oil lubrication to the pneumatic components.

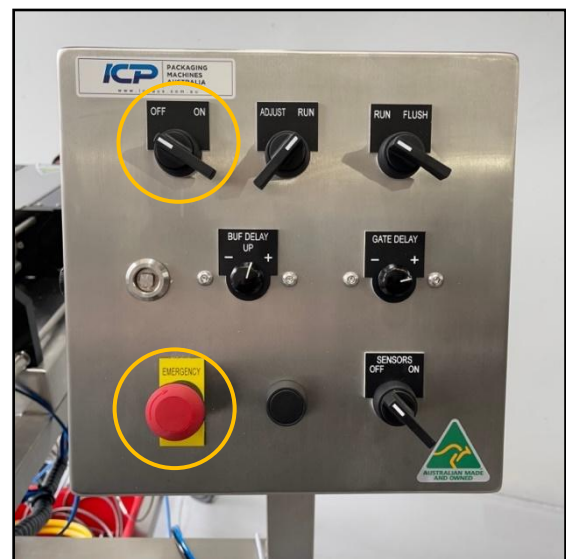
!!! ENSURE NO INLINE OILERS ARE FITTED!!!

4.4 EMERGENCY SAFETY STOP SYSTEM

ICP Filling machines are fitted with acrylic safety guards/covers to the filler, and an Emergency safety stop switch on the main control panel. If guards are in the open position or the stop button is in the pressed position, the machine's emergency stop system will be activated. This will cause air to be dumped from the main air cylinder and render the filler inoperative.

FIRST, turn the ON/OFF switch to **OFF** to reinstate air to the filler. Then, close the guard or release the Emergency Stop Button.

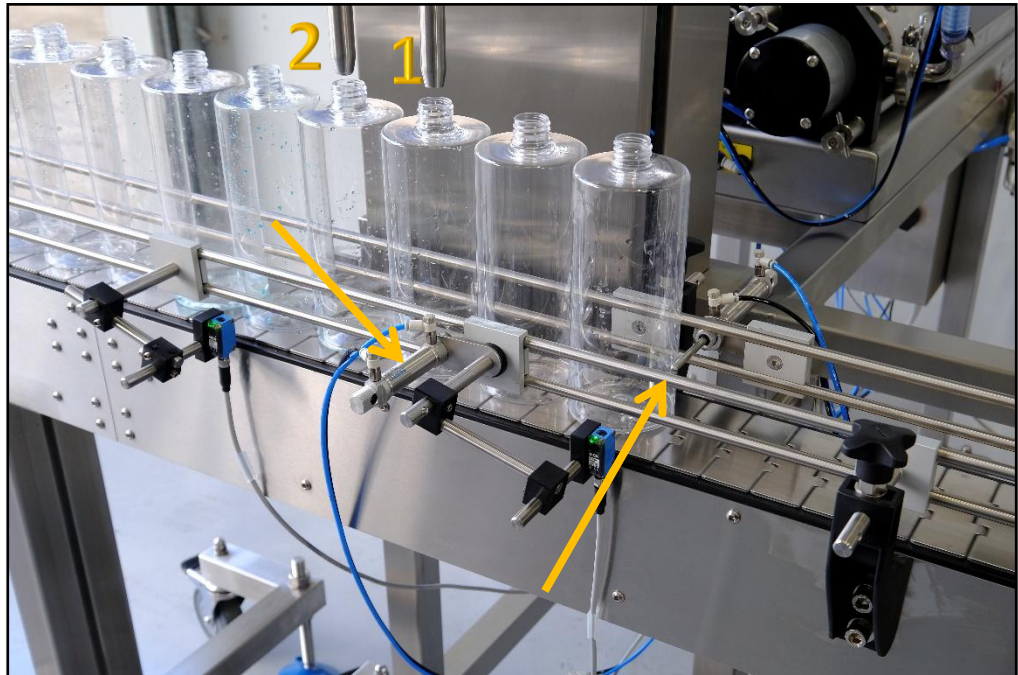
This will allow the Soft Start-Up Valve to activate and slowly bleed air into the machine. Wait approximately five (10) seconds for full air pressure to be reinstated. To continue filling, turn ON/OFF switch to **ON**.



4.5 MECHANICAL ADJUSTMENTS

4.5.1 Container Gates

With two empty containers in a position directly under the filling nozzles, place two more containers immediately downstream (in-front) so that all containers are touching edge-to-edge (4 in total). Next, adjust the position of the INFEED GATE (short piston rod) so that when its piston rod is extended, its rounded end just touches the leading edge of the container to the right of the nozzle (1).



The piston rod can be extended by hand (with Emergency Stop Switch depressed).

The depth of piston rod protrusion can be adjusted by removing or replacing the spacer washers on the locking screw shaft of the gate cylinder clamp.

Ensure that the piston rod does not separate the 2nd and 3rd containers.

Adjust the position of the OUTFEED GATE (long piston rod) so that when its piston rod is extended, the rod touches the leading edge of container 1, i.e. the 1st container.

Turn Conveyor ON and check that gate positions are still correct with the conveyor moving under the containers. Re-adjust if necessary.

You may need to adjust the alignment to the nozzles once the conveyor is running. This can be done by sliding the nozzles on the BUF arm to suit.

