



# INSTALLATION, SERVICE AND MAINTENANCE INSTRUCTIONS

**ANNEX FOR CE ATEX REGISTERED EQUIPMENT UNDER DIRECTIVE  
2014/34/UE:**

## **SLR Ex**

The contents of this Annex complement the information included in the instruction manual. The instructions in this Annex must be observed whenever equipment registered under Directive 2014/34/EU is used.

This annex is to be added to the manuals of the ATEX-certified components that form part of the assembly (e.g. motors, etc).



### **INOXPA, S.A.U.**

Telers, 60 Aptdo. 174

17820-Banyoles

Tel.: +34 972 57 52 00

Fax: +34 972 57 55 02

[inoxpa@inoxpa.com](mailto:inoxpa@inoxpa.com)

[www.inoxpa.com](http://www.inoxpa.com)

Manual Original

01.500.30.04EN

(D) 2023/05

# EU Declaration of Conformity

We,

**INOXPA, S.A.U.**

Telers, 60  
17820 – Banyoles (Girona)

Hereby declare under our sole responsibility that the machine

## **LOBE PUMP**

Designation

**SLR**

From serial number **IXXXXXXXXXX** to **IXXXXXXXXXX** <sup>(1)</sup>

Is in compliance with applicable provisions of the following directive:

### **Directive ATEX 2014/34/EU**

Applicable harmonized standards:

**EN ISO 80079-36:2016**

**EN ISO 80079-37:2016**

**EN 1127-1:2019**

**EN 13237:2012**



**EN15198:2007**

**EN IEC 60079-0:2018**

This Declaration of Conformity covers equipment with the following ATEX marking:

 II 2G Ex h IIB T4...T3 Gb

 II 2D Ex h IIIB T130 °C...T154 °C Db

 II 2G Ex h IIB T4...T3 Gb  
 II 2D Ex h IIIB T130 °C...T154 °C Db

<sup>(1)</sup> Where X is a numeric character

The technical documentation referenced 021395/18 is on file with the notified body INERIS, Parc Technologique Alata BP 2 F-60550, Verneuil-en-Halatte, France. Reference num. 0080.

The person authorized to compile the technical documentation is the signer of this document.

Banyoles, 2023



David Reyro Brunet  
*Technical Office Manager*

<sup>(1)</sup> Where X is a numeric character

# 1. Safety

## 1.1. INSTRUCTIONS FOR STARTING UP

This Annex to the instruction manual, together with the manual, contains the basic indications to be fulfilled during installation, operation, and maintenance. Consequently, it is essential that before installation, the installer and technical personnel responsible for the plant read this Annex to the instruction manual and it must remain permanently available in the proximity of the corresponding pump or installation.

Not only should the safety instructions indicated in this chapter be observed and fulfilled, but also the special measures and recommendations included in the other chapters of this manual.

## 1.2. SAFETY

### 1.2.1. WARNING SIMBOLS

The safety instructions in this Annex are expressed using the symbols indicated below. Non-fulfilment of these instructions could endanger the staff, the machine, and the operation of the machine:



**This sign will identify all the safety instructions given in this Annex that relate to the danger of forming an explosive atmosphere and creating sources of combustion in potentially explosive atmospheres, whereby failure to comply with those instructions may threaten your safety**

## 1.3. GENERAL SAFETY INSTRUCTIONS

### 1.3.1. DURING INSTALLATION



**In order to reduce the risk of static electricity, the equipment must be earthed to ensure electrical continuity between the pipes and the pump.**

### 1.3.2. During operation



**The limits of the operating conditions in explosive atmospheres must not be exceeded.**



**This pump was selected according to the operating conditions specified by the user. Therefore, INOXPA disclaims liability for any damage caused by use of the pump in conditions other than those stated in the order.**

### 1.3.3. During maintenance



**Danger! Important indications regarding protection from explosions**



**An explosive atmosphere may be created during disassembly of the pump. Therefore, permits to work must be issued and these jobs must only be done by qualified or trained personnel.**



#### **1.3.4. Compliance with the instructions**

Any non-fulfilment of the instructions may result in a risk for the operators, the environment and the machine, and may result in the loss of your right to claim damages.

