GB | IE

XD - XD D HEATERS

INSTALLER INSTRUCTIONS

(INSTALLATION - MAINTENANCE - CONVERSION)

Nr. 05000376 / 7

Ceramic heaters
Stainless steel burner
Aluminium body
Electronic igniton
Thermocouple flame control
Built-in adjustable support for hanging bracket : 3 positions

Manufacturer :
SBM
3 cottages de la Norge
21490 CLENAY
FRANCE
http ://www.sbm-international.net

Agent :

CE 1312

SUMMARY

GENERAL

- ***In the process of continuous improvement, SBM products may be modified without notice.***

- ***The XD heaters are CE certified for non domestic use (indoor and outdoor).***
  The XD-D heaters are CE certified for domestic use (ex: opened terrace heating) OUTDOOR ONLY.

1. WARNINGS

In this manual, symbol  means "**IMPORTANT**"

In this manual, symbol  means "**DANGER**"

Installation and maintenance of the heaters will be done by a qualified technician.

This appliance must be installed in accordance with the local regulations.

It shall be used in a space ventilated in accordance with the requirements of EN 13410.

The XD D heaters must be installed only in a terrace (outside) and the terrace must be sufficiently open.

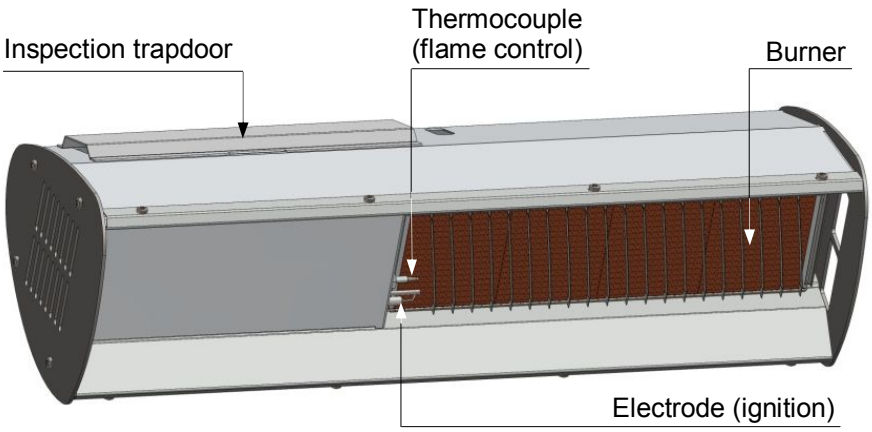
Consult the instructions before installation and maintenance of this appliance.

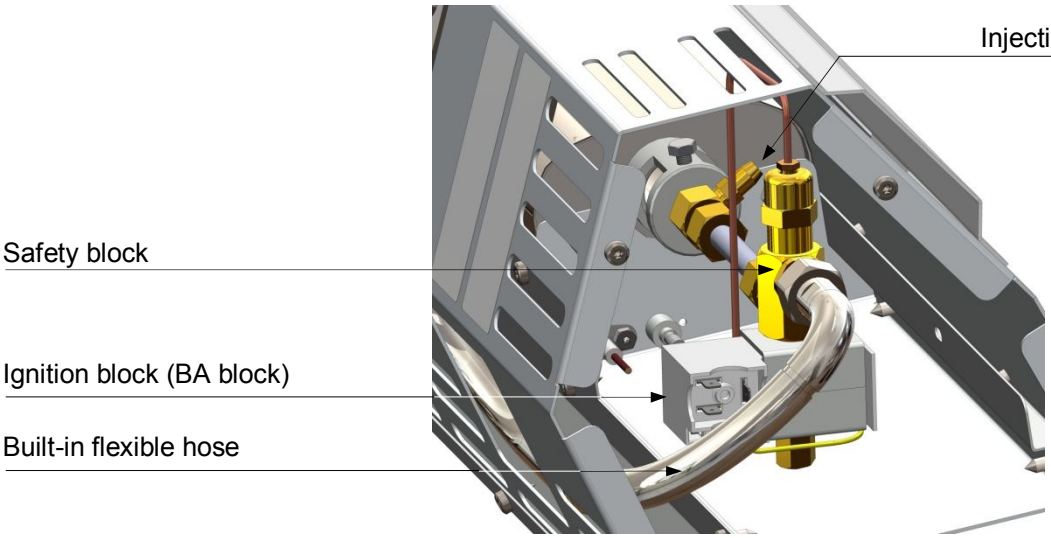
Switch-off the appliance and close the gas valve before carrying out any service operation.

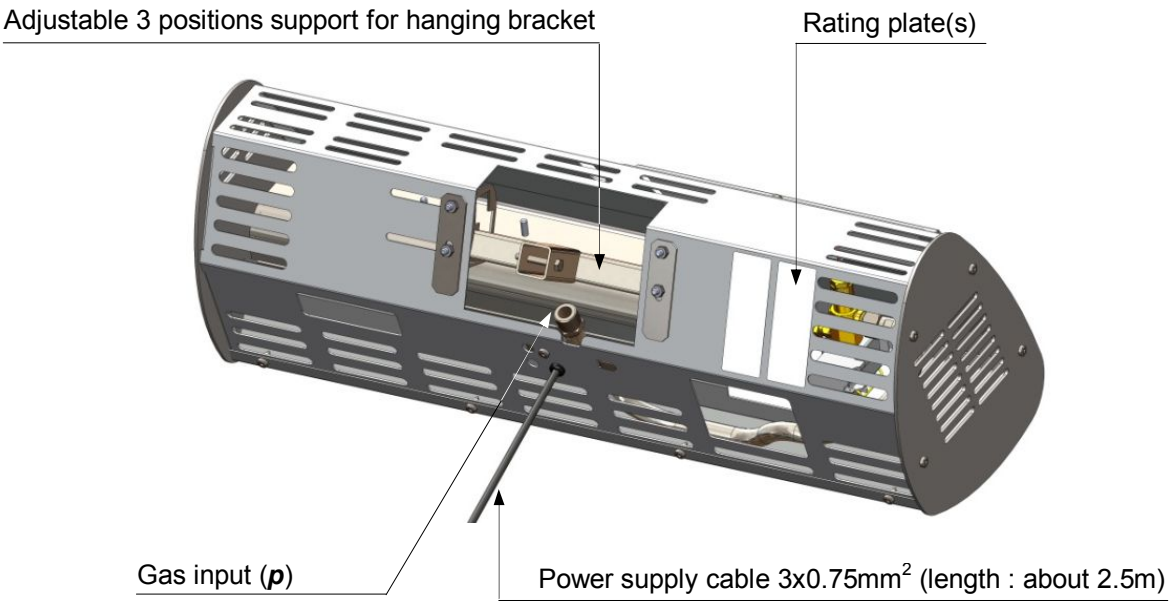
This manual, as well as the user's manual, must be given to the user at the end of the work.

