



**INSTRUCTIONS 1063 e**

|           |                |
|-----------|----------------|
| Section   |                |
| Effective | August 2018    |
| Replaces  | September 2016 |

Original instructions

# ***CC8 pumps***

## ***Additional instructions for ATEX certified equipment***



Z.I. La Plaine des Isles - F 89000 AUXERRE - FRANCE  
Tel. : +33 (0)3.86.49.86.30 - Fax : +33 (0)3.86.49.87.17  
contact@mouvex.com - www.mouvex.com

Your distributor :

# VOLUMETRIC PUMPS

## ADDITIONAL INSTRUCTIONS FOR ATEX CERTIFIED EQUIPMENT

### MODELS : CC8 pumps

The following instructions must be read at the same time as :

1. standard NF C 15 100,
2. standard NF EN 60 079-14 (electric installations in explosive gaseous atmospheres),
3. standard NF EN 60 079-17 (inspection and maintenance in dangerous locations),
4. rulings, orders, laws, directives, circulars for application, standards, professional practices and any other document related to its place of installation.

We disclaim any responsibility in the case of non-conformity with these documents.

This manual is an addition to our general manual.

The equipment must be installed by qualified, skilled and authorised personnel.

Our equipment is labelled CE by virtue of directive ATEX 2014/34/EU.

It is designed for use in explosive gaseous atmospheres :

*group IIA and IIB - category 2G - zones 1 and 2*

This approval matches the using of complementary components such as motor, electronic or mechanical meter heads, connexion boxes ... approved for this security level. In case of different approval levels, the global unit approval level will match to the lower approval level.

Check the compatibility between the informations on the rating plate, the explosive atmosphere present, the area of use and the ambient and surface temperatures.

According to the directive 2014/34/EU, the accessories or (and) components assembled and equipping the motors of our pumps must have a standard CE declaration of inspection.

| TABLE OF CONTENTS  | <i>Page</i> |
|--|-------------|
| <b>1. SAFETY WARNINGS</b> .....                                | <b>3</b>    |
| <b>2. OPERATING SURROUNDING TEMPERATURE</b> .....              | <b>3</b>    |
| <b>3. REPLACEMENT OF PARTS</b> .....                           | <b>3</b>    |
| <b>4. TABLE OF CC8 PUMPS CHARACTERISTICS</b> .....             | <b>3</b>    |
| <b>5. CLASSIFICATION OF PUMP TEMPERATURES</b> .....            | <b>4</b>    |
| <b>6. DRY RUNNING</b> .....                                    | <b>4</b>    |
| 6.1 Presumed pump failure .....                                | 4           |
| <b>7. DISCHARGE PRESSURE RELIEF</b> .....                      | <b>5</b>    |
| <b>8. SOLVENTS NOT COMPATIBLE WITH PUMP SEALS</b> ...          | <b>5</b>    |
| <b>9. POSSIBLE LEAKS OF THE PUMPED PRODUCT</b> .....           | <b>5</b>    |
| <b>10. PUMP DRIVE</b> .....                                    | <b>6</b>    |
| 10.1 Alignment of the pump and drive .....                     | 6           |
| 10.2 Elastic coupling .....                                    | 6           |
| 10.3 Universal joint drive .....                               | 6           |
| 10.4 Electric motors ATEX constraints when used with CC8 ..... | 6           |
| <b>11. ATEX CHARACTERISTICS OF THE PUMPING UNIT</b> ...        | <b>7</b>    |
| <b>12. RULES TO BE RESPECTED DURING PUMP MAINTENANCE</b> ..... | <b>7</b>    |
| <b>13. PUMP MARKING</b> .....                                  | <b>7</b>    |

# 1. SAFETY WARNINGS

Maintenance operations have to be done if possible without any potential explosive atmosphere.

If this shouldn't be the case, maintenance will have to be done by explosion risks qualified staff.

Following instructions must be respected :

- Pump and piping residual pressure have to be released.
- Pump has to be drained.
- Pump unit temperature came back to the room temperature.
- Specific instructions mentioned in technical booklets for all certified ATEX components mounted on the unit have to be respected.

Operations done on the unit or in the surrounding have to be done with spark free tools, in contact with metal or aluminium.

If components have to be removed, it has to be done, avoiding shocks with pump or external parts.

# 2. OPERATING SURROUNDING TEMPERATURE

A direct exposure of the pump to the radiance of the sun is likely to increase the temperature of its surface beyond the surrounding temperature.

As a result of fact, the User must take sure that the pump is not displayed in the direct radiance of the sun.

