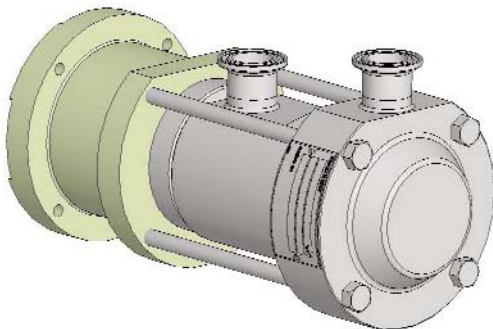


# *Micro C*

## *125 - 250 - 500 - 800*

# *PUMPS*



**INSTALLATION**

**USE**

**MAINTENANCE**

# ECCENTRIC DISC PUMP MOUVEX PRINCIPLE

## SAFETY INSTRUCTIONS, STORAGE, INSTALLATION AND MAINTENANCE

### MODELS : MICRO C 125 - 250 - 500 - 800

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### SAFETY INFORMATION



#### This is a SAFETY WARNING SYMBOL.

When you see this symbol on the product, or in the manual, look for one of the following signal words and be alert to the potential for personal injury, death or major property damage.



Warns of hazards that WILL cause serious personal injury, death or major property damage.



Warns of hazards that CAN cause serious personal injury, death or major property damage.



Warns of hazards that CAN cause personal injury or property damage.

#### NOTICE

Indicates special instructions which are very important and must be followed.

### USED PRESSURE UNITS

#### Unit without suffix :

Differential pressure, for example, pressure difference between equipment suction and discharge.

#### Unit with suffix "a" :

Absolute pressure.

#### Unit with suffix "g" :

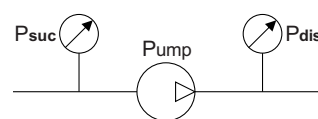
Gauge pressure, given regarding to atmospheric pressure (~101325 Pa, taken at 1 bar / 14,5 psi in this IOM).

Example :

$P_{suc} = -0,2 \text{ barg} = 0,8 \text{ bara}$

$P_{dis} = 8,8 \text{ barg} = 9,8 \text{ bara}$

$\Delta P = P_{dis} - P_{suc} = 9 \text{ bar}$



### TECHNICAL CHARACTERISTICS

- Maximum pump speed : **1000 rpm**
- Maximum running temperature :
  - seals FKM/FEP - FKM
    - \* continuous .....110°C\*
    - \* washing / rinsing / sterilisation .....121°C
- Maximum suction pressure :
  - In normal use, the suction pressure must be higher than the required NPSH and **less than 2 barg** (29 psig).
  - During pump **CIP/SIP**, the suction pressure must not exceed **2 barg** (29 psig).
  - With pump **stopped**, the pressure must not exceed **3 barg** (43,5 psig).
- Acceptable maximal differential pressure :
  - MICRO C 125 ... 15 bar\*\* (217,60 psi)
  - MICRO C 250 ... 10 bar\*\* (145 psi)
  - MICRO C 500 ... 5 bar\*\* (72,5 psi)
  - MICRO C 800 ... 3 bar\*\* (43,5 psi)
- Displacement :
  - MICRO C 125 ... 0,0024 liter
  - MICRO C 250 ... 0,0045 liter
  - MICRO C 500 ... 0,0090 liter
  - MICRO C 800 ... 0,0133 litre
- Volume :
  - Suction ..... 0,15 liter
  - Discharge ..... 0,08 liter
  - Total ..... 0,23 liter (0,061 US gallons)

\* A running with a pumped product presenting an included temperature between 100°C and 110°C will be authorized provided that the coefficient of conduction of heat of the pumped product is superior to 0,125 W.m<sup>-1</sup>.K<sup>-1</sup> and that the acceptable maximal limits of speed and differential pressure are decreased so as to respect the following rule :

$$\Delta P \times n \leq \frac{250}{2 \cdot 10^{\frac{T-100}{10}}} \times k \times (120 - T)$$

MICRO C	125	250	500	800
k	3	2	1	0,6

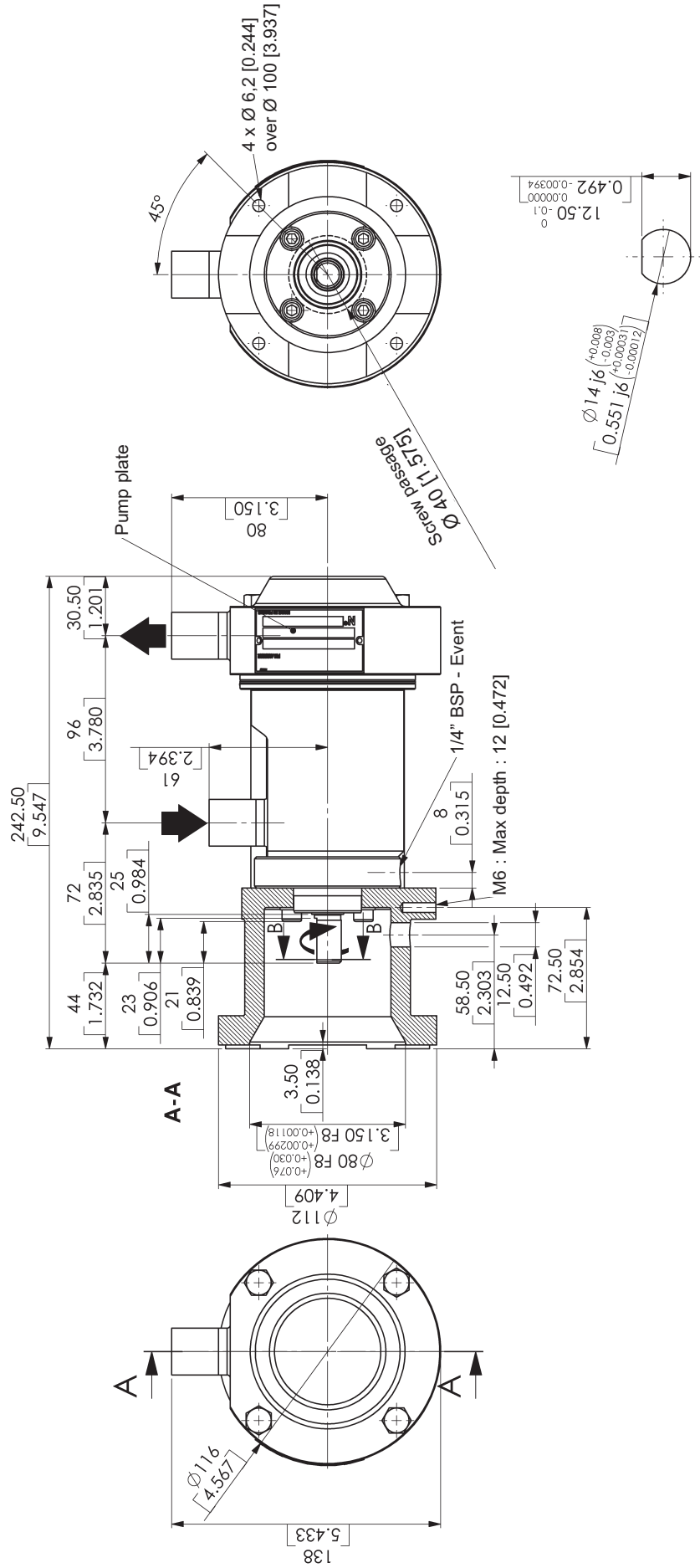
with :  $T$  product pumped temperature (°C)  
 $\Delta P$  differential pressure of the pump (bar)  
 $n$  rotation speed of the pump (rpm)  
 $k$  see board

\*\* When the pump works with an inlet gauge pressure less than zero, the maximum outlet pressure will be calculated as if the inlet pressure is equal to zero.

