MAV - Macro Valve

Closed System

Comprehensive Instructions
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EC-declaration of Conformity

Referring to Encl. VII of Directive 97/23/EC

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We affirm, that the product

Valve for container, Type RS-MAV and Type DS-MAV

Manufactured by Micro Matic fulfills the requirements of Directive 97/23/EC concerning pressure equipment.

The product is in category 1 and the following conformity assessment procedure is followed:

Module A (Internal production control)

The valve must only be installed and used in a container made specifically to fit this valve and the assembly must fulfill the requirements of Directive 97/23/EC before it is put into duty.

Date: 11-16-07   Signature: [Signature]
Henrik Rokkjaer
General Manager
MAV Container Valve – Instructions

Make certain that these instructions are read and understood by anyone using a MAV Container Valve.

Safety precautions – Warning!

Keep workplace and equipment clean.

Containers with MAV Container Valve must only be connected to MAV Couplers.

Check the equipment regularly for leaks and use only authorized tools or articles designed for use with MAV Closed System.

Please handle MAV Container Valve carefully – do not drop.

Prevent foreign matter and dust from getting into the MAV Container Valve.

Please contact your Micro Matic representative in case of malfunction or damage. Please repair or replace defective parts.

Risk relating to liquid used in the system must be handled with care. See product information and supplier’s instructions for use and always wear relevant personal protection equipment such as gloves and glasses.

How to operate Container Valve RS-MAV and DS-MAV

The MAV Closed System is a unique Closed, Sealed & Secure Container Valve System for closed returnable liquid packaging designed to deliver consistent product purity, maximize operating efficiencies and protect workers and the environment. It offers a practical solution for the standardization of returnable containers for all industries.

The system is suitable for a wide range of liquid products.

The system offers great efficiency through high speed, automated cleaning and filling.

These instructions have been prepared as a procedural guide for connection, disconnection and servicing of the MAV Closed System.
MAV - Macro Valve
Dispense Coupler

User Instructions
Remove Dust Cap by turning counter-clockwise.

Align MAV Coupler key with slots in MAV Container Valve.

Check that coupler handle is in the off/closed (up) position.

Connect the coupler to the container valve and turn the coupler 1/6 of a turn clockwise until it stops.

Push down on the handle to engage the coupler. When engaged correctly, the handle will lock down into position.

**CAUTION:** The handle cannot be pushed down if the coupler is incorrectly connected to the valve. If necessary repeat to steps #2 thru 4.
Typical vapor recovery system.
To unlock the coupler, pull the handle outward. The handle will move to the up (closed) position. The system is now closed.

Turn the coupler 1/6 of a turn counter-clockwise until it stops. The coupler can now be removed.
MAV Coupler with vapor recovery hose attached.

MAV Coupler with Filter attached.

MAV Coupler with threaded adaptor attached.

CAUTION: If threaded adaptor is used, discard the filter.
MAV Coupler and Rinsing Socket.

Typical rinsing system

The MAV Coupler Mounting Bracket secures the coupler when not in use.
MAV - Macro Valve
Fill Coupler

User Instructions
MAV Vapor Recovery Fill Coupler with filling hose and vapor recovery hose attached.

Align MAV Fill Coupler key with slots in MAV Container Valve.

Rotate MAV Fill Coupler 1/6 of a turn clockwise.

Push down on the handle to engage the Fill Coupler. When engaged correctly, the handle will lock down into position.

**CAUTION:** The handle cannot be pushed down if the Fill Coupler is incorrectly connected to the valve. If necessary repeat to steps #1 thru 3.

The container is now ready to be filled.

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Caution: Turn off pump first!

Pull out on handle allowing handle to come up.

Rotate MAV Fill Coupler 1/6 of a turn counter-clockwise.

