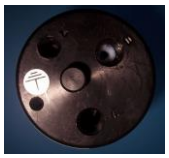
Operating Instructions / Handling QC-M

Air driven membrane pump for Chemical Transfer & Sampling

Before using, read carefully and store in a safe location

QC- M Standard / Conductive

RDP-89700 QC-M Conductive
RDP-89699 QC-M Standard



QC-M Standard is used for dispensing of high purity inorganic chemicals

QC-M Conductive is used for dispensing of high purity organic chemicals and flammable mixtures with flashpoints less than 40° C (104° F).

Prior to operating the pump, compatibility of the chemicals with the pump's wetted building materials need to be checked. Pump housing, membranes and valve are of PTFE-TFM. Housing cover is of PVDF and virgin PE.

Conditioning of pump prior to operation!

Thorough cleaning has been performed in an ultrasound bath after final testing in the factory.

For initial operation the first litre (quart) should be considered as "rinsing" chemical.

Installation & start-up

The 3 connecting parts are marked with letters:

D =liquid supply connection, 1/4 inch
Z = compressed air inlet, 1/8 inch
A = compressed air exhaust, 1/4 inch

The pump is to be mounted tension free through the guiding shaft into the dip tube for leak-free operation.

To start, remove all protective plugs from the 3 connection ports. The port threads are precisely machined and slightly conical. Sealing tape, if at all used, should be used sparingly. Connecting line sizes. Should match port connection sizes to maximize efficiency of the pump.

Make sure that the compressed air is free of contaminants. Sufficient air supply requires the nominal diameter of the connecting line to correspond with the pump's 1/8 inch diameter inlet port.

Maintain a clean ambient environment and avoid contamination when installing the pump. The pump's air control system, type "Perswing P", is a precision air control system which requires oil-free, clean and dry compressed air.

The air pressure should be adjusted and set to the desired operating liquid supply volume. Excess air pressure increases the air consumption and could result in premature wear and a reduction of the operating life of the pump. The infinitely variable volume of the liquid chemical should be controlled by changing the air supply volume, but not by throttling the liquid supply line. Idling operation of the pump is to be at low speed. The pump is self-priming.

The compressed air driven membrane pump is self-priming even when operated in dry mode. The pump does not need to be filled with liquid for start-up.
At slow operating speeds the pump can be operated safely in dry mode. Operating at high frequency will cause premature wear. The maximum allowed frequency is approximately 8000 strokes/min. at nominal output. Short term operation against a closed liquid supply is possible up to 1 hour.

Operation under explosive conditions or pumping of flammable liquids (Reg. PTB: 03 ATEXD004)

Operating with flammable liquid requires the pump housing and internal parts to be made of conductive plastic materials.

The conductive pump Model QC-M meets these requirements with the housing made of conductive PTFE and inside parts made of conductive PVDF materials. The pump must be grounded through the ground connection provided at the upper end of the pump housing. The connecting piping and liquid supply lines must be grounded separately.

Dust build-up or dust collection on the pump should be avoided to minimize flash sparking. Any repairs in ex-areas must be conducted by competent personnel trained in explosion proof areas. The "X" on the pump label marks the maximum operating temperature of 40° C (104° F).

Labeled to EXgem 94/9/EG

Standard Provisions for Safe Operating Conditions of AS Pumps and Dispense Heads

Standard OSHA Regulations for Safety at the workplace for handling of dangerous and poisonous chemicals apply. Designated protective clothing and safety gear must be worn at all times.

All AS QC dispensing equipment and pumps in contact with the chemicals are made of resin material PE-HD, PVDF and PPHD in compliance with the specifications of the resin supplier's chemical resistance charts, and are to be replaced at the stated time limits for useful life, e.g., the 2 year useful time limit for 70% concentrated Nitric Acid.

Otherwise, the useful operating life of packaging and dispensing products for aggressive and/or hazardous chemicals is generally recommended not to exceed 5 years.

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QC-M Chemical transfer & Sampling Pump

We recommend to test all operated AS-QC Dispense Heads & Pumps with DI water prior to first time use. All conductive products are to be checked for proper grounding prior to any use. Prior to regular operation we recommend checking for air leaks and for wear of the Perfluorelastomer (Kalrez) 1.53 x 2.4 mm O-ring. Replacement is to be made when needed.

The correct connection of the dispense / fill head and dip tube as well as the correct fit of the coding disc in the dip tube coding must be visually checked before starting each pumping process. When using this pump additional measures must be taken to prevent suction in the case of mismatched coding. When commissioning the system, check whether the pump output can lead to the possibility of suction due to incorrect coding.
Possible measures for double protection include the use of limit switches or bubble sensors in the dispense / fill heads, additional checks of the chemical, e.g. by RFID or barcode alignment. During filling operations, these measures must be carried out independently of the pump capacity.

Chemical Key Coding

The dispensing part of the QC-M port is equipped with a chemical key coding ring for safe and mistake-free operation. Selection can be made from the AS QC chemical key coding chart. For chemicals not listed, please inquire from the manufacturer.

Removal of the Chemical Key Coding Disc

The coding disc can be removed from the pump by removal of the black retainer O-ring.

At the customer's risk/responsibility the pump can be operated with or without chemical key coding applied.

General Technical Data & Specs of the QC-M Pump

Dimensions:

overall diameter	78 mm (3-1/8 inch)
overall height	300 mm (11-3/4 inch)

Connecting ports:

- Liquid chemical supply R 1/4 inch
- Compressed air supply R 1/8 inch
- Vent air/exhaust R 1/4 inch

Weight	1.5 kg (3.3 lbs)
Maximum operating pressure	7 bar (100 psi)
Maximum grain size (contaminants)	dia.1 mm (.040 inch)

Lift (head) for water:

- dry	3 m (10 feet)
- with liquid products	9 m (30 feet)

Maximum viscosity	1000 cP
Maximum operating temperature	40° C (104° F)

Technical Details QC-M Standard

Construction material:

- housing	PE-HD
- internal parts	PE-HD
- connecting nut	PVDF

Seals/O-rings:
KALZREZ ® (Perfluorelastomer)

Compressed air supply:
1/4 inch internal thread (suitable for Flare connection or particle filter)

Technical Details QC-M Conductive

Construction material:

- housing	Conductive PP-HD
- internal parts &	Conductive PP-HD
- connecting nut	Conductive PP-HD

Seals/O-rings
KALREZ® (Perfluorelastomer)

Compressed air supply:
1/4 inch internal thread (suitable for Flare connection or particle filter)

- Installation, operation, and maintenance must involve trained, qualified personnel.
- Pressure testing of the operating line is to be done only against closed suction and supply ports of the pump, or otherwise by the pump's own internal pressure build-up. External pressure applied to the pump without the pump being operated will cause damage.
- Subject to operating conditions and applications, a possible breakage or damage of the membrane can cause the ejection of the liquid chemical through the exhaust air port if the pump continues to operate.
- All prevailing safety laws and regulations need to be obeyed.
- Liquid chemical spills occurring in the area surrounding the pump's installation are to be handled according to local safety laws and regulations.

Liability

AS Strömungstechnik GmbH can accept no liability for errors or damages that result from improper handling of the QC container closures. Improper handling includes, in particular, failure to observe the operating instructions. Testing the chemical resistance of the dip tubes and their operational life is the responsibility of the customer. In the interest of the further development of AS products, we reserve the right to make design changes.

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