KREMLIN

INSTRUCTION MANUAL

EXPLOSION PROOF HEATER

MODEL ONE-PASS™

Manual : 0903 573.188.112

Date : 18/03/09 - Supersede : 8/12/09

Modif. . § 1, 3 (plate description) & 9 (+ nota -page 11)

IMPORTANT : Read and understand all instructions before storing, installing and operating concerned equipment (professional use only).

PICTURES AND DRAWINGS ARE NOT CONTRACTUAL. THE MATERIAL MAY BE CHANGED WITHOUT PRIOR NOTICE

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INSTRUCTION MANUAL
EXPLOSION PROOF HEATER, MODEL ONE-PASS™

SUMMARY

ADDITIONAL DOCUMENTATIONS

SPARE PARTS :	Explosion proof heater, model ONE-PASS™	Doc. 573.392.050

Dear Customer, we thank you very much for purchasing our new heater.
To make sure your investment will provide full satisfaction, special care has been taken by KREMLIN during all designing and manufacturing processes.
To obtain the best result, safe and efficient operation of your equipment, we advice you to read and make yourself familiar with this instruction and service manual. Indeed, the non-compliance with instructions and precautions stated in this manual could reduce the equipment working life, result in operating trouble and create unsafe conditions.

1. DECLARATION OF CONFORMITY

The manufacturer : **KREMLIN REXSON** with assets of 6 720 000 Euros
Head office : 150, avenue de Stalingrad - 93 245 - STAINS CEDEX - FRANCE
Tel. 33 (0)1 49 40 25 25 - Fax : 33 (0)1 48 26 07 16

Herewith declares that : heater,
is in conformity with the provisions of :

- Low Voltage Directive (directives 73-23/EEC and 93-68/EEC)
  Harmonized European Standards : EN 60 335-1 and EN 60 335-2-15

- ATEX Directive (Directive 94/9/EEC) : **II 2 G** (group II, class 2, gas).
  Harmonized European Standards : CEI-EN 60079-0:2004 & CEI-EN 60079-1:2003
  EC examination certificate - type ISSeP 05 ATEX 031- Marking : Ex d IIA T3
  Notified by INERIS 0080 – 60550 VERNEUIL EN HALATTE - FRANCE

Established in Stains, on March 18th 2009,

Dominique LAGOUGE
Executive Vice President

2. GENERAL SAFETY INSTRUCTIONS

WARNING : The equipment can be dangerous if you do not use it according to the rules mentioned in this instruction manual. Read carefully all the instructions hereafter before operating your equipment.

The personnel involved in operating and servicing the equipment must be aware of all safety requirements stated in this manual. The workshop supervisor must be certain that the personnel has perfectly understood the safety instructions hereafter and complies with them.

Read all instruction manuals as weel as the tags of the equipments before operating the equipment.

Refer to local safety instructions and comply with them.

▪ STANDARDS

The following instructions must be read together with :

- The standard NF C 15 100 (French rules on electric installations),
- The standard NF EN 60 079-14 (electric installations in explosive gas area),
- The standard NF EN 60 079-17 (examination and daily care in hazardous areas),
- The statutory orders, the decrees, the laws, the directives, the circulars to enforce, the standards, the rule book and any other document regarding its installation area.

KREMLIN shall not be liable for their non-compliance.

▪ INSTALLATION REQUIREMENTS

➲ **Ground the equipments.**

Use the equipments only in a **well-ventilated area** to prevent from serious body injuries, fire and explosion hazards. Do not smoke in the spray area.

Never stock paints and solvents in the spray area. Always close the pots and the tins.

Do not install the paint drums underneath the electric equipments. Install a cover on the drums to reduce the diffusion of gas and vapours in the booth.

Always keep the spray area clean and free from debris (solvent, rags,…).

Read paint and solvent manufacturer's technical instructions.

Spraying of some materials may result in hazardous working conditions. To protect the operator, respirator mask, hand cream and glasses are required (Refer to chapter 'Safety equipment' of KREMLIN selection guide).

