

INSTALLATION, SERVICE AND MAINTENANCE INSTRUCTIONS

## SIDE CHANNEL PUMP

# ASPIR



01.400.32.0005



# EC Declaration of Conformity



**INOXPA S.A.U.**

Telers, 60  
17820 - Banyoles (España)

hereby declare under our sole responsibility that the

Machine: **SIDE CHANNEL PUMP**

Model: **ASPIR**

Type: **ASPIR A-50, ASPIR A-80, ASPIR A-150, ASPIR A-200**

Serial number: **IXXXXXXXXXX to IXXXXXXXXXX**  
**XXXXXXXXXXIINXXX to XXXXXXXXXXXXIINXXX**

fulfills all the relevant provisions of the following directive:

**Machinery Directive 2006/42/EC**  
**Regulation (EC) n° 1935/2004**  
**Regulation (EC) n° 2023/2006**

and with the following harmonized standards and/or regulations:

**EN ISO 12100:2010**  
**EN 809:1998+A1:2009/AC:2010**  
**EN 12162:2001+A1:2009**  
**EN 60204-1:2018**

The technical file has been prepared by the signer of this document.

A handwritten signature in black ink, appearing to read 'Dr. Reyero'.

David Reyero Brunet  
Technical Office Manager  
15th November 2021



Document: 01.400.30.10EN  
Revision: (0) 2021/11

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fulfils all the relevant provisions of these regulations:

**Supply of Machinery (Safety) Regulations 2008**

and with the following designated standards:

**EN ISO 12100:2010**  
**EN 809:1998+A1:2009/AC:2010**  
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## 2. Generalities

### 2.1. INSTRUCTIONS MANUAL

This manual contains information regarding the reception, installation, operation, assembly, disassembly and maintenance of the ASPIR pumps.

Carefully read the instruction prior to starting the pump, familiarize yourself with the installation, operation and correct use of the pump and strictly follow the instructions. These instructions should be kept in a safe location near the installation area.

The information published in the instruction manual is based on updated data.

INOXPA reserves the right to modify this instruction manual without prior notice.

### 2.2. COMPLIANCE WITH THE INSTRUCTIONS

Not following the instructions may impose a risk for the operators, the environment and the machine, and may result in the loss of the right to claim damages.

This non-compliance may result in the following risks:

- failure of important machine/plant functions,
- failure of specific maintenance and repair procedures,
- possible electrical, mechanical and chemical hazards,
- risk to the environment due to the type of substances released.

### 2.3. WARRANTY

The conditions of the warranty are specified in the General Sales Conditions that have been delivered at the time of placing your order.



The machine may not undergo any modification without prior approval from the manufacturer.

For your safety, only use original spare parts and accessories.

The usage of other parts will relieve the manufacturer of any liability.

Changing the service conditions can only be carried out with prior written authorization from INOXPA.

The non-compliance of the prescribed indications in this manual means misuse of this gear on the technical side and the personal safety and this, exempt INOXPA of all responsibility in case of accidents and personal injuries and/or property damage. Also, excluded from the warranty all breakdowns caused by improper use of the gear.

Please do not hesitate to contact us in case of doubts or if further explanations are required regarding specific data (adjustments, assembly, disassembly, etc.)

# 3. Safety

## 3.1. WARNING SYMBOLS



Safety hazard for people in general and/or for equipment



Electric hazard

### ATTENTION

Important instruction for the protection of the equipment and its functions

## 3.2. GENERAL SAFETY INSTRUCTIONS



Read the instruction manual carefully before installing and starting the pump. Contact INOXPA in case of doubt.

### 3.2.1. During the installation



The [Technical Specifications of chapter 9](#) should always be observed.

Never start the pump before connecting it to the lines.

Do not operate the pump if the discharge casing is not fitted.

Check for proper specifications of the motors, especially if its working conditions create an explosions hazard.



During the installations, all the electric work should be carried out by authorized personnel.

### 3.2.2. During operation



The [Technical Specifications of chapter 9](#) should always be observed. Under no circumstances can the specified limit values be exceeded.

NEVER touch the pump or the pipework during operation if the pump is being used for transferring hot liquids or during cleaning.

The pump contains moving parts. Never place your fingers inside the pump during operation.

NEVER operate with the suction and discharge valves closed.

NEVER spray water directly on the electrical motor. The standard motor protection is IP-55: protection against dust and water spray.

### 3.2.3. During maintenance



The [Technical Specifications of chapter 9](#) shall always be observed.

NEVER disassemble the pump until the pipes have been emptied. Remember that liquid will remain inside the pump's pump casing (if does not have a purge). Bear in mind that the pumped liquid may be hazardous or extremely hot. Consult the regulations in effect in each country for these cases.

Do not leave loose parts on the floor.



ALWAYS disconnect the electrical power to the pumps prior to carrying out any maintenance.

Remove the fuses and disconnect the cable from the motor's terminals.

All electrical work must be carried out by authorized personnel

## 4. General Information

### 4.1. DESCRIPTION

The ASPIR pump has a compact construction, monoblock and vertical aspiration and impulse.

The ASPIR pump is made of a cold-formed stainless steel discharge casing, suction casing, diffuser and lantern built by stainless steel investment casting, star-shaped fixed impeller and an external mechanical seal that prevents any contact of the spring with the product.

The standard IEC motor of type IM B35 is protected by a stainless steel shroud and provided with height adjustable hygienic designed legs in stainless steel too.

### 4.2. OPERATING PRINCIPLE

The impeller is housed between the suction casing and the diffuser and it rotates in conjunction with the pump shaft. This arrangement, together with the rotation of the impeller and the arrangement of the side channel, creates a negative pressure inside the suction casing, which generates the suction force of the pump. At the same time, the fluid receives energy in the form of kinetic energy and pressure energy, and this impels it through the discharge casing.

