

# **AIR MOTOR MODEL 5000**

**Equipment Reference**

**146 320 000**

**User Manual 582146110**

2020-10-27

Index A

Translation of the original instructions

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## **SAMES KREMLIN SAS**



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**Evolution table of the document**

Recording revisions				
Editor	Object	Revision	Date	Modified by
SEGUIN	Air motor model 5000	A -	Week 13/2020	

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Dear customer, you have just purchased your new equipment and we thank you for it.

We have taken the utmost care, from design to manufacture, so that this equipment gives you complete satisfaction.

For a good use and an optimal availability, we invite you to read this manual carefully before using your equipment.

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## **Guarantee**

We reserve the right to make any changes or improvements even after receipt of an order without being able to attribute a non-compliance to the descriptions contained in the instruction manuals and selection guides.

Our equipment is checked and tested in our workshops before shipment.

To be valid, any complaint concerning a material will have to be formulated to us in writing within 10 days of the delivery.

SAMES KREMLIN equipment, equipped with its original identification plates, has a one-year warranty or 1800H of operation (first term reached) from the date of ex-factory against any defect of material or defect of it is up to us to see and appreciate.

The warranty excludes wear parts, deterioration or wear resulting from abnormal or unscheduled use by SAMES KREMLIN, failure to observe instructions for proper operation or lack of maintenance.

The warranty is limited to the repair or exchange of parts returned to our factory and recognized as defective by us and does not cover the listed wear parts or not.

Any costs resulting from an operating outage can not be charged to us. The costs of return to our workshops are the responsibility of the customer.

An intervention can be carried out on site at the customer's request.

In this case, the transportation and accommodation costs of the technician (s) will remain the responsibility of the applicant.

Any changes made to our equipment without our consent will void the warranty.

Our guarantee is limited to that of the suppliers of materials which enter in the composition of our sets.

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## 1 Declaration of Conformity

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Refer to the existing declaration delivered with the product.

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## 2 Safety instructions

### 2.1 Personal safety

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#### Overview



Read all operating instructions and device labels carefully before putting the equipment into service.

Personnel using this equipment must have been trained in its use.

The workshop manager must ensure that the operators have fully understood all the instructions and safety rules of this equipment and other elements and accessories of the installation.

Misuse or operation can cause serious injury. This material is for professional use only. It must be used only for the purpose for which it was intended.

Do not modify or transform the material. Parts and accessories must only be supplied or approved by SAMES KREMLIN.

The equipment must be checked periodically. Defective or worn parts must be replaced.

Never exceed the maximum working pressures of the equipment components.

Always respect the laws in force regarding security, fire, electricity of the destination country of the equipment.

Only use products or solvents that are compatible with the parts in contact with the product (see product manufacturer's technical data sheet).

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**Meaning of the pictograms**

 <p>Danger pinching, crushin</p>	 <p>Danger moving parts</p>	 <p>Danger : high pressure</p>	 <p>Risks of product emanation</p>
 <p>Danger : hot parts or surfaces</p>	 <p>Danger : flammability risks</p>	 <p>Danger : electricity</p>	 <p>Risk of explosion</p>
 <p>Danger (user)</p>	 <p>Warning Danger</p>	 <p>Gloves required</p>	 <p>Grounding</p>
 <p>Protective helmet</p>	 <p>Hearing protection</p>	 <p>Mandatory respiratory protection</p>	 <p>Safety shoe</p>
 <p>Protective clothing</p>	 <p>Protective visor</p>	 <p>Safety glasses is mandatory</p>	 <p>Refer to the manual/instruction leaflet</p>

## Security devices



### Attention

- ✓ Guards (motor cover, coupling guard, housings, ...) are set up for safe use of the equipment.
- ✓ The manufacturer can not be held responsible for any bodily injury as well as failures and / or damage to the equipment resulting from the destruction, the occultation or the total or partial removal of the protectors.
- ✓ Never exceed the maximum working pressures of the equipment components.

## Danger of Pressure



Safety requires that a decompressed air shutoff valve be mounted on the pump motor supply circuit to allow trapped air to escape when the supply is shut off.

Without this precaution, the residual air from the engine may cause the motor pump to operate and cause a serious accident.

Similarly, a **product purge valve** must be installed on the product circuit so that it can be purged (after shutting off engine air and decompressing it) before any intervention on the equipment. These valves should remain closed for air and open for the product during the procedure.

## Injection hazards



"HIGH PRESSURE" technology requires the utmost care.

Operation can cause dangerous leaks. There is a risk of product injection into exposed parts of the body, which can lead to serious injury and the risk of amputation :

- ✓ An injection of product into the skin or other parts of the body (eyes, fingers ...) must be treated urgently by appropriate medical care.
- ✓ Do not look at the gun nozzle when it is under pressure.
- ✓ Never direct the jet to another person.
- ✓ Never attempt to stop the jet with the body (hands, fingers ...) or with rags or similar.

## Fire hazards, explosion, electric arc, static electricity



Improper grounding, insufficient ventilation, open flames or sparks can cause an explosion or fire which could result in serious injury.

To avoid these risks, especially when using pumps, it is imperative :

- ✓ To connect the equipment, the parts to be treated, the cans of products and cleaners to the ground,
- ✓ To ensure good ventilation,
- ✓ Keep the work area clean and free of rags, papers, solvents,
- ✓ Do not operate electrical switches in the presence of vapors or during removal,
- ✓ Immediately stop the application in the presence of arcs,
- ✓ Store all liquids outside the work areas.
- ✓ Use products whose flash point is as high as possible to avoid any risk of formation of flammable gases and vapors (consult the product safety data sheets).
- ✓ To equip the drums with a lid to reduce the diffusion of gases and vapors in the cabin.
- ✓ It is forbidden to pump explosive materials

## Hazards of toxic products



Toxic products or vapors can cause serious injury through contact with the body, in the eyes, under the skin, but also by ingestion or inhalation. It is imperative :

- ✓ To know the type of product used and the dangers it represents,
- ✓ Store the products to be used in appropriate areas,
- ✓ Contain the product used in the application in a container designed for that purpose,
- ✓ Evacuate the products in accordance with the legislation of the country where the equipment is used,
- ✓ To wear protective clothing designed for that purpose,
- ✓ Wearing goggles, hearing protectors, gloves, shoes, coveralls and masks for the respiratory tract.



### Attention

**The use of halogenated hydrocarbon solvents and products containing these solvents in the presence of aluminum or zinc is prohibited.**

**Failure to follow these instructions exposes the user to the risk of explosion resulting in serious injury or death.**

## 2.2 Integrity of the material

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### Material recommendations



Protectors are put in place for safe use of the equipment.

Exemples :

- ✓ Motor cover.
- ✓ Carters.

The manufacturer can not be held responsible in case of:

- ✓ Bodily injury.
  - ✓ As well as breakdowns and / or damage to the equipment resulting from the destruction, the occultation or the total or partial withdrawal of the protectors.
-

## Pump

Recommendations for pumps.



- ✓ It is essential to read the compatibilities of the motors and pumps before coupling as well as the special safety instructions.
- ✓ These instructions are on the pump instruction manuals.
- ✓ The air motor is intended to be coupled to a pump. Never modify the coupling system.
- ✓ Keep hands clear of moving parts.
- ✓ The parts constituting this movement must be kept clean.
- ✓ Before starting up or using the motor pump, carefully read the DECOMPRESSION PROCEDURE.
- ✓ Check that the decompression and purge air valves are working properly.
- ✓ It is forbidden to operate the pump without its protective motor cover - risk of crushing
- ✓ It is forbidden to disassemble the safety valve during the operation of the pump - check that the air regulator and pressure gauge are working once a month.
- ✓ Only use genuine SAMES KREMLIN accessories and spare parts designed to withstand the pump's operating pressures.

### Booster phase of the pump

- ✓ Mandatory wearing of PPE (glasses + gloves + safety shoes).

### Feeding cycle

- ✓ The booster cycle must be at a maximum of 1 bar at the gauge of the air equipment, keeping the gun open. Progressive manual mounting to the air regulator.

**Paint phase pump and pressure gun**



- ✓ Mandatory wearing of PPE during this phase of painting where the pump and the gun are under pressure.
- ✓ Do not look at the gun nozzle when it is under pressure.
- ✓ Rinse at a maximum of 1 bar at the pressure gauge of the air equipment (variable pressure depending on the length of the pipes).

**Rinsing the pump**



- ✓ Wearing PPE (glasses + gloves + safety shoes)
- ✓ Do not look at the gun nozzle when it is under pressure
- ✓ Rinse at a maximum of 1 bar at the pressure gauge of the air equipment (variable pressure depending on the length of the pipes).

**Defusing the pump**



- ✓ PPE port mandatory.

**Risk of hydraulic heating during defusing**



- ✓ Risk of overheating of the hydraulics in case of defusing.