The Fill Coupler can now be removed.
MAV Technical Data & Features
Container Valve & Coupler

- Fulfills the requirements of Directive 97/23/EC concerning pressure equipment
- Security system prevents unauthorized entry (special tools needed to remove Container Valve)
- The coupler provides additional safety through the use of non-return valves to prevent unauthorized filling
- <2ml. Dry Break coupling
- Not compatible with other chemical or beverage systems
- Maximum working pressure 6 bar – Coupler can be equipped with a PRV (pressure relief valve) of 1 or 2 bar
- Max/min working temperature +45°C / -10°C (113°F / 14°F)
- Cleaning temperature: Max 85°C (185°F) / 2 minutes
- Steaming temperature: Max 130°C (266°F) / 2 minutes

Materials

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<th>Container Valve</th>
<th>Seal Options</th>
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<td>Stainless Steel</td>
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<tr>
<td>Seal Options</td>
<td>Viton, FKM-Hi Per, EPDM</td>
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<tr>
<td>External thread</td>
<td>1” NPT</td>
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<tr>
<td>Liquid out:</td>
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<tr>
<td>Internal thread</td>
<td>M18 x 1.5</td>
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<tr>
<td>Air Inlet:</td>
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<tr>
<td>Option:</td>
<td>Threaded adapter from M18 x 1.5 to ¼” NPT</td>
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MAV System Cleaning & Maintenance

- Always keep your equipment clean to ensure optimum function and safe use
- When performing cleaning or maintenance jobs on the MAV System it must be disconnected
- Only Micro Matic components should be used to repair the system

Container Valve

- Wipe flange with a wet cloth
- Seals and retaining lock ring must be replaced when the valve is removed from the container
- In case of malfunction please contact your Micro Matic representative
- See instructions “MAV – Macro Valve Servicing Instructions”

Couplers (Dispense & Fill)

- Wipe outside of Coupler with a wet cloth
- Wipe inside of Coupler at the contact area (main gasket) with a wet cloth
- Rinsing Socket for rinsing the Coupler can be used
- Change gaskets during disassembly and cleaning, preferably once a year or as required
- In case of malfunction please contact your Micro Matic representative
- See instructions “MAV – Macro Valve Coupler Servicing Instructions”
Installation & Removal of the MAV Container Valve

This manual has been prepared as a step by step procedural guide for installation and removal of the MAV Container Valve.

Prior to installing

- Check that the groove in the neck is clean for retaining ring placement (1), inlet areas (2), and sealing areas (3). No burrs, damage or other foreign materials can be present.

- Check that the neck has two lugs (4), placed 180 degrees opposite to each other and that both are undamaged.

If the neck does not meet this criteria, the container valve should not be installed.
MAV - Macro Valve
Container Valve

Installation & Removal Instructions
Check container neck with Go Gauge #001-619.

Go Gauge should fit completely down inside container neck as shown.

If Go Gauge does not fit in neck, do not use container.

Install Tamper Evident Ring by aligning the locking tabs on the ring with the open slots on the neck. The Tamper Evident Ring must be locked on and secure to proceed with Container Valve installation.

Inspect container valve O-ring and Retaining Ring for damage.

Dip container valve in a bucket of clean water prior to mounting.

**Note:** If water can not be used during the installation procedure, please call your Micro Matic representative.
5

Place container valve into container neck.

Turn the container valve clockwise until it drops.

Now turn the container valve 1/2 turn clockwise until it drops again and locks in place.

6

**IMPORTANT: It is necessary to seat the container valve properly in the neck prior to step 7.**

Press down on container valve as shown.

While pressing down, rock the palm of your hand in a circular pattern. This will center the retaining ring evenly across area 2 on the container neck.

7

Place Spindle Tool #740-076 over the container valve as shown.

8

Lock the container valve securely in place by turning the spindle handle clockwise until no more clicks are heard.

Loosen the spindle handle until free, rotate the Spindle Tool 1/2 turn and retighten to insure no clicks are heard.

Remove Spindle Tool.
Verify that the container valve has been installed correctly by using the Verification Tool #741-043. Place the service tool on the container valve flange and rotate it 1/6 of a turn clockwise.

Using controlled force, move (rock) the Verification Tool side to side and back and forth as illustrated.

An incorrectly seated valve will come loose during this operation. If necessary, repeat steps 6, 7, 8 and 9.

Option - Pressurized Leak Testing by using the MAV Pressure Test Coupler #748-039 (EPDM), #748-042 (Viton).

For additional information, visit www.micromatic.com or call +1-866-755-4477.

Next, install Dust Cap as shown.

Turn clockwise to lock in place.

Finally, install Red Tamper Evident Pin #102-423.

Push red pin down until it is flush with surface of dust cap.
Break and remove Tamper Evident Ring.

Place flat screw driver blade between container valve flange and Tamper Evident Ring.