CAUTION : To prevent from any formation of gas and inflammable vapours, use paint whose flash point is the highest possible (refer to materials' safety instructions).

▪ EQUIPMENT REQUIREMENTS

The operating pressure of these equipments are particularly high. Consequently, some precautions must be taken in order to prevent from accidents and from unsafe working conditions :

➲ **Never exceed the components maximum working pressure of the equipment.**

HOSES

Do not use hoses with a maximum burst-proof pressure less than four times the maximum service pressure of the pump (see data sheet).

Be certain the hoses are not crimped, leaking and not unrolled.

Be certain hoses are in good conditions and showing no evidence of damage.

➲ **Use only air hose with static conductor to connect the pump with the spray gun.**

All fittings must be tight and in good condition.

PUMP

➲ **Ground the equipment (use the connection on the pump).**

Do not use any product or solvent incompatible with the pump components.

Use the appropriate solvent for the material being sprayed to increase the equipment working life.

GUN

Never wipe the end of the tip with the fingers.

Never point the spray gun at anyone or at any part of the body.

Always depressurize air and hoses before carrying out any servicing on the gun.

HEATER

➲ **The ONE-PASS™ heater is designed to be explosion-proof and can be installed in an explosive area (area 1 and area 2).**

➲ **Ground the equipment (intake with ground or connection on the heater).**

Check the voltage indicated on the equipment before plugging it in.

Do not use any product or solvent incompatible with the paint heater components. Use the appropriate solvent for the material being sprayed to increase the equipment working-life.

Do not use any product or solvent incompatible with the group II A of the paint heater (standard EN 50 014).

The equipment is designed for heating the paint. Let the systems cool before any servicing on the installation.

A **DANGER** label - Hot parts or surfaces - fits out the paint heater with.

The heater is fitted with a **'ATEX DO NOT MODIFY'** label.
That equipment has an ATEX agreement and cannot , in no case, be modified.

Disconnect the paint heater and let it cool before using flushing solvent or any other cleaning solvent.

- **MAINTENANCE REQUIREMENTS**

➲ **Never modify these equipments.**

Check them daily, keep them in a good conditions and replace the worn parts **only with KREMLIN parts.**

Before cleaning or removing components of the equipment, it is compulsory :
- **to shutt off the paint heater,**
- **to stop the pump by shutting off the compressed air supply,**
- **to open the pump drain valve or to press the gun trigger to depressurize the systems.**

- **ENVIRONMENT**

This equipment consists of a label plate with the name of the manufacturer, the equipment part number, the interesting informations to use correctly the equipment (pressure, voltage…) and the above pictogram.

The equipment is designed with and consists of high quality materials and components which can be re-used.

The 2002/96/EC European Directive covers all equipments with a crossed-out bin pictogram. Please inform yourself about the collection systems for electric and electronic equipments.

Please act according to local rules and **do not throw the old equipments with household wastes**. A correct disposal of the old equipment will help prevent negative consequences for the environment and health.

3. DESCRIPTION

The ONE-PASS heater is mounted on paint spray installations (hydro or solvented) between the pump fluid outlet and the gun fluid inlet. A heated system enables to maintain a constant fluid temperature whatever the variations of the ambiant temperature are.