**Mass cable**



- ✓ It is mandatory to connect the pump to earth. The canes are conductive

**Cart**

Concerning the work and displacement of the pump on cart on a flat floor it is forbidden to pull on the cart and pump assembly via the pipe.

---

**Tubing**

Recommendations for pipes.

- ✓ Keep hoses away from traffic areas, moving parts and hot areas.
- ✓ Never subject product hoses to temperatures above 60 ° C or below 0 ° C.
- ✓ Do not use hoses to pull or move equipment.
- ✓ Tighten all connections and hoses and connectors before commissioning the equipment.
- ✓ Check hoses regularly, replace them if damaged.
- ✓ Never exceed the maximum operating pressure stated on the hose (PMS).
- ✓ For fitting the hoses and gun: PPE is mandatory.
- ✓ Tighten to block stop. (Pipes + Pistol)

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**Normal stop**

To make a normal stop:

- ✓ Use the air regulator to gradually decompress the pump.

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**Emergency shut-off valve**

- ✓ The stop valve is an emergency stop valve.
  - ✓ This valve must be within easy reach of the operator.
-



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**Products implemented**

Given the diversity of the products implemented by the users and the impossibility of listing all the characteristics of the chemical substances, their interactions and their evolution over time SAMES KREMLIN can not be held responsible:

- ✓ The poor compatibility of materials in contact.
- ✓ inherent risks to staff and the environment.
- ✓ Wear and tear, maladjustment, malfunction of equipment or machines and the quality of the finished product.



The user will have to identify and prevent the potential dangers inherent to the implemented products such as /

- ✓ Toxic vapors.
- ✓ Fire.
- ✓ Explosions.

It will determine the risks of immediate reactions or due to repeated exposures to the staff.

SAMES KREMLIN declines any responsibility, in case of:

- ✓ Bodily or psychic injuries.
  - ✓ Direct or indirect material damage due to the use of chemical substances.
-

### 3 Environment

The equipment must be installed on a horizontal, stable and flat ground (eg concrete slab).

Non-moving equipment must be fixed to the ground by suitable fasteners (spit, screws, bolts, ...) to ensure their stability during use.

To avoid risks due to static electricity, the equipment and its components must be grounded.



- ✓ **For pumping equipment** (pumps, elevators, chassis, etc.), a 2.5 mm section wire is attached to the equipment. Use this wire to connect the equipment to the general "earth". In severe environments (mechanical protection of the ground wire, vibrations, moving equipment, etc.) where damage to the grounding function is likely, the user will have to replace the wire of 2, 5 mm supplied, by a device more adapted to its environment (wire of greater section, braid of mass, fixing by lug with eyelet ...).
- ✓ Have the earth continuity checked by a qualified electrician. If earth continuity is not assured, check terminal, wire and grounding point. Never operate the equipment without solving this problem.
- ✓ The gun must be "grounded" through the air hose or fluid hose. In the case of spraying with a pistol equipped with a bucket, the air hose must be conductive.
- ✓ The materials to be painted must also be "grounded" by means of clamps with cables or, if they are suspended, by means of hooks which must remain permanently clean.

**Note: all objects in the work area must also be grounded.**

- 
- ✓ **Do not store** more flammable products than necessary inside the work area.
  - ✓ These products must be stored in **approved containers** and grounded.
  - ✓ Use only grounded **metal buckets** for the use of rinse solvents.
  - ✓ **Cartons and papers are to be banned.** Indeed they are very bad conductors, even insulators.

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### Material marking



Each device is equipped with a sign plate with the name of the manufacturer, the reference of the device, important information for the use of the device (pressure, power, ...) and sometimes against the pictogram shown below.

The equipment is designed and manufactured with high quality materials and components that can be recycled and reused.

European Directive 2012/19 / EU applies to all devices marked with this logo (crossed out bin). Find out about the collection systems available for electrical and electronic devices.

Comply with the rules in your area and **do not dispose of old appliances with household waste.** Proper disposal of this old device will help prevent adverse effects on the environment and human health.

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## 4 Presentation of the material

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### **Context of use**

The high viscosity Rexson pumps are designed to meet the required performance and lifetime requirements:

- ✓ Very high performance pump for maximum energy savings.
- ✓ Optimized design: simple and fast maintenance.

The use of equipment is most often in the workshop or outdoors on site.

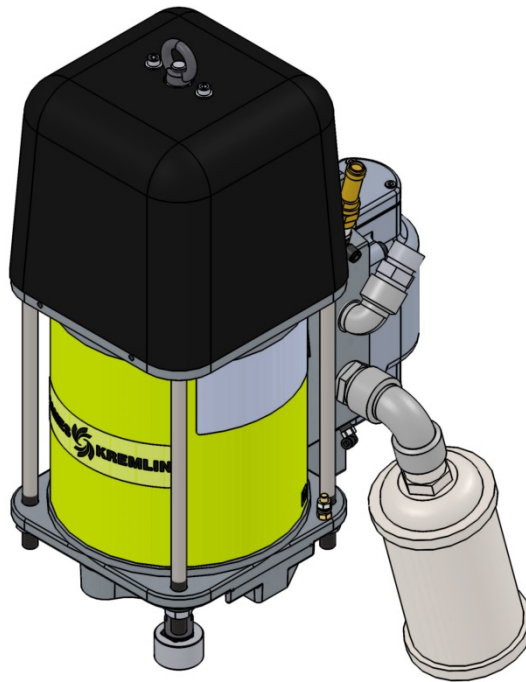
---

## 4.1 Description of the main elements of the motor

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### Motor 146320000

5000



#### Expected use

This air motor is designed to be coupled to the hydraulics recommended by SAMES KREMLIN in order to obtain the required ratio and flow rate.

#### Functional description

SAMES KREMLIN air motors with straight reciprocating movements are operated by compressed air supply. The reversing system is carried out via of:

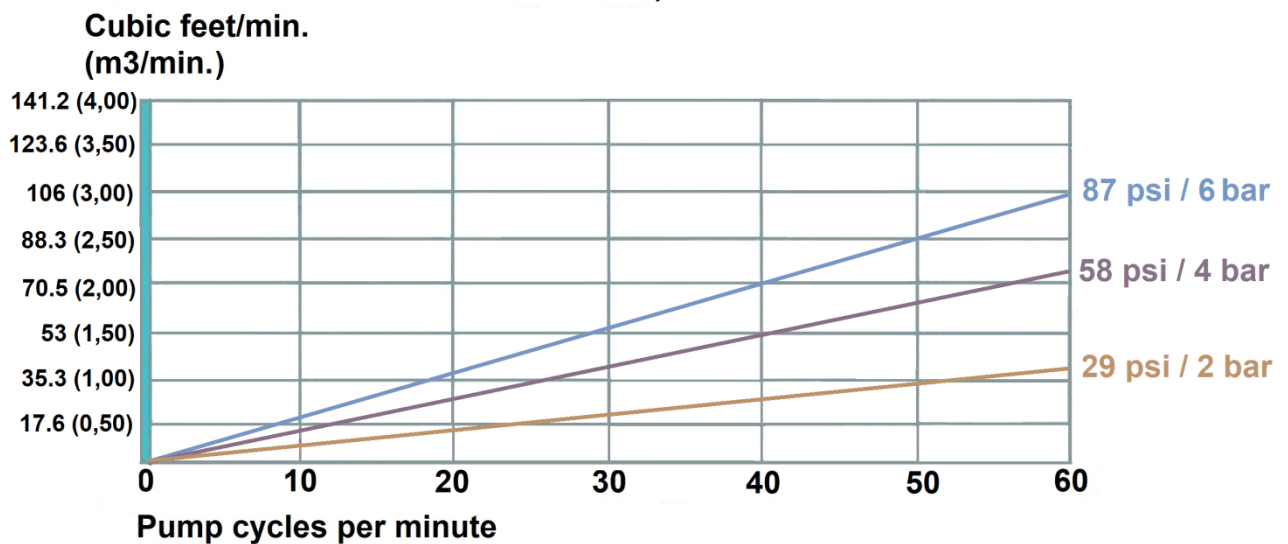
- ✓ a distributor, model 4/2,
- ✓ two switches,
- ✓ a distributor, model 5/2.

### Air consumption

The increase of the motor supply air pressure (via the air regulator) leads to an increase of the number of pump piston returns/mn (cycles) which leads to a flow rate increase and to an outlet pressure increase of the pumped material.

AIR CONSUMPTION OF THE MOTORS	
Pressure of the motors at 6 bar / 87 psi	
Serie	daN
5000	1700

## Pneumatic motor model, 5000




## 5 Identification




### 5.1 Description of the marking of the plate

#### Principles

Paint pumps are designed to be installed in a paint booth.

This equipment complies with the following provisions:

- ✓ ATEX Directive (2014/34 /  II 2 G - Group II, Category 2, Gas).