### 4.3. APPLICATION

ASPIR pump is a sanitary side-channel self-priming pump suitable for use in the food-processing, pharmaceutical and chemical industries.

It is specially designed for pumping products containing air or gas, and it can also be used for negative suction with prior priming as well as in filtration equipment. It can be used to pump wine, oil, syrups, volatile products such as alcohol, acetone and other solvents or products at temperatures close to the boiling point.

However, the main use of this pump is for CIP return.

For each type of pump, the hydraulic performance is given by the choice of impeller diameters and speeds. The characteristic curves also show the power and NPSH requirements. The intended use of the pump is defined by its characteristic curve and operating limits provided in the [9. Technical Specifications](#).

#### ATTENTION



The range of application for each type of pump is limited. The pump was selected for a given set of pumping conditions when the order was placed. Misuse of the pump or its use beyond the operating limits may be dangerous or cause permanent damage to the equipment. INOXPA shall not be liable for any damage resulting from the incompleteness of the information provided by the purchaser (nature of the fluid, rpm, etc.).

# 5. Installation

## 5.1. RECEPTION OF THE PUMP



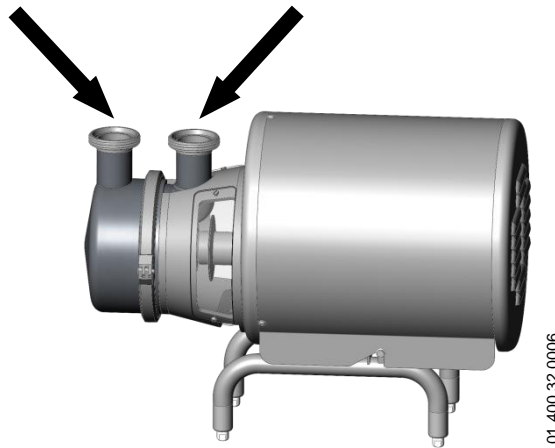
INOXPA cannot be held responsible for the damage sustained by the equipment during transport or unpacking. Please visually check that the packaging is not damaged.

The pump package includes the following documents:

- shipping documents,
- installation, service and maintenance instructions manual,
- instructions and service manual of the motor<sup>1</sup>.

Unpack the pump and check the following:

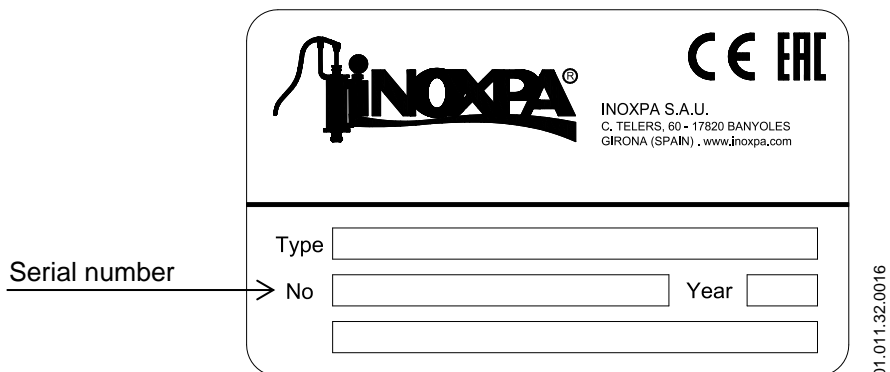
- The suction and discharge connections of the pump, removing any rest of packaging materials,



- The pump and the motor are not damaged,
- If the equipment is not in good condition and/or any part is missing, the carrier should report accordingly as soon as possible.

## 5.2. IDENTIFICATION OF THE PUMP

Each pump has a nameplate with the basic data required to identify the model.



<sup>1</sup> If the pump has been supplied with a motor from INOXPA



### 5.3. TRANSPORT AND STORAGE

#### ATTENTION



The ASPIR pumps are often too heavy to be stored manually.  
 Use an appropriate means of transport.  
 Use the points which are indicated in the drawing for lifting the pump.  
 Only authorized personnel should transport the pump.  
 Do not work or walk under the heavy loads.

Lift the pump as indicated below:

- Always use two support points placed as far apart as possible.



#### ATTENTION



Always remove the motor shroud before hoisting

- Secure the supports so that they will not move.

See chapter [9. Technical Specifications](#) to consult dimensions and weights.

#### ATTENTION



During the transport, disassembly or assembly of the pump, there is a risk of loss of stability and that the pump could fall down and cause damages to the operators. Make sure that the pump is properly supported.

### 5.4. LOCATION

Place the pump in position that allows enough space around it to provide access to the pump as well as to the motor. See chapter [9. Technical Specifications](#) to consult dimensions and weights.

Place the pump on a flat and level surface.

#### ATTENTION



Install the pump so as to allow proper ventilation.  
 If the pump is installed outdoors, it should be covered by a roof. Its location should allow easy access for inspection or maintenance operations.

### 5.4.1. Excessive temperatures

Depending on the fluid to be pumped, high temperatures can be reached inside and around the pump.



Over 68°C the operator should take protective measures and place warning notices advising of the danger which exists if the pump is touched.

The type of protection selected should not isolate the pump entirely. It should allow for the bearings to be cooled more efficiently and for the bearings to be lubricated.

## 5.5. PIPES

- As a general rule, install the suction and discharge lines in straight sections, with the minimum possible number of elbows and fittings in order to reduce any pressure losses that may be caused by friction.
- Make sure that the pump's ports are properly aligned with the pipework and have a diameter similar to that of the pump connections.
- Place the pump as close as possible to the suction tank and whenever possible below the liquid level, or even below the tank level in order to achieve the largest possible static head for suction.
- Install support brackets for the lines as close as possible to the pump's suction and discharge ports in order to avoid vibrations and stress on the pump.

