

Mini Compact Ejector VEQ-S

Use and maintenance instructions



Mat. 93-0000-0000 Rev.A Doc. 5000000000 Ver.00

- The components must be fixed correctly, using, where available, the special brackets and checking that the fixing remains effective even when the actuator operates at high cyclic stress or under strong vibrations.
- Where there are strong vibrations, special devices/systems must be used to reduce the effect on the component.
- Install dryers in order to avoid the formation of rust in the internal components.
- Make sure that the air ducts are properly connected to their respective connectors once the component is installed.
- Always ensure that the surrounding equipment and persons are not at risk of harm from unexpected movements of the actuators.

The products comply with the following technical standards: **ISO 4414: 2010**
- Pneumatic fluid power. General rules and safety requirements for systems and their components

For more information regarding the declarations of conformity , see the Certifications section on the site <http://catalogue.camozzi.com>

1 General recommendations

Please comply with the recommendations for safe use described in this document. These recommendations are classified so as to identify the level of danger and the possible associated risk.

DANGER
In extreme conditions, errors or carelessness could lead to serious injury or death

- Some hazards can be associated with the product only after it has been installed on the machine/equipment. It is the responsibility of the end user to identify these hazards and reduce the risks associated with them.
- The products covered by this manual can be used in circuits that must comply with ISO 13849-1.
- For information regarding the reliability of the components, contact Camozzi Automation.
- Read the information in this document carefully before using the product.
- Keep this document in a safe place and close at hand for the whole of the product life cycle.
- Pass this document on to any subsequent holder or user.
- The instructions in this manual must be followed in combination with the instructions and further information regarding the product described in this manual, which can be found using the following references:
 - Website www.catalogue.camozzi.com
 - Camozzi Automation Pneumatic Actuation Catalogue
 - Customer Service
- Assembly and commissioning must be performed by qualified and authorised personnel only, according to these instructions.
- It is the responsibility of the system/machine designer to choose correctly the most appropriate pneumatic component according to the required use.
- The use of appropriate personal protection is recommended to minimise the risk of injury.
- For all those situations of use not covered in this manual and in situations in which damage could be caused to property, persons or animals, contact Camozzi Automation before use.
- Do not make unauthorised modifications to the product. In the event of any such modifications, the user shall be liable for any possible damage caused to property, persons or animals.
- It is recommended to comply with all safety regulations that apply to the product.
- Do not perform any maintenance on the machine/system until you have verified the safety of work conditions.
- Before installation or maintenance, make sure that the specifically designed safety locks have been activated, then shut down the electricity power supply (where necessary) and the system pressure supply, draining all the residual compressed air from the system and deactivating the residual energy stored in springs, condensers, containers and gravity.
- After installation or maintenance, reconnect the system's pressure and electricity supply (where necessary) and check the proper operation and tightening of the product.
- In case of leaks or malfunctioning, the product must not be put into operation.
- Do not wash the product with aggressive substances or varnish it before consulting Camozzi Automation.

Type of fault	Causes	Remedy
Personal injury or damage to property	Improper installation or maintenance	During installation and maintenance, make sure that the product is disconnected and depressurized and that it cannot be switched on again without authorization.
Severe eye injury	Compressed air or vacuum in direct contact with the eye	Wear eye protection
		Do not look into compressed air openings
		Do not look into the silencer air stream
Hearing damage	Noise pollution due to incorrect installation of the pressure and vacuum connections	Correct installation.
		Wear ear protectors.
Personal injury or damage to property	Changing output signals when the product is switched on or plug is connected	The electrical connection must be performed only by specialists who can evaluate the effects of signal changes on the overall system.
Personal injury or damage to property	Extraction of hazardous media, liquids or bulk material	Do not extract harmful media such as dust, oil mists, vapors, aerosols etc
		Do not extract aggressive gases or media such as acids, acid fumes, bases, biocides, disinfectants or detergents.
		Do not extract liquids or bulk materials, e.g. granulates