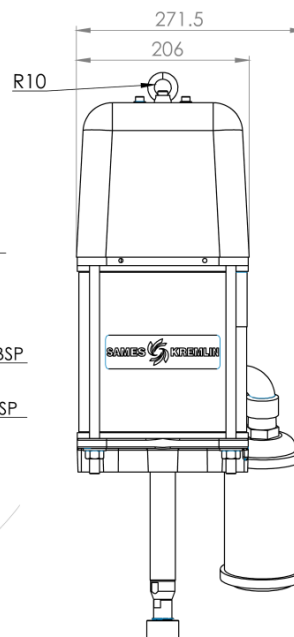
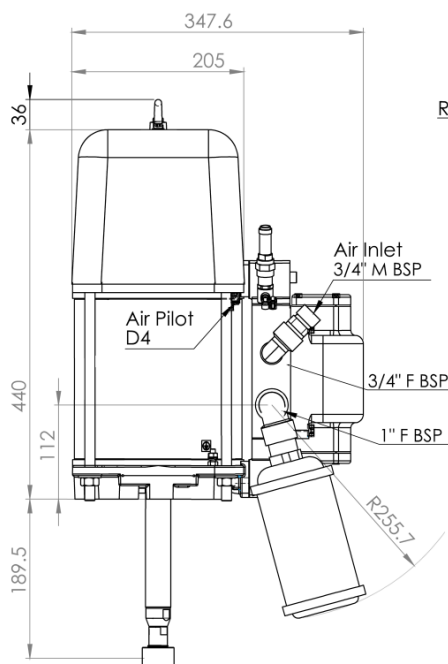
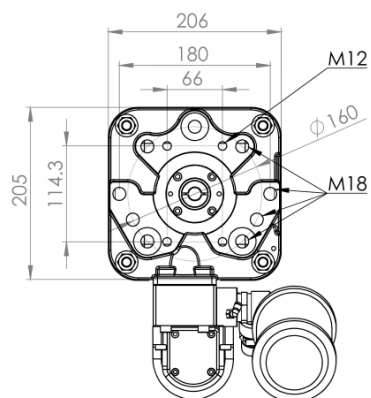
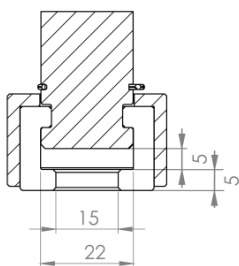
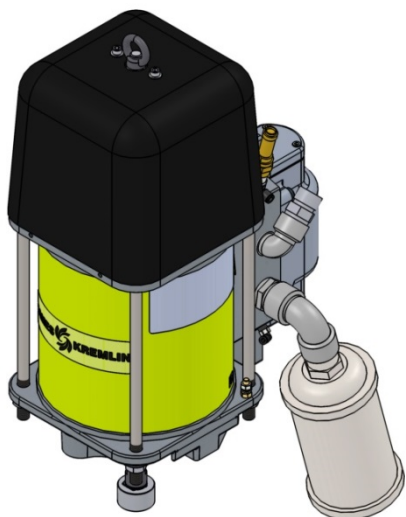
 STAINS FRANCE   II2G IIA T3	POMPE / PUMP REF / SERIE <input style="width: 100%;" type="text"/>  MAX.PRES.(Bar/Psi) <input style="width: 100%;" type="text"/>  RAPPORT RATIO <input style="width: 100%;" type="text"/>	PROD <input style="width: 100%;" type="text"/> AIR <input style="width: 100%;" type="text"/>
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		Description
<b>Sigle SAMES KREMLIN STAINS FRANCE</b>		Manufacturer's mark
<b>POMPE / PUMP REF / SERIE</b>		Pump reference and serial number. The first two digits indicate the year of manufacture.
<b>MAX. PRES. (Bar/Psi)</b>	<b>PROD</b>	Maximum product pressure (Bar/Psi)
	<b>AIR</b>	Maximum air pressure (Bar/Psi)
<b>RAPPORT / RATIO</b>		Pump pressure ratio
<b>CE</b>		<b>EC:</b> European conformity
		<p> : Use in explosive area</p> <p><b>II</b> : group II    <b>2</b> : category 2</p> <p>Surface material intended for an environment in which explosive atmospheres due to gases, vapors, mists are likely to occasionally occur during normal operation.</p> <p><b>G</b> : gas</p>
<b>IIA T3</b>		<p><b>IIA</b> : Reference gas for equipment qualification</p> <p><b>T3</b> : Maximum surface temperature 200 ° C / 392°F</p>



## 6 Equipment plans

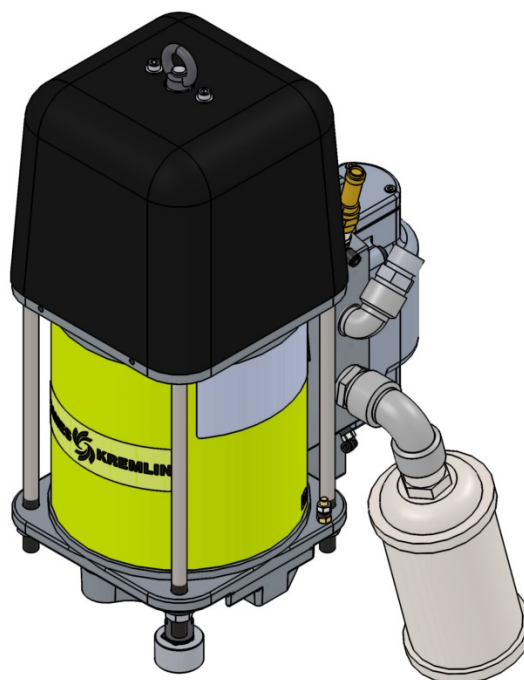
### Motor 5000



## 7 Technical specifications and performance

### 7.1 Technical specifications

#### Motor 5000



Technical specifications	
Cylinder bore Ø	190 mm / 7.5"
Practical stroke (mm / ")	120 mm / 4.7"
Maximum stroke	132 mm / 5.2"
Air supply Ø	3/4" F BSP
Muffler	1" F BSP
Noise level (average)	70 dB
Weight	21 Kg / 46.3 lbs
Air supply	6 bar / 87 psi
Tapping of the lower flange	M12 (on Ø 132 mm / 5.2")

## 8 Installation

### Connections of sub-assemblies

#### Pneumatic supply

Any restriction in the supply and/or exhaust air to the engine may reduce its performance. The air supply is 6 bar / 87 psi max.

It is imperative to comply with an engine/hydraulic combination provided by SAMES KREMLIN.

#### Motor label

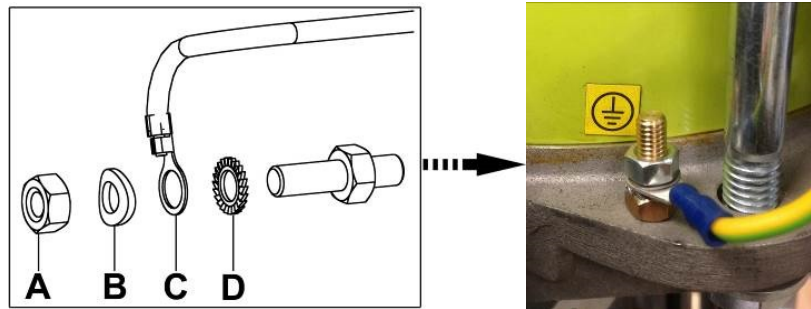
 <b>F</b>	<b>MISE EN GARDE</b>	 <b>GB</b>	<b>WARNING</b>		
<ul style="list-style-type: none"> <li>- Les fluides sous haute pression peuvent transpercer la peau et provoquer des blessures graves pouvant nécessiter l'amputation.</li> <li>- Écartez-vous de la buse de pulvérisation ou d'extrusion.</li> <li>- N'arrêtez jamais une fuite avec la main.</li> <li>- <b>EN CAS DE BLESSURE, CONSULTEZ UN MEDECIN IMMÉDIATEMENT.</b></li> <li>- L'installation dans des zones confinées de matériels de pulvérisation ou d'extrusion de produit, de rinçage ou de nettoyage utilisant des liquides inflammables peut provoquer des incendies ou des explosions.</li> <li>- Les flammes nues, les étincelles et les arcs électriques peuvent enflammer des vapeurs inflammables.</li> <li>- <b>IMPORTANT : ÉLIMINER TOUTE SOURCE DE CHARGE ELECTROSTATIQUE.</b></li> <li>- Reliez à la terre tous les matériels situés dans la zone de travail, y compris les moto-pompes, les flexibles et les pièces à traiter.</li> <li>- Éloignez vous des pièces en mouvement.</li> <li>- Ne dépassez pas les pressions maxi d'utilisation de la moto-pompe ni d'aucun composant de l'installation.</li> </ul>		    		<ul style="list-style-type: none"> <li>- Liquids under high pressure can pierce the skin, causing serious injury and possible amputation.</li> <li>- Keep clear of gun nozzle or spray tip.</li> <li>- Never stop a leak with your hand.</li> <li>- <b>IN CASE OF INJURY, GET IMMEDIATE SURGICAL TREATMENT.</b></li> <li>- Spray painting, flushing or cleaning equipment with flammable liquids in confined areas can result in fire or explosion.</li> <li>- Open flames, sparks and electrical arcs can ignite flammable vapors.</li> <li>- <b>IMPORTANT: ELIMINATE ALL IGNITION SOURCES.</b></li> <li>- Ground all equipment in spray area, including pumps, hoses and objects being sprayed.</li> <li>- Keep clear of moving parts.</li> <li>- Do not exceed pressure rating of pump or any system component.</li> </ul>	
<b>PRESCRIPTIONS DE SÉCURITÉ</b>		<b>SAFETY INSTRUCTIONS</b>		REXSON / MOT1.0	
<ul style="list-style-type: none"> <li>- Lisez le manuel d'instruction et / ou d'exploitation.</li> <li>- Suivre la procédure de décompression avant toute intervention sur la pompe.</li> <li>- Vérifiez les flexibles et les raccords quotidiennement.</li> <li>- Avant l'utilisation, rincez l'appareil avec un produit compatible pour éliminer tout reste éventuel de produits d'essai en usine.</li> </ul>		<ul style="list-style-type: none"> <li>- Read instructions manual / user manual.</li> <li>- Relieve pressure before servicing pump.</li> <li>- Check hoses and fittings daily.</li> <li>- Before using, flush unit with material or solvent to remove any remaining factory test fluid.</li> </ul>			
ÉTIQUETTES SÉCURITÉ DISPONIBLES GRATUITEMENT SUR DEMANDE		SAFETY TAGS FREE OF CHARGE ON REQUEST			