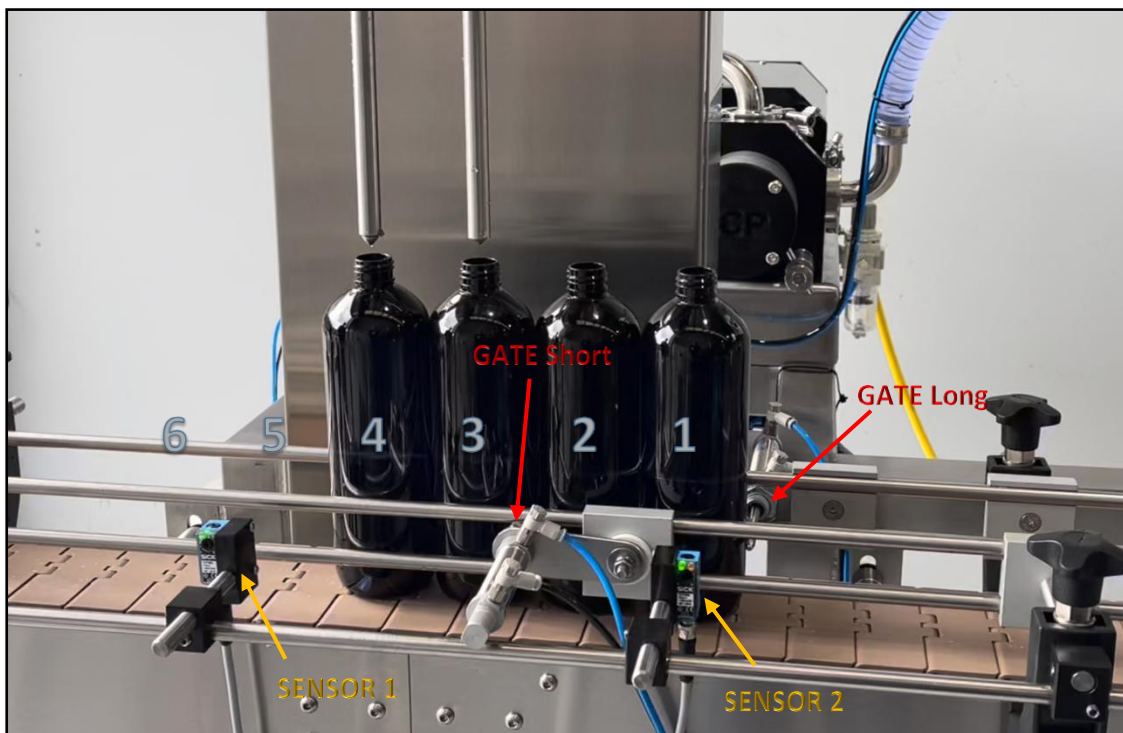
Connect the airlines from the container gates to their respective bulkhead fittings on the side of the filling machine. Note the black and blue covers for foolproof connection.



4.5.2 No-Bottle/No-Fill (NB/NF) Container Sensor Switch

Two container sensor switches enable the filling machine to cycle automatically when triggered, i.e. If there is no container to activate both the sensor switches, the machine will stop or not start.

Sensors should be installed as pictured on containers 1 & 5. This way, the filling process will not start till both sensors are triggered and also allows for when the gates change over and let go of containers 1 & 2 the front sensor is inactive. The filler will then wait for the filling process to complete before looking for the signal again. When correctly installed and with a constant flow of containers, the machine will operate automatically.



NOTE: When first running the machine, it is essential to place at least four containers in place (1,2,3,4) before turning the machine on. If you only have container 1 in place, then turn on the machine. The machine will assume that when a container brushes past sensor 1, it is ready to fill, and nozzles will descend before a container is under the nozzle.

5 PREPARING MACHINE FOR FILLING

5.1 Before you run your product in the machine

When you first receive the machine, it is recommended to set up the machine with a storage container or drum (hopper) with water before connecting or running your product through the machine. This will allow the user to familiarise themselves with the machine, set up the controls, determine the fill volume and flow rates, and fine-tune the nozzles and container gates/sensors before putting expensive products in the machine.

5.2 Connecting Product Supply

Connect the source supply of the product to the machine via a hopper or inlet connection. Ensure to install supplied Teflon or EPDM seals between the tri-clover connections and the hopper or inlet connection.

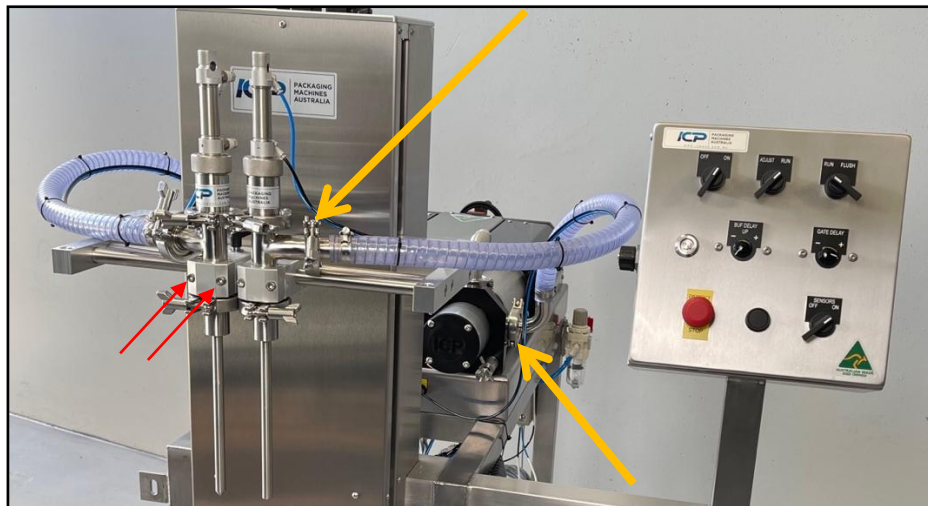
The ICP-M2RV is capable of sucking the product directly from a source as long as the product is not too thick and the source is not too far from the filler. The best practice is to ensure a natural flow from the source. This can be achieved by connecting to the bottom of the source vat or raising the VAT, IBC etc... so there is a natural flow to the machine. It will also allow the machine to recharge quicker and more accurately as there will be no tension in the line.

5.3 Installing or changing Nozzles

ICP fillers are available with an extensive range of nozzles to suit a range of applications.