2. PRODUCT SPECIFICATION

2.1 Description







2.2 Technical specifications

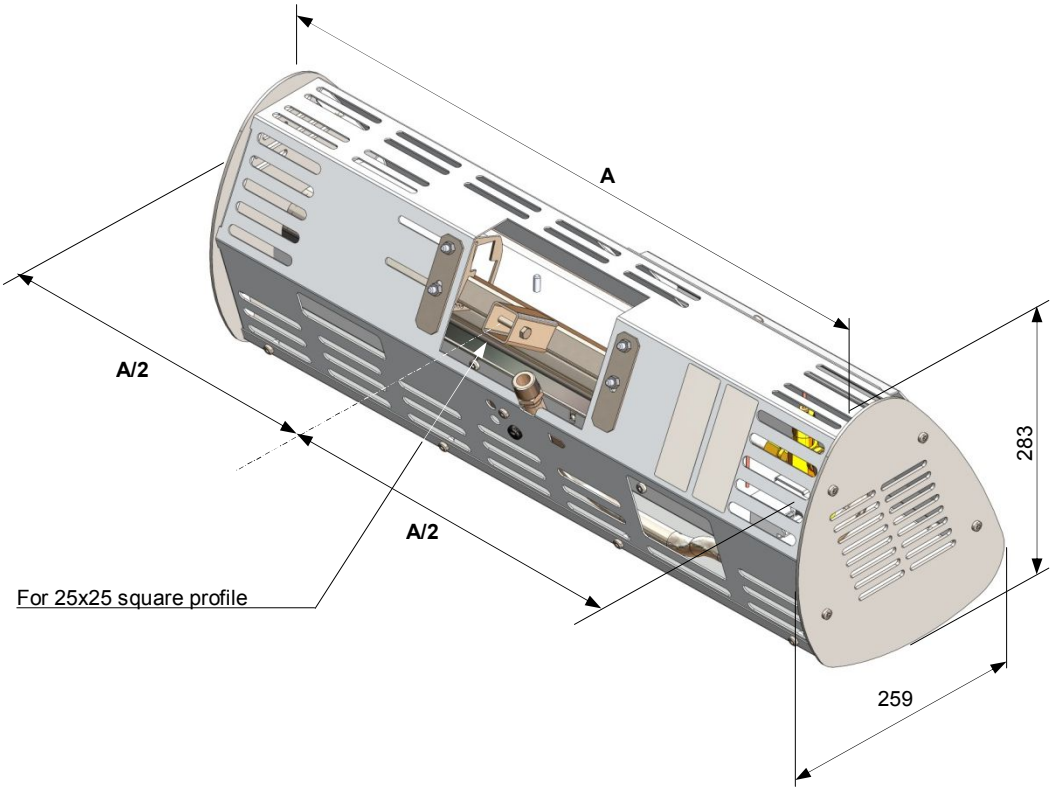
GAS : G20 (Natural Gas) - Category : I_{2H} GB/IE

MODEL			XD8 XD8 D	XD10 XD10 D	XD12 XD12 D	XD16 XD16 D
P.I.N. CE			1312 CQ 6090			
Class NOx			5 (< 50 mg/kWh)			
Weight		(kg)	5.25	5.75	6.50	7.75
Nominal heat input	Qn (Hi)	(kW)	3.30	3.80	5.10	6.80
Gross calorific value	Qn (Hs)	(kW)	3.65	4.25	5.65	7.55
GAS						
Nominal inlet pressure		(mbar)	20			
Injection pressure p_i		(mbar)	11	12	15	16.7
Volumetric flow rate		(m^3/h)	0.350	0.400	0.540	0.715
Ø orifice (injector)		(1/100 mm)	165	170	180	195
Ø primary orifice (restrictor)		(1/100 mm)	180	195	240	320
Gas connection			G1/2" (ISO 228-1)			
Evacuation of combustion emissions			Type A_1 (not connected)			
ELECTRICITY						
Power supply			230V (+10% -15%) – 50Hz Neutral mandatory			
Current		(A)	0.1			
Consumption		(VA)	28			
Ingress protection			IP64 (with supplied cable)			
Individual fuse 5x20 (RP3)			0.25A fast acting			
Ignition cycle length			45 seconds			
VENTILATION						
Combustion air		(m^3/h)	3.40	3.90	5.30	7.00
Required air renewal		(m^3/h)	33	38	51	68

GAS : G31 (Propane) - Category : I_{3P} GB/IE

MODEL			XD8 XD8 D	XD10 XD10 D	XD12 XD12 D	XD16 XD16 D
P.I.N. CE			1312 CQ 6090			
Class NOx			5 (< 50 mg/kWh)			
Weight		(kg)	5.25	5.75	6.50	7.75
Nominal heat input	Qn (Hi)	(kW)	3.30	3.80	5.10	6.80
Gross calorific value	Qn (Hs)	(kW)	3.65	4.25	5.65	7.55
GAS						
Nominal inlet pressure		(mbar)	37			
Injection pressure (pressure test point)		(mbar)	21	21	28	37
Mass flow rate		(kg/h)	0.260	0.300	0.400	0.530
Ø orifice (injector)		(1/100 mm)	105	110	125	135
Ø primary orifice (restrictor)		(1/100 mm)	140	130	180	-
Gas connection			G1/2" (ISO 228-1)			
Evacuation of combustion emissions			Type A_1 (not connected)			
ELECTRICITY						
Power supply			230V (+10% -15%) – 50Hz Neutral mandatory			
Current		(A)	0.1			
Consumption		(VA)	28			
Ingress protection			IP64 (with supplied cable)			
Individual fuse 5x20 (RP3)			0.25A fast acting			
Ignition cycle length			45 seconds maxi			
VENTILATION						
Combustion air		(m^3/h)	3.10	3.60	4.80	6.30
Required air renewal		(m^3/h)	33	38	51	68

2.3 XD - XD D heaters dimensions



MODEL	XD8 XD8 D	XD10 XD10 D	XD12 XD12 D	XD16 XD16 D
A (mm)	576	625	702	826

3. INSTALLATION

Before installation, check that gas supply, gas type/ pressure and equipment settings are compatible.

3.1 Rules and Regulations

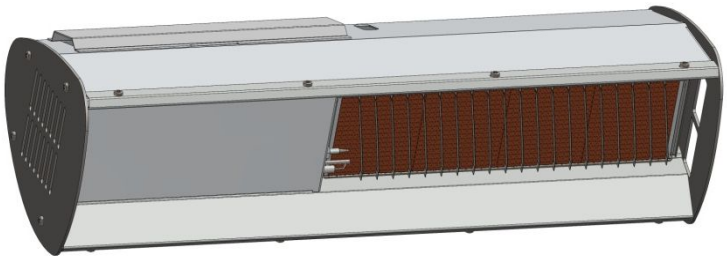
- ❒ SBM ceramic heaters are CE approved.
- ❒ The premises must be ventilated in accordance with the European standard EN 13410.
- ❒ Local and European Regulations, Standards and Laws regarding, in particular the ones related to :

  - Building
  - Heating
  - Gas
  - Health and Safety, protection of body and machinery
  - Hygiene

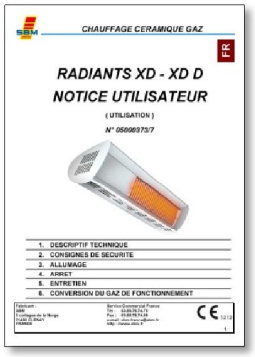
- ❒ *For domestic use, only OUTDOOR use and opened terrace.*

3.2 Unpacking and checking of equipment

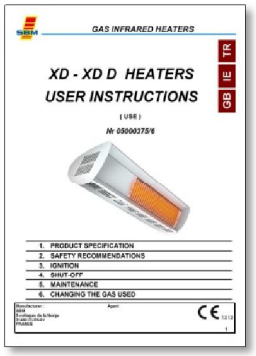
- ❒ Check the type and quantities against your order.
- ❒ Check packing and equipment condition.
  In case of damage, file a complaint with the carrier.
- ❒ Check gas type and pressure.
- ❒ Check box content.