Non-fulfilment may cause the following risks (in addition to those indicated in the manual):

- Creation of explosive atmospheres and risk of explosion.

#### **1.3.5. Guarantee**

Any guarantee will be lawfully cancelled immediately; in addition, we will be compensated for any claims of civil liability presented by third parties, in the case that (further to the conditions already indicated in the manual):

- The equipment has been used improperly or has not been used in accordance with the working conditions in the classified area, work has been carried out in a different classified area, or different conditions of temperature or pressure and/or different substances have been used.

### **RESPONSIBILITY FOR THE ATEX CERTIFICATION**

In the event of INOXPA, S.A.U. supplying a free axle pump, the protection against explosion certification mark is only relative to the pump. All the equipment assembled must have a separate certification supplied by the equipment manufacturer and should have at least the same or one degree of protection more than the pump. The complete assembly must be certified separately by the equipment manufacturer and must have a plate that is different from the pump.

If INOXPA, S.A.U. supplies the entire group, the certification against explosion and the marking on the identification plate, fitted to the pump itself, will be for this particular group.



## 2. Table of Contents

|   |    |
|---|----|
| 1. SAFETY .....                               | 2  |
| 1.1. Instructions for starting up.....        | 2  |
| 1.2. Safety .....                             | 2  |
| 1.3. General safety instructions .....        | 2  |
| 2. TABLE OF CONTENTS .....                    | 4  |
| 3. GENERAL INFORMATION .....                  | 5  |
| 3.1. Description .....                        | 5  |
| 3.2. Application.....                         | 5  |
| 3.3. Safety valve.....                        | 5  |
| 4. INSTALLATION.....                          | 6  |
| 4.1. Receiving the pump.....                  | 6  |
| 4.2. Transport and storage .....              | 7  |
| 4.3. Location .....                           | 7  |
| 4.4. Pipes.....                               | 7  |
| 4.5. Electrical installation .....            | 8  |
| 4.6. Reducer converters .....                 | 9  |
| 4.7. Turning direction.....                   | 9  |
| 4.8. Cooled mechanical seal.....              | 9  |
| 5. STARTING UP .....                          | 10 |
| 6. MAINTENANCE.....                           | 11 |
| 6.1. General information.....                 | 11 |
| 6.2. Cleaning .....                           | 12 |
| 6.3. Spare parts.....                         | 12 |
| 6.4. Paintwork .....                          | 12 |
| 6.5. Lubrication .....                        | 12 |
| 6.6. Disassembly / assembly of the pump ..... | 12 |
| 6.7. Assembly / disassembly pump cover .....  | 13 |
| 7. TECHNICAL SPECIFICATIONS.....              | 14 |
| 7.1. Technical data .....                     | 15 |
| 7.2. Starting torque.....                     | 15 |

## 3. General information

### 3.1. DESCRIPTION

For the lobular pumps from the SLR Ex series, the motors must be appropriate for working in explosive atmospheres.

### 3.2. APPLICATION



This pump was selected for a given set of pumping conditions and operating conditions in explosive atmospheres when the order was placed. will not be responsible for any damage caused if the information provided by the buyer is incomplete or incorrect (type of liquid, viscosity, RPM, classification of the potentially explosive zone, gas generated by the potentially explosive atmosphere, etc.).

### 3.3. SAFETY VALVE



If the client wishes to fit the pumps with an outside safety or bypass this valve must be in compliance with Directive 2014/34/EU (ATEX) and the bypass must have electrical continuity (equipotentiality) with the rest of the equipment.

# 4. Installation

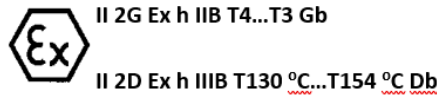
## 4.1. RECEIVING THE PUMP



The received pump must be checked to ensure that it is adapted to the working conditions of the classified area and the conditions of the order.

### 4.1.1. Pump identification

The shipment should be checked in accordance with the instructions included in the manual. Also, the CE ATEX mark inscribed on the manufacturer's plate should be checked in order to verify that it matches the requirements of the order.