# Connection BSP or NPT 1/2'

## Motor flange CEI FT-FF 100

### 1. OVERALL DIMENSIONS

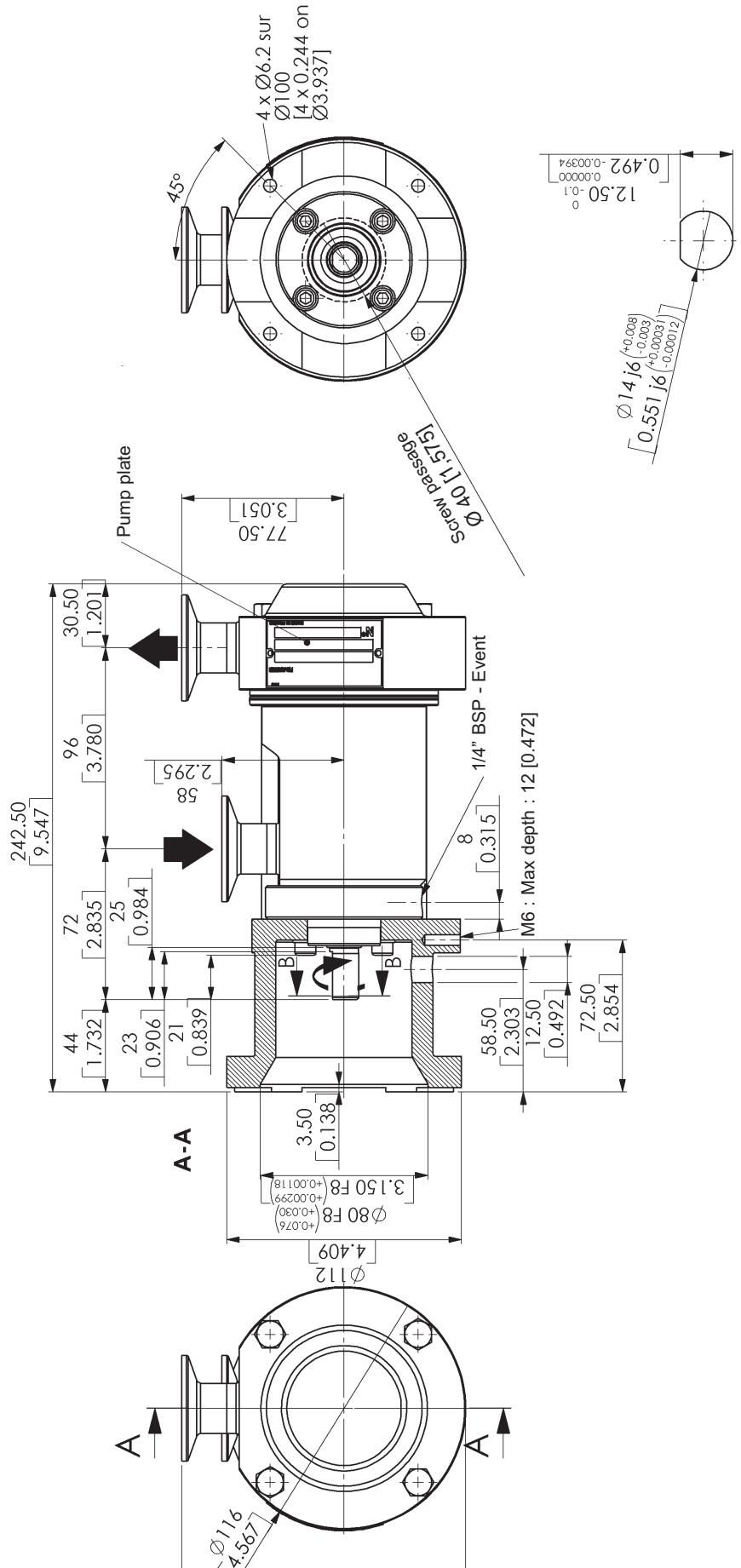


Weight : 8 kg



# CONNECTION CLAMP 1P

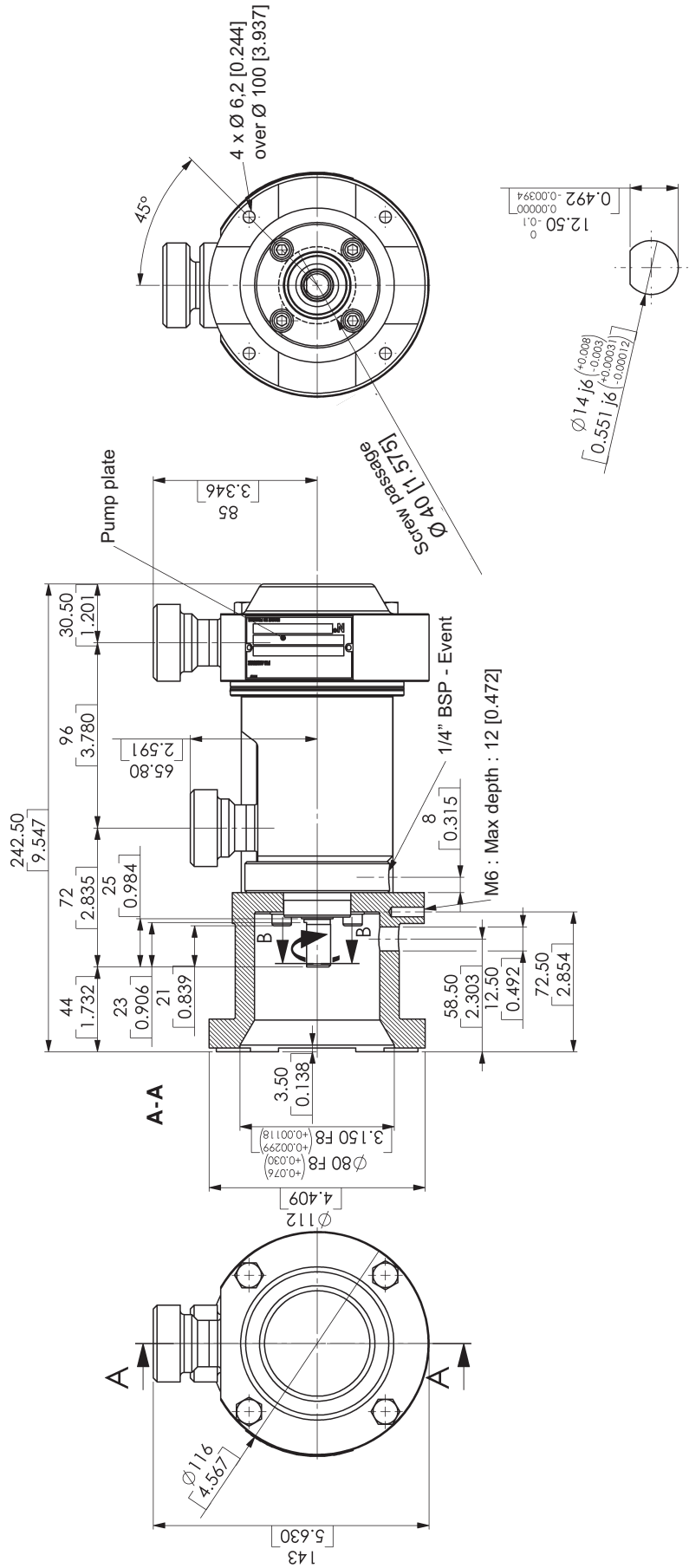
## 1. OVERALL DIMENSIONS (continued)





