KREMLIN

INSTRUCTION MANUAL

Explosion-proof
AD 60 / AD 61 PAINT HEATER

aluminium and stainless steel versions

Manual : 0807 573.167.112

Date : 3/07/08 – Supersede : 18/10/06

Modif. § 1

ADDITIONAL DOCUMENTATIONS

SPARE PARTS :	**Paint heater, model AD 60 / AD 61**	**Doc. 573.168.050**

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EXPLOSION-PROOF AD 60 / AD 61 PAINT HEATER
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SUMMARY

Dear Customer,

You are the owner of your new paint heater and we would like to take this opportunity to thank you.

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. EC 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 : Paint heater, is in conformity with the provisions of :

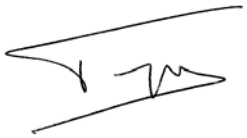
EC - Machinery Directive (Directive 98/37/EC) and with national implementing legislation

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

Ex - ATEX Directive (Directive 94/9/EC) : **II 2 G** (group II, class 2, gas).
Harmonized European Standards : EN 50 014-1997+A1+A2, EN 50 018-2000+A1
EC-type examination certificate INERIS 03 ATEX 0079X - Marking : EEx d IIA T3
Notified by INERIS 0080 – 60550 Verneuil-en-Halatte – FRANCE

'The standards used are no longer the harmonized ones, but the conformity of the material is not affected by the substantial modifcations of the EN 60079 serie standards'.

Established in Stains, on November 1 st 2003,



Daniel TRAGUS
President

2. GENERAL SAFETY INSTRUCTIONS

WARNING : Any misuse of the equipment or accessories can damage them, result in serious body injury, fire or explosion hazard and reduce the equipment working life. Read, understand and comply with the safety instructions hereafter.

The personnel involved in operating and servicing this 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 and complies with them.

Read all instruction manuals as well 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 atmospheres),
- 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 equipment.**

Use the equipment 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.

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).

▪ 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.

PAINT HEATER

➲ **The AD 60 or AD 61 paint heater is designed to be explosion-proof and can be installed in an explosive area (area 1 and area 2).**

➲ **Ground the equipment (use the connection on the paint heater body).**

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.

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 shut off the 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 correcttly the equipment (pressure, voltage…) and the above pictogram.

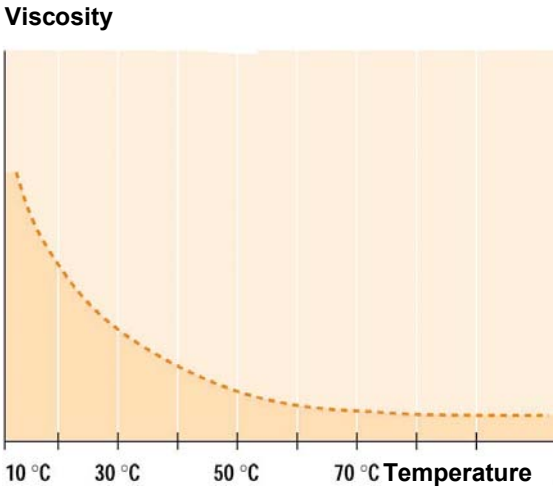
The equipment is designed with and consists of high quality materials and components which can be re-used.

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. HOT SPRAYING PRINCIPLE

The heater is mounted on paint spray installations between the pump fluid outlet and the gun fluid inlet. A heated system improves finish quality (reduction of fluid viscosity) by increasing fluid temperature.

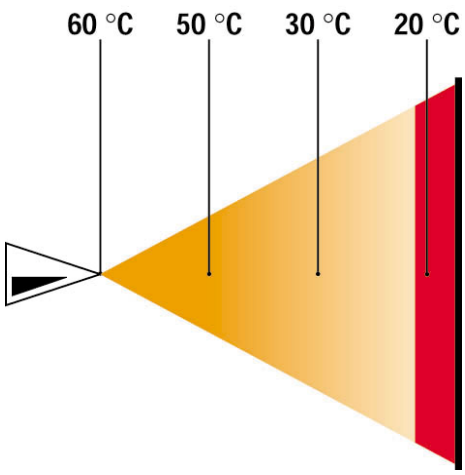


When increasing the fluid temperature, its viscosity is reduced.