XD heater

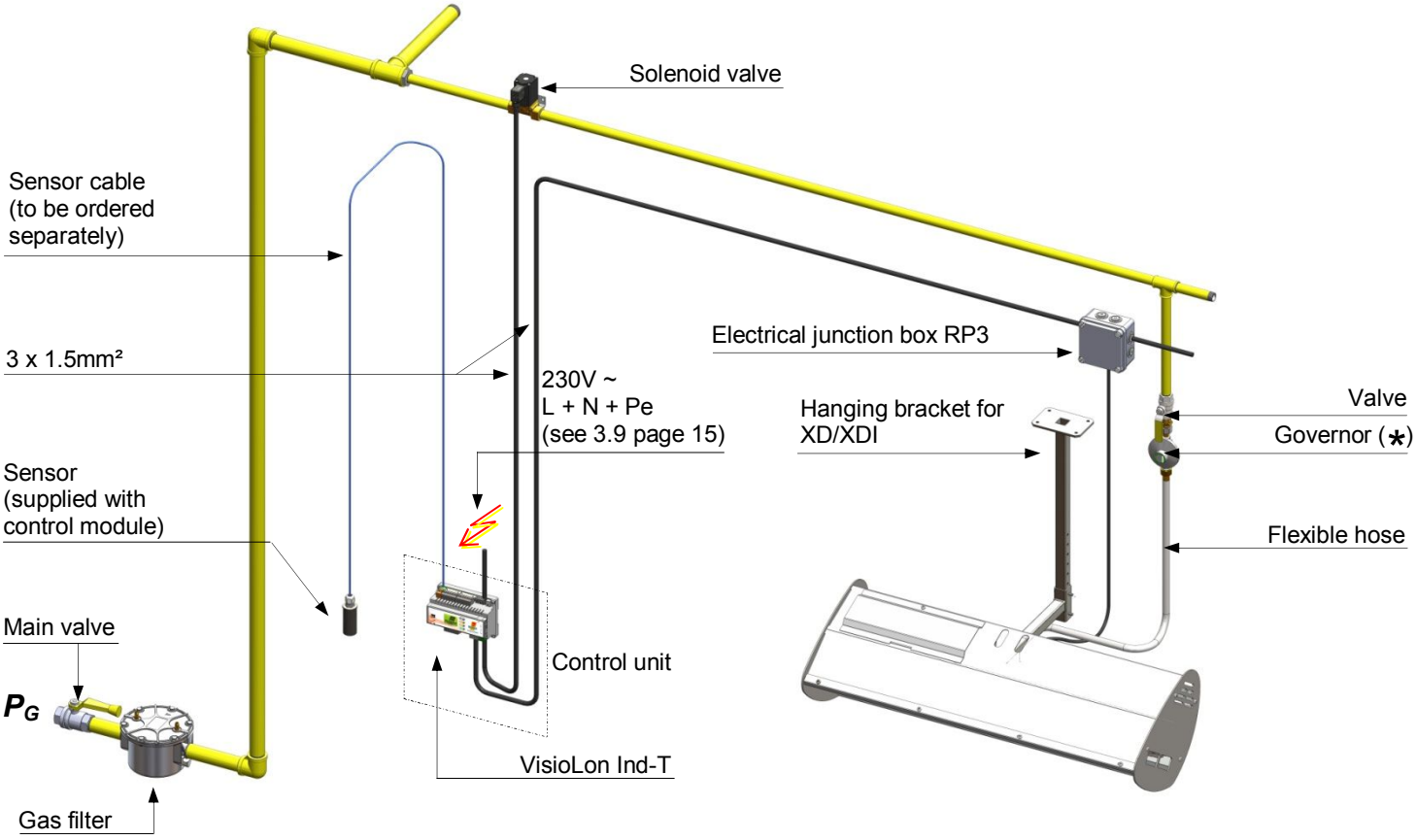


XD FR user instructions



XD EN user instructions

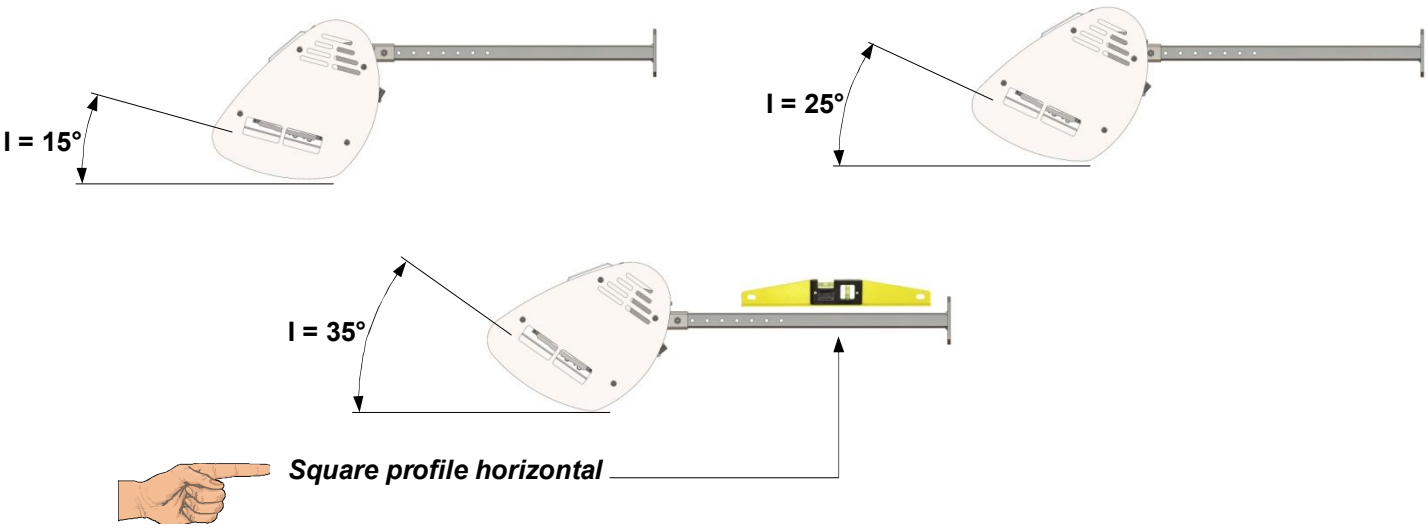
3.3 Diagram of a standard installation



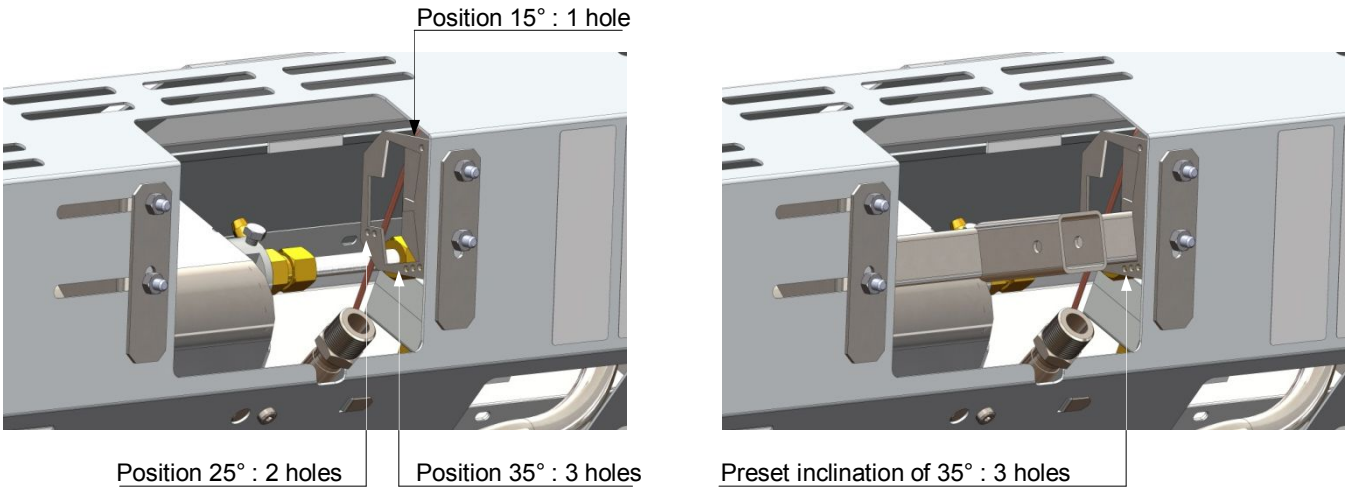
* ***Use appropriate gas governor if P_G is greater than the nominal pressure of the heaters p.***

3.4 Inclination of heaters

❒ Inclination "**I**" = ***at least 15°*** *(check SBM survey)*

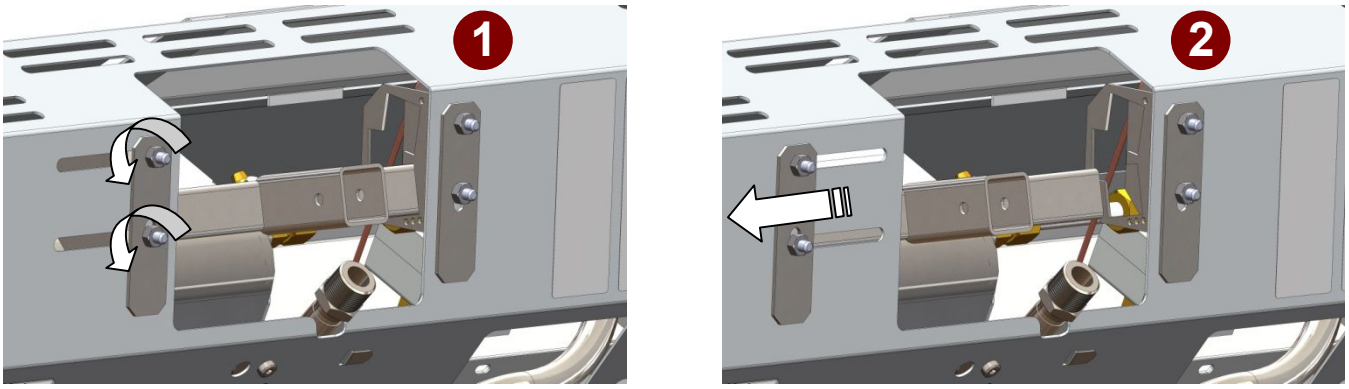


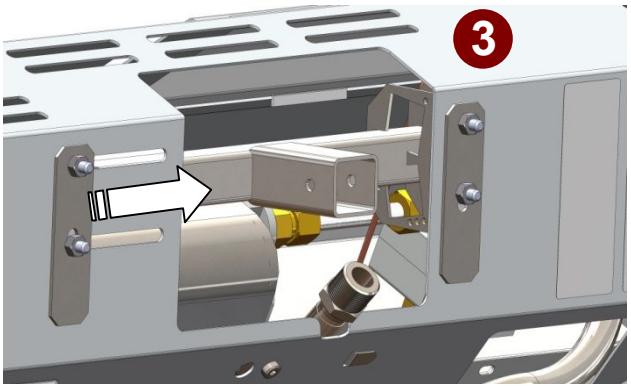
❒ The support allows a fixed heater inclination of 15°, 25° or 35° from the horizontal according to the SBM survey.