## Grounding



In combination with an air motor, the hydraulics will be earthed via the earth cable of this motor.

This earth cable must be connected to a safe earth.



- ✓ Unscrew the lock-nut (A), remove the washer (B), insert the lug (C) with its ground wire (D) (minimum section : 1,5 mm<sup>2</sup>) between the washer (B) and the washer (D).
- ✓ Tighten the lock-nut. Connect the other end of the wire to a real "ground", according to the national rules.
- ✓ A qualified electrician must check the ground continuity.
- ✓ If the continuity is not correct, check the terminal, the electric wire, the U bolt and the ground point.
- ✓ Never operate pump without resolving the trouble.

---

## **Connection to compressed air supply**

Set the pressure at the air regulator.

For proper operation and long life of the engine, the supply air must be filtered and not lubricated (see § Maintenance).

- ✓ It is imperative to install a decompression valve after the air regulator and as close as possible to the engine inlet in order to follow the decompression procedure (See the pump manual § Operating problems).
- ✓ The engine air supply hose must have an inside diameter of at least 19 mm.
- ✓ The engines are tested before shipping. Nevertheless, before coupling the motor to a pump, it is necessary to operate it under vacuum at a pressure of 1 Bar maximum for a few minutes.

Proceed as follows:

- ✓ Couple the motor with the recommended pump.
  - ✓ Connect the main air supply to the engine.
-

## 8.1 Storage

### Pump

Place the equipment away from moisture after closing the various air inlets and various openings (plugs).

Storage before installation:

- ✓ Storage ambient temperature: 0 / +50 ° C.
- ✓ Protect the unit against dust, water runoff, moisture and shocks.

Storage after installation:

- ✓ Protect the unit against dust, water runoff, moisture and shocks.
- 

## 8.2 Handling

### Motor

The ring on the top of the cover is intended for lifting the motor and its pump and must not be used for handling a complete machine under any circumstances.

Never submerge the motor.

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## 9 Commissioning

### Motor

Engines are tested before shipping.

Nevertheless, before coupling the motor to a pump, it is necessary to operate it under vacuum at a pressure of 1 Bar / 14.5 psi maximum for a few minutes.

Proceed as follows:

- ✓ Couple the motor with the recommended pump.
-

---

## 10 Using the product

---

### 10.1 Safety in production



Guards (motor cover, coupling guard, housings, ...) are set up for safe use of the equipment.

The manufacturer can not be held responsible in case of bodily injury as well as breakdowns and / or damage of the material resulting from the destruction, the occultation or the total or partial removal of the protectors.

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## 10.2 Diagnostic help / Troubleshooting guide

### Operating disorders

Before any intervention on a pump, it is imperative to carry out a general procedure of decompression and purge.

In order to avoid the risk of personal injury, product injections, injuries caused by moving parts or arcing, it is essential to follow the following procedure before any intervention during system shutdown, assembly, cleaning or changing the nozzle.

- ✓ Lock the guns (valve, valve, etc.) to OFF or OFF.
- ✓ Shut off the oil supply via the pressure relief valve to remove residual air from the engine.
- ✓ Unlock the gun (valve, valve ...).
- ✓ Bring the gun (valve, tap ...) to a metal bucket to collect the product. Hold it against the wall of this bucket to avoid interrupting the continuity of the earthing (use the wire with stirrup to put the metal bucket to earth).
- ✓ Open the pump bleed valve and collect the product in a well-grounded metal bucket.
- ✓ Lock the gun (valve, valve) to OFF or OFF.
- ✓ Open the pump bleed valve and collect the product in a well-grounded metal bucket.
- ✓ Leave this purge valve open during the whole period of the operation.

Check the conformity of the wiring before intervention.

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**Ice formation**

When the compressed air is exhausted, the sudden drop in pressure causes the air temperature to drop below 0°C. Any liquid or water vapour then turns to ice.

Higher air pressures accumulate large amounts of air and water vapour with each cycle and create more expansion and ice. Faster cycles also accumulate ice and cause the engine temperature to drop more quickly.

Warm, humid climates can increase ice formation due to higher humidity levels. Ambient temperatures close to 0°C allow engine parts to fall below freezing more easily.

To minimize ice formation :

- Lower the dew point of the compressed air. Use a refrigerated air dryer, coalescing filter or desiccant filter to lower the water vapor content of the air.
  - Increase the temperature of the compressed air. Warmer air entering helps engine parts stay above 0°C. Compressed air, especially at these volumes, is hot when compressed. Keep the air warm or stay close to the compressor to reduce ice formation.
-

### 10.3 Possible symptoms of faults / Causes of faults / Remedy to be applied - fast operation

#### Remedies motor part

Perform a decompression procedure before any intervention:

- ✓ shut off the air supply with the pressure relief valve in order to evacuate residual air from the engine,
- ✓ decompress the circuit produced by opening the purge valve of the pump or the gun.

Description	Causes	Remedies
Engine piston lock	Defective switch	Adjust or replace the switch (s)
	Defective control distributor	Check operation, replace if necessary
	Defective power distributor	Check operation, replace if necessary
Decrease of product flow	Escape leak	Check the piston seals, change them if necessary
		Check the distributor seals, change them if necessary
	Silencer clogged	Clean or change the muffler
Large exhaust leak	Improper installation of the distributor base gasket	Reassemble the seal in the correct direction
	Defective power distributor	Check operation, replace if necessary.

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## 11 Maintenance

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### 11.1 Preventive maintenance plan

**Attention**

**Before any intervention, it is imperative to follow the decompression procedure and the safety instructions.**

**During prolonged shutdown, stop the pump when the piston is in the down position.**

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### Motor part

**Attention**

**The motor is subject to the ATEX directive and must not be modified under any circumstances.**

**Failure to comply with this recommendation does not engage our responsibility.**

The engine is designed to keep maintenance to a minimum (filtered supply air).

It is advisable to provide preventive maintenance after 12 months of operation.

Check:

- ✓ The clogging of the air filter.
- ✓ The absence of air leaks.
- ✓ The absence of breaks in the air hoses.
- ✓ The correct snapping of the connections / hoses.
- ✓ The general condition of the supply hoses (rubber, crimping), regulators and manometers.
- ✓ The tightening of the components.
- ✓ The condition of the silencer (s).
- ✓ The fixing of the hood.
- ✓ The correct operation of the safety valve.
- ✓ The state of the decompression valve.

**Greases and glues**

Index	Instruction	Description	Part number
<b>A 1</b>	PTFE Grease (Teflon)	'TECHNI LUB' grease (10 ml)	560.440.101
<b>A 5</b>	High-performance lubricating grease	Grease box Kluber petamo GHY 133N (1 kg / 2.204 lb))	560.440.005
<b>C 1</b>	Medium strength Aneorobic Pipe sealant	Loctite 5772 (50 ml / 0.013 US gal)	554.180.015
<b>C 2</b>	Low strength - Aneorobic Adhesive	Loctite 222 (50 ml / 0.013 US gal)	554.180.010
<b>C 3</b>	High strength - Aneorobic Adhesive	Loctite 270 (50 ml / 0.013 US gal)	554.180.004

This maintenance consists of replacing parts with cuts or wear and cleaning organs with compatible products without using abrasive materials that could damage them. The O-rings are mounted with a special "pneumatic" grease.