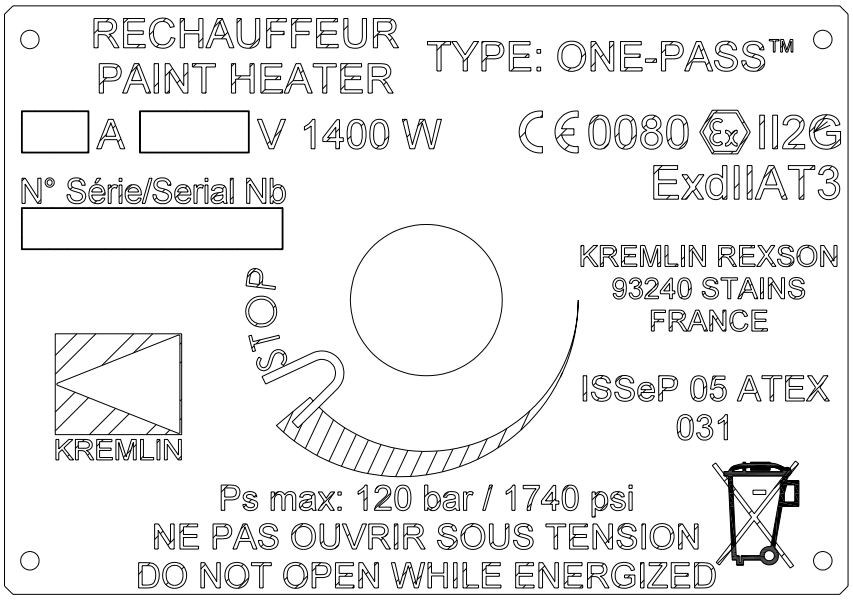
The heater can be installed in the area where the application of paints and varnishes is carried out. It is designed to prevent an inflammation from spreading and to be **explosion-proof**.

It is recommended for conventional or AIRMIX ® spraying.

The heater has an excellent energy efficiency. The fluid part is in stainless steel. The access to the heater components and the servicing are easy. The circuits are designed to prevent paint from overheating.

A thermal fuse, fitting the heater will instantly melt if the temperature becomes excessive following a fault in the thermostat, for example. You can easily change the fuse.

▪ DESCRIPTION OF THE MARKING LABEL AND OF THE FIXING SCREWS



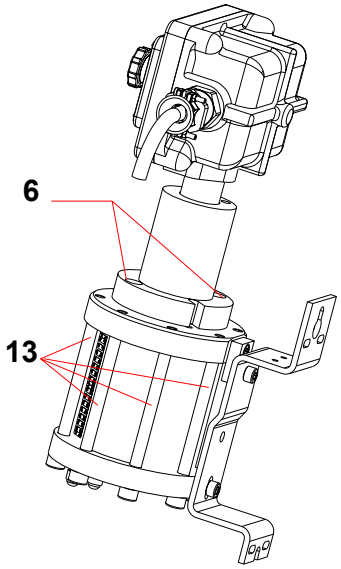
RECHAUFFEUR / PAINT HEATER TYPE ONE-PASS™	Type
- A --- V 1400W	Intensity, voltage and power of the equipment
CE 0080	0080 : INERIS code which notified the Quality Management System
Ex II 2 G	**II** : group II **2** : class 2 Surface equipment meant to area where explosive atmospheres due to gas, vapours, mists are liable to appear from time to time in usual operating. **G** : gas
Ex d IIA T3	**d** : explosion-proof enclosure **II A** : electric material group for explosive atmospheres other than firedamp mines **T3** : surface temperature lower than 200°C / 392° F
N° Serie /Serial Nb	Number given by KREMLIN REXSON. The two first numbers indicate the manufacturing year.
ISSeP 05 ATEX 031	Material certificate N° given by ISSeP
Sigle KREMLIN	Manufacturer label
KREMLIN REXSON 93240 STAINS FRANCE	Name and address of manufacturer
PS max : 120 bar / 1740 psi	Maximum fluid pressure
NE PAS OUVRIR SOUS TENSION / DO NOT OPEN WHILE ENERGIZED	Safety instruction
	Environmental Indication (refer to § 2 - Environment)

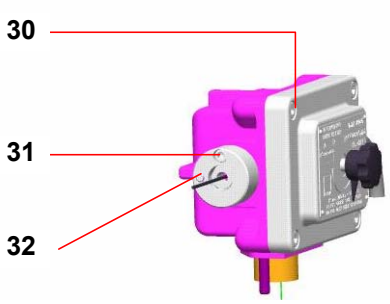
Description of the fixing screws

Ind	Description	Qty	Ind	Description	Qty
6	Screw CHc 8x20 Class 12/9 galvanized steel	3	30	Screw CHc 8x20 Class 12/9 galvanized steel	4
13	Screw CHc 10x140 Class 8/8 galvanized steel	8	31	Screw CHc 6x20 Class 12/9 galvanized steel	1
			32	Screw CHc 6x16 Class 12/9 galvanized steel	1

➲ **Important** :

During the removal and the reassembly of the heater, you **shall** remount the screws above (or new ones of same quality) to keep in the heater integrity.