CE ATEX mark inscribed on the manufacturer's plate.

If the equipment mark does not correspond to the order, INOXPA should be immediately informed of the situation.

The temperature class and the maximum surface temperature depend on the temperature of the product to be pumped and the ambient temperature.

Temperature class for explosive gas atmospheres

| Temperature class | Product temperature (cleaning or in process)    | Room temperature |
|-------------------|---|------------------|
| T3                | Will be T3 if SIP temperature $\leq 140$ °C     | -20 °C to +40 °C |
| T4                | Will be T4 if product temperature $\leq 120$ °C | -20 °C to +40 °C |

Maximum surface temperature for explosive dust atmospheres

| Maximum surface temperature | Product temperature (cleaning or in process)         | Room temperature |
|-----------------------------|--|------------------|
| T140 °C                     | Will be T140 °C if SIP temperature $\leq 140$ °C     | -20 °C to +40 °C |
| T125 °C                     | Will be T125 °C if product temperature $\leq 120$ °C | -20 °C to +40 °C |

### Notations

- The SIP cleaning process must be carried out with the pump stopped.



- For explosive dust atmospheres, take into account the temperature limitations indicated in Standard EN 60079-14:2014: the maximum temperature of the equipment surface must not exceed 2/3 of the minimum ignition temperature in °C of the dust-air mixture in question:  
 $T_{max} \leq 2/3 \text{ TCL}$   
where TCL is the minimum ignition temperature of the explosive dust atmosphere.
- For explosive dust atmospheres, take into account the dust layer thickness limitations indicated in Standard EN 60079-14:2014: when the equipment is not marked with a dust layer thickness as part of the T classification, it is You must apply a safety factor taking into account the thickness of the dust layer as:  
up to 5 mm thick:  
The maximum surface temperature of the equipment must not exceed a value of 75 °C below the minimum ignition temperature for the 5 mm thick layer of the dust in question:  
 $T_{max} \leq T5 \text{ mm} - 75 \text{ °C}$   
where T5 mm is the minimum ignition temperature of the 5 mm dust layer.

#### 4.2. TRANSPORT AND STORAGE

If the pump is not for immediate use, then it must be moved twice a week in order to prevent the impeller, mechanical seal, and bearings from seizing up.

#### 4.3. LOCATION

Place the pump near a drain on the floor. Note that the handling of inflammable fluids can create an area classified as Zone 0 in the drain area and therefore all the appropriate safety indications must be observed.

The motors used must be EC marked in accordance with Directive ATEX 2014/34/EU and with the instructions of the manufacturer and the applicable national and local regulations.



**When pumping inflammable or explosive liquids, a proper connection must be used. Connect the parts of the assembly with the earth connections in order to reduce the risk of static electricity.**

Depending on the fluid to be pumped, high temperatures may be reached inside and around the pump:



**Note that the surface temperature of the pump in normal operating conditions is determined by the fluid it pumps. Therefore the range of temperatures in section 4.1.1 must be taken into account.**

The pump must be assembled with its shaft in a horizontal position



**Air must be properly recirculated in order to cool the pump motor. Make sure there is no other equipment or surfaces near the motor that may radiate additional heat or affect the cooling of the motor. See the motor instructions manual.**

The bed-plate must always have a cam for connecting it to. Have the earth connection properly fitted to the bed-plate.

#### 4.4. PIPES



**Before starting up the pump, make sure that the suction and discharge valves of the pump are open.**



**Before closing the suction and discharge valves, make sure that the pump is switched-off and has stopped.**

When hot fluids are being pumped, pay attention to thermal dilation. In this case, use expansion washers and pay special attention to avoid leaving the equipment electrically insulated (electrical equipotentiality) from the rest of the assembly.

#### 4.4.1. Shut-off valves



**Use valves that are EC marked in accordance with the Directive ATEX 2014/34/EU and in accordance with the manufacturer's instructions and the applicable national and local regulations.**

#### 4.4.2. Filters



**These filters in the suction pipes must comply with Directive ATEX 2014/34/EU. A periodic inspection must be carried out to ensure there is no obstruction and that it does not cause the pump to operate in dry conditions.**

### 4.5. ELECTRICAL INSTALLATION

Before connecting and electric motor to the system, check local regulations regarding electric safety and standards EN 60204-1 and EN 60079-14. Also the motor manual. This motor should be ATEX with adequate protection for the working environment in which it must run.