The inclination is preset to 35°.

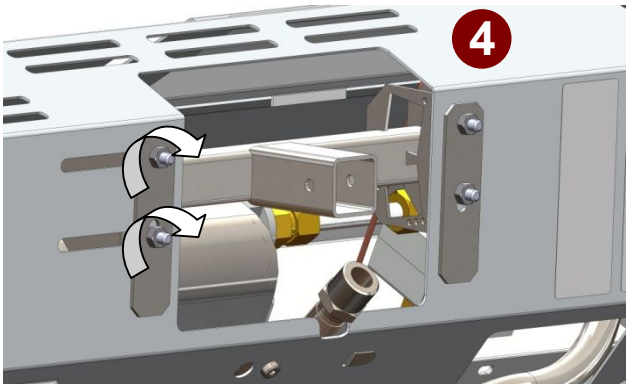


❒ Changing the inclination

To be done before fixing the heater on its hanging bracket.







3.5 Fixing of heaters

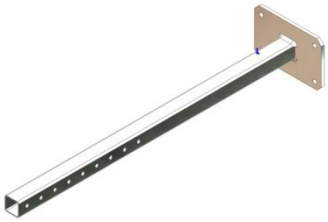
❒ Fixing heights

MODEL	Indicative comfort heights (m) Indoor use (*)	Indicative comfort heights (m) Outdoor use (*)
XD 8 - XD8 D	3.60	2.20
XD 10 - XD10 D	3.80	2.40
XD 12 - XD12 D	4.10	2.80
XD 16 - XD16 D	4.40	3.20

(*) : Indicative comfort heights based on 35° inclination, to be confirmed by specific SBM survey.