# 3. REPLACEMENT OF PARTS

Parts can only be replaced by MOUVEX parts corresponding to the original configuration of the pump.

All operations on MOUVEX ATEX equipment must be carried out by MOUVEX personnel or by personnel specifically authorised to carry out such operations. If this is not the case, the pump's characteristics will be modified and its ATEX certification will no longer be applicable.

# 4. TABLE OF CC8 PUMPS CHARACTERISTICS

| Pump type   | CC8-40               |      | CC8-50               |      | CC8-65               |      |             |     |      |
|---|----------------------|------|----------------------|------|----------------------|------|-------------|-----|------|
|   | A - ATR<br>A - AP TR |      | A - ATR<br>A - AP TR |      | A - ATR<br>A - AP TR | C    | VA<br>V ATR |     |      |
| Max. flow (m <sup>3</sup> /h)                     | 30                   | 40   | 37,5                 | 48   | 48                   | 65   | 48          | 48  | 65   |
| Max. speed (rpm)                                  | 750                  | 1000 | 750                  | 1000 | 750                  | 1000 | 750         | 750 | 1000 |
| Maximum discharge pressure at max speed (bar)     | 8                    | 4    | 8                    | 4    | 8                    | 4    | 8           | 8   | 4    |
| Maximum discharge pressure (bar)                  | 8                    |      |                      |      |                      |      |             |     |      |
| Maximum speed at maximum discharge pressure (rpm) | 750                  |      |                      |      |                      |      |             |     |      |
| Maximum product temperature (°C)                  | 70                   |      |                      |      |                      |      | 150         | 70  |      |

## 5. CLASSIFICATION OF PUMP TEMPERATURES

Pumps are devices whose surface temperatures depend greatly on the temperature of the product they pump and/or the heating temperature in the case of a pump equipped with a heating jacket. Therefore the temperature classifications of MOVEX pumps are obtained with the temperature limits of the product pumped and the heating product :

| Temperature class  |             | Certification<br>ATEX II 2 G IIB |    |
|--|-------------|----------------------------------|----|
|  |             | T4                               | T3 |
| Maximum temperature<br>of the product pumped<br>and/or<br>the heating product<br>(in the heating jacket) | CC8-40      | 70°C                             | -  |
|  | CC8-50      |                                  |    |
|  | CC8-65 A    |                                  |    |
|  | CC8-65 AP   |                                  |    |
|  | CC8-65 APTR |                                  |    |
|  | CC8-65 C    |                                  |    |
|  | CC8-65V A   | 150°C                            |    |
|  |             |                                  | -  |

Any overshooting of the maximum temperature of the product pumped or the heating product (in the case of a pump equipped with a heating jacket) is considered as abnormal operation of the pump (according to the pump's temperature classification), that can lead to surface temperatures higher than the classification temperature T for which the pump is certified. The user of the pump must ensure that the temperature of the product pumped and/or the temperature of the heating product must never exceed the maximum temperature specified. This can be done, for example, by installing a temperature sensor upstream of the pump.

This maximum temperature is also written on the pump rating plate as "max flow temp :".

**For category 2 devices, in order to respect the requirements of NPI2 class as defined in EN 13463-6, the inflammation prevention system should present a safety integrity level SIL 2.**

**For category 3 devices, in order to respect the requirements of NPI2 class as defined in EN 13463-6, the inflammation prevention system should present a safety integrity level SIL 1.**

## 6. DRY RUNNING

MOVEX vane pumps CC8 Series can run without liquid in the pump for 2 minutes without causing heating in the pump in excess of classification temperature T, in particular during pump priming.

The operating time in the absence of pumped product must not exceed the value defined below. This duration may be spread over several operating periods spaced at least 15 minutes apart. Any operation for longer than this period will entail detailed inspection of the equipment and possibly disassembly of it to ensure that the previous operation did not lead to any additional ignition risks (particular attention will be paid to the fact that even though the external temperatures of the pump comply with the limits defined above, the inside surfaces can nonetheless be at high temperatures).

Consequently, every time the pump is started, an operator must check that there is a flow through the pump, for example, by checking that the applications that depend on the pump work. This operation can be automated by using a flow detector placed as close as possible to the pump discharge orifice. This device must comply with the standards in force, especially those related to electric devices in explosive atmospheres and/or standard EN 13463-6 related to the protection of non-electric equipment in explosive atmospheres by controlling sources of ignition.