**Follow the motor manufacturer's indications at all times.**



**Protection against motor overload, suitable for the motor's nominal power must also be installed.**

If necessary, install a separate fan, bearing in mind the environment where it will operate (potentially explosive atmosphere).

#### 4.5.1. Automatic circuit-breaker

It must be remember that these automatic circuit-breakers have to work in a potentially explosive atmosphere. Therefore, the circuit-breakers selected must bear the CE ATEX mark in accordance with Directive 2014/34/EU



**The operating equipment must comply with the applicable electrical safety regulations and the instructions of the ATEX motor manufacturer.**

#### 4.5.2. Connection

Before connecting the motor the mains, read the manufacturer's instructions manual. This motor must be an ATEX motor with a protection level corresponding to the working environment where it will operate.



**Protection against motor overload, suitable for the motor's nominal power, must also be installed.**



**The electrical equipment, terminals and components of the control systems may still contain electric current when switched off. Contact may place the operator or installation in danger or cause irreparable damage to the equipment. The supplier's instructions for the safe opening of the motor should be followed at all times.**



**Permits to work will be required to handle the equipment in potentially explosive atmospheres. It is strongly recommended that this type of work be carried out in non-classified atmospheres (i.e. there must not be an explosive atmosphere in the location of the pump when it is being handled).**

#### **4.6. REDUCER CONVERTERS**



**The converter or reducer must comply with the specifications given in Directive ATEX 2014/34/EU.**



**Consult at all times the converter or reducer supplier's manual for correctly assembling it.**

#### **4.7. TURNING DIRECTION**



**The turning direction must be set when the motor is disconnected from the pump.**

If there is a risk of explosion when the turning direction is being checked, do it with the pump completely primed.

#### **4.8. COOLED MECHANICAL SEAL**

- Check the level of supply reserve.
- Check the temperature of the washing liquid.
- Check the condition of the washing liquid by inspecting it: in the sealing system that must be repaired.

Frequent contamination is indicative of an unacceptable leak in the sealing system that must be repaired.

##### **4.8.1. Single mechanical seal option**

If the single mechanical seal is working in dry conditions, its maximum operating temperature may be exceeded. This is why a simple mechanical seal must not operate under any circumstances in dry conditions.

- Regularly check that the single mechanical seal is functioning correctly.
- Check that the hydraulic part of the pump is always filled of liquid during operation.
- Avoid pumping fluids that contain large amounts of gas

The end user must ensure that there is a constant flow to the pump by using a flow detector, flowmeter, or any other device in the pump intake, in order to prevent any increase in the surface temperature. Another option is to fit a temperature probe in the mechanical seal.

##### **4.8.2. Double mechanical seal option**

- Check the level of supply.
- Check the temperature of the washing liquid.
- Check the pressure.

**Caution: the washing liquid must always be under pressure when the pump is operating.**

- Check the condition of the washing liquid: Change the washing liquid if it has been contaminated by another liquid.

Contamination of the liquid means that the pump is not functioning properly and it must be inspected. For example, the sealing system may have leaks in the middle or be open due to insufficient backpressure of the washing liquid.

## 5. Starting up



Before starting up, those responsible must be duly informed about the pump and the safety instructions. This Annex, along with the instructions manual, will be available to staff at all times.



In order to carry out any type of work in potentially explosive atmospheres, it is necessary to adopt special safety measures such as permits to work.

### 5.1. STARTING UP



An explosive atmosphere may be formed during the start-up of the pump. Therefore, permits to work will be required and these tasks must only be carried out by qualified or trained personnel.

#### 5.1.1. Checks before starting up the pump



Before starting up the pump, make sure that the suction and discharge valves of the pump are open.

If there is a risk of operation in dry conditions, it is recommended that a flow-detection probe be installed in the pump intake, or any other device preventing the pump from operating in dry conditions.