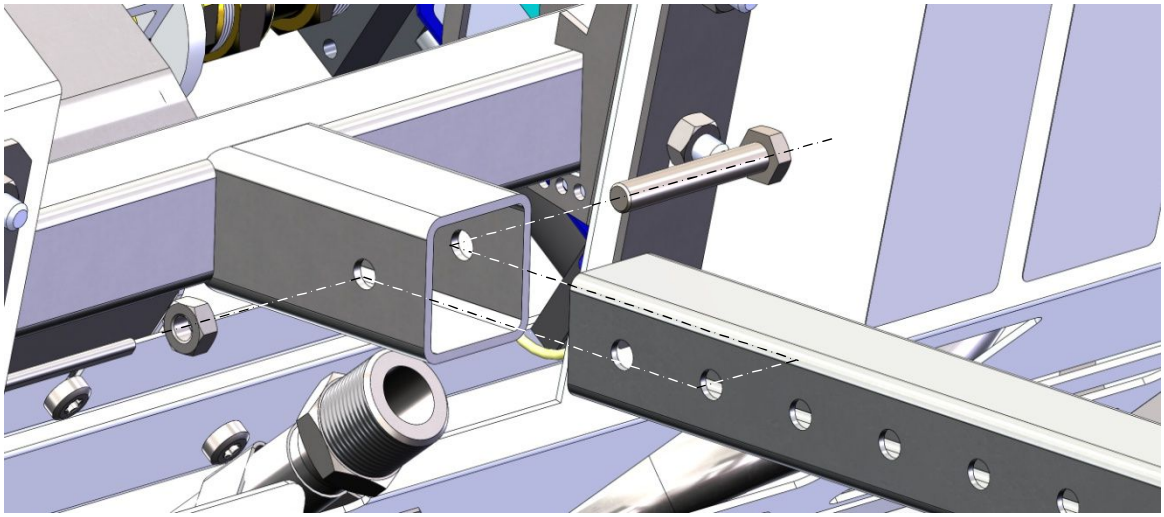
❒ Using of the **HANGING BRACKET FOR XD/XDI** (Supplied by SBM : **5710000**)
See instructions **05000396**.

Wall mounting

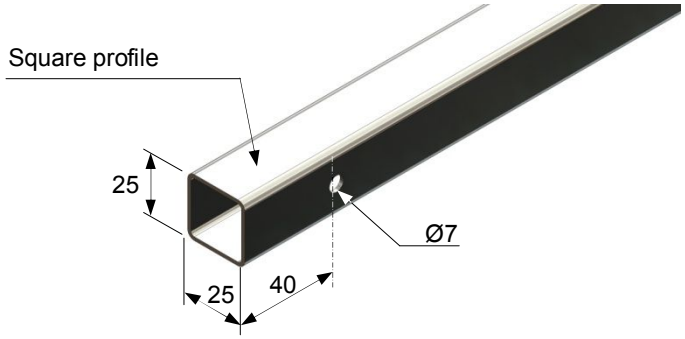


Ceiling mounting

In both cases, fix the heater to the hanging bracket :

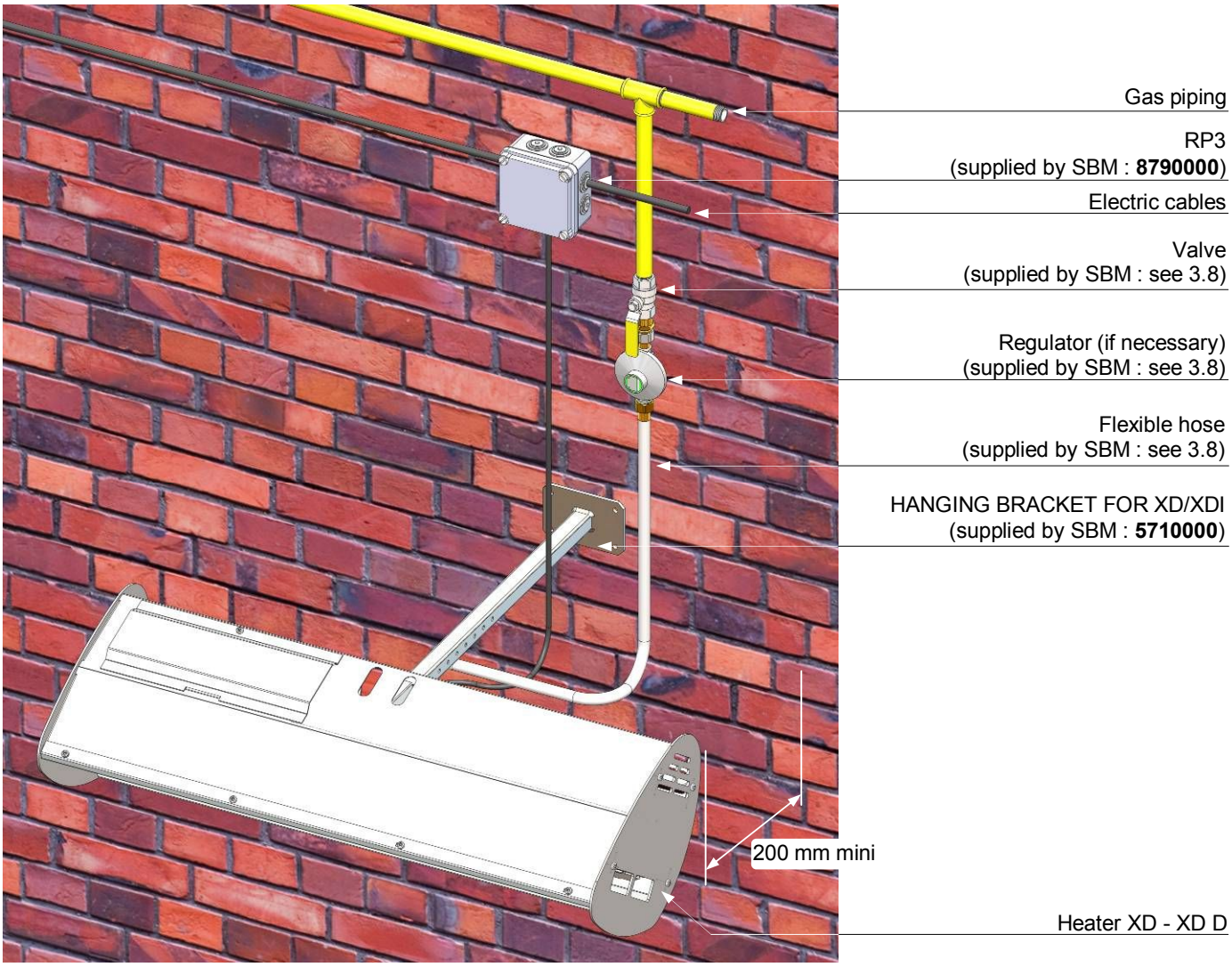


❒ Hanging bracket supplied by installer.



Fixing the heater to the hanging bracket : see page 10.

❒ Example :

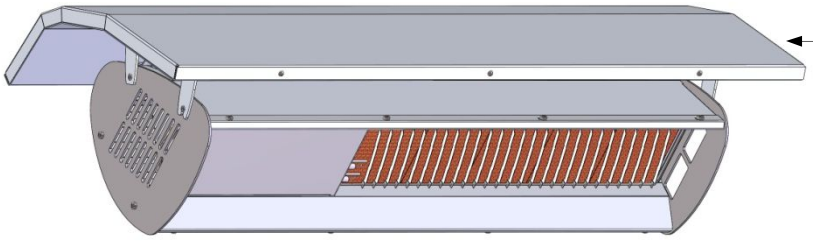


Gas piping and accessories, electrical equipment and cables must be located behind the heater.
Do not place them above the heater ! (see **3.7**)

3.6 Accessories

❒ Thermal protections

To be used in case of insufficient distance above the radiant heater. (see 3.7)

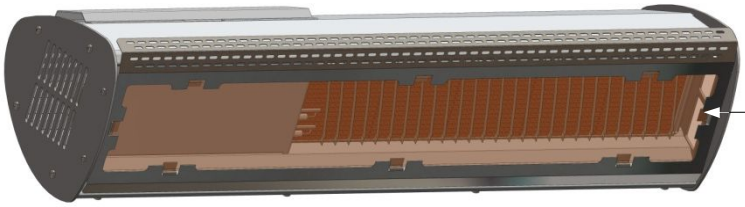


SBM Ref.	Designation	Use
5710046	**DESIGN SHIELD XD/XDI 8**	XD8 - XD8 D
5710047	**DESIGN SHIELD XD/XDI 10**	XD10 - XD10 D
5710048	**DESIGN SHIELD XD/XDI 12**	XD12 - XD12 D
5710049	**DESIGN SHIELD XD/XDI 16**	XD16 - XD16 D

Assembly : see instructions **05000583**.
The deflector must be fixed to the heater when it is put into service, as the last operation, after the inspection trapdoor has been closed.