# 1. OVERALL DIMENSIONS (continued)

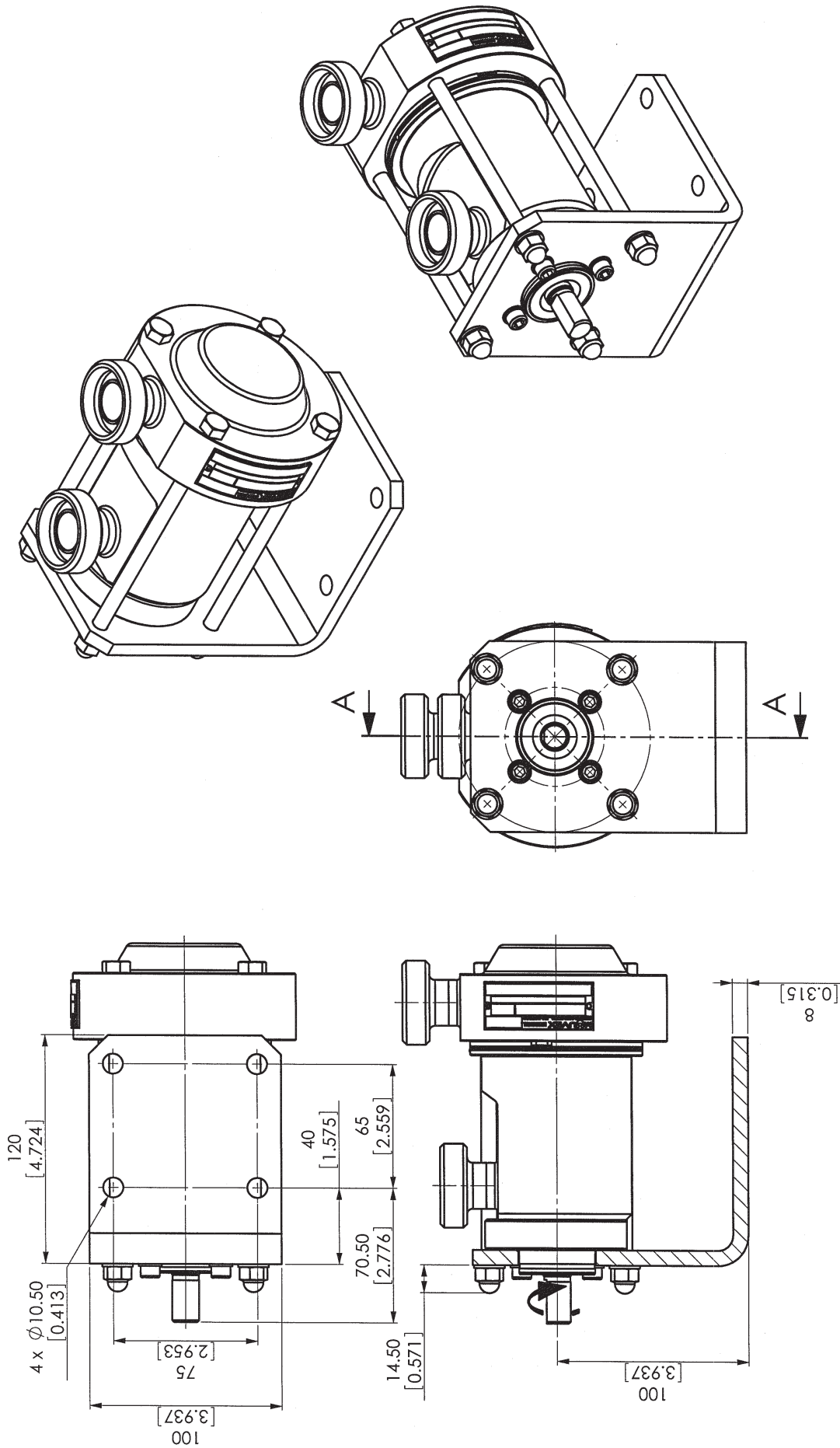
## SMS25 Motor flange CEI FT-FF 100



Weight : 8 kg

# 1. OVERALL DIMENSIONS (continued)

## Support bracket

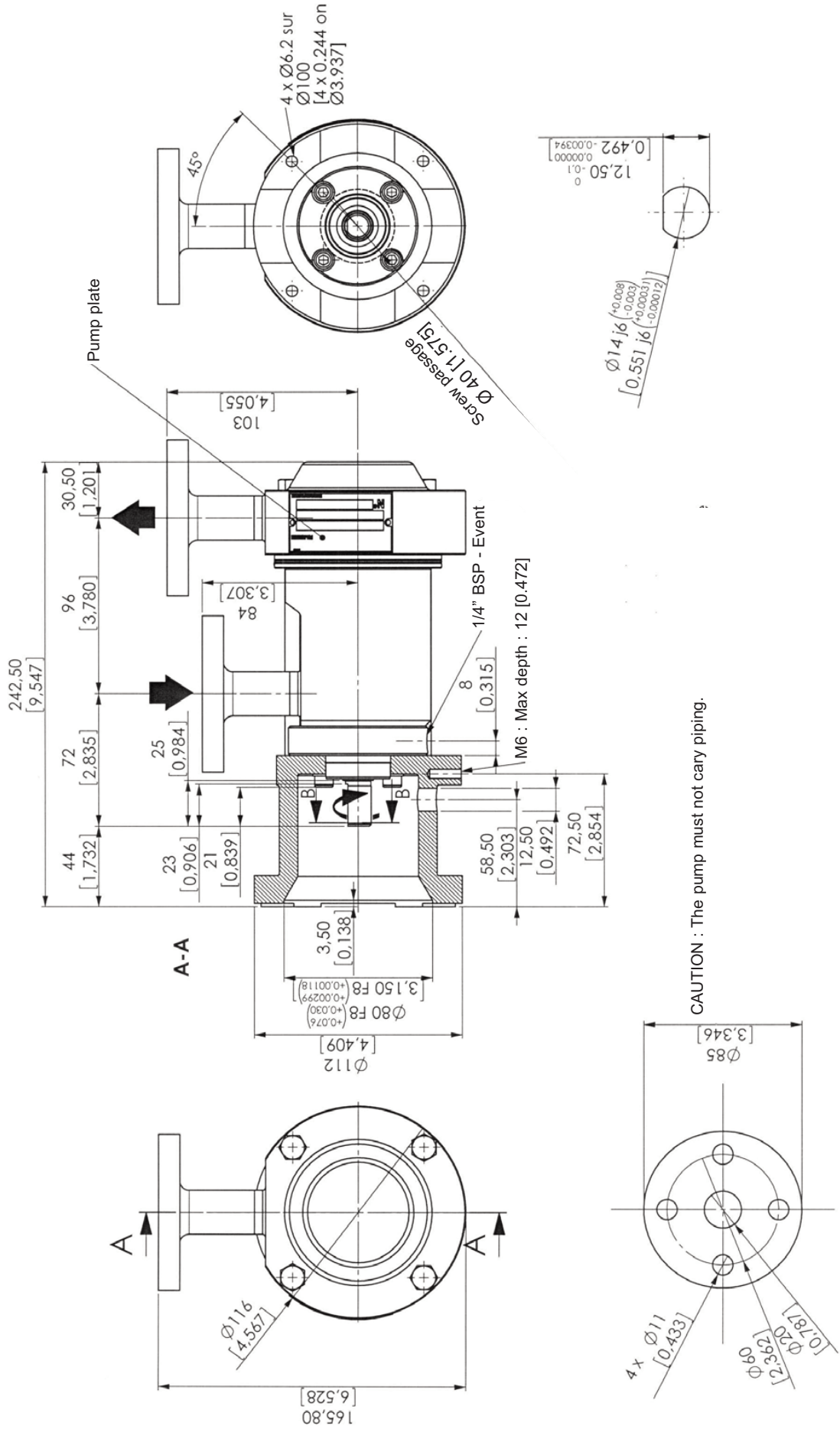


**CAUTION :**  
 This variant involves limitations on ports orientation :  
 • inlet tube - port downward : forbidden  
 • front cover - port downward : consult us



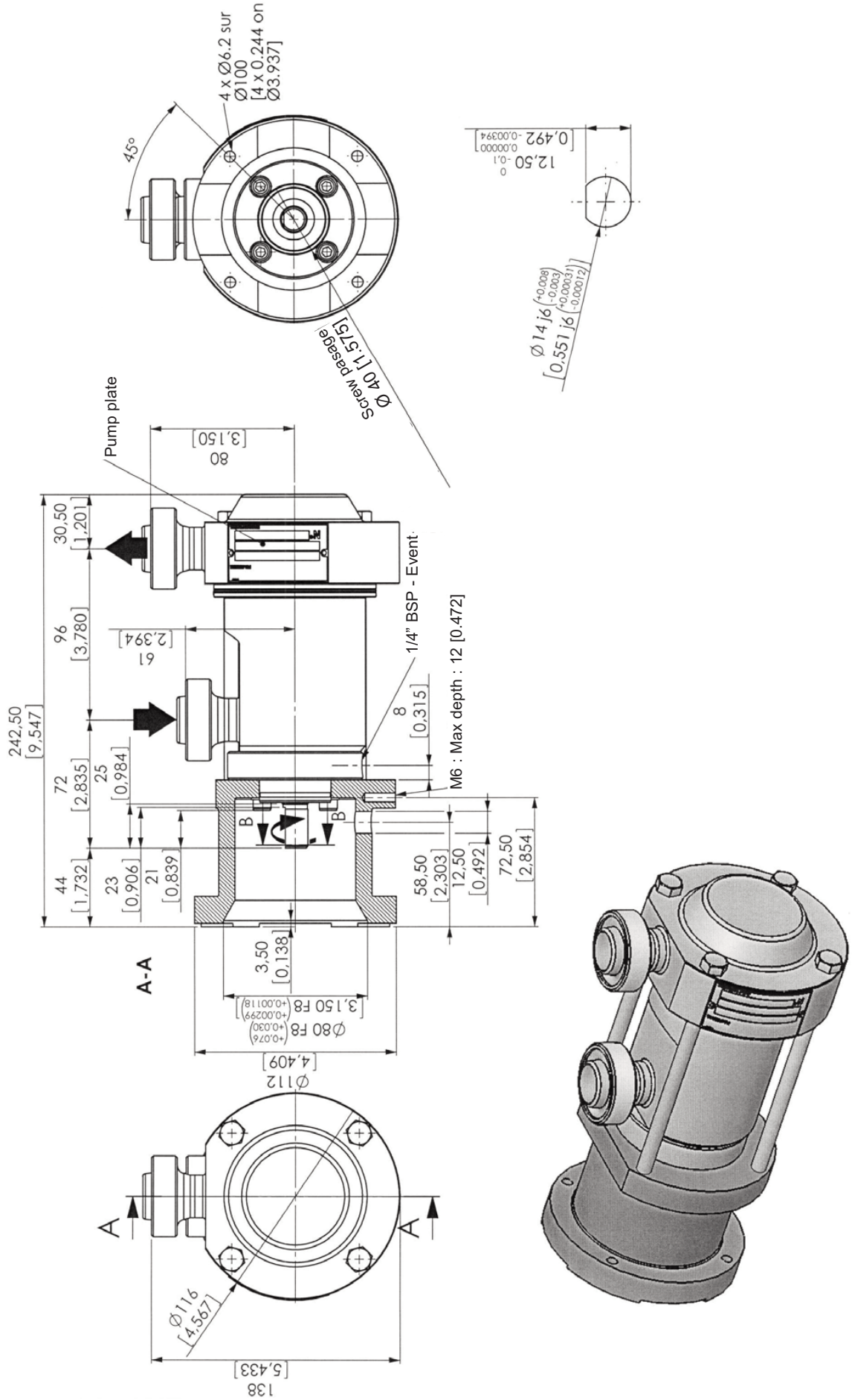
# CONNECT-S® DN20 connection - Motor flange CEI FT-FF 100