Example of application :

Thick paint: hot spraying between 60° C / 140° F and 70°C / 158° F

Medium diluted paint : hot spraying between 30° C / 86° F to 60° C / 140° F



Variation of the temperature in the fan.

It cools down very quickly during the spraying and hits the part at the ambient temperature.

4. DESCRIPTION

The AD 60/61 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**.

There are an aluminium version and a stainless steel version. In each version, there are different models according to the voltage, the power.

It is recommended for AIRMIX ® or AIRLESS conventional spraying.

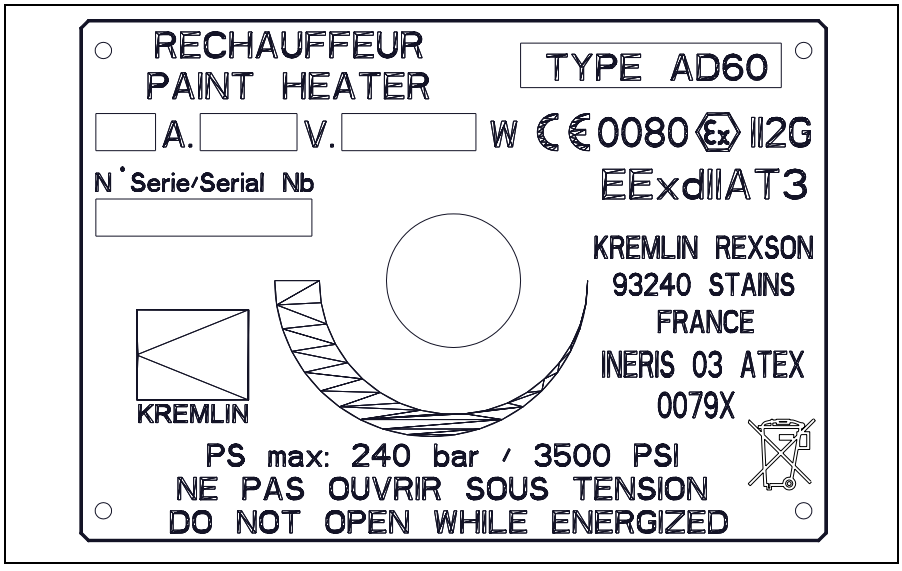
The AD 60/61 heater has an excellent energy efficiency. The access to the heater components and the servicing are easy.

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**

Example of indicator plate for the AD 60 heater (230V – 1500W)



RECHAUFFEUR / PAINT HEATER TYPE AD 60	Type
7A 230V 1500W	Intensity, voltage and power of the equipment
CE 0080	0080 : INERIS code that notifies the Quality Management System
II 2 G	**II** : group II **2** : class 2 Surface equipment meant to an area where explosive atmospheres due to gas, vapours, mists are liable to appear from time to time in usual operating. **G** : gas
EEx 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
INERIS 03 ATEX 0079X	Fluid approval N° given by INERIS
Sigle KREMLIN	Manufacturer label
KREMLIN REXSON 93240 STAINS FRANCE	Name and address of the manufacturer
PS max : 240 bar / 3500 PSI	Maximum fluid pressure
NE PAS OUVRIR SOUS TENSION / DO NOT OPEN WHILE ENERGIZED	Safety instruction
	Environment indication (refer to § 2 - Environment)

Description of the fixing-screws

Ind.	Description	Qty
9	Screw H 8x16 stainless steel A2	1
15	Screw CHc 8x16 Class 12/9 galvanized steel	1
30	Screw CHc 8x20 Class 12/9 galvanized steel	4
31	Screw CHc 6x20 Class 12/9 galvanized steel	1
32	Screw CHc 6x16 Class 12/9 galvanized steel	1
35	Screw CHc 8x30 Class 12/9 galvanized steel	3

(for ind., see drawing page 10)