### 5.5.1. Shut-off valves

The pump may be isolated for maintenance. To accomplish this, shut-off valves must be installed and connected to the pump's suction and discharge connections.

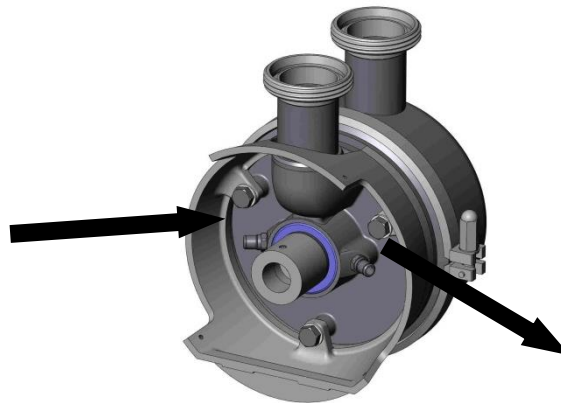


#### ATTENTION

These valves must ALWAYS be open during operation of the pump.

## 5.6. MECHANICAL SEAL WITH QUENCH

Models with mechanical seal with quench may require the inlet and outlet connection to the cooling liquid.



See the limits of water consumption and pressure from the cooling circuit in chapter [9. Technical Specifications](#).

## 5.7. ELECTRICAL INSTALLATION



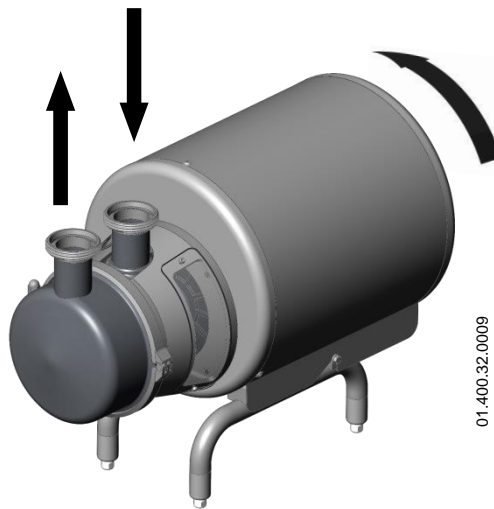
Only qualified personnel can connect the electric motors.  
Take the necessary measures to prevent damage to cables and connections.



Electrical equipment, terminals and components of the control systems may still carry current when they are disconnected. Contacting them may impose a hazard to operators or cause irreparable material damage.

Before handling the pump, make sure that the motor is stopped.

- Connect the motor in accordance with the instructions supplied by the motor manufacturer, in accordance with the current national legislation and in compliance with EN 60204-1.
- Check the direction of rotation (see the signalling label on the pump).
- Start and stop the pump motor momentarily. Make sure that the direction of rotation is correct. If the pump rotates in the wrong direction it could cause serious damage.



### ATTENTION



See indicator label on the pump.  
**ALWAYS** check the direction of rotation of the motor with liquid inside the pump.

## 6. Start-up



Before starting the pump, carefully read the instructions in chapter [5. Installation](#).

Carefully read chapter [9. Technical Specifications](#). INOXPA will not be liable for improper use of the equipment.



NEVER touch the pump or the lines if hot liquids are being pumped.

### 6.1. CHECKS BEFORE STARTING THE PUMP

- Completely open the shut-off valves on the suction and discharge lines.
- If liquid does not flow towards the pump, fill it with the liquid to be pumped.



#### ATTENTION

The pump must never turn dry.

- Check that the power supply matches the rating indicated on the motor plate.
- Check that the direction of rotation of motor is the right one.
- If the pump has the flow by-pass option, when it suction from a level below of the pump level, the by-pass will be closed why it will not suction.

### 6.2. CHECKS WHEN STARTING THE PUMP

- Check that the pump is not making any strange noises.
- Check if the absolute inlet pressure is sufficient to prevent cavitation in the pump. See the curve to determine the minimum pressure required above steam pressure (NPSHr).
- Control the discharge pressure.
- Check for leaks in the sealing areas.



#### ATTENTION

Shut-off valves on the suction pipe must not be used to regulate the flow. All shut-off valves must be fully open during operation.

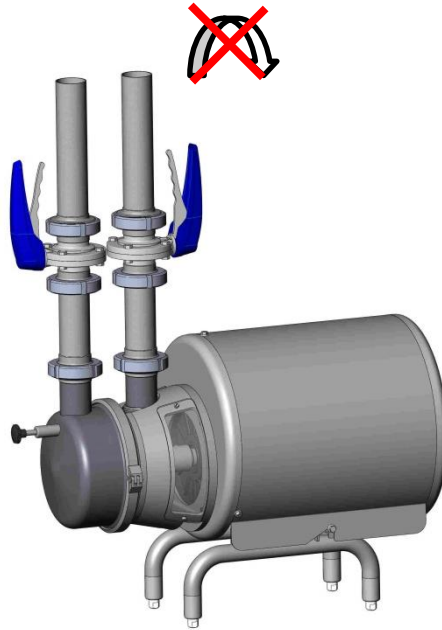


#### ATTENTION

Control the motor consumption to prevent an electrical overload.

Reduce the flow rate and the electrical power consumed by the motor:

- by regulating the pump's discharge flow,
- by decreasing the motor speed,
- the pumps with an internal by-pass flow, open it (see performance curve with open/closed by-pass).



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Use special protection when the sound pressure in the operation area exceeds 85 dB(A).



If the pump has not an incorporated a pressure by-pass you should mount a relief valve or any other device that limits the pressure to 11,7 bar.

# 7. Troubleshooting

The following table provides solutions to problems that might arise during the operation of the pump. The pump is assumed to have been properly installed and be suitable for the relevant application.

Please contact INOXPA if technical assistance is required.