❒ Wind protections

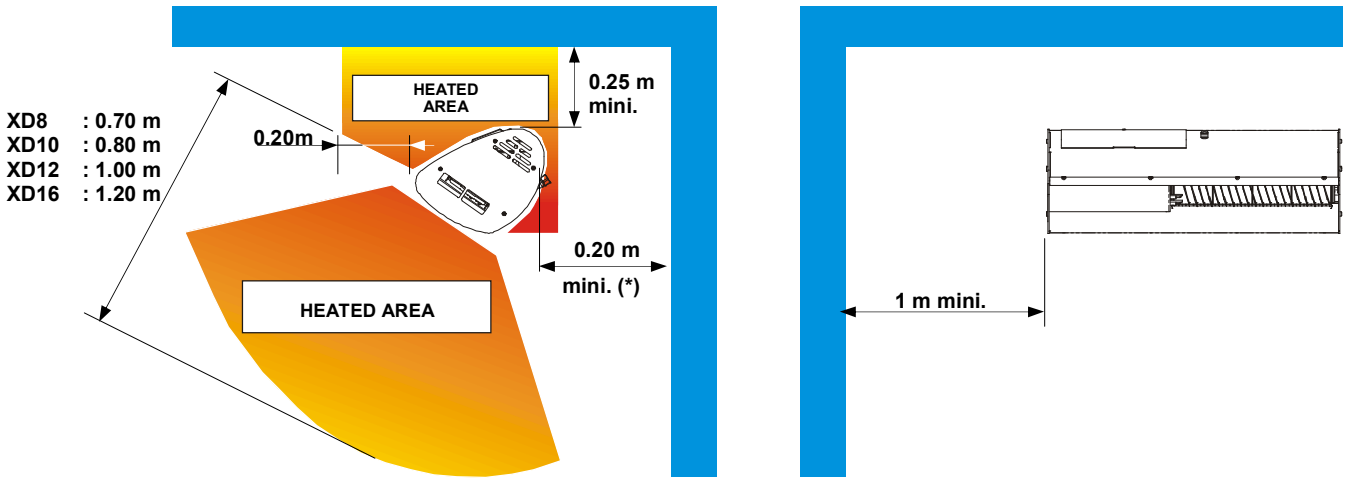
To be used in case of outdoor use or in a disturbed environment, to avoid untimely extinction.



SBM Ref.	Designation	Use
5710025	**WIND PROTECTION XD / XDI 8 V**	XD8 - XD8 D
5710026	**WIND PROTECTION XD / XDI 10 V**	XD10 - XD10 D
5710027	**WIND PROTECTION XD / XDI 12 V**	XD12 - XD12 D
5710028	**WIND PROTECTION XD / XDI 16 V**	XD16 - XD16 D

Assembly : see instructions **05000656**.

3.7 Minimum safety clearances



(*) 0.25 m mini is possible with the use of a DESIGN SHIELD XD/XDI (see 3.6).

Do not locate in heated areas, inflammable materials (θmax = 70°C), gas piping and electrical wiring.

Where safety clearances cannot be respected, heat-protection must be provided above the heaters.

3.8 Gas connection

Before installation, check that gas supply, gas type/ pressure and equipment settings are compatible.

The gas piping must not be located in heated areas.
(see 3.7)

Gas supply piping must not apply any stress on the safety block : use preferably a metallic hose.

The solenoid valves have an indicated gas flow direction.
Please respect it.

❑ **MEDIUM PRESSURE** gas supply.

Gas supply pressure P_G greater than heater nominal inlet pressure.
(see 2.2).

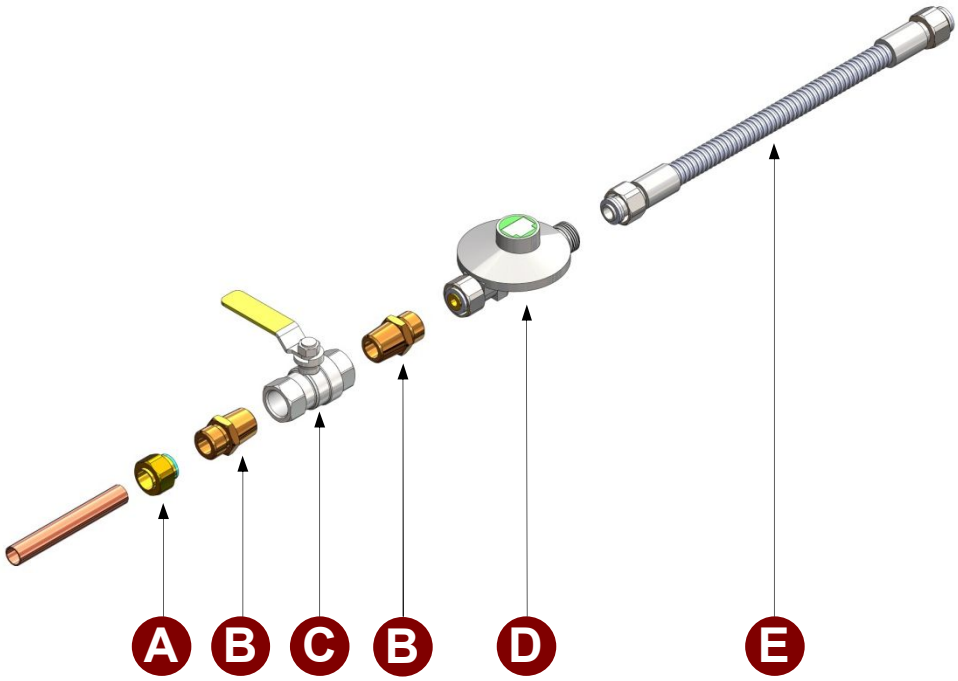
GAZ	PRESSION DE DISTRIBUTION
G20	200 mbar to 1.5 bar maxi
G31	200 mbar to 1.5 bar maxi

❑ **LOW PRESSURE** gas supply.

Gas supply pressure P_G is identical to the heater nominal inlet pressure
(see 2.2).

GAZ	PRESSION DE DISTRIBUTION
G20	20 mbar
G31	37 mbar

❑ Gas supply



Rep.	SBM Ref.	Designation
A	9706001	FITTING FOR SOLDERING 14 G1/2
B	9805018	UNION FITTING R1/2m-G1/2m
C	9701007	Rp1/2 DN15 VALVE
D	9700034	DF64 G1/2 G31-37 4KG/H
	9700035	DF64 G1/2 G20-20 3M3/H
E	9805013	METALLIC HOSE G1/2F 700mm

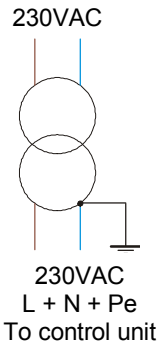
3.9 Electrical connections

See diagram of a standard installation. (see 3.3 page 8)

Electrical connections must comply with I.E.E. Regulations.