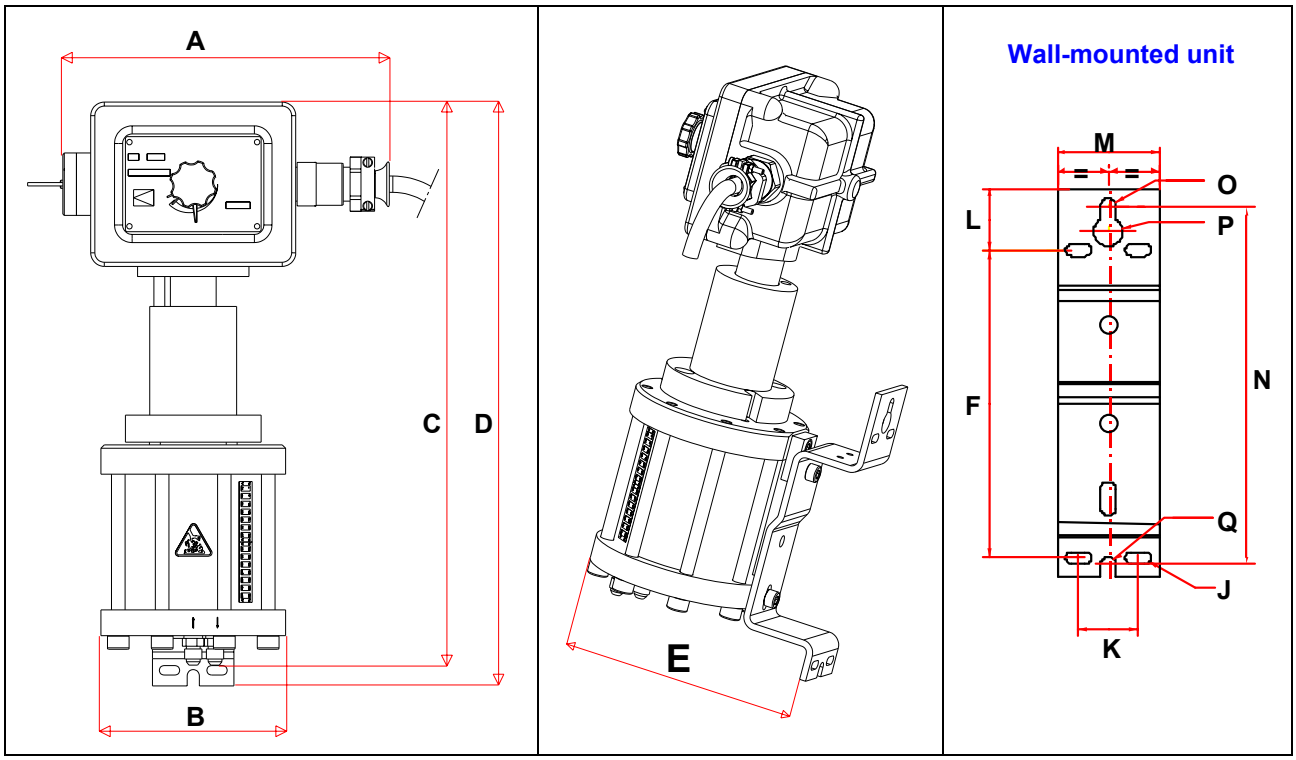




4. FEATURES

HEATERS	ONE-PASS™ 230V	ONE-PASS™ 115V
Single-phase voltage	230 V	115 V
Intensity (A)	7 A	14 A
Power (W)	1400 W	
Cable length without plug	5 m / 16 ft	
Inlet and outlet fittings	Male 1/2 JIC	
Thermostat version	Expansion of liquid and dry contact	
Thermal fuse	Cutting of at 72° C / 162° F	
Thermometer (thermal tape)	Reading : from 0 to 60° C / from 32 to 212° F	
Maximum fluid temperature	45 °C / 113° F	
Temperature range	from 15 to 45°C / from 59 to 113° F	
Rise of temperature	Maximum 20° C / 68° F for a 800 cc/mm flowrate	
Flowrate	Max 800 cc/mn	
Maximum operating pressure	120 bar - 1740 psi	
Weight	16.5 kg / 36.4 lb	
Wetted parts in contact with the material	Stainless steel body, stainless steel fittings	
Maximum work ambient temperature	40°C / 104° F	

5. DIMENSIONS



Ind.	mm	"	Ind.	mm	"	Ind.	mm	"	Ind.	mm	"	Ind.	mm	"
A	240	9.45	B	Ø 136		C	416	16.4	D	430	16.9	E	200	7.9