In the case of the (non-cooled) single seal option, the pump and the area around the seal must be covered by the pump fluid before start up.



If the fluids that have to be drained are inflammable, the possible formation of potentially explosive atmospheres must be considered; permits to work should therefore be issued.

#### 5.2.2. INSTRUCTIONS FOR RE-USE AND LOCATION



If the fluids that have to be drained are inflammable, the possible formation of potentially explosive atmospheres must be considered, so safe work permits should be issued.

# 6. Maintenance

## 6.1. GENERAL INFORMATION



The maintenance work of any equipment intended for use in potentially explosive atmospheres can only be carried out with the appropriate permit to work, as specified by ATEX 2014/34/UE.



Maintenance jobs can only be done by qualified personnel. Use the proper clothing. Ensure that staff read the entire instructions manual and this Annex and, in particular, indicate those chapters that refer to the job to be done.

### 6.1.1. Check mechanical seals

Check areas 1 and 21 daily. Check areas 2 and 22 weekly.

For a double mechanical seal:

- A control of temperature, level and barrier liquid pressure are essential and it is advisable to install an automatic device that stops the pump when the temperature of the liquid exceeds the temperature class in the classified area or when the liquid level is not what it should be.



The instructions of the mechanical seal manufacturer, and in particular those concerning the temperature probe, must be followed at all times.

### 6.1.2. Environment

Try to ensure that the working environment is clean, for some parts are very fragile and others have a low tolerance level.



The possibility of the presence of an explosive atmosphere must also be considered. Therefore, these jobs can only be carried out after the appropriate work permit has been issued

### 6.1.3. Tools

Use tools that are technically suitable for maintenance and repair jobs. If the area is not unclassified, all the tools must be flameproof and safe-work permits must be issued the job is started.

### 6.1.4. Safety

Apart from the safety measures indicated in the manual given by the motor manufacturer for safely opening it must also be followed.

### 6.1.5. Conservation



The possible existence of formation of explosive atmospheres must be taken into account when emptying the pump, so safe work permits must be issued and any possible source of ignition in the area surrounding the equipment or the work place must be eliminated

## 6.2. CLEANING

The user is responsible for establishing a cleaning or disinfection plan that suits their needs. This plan should take into account all applicable laws, regulations and standards related to protection of public health and safety in the use and disposal of chemical products.

### 6.2.1. Outside cleaning



**Do not spray the hot parts of the pump with water, since some parts might crack and pump fluid could spill into the environment, thereby generating a potentially explosive atmosphere.**



**The outside of the equipment must be cleaned in order to avoid the excessive build-up of combustible or explosive dust on the outer Surface of the equipment. The accumulated dust must never exceed 2 mm**

## 6.3. SPARE PARTS

When ordering spare parts for a pump operating within a classified area, it must be expressly stated that the pump is an ATEX pump and quote the manufacture number.

Otherwise, Inoxpa cannot ensure that the pump operates with parts that are suitable for the classified.

## 6.4. PAINTWORK

If you notice any sign of rust on the painted surface of the bracket, this area must be repainted to prevent the risk of any faults. The material that the bracket is made of is an alloy containing less than 7,5% of light metals.

## 6.5. LUBRICATION



**Check the oil level of zones 2 and 22 every week and zone 1 and 21 every day. Make sure they are correct. If not, add oil up to the required level. The first oil change should be done after 150 hours of operation. Then the oil should be changed every 1500 hours of operation or at least once a year in service conditions.**



**Fill the oil holder up to the level in the centre of the vision panel. NO MORE AND NO LESS, for both and excess and a lack of oil can cause problems of a temperature increase. The next table shows the amount of oil to be put into each holder.**

| Types | Amount of oil in holder (l) |
|-------|-----------------------------|
| SLR 0 | 0,3                         |
| SLR 1 | 0,5                         |
| SLR 2 | 0,75                        |
| SLR 3 | 1,75                        |
| SLR 4 | 4,5                         |
| SLR 5 | 15                          |

## 6.6. DISASSEMBLY / ASSEMBLY OF THE PUMP



**Improper assembly or disassembly of the equipment can impair operation of the pump, cause high repair costs, long downtime and even render the protective system of the equipment ineffectual.**

INOXPA disclaims any liability for accidents or damage caused by failure to observe the instructions of the manual and of this Annex.