• General parameters

Parameter	Version	Symbol	Limit value			Comment
			min.	optimal	max.	
Working temperature		T _{amb}		-		-
Storage temperature		T _{sto}	0° C	-	+50° C	-
Humidity		H _{rel}	-10° C	-	60° C	Free from condensation
Degree of protection		Ø4	10% r.h	-	85% r.h	
Operating pressure (flow pressure)	03	P	2 bar	4 bar	6 bar	
	05	P	3.5 bar	4 bar	6 bar	
	07	P	3.5 bar	4 bar	6 bar	
	10	P	3.5 bar	4.5 bar	6 bar	
Operating medium			Air or neutral gas, filtered to 5 µm, without oil, class 3-3-3 compressed air quality in acc. with ISO 8573-1			

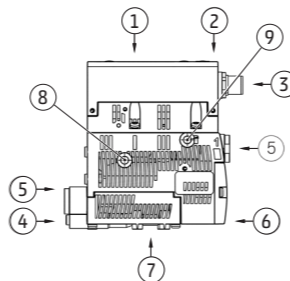
• Electrical Parameters

Supply voltage	DC 24 V ± 10% (PELV ^(*))		
Polarity reversal protection	Yes		
Current consumption (at 24 V)	-	Typical current consumption	Max. current consumption
	SCPMC – xx – NC	50 mA	70 mA
	SCPMC – xx – NO	75 mA	115 mA

» The power supply must correspond to the regulations in accordance with EN60204 (protected extra-low voltage).

• Components and Fixing

Num.	Explanation
1	Display
2	Command buttons
3	Electrical connection M12
4	Blow off adjustment screw
5	Pneumatic connection
6	Plastic base module with open silencerment (calibration)
7	Optional fixing for DIN bar
8-9	Body fixings



3 Use

• Operating and Menu Concepts

The ejector is operated using **two buttons** on the foil keypad:



Navigation is divided into **three menus**:

- **The main menu:** for standard applications
- **The Extended Functions (EF) menu:** for applications with special requirements
- **The Info menu (INF):** for reading out system data such as counters, the software version, etc.

The following information can be shown on the display:

- The current vacuum measurement value
- The selected menu item
- The settings
- Error messages in the form of error codes

The operating menu's home screen shows the currently measured vacuum level in the selected display unit. The measured value is displayed as positive compared to the ambient air pressure.

• Operating and Menu Concepts

When you press the button from the home screen, the following parameters are automatically displayed one after the other on the display (slide show):

- The vacuum unit
- The value of switching point SP1
- The value of reset point rP1
- The value of switching point SP2
- The supply voltage US

The display cycle returns to the vacuum display after a complete cycle or can be canceled at any time by pressing any button.

• Locking the Keypad

In order for the keypad lock to work, the ejector must not be in a menu.

- **Activating** the keypad lock:
 - > Hold down the PLUS button for 3 seconds.
 - > LoC appears on the display.
 - > The keypad lock is activated.
- **Deactivating** the keypad lock:
 - > Hold down the PLUS button for 3 seconds.
 - > VNC appears on the display.
 - > The keypad lock is deactivated.

The slideshow operates even when the keypad lock is activated.

The following table shows an overview of the display codes and parameters in the main menu:

Display code	Parameter	Explanation
SP1	Switching point 1	Value at which the control function deactivates (only active if [ctr] = [on])
rP1	Reset point 1	Reset value 1 for the control function
SP2	Switching point 2	Switching value for the "Parts control" signal
rP2	Reset point 2	Reset value 2 for the "Parts control" signal
tBl	Blow off time	Blow off time setting for time-controlled blow off (only active if value > 0)
cAL	Zero-point adjustment (calibration)	Calibrate vacuum sensor, zero point = ambient pressure
EF	Extended functions	Open the "Extended Functions" submenu
INF	Informations	Open the "Information" submenu
InC	Incorrect	The entered value is not within the permissible value range. This is an informational message that appears if incorrect information is entered.

If you wish to change values, e.g. the switching points, you have to enter the new value digit by digit.