Make sure that none of them get damaged, cutting one of them may cause the engine to malfunction.

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## 12 Disassembly / Reassembly Operation



### Attention

**Before any intervention, it is imperative to follow the decompression procedure and the safety instructions.**

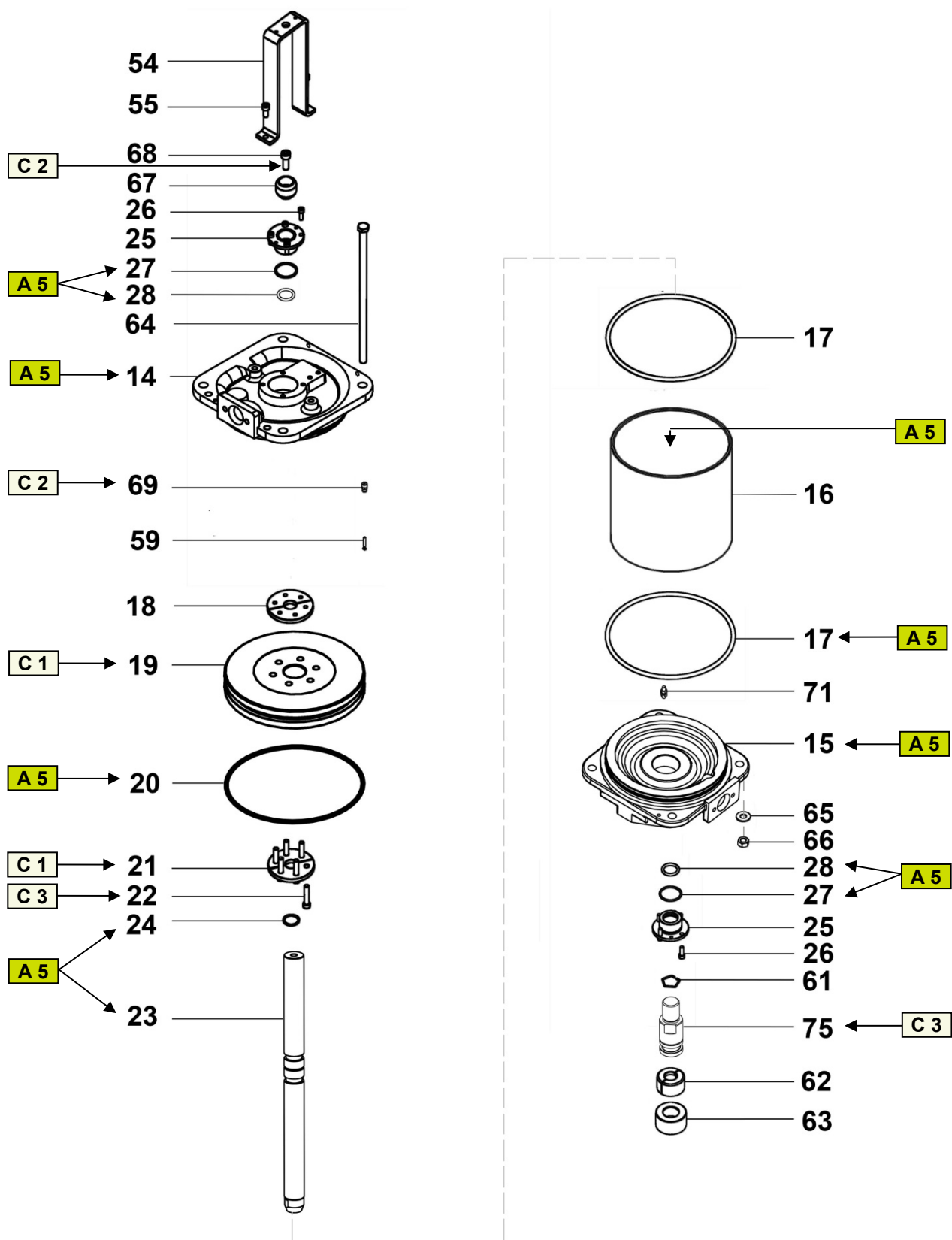
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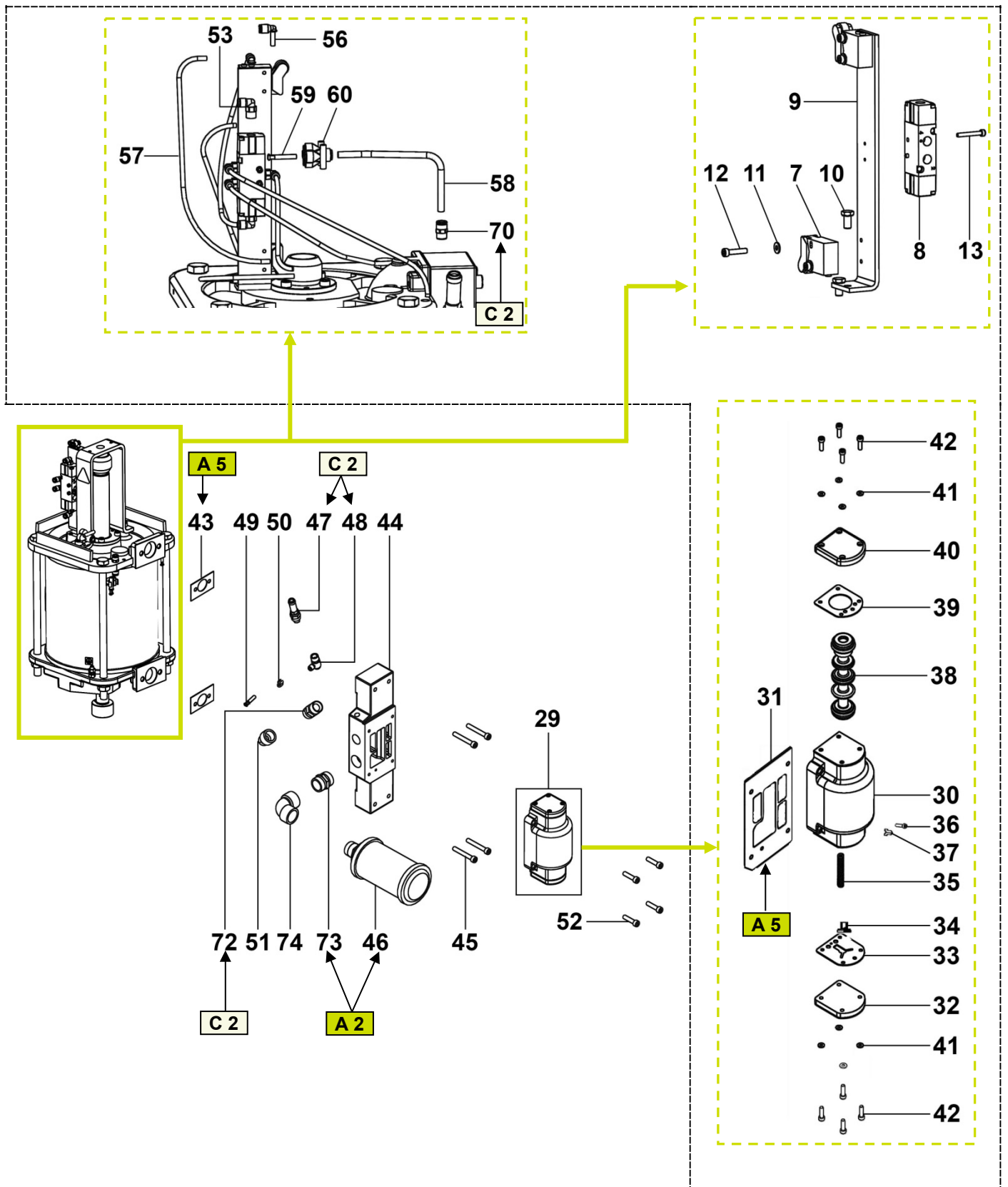
### 12.1 Disassembling the 5000 motor

This maintenance consists of replacing parts with cuts or wear and tear and cleaning the components with compatible products without using abrasive materials that could damage them.

The O-rings are fitted with a "special pneumatic" grease. Make sure that none of them are damaged, as cutting one of them may cause the motor to malfunction.

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## **Dismantling the grounding cable**

- ✓ Hold the earthing terminal with a 10mm open-end wrench and unscrew the top nut with the other wrench.
- ✓ Manually remove the washers as well as the grounding cable.