J	Ø 7x15		K	35	1.4	L	36,5	1.44	M	60	2.4	N	211,5	8.3
P	Ø 17		Q	Ø 9		F	185	7.3	O	Ø 9				

6. INSTALLATION

The ONE-PASS™ heater is explosion-proof. It can be installed in an explosive area (area 1 or area 2).

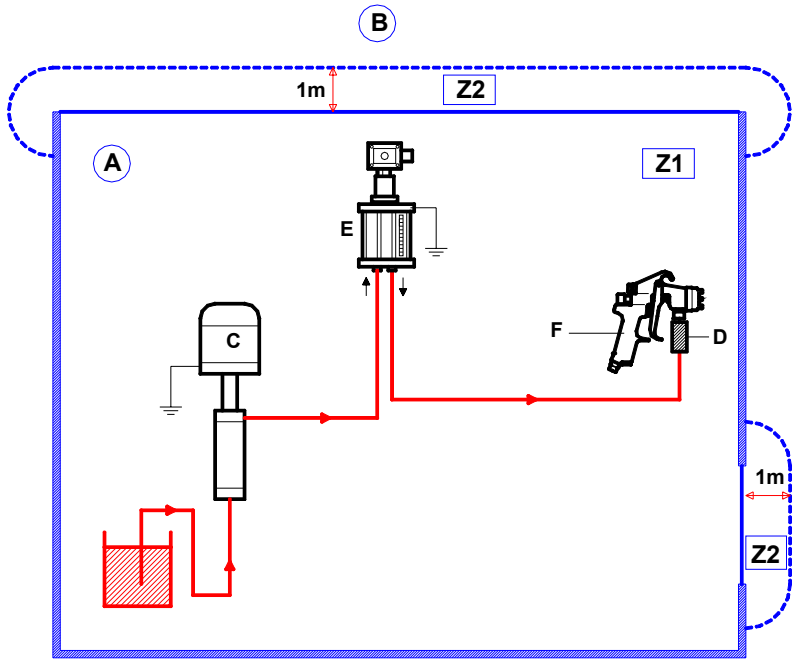
Install a plug at the cable end (2 terminals + earth).

Ground the pump and the paint heater.

Check the mains voltage and the one indicated on the heater (115V or 230V **single-phase**).

Install an hose upstream and an other one downstream of the paint heater (choose the hose according to the **pressure** supplied by the pump and to the regulating **temperature**).

Two arrows ↑ ↓ engraved on the lower flange of the heater indicate the liquid flow direction.



Captions :

A - Explosive area area 1 (Z 1) or area 2 (Z 2) : spraybooth

B - Non explosive area (safe area)

C - Pump

D - Filter

E - ONE-PASS™ heater

F - Spray gun

7. OPERATING

▪ START UP

Switch on the pump.