- Standard Nozzles 6mm – 22mm
- **Positive Shut Off (PSO)** 12mm – 25mm inward or outward opening nozzle
- Plug Nozzle
- Suck-back Nozzle 6mm – 22mm

E.G.As pictured below, 12mm PSO outward opening. Connected with the helix hose and tri-clover fittings between the valve and nozzle bodies. The machine will already be set up as pictured to your given nozzle when you receive it.



Changing nozzles is as simple as un-bolting the two M6 socket head bolts on each nozzle bracket – removing the nozzle and replacing.

5.4 Adjusting the Nozzle and BUF height

Once the nozzle is installed onto the BUF, you will need to adjust the BUF to suit the container you are filling.

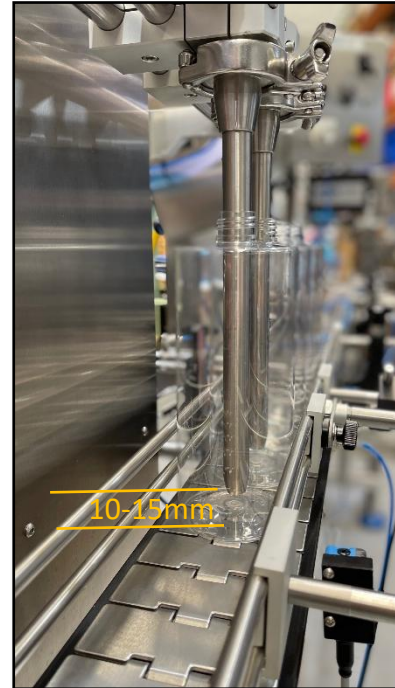
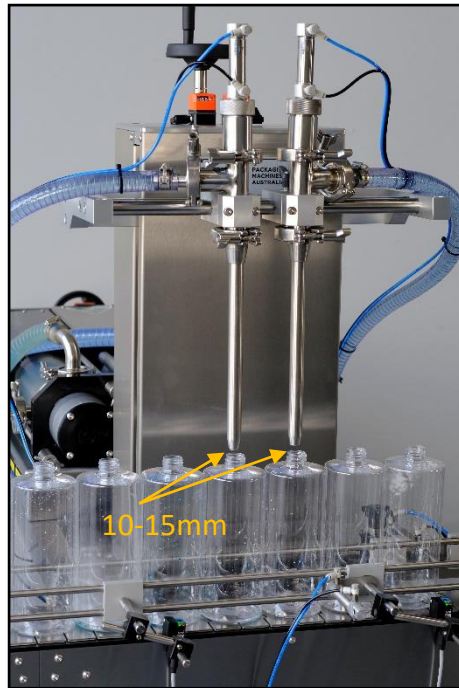
On the top of the BUF, there are two digital scales and a handwheel.



The left scale, when adjusted, will raise the top plate in the BUF, allowing the nozzles to lift higher out of the container. Adjust to enable the BUF to raise far enough that the nozzles lift out of the container and clear the top of the containers by at least 10-15mm.

The right scale will raise or lower the bottom plate, adjusting how far the nozzles drop into the container. Adjust so the nozzle doesn't touch the conveyor when in the down position and so there is at least 10-15mm clearance to the bottom of the

container when a container is in place. If using outward opening PSO nozzles, you will need to allow space for the nozzle in the open position.



Ensure to lock the two levers over once you have reached your desired settings – "do not over tighten, only nip up".

Note: when adjusting, ensure to have the machine in the **OFF** position, and the air off or **E Stop** pressed to remove the air from the system taking load from the air cylinder on the BUF

5.4.1 BUF arm adjustment

ICP BUF is designed to cater for a majority of container sizes. Note that the pictures below show the different setup options for taller or shorter containers.



Nozzle location options



5.5 Flushing/purging the machine

Flushing the machine is used for two primary purposes

1. Purging the product into the machine and to the nozzles ready for the filling process.
2. Flush the product from the machine at the end of a fill – empty a hopper and flush water etc., through the machine.

To purge the product using the **FLUSH** feature, set the machine fill volume to around 150-160 "**1600**" on the digital scale. This will ensure you are using the entire cylinder volume and allow the machine to purge a lot quicker. See **Error! Not a valid bookmark self-reference..**

Put the machine into **FLUSH** and **RUN**. The BUF will raise the nozzles to the top, and the machine will cycle until you turn the machine into **OFF** mode.

Placing a bucket or similar container under the nozzle, cycle the machine until you have a constant product flow from the nozzles and all air bubbles are removed from the lines.

Once the machine is purged, you can adjust the fill volume to the calculated scale and then run some tests with the machine still in the flush mode to get the desired fill volume accurate.

To **FLUSH** the machine at the end of your run is as per the above – however, you may wish to replace the product supply with water for the flush process.



5.6 Fill Volume Adjustment

The handwheel at the back of the machine controls the fill volume.

To Adjust, turn the machine into the **ADJUST** and **RUN** modes on the front control panel. This will bring the main plate in the machine forward to the end of the fill stroke and allow the volume adjustment.

NOTE: Adjusting without first putting the machine into the ADJ mode will mean the main plate will be against the adjuster plate. This will result in added pressure when attempting to reduce the volume and could damage the machine's internal workings.

Dial indicator (digital scale) is millimetre accurate to the stroke length of the cylinder. The cylinder stroke length is 160mm max. Therefore, the maximum scale possible on the machine is 160.

To calculate the volume required for your fill, divide the cylinder size by the stroke length (160mm) of the air cylinder, then multiply by your required volume.

i.e. (if using a 500ml cylinder) divide $160/500\text{ml} = 0.32$, then multiply by your volume $100\text{ml} (0.32 \times 100) = 32.0$. The starting point on the digital scale would be 32, and you would fine-tune it from there.