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**Tools needed**

**10 x2**



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## **Disassembly of the motor and of the fluid section**

- ✓ Adjust the air regulator to 0 bar / 0 psi,
  - ✓ Shut off the air supply from the motor, then carry out the pressure release and drain instructions,
  - ✓ Take off the stop ring (61),
  - ✓ Lift the closing ring (63),
  - ✓ Take off the two half bushes (62) and put aside the closing ring,
  - ✓ Remove the fixing screws of the motor,
  - ✓ Put aside the motor.
-

## Disassembly of the motor and of the fluid section

- ✓ Unscrew the 2 screws (2) with a hexagon key, size 5mm and remove the washers (3),
- ✓ Take off the cover (6) and disconnect the air hoses (57) and (58),
- ✓ Unscrew the 4 stainless screws (52) with a hexagon key, size 6mm, put aside the distributor (29) and remove the base seal (31),
- ✓ Unscrew the 4 stainless screws (45) and put aside the distributor base (44),
- ✓ Remove the 2 base seals (43)
- ✓ Unscrew the 2 screws (55) with a hexagon key, size 5mm and remove the U-bolt (54),
- ✓ Unscrew the screws (2) and put aside the distributor/switches assembly,
- ✓ Unscrew the 2 screws (10) with a 10mm wrench and remove the distributor (8),
- ✓ Unscrew the screws (12) with a hexagon key size 3mm and put aside the switches (7),
- ✓ Remove the screw (5) and the cam (67),
- ✓ Change the defective parts.

### Tools needed

10



6



5



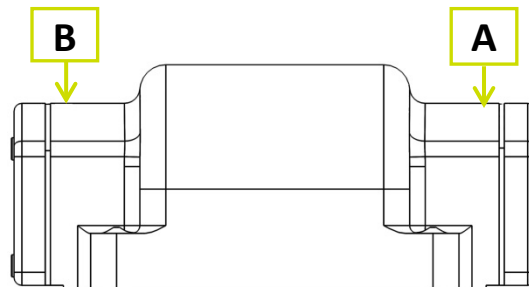
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## Reassembly

The assembly is carried out in the reverse order of the disassembly sequence. Caution to the following instructions :Remove the engine hood.

- ✓ During the changing of the switches (7), push them in the opposite direction of the piston rod, then tighten the screws,
- ✓ The wheels must flush up the piston rod,
- ✓ Cable once again the parts according to the pneumatic diagrams,
- ✓ Orientate the distributor base seal (31) according to the A and B indexes of the distributor (29)



**Tools needed**

**10**



**6**



**5**



**3**



## Changing the seals of the upper and lower flanges and of the piston

- ✓ Unscrew the screw (5) with a hexagon key, size 8mm and remove the cam (67),
- ✓ Unscrew the 4 nuts (66), remove the washers (65) and the 4 tie-rods (64),
- ✓ Remove the upper flange (14), the cylinder (16) (2 components polyurethan paint protection), the lower flange (15) and the rod/piston assembly,
- ✓ Check the Outside bearing seal (27) of the flanges, change them if necessary,
- ✓ Remove the screws (22), take off the stop flange (2 parts) (21) and the adapter (2 parts) (18),
- ✓ Take off the rod (23) downstream and remove the piston assembly,
- ✓ Check the Piston rod seal (24), change it if necessary,
- ✓ Check the piston seal (20), change it if necessary then put aside the piston (19).

## Reassembly

The assembly is carried out in the reverse order of the disassembly sequence. Caution to the following instructions :

- ✓ Stage 5 : Applique "ONE SEAL LOCTITE N° 518" paste on the adapter (2 parts) (18) as well as on the screws (22) to ensure the tightness between piston and rod,
- ✓ - Stage 8 : Assembly of the piston seal (20) : First, insert the seal (with a light coating of pneumatic grease) in the groove of the piston. Position the rod/piston/seal assembly above the cylinder. Press on the sides of the seal until the piston/rod assembly slides inside the cylinder.

Tools needed



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**Changing the bearing seals**

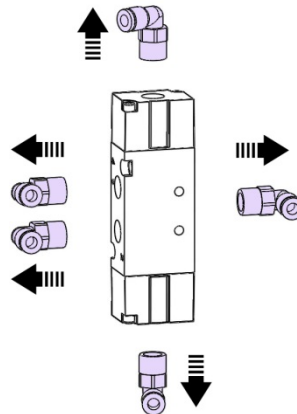
- ✓ Unscrew the 4 screws (26) with a hexagon key, size 5mm,
- ✓ Remove the bearing assembly (if necessary, use the M6 tapping holes,
- ✓ Remove and check the outside bearing seals (27) and the inside bearing seals (28); change them if necessary.

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**Tools needed**

## Disassembly of the distributor (8)

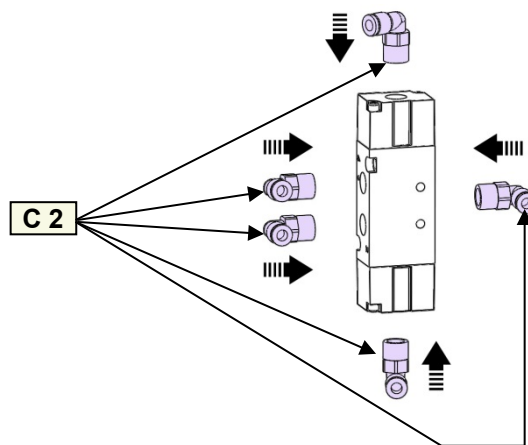
- ✓ Unscrew the 2 screws (2) with a hexagon key, size 5mm and remove the washers (3),
- ✓ Remove the cover (6) and disconnect the air hoses (57) and (58),
- ✓ Unscrew the 2 screws (13) with a hexagon key, size 2.5mm and remove the distributor (8),
- ✓ Unscrew the elbows (53) with a 10mm wrench.



## Reassembly

The assembly is carried out in the reverse order of the disassembly sequence. Caution to the following instructions :

- ✓ Stage 4: Applique " LOCTITE N° 222" paste on the elbows (53).



Tools needed

10



5

2,5



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**Disassembly of the distributor (29)**

- ✓ Disconnect the air hoses (57) and (58),
- ✓ Unscrew the 4 stainless screws (52) which fix the distributor on the base, remove the base seal (31); check it and change it if necessary,
- ✓ Unscrew the 4 stainless screws (42) which fix the cover (32) to the body (30) (side A); check the side seal (33), change it if necessary,
- ✓ Unscrew the 4 screws (42) which fix the cover (40) to the distributor body (30) (side B); check the seal (39) and change it if necessary,
- ✓ Take off the valve (38), the guide for spring (34) and the spring (35),
- ✓ Carry out the assembly in the reverse order of the disassembly sequence.

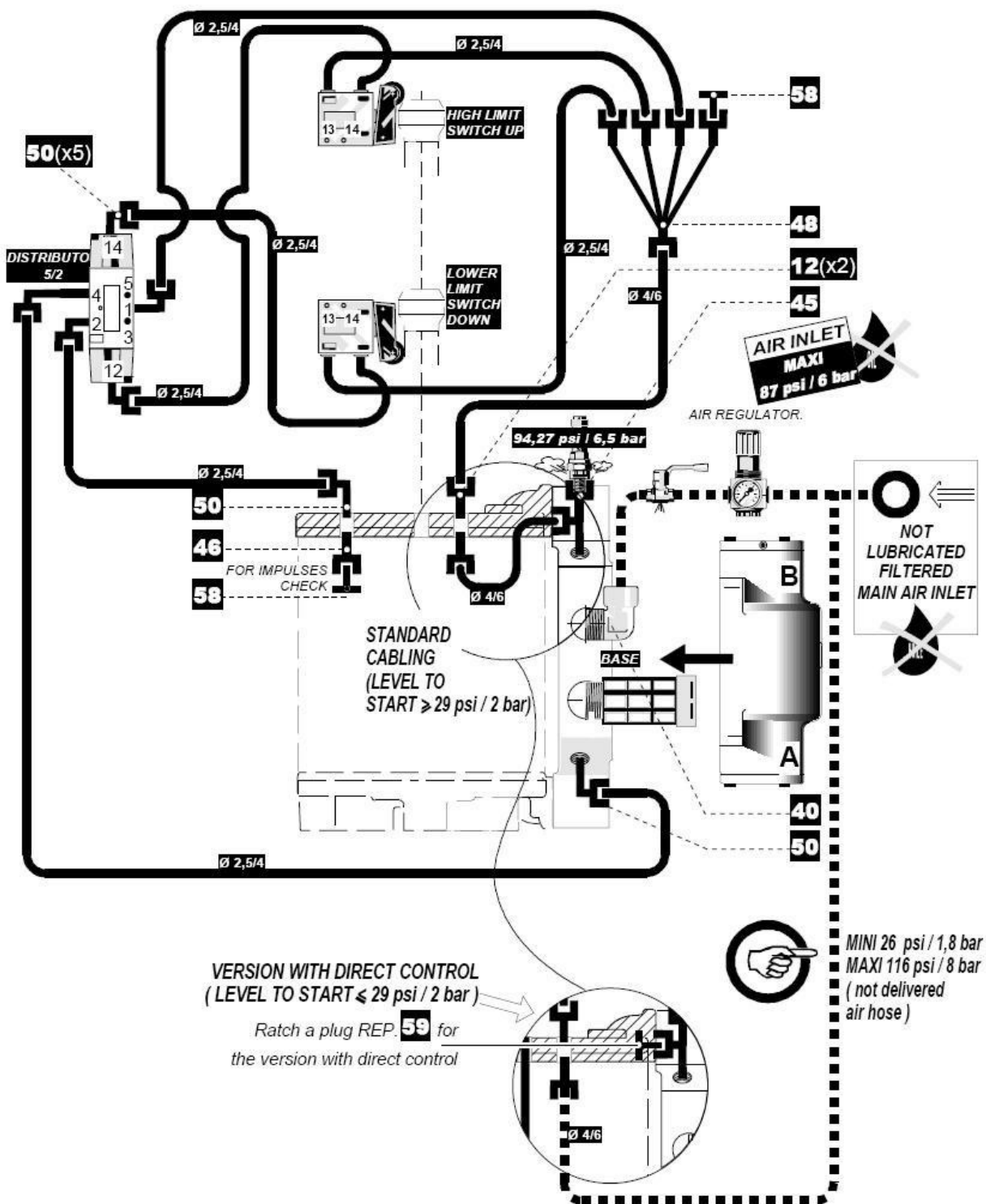
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**Reassembly**