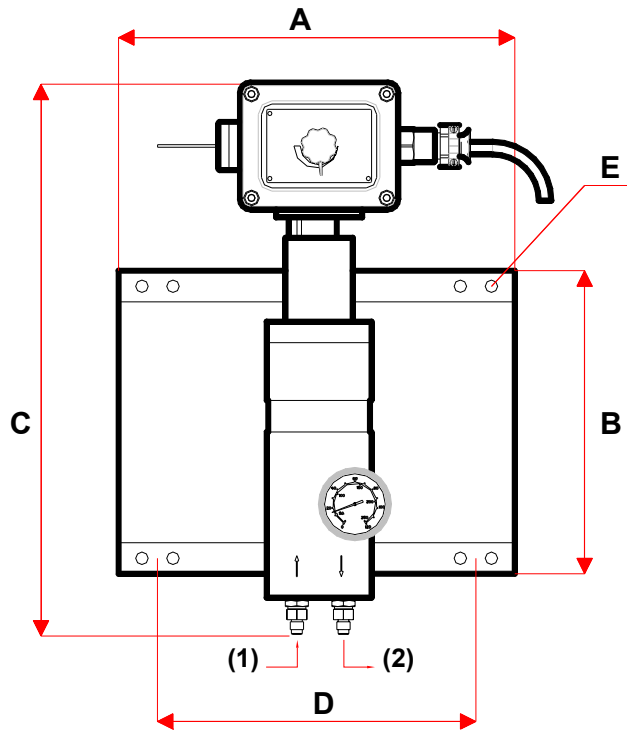
➲ **Important** : During the removal and the reassembly of the heater, you **shall** remount the screws above (or new ones of same quality) to keep in the heater integrity.

5. FEATURES

Heater	Type	Single-phase voltage (V)	Power (W)	Cable length without plug	Inlet fitting	Outlet fitting
aluminium or stainless steel	AD 60	230	1500	10 m / 32 ft	M 1/2 JIC / # 5 JIC	M 1/2 JIC / # 5 JIC
	AD 61	115	1500	5 m / 16 ft	M 1/2 JIC / # 5 JIC	M 1/2 JIC / # 5 JIC
	AD 60	230	1250	5 m / 16 ft	M 1/2 JIC / # 5 JIC	M 1/2 JIC / # 5 JIC
	AD 60	400	1250	5 m / 16 ft	M 1/2 JIC / # 5 JIC	M 1/2 JIC / # 5 JIC
	AD 60	480	1500	5 m / 16 ft	M 1/2 JIC / # 5 JIC	M 1/2 JIC / # 5 JIC

	ALUMINIUM HEATER	STAINLESS STEEL HEATER
Thermostat version	Expansion of liquid and dry contact	
Thermal fuse	Cutting of at 121°C / 250 ° F	
Thermometer	Graduation : 0 to 100° C / 32° F to 212° F	
Temperature range	15 - 80°C / 59 - 176° F	
Maximum operating pressure	240 bar / 3480 psi	
Weight (kg / lbs) :	15,5 kg / 34.2 lbs	25 kg / 55.1 lbs
Wetted parts in contact with the material	Aluminium body Chrome galvanized steel fittings	Stainless steel body Stainless steel fittings
Work ambient temperature	40°C / 104 ° F max	

6. DIMENSIONS



Heater on wall-mounted unit

Dimensions

A - 360 mm / 14.2 "

B - 305 mm / 12 "

C - 520 mm / 20.5 "

D - 252 mm / 10 "

E - ∅ 10 mm / 3/8 "

(1) - fluid inlet (# 5 JIC)

(2) - fluid outlet (# 5 JIC)

7. INSTALLATION

The AD 60/61 heater is explosion-proof. It can be installed in an explosive area (area 1 and area 2).