### 6.6.1. Preparations

As well as the instructions given in the manual, the possibility of the presence of an explosive atmosphere must also be considered. Therefore, these Jobs can only be carried out after the safe work permits have been issued.

### 6.6.2. Tools

Use tools that are technically suitable for maintenance and repair jobs. If the area is not unclassified, all the tools must be flameproof and safe-work permits must be issued.

### 6.6.3. Cleaning

Before proceeding to dismantle the pump, both the outside and the inside of the pump must be cleaned. The possibility of the presence or development of an explosive atmosphere must also be considered. Therefore, these jobs can only be carried out after the appropriate work permits have been issued.

### 6.6.4. Disconnection



**The possibility of the presence or development of an explosive atmosphere must be considered. Therefore, the appropriate work permits must be issued and any possible ignition source in the areas surrounding the equipment must be eliminated.**

### 6.6.5. Electrical safety

In addition to the safety instructions given in the manual, the indications given by the motor manufacturer must be followed at all times in order to open the motor safely or lock it in.

## 6.7. ASSEMBLY / DISASSEMBLY PUMP COVER



**CAUTION! Fluid might spill out when the pump casing is removed and a potentially explosive atmosphere might develop.**

# 7. Technical Specifications

Temperature range. See section 4.1.1.

## Materials

|                                     |   |
|-------------------------------------|---|
| Parts in contact with the product   | AISI 316L (1.4404)  |
| Other Steel parts                   | AISI 304L (1.4306)  |
| Gaskets in contact with the product | EPDM (standard)<br>FPM (other materials available upon request) |
| Surface finish                      | Ra ≤ 0,8 µm   |
| Interior surface finish             | Bright polished, except the electropolish impeller              |

## Mechanical seal

|                             |                                      |
|-----------------------------|--------------------------------------|
| Type                        | Internal single, balanced (standard) |
| Material of rotating part   | Silicon carbide (SiC) (standard)     |
| Material of stationary part | Graphite (C) (standard)              |
| Gasket material             | EPDM (standard)                      |

|                                      |                                     |
|--------------------------------------|-------------------------------------|
| Water consumption (quench mec. seal) | 0,25 to 0,6 l/min                   |
| Pressure (quench mech. seal)         | from atmospheric to 100 kPa (1 bar) |

If the single mechanical seal is working in dry conditions, its maximum operating temperature may be exceeded. This is why a simple mechanical seal must not operate under any circumstances in dry conditions.

- Regularly check that the single mechanical seal is functioning correctly.
- Check that the hydraulic part of the pump is always filled of liquid during operation.
- Avoid pumping fluids that contain large amounts of gas.



**The client must use a flow meter, flow detector or any other safety device, to ensure that there is a constant flow to the pump and prevent it from operating in dry conditions. Another option is to fit a temperature probe in the mechanical seal.**

**a. Double mechanical seal option, balanced.** Must be protected by controlling the washing liquid.

- Check the level of supply reserve.
- Check the temperature of the washing liquid
- Check the pressure



**iCaution! The washing liquid must always be under pressure when the pump is operating.**

- Check the condition of the washing liquid: change the washing liquid if it has been contaminated by another liquid. Contamination of the liquid means that the pump is not functioning properly and it must be inspected. For example, the sealing system may have leaks in the middle or be open due to insufficient backpressure of the washing liquid.

**b. Simple mechanical seal + thermosensor, balanced.** The instructions of the mechanical seal manufacturer, and in particular those concerning the temperature probe, must be followed at all times.