**For category 2 devices, in order to respect the requirements of NPI2 class as defined in EN 13463-6, the inflammation prevention system should present a safety integrity level SIL 2.**

**For category 3 devices, in order to respect the requirements of NPI2 class as defined in EN 13463-6, the inflammation prevention system should present a safety integrity level SIL 1.**

### 6.1 Presumed pump failure

When the behaviour of the pump indicates that an equipment failure has occurred (drop in flow rate / pressure, abnormal noise, etc.), the pump must not operate without pumped product. Consequently, the pipe must not be drained by the pump.

It is strictly forbidden to operate the pump without observing these recommendations.

The user must evaluate his installation and list all possible situations in which it functions without pumped product and take the necessary steps to ensure compliance with the operating limits.

The situations involving operation without pumped fluid can for example be the following :

- priming of the pump,
- draining the pipes,
- interruption of pump feed (tank empty),
- suction pipe blocked (valve, filter fouled, etc.),
- air block at suction,
- ...

This can for example be checked by an operator ensuring that the applications dependent on the pump are working or that the physical values dependent on the presence of liquid (flow, pressure, torque, etc.) correspond to those expected.

These control measures can be automated by using a pump shutdown control device.

This device must conform to current regulations and especially with regulation related to electric equipment in explosive atmosphere. The choice of its characteristics (temperature resistance, category, etc.) must guarantee a level of protection at least equal to that of the pump.

## 7. DISCHARGE PRESSURE RELIEF

Since the pressure relief is incorporated in the pump, the product is recirculated directly via the discharge orifice to the suction orifice. The short length of the recirculation circuit means that if the pump operates with a blocked discharge orifice, the bypass (and thus the pump) can reach very high temperatures quickly according to the pump operating conditions.

It is therefore vital to install a temperature limiting device in an emplacement provided for this purpose in order to conform to the classification temperature T. The temperature limiting device cuts off the power supply to the pump in case of overshooting of the maximum surface temperature corresponding to the classification temperature T. This equipment must conform to current standards and especially with standards related to electric equipment in explosive atmospheres and/or standard EN 13463-6 related to the protection of non-electric equipment in explosive atmospheres by controlling sources of ignition.

**For category 2 devices, in order to respect the requirements of NPI2 class as defined in EN 13463-6, the inflammation prevention system should present a safety integrity level SIL 2.**

**For category 3 devices, in order to respect the requirements of NPI2 class as defined in EN 13463-6, the inflammation prevention system should present a safety integrity level SIL 1.**

|  |             | Certification<br>ATEX II 2 G IIB |    |
|--|-------------|----------------------------------|----|
| Temperature class  |             | T4                               | T3 |
| Detection threshold<br>of the temperature<br>sensor at $\pm 5^\circ$ | CC8-40      | 60°C                             | -  |
|  | CC8-50      |                                  |    |
|  | CC8-65 A    |                                  |    |
|  | CC8-65 AP   |                                  |    |
|  | CC8-65 APTR |                                  |    |
|  | CC8-65 C    |                                  |    |
|  | CC8-65V A   | 160°C                            | -  |

Bypass lifting device is forbidden with ATEX approved CC8.

## 8. SOLVENTS NOT COMPATIBLE WITH PUMP SEALS

The user must ensure that the seals equipping the pump are compatible with the product pumped and products used to clean the pump.

## 9. POSSIBLE LEAKS OF THE PUMPED PRODUCT

Possible leaks of liquid via the pump seals or mechanical seals do not lead to risks of fire provided that the explosive atmosphere surrounding the equipment corresponds exactly to the type of atmosphere for which it was selected.

Make sure to check that the liquids pumped do not generate an explosive atmosphere, for which the equipment has not been designed, when coming into contact with the atmosphere surrounding the pump or with material located near it.

# 10. PUMP DRIVE

NB : Precautions below match packages delivered by MOUVEX. This approval is valid only if the package has been designed and assembled by MOUVEX. Operations done on such units must be done by qualified, skilled and authorised personnel. Only original MOUVEX spares parts (or certified similar by MOUVEX) have to be used for maintenance.

Instructions of each component fitted on the unit have to be respected and particularly all the constraints linked to their working range. Refer to Manufacturer instructions for further details.