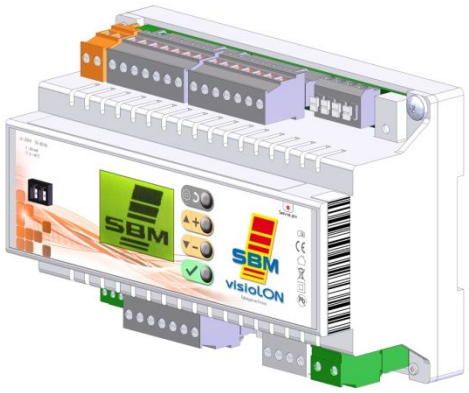
All heaters must be GROUNDED.

Electrical cables and junction boxes must not be located in heated areas. (see 3.7)



No tension, even momentary between Neutral conductor and Grounded Conductor.
In case of installation without Neutral (or neutral of bad quality), use an isolation transformer in order to create an artificial neutral. For that, connect one outlet socket to the ground.

- ❑ Control : **XD** heaters are controlled by a programmable controller **VisioLon Ind-T** (SBM ref. : **8050200**).
  See instructions **05000635**.



Each control module can drive **2 zones** of heating.

This module must be set in an electrique waterproof box.

KIT COFFRET CONTROLE 2 ZONES (SBM ref. : **9704014**), including :
- A waterproof box IP65 12 modules with translucent door and earth terminals.
- A residential current device 16A - 30mA

This kit allows the installation of the controller to manage up to **40 heaters** per zone.

KIT COFFRET CONTR.REL. 2 ZONES (SBM ref. : **9704015**), including :
- A waterproof box IP65 12 modules with translucent door and earth terminals.
- A residential current device 16A - 30mA
- 2 relays 230VAC 10A

This kit allows the installation of the controller to manage up to **100 heaters** per zone.

- ❑ Positioning of the temperature sensor (1 per zone)

- Position the sensor about 1.5 m above the ground, between two heaters, so that it receives homogeneous radiation.
- Do not position the sensor in direct sunlight.
- Insulate the sensor from the wall on which it is located to avoid cold radiation from the wall, by interposing an insulating material (glass wool, wood, etc...).

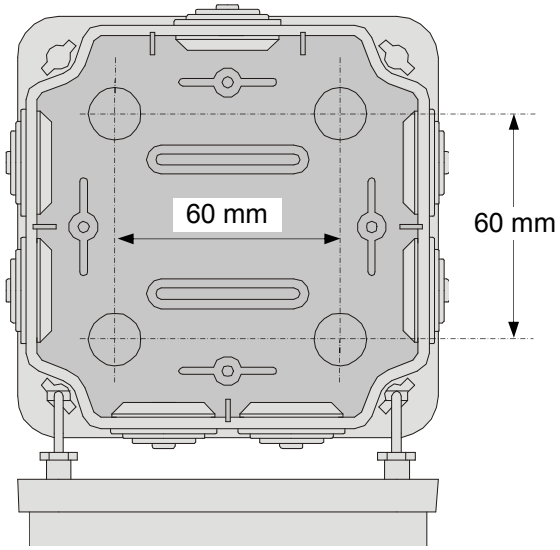
- The connection between the sensor and the module must be made with SBM shielded cable
  ROLL SENSOR CABLE 20M/66FT (SBM ref. : **8791000**)
  ROLL SENSOR CABLE 60M/197FT (SBM ref. : **8791001**)
  ROLL SENSOR CABLE 300M/984FT (SBM ref. : **8791002**)
- In any case, do not run these wires in cable trays that already contain power cables.

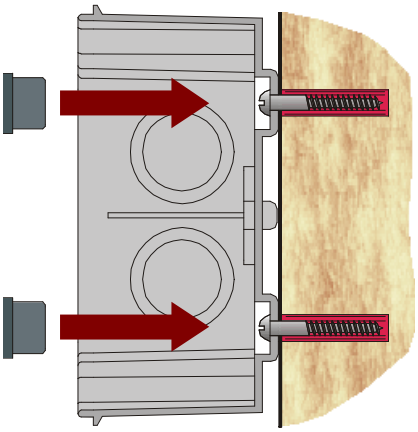
❒ Types of connection cables

LINK	TYPE OF CABLE
Control unit to RP3 (and RP3 to RP3)	3-core 0.75mm^2 85°C temperature rated PVC sheathed cable to BS6500 Table 9.
Control unit to solenoïd valves	3-core 0.75mm^2 85°C temperature rated PVC sheathed cable to BS6500 Table 9.
RP3 to heater	Use the connector supplied with the heater. Green/Yellow wire : EARTH / GROUND Blue wire : NEUTRAL Brown wire : LIVE
Control unit to sensor	Use the coaxial cable supplied by SBM. (see above)

❒ Number of RP3 : 1 **RP3** per heater.

❒ Fixing RP3 units : see instructions supplied in the box.



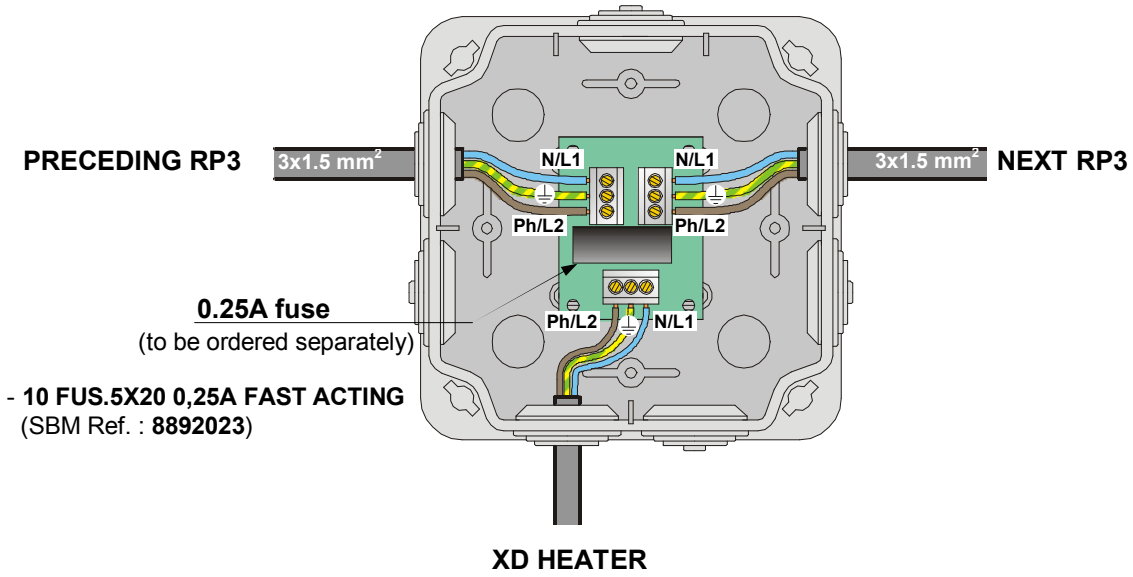


Always place the plastic cover back on the top of the screw head.