## 1. OVERALL DIMENSIONS (continued)



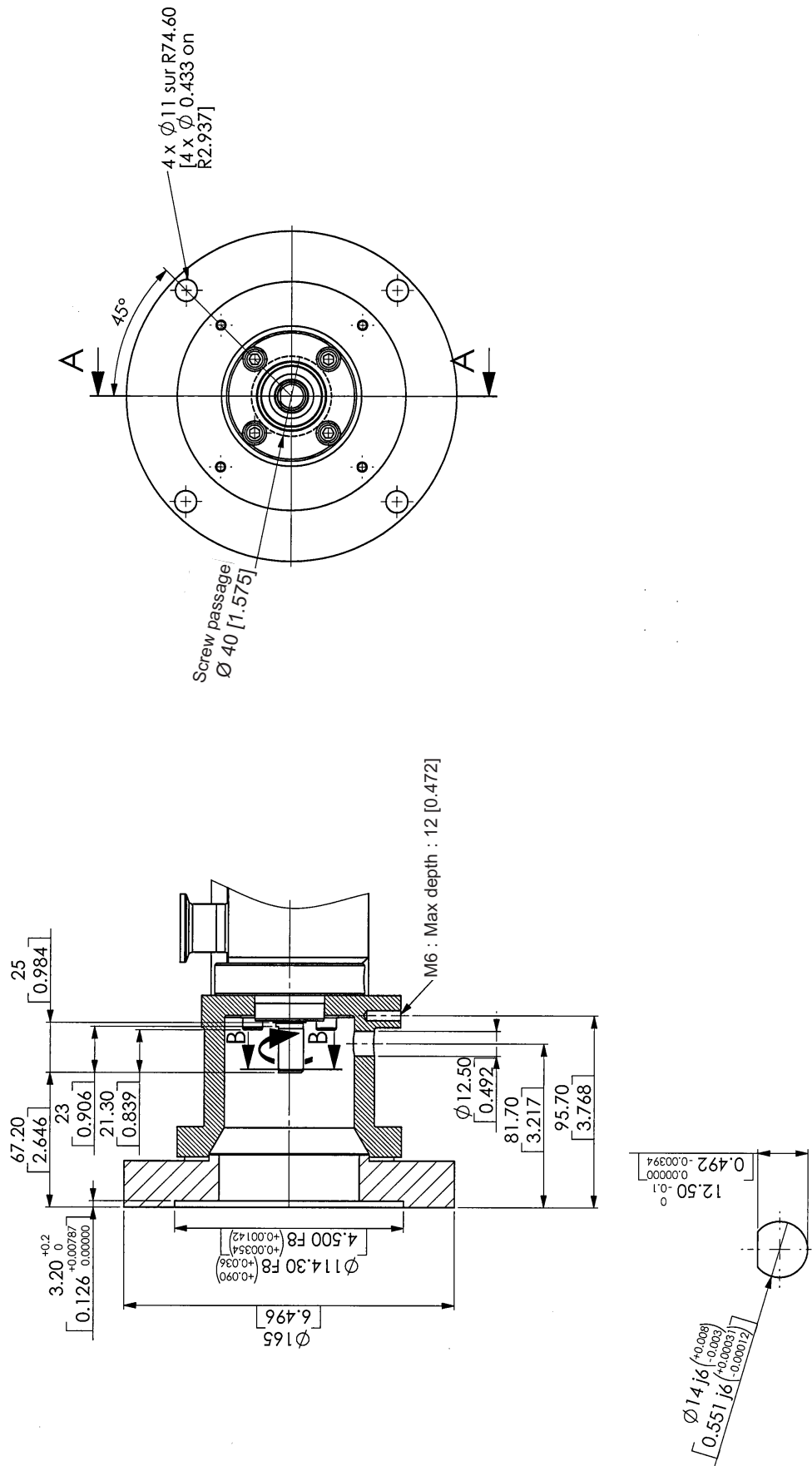
# BS4825-5 DN20 connection - Motor flange CEI FT-FF 100

## 1. OVERALL DIMENSIONS (continued)



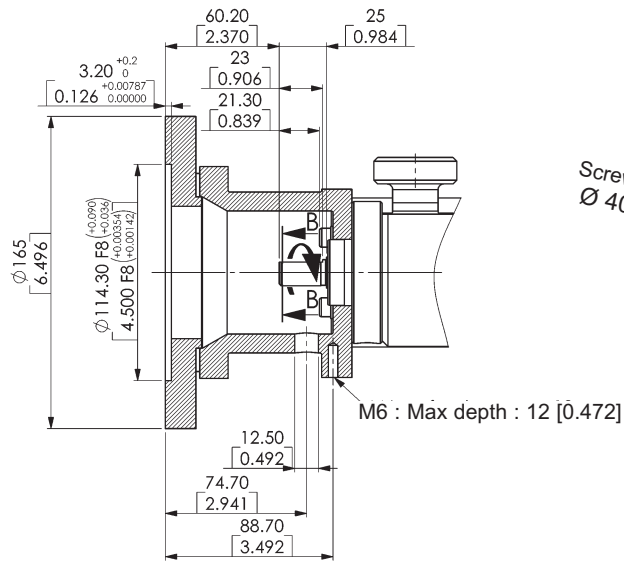
# Motor flange NEMA 143

## 1. OVERALL DIMENSIONS (continued)

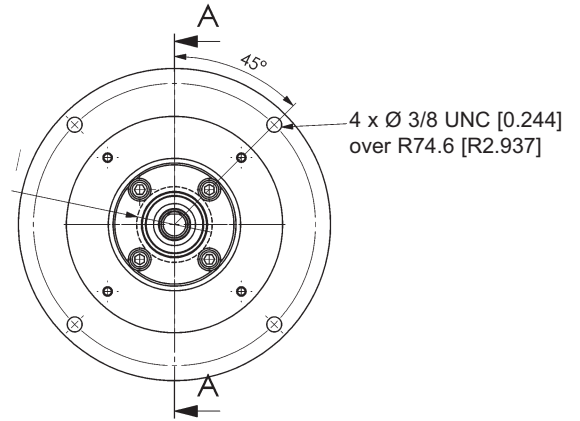


# 1. OVERALL DIMENSIONS (continued)

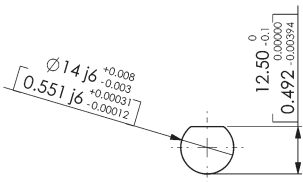
## NEMA-H Flange adaptation



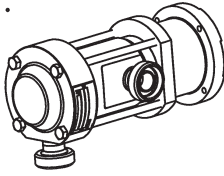
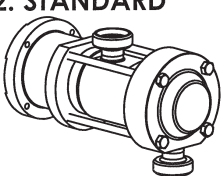
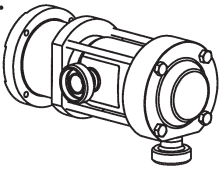
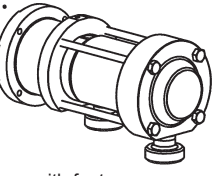
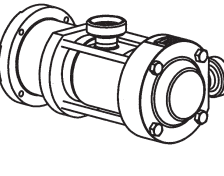
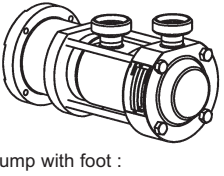
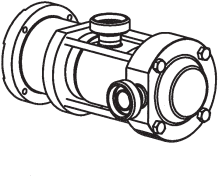
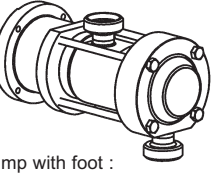
Screw passage  
 $\varnothing 40$  [1.575]



M6 : Max depth : 12 [0.472]



## 2. INSTALLATION

		POSSIBLES POSITIONS			
INLET	1. 	2. STANDARD 	3. 	4.  Pump with foot : forbidden position	
OUTLET	1. 	2.  Pump with foot : standard orientation	3. 	4. STANDARD  Pump with foot : consult us	

### CAUTION

The pump meets the requirements of 3-A Sanitary Standards and is EHEDG certified only with the inlet in position 2 and the outlet in position 4.

All other ports orientations are not totally drainable. When inlet port is in position 1,3 or 4, take care to not clog the vent and to protect it from outside.

The Micro C pump is a self-priming volumetric PD pump.

Therefore, the pump must not run on a circuit with a closed valve. This is valid both for the suction circuit and for the discharge circuit.

The pump is designed to be attached to the end of a motor; during assembly ensure that the half couplings are tightly and securely closed.

### 2.1 Orientation of the pump ports

The suction port and the discharge port may be oriented in various positions.

If the port positions need to be changed at any time, see the corresponding paragraph.

#### NOTICE

**Micro C pumps will be drainable only if the inlet port is pointed up (position 2) and the outlet port at the bottom (position 4).**

### 2.2 Direction of rotation

When looking at the shaft, the rotation will be clockwise. An arrow situated on the lantern ring indicates the correct direction of rotation.

Verification of the correct rotation direction :

Turning the pump the wrong way is not dangerous for the pump.

### 2.3 Protection of the installation and the pump

- For ease of maintenance, it is a good idea to place isolation valves before and after the pump. The sizing of these valves must correspond to the diameter of the pipes.
- Before any start-up or complete stopping of the pump, make sure the valves are open.
- During stop periods, with the pump full of product, either the suction or discharge circuit must be left open to enable expansion or contraction of the pumped product through reheating or cooling. If this instruction is not complied with, the bellows may be damaged and lead to premature failure.
- The stop time may lead to cooling of the product in the pump and therefore to an increase in viscosity. If this is the case, we recommend re-starting the pump at a speed adapted to this new viscosity (starting pump). Once the product arrives in the pump at the installation definition temperature, the pump may run at the speed specified for this application.
- Protection against excess pressure :

The pump must be protected against excess pressure. It can be delivered with a pressure switch to carry out.

## 2. INSTALLATION (continued)



INCORRECT SETTINGS OF THE PRESSURE RELIEF VALVE CAN CAUSE PUMP COMPONENT FAILURE, PERSONAL INJURY, AND PROPERTY DAMAGE.



FAILURE TO INSTALL ADEQUATELY SIZED PRESSURE RELIEF VALVE(S) CAN CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



PUMPS OPERATING AGAINST A CLOSED VALVE CAN CAUSE SYSTEM FAILURE, PERSONAL INJURY AND PROPERTY DAMAGE.

- Protection against particles :

The pump and the installation must also be protected against any risk of damage through the passage of foreign bodies, by mounting a pre-filter at the pump suction.

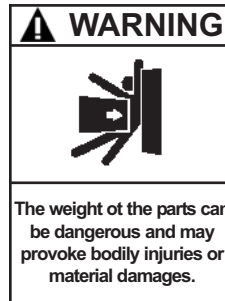
In the event of foreseeable clogging of the pre-filter, we recommend using a vacuum switch to inform the user of pre-filter clogging. Prolonged running under cavitation may damage the pump.

- Soft particle : Max. 0,8 mm

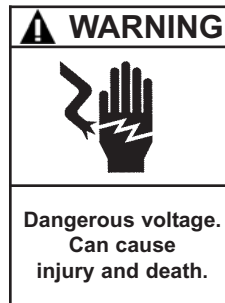
### 2.4 Unit Assembly

The following instructions apply to pumps delivered with a bare shaft or for MOUVEX motor-driven pump units (if the latter have no specific instruction notice).

#### 2.4.1 INSTALLATION OF UNITS



BE CAREFUL WITH THE WEIGHT OF THE PARTS WHEN THEY ARE BEING REMOVED.