Motor overload							
↓	The pump does not provide enough flow or pressure						
↓	↓	No pressure on the discharge side					
↓	↓	↓	Uneven discharge flow / pressure				
↓	↓	↓	↓	Noise and vibration			
↓	↓	↓	↓	The pump gets clogged			
↓	↓	↓	↓	Overheated pump			
↓	↓	↓	↓	Excessive wear			
↓	↓	↓	↓	The mechanical seal leaks			
↓	↓	↓	↓	<b>PROBABLE CAUSES</b>		<b>SOLUTIONS</b>	
•	•	•	•	Wrong direction of rotation		Reverse the direction of rotation	
•	•	•	•	NPSH is not high enough		Raise the suction tank Lower the pump Reduce the vapour pressure Widen the diameter of the suction pipe Shorten and simplify the suction line	
•	•	•	•	Pump not drained		Drain or fill	
•	•	•	•	Cavitation		Increase suction pressure	
•	•	•	•	Air is suctioned by the pump		Check the suction pipe and all its connections	
•	•	•	•	Clogged suction pipe		Check the suction pipe and all its filters, if any	
•	•	•	•	Discharge pressure too high		If necessary, reduce load losses, e.g. by increasing the pipe diameter	
•	•	•	•	Flow too high		Partially open the discharge valve. Decrease speed. Open the internal by-pass	
•	•	•	•	Fluid viscosity too high		Reduce the viscosity, e.g. by heating the fluid	
•	•	•	•	Fluid temperature too high		Reduce the temperature by cooling the fluid	
•	•	•	•	Mechanical seal damaged or worn out		Replace the seal	
•	•	•	•	O-rings unsuitable for the fluid		Fit suitable O-rings. Consult the manufacturer.	
•	•	•	•	The impeller scrapes		Lower the temperature Reduce the suction pressure Adjust the impeller / cover play	
•	•	•	•	Tension in the lines		Connect the pipes to the pump without tension	
•	•	•	•	Foreign matter in the liquid		Install a filter in the suction pipe	
•	•	•	•	Mechanical seal spring tension is too low		Adjust as indicated in this manual	

# 8. Maintenance

## 8.1. GENERAL CONSIDERATIONS

This pump, just like any other machine, requires maintenance. The instructions contained in this manual cover the identification and replacement of spare parts. The instructions are aimed at maintenance personnel and those responsible for the supply of spare parts.



Carefully read chapter [9. Technical Specifications](#).

Maintenance work can only be carried out by qualified personnel that are trained and equipped with the necessary resources to carrying out this work.

All parts or materials that are replaced must be properly disposed of/recycled in accordance with the current directives applicable in each area.



ALWAYS disconnect the pump before beginning any maintenance work.

## 8.2. CHECK THE MECHANICAL SEAL

Periodically check that there are no leaks around the shaft. If leakage is detected through the mechanical seal, replace it following the instructions in the chapter [8.7. Disassembly and assembly of the pump](#).

## 8.3. MAINTENANCE OF THE SEALS

SEALS REPLACEMENT	
Preventive maintenance	Replace after twelve (12) months. We also recommend replacing the gaskets during seal or pump shaft replacement.
Maintenance after a leak	Replace at the end of the process. If the impeller nut gasket fails, the threaded hole on the impeller and the threads on the end shaft have to be cleaned. Follow the instructions given in <a href="#">8.6. Cleaning</a> .
Scheduled maintenance	Regularly check that there are no leaks and that the pump is operating correctly. Keep a record of the pump. Use statistics to plan inspections.
Lubrication	During assembly, use soapy water when fitting the different gaskets to allow them to slide better.

The period between each preventive maintenance service will vary depending on the operating condition of the pump: temperatures, flow, number of operating hours, cleaning solutions used, etc.

## 8.4. TIGHTENING TORQUE

If not stated otherwise, the torques listed in the following table should be applied on the nuts and bolts of this pump.

Size	Nm	lbf-ft
M6	10	7
M8	21	16
M10	42	31
M12	74	55
M16	112	83

## 8.5. STORAGE

Before being stored the pump must be completely emptied of liquids. Avoid, as far as possible, the exposure of the parts to excessively damp atmospheres.

## 8.6. CLEANING



The use of aggressive cleaning products such as caustic soda and nitric acid may give rise to skin burns.

Use rubber gloves during cleaning procedures.

Always use protective goggles.

### 8.6.1. Automatic CIP (clean-in-place)

If the pump is installed in a system with a CIP process, it is not necessary to disassemble the pump.

If the automatic cleaning process is not provided, proceed to disassemble the pump as indicated in the chapter [8.7. Disassembly and assembly of the pump](#).

#### Cleaning solutions for CIP processes

Only use clear water (chlorine-free) to mix with the cleaning agents:

- a. Alkaline solution: 1 % by weight of caustic soda (NaOH) a 70°C (150°F)  
 1 kg NaOH + 100 l H<sub>2</sub>O = cleaning solution  
 or  
 2,2 l NaOH of 33% + 100 l H<sub>2</sub>O = cleaning solution
- b. Acid solution: 0,5% by weight of nitric acid (HNO<sub>3</sub>) a 70°C (150°F)  
 0,7 l HNO<sub>3</sub> of 53% + 100 l H<sub>2</sub>O = cleaning solution

#### ATTENTION



Check the concentration of the cleaning solutions. Incorrect concentrations may lead to the deterioration of the pump seals.

To remove any traces of cleaning products ALWAYS perform a final rinse with clean water at the end of the cleaning process.



## 8.7. DISASSEMBLY AND ASSEMBLY OF THE PUMP

The assembly and disassembly of the pumps should be done by qualified personnel. Make sure that the personnel read carefully this instruction manual and, in particular, those instructions which refer to the work they will perform.