Plug in the heater intake.

Program the temperature turning the knob located on the heater box. The temperature will be read on the thermometer located on the body of the heater.

Wait a few minute for the stabilization of the temperature.

Nota : A gap must exist between the value of the temperature read on the thermal indicator and the real temperature of the paint.

Adjust the pump pressure and the fluid temperature.

Nota : The fluid output must not be too important to get a correct regulation of the temperature.

Do not overheat the paints. Comply with the features of the materials.

Never shift the cursor beyond the STOP indication : the thermal fuse will be damaged.

▪ SHUTDOWN

Short duration shutdown :

During the shutdown, the fluid temperature inside the heater will normally increase. Consequently, check that the temperature is not upper than the limit given by the manufacturer. If the temperature is upper than the limit, turn the heater knob to get the minimum temperature.

Long duration shutdown :

Turn the heater knob to the minimum temperature.

Stop the pump and unplug the heater.

When the heater is **cool**, change the fluid with the appropriate cleaning solvent.

Pressurize once more the pump. Trigger the gun until solvent goes out clean.

Shut off the pressure and leave the installation fill with solvent.

That operation is important because the mixers that become clogged up can be cleaned and create a loss of pressure in the installation.

8. TROUBLESHOOTING CHART

FAULT	CAUSE	SOLUTION
Fluid at the heater outlet too cool	Electric supply	Check the voltage indicated on the heater and the mains voltage. Check or change the thermal fuse. Check or change the explosion-proof box.
	Heating time too short.	Wait the fluid temperature ascent time.
	Bad adjustment of the temperature	Turn the adjustment knob to raise the temperature.
	Mixers clogged up	Remove the heater and change the mixers.
	Fluid flow into the circuit too important.	Decrease the pump flow or install two heaters.
Fluid at the heater outlet too hot.	Bad adjustment of the temperature	Turn the adjustment knob to decrease the temperature.
	Defective thermostat	Check or change the explosion-proof box.
When working, pressure decrease at the gun.	Mixers clogged up.	Dismount the heater and change the mixers.

9. DISMANTLING

Before dismantling a component of the heater, unplug the heater and depressurize the fluid circuit.

The heater is made of 3 parts :