DISCONNECT THE ELECTRICITY SUPPLY BEFORE ANY MAINTENANCE OPERATION.

The base below the unit is fundamental to ensuring correct operation and long service life.

The unit's base must be flat, level and sufficiently resistant to absorb the stresses caused by the motor-driven pump unit without deformation (if it is made of concrete, it must comply with the BAEL 91 standard).

If the unit is fastened using securing lugs or bolts, it must be carefully wedged to avoid deforming the frame while the bolts are tightened. A deformed frame would apply damaging stresses on the pump and the drive mechanism and misalign the coupling, causing vibrations, noise and premature wear. Ensure that the frame is well above the floor, except from the support plates.

If the unit is to be used in a food environment, support plates that allow the unit to be lifted for easier cleaning are recommended.

Allow, if possible, a clear space of approximately 50 cm on each side of the motor-driven pump unit (overall dimensions) to facilitate cleaning and give access if necessary to the pump, reduction gear and motor fastening nuts. In all cases, the dimensions around the motor-driven pump unit must be designed to give the space required for dismantling the pump (if the need arises, use the values given on the overall dimension drawing).

For staff and equipment protection, the frame includes a ground connection point that should be used.


## 2. INSTALLATION (continued)

### 2.4.2 ALIGNMENT OF THE MOTOR/PUMP OR REDUCTION GEAR/PUMP SHAFTS

<b>⚠ WARNING</b>

<b>Do not operate without guard in place.</b>

IF OPERATED WITHOUT THE SHAFT GUARD, THERE IS CONSIDERABLE RISK OF SEVERE PERSONAL INJURY, SIGNIFICANT PROPERTY DAMAGE OR EVEN DEATH

<b>⚠ WARNING</b>

<b>Dangerous voltage. Can cause injury and death.</b>

DISCONNECT THE ELECTRICITY SUPPLY BEFORE ANY MAINTENANCE OPERATION.

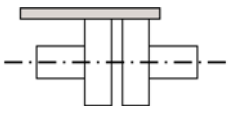
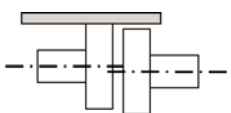
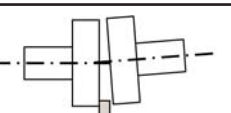
**NEVER START A UNIT IF THE COUPLING ALIGNMENT IS INCORRECT. THIS IS A CONDITION OF OUR GUARANTEE.**

#### REMINDER :

Coupling must never be used to compensate for a misalignment.

To control the alignment between the coupling and the shaft, use a straight-edge for concentricity and thickness gauges for angular misalignment (see instructions of the coupling for authorised values).

The 3 figures below show in detail the operation and the possible defects :

<i>Make this check for 4 points: up - down - left - right</i>	
	<i>Correct</i>
	<i>Out-of-parallelism</i>
	<i>Angular defect</i>


Controlling the alignment at each stage of the installation is important to be sure that none of these stages have generated stresses on the unit or the pump :

- after fastening on the foundations
- after fastening the pipes
- after the pump has been operated at the normal operating temperature

Where the pumps are supplied assembled as a unit, the motor and pump shafts have been perfectly aligned in the factory before delivery, but they must be systematically controlled on acceptance at the site and realigned if necessary.

To do this, do not modify the wedging of the various parts, but check the flatness of the support surface and use the adjustable foot to clear the frame of stresses that could affect it.

### 2.4.3 ELECTIC MOTORS

<b>⚠ WARNING</b>

<b>Dangerous voltage. Can cause injury and death.</b>

DISCONNECT THE ELECTRICITY SUPPLY BEFORE ANY MAINTENANCE OPERATION.

Check the compatibility of the instructions on the motor with the supply voltage.

Follow the wiring diagram, use wiring that is appropriate for the power and be particularly careful about the contacts which must be well tightened.

The motors should be protected with circuit breakers and suitable fuses. Connect the regulatory electrical grounding.

### 2.4.4 THERMIC MOTORS

<b>⚠ CAUTION</b>

<b>Excessive temperature- can cause injury or severe damage.</b>

THE SURFACES CAN BE AT A TEMPERATURE LIABLE TO CAUSE INJURY OR SEVERE DAMAGE.

Do not forget that these motors are not reversible. It is absolutely necessary to carefully control the suction and discharge sides of the pump before connecting the group to the piping.

Using electric motors is very common now ; however, we strongly advise careful reading of the accompanying instruction manual.

## 2. INSTALLATION (continued)

### 2.4.5 CONTROL OF THE SENSE OF ROTATION

**⚠ WARNING**



Any unforeseen start-up can cause serious injuries or important material damages.

TAKE ALL NECESSARY MEASURES TO RENDER ANY START-UP, EVEN ACCIDENTAL, OF THE PUMP DURING THE WORK IMPOSSIBLE.


**⚠ WARNING**



Hazardous pressure can cause personal injury or property damage.

IT IS IMPERATIVE THAT THE HYDRAULIC PRESSURE IS RELEASED BEFORE EACH MAINTENANCE OPERATION TO AVOID PERSONAL INJURY OR MATERIAL DAMAGE

**⚠ WARNING**



Do not operate without guard in place.

A DRIVE SHAFT GUARD BETWEEN THE PTO AND PUMP MUST BE PROVIDED TO PREVENT PERSONAL INJURY, PROPERTY DAMAGE, OR DEATH.

This control needs to be done with no liquid pumped through the pump, and both the suction and discharge circuits venting to avoid generating unexpected pressure (at the suction side, for example). This will ensure that the control will not damage either the pump or the installation.

Start the pump empty to check that the connections are good and that the direction of rotation corresponds to the suction and discharge direction on the installation. If it is necessary to reverse the direction of rotation, follow the instructions below :

Three-phase motor : switch any 2 current input wires.

Bi-phase motor : switch two same phase wires.

Single-phase motor : follow the instructions on the notice supplied with the motor.

## 3. USE

### 3.1 Noise level

The sound level of a pump is greatly influenced by its conditions of use. Cavitation and pumping products with high gas contents generally increases the sound level.

Under the following pumping conditions :

- excluding cavitation
- discharge pressure :

MICRO C 125	MICRO C 250	MICRO C 500	MICRO C 800
15 bar	10 bar	5 bar	3 bar

- speed of rotation 1000 rpm
- product viscosity of 1 cSt

The sound level reached for a MICRO C pump in good working condition without the drive is lower than 77 dB(A).

### 3.2 Commissioning

Make sure that the circuit valves are open before starting the pump.

To avoid any risk of polluting the pumped product, rinse the whole installation before starting-up so as to eliminate any contaminants that may remain in the piping, tanks etc. at the time of assembly.

**For any pure water pumping during process or cleaning operations, consult Mouvex imperatively.**

### 3.3 Dry running

The Micro C pump is self priming and is able to empty the pipes. To do this, it can run dry for a maximum duration of 5 minutes.

For ATEX, see Instructions 1050.

### 3.4 Stopping the pump

So as not to damage the pump, make sure that the pump is completely stopped before closing the valves.

### 3.5 Bellows monitoring

Failure of the bellows manifests itself as a liquid leakage at the vent (see overall dimensions drawing), when the suction is in positive pressure (>1 relative bar =14,5 psi). The vent must remain in the open air at atmospheric pressure (life time of the bellows will be reduced if the vent is closed).

### 3.6 Scrapping

The pump must be scrapped in compliance with the regulations in force.

During this operation, particular care must be paid to the drainage stages of the pump (pumped product) and of its transmission (grease).



## 4. CLEAN IN PLACE (CIP) & STERILISATION IN PLACE (SIP)

### 4.1 General

On-site cleaning (CIP) of an installation is undertaken by circulating various cleaning solutions through the equipment parts.

An automated CIP system enables :

- Preparation of the appropriate concentrations for the different cleaning solutions.
- Re-Heating of certain cleaning solutions at the optimum temperature.
- Circulation of the different solutions through the equipment parts to be cleaned.
- Cleaning and drying of the equipment parts.

For the most part, automated CIP systems are an integral part of process equipments.

Before starting CIP and if the process has not been followed by a water flush, care must be taken that a minimum of residual products remains in the piping and in the pump. The Micro C pumps, thanks to their excellent suction and compression capabilities, enable the quantities of residual products to be reduced. This minimises loss of products, eases cleaning and reduces cycle times.

The Micro C pumps are perfectly adapted to all processes using CIP. Micro C pump has been successfully tested for in place cleanability according to EHEDG document n°2. By complying with the installation rules described above, these pumps will give you complete satisfaction over a long period of time.

The start of CIP must immediately follow the end of the process to avoid any clogging or untimely drying.



**UNDER NO CIRCUMSTANCES, SHOULD MICRO C EXCENTRIC DISC PUMPS BE USED AS CIP PUMPS.**

Non-compliance with these instructions will lead to rapid deterioration of the cylinder/piston pair.

### 4.2 CIP circuit recommended

In all cases, the pressure at the pump inlet during cleaning **must not exceed 2 barg** (29 psig).

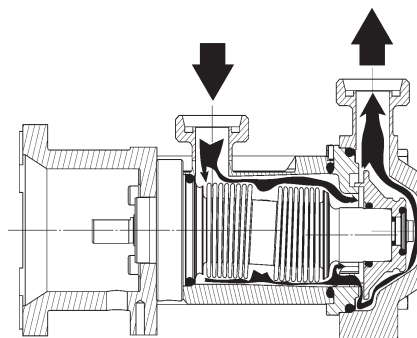
The flow through the pump required for optimal cleaning must be between **1,5 and 3 m<sup>3</sup>/h**.