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

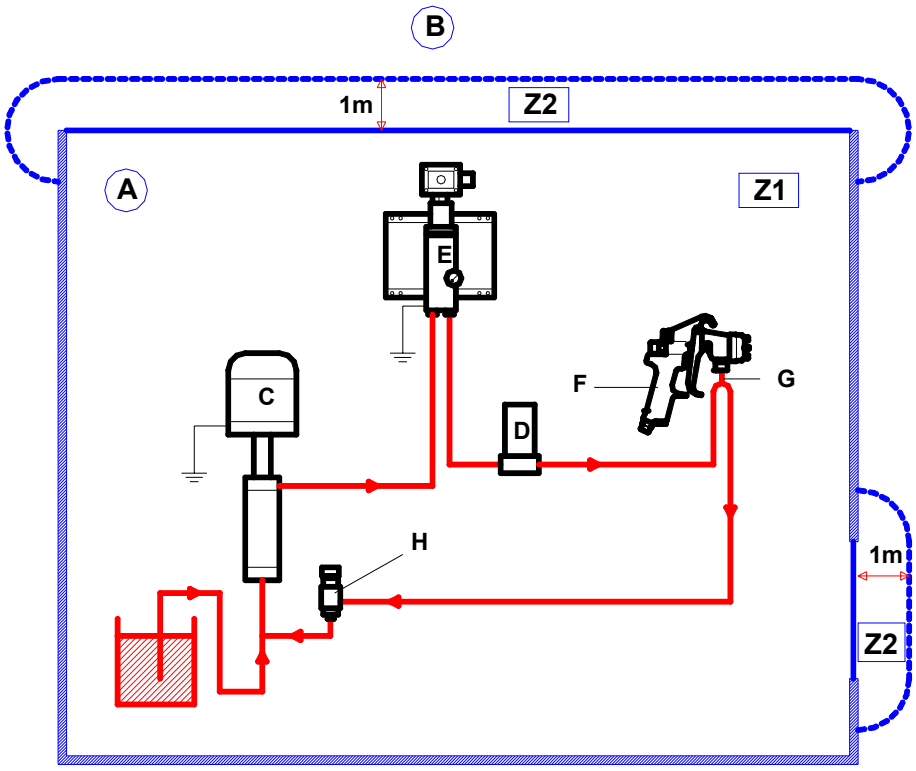
Ground the pump and the paint heater.

Check the mains voltage and the one indicated on the heater (115V, 230V or 400V **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**).

When you install a Y-fitting at gun level and a back pressure regulator or a regulation valve on the fluid return, you make the fluid circulate.

Nota : choose a circulation valve if the temperature exceeds 50° C / 122° F. Choose a back pressure regulator for lower temperatures.



Captions :

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

B - Non explosive area

C - Pump

D - Filter

E - AD 60/61 heater

F - Spray gun

G - Y-fitting

H - Circulation valve or back pressure regulator

8. OPERATING

- **START UP**

  Switch on the pump. Make the fluid circulate into the circuit at low pressure.

  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 minutes for the stabilization of the temperature.

Adjust the pump pressure and the return circuit pressure : the circulation must not be too important.

Adjust the fluid temperature.

Caution : Do not overheat the paints. Comply with the features of the material.

- **SHUTDOWN**

Short duration shutdown :

Keep the fluid circulating and reduce the pressures.

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.

9. TROUBLESHOOTING CHART

DEFECT	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.
	Faulty 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.

10. DISMANTLING

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

The heater is made up 3 parts :