1 - a temperature regulation box,

2 - an heating fluid part,

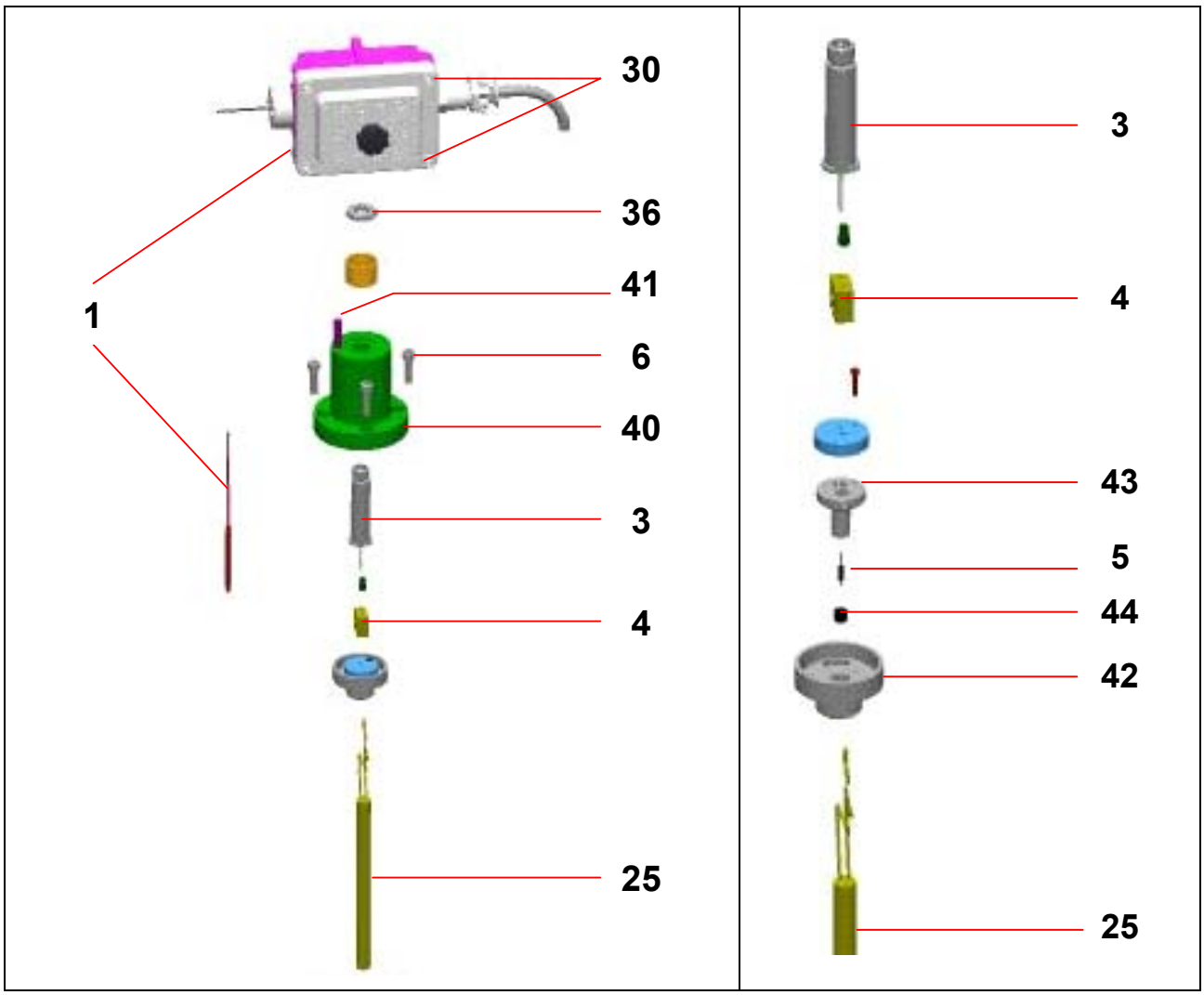
3 - a sleeve used as an assembling element between the parts 1 and 2 ensures the explosion-proof device of the heater.

- **THERMOSTAT ASSEMBLY (1) REPLACEMENT**

The thermostat assembly is made up a regulation box placed into the explosion-proof box and a sensing element placed into the heater body.

The sensing element and the box are an indissociable assembly that ensures the tightness.

The ONE-PASS™ heater is submitted to the ATEX agreement. Consequently, the thermostat assembly can be changed only by the KREMLIN after-sales service.



- **THERMAL FUSE (5) OR HEATER ELEMENT (25) REPLACEMENT**

The heating resistance is plugged into the heater body and its connection is at the sleeve (3) level via a connecting block (4) and a thermal fuse (5).

Unscrew the 4 screws (30) of the regulation box.

Remove the nut (36) placed into the box to separate the box from the sleeve (3).

Unscrew the 3 screws (6) to remove the adaptator (40). The pin (41) used as a locating pin for the assembling with the box (1) is on the adaptator (40).

Unscrew the screws of the connecting block (4) and disassemble the upper part of the heater from the heating part.

Remove the heater element (22) unscrewing first the seal body (42).

The fuse-holder cartridge (43) is inside the body seal (42).

Dismount the bottom of the cartridge (44) and remove the thermal fuse (5). Change it.

➲ **The electric drawing of the heater is available on the "Spare parts"(refer to Doc. 573.346.050)**

- **REPLACEMENT OF THE MIXERS (16)**

Disassemble the 8 screws (13) to separate the upper part of the heater (box and adaptator) from the fluid part.

Take off the lower flange (11), the body (10) and the seal body (19).

Slide the 16 mixers (16).

Assembly :

Clean the body (10), the flanges (11 & 12) and the seal body (19) with the appropriate cleaning solvent, then dry the parts before carrying out the assembly.