### ATTENTION



Incorrect assembly or disassembly may cause damage in the pump's operation and lead to high repair costs and a long period of down time.

INOXPA is not responsible for accidents or damages cause by a failure to comply with the instructions in this manual.

### Preparation

Provide for a clean working environment so some parts, including the mechanical seal, require very careful handling and others have close tolerances.

Check that the parts which are used are not damaged during transport. When doing this, you need to inspect the adjustment edge, the butted faces, the tight fit, burrs, etc.

After each disassembly, carefully clean the parts and check for any damage. Replace all damaged parts.

### Tools

Use the proper tools for assembly and disassembly operations. Use them correctly.

### Cleaning

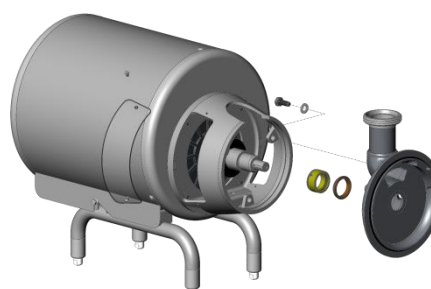
Before disassembling the pump, clean it outside and inside.



NEVER clean the pump by hand when it is running.

### 8.7.1. Disassembly of the pump and single mechanical seal

1. Remove the clamping ring (15) and disassemble the discharge casing (01A).
2. Check the condition of the O-ring (80) on the suction casing and replace if damaged
3. Ensure that the O-ring is placed is not twisted during the assembly.
4. Remove the diffuser (16). May be that when the discharge casing (01A) is extracted, the diffuser leaves together with it.
5. Loosen the countersunk screw (50) that fixes the impeller.
6. Remove the washer (35) and the impeller (02). If is necessary use an extractor at impeller threaded holes.
7. Remove the screws (50A) and remove the protector (47A).
8. Remove the screws (52B) and the suction casing (01).
9. Manually remove the stationary part of the seal (08) which is located in the suction casing (01).
10. The rotating part is located free on the shaft (05). Slide it by the shaft.
11. Check the sealing surfaces and O-rings from the mechanical seal (08) are not damaged.

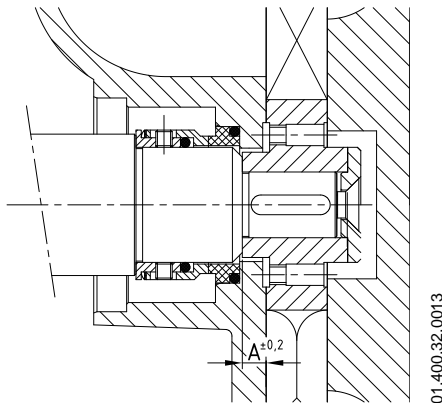


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### 8.7.2. Assembly of the pump and the single mechanical seal

1. Fit the stationary part of the seal (08) on the suction casing (01) manually.
2. Slide the rotating part of the mechanical seal (08) in the shaft.
3. Mount the suction casing (01), securing it by the screws (52B) and washers (53A).
4. Check the A dimension is according with the next table. If the dimension is not correct, loosen the studs (55) and place the shaft according A dimension.



Model	A ± 0,2 [mm]
A 50	3
A 80	6,67
A 150	3
A 200	5,9

5. Mount the impeller (02) in the pump shaft (05). If there is a key (61), depending the model, enter it previously.
6. Enter the impeller (02) and the washer (35) and fix all by the countersunk screw (50).
7. Mount the diffuser (16) with two O-rings (80A) located.
8. Finally, position the discharge cover (01A) fixing it with the clamping ring (15).
9. Rotate manually the pump shaft (05) to check that the impeller (02) turns soft and without rubbing with suction casing (01) or diffuser (16).

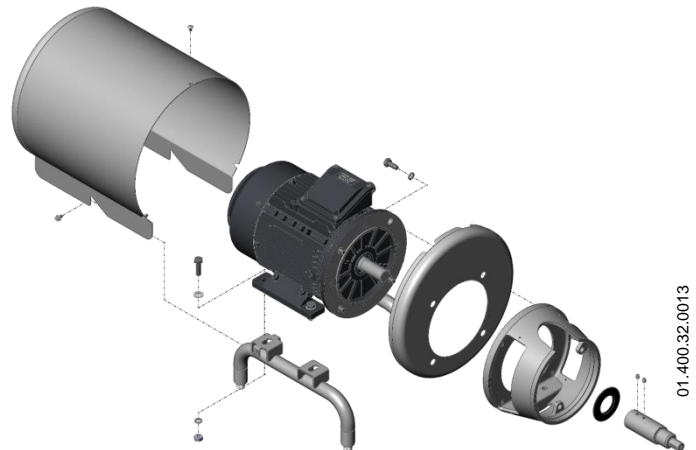
#### ATTENTION



When installing the new seal, use soapy water when fitting the different parts and gaskets to allow them to slide better. Apply to the stationary as well as the rotating parts.

### 8.7.3. Motor change

1. Firstly, proceed according the steps previously explained.
2. Remove the splash ring (82).
3. Loosen the allen studs (55) and remove the shaft (05).
4. If the pump contains a shroud, remove the screws (50B) that join both parts from the shroud (14) and the screws with fix it to legs (07). After that remove the shroud (14).
5. Remove the hexagonal screws (52) and washers (53) and then extract the lantern (04) and the frontal part of shroud.
6. Finally, remove the legs (07) taking out the screws (52), nut (54) and washers (53,53A)



### 8.7.4. Mechanical seal with quench

#### Disassembly

1. Proceed according the chapter [8.6.1. Disassembly of the pump and single mechanical seal.](#)
2. At the point 9, remove carefully the suction casing (01) that has located the lip seal (88).