1 - an heating assembling,

2 - a temperature regulation box,

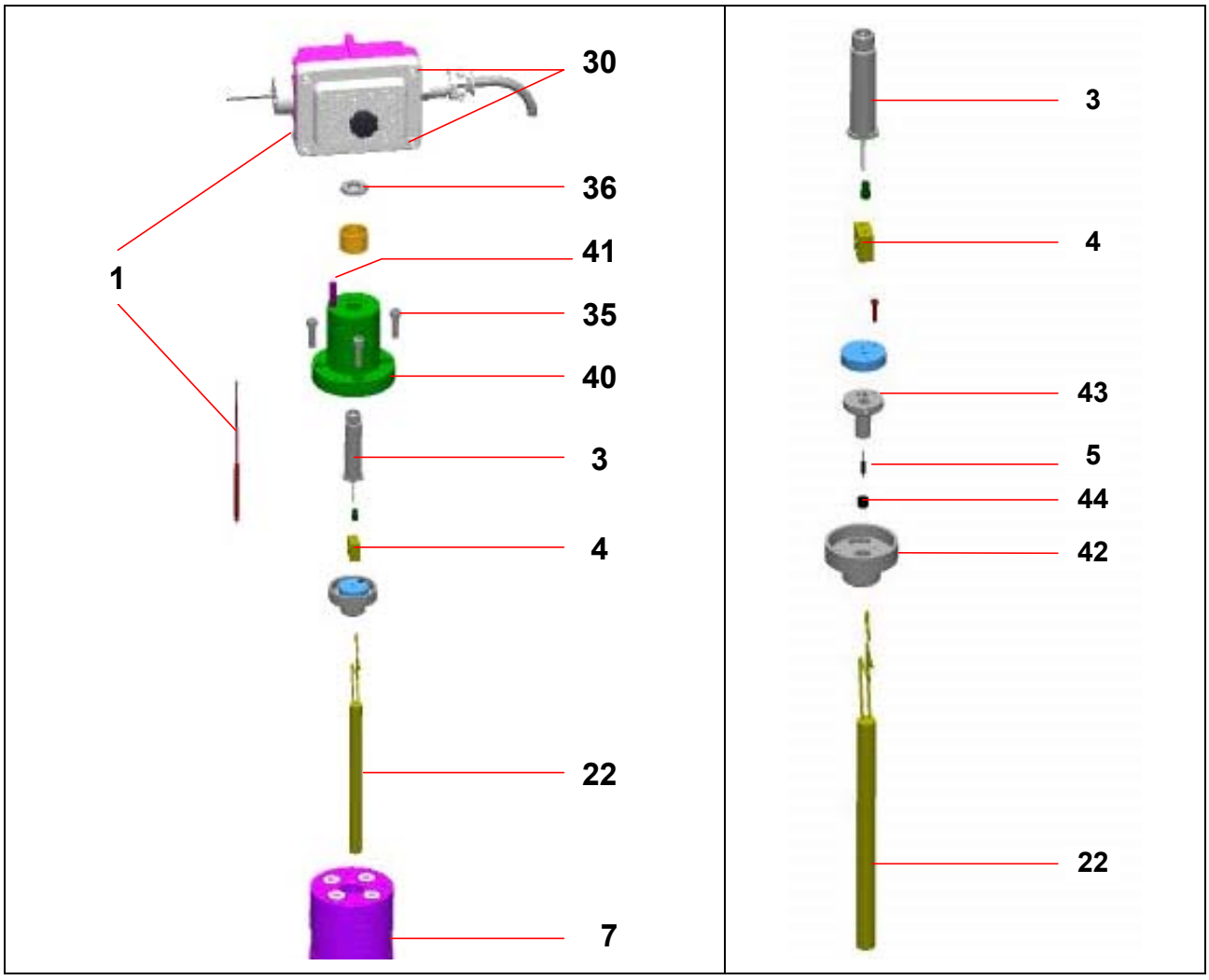
3 - a sleeve used as an assembling element between the parts 1 and 2 ensures the explosion-proof device of the heater.

- **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 AD60/61 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 (22) REPLACEMENT - (REFER TO DOC. 573.168.050)**

The heating resistance is plugged into the heater body and its connection is at the sleeve (3) level via a connecting block 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 (35) 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" document (refer to Doc. 573.168.050)**

- **REPLACEMENT OF THE MIXERS (8)**

Disassemble the upper part of the heater (box and adaptator) with the body (22).

Unscrew the inlet and the fluid outlet fittings (16).

Unscrew the plugs (6) located on top and under the heater body.

Remove the 8 mixers. Replace them with new ones.

Remount the parts in the reverse order of the disassembly sequence.

- **REPLACEMENT OF THE THERMOMETER (12)**

Unscrew the screw (13) and take off the thermometer.

Install a new thermometer and fasten it to the body by means of the screw (13).