



**INSTRUCTIONS 1057 e**

Section	
Effective	March 2023
Replaces	September 2016

Original instructions

# ***CC20 pumps (bareshaft and units)***

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



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# VOLUMETRIC PUMPS

## ADDITIONAL INSTRUCTIONS FOR ATEX CERTIFIED EQUIPMENT

### MODELS : CC20 pumps (bareshaft and units)

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 or IIB - category Gb or Gc*

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.

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## 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.

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## 2. 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.

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## 3. TABLE OF PUMP CHARACTERISTICS

Pump type	CC20 A	CC20 Solvent	CC20 SRRHU
Max. flow (m <sup>3</sup> /h)	30		
Max. speed (rpm)	750		
Maximum discharge pressure at max speed (bar)	4	4	2
Maximum discharge pressure (bar)	4	4	2
Maximum speed at maximum discharge pressure (rpm)	750		
Maximum product temperature (Nitrile seals) (°C)	50°C		
Maximum product temperature (other seals) (°C)	80°C		

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## 4. CLASSIFICATION OF PUMP TEMPERATURES

Pumps are devices whose surface temperatures depend greatly on the temperature of the product they pump. Therefore the temperature classifications of MOUVEX pumps are obtained with the temperature limits of the product pumped :

ATEX certification		
Temperature class		T4
Maximum temperature of the product pumped	CC20 (Nitrile seals)	50°C
	CC20 (other seals)	80°C

Any overshooting of the maximum temperature of the product pumped 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 must never exceed the maximum temperature specified. This can be done, for example, by installing a temperature sensor upstream of the pump.

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## 5. DRY RUNNING

CC20 pumps, using the MOUVEX principle, can be run dry, without any pumped product in the pump, throughout the pump priming time without causing the temperature to exceed the temperature T classification (for example during the priming or emptying of pipes). However, this is allowed only on condition that the following restrictions are complied with :

### 5.1 Operation on a product that does not generate its own explosive atmosphere or generate an explosive atmosphere with an ignition temperature that is higher than 160°C

- the temperature of the external surfaces of the pump at start-up is within the application limits for standard NF EN 13463-1 (a),
- the differential pressure when the pump works without the pumped liquid is limited to 2 bar,
- running time does not exceed 3 minutes (b),
- the pump can be operated a second time without the pumped liquid only after thirty minutes have passed. To operate the pump for the third time running without the pumped liquid will first require a thorough inspection of the equipment, or even dismantling to make sure that the previous operations have not added risks of ignition (remember, in particular that temperatures inside the pump can continue to be high, even when outside temperatures have returned to the limits defined above).

The following condition comes to add to the conditions defined earlier on :

- the differential pressure when the pump is operated without any pumped liquid must be limited depending on the continuous running speed of the pump. The differential pressure must be less than the ratio of [maximum admissible continuous speed] / [actual continuous speed of the pump] expressed in relative bar.

### 5.2 Operation on a product that generates its own explosible atmosphere and with an ignition temperature of less than 160°C

- It is forbidden to operate without the pumped liquid.

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 are working. 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 current standards and, in particular, standards relating to electric equipment in explosive atmospheres.

In cases where there is a risk of clogging the suction pipes (for example when a filter is used), the user should take the necessary steps to ensure that the pump running without liquid remains in the limits defined above.

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

When a specific instruction manual is provided for mechanical seals, please read it to know the usual precautions recommended by the manufacturer.

- (a) Special arrangements have to be made for cases where the pumped product requires that the pump be reheated before it is started up. Please contact our technical department for more information.
- (b) It is also possible to run for five 5 minutes, on the express condition that the pump is not operated a second time without pumped liquid if a thorough inspection or even dismantling of the equipment is not carried out.

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## 6. DISCHARGE PRESSURE RELIEF

When a bypass is used as a pump protection device against accidental and non-repetitive overpressure, and the pump carries category 3 certification, it is possible for the shut-off device not to be fitted if the pump has a category 3 certification.

Under all other circumstances (category 2 certification, category 3 certification with repetitive use of the bypass in the process, regardless of whether this use is voluntary or not...), the shut-off device is compulsory.

### 6.1 For pumps equipped with an integrated bypass

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.

A shut-off device activated by a rise in temperature in an emplacement provided for this purpose in order to conform to the classification temperature T, the activation threshold being defined by the temperature classification (see § 6.2). The shut-off device cuts the power supply to the pump and controls any safety measures required by the installation in the event that the maximum surface temperature corresponding to the temperature T classification is exceeded (the wiring used by the device to control the shutting off of the system shall be carried out in accordance with good trade practises). This equipment must conform to current standards and especially with standards related to electric equipment in explosive atmospheres.

### 6.2 Detection threshold of bypass temperature shut-off devices

Temperature classification	Detection threshold of the temperature shut-off devices
T4 (135°C)	120°C + 5°C

**Caution** : The shut off device is not designed to control the pumped product temperature as required in the section CLASSIFICATION OF PUMP TEMPERATURES, but to be triggered when a malfunction could raise the temperature to a level higher than what is acceptable for the ATEX area. The temperature must be checked using a device that is separate from the shut off device.

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## 7. 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.

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## 8. POSSIBLE RISKS OF EXOTHERMIC REACTION

When the pump is operated successively on different products, the user must make the necessary arrangements to avoid heating through an exothermic reaction between the various products pumped.

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## 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.