#### Assembly

1. Fit the stationary part of the seal (08) on the suction casing (01) manually.
2. Assembly the lip seal (88) in the suction casing (01).

3. Slide the rotating part of the mechanical seal (08) in the shaft.
4. Check that chrome of the shaft surface (05) to contact with lip seal (88) is in good conditions. If not, replace the shaft with a new one. Fix the shaft according the table of chapter [8.6.1. Disassembly of the pump and single mechanical seal](#).
5. Assembly the suction cover (01) carefully to avoid damaging the lip seal with the rotating part of mechanical seal and then fix the screws (52B) and washers (53A).

**ATTENTION**

When installing the new seal and lip seal, use soapy water when fitting the different parts and seals to allow them to slide better.

# 9. Technical Specifications

Maximum operating pressure	1.000 kPa (10 bar)
Temperature range	-10°C to 120°C
Maximum speed	1.500 rpm (50 Hz) 1.800 rpm (60 Hz)
Noise level	61 to 80 dB

## Materials

Parts in contact with the product	1.4404 (AISI 316L)
Other stainless steel parts	1.4301 (AISI 304)
Seals in contact with the product	EPDM (standard) FPM (other materials available upon request)
Exterior surface finish	mat
Interior surface finish	brigh polished except the electropolished impeller

## Mechanical seal

Type of seal:	single inside seal
Material of stationary part	graphite (C) – standard silicon carbide (SiC)
Material of rotating part	silicon carbide (SiC) – standard
Seal material	EPDM – standard FPM
Water consumption (quench mechanical seal)	0,25 to 0,6 l/min
Pressure (quench mechanical seal)	from atmospheric to 100 kPa (1 bar)

## Motor

Type	three-phase asynchronous motor, IEC B35 type, 4 poles, IP55 protection, class F insulation
Power	0,75 to 15 kW
Voltage and frequency	220-240 V Δ / 380-420 V Y, ≤ 4 kW 380-420 V Δ / 660-690 V Y, ≥ 5,5 kW



Use special protection when the sound pressure in the operation area exceeds 85 dB(A)

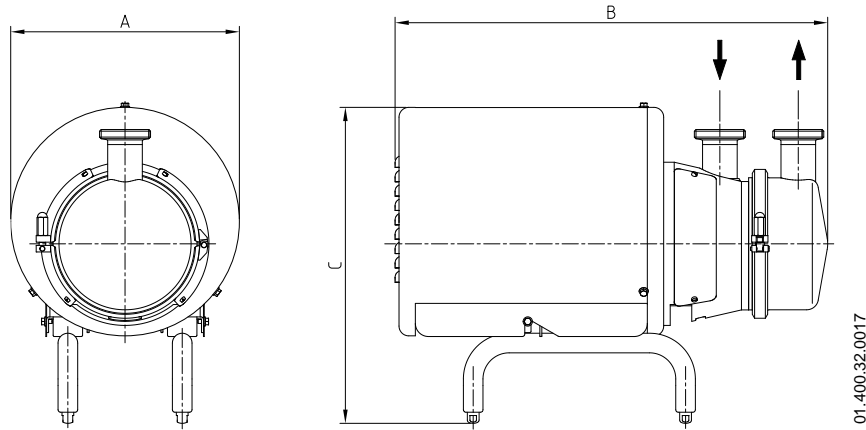
### 9.1. WEIGHT WITH WHROUD AND LEGS

		Weight (kg)						
IEC	80	100	112	132	160			
kW	0,75	2,2	3	4	5.5	7.5	11	15
A 50	28							
A 80		57	61	67				
A 150				66	86	97		
A 200							161	184

9.2. WEIGHT WITHOUT WHROUD AND WITHOUT LEGS

Weight (kg)								
IEC	80	100	112	132	160			
kW	0,75	2,2	3	4	5.5	7.5	11	15
A 50	22							
A 80	48	53	59					
A 150				58	75	85		
A 200					143	166		