Pry out on tamper evident ring until it breaks.

De-gas container with MAV De-gas Coupler #748-038 (EPDM), #748-041 (Viton).

**CAUTION:** During de-gassing wear protective clothing, gloves and safety glasses as required.

For additional information, visit www.micromatic.com or call +1-866-755-4477.

Place the Valve Releasing Tool #740-078 so that the six pins fit into the six corresponding holes in the container under the container valve flange.

Squeeze the Valve Releasing Tool handles gently to compress the retaining ring.

**CAUTION:** Do not use excessive force as it will damage the tool.
5 Place the Lifting Tool #740-077 on top of the Valve Releasing Tool.

6 Turn Lifting Tool #740-077 handle clockwise until the container valve moves up.

   CAUTION: Do not use excessive force as it will damage the tool.

   Remove Lifting Tool and set aside.

7 With your free hand pull up while turning clockwise on container valve until it is free from the container.
MAV - Macro Valve
Container Valve

Servicing Instructions
Place container valve into grooved slide section of bench tool #740-003.

Move bench tool lever towards the plunger.

Maintaining firm lever pressure, rotate the valve body to disengage the three bayonet locks located on the valve body.

Remove MAV Container Valve from bench tool and separate valve body from tube assembly.

Remove O-ring and Retaining Ring from valve body.
Remove the profile seal by placing the spring retainer and the profile seal on opposite sides of the lower ‘U’ blade located on the Bench Tool.

Lock the upper ‘U’ blade between spring retainer and profile seal.

Push forward to remove profile seal.

Caution: Maintain a firm grip on the container valve down tube as the spring is under pressure.
MAV container valve replacement parts. Do not reuse old components.

Clean tube and body with a soap solution, or a compatible cleaning solution for the product, to remove dirt and debris before valve is assembled.

Using a new spring, spring retainer and profile seal, create the tube assembly.

Place tube assembly into the grooved slide section of the bench tool.

**NOTE: Pre-moisten profile seal in clean water.**

Move bench tool lever towards the plunger to install new profile seal over the ventil on the tube assembly.

Repeat the motion if necessary to ensure the proper installation of the profile seal.
Position tube assembly into valve body ensuring that the locking plate is lined up with the three bayonet locks.

With the container valve properly located in the grooved slide section of bench tool, move bench tool lever towards the plunger to depress profile seal.

Twist valve body to re-engage bayonet locks between valve and tube assembly.
Move the bench tool lever away from plunger and remove container valve assembly.

Correctly assembled container valve.

**NOTE:** It is recommended to pressure test the container valve when fitted into a container by using MAV Pressure Test Coupler #748-039 (EPDM), #748-042 (Viton).

For additional information, visit www.micromatic.com or call +1-866-755-4477.
MAV - Macro Valve Coupler

Servicing Instructions
1. Pull handle assembly away from coupler.
2. Unlock and remove hinge pin.
3. Separate probe assembly and coupler body.
4. Remove NRV seal from probe.
Disassembly

5. Remove two O-rings from inside coupler body.

6. Remove main gasket from coupler body.

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MAV Dispense and Fill Coupler replacement parts. Do not reuse old components. Clean coupler body with a soap solution, or a suitable solution compatible with the product, to remove dirt and debris before coupler is assembled.

1. Install new O-ring seals into groove.

**NOTE:** Lubricate O-ring seals with silicon grease or a suitable lubricant compatible with the product. A lubricant must be used prior to installing.

2. Clean foreign debris from groove before installing new main gasket in the groove on the coupler body.

3. Replace NRV seal.

**NOTE:** Seal must be secured over groove for proper installation.
Place new NRV seal assembly on spring.
Press firmly into the probe until the seal locks into place.

Reinstall probe assembly into coupler body.

Reinstall handle assembly into coupler body.
Ensure that the locking arm is in the locking arm guide.

Replace the hinge pin.

**NOTE:** Lock hinge pin securely.
Correctly assembled MAV Coupler.

If applicable, remove and replace pressure relief valve.

For further information call your Micro Matic representative.

Pressure relief valve. Does not apply to Fill Coupler.
Top of Neck

Please provide distance from Top of Neck to Sump (H3).

H3 ± Tolerance

Sump

H3 ± Tolerance = _________
Approval __________________
Date ______________________

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