Ensure to lock off the handle once adjusted to limit any possible movement whilst the machine is in operation.

NOTE: only needs to be lightly nipped up, "do not overtighten".

NOTE: the red digit is a 10th of a mm. Setting the scale to 32 = **320**

To check the new Fill Volume, move the ADJUST/RUN switch to **RUN**, and the machine will recharge. Repeat the above procedure to dispense a single fill into empty containers to check the fill volume.

Final volume check should be done from containers selected during continuous cycling since product dispensed in the cycle immediately after the machine has been

idle and/or adjusted may vary slightly to that subsequently dispensed.

6 OPERATING & ADJUSTMENTS

6.1 CONTINUOUS CYCLING

Ensure that Emergency Stop Button is released - ADJUST/RUN switch is in the **RUN** position.

Ensure you have containers loaded on the conveyor and the conveyor running.

Sensors to **ON**. (If optioned)

Move ON/OFF switch to **ON**.

The machine will now look for the BUF to be in the up position and the container sensors active – if all ok the machine will start the cycle.

6.2 RESTART AFTER AN EMERGENCY STOP

If or when the E-Stop has been activated, it is essential to first move the ON/OFF Switch to **OFF** before releasing the E-Stop

"RECTIFY THE PROBLEM WHICH REQUIRED THE EMERGENCY STOP".

Release the Emergency Stop button by turning the knob (red button). **CLOCKWISE**.

Allow approximately ten seconds for full air to be reinstated before proceeding.

Return the ON/OFF Switch to **ON**.

6.3 FILLING RATE

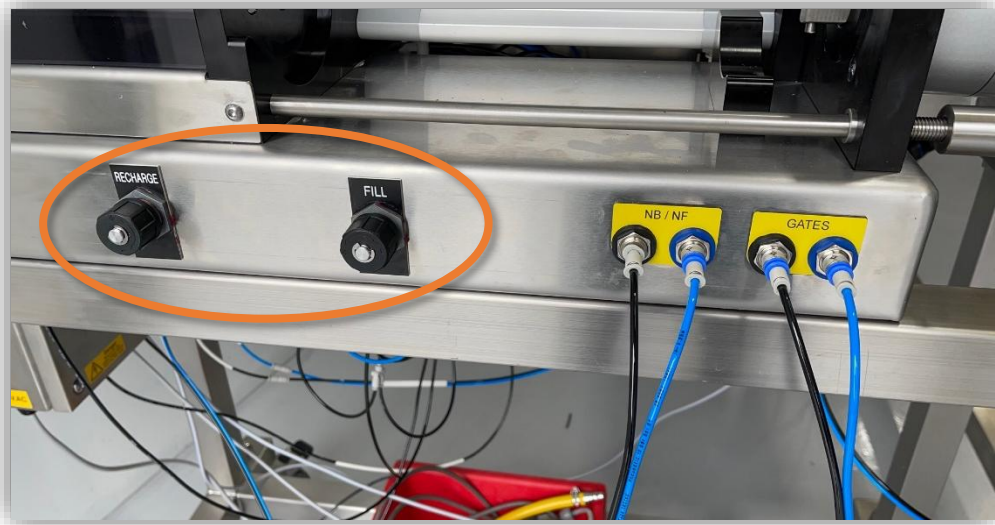
The rate at which the product enters the container should be adjusted so that the container is filled as quickly as possible without excessive product turbulence and/or foaming. Nozzle diameter, nature of the product, the shape of a container, etc., will influence the maximum rate of filling, and the optimum rate can only be determined by trial and error.

Recommend starting slow and increasing the fill rate to suit the product and container. The aim is to achieve an even flow.

To adjust the fill rate - turn the **FILL** Flow Control Valve Knob on the side of the machine.

Turning the knob **CLOCKWISE** - decreases fill rate speed.

Turning the knob **ANTICLOCKWISE** - increases fill rate speed.



6.4 RECHARGE RATE

The product cylinder recharge rate should be adjusted so that the cylinder is recharged as quickly as possible, but with adequate time for exchanging the filled container under the nozzle with an empty one.

The recharge rate should not be so fast that cavitation (air pockets) occurs in the product pump. In simple terms, cavitation occurs when the piston moves faster than the product can be drawn into the cylinder. This will result in fill volume variations.

To adjust the recharge rate - turn the **RECHARGE** Flow Control Valve Knob on the **FRONT** of the Control Panel.

Turning the knob **CLOCKWISE** - decreases the recharge rate.

Turning the knob **ANTICLOCKWISE** - increases the recharge rate.

6.5 FINE-TUNING

Once the machine is operating continuously, some fine-tuning of adjustments may be necessary to optimise the cycle time and ensure a smooth filling operation.

Fill volume can be fine-tuned if necessary whilst the machine is running by unlocking the back lever and turning the Volume Adjusting Handwheel when the Main Drive Cylinder is forward.



DO NOT ATTEMPT TO ADJUST VOLUME WHEN THE PRODUCT CYLINDER IS FULLY RECHARGED AND THE ADJUSTING MECHANISM IS UNDER LOAD.

6.6 SETTING THE BUF DELAY TIMING

Once you have determined the speed of your fill and the volume has been calibrated to suit your desired fill, you will need to adjust the BUF DELAY timer, BUF UP & BUF DOWN flow controls to match the filling speed.

With the conveyor turned off, place 4 containers in positions **1,2,3,4**.

Put the machine in **RUN** – activate the filling process by placing your hand in front of sensor 1. Then, hold your hand over the sensor until the fill has started.

Note how long the nozzles stay at the bottom before starting to rise.

Adjust the time with the BUF DELAY timer, so the nozzle starts rising before the product reaches the nozzle.

NOTE: if the product has the tendency to foam – adjust the timer, so the nozzle is submerged before rising.