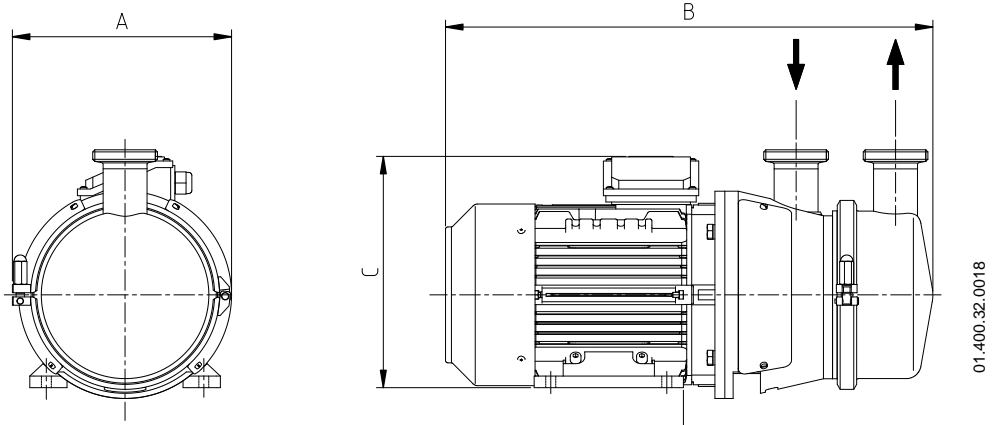
9.3. DIMENSIONS WITH WHROUD AND LEGS



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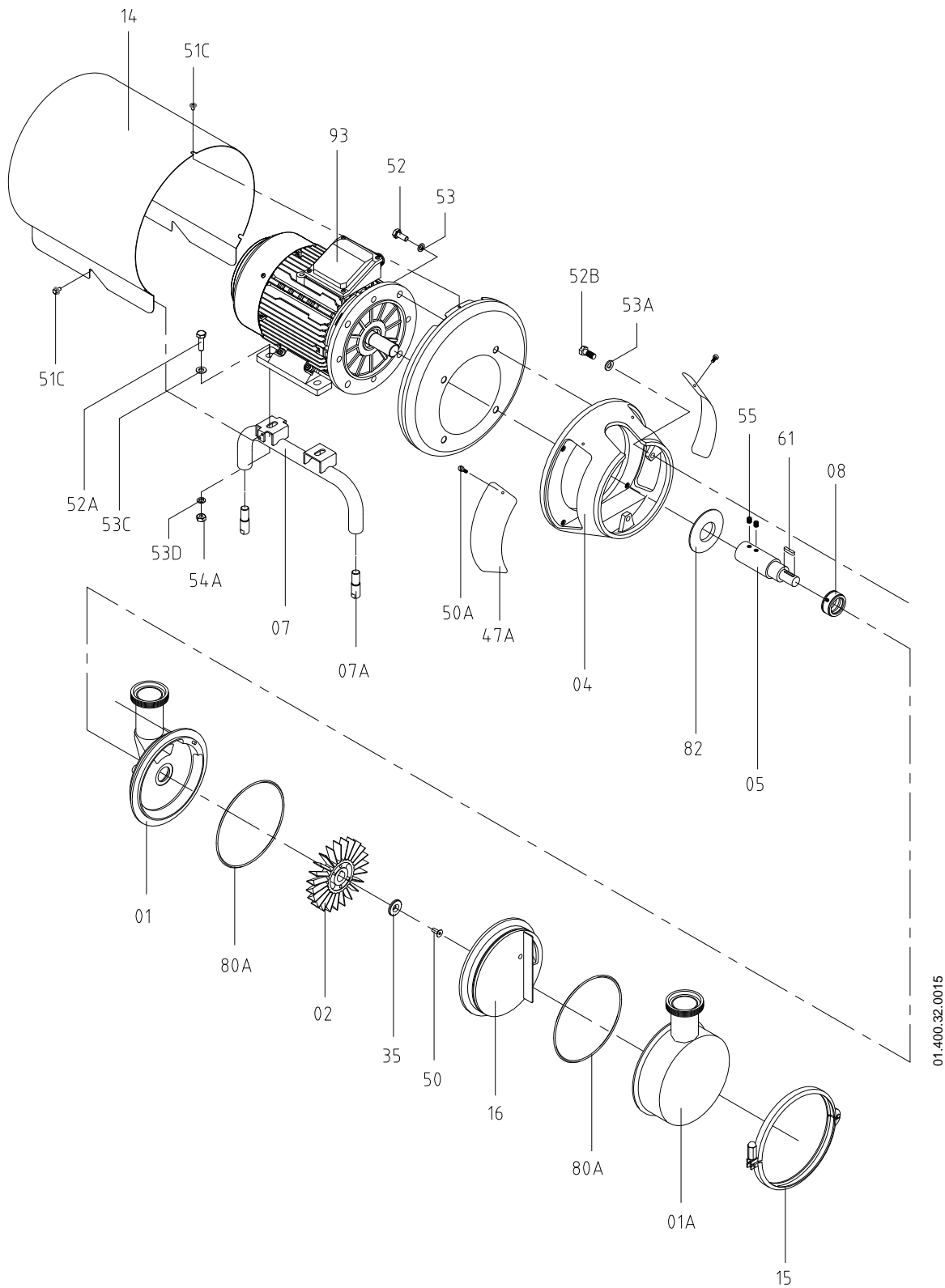
Pump type	Motor	Dimensions (mm)		
	IEC	A	B	C
A 50	80	290	529	395
A 80	100	350	662	475
	112	350	662	487
A 150	112	350	662	487
	132	400	812	526
A 200	160	500	1073	642

9.4. DIMENSIONS WITHOUT WHROUD AND WITHOUT LEGS



Pump type	Motor		Dimensions (mm)		
	IEC	kW	A	B	C
<b>A 50</b>	80	-	200	422	220
<b>A 80</b>	100	-	261	568	265
	112	-	261	590	291
<b>A 150</b>	112	4	265	590	291
	132	5,5	300	640	332
		7,5	300	678	332
<b>A 200</b>	160	11	350	842	402
		15	350	887	402