## 7.1. TECHNICAL DATA

The technical data to be considered for the SLR Ex pumps are those mentioned in the following table. Other data are found in the pump's Instruction Manual

| TYPE      | n máx.<br>(rpm) | Q <sup>th</sup><br>(m <sup>3</sup> /h) | V <sub>i</sub><br>(m/s) | V <sub>u</sub><br>(m/s) |
|-----------|-----------------|--|-------------------------|-------------------------|
| SLR 0-10  | 750             | 0,46                                   | 1,82                    | 1,88                    |
| SLR 0-20  | 750             | 0,95                                   | 1,34                    | 1,88                    |
| SLR 0-25  | 750             | 1,35                                   | 0,95                    | 1,88                    |
| SLR 1-20  | 750             | 1,73                                   | 2,45                    | 2,35                    |
| SLR 1-25  | 750             | 4,48                                   | 3,16                    | 2,72                    |
| SLR 1-40  | 750             | 6,27                                   | 1,80                    | 2,72                    |
| SLR 2-25  | 600             | 2,67                                   | 1,89                    | 2,33                    |
| SLR 2-40  | 600             | 8,42                                   | 2,42                    | 2,75                    |
| SLR 2-50  | 600             | 10,83                                  | 1,68                    | 2,75                    |
| SLR 3-40  | 500             | 7,02                                   | 2,02                    | 2,92                    |
| SLR 3-50  | 500             | 20,31                                  | 3,14                    | 3,44                    |
| SLR 3-80  | 500             | 28,58                                  | 1,94                    | 3,44                    |
| SLR 4-50  | 400             | 12,03                                  | 1,86                    | 3,01                    |
| SLR 4-100 | 400             | 52,13                                  | 1,94                    | 3,55                    |
| SLR 4-150 | 400             | 77,20                                  | 1,21                    | 3,55                    |
| SLR 5-125 | 300             | 99,85                                  | 2,26                    | 3,82                    |
| SLR 5-150 | 300             | 119,20                                 | 1,87                    | 3,82                    |

n<sub>máx</sub> ≡ maximum operating speed

Q<sub>th</sub> ≡ maximum flow at maximum speed

V<sub>u</sub> ≡ peripheral speed

V<sub>i</sub> ≡ maximum suction speed

## 7.2. STARTING TORQUE

Maximum starting torque permitted on the pump axe

| Bracket size | (Nm) |
|--------------|------|
| SLR 0        | 17,5 |
| SLR 1        | 26,5 |
| SLR 2        | 54   |
| SLR 3        | 200  |
| SLR 4        | 600  |
| SLR 5        | 1150 |

**INOXPA, S.A.**  
BANYOLES  
Tel. +34 972 575 200  
[inoxpa@inoxpa.com](mailto:inoxpa@inoxpa.com)

**DELEGACIÓN NORDESTE**  
BARCELONA  
Tel. +34 937 297 280  
[inoxpa.nordeste@inoxpa.com](mailto:inoxpa.nordeste@inoxpa.com)

**DELEGACIÓN CENTRO**  
MADRID  
Tel. +34 918 716 084  
[inoxpa.centro@inoxpa.com](mailto:inoxpa.centro@inoxpa.com)

**DELEGACIÓN LEVANTE**  
VALENCIA  
Tel. +34 963 170 101  
[inoxpa.levante@inoxpa.com](mailto:inoxpa.levante@inoxpa.com)

**DELEGACIÓN SUR**  
CADIZ  
Tel. +34 956 140 193  
[inoxpa.sur@inoxpa.com](mailto:inoxpa.sur@inoxpa.com)

**SUMINISTROS TECNICOS  
ALIMENTARIOS, S.L.**  
VIZCAYA  
Tel. +34 944 572 058  
[sta@inoxpa.com](mailto:sta@inoxpa.com)

**DELEGACIÓN VALLADOLID**  
Tel. +34 983 403 197  
[sta.valladolid@inoxpa.com](mailto:sta.valladolid@inoxpa.com)

**DELEGACIÓN GALICIA,  
ASTURIAS y LEÓN**  
Tel. +34 638 334 359  
[sta@inoxpa.com](mailto:sta@inoxpa.com)

**INOXPA SOLUTIONS  
FRANCE SAS**  
LYON  
Tel. +33 474627100  
[inoxpa.fr@inoxpa.com](mailto:inoxpa.fr@inoxpa.com)

PARIS  
Tel. +33 130289100  
[isf@inoxpa.com](mailto:isf@inoxpa.com)