Le remontage s'effectue en ordre inverse

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### 13 Pneumatic diagram





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## Impulse pickup

The pulse pick-up provides a pneumatic signal that indicates the direction of operation of the motor. When the pulse pick-up is at a pressure equal to the pilot pressure, this means that the motor piston is in the upward phase. When the impulse pick-up is at atmosphere, the motor is in a descending phase. This pulse pick-up is generally used to count the number of reversals of the engine and allows the addition of an anti runaway system.

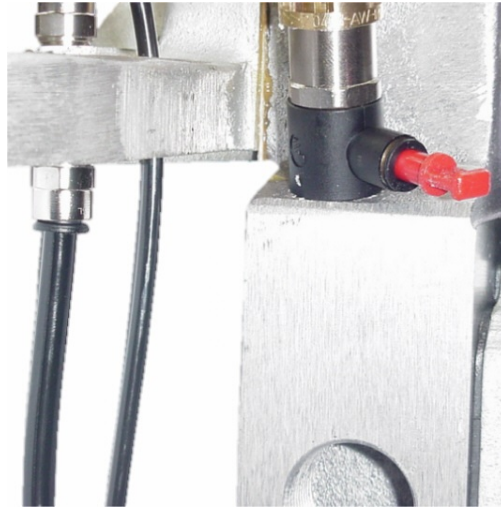
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## Standard cabling



All factory assembled motors are wired in **standard control**. This means that the air motor reversing system (called pilot) is connected to the same pressure as the main motor supply. In this case, the starting threshold of the motor is approximately 1.5 bar / 21.7 psi.

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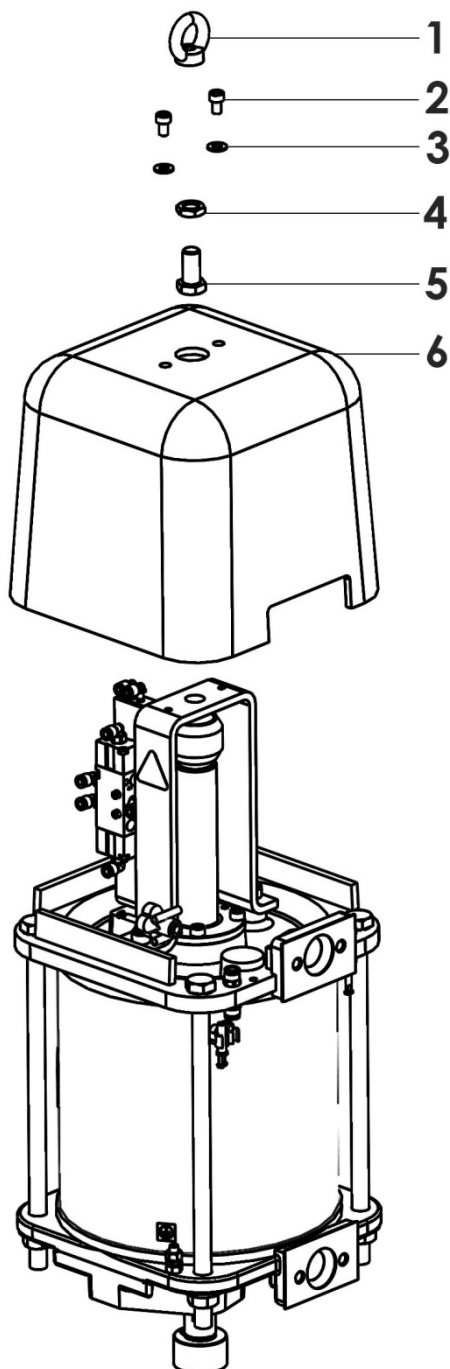
**Direct piloting**

**Direct piloting** allows the user to connect the air motor reversing system (called a pilot) to an independent source of pressure. This allows the user to start the motor at a supply pressure of approximately 0.5 bar or to use the pilot pressure to control the starting and stopping of the motor.

## 14 Spare parts

Use only genuine SAMES KREMLIN accessories and spare parts designed to withstand the pump's operating pressures.

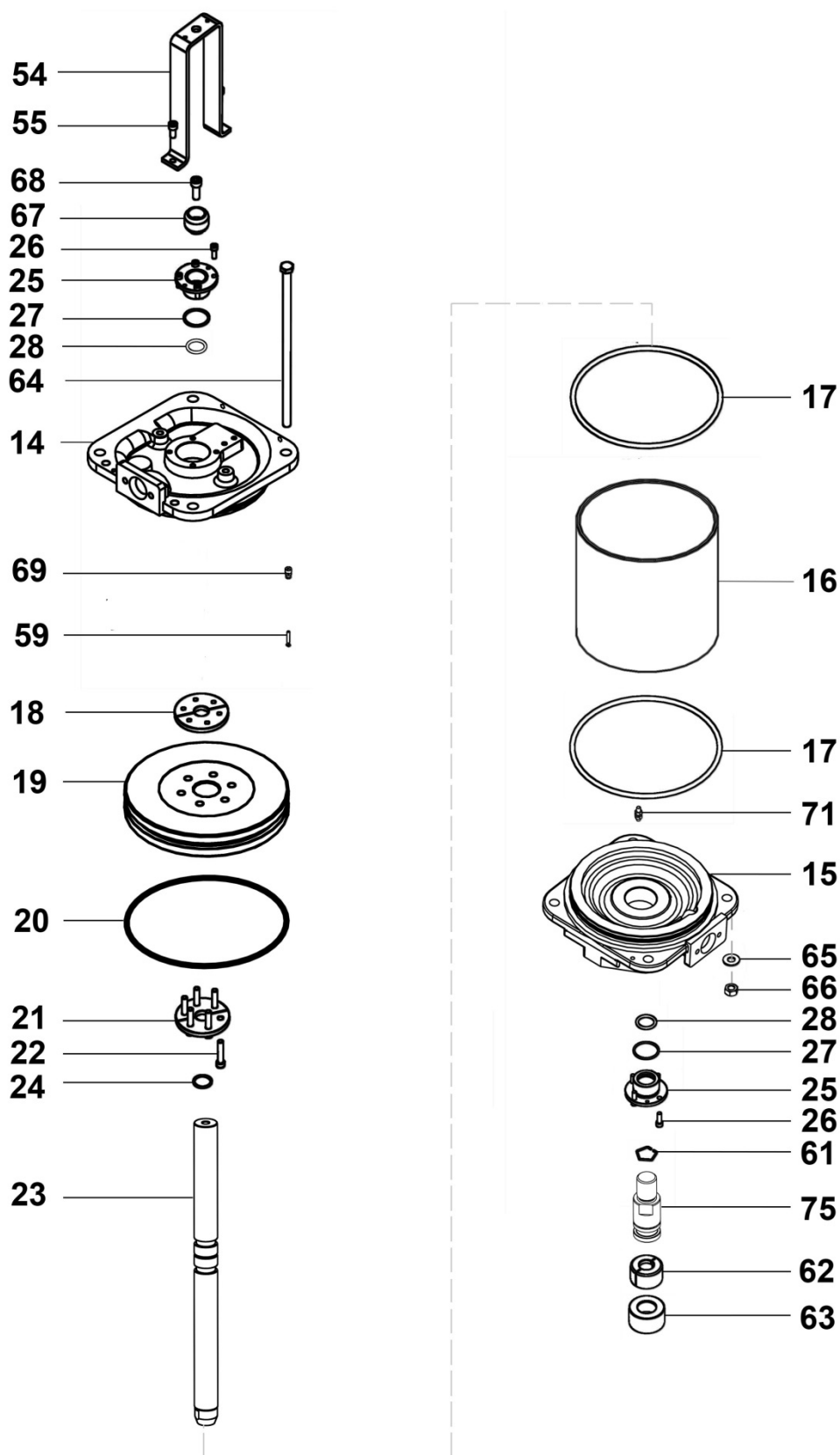
### 14.1 Motor model 5000



Ind	#References	Description	Qty
1	91 422	Hoisting ring	1
2	88 130	Screw, model CHc M 6x10	2
3	963 040 016	Washer, model MU 6	2
4	88 321	Nut, model HM 12	1
5	88 069	Screw, model HM 12x25	1
6	209 376	Cover	1

\* Recommended maintenance parts.