6.7 TIMING OF THE BUF TO FILL SPEED

BUF DOWN – Turn flow control to ensure the BUF descends into the containers at a smooth rate **!!!DO NOT ALLOW TO DROP FAST!!!** this will cause long term damage and excess wear and tear to the machine.

BUF UP – Adjust the flow control to time the UP movement of the BUF

When correctly set, the nozzles should rise simultaneously as the product fills in the container, keeping just above the fill at all times.

If filling products that tend to foam, set the BUF UP to rise with just the tip submerged in the product during the filling process.

NOTE: having the nozzles submerged too far into the product can cause the product to spill over the container at the end of the fill.

7 PREVENTATIVE MAINTENANCE

7.1 GENERAL

Your ICP Filling Machine is designed for minimum maintenance operation. Its design features and construction materials eliminate the necessity for an extensive preventative maintenance routine.

The pneumatic cylinders, valving, and controls DO NOT REQUIRE LUBRICATION. Other moving parts are either self-lubricating or require only an occasional lubricant smear.

The maintenance schedule should be based on how the machine is used, the product, the environment and how often the machine is used. The below is a suggested schedule and should be used as a minimum. If the machine is in high use and/or harsh environments, the maintenance schedule should be altered to suit.

7.2 SEALS

The Teflon/UHMWPE Slipper/Glide Ring Seal fitted to the Product Cylinder Piston at the factory is energised by an O-ring of a material selected for the chemical composition of the product(s) nominated at the time of purchase.

This seal arrangement provides low friction and high chemical resistance characteristics. The piston head is also fitted with separate Ertalyte (PETP) support rings to prevent accidental contact between the piston head and cylinder wall.

The product piston seal is the hardest working seal in the machine as it is subject to the pressure and reciprocating action of the piston and is in constant contact with the product.

Products with chemically aggressive ingredients can shorten seal life dramatically. Whilst there are several types of O-ring materials available for the Piston Seal, Spool Valve Seals, and other secondary seals to provide the best possible life and performance when in contact with various chemicals, more than one type of seal material may be required to cope with different products having different chemical compositions.

Products of a particularly aggressive nature may also require seals of unique materials in other areas of the machine.

If any doubt exists as to the compatibility of the seal material and the products being used, the seals should be inspected regularly. Regardless of the product used, the product piston seal should be inspected weekly.

Please consult RENTAFILL if the seals show signs of cracking, swelling, premature failure or other signs of degradation, as you may require seals that are more compatible with your product.

Failure to replace seals and continue using the machine can damage the cylinder walls and piston components.

7.3 DAILY MAINTENANCE

Drain the Air Filter Bowl of accumulated dirt and water.

Clean product cylinder and rotary valve. This will be product-dependent as most food and cosmetic products will require cleaning the wetted components between batches and at the end of the product run. Other products may only require a flush.

Inspect wetted parts for product leaking. If found, please inspect seals within these wetted parts.

7.4 WEEKLY MAINTENANCE

Regular daily maintenance plus;

Check the Product Piston Seal and Valve Seals by dismantling the wetted parts.

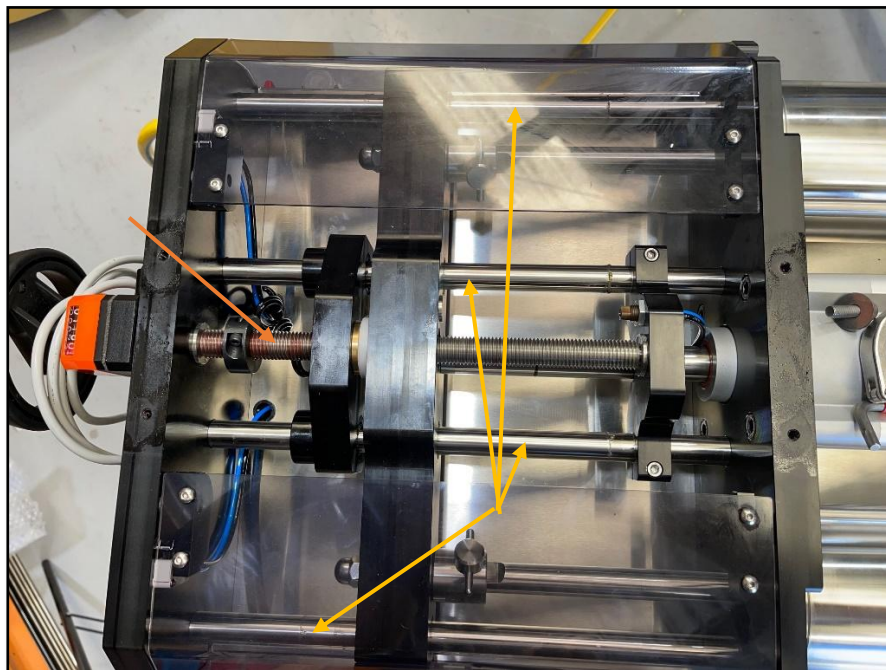
7.5 3 MONTHLY MAINTENANCE

Regular daily maintenance plus;

7.5.1 Filling Machine

Remove the top cover and apply a smear of grease to Volume Adjusting M20 Threaded Shaft.

Inspect and apply a smear of light oil to the product piston rod and bearing rods.



7.5.2 BUF assembly

Remove the front cover, then inspect and apply grease to threaded rods inside the BUF assembly.

Apply a smear of oil or lightweight grease to the bearing rods in the BUF assembly.

Inspect and check sensors for wear and ensure locking nuts and bolts are not loose.



7.5.3 Pneumatics

Inspect all pneumatics under the machine and inside the control panel. Checking for air leaks, loose connections, and moisture/oil in the valve breather filters.

Water found in the pneumatics will mean the air system has excess moisture or water in the lines. Prolonged use will damage the pneumatic system. Inspect the cause and rectify.