- Use the button to select the desired parameter.
 - Confirm using the button.
 - > The value that is currently set is displayed and the first digit flashes.
 - Use the button to change the value. The value increases by 1 each time that the button is pressed. After 9, the counter goes back to 0 when the button is pressed.
 - Press the button to save the modified value.
 - > The first digit is accepted and the second digit flashes.
 - Use the button to set the second digit.
 - Press the button to save the modified value.
 - > The second digit is accepted and the third digit flashes.
 - Use the button to set the third digit.
 - Press the button to save the modified value.
 - > If the entered value is within the permissible value range, it is accepted and the modified parameter is displayed.
 - > If the entered value is not within the permissible value range, this is briefly indicated on the display [InC] and the new value is not accepted.
- If input is interrupted for longer than 1 minute or if no input is made, the measurement screen is automatically displayed.

The scope of delivery can be found in the order confirmation. The weights and dimensions are listed in the delivery notes.

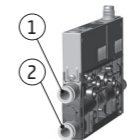
- Compare the entire delivery with the supplied delivery notes to make sure nothing is missing.
- Damage caused by defective packaging or occurring in transit must be reported immediately to the carrier and J. Schmalz GmbH.

• Connecting the Compressed Air and Vacuum

→ Connect the compressed air hose to the connection (1). Connect the vacuum hose to the connection (2). For threaded connectors, the maximum tightening torque is 1 Nm.

• Connecting the Compressed Air and Vacuum

The electrical connection supplies the ejector with power and communicates with the control system of the higherlevel machine using defined outputs.



✓ Provide a connection cable with an M8 6-pole socket (not included in delivery).

→ Attach the connection cable to the ejector, maximum tightening torque = hand-tight.

✓ Provide a connection cable with a 5-pole JST plug (not included in delivery).

→ Attach the connection cable to the ejector.



• Pin Assignments

M8 plug	Pin	Symbol	Wire color ¹⁾	Function
	1	US	Brown	24 V power supply
	2	IN1	White	"Suction" signal input
	3	GND	Blue	Ground
	4	OUT	Black	"Parts control" output (SP2)
	5	IN2	Gray	"Blow off" signal input
	6	-	Pink	Not used

4 Maintenance

- Incorrectly performed maintenance operations can compromise the good working order of the product and harm surrounding persons. **CAUTION!!** Before performing any maintenance operation, the product must be isolated from any energy source.
- Greasing or periodic lubrication is not necessary during the life of the product.
- Do not tamper the shock absorber because this could cause oil leakage. Shock absorbers are components that deteriorate over time. If you notice any malfunctions or the ability to absorb kinetic energy at the end of the stroke should decrease, the part must be replaced, see catalogue.
- Make sure the condensate is removed continuously from the filters found on the line.
- Always remove accessories before maintenance.
- Always make sure that you are wearing the correct safety equipment required by local authorities and by applicable legislation.
- In the event of maintenance, do not disassemble without the authorisation of qualified Camozzi Automation personnel. Unauthorised repair attempts compromise the guarantee of conformity of the product to the specifications, with the total invalidation of the relative right to repair under warranty or replacement of the product or part thereof.

5 Limitations of use

- Do not exceed the technical specifications shown under "General characteristics" and in the general Camozzi Automation catalogue.
- Do not install the product in environments where the air itself may cause hazards.
- With the exception of specific intended uses, do not use the product in environments where direct contact with corrosive gases, chemicals, salt water, water or steam may occur.

6 Identification of faults and/or exceptional situations

Always carry out the following tasks before activating the system:

- Before each start of operations, check that the safety features are in perfect condition.
- Check the product for visible damage and deal with any problems immediately (or notify the supervisor).
- Ensure that only authorized personnel are present in the working area of the machine or system and that no other personnel are put in danger by switching on the machine. During automatic operation, there must be no people in the system danger area.