### 9.5. EXPLODED DRAWING OF ASPIR PUMP



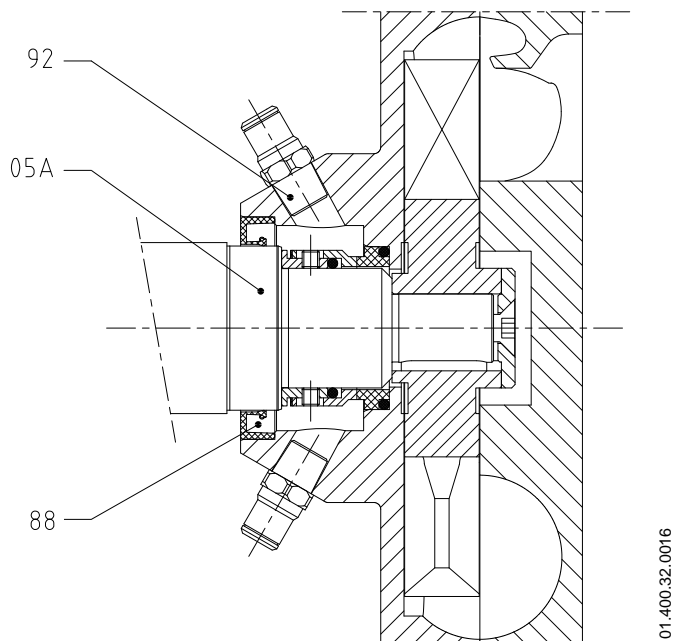
9.6. PARTS LIST OF ASPIR PUMP

Position	Description	Quantity	Material
01	Suction casing	1	CF3M
01A	Discharge casing	1	1.4404 (AISI 316L)
02	Impeller	1	CF3M
04	Lantern	1	CF8
05	Shaft	1	1.4404 (AISI 316L)
07	Motor leg	2	1.4301 (AISI 304)
07A	Adjustable leg	4	1.4301 (AISI 304)
08	Mechanical seal –rotating part–*	1	-
08A	Mechanical seal –stationary part–*	1	-
14	Shroud	1	1.4301 (AISI 304)
15	Clamp body	1	1.4301 (AISI 304)
16	Diffuser	1	CF3M
35	Fixation impeller washer	1	1.4404 (AISI 316L)
47A	Lantern protection	2	PETP
50	Countersunk screw	1	A4
50A	Protector screw	4	A2
51C	Screw with flange	5	A2
52	Hexagonal screw	4	A2
52A	Hexagonal screw	4	A2
52B	Hexagonal screw	3	A2
53	Grower washer*	4	A2
53A	Flat washer*	3	A2
53C	Flat washer*	4	A2
53D	Grower washer*	4	A2
54A	Hexagonal nut	4	A2
55	Stud	2	A2
61	Key	1	A4
80A	O-ring*	2	EPDM
82	Splash ring	1	EPDM
93	Motor	1	EPDM

\* Recommended spare parts



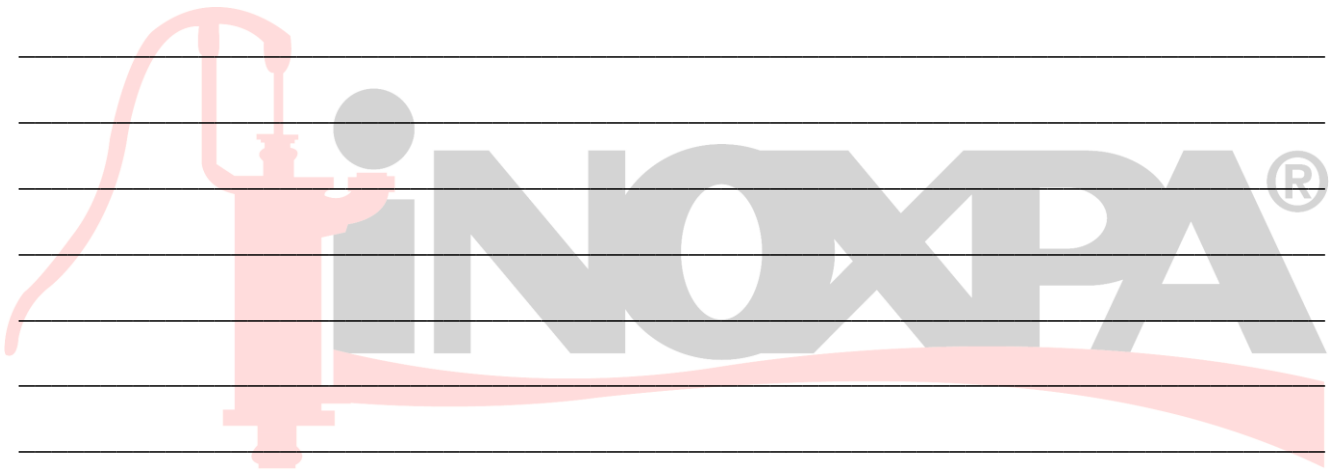
9.7. MECHANICAL SEAL WITH QUENCH



Position	Description	Quantity	Material
05A	Shaft for quench	1	1.4404 (AISI 316L)
88	Lip seal*	1	-
92	Quick connector for tube D. 8	2	1.4404 (AISI 316L)

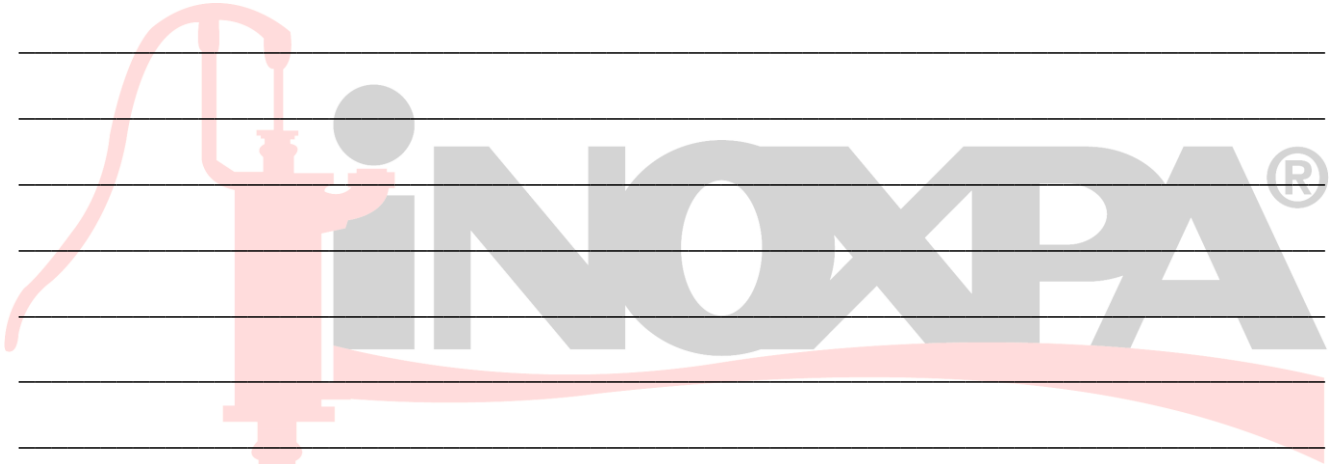
\* Recommended spare parts

NOTES



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NOTES



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