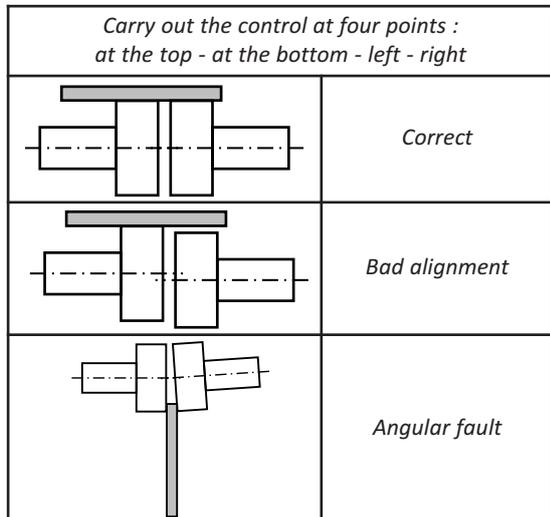
The maximum rotation speed of the CC8 pumps must be conformed to (see table of pump characteristics). At first start-up or after any modification of the pump unit, the rotation speed of the pump must be checked and be less than the maximum speed indicated in the instructions.

## 10.1 Alignment of the pump and drive

To carry out alignment and coupling, use a perfectly straight steel rule to control misalignment and feeler gauges for angular misalignment.

The operation is shown clearly in the three figures opposite. It is important to control the alignment of each step of the installation in order to ensure that none of the steps lead to stresses on the unit or the pump :

- after fastening on the foundations
- after fastening the piping
- after the pump has operated at normal operating temperature.



### REMINDER :

A flexible coupling does not avoid to do a good alignment.

## 10.2 Elastic coupling

ATEX certified elastic couplings must be used. These couplings must have a level of protection equivalent or better than that of the pump unit. Please refer to the technical manual on coupling for the maintenance instructions relative to the ATEX certified elastic couplings of the MOUVEX pump units.

## 10.3 Universal joint drive

In case of universal shaft drive, it has to be ATEX approved and fitted in accordance with the Manufacturer instructions. Periodicity maintenance inspection specified by the manufacturer has to be respected.

Connect the regulatory earthing connections.

## 10.4 Electric motors ATEX constraints when used with CC8

ATEX electric motors approvals have to be considered to define the package approval level.

In order to allow a CC8 package to keep the pump approval level (IIGT4), the motor has to have a working range at least similar or upper.

Motor installation and using rules mentioned in the instruction must be respected and particularly :

- Check that the indications on the pump rating plate and the supply voltage match.
- Comply with the instructions of the manual accompanying the pump to connect the motor to the mains supply.
- Refer to the wiring diagram, use wires adapted to the power and ensure that the contacts are tightened vigorously.
- Motors must be protected by appropriate circuit breakers and fuses.
- Connect the regulatory earthing connections.

Start the pump up empty to check that the connections are correct and check that the direction of rotation corresponds well with the direction of suction and discharge of the installation.

## 10.5 Constraints related to ATEX pneumatic driving pump

Under ATEX installation, all pneumatic lines associated with the pump management must be manufactured from conductive materials (for example, annealed copper).

---

## 11. ATEX CHARACTERISTICS OF THE PUMPING UNIT

A pumping unit can be composed of components (motor, gear motor, sensors, etc.) whose ATEX characteristics are different to those of the pump.

In this case, the ATEX characteristics of the unit will correspond to those of the component with the lowest level of protection.

---

## 12. RULES TO BE RESPECTED DURING PUMP MAINTENANCE

Pump and other linked products instructions have to be respected, particularly :

- Strainers fitted upstream have to be checked and cleaned monthly or every 100 working hours.
- Ball bearings have to be lubricated every 3 months or every 300 working hours, excepted life lubricated versions, and replaced every 3 years or 2000 working hours.
- In case of any vibration issue check the ball bearing state.

- Sealing have to be controlled yearly or every 1000 working hours.
- Intervention procedure including operator homologation, boxes timing opening... have also to be respected.

Refer to Manufacturer instructions for more details.

---

## 13. PUMP MARKING

The marking of the CC8 series pumps is as follows :

MOUVEX F89 AUXERRE

Ppe CC8 + codification of the type, the construction and the variant.

 II 2 G c IIB T4 ou  II 2 G c IIB T3 - Max temp flow ....°C

Serial no.

Year

Dossier 61705A X

The marking of the CC8 series units is as follows :

MOUVEX F89 AUXERRE

Gpe CC8 + codification of the type, the construction and the variant.

 II 2 G c IIB T4 ou  II 2 G c IIB T3 - Max temp flow ....°C

Serial no.

Year

Dossier 61705A X

Note : This mark covers the pump bare shaft only and not the equipments fitted or delivered with it as coupling, reducer, torque limiter, hydraulic motor...

Each of these equipments will have its own mark.