➲ **IMPORTANT : The parts must be dry to prevent from electric troubles.**

Locate one of the tightness seals (23) on the body of the upper seal (42).

Locate the other tightness seal (23) on the body of the lower seal (19). Install the whole into the lower part of the heater body (10).

Install new seals (15) and new rings (7 & 14) **after having lubricated them** with PTFE grease.

After the application of the heat conductivity grease, slide the heating resistance (25) and the temperature sensor (1b) into the heater body.

Clean the mixers or install new ones (16).

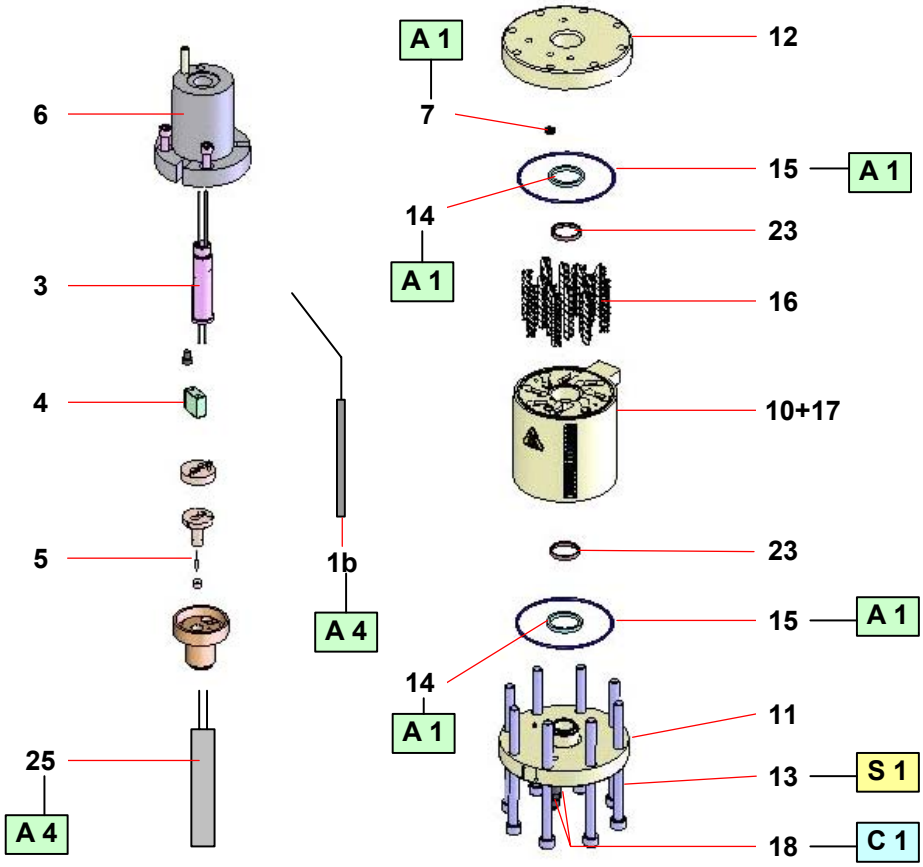
Install the lower flange (11) and fix the whole fluid part by means of the 8 screws (13). Comply with screwing torque.

Nota: Start screwing manually the 8 screws (13). Screw them progressively and comply with the screwing torque.

➲ ***You can damage the seals (15) if you do not follow these instructions.***

➲ **Important :**

During the removal and the reassembly of the heater, you shall remount the screws named above (or new ones of same quality) to keep in the heater integrity.



Index	Instruction	Description	Part number
A 1	PTFE grease	'TECHNILUB' grease (10 ml)	560.440.101
A 4	Heat conductibility grease	'COMPOUND' grease (20 g)	560.450.002
C 1	Medium strength Aneorobic Pipe sealant	(Similar as Loctite 577)	
S1	Screwing torque	70 N.m / 51.6 ft/lbs	