For a CC20 series pump equipped with a drain cap or a drain cock on the pump casing, when starting the pump, check that the drain cap or drain valve acts as a seal between the product pumped and the outside of the pump (Caution : The pump casing is under discharge pressure condition).

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## 10. RULES TO BE RESPECTED DURING PUMP MAINTENANCE

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

- Periods between 2 inspections must be respected.
- Intervention procedure including operator homologation, boxes timing opening... have also to be respected.

Refer to Manufacturer instructions for more details.

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## 11. DIRECT SUNLIGHT EXPOSURE

A direct exposure of the pump / unit to the radiance of the sun is likely to increase the temperature of their surface above ambient temperature.

As a result of fact, the User must take sure that the pump / unit is not displayed in the direct radiance of the sun or the temperature of the external surfaces of the pump is compatible with its level of protection.

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## 12. PROTECTION AGAINST FOREIGN BODIES

The user will take the necessary steps to protect the installation against ingress of any foreign bodies that could damage the pump / unit, for example by ensuring that neither the pumped product nor the piping contain foreign bodies liable to damage the pump / unit, or by installing an appropriate suction filter.

If the pump is operated without pumped product, particular attention must be given to the risk of sparks and hot surfaces generated by friction between foreign bodies and the inner surfaces of the pump / unit. This must be assessed prior to any use of the pump without pumped product.

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## 13. PUMP DRIVE

### 13.1 Alignment of the pump and drive

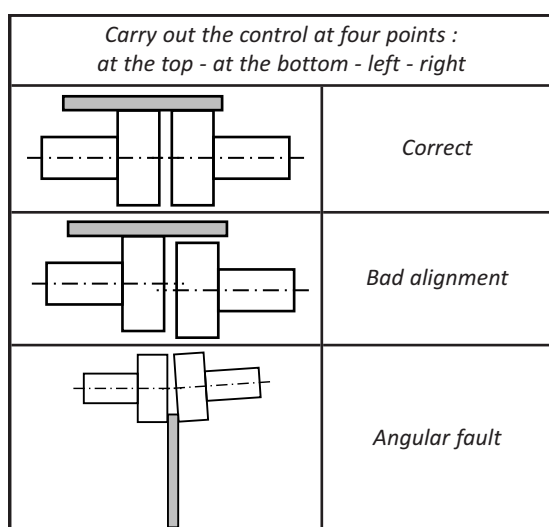
To carry out alignment of the pump and drive, use a perfectly straight steel rule to control misalignment and feeler gauges for angular misalignment.

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.

An alignment control should be performed every 6 months.

The following three figures show the various faults that could be encountered. The allowable misalignment values are stated in the Instructions supplied with the coupling.



**REMINDER :**

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

### 13.2 Elastic coupling

ATEX certified elastic coupling must be used. This coupling must have a level of protection equivalent or better than that of the unit. For mounting or maintenance instructions on the elastic coupling, follow the indications in the specific Instructions of the equipment manufacturer.

### 13.3 Electric installation of the pump motor or gear motor

Check that the indications on the pump rating plate and the supply voltage match.

Follow the indications in the specific Instructions of the equipment manufacturer to connect the motor to the mains supply.

Refer to the wiring diagram, use wiring adapted to the power and ensure that the contacts are tightened vigorously.

Motors must be protected by circuit breakers and fuses provided in the manufacturer's Instructions.

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.

### 13.4 ATEX characteristics of the pump motor or gear motor

The motor or gear motor used must conform to current regulations and standards especially with regulation related to electric equipment in explosive atmosphere.

The level of protection selected has to be equal to or greater than that of the unit. For instructions on maintenance of motor and gear motor, follow the indications in the specific Instructions of the equipment manufacturer.

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## 14. CONTROLLING THE ROTATION SPEED

Any overshoot of the maximum allowable speed is considered to be abnormal pump operation which can lead to surface temperatures in excess of the pump temperature classification, as well as risks to the user and / or the installation.

At first start-up or after any modification to the unit or its settings, the pump rotation speed must be checked to ensure that it remains below or equal to that defined for the application.

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## 15. PAINT

### 15.1 Units

During any possible paint touch-up operation of the unit's elements, the user must ensure compliance with the recommendations contained in the specific instructions from the equipment manufacturers.

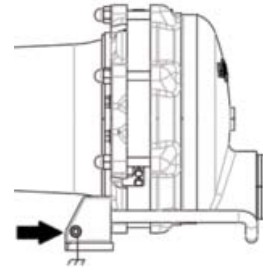
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## 16. EARTHING CONNECTION

To avoid the risk of ignition due to electrostatic discharge, pump and unit must always be grounded.

On the pump, use drilling on inlet manifold bracket.

Particular attention should be given to earthing connection for the mobile units or mounted on truck.



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## 17. MARKING

The marking of the CC20 series pumps is as follows :

MOVEX F89 AUXERRE  
CC20 A, CC20 Solvant, CC20 SRRHU + Short description of the pump.

 II 2G et 3G  
**Ex h IIB T4 Gb**

Serial no.  
Year  
Dossier MOVEX/AT0010/23 X

The marking of the CC20 series units is as follows :

MOVEX F89 AUXERRE  
UNIT CC20 A, CC20 Solvant, CC20 SRRHU + Short description of the unit.

 II 2G et 3G  
**Ex h IIB T4 Gb**

Serial no.  
Year  
Dossier MOVEX/AT0010/23 X