Oil found in valve breathers and pneumatic systems. This will be caused by inline oilers in the system or the compressor is over-working or faulty. Inspect the cause and rectify.

8 DISMANTLING PRODUCT VALVE AND CYLINDER ASSEMBLY

It is recommended that the wetted parts of the machine be removed and inspected/cleaned between batches and/or at the end of the production run.

Before dismantling the Product Valve and Cylinder Assembly for thorough cleaning or inspection, the machine should be purged of residual product, preferably flushed with water or an appropriate solvent.

8.1 FLUSH CLEANING

Remove the Product Supply Hose from the product supply container, or if a hopper is fitted, scoop out as much product from the hopper as possible.

Flush the remaining product out of the machine as described in flushing/purging machine process (5.5).

When product ceases to be dispensed from the nozzle, water or an appropriate solvent can, if necessary, be added to the hopper or connected to the Product Supply Hose to continue flushing until clean water/solvent is being dispensed from the nozzle.

Remove the water/solvent supply and continue to flush until only air is being dispensed from the nozzle, then turn ON/OFF switch to **OFF**.

8.2 DISMANTLING

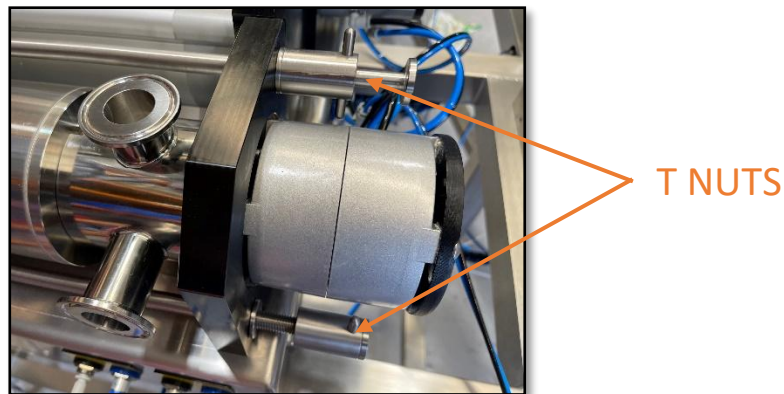
To dismantle, proceed as follows:

DISCONNECT COMPRESSED AIR SUPPLY TO THE MACHINE.

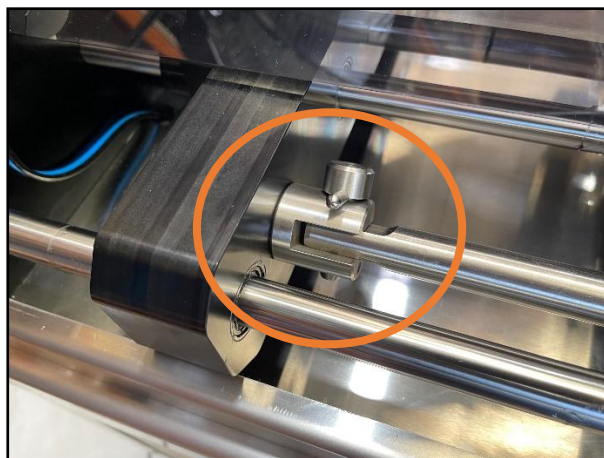
Remove Tri-Clover clamp from Product Valve inlet and remove Product Supply Hose and Inlet Fitting, or hopper, complete with seal.

8.2.1 Rotary Valve model

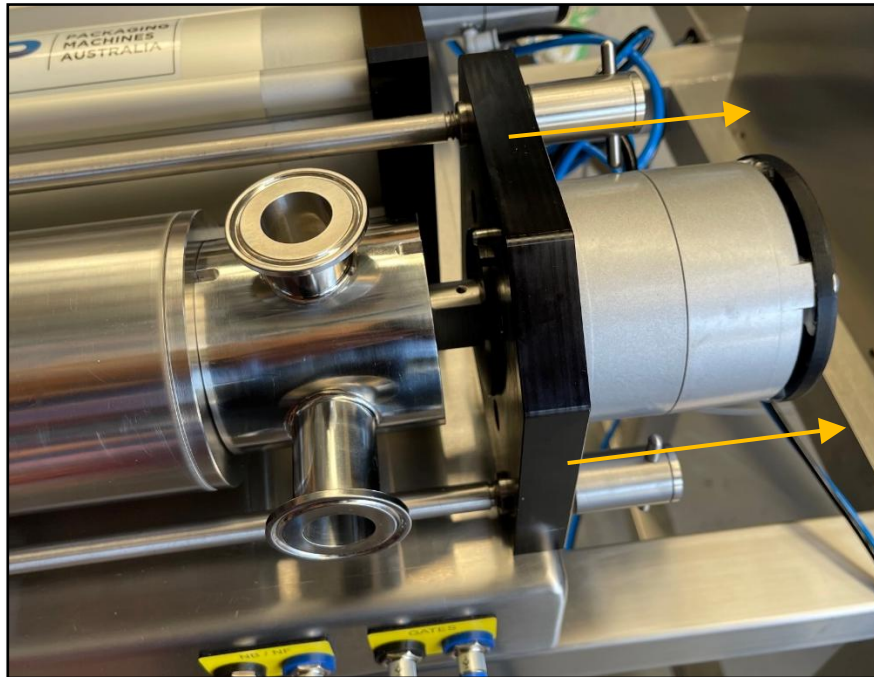
Loosen the two T nuts to the valve end of the assembly.



Once the T Nuts are entirely loosened, remove the Product Piston Rod Connecting Pin from the Main Air Cylinder Coupling by simply pulling the pin out.



Push the front rotary valve plate forward whilst holding the cylinder assembly in place.