This flow corresponds to difficult cleaning (sticky and viscous products). It can be reduced for easier types of cleaning.

### 4.3 Pumps arranged in series

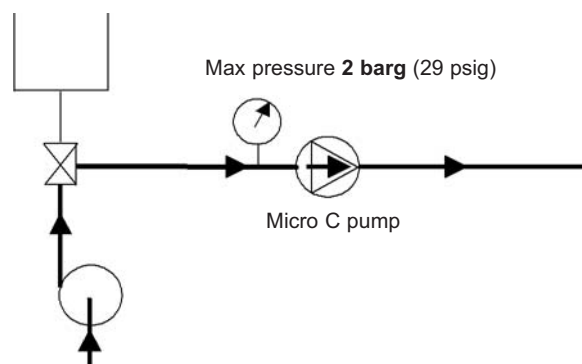
This type of assembly is preferred in all cases. It ensures optimal cleaning for the pump and makes use of the special design of the Micro C, i.e. the possibility of lifting the piston with the cleaning product.

As the pressure at the pump inlet is higher than that at its outlet, the piston lifts from the cylinder and permits the passage of all the cleaning liquid through the Micro C pump.



- A centrifuge pump is used for CIP cycles. This centrifugal pump is placed upstream of the Micro C pump.

The centrifuge pump must be installed in line with the Micro C pump.

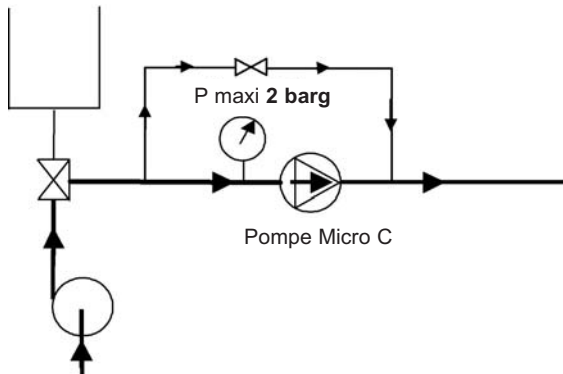


It is preferable not to run the Micro C pump during CIP although low speed (< 100 rpm) is acceptable by alternating start/stop operation.

- In certain cases, the flow of cleaning liquid required for the installation is higher than that recommended for cleaning the pump. In this case, a bypass must be used.

The bypass valve is adjusted to divide the flow between the circuit flowing through the Micro C pump and the bypass circuit.

## 4. CLEAN IN PLACE (CIP) & STERILISATION IN PLACE (SIP) (continued)

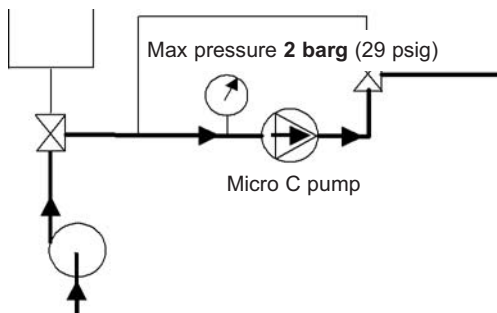


It is preferable not to run the Micro C pump during CIP although low speed (< 100 rpm) is acceptable by alternating start/stop operation.

- In certain cases, the cleaning pressure required for the installation is higher than 2 barg (29 psig). In this case, the use of a bypass is required and cleaning is done in 2 steps.

### Cleaning the pump :

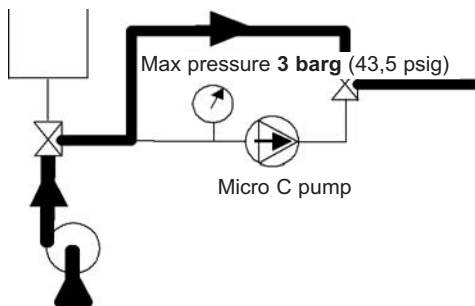
The cleaning flow should be limited during the cleaning of the C pump to ensure a maximum pressure of 2 barg (29 psig) at the C pump inlet.



It is preferable not to run the Micro C pump during CIP although low speed (< 100 rpm) is acceptable by alternating start/stop operation.

### Cleaning the installation :

During this operation, the valve system used must ensure that no flow passes through the pump. This is in order to ensure that the Micro C does not run. Under these conditions, with the pump completely stopped, the pressure of the washing circuit can rise up to 3 barg (43,5 psig).

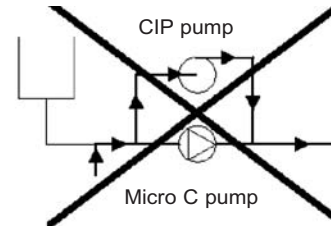


The pump must not run during this operation.

### 4.4 Pumps arranged in parallel

For applications where cleaning is easy and the differential pressure of the Micro C pump is lower than 2 bar (29 psi) during this operation, assembly in parallel is authorised. It should be noted that during cleaning, the Micro C pump will generally be acting on a product with few lubricating properties. This will contribute towards wear of the pump.

The CIP centrifuge pump must never be installed in parallel with a Micro C pump without taking special precautions.



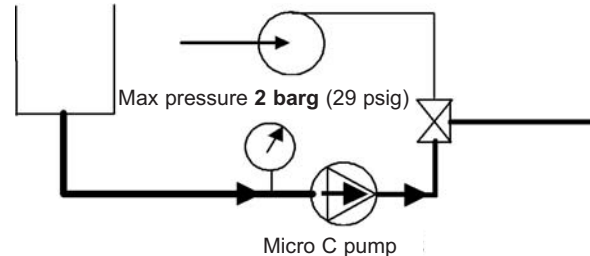
Indeed, in this case, the pressure at the inlet of the Micro C pump is lower than the pressure at the discharge and the piston remains forced against the cylinder. Therefore, the Micro C pump no longer provides a passage. Its efficient cleaning can no longer be ensured and the cylinder/piston pair will become prematurely worn.

### Authorised assembly :

As mentioned previously for applications where cleaning is easy, assembly in parallel is authorised when the valves are installed so that the cleaning pressure of the circuit does not come into contact with the Micro C pump.

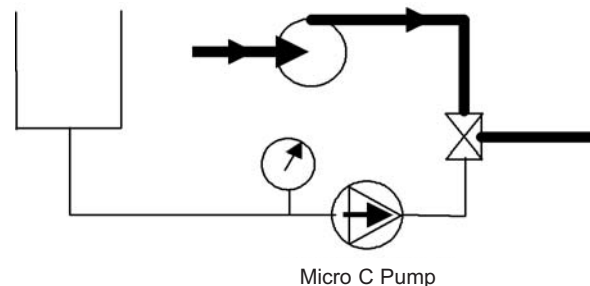
In this case, the Micro C pump cleans itself.

### Cleaning the pump :



We recommend limiting the rotation speed of the Micro C pump.

### Cleaning the installation :



The Micro C pump is stopped when cleaning the installation.

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## 4. CLEAN IN PLACE (CIP) & STERILISATION IN PLACE (SIP) (continued)

### 4.5 Successive cycles

Generally, the most efficient CIPs comprise 5 stages :

#### 1. Pre-washing with clean water

Water at room temperature. 10 to 15 minute cycle. This pre-wash enables evacuation of the remaining residues.

#### 2. Washing with an alkaline detergent

Typically this is soda at 2.5% at a temperature of 80°C. 20 to 30 minute cycle. This wash particularly enables dissolving and evacuating grease and proteins.

#### 3. Rinsing with clean water

Water at room temperature. 10 minute cycle. This rinse helps to avoid 2 cleaning solutions being mixed.

#### 4. Washing with an acid solution

Typically this is 2,5% nitric acid at room temperature. 10 to 15 minute cycle. This wash helps to dissolve and evacuate proteins and inorganic salts in particular.

#### 5. Rinsing with clean water

Water at room temperature. Several 1 to 2 minute cycles. These rinses enable all traces of acid solution to be evacuated.

During all these CIP stages, the average speed of the cleaning liquids in the pipes must be between 1,5 and 3 m/s (59 in/sec and 118 in/s).

### 4.6 Sterilisation In Place (SIP)

The Micro C pumps are perfectly adapted to all processes using SIP (Sterilisation In Place) : pump stopped / maximum 20 mn per cycle / 1 or 2 cycles per day.

## 5. MAINTENANCE

**⚠ WARNING**



Any unforeseen start-up can cause serious injuries or important material damages.

TAKE ALL NECESSARY MEASURES TO RENDER ANY START-UP, EVEN ACCIDENTAL, OF THE PUMP DURING THE WORK IMPOSSIBLE.

**⚠ CAUTION**



Hazardous pressure can cause personal injury or property damage.

FAILURE TO RELIEVE THE SYSTEM PRESSURE PRIOR TO PERFORMING ANY WORK ON THE PUMP OR THE INSTALLATION CAN CAUSE PERSONAL INJURY OR PROPERTY DAMAGE.

**⚠ WARNING**



The weight of the parts can be dangerous and may provoke bodily injuries or material damages.

BE CAREFUL WITH THE WEIGHT OF THE PARTS WHEN THEY ARE BEING REMOVED.


**⚠ WARNING**



Hazardous pressure can cause personal injury or property damage.

DISCONNECTING THE FLUID OR PRESSURE CONTAINMENT COMPONENTS DURING PUMP OPERATION CAN CAUSE SERIOUS PERSONAL INJURY, DEATH OR MAJOR PROPERTY DAMAGE.


**⚠ WARNING**



Hazardous or toxic fluids can cause serious injury.

IF PUMPING HAZARDOUS OR TOXIC FLUIDS, THE SYSTEM MUST BE FLUSHED PRIOR TO PERFORMING ANY SERVICE OPERATION.