For safe installation, the following instructions must be observed:

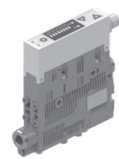
- Use only the connectors, mounting holes and attachment materials that have been provided.
- Mounting and removal must be performed only when the device is unpressurized and disconnected from the mains.
- Pneumatic and electrical line connections must be securely connected and attached to the product

7 Ecological Information

- At the end of the product's life cycle, it is recommended to separate the materials for recycling. Detailed information on the nature of the materials used is given below.
- Follow the waste disposal regulations in force in your country.

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- It is recommended to comply with all safety regulations that apply to the product.
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		Do not extract liquids or bulk materials, e.g. granulates

• General parameters

Parameter	Version	Symbol	Limit value			Comment
			min.	optimal	max.	
Working temperature		T _{amb}		-	-	-
Storage temperature		T _{sto}	0° C	-	+50° C	-
Humidity		H _{rel}	-10° C	-	60° C	Free from condensation
Degree of protection		Ø4	10% r.h	-	85% r.h	
Operating pressure (flow pressure)	03	P	2 bar	4 bar	6 bar	
	05	P	3.5 bar	4 bar	6 bar	
	07	P	3.5 bar	4 bar	6 bar	
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Operating medium			Air or neutral gas, filtered to 5 µm, without oil, class 3-3-3 compressed air quality in acc. with ISO 8573-1			

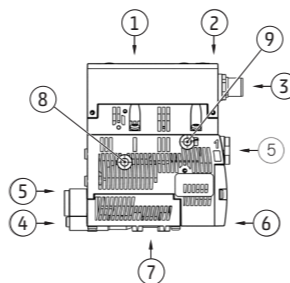
• Electrical Parameters

Supply voltage	DC 24 V ± 10% (PELV ⁽¹⁾)		
Polarity reversal protection	Yes		
Current consumption (at 24 V)	-	Typical current consumption	Max. current consumption
	SCPMC – xx – NC	50 mA	70 mA
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» The power supply must correspond to the regulations in accordance with EN60204 (protected extra-low voltage).

• Components and Fixing

Num.	Explanation
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• Operating and Menu Concepts




When you press the button  from the home screen, the following parameters are automatically displayed one after the other on the display (slide show):

- The vacuum unit
- The value of switching point SP1
- The value of reset point rP1
- The value of switching point SP2
- The supply voltage US

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• Locking the Keypad

In order for the keypad lock to work, the ejector must not be in a menu.










- **Activating** the keypad lock:
 - > Hold down the PLUS button  for 3 seconds.
 - > LoC appears on the display. 
 - > The keypad lock is activated.
- **Deactivating** the keypad lock:
 - > Hold down the PLUS button  for 3 seconds.
 - > VNC appears on the display.
 - > The keypad lock is deactivated.

The slideshow operates even when the keypad lock is activated.

The following table shows an overview of the display codes and parameters in the main menu:

Display code	Parameter	Explanation
SP1	Switching point 1	Value at which the control function deactivates (only active if [ctr] = [on])
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SP2	Switching point 2	Switching value for the "Parts control" signal
rP2	Reset point 2	Reset value 2 for the "Parts control" signal
tBL	Blow off time	Blow off time setting for time-controlled blow off (only active if value > 0)
cAL	Zero-point adjustment (calibration)	Calibrate vacuum sensor, zero point = ambient pressure
EF	Extended functions	Open the "Extended Functions" submenu
INF	Informations	Open the "Information" submenu
Inc	Incorrect	The entered value is not within the permissible value range. This is an informational message that appears if incorrect information is entered.

If you wish to change values, e.g. the switching points, you have to enter the new value digit by digit.

1. Use the button  to select the desired parameter.
2. Confirm using the  button.
 - > The value that is currently set is displayed and the first digit flashes.
3. Use the button  to change the value. The value increases by 1 each time that the button is pressed. After 9, the counter goes back to 0 when the  button is pressed.
4. Press the  button to save the modified value.
 - > The first digit is accepted and the second digit flashes.
5. Use the  button to set the second digit.
6. Press the  button to save the modified value.
 - > The second digit is accepted and the third digit flashes.
7. Use the  button to set the third digit.
8. Press the  button to save the modified value.