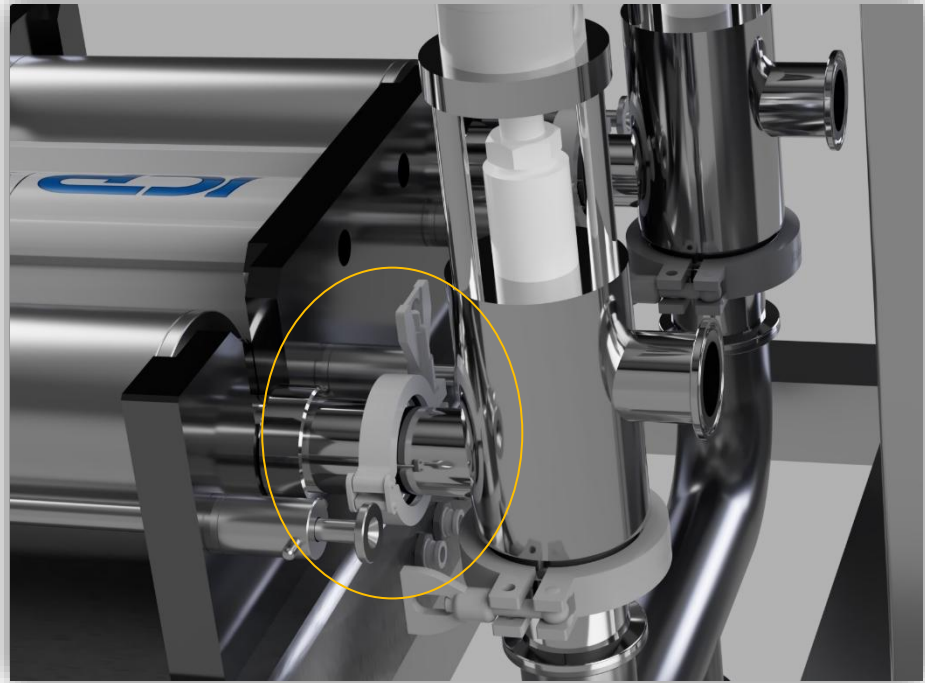
The complete assembly can be now removed to a bench or sink where the component parts will simply pull apart for cleaning.

The parts making up this assembly are not fastened together, so be careful to keep the assembly together and do not allow them to separate.

8.2.2 Remove Spool Valve

Spool Valve model - Remove the two airlines (one black, one blue) connected to the Spool Valve Air Cylinder from their connection fittings on the end of the machine frame. Push the plastic ring of the fixed female fittings inward and pull the male airline fittings to withdraw them.

Remove the Tri-Clover joining the Spool Valve to the Product Cylinder Extension Housing. Set aside Spool Valve assembly.



8.3 DISMANTLING PRODUCT PISTON ASSEMBLY & VALVE

Now you have removed the assembly.

The cylinder and rotary valve are assembled with seals only. To dismantle, simply ease the parts apart by hand.



!!!DO NOT USE TOOLS OR HARD IMPLEMENTS!!!!

The parts that make up the cylinder and valve are critical parts of the machine and have been made from high quality 316 stainless steel, machined and honed to ensure they pass for use in cosmetic and food industries. If damaged, these parts will no longer be suitable and will need to be replaced, in particular the cylinder and valve body.



8.3.1 Piston glide ring removal

Once the piston has been removed from the cylinder, place on a bench with the appropriate spanners. Hold the flats on the piston head and undo piston rod from piston head. Remove stainless steel backing plate and Ertalyte wear ring. Slide Glide-Ring and O-ring off piston head.



!!!DO NOT USE SCREWDRIVERS OR OTHER SHARP IMPLEMENTS!!!

The piston head, seal grooves, and piston rod should be thoroughly cleaned.



Re-assembly is the reverse of the dismantling procedure. When refitting the Glide-Ring Seal and its O-ring to the piston head, particular care should be taken. The seal should be eased into place by hand - do not use screwdrivers or other sharp implements which will damage the seal. It is important that the seal is installed square on the piston head for its full circumference.

8.4 RE-FITTING PRODUCT PISTON

When refitting the piston to the Product Cylinder, first smear a little Vaseline or another lubricant onto the piston head seals, the cylinder bore, and the inside of the Seal Installation Ring.

NOTE: Cylinder has a 6mm bevel lead-in edge to the back of the cylinder. It's important the insert the piston into the bevelled end only. This is to assist in the assembly and to limit damage to the glide ring seal.



8.5 INSTALLING CYLINDER AND VALVE INTO MACHINE

The process of installation of the Cylinder and valve is the reverse of the removal

Ensure the rotary valve is installed to the correct side



ALIGN



Noting the notch in the valve body aligns to the key in the valve and the hole to the short inlet.

Place the assembly back in the machine, install the cylinder rod pin and tighten the two T-nuts. Ensure not to overtighten – these are made to be tightened by hand only.

9 ELECTRIC SENSOR BOX

Note – Not installed on all machines

The ICP Sensor box works by taking an electric signal from proximity, retro-reflective or IRD sensors and converting the sensor signal to an air signal that the machine requires.



NOTE: Sensor box is IP67 rated and is not recommended for direct washdown – if you intend or require to hose down the filling equipment, it is recommended to remove the sensor box and relocate it in a safe location away from direct washdown.

Supplied SICK GTB6 sensors are also IP67 water-rated and are only 24v. Can handle submerging of the sensor – However, it is not recommended to hose the sensors directly.