**⚠ CAUTION**



Slippery lubricant. Spills should be cleaned up.

THE PUMP LUBRICANT IS VERY SLIPPERY AND MAY CAUSE SERIOUS INJURY. ANY SPILLS MUST BE CLEANED UP.

**Pump greased for life with Food synthetic grease**

### 5.1 Necessary tools

- 13 & 11 Open-end spanners
- 32 Open-end spanner or monkey spanner
- Wrench for 6 flats with 5" groove
- 2 screwdrivers

Makeup torques :

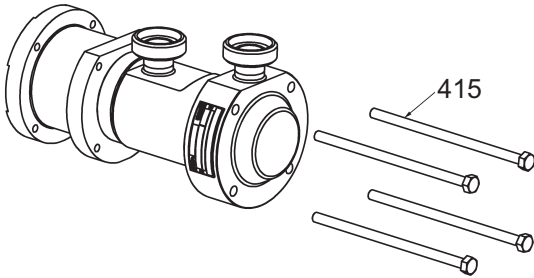
- M6 : 5 Nm
- M8 : 13 Nm
- M14 : 25 Nm

## 5. MAINTENANCE (continued)

### 5.2 Disassembly

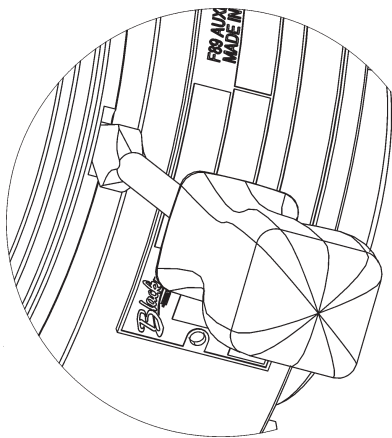
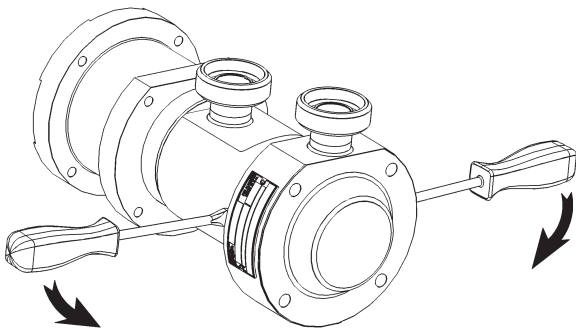
Before any dismantling, make sure that the pump has been drained and take the necessary measures to avoid starting-up. No start-up, even accidental, must be allowed.

- Disconnect the pump from the discharge pipe.
- Unscrew the 4 screws 415.

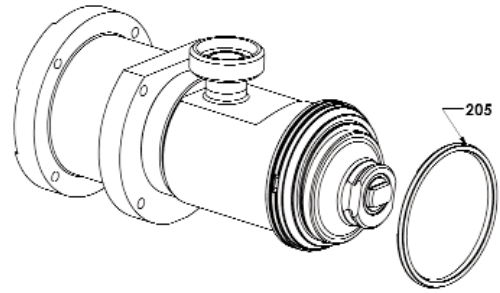


- Lay down the front cover 400 with the 2 screwdrivers.

It is important to keep a good grip on the cylinder as you take the front cover off. Its rotation could lead to deterioration of the bellows.

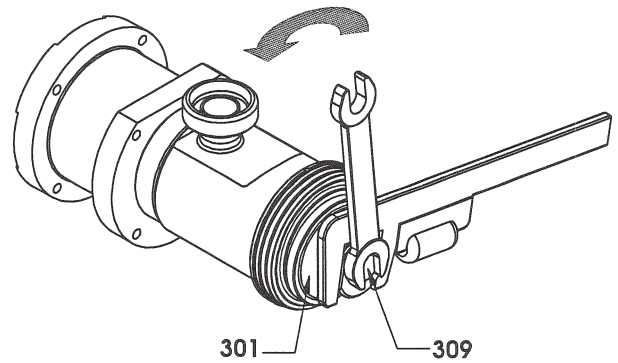


- Remove the seal 205.

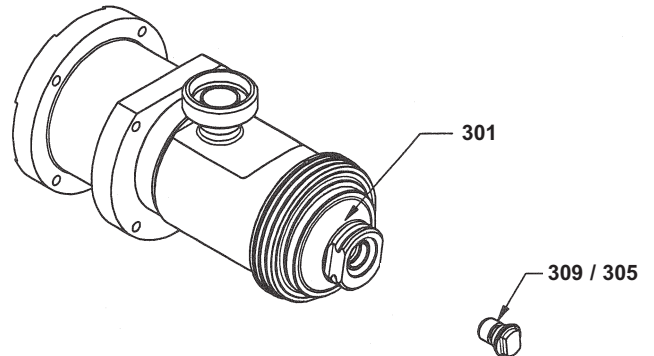


- Hold piston 301 in place with a 32 open-end spanner or monkey spanner and unscrew screw 309.

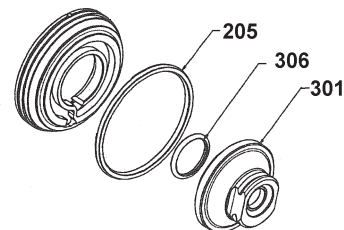
It is important to keep a good grip on the piston, its rotation could lead to deterioration of the bellows.



- Extract screw 305, seal 305 and the piston 301.

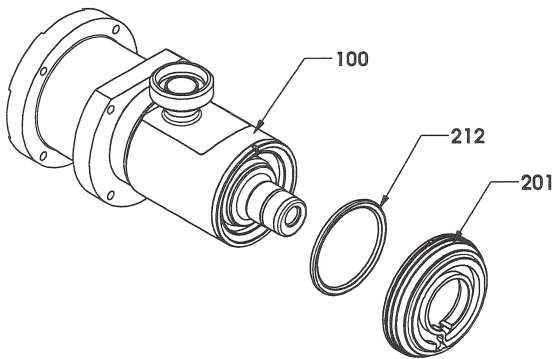


- Remove seal 306 from piston 301.

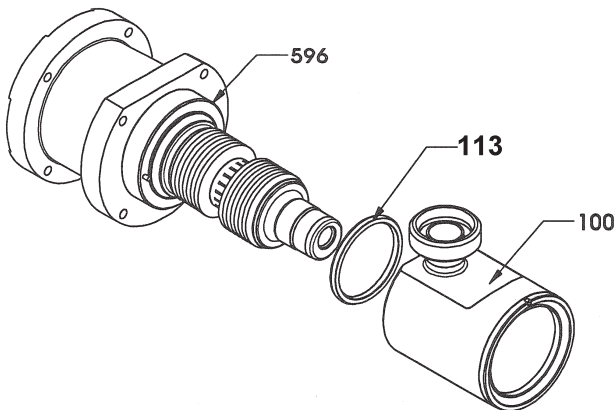


## 5. MAINTENANCE (continued)

- Remove cylinder **201** and seal **212**.



- Remove nozzle **100** and seal **113**.



### NOTICE

When disassembling the piston screw **309** if the enclosed thread surfaces have become soiled, we recommend cleaning them as follows : clean the inner thread by washing followed by rinsing with a bactericide solution, then remove any impurities from the external threads by washing with a brush followed by rinsing and sterilizing (i.e. with a steam sterilization) before reassembly.

### 5.4 Reassembly

- Check the state of seals **113**, **212** and replace them if necessary.

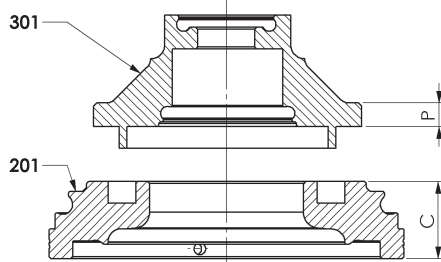
### NOTICE

Seals designed for use in normal conditions intended for use in food process. In order to ensure a reliable sealing on Micro C pumps we recommend to :

- do an inspection of the seals every three months (this time could be shorter if using the pump in hard conditions. Contact the manufacturer for advice if necessary).
- replace the pump sealing every two years (refer to the § PROTECTION OF THE BELLOWS for the replacement of the second seal).

### 5.3 Checking the parts

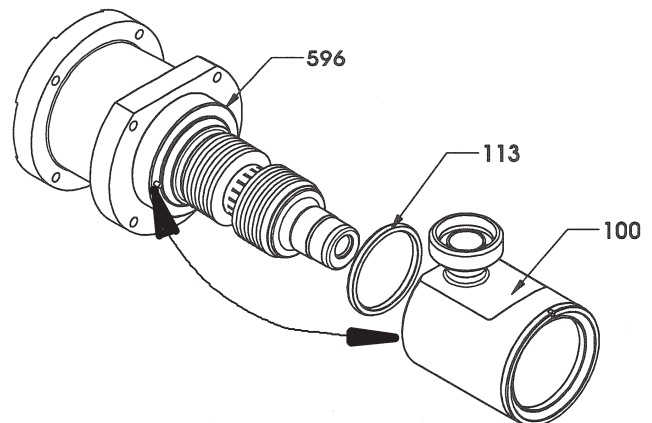
Piston **301** and cylinder **201** are active parts (wearing parts). These parts must be replaced if the thickness measurements are lower than the following values.