**S.T.A. PORTUGUESA LDA**  
ALGERIZ  
Tel. +351 256472722  
[comercial.pt@inoxpa.com](mailto:comercial.pt@inoxpa.com)

**IMPROVED SOLUTIONS  
PORTUGAL LDA**  
VALE DE CAMBRA  
Tel. +351 256 472 138  
[isp.pt@inoxpa.com](mailto:isp.pt@inoxpa.com)

**INOXPA SKANDINAVIEN A/S**  
DENMARK  
Tel. +45 76286900  
[inoxpa.dk@inoxpa.com](mailto:inoxpa.dk@inoxpa.com)

SWEDEN  
Tel. 031-336 05 60  
[inoxpa.se@inoxpa.com](mailto:inoxpa.se@inoxpa.com)

**INOXPA ITALIA, S.R.L.**  
VENEZIA  
Tel. +39 041 - 411236  
[inoxpa.it@inoxpa.com](mailto:inoxpa.it@inoxpa.com)

**INOXPA UK LTD**  
KENT  
Tel. 01737 378060  
[inoxpa-uk@inoxpa.com](mailto:inoxpa-uk@inoxpa.com)

**INOXPA Solutions Moldova**  
CHISINAU  
Tel. +373 (69)102 624  
[info@gmp-moldova.com](mailto:info@gmp-moldova.com)

**INOXRUS**  
САНКТ-ПЕТЕРБУРГ  
Тел. +7 812 622 16 26  
[spb@inoxpa.com](mailto:spb@inoxpa.com)

МОСКВА  
Тел. +7 495 120 26 17  
[moscow@inoxpa.com](mailto:moscow@inoxpa.com)

**STARINOX**  
МОСКВА  
Тел. + 7 495 215 02 42  
[info@starinox.ru](mailto:info@starinox.ru)

**INOXPA UKRAINE**  
КИЕВ  
Тел. +38 044 536 09 57  
[kiev@inoxpa.com](mailto:kiev@inoxpa.com)

**INOXPA COLOMBIA SAS**  
BOGOTÁ  
Pbx 57-1-7427577  
[inoxpa.colombia@inoxpa.com](mailto:inoxpa.colombia@inoxpa.com)

**INOXPA USA, INC**  
CALIFORNIA  
Tel. +1 707 585 3900  
[inoxpa.us@inoxpa.com](mailto:inoxpa.us@inoxpa.com)

**INOXPA AUSTRALIA PTY, LTD**  
MORNINGTON  
Tel. +61 (3) 5976 8881  
[inoxpa.au@inoxpa.com](mailto:inoxpa.au@inoxpa.com)

**INOXPA SOUTH AFRICA  
GAUTENG**  
Tel. +27 (0)11 794-5223  
[sales@inoxpa.com](mailto:sales@inoxpa.com)

**INOXPA ALGERIE S.A.R.L.**  
ALGER  
Tel. +213 (0) 23 833 320  
[inoxpalgerie@inoxpa.com](mailto:inoxpalgerie@inoxpa.com)

**INOXPA EGYPT**  
CAIRO  
Tel: +2 0111 489 8989  
[inoxpa.eg@inoxpa.com](mailto:inoxpa.eg@inoxpa.com)

**INOXPA SPECIAL PROCESSING  
EQUIPMENT (JIAXING), CO., LTD.**  
JIAXING, CHINA  
Tel.: 00 86 573 83570035  
[inoxpa.cn@inoxpa.com](mailto:inoxpa.cn@inoxpa.com)

**INOXPA INDIA PRIVATE LIMITED**  
MAHARASHTRA  
Tel. +91 020-64705492  
[inoxpa.in@inoxpa.com](mailto:inoxpa.in@inoxpa.com)

**INOXPA MIDDLE EAST**  
DUBAI, UAE  
Tel. +971 4 333 5388  
[sales.ae@inoxpa.com](mailto:sales.ae@inoxpa.com)

In addition to our branches, INOXPA has a network of independent distributors in over 50 countries worldwide. For further information, visit our website [www.inoxpa.com/](http://www.inoxpa.com/)