-> If the entered value is within the permissible value range, it is accepted and the modified parameter is displayed.

-> If the entered value is not within the permissible value range, this is briefly indicated on the display [1nc] and the new value is not accepted.

If input is interrupted for longer than 1 minute or if no input is made, the measurement screen is automatically displayed.

The scope of delivery can be found in the order confirmation.

The weights and dimensions are listed in the delivery notes.

1. Compare the entire delivery with the supplied delivery notes to make sure nothing is missing.
2. Damage caused by defective packaging or occurring in transit must be reported immediately to the carrier and J. Schmalz GmbH.

• Connecting the Compressed Air and Vacuum

-> Connect the compressed air hose to the connection (1). Connect the vacuum hose to the connection (2). For threaded connectors, the maximum tightening torque is 1 Nm.

• Connecting the Compressed Air and Vacuum

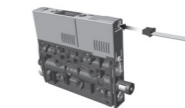
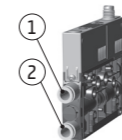
The electrical connection supplies the ejector with power and communicates with the control system of the higherlevel machine using defined outputs.

√ Provide a connection cable with an M8 6-pole socket (not included in delivery).

-> Attach the connection cable to the ejector, maximum tightening torque = hand-tight.

√ Provide a connection cable with a 5-pole JST plug (not included in delivery).

-> Attach the connection cable to the ejector.



• Pin Assignments

M8 plug	Pin	Symbol	Wire color ¹⁾	Function
	1	US	Brown	24 V power supply
	2	IN1	White	"Suction" signal input
	3	GND	Blue	Ground
	4	OUT	Black	"Parts control" output (SP2)
	5	IN2	Gray	"Blow off" signal input
	6	-	Pink	Not used

4 Maintenance

- Incorrectly performed maintenance operations can compromise the good working order of the product and harm surrounding persons. CAUTION!! Before performing any maintenance operation, the product must be isolated from any energy source.
- Greasing or periodic lubrication is not necessary during the life of the product.
- Do not tamper the shock absorber because this could cause oil leakage. Shock absorbers are components that deteriorate over time. If you notice any malfunctions or the ability to absorb kinetic energy at the end of the stroke should decrease, the part must be replaced, see catalogue.
- Make sure the condensate is removed continuously from the filters found on the line.
- Always remove accessories before maintenance.
- Always make sure that you are wearing the correct safety equipment required by local authorities and by applicable legislation.
- In the event of maintenance, do not disassemble without the authorisation of qualified Camozzi Automation personnel. Unauthorised repair attempts compromise the guarantee of conformity of the product to the specifications, with the total invalidation of the relative right to repair under warranty or replacement of the product or part thereof.

5 Limitations of use

- Do not exceed the technical specifications shown under "General characteristics" and in the general Camozzi Automation catalogue.
- Do not install the product in environments where the air itself may cause hazards.
- With the exception of specific intended uses, do not use the product in environments where direct contact with corrosive gases, chemicals, salt water, water or steam may occur.

6 Identification of faults and/or exceptional situations

Always carry out the following tasks before activating the system:

1. Before each start of operations, check that the safety features are in perfect condition.
2. Check the product for visible damage and deal with any problems immediately (or notify the supervisor).
3. Ensure that only authorized personnel are present in the working area of the machine or system and that no other personnel are put in danger by switching on the machine. During automatic operation, there must be no people in the system danger area.

For safe installation, the following instructions must be observed:

- Use only the connectors, mounting holes and attachment materials that have been provided.
- Mounting and removal must be performed only when the device is unpressurized and disconnected from the mains.
- Pneumatic and electrical line connections must be securely connected and attached to the product

7 Ecological Information

- At the end of the product's life cycle, it is recommended to separate the materials for recycling. Detailed information on the nature of the materials used is given below.
- Follow the waste disposal regulations in force in your country.

Camozzi Automation S.p.A.
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Customer Service
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service@camozzi.com

Product Certification
Information on product certifications, CE marking, declarations of conformity and instructions productcertification@camozzi.com