Minimum measurements (mm)					
		C125	C250	C500	C800
Piston <b>301 (P)</b>	New	6	6	6	4
	Min.	4,5	4,5	4,5	3
Cylinder <b>201 (C)</b>	New	19,5	19,5	19,5	23,5
	Mini	18	18	18	22

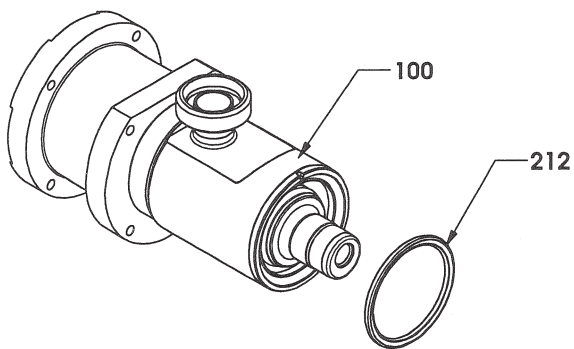
Minimum measurements (inches)					
		C125	C250	C500	C800
Piston <b>301 (P)</b>	New	0,236	0,236	0,236	0,157
	Min.	0,177	0,177	0,177	0,118
Cylinder <b>201 (C)</b>	New	0,118	0,118	0,118	0,925
	Mini	0,709	0,709	0,709	0,866

- Position seal **113** on the large flange.
- Position nozzle **100**, watching out for the indexing pin.

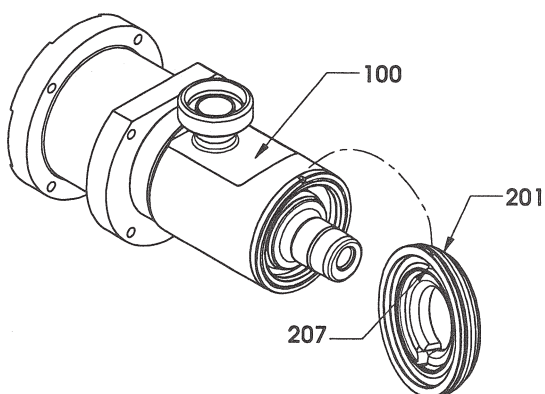


## 5. MAINTENANCE (continued)

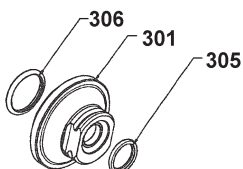
- Position seal **212** inside nozzle **100**.



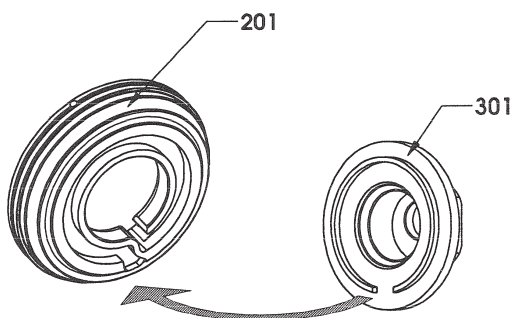
- Position cylinder **201** so that its pin **207** fits into the notch of nozzle **100**.



- Position seal **306** in piston **301** along with seal **305**.



- Engage piston **301** on hub **596**, with the slot on piston **301** facing the partition on cylinder **201**.

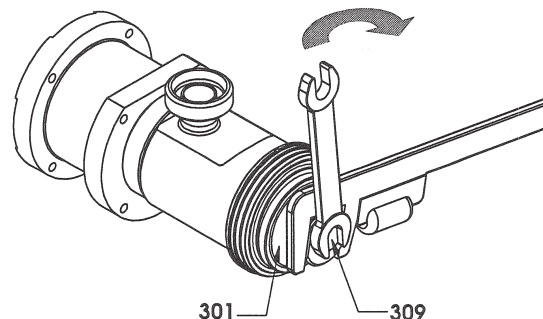
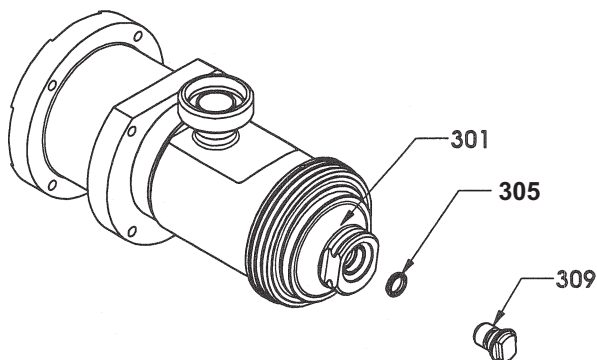


- Give a small sideways push to the piston in order to centre it and engage it in the cylinder, then push it tight to the end, making sure that the piston hole is engaged opposite the hole in transmission hub **596**.

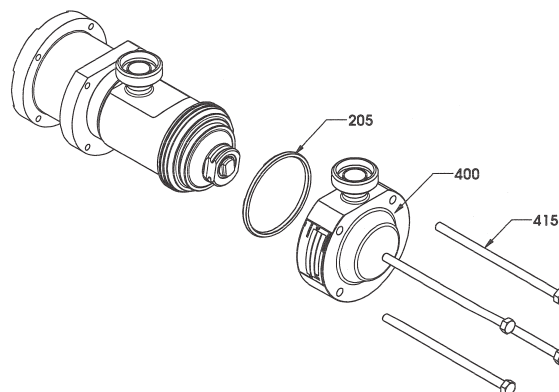
- Hold piston **301** in place with a 32 open-end spanner or a monkey spanner while tightening screw **309** and its seal **308**. In order to facilitate fitting screw **309**, lightly rotate the piston (clockwise and anti-clockwise) with the monkey spanner in order to position screw **309** correctly in relation to piston **301**.

- Before to tighten the screw **309** the piston **301** must be steered related to the cylinder **201**. For this, take up the angular play in the two directions (clockwise and anti clockwise) by rotating the piston and locate the piston in the middle stroke. Then the screw can be tight by safe-keeping the piston angular position.

**It is important to keep a good grip on the piston, its rotation could lead to deterioration of the bellows.**  
**When tightening screw 309, comply with the assembly torque of 25 Nm.**

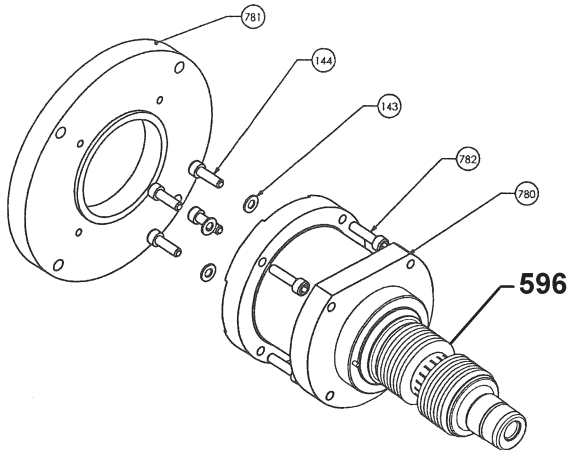


- Position seal **205** on the cylinder.
- Re-mount front cover **401** while positioning the outlet port as desired.
- Position screws **415** and tighten them (4 x M8 assembly torque 13 Nm).



## 5. MAINTENANCE (continued)

### 5.5 Trunk disassembly/reassembly



The trunk is dismantled by dismantling the front cover and nozzle as explained in the DISASSEMBLY paragraph.

- Next, unscrew the 4 screws **144** and the 4 washers **143** and uncouple trunk **780** from the transmission **596**.

#### CAUTION :

**BE CAREFUL NOT TO KNOCK OR SCRATCH THE BELLOWS.**

- In the case of the NEMA flange **781**, unscrew the 4 screws **782**, uncouple the NEMA flange **78** from trunk **780**.
- Reassembly is done in the reverse order. The screws **144** or **782** must be fitted using a medium screw lock.



## 6. CERTIFICATE OF CONFORMITY



# CERTIFICATE OF CONFORMITY

# CE

**Mouvex**, ZI La Plaine des Isles – Rue des Caillottes – 89 000 Auxerre France, declares the following equipment:

**Set-up :**     Pump / Compressor « bare-shaft »     Pumping Unit / Compressor Unit  
**Type :**     Eccentric Disc Pump     Vanes Pump     Lobes Pump  
               Peristaltic Pump     Centrifugal Pump     Other Pump  
               Screws compressor     Vanes compressors     Hydraulic cooler

Designation: \_\_\_\_\_ s/n°: \_\_\_\_\_

According to the specifications recorded in the file N°: \_\_\_\_\_

And with the following marking:  IIB G c IIB-T4    Max T° Flow = 80°C

Is in conformity with the provisions of the following Directive:

- « **MACHINES** » Directive 2006/42/EEC as transposed by the national legislation, concerning safety equipments and arrangements relative to mechanical and electric risks applicable to rotative machines.

NF EN 809:2009    NF EN 1672-2:2009    NF EN ISO 13857:2008    NF EN 12162:2009

- « **ATEX** » Directive 94/9/EC (23 march 1994) as transposed by the national legislation, concerning equipment intended to be used in explosive atmospheres. Conformity obtained by application of the standards :

NF EN 1127-1:1997    NF EN 13463-1:2009    NF EN 13463-5:2009

ATEX Certification delivered by INERIS, Notified Body (INERIS - Parc Technologique Alata – 60550 Verneuil-en-Halatte - France).

The equipment indicated above must be used according to the foreseen use by its design and its manufacturing, and according to the current standards.

We, undersigned, declare that the concerned equipment is in conformity with the Directives listed above and in the applicable standards in force.

For Mouvex SAS Company.

Date: \_\_\_\_\_

*Quality Manager*

**MOUVEX sas** : Z.I La Plaine des Isles – 2, rue des Caillottes - 89000 AUXERRE – France – SAS au capital de 8 496 855 €  
Tél : (33) 3.86.49.86.30 – Fax : (33) 3.86.46.42.10 – RCS AUXERRE 389 236 548 – APE 291 B – FR 85 389 236 548 – [www.mouvex.com](http://www.mouvex.com)