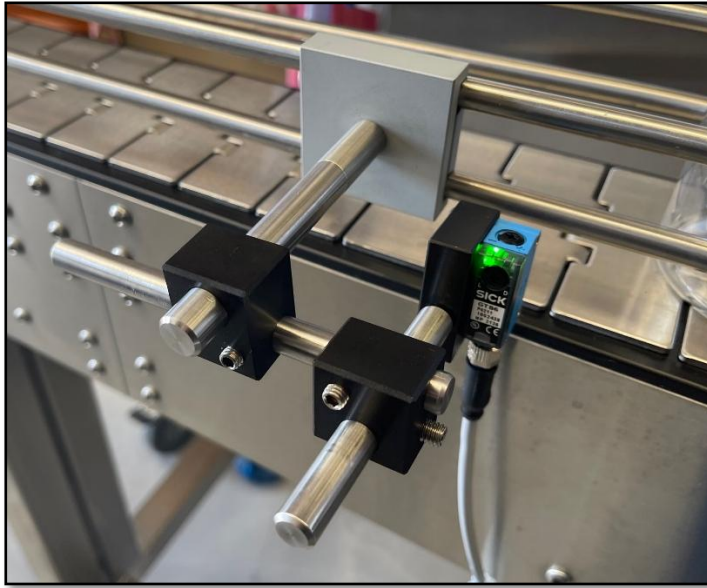


9.1 Powering the ICP sensor box

The ICP sensor box includes powered on/off switch (as pictured above) when plugged into a power source, and switched to on position the box is active. However, to power the actual sensors, it requires air to the filler, and the sensor switch on the ICP-M2RV control panel switched to **ON**. Sensors will have a green led lit up once powered.

9.2 Setting up the SICK GTB6 sensor

SICK GTB6 sensor has a sensing range of 10-140mm and works by bouncing the single back to the sensor from an object. In this case, your container.

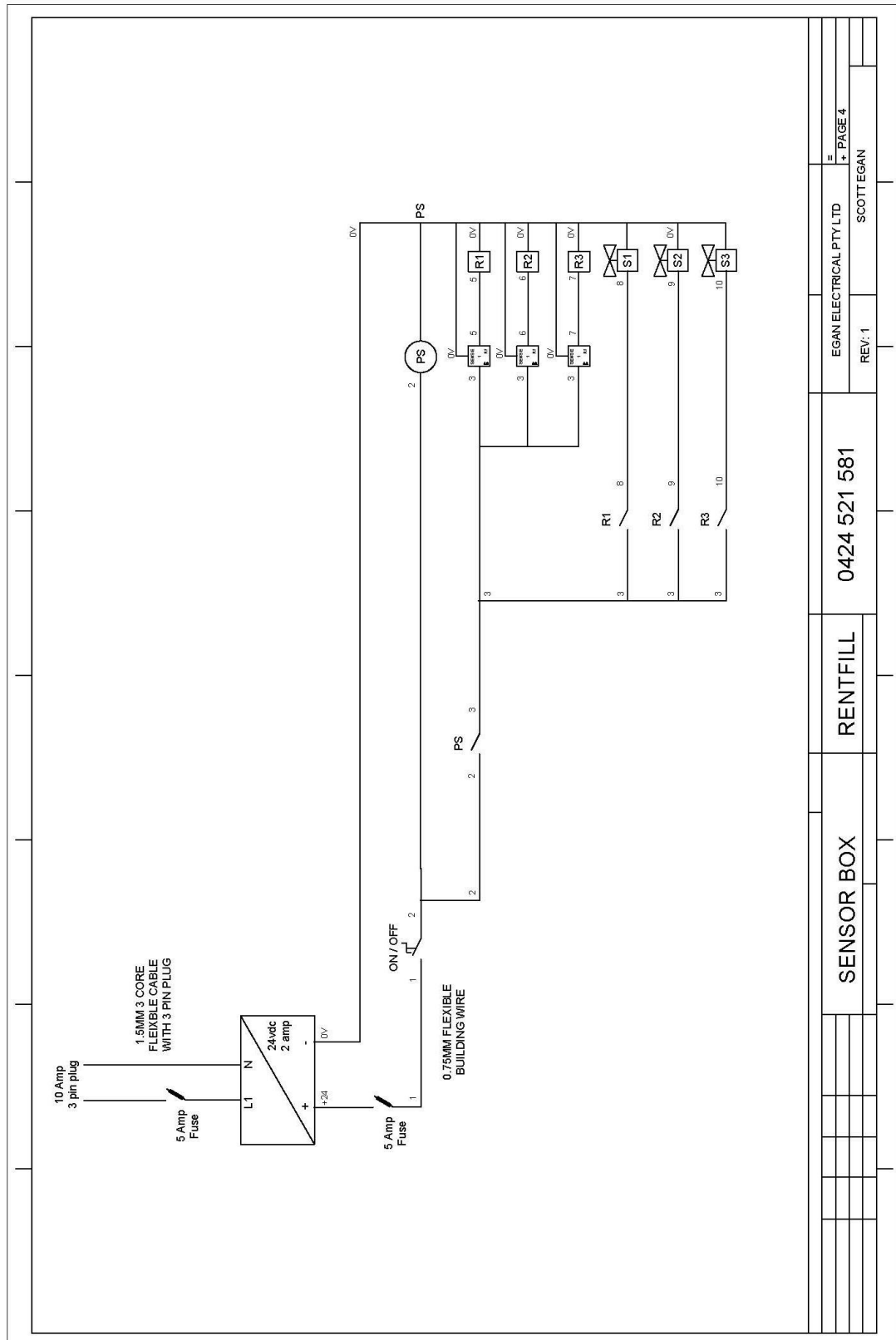


Ensure when setting the sensor that it is set to the flattest part of the container so that the single can reflect back to the sensor, i.e. middle of the container.

Set the distance of the sensor to the centre of the conveyor

Adjustment is simple as a small Philips (No:1) screwdriver on the top adjustment + - till you get the desired outcome.

9.3 Wiring diagram ICP sensor box





10 SPARE PARTS AND CONSUMABLES

For spare parts and consumable items please visit

<https://rentafill.com.au/>

Or contact us directly on 02 9987 1871

Unit 11/6 Leighton place

Hornsby, NSW, 2077

----- THE END -----