N S: Not marketed.

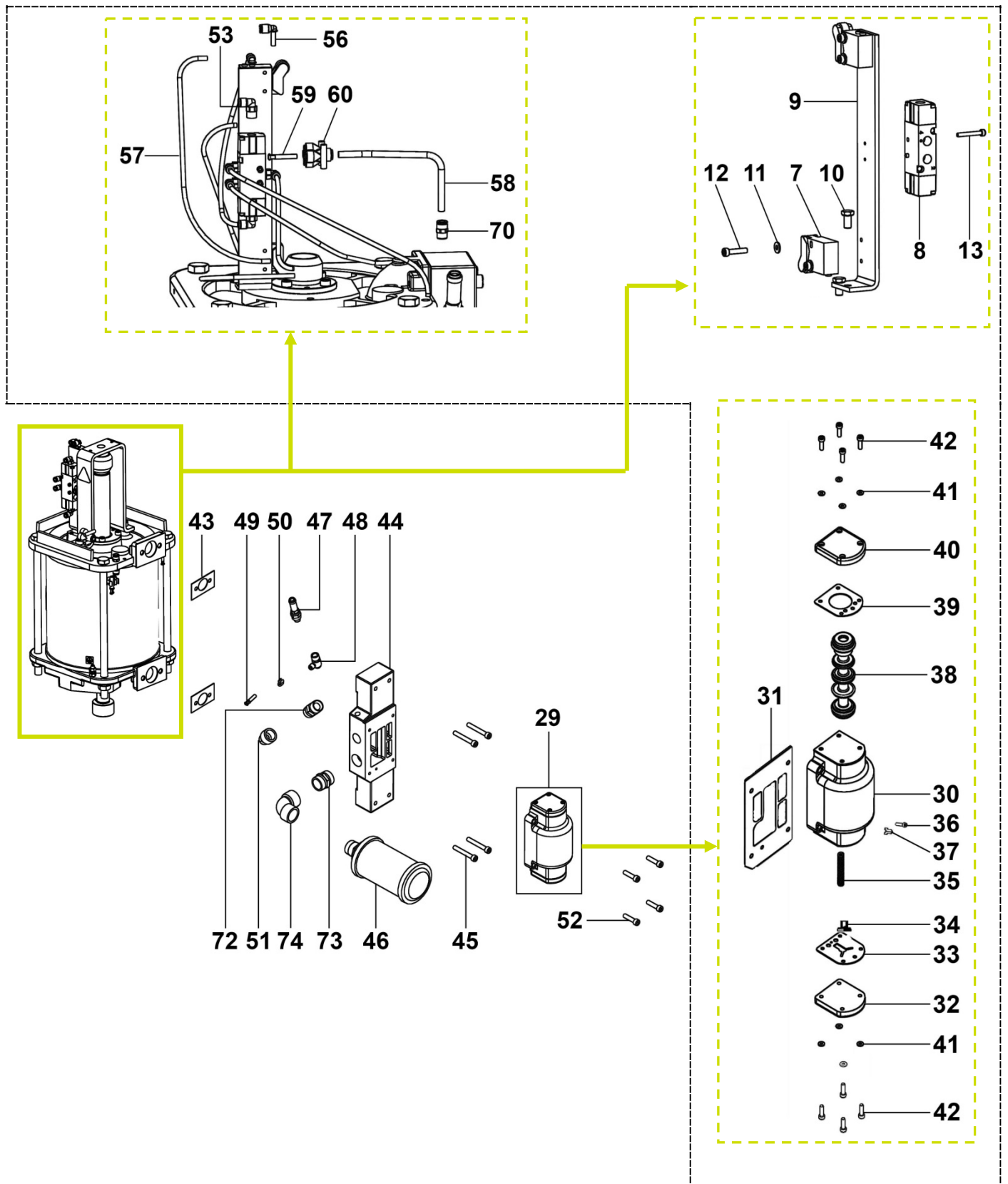


Ind	#References	Description	Qty
*	<b>146 320 094</b>	<b>Pneumatic kit (ind. 7, 8)</b>	1
*7	151 800 002	▪ Switch (x 2)	1
*8	91 424	▪ Distributor, 5/2 1/8"	1
9	209 358	Bracket	1
10	933 011 170	Screw, model HM 6x12	2
11	963 040 012	Washer, model MU 4	4
12	933 151 273	Screw, model CHc M 4x20	4
13	932 151 326	Screw, model CHc M 3x25	2
14	209 370	Upper flange	1
15	209 371	Lower flange	1
16	205 478	Cylinder	1
*17	909 420 811	Flange seal	2
18	205 593	Adapter (2 parts)	1
19	209 373	Piston	1
*20	84 377	Piston seal	1
21	205 592	Stop flange (2 parts)	1
22	88 735	Screw, model CHc M 8x45	6
23	210 604	Piston rod	1
*24	909 420 225	Piston rod seal	1
25	146 320 095	Bearing	2
26	88 134	Screw, model CHc M 6x20	8
*27	84 193	Outside bearing seal	2
*28	85 022	Inside bearing seal	2
<b>*29</b>	<b>146 320 092</b>	<b>Distributor, model 4/2 1"</b>	<b>1</b>
30	N.S.	▪ Distributor body	1
31	N.S.	▪ Base seal	1
32	N.S.	▪ Cover, spring side	1
*33	N.S.	▪ Side seal, spring side	
34	N.S.	▪ Guide for spring	1
*35	N.S.	▪ Spring	1
36	N.S.	▪ Screw	1
37	N.S.	▪ Seal	1
*38	N.S.	▪ Valve	1

Ind	#References	Description	Qty
*39	N.S.	▪ Side seal, air side	1
40	N.S.	▪ Cover, air side	1
41	N.S.	▪ Washer	8
42	N.S.	▪ Stainless screw, model CHc M 5x1 6	8
*43	205 213	Base seal	2
44	209 357	Distributor base	1
45	88 908	Stainless screw, model CHc M 8x60	4
*46	146 320 091	Muffler 1"	1
*47	903 080 401	Discharge-valve	1
48	552 542	Fitting, model 1/4" G	1
49	905 120 924	Tube plug	1
50	91 723	Clip, model Ø 6	2
51	552 434	Elbow, model MF 3/4" G	1
52	88 514	Stainless screw, model CHc M 8x35	4
53	905 120 926	Elbow, model M 1/8" G	7
54	209 359	U-Bolt	1
55	930 151 279	Screw,model CHc M 8x20	2
56	N.S. (905 120 983)	Elbow, model MF T 2x4	4
57	N.S. (76 764)	Hose PU 2,5x4 (lg. 3.10 m / 122.04")	1
58	N.S. (76 607)	Hose PU 4x6 (lg. 0.20 m / 7.87")	1
59	905 120 937	Tube plug	2
60	552 226	Fitting, model Y T 4x6	1
61	90 040	Stop ring	1
62	209 394	Bush (2 parts)	1
63	205 094	Closing ring	1
64	91 434	Tie-rod	4

\* Recommended maintenance parts.

N C: Not marketed.





Ind	#References	Description	Qty
65	963 040 023	Washer, model MU 12	4
66	953 010 023	Nut, model HM 12	4
67	209 364	Cam	1
68	88 189	Screw, model CHc M 10x30	1
69	905 120 907	Straight fitting, model 1/8"	1
70	905 124 901	Straight fitting, model 1/8"	2
71	055 680 006	Earth terminal assembly	1
72	550 773	Fitting, model M 3/4" - M 3/4" BSP	1
73	552 466	Adaptor, model double male 1" G	1
74	552 598	Elbow, model FF 1" BSP	1
75	211 750	Coupling head	1

\* Recommended maintenance parts.

N S: Not marketed.

Ind	#References	Description	Qty
*	105 263	Seal kit air motor (ind. 17 (x 2), 20, 24, 27 (x 2), 28 (x 2), 43 (x 2))	1
*	146 320 093	Servicing kit distributor 4/2 1" (ind. 31, 33, 35, 38, 39)	1

\* Recommended maintenance parts.

N S: Not marketed.

## Accessory

Ind	#References	Description	Qty
-	144 245 295	Lower adapter flange	1