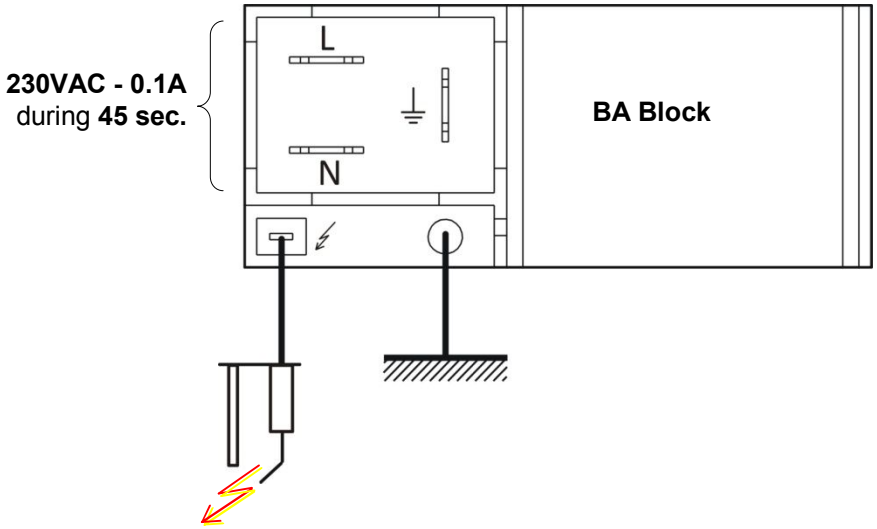
The RP3 box must be located no more than 1 meter away from the heater.

It must not be located in heated areas.
(see 3.7)

❒ Wire RP3's as shown in the diagram below.



❑ Internal electrical diagram of the heater



3.10 Start Up

- Clean out

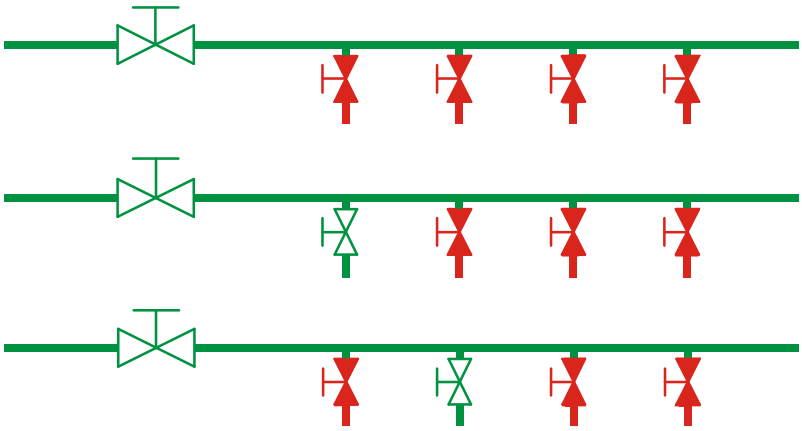
  Objective : flush out impurities in the gas piping

  Principe : clean out gas piping with dry air, or even better with nitrogen, **AFTER DISCONNECTING ALL ACCESSORIES.**

1 Pressure on

2 Flush out outlet Nr. 1

3 Flush out outlet Nr. 2



= open valve

= closed valve

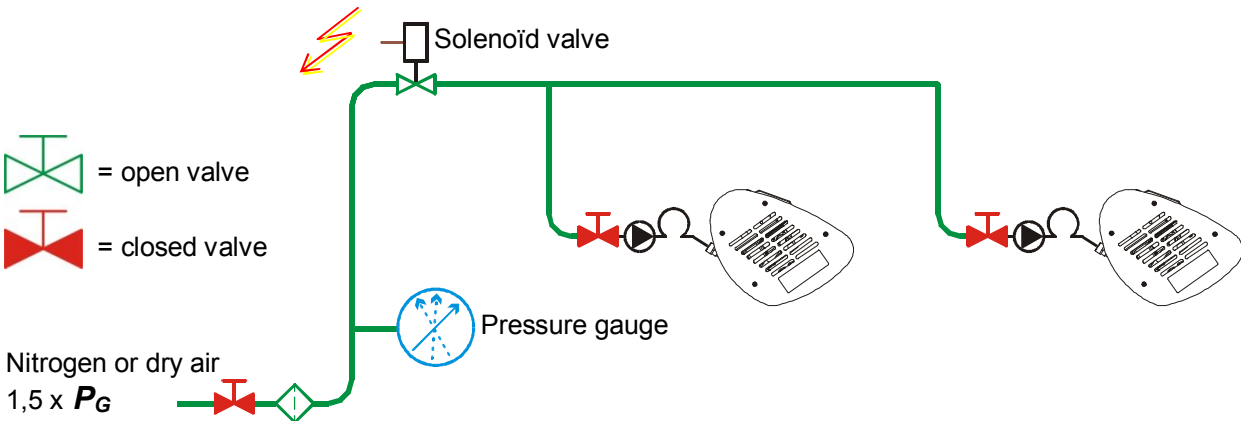
- Gas-tightness test :

  a) Nitrogen or dry air at 1.5 times more pressure than gas operating pressure P_G

  b) Turn off the nitrogen or dry air supply and wait 15 minutes.

  c) Check the pressure gauge after 2 hours (must stay fixed).

  d) If not, detect leaks with a foaming product, fix them and repeat the operation.



Local regulations may apply.

❒ First start-up

a) Preliminary checks :

* calibration of control unit fuses

* ground fault breaker operation ("TEST" button)

b) Initial settings :

* main valve closed

* individual valves open

* ground-fault breaker set to "ON"

* thermostat or programmable controller set to correct temperature setting

c) Ignition

* manual operation

- open the main gas valve.

- start the heater ignition cycle.

- if the flame is not lit after 45 seconds, start a second ignition cycle

- if the flame is still not lit or goes out, refer to chapter 5 (REPAIRS).

* automatic control

- open the general gas valve.

- check the settings (temperature, time).

- change module programming if required.

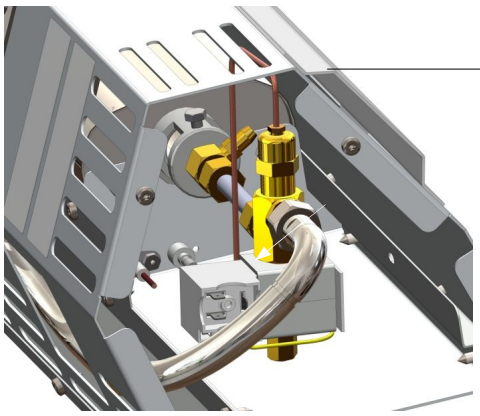
- run a full sensor heating and cooling cycle and check:

. ignition cycle length (45 seconds maximum).

. ignition and shut-down of heaters according to temperature settings.

d) Injection pressure p_i check

* The ection pressure of each heater p_i must be equal to the value indicated in the corresponding tables paragraph 2.2.



* Procedure :

. Unscrew the pressure test point screw (2 or 3 turns)
. Connect a pressure gauge (adapted to the value to be measured) to the pressure test point..
. If value differs than the theorical value from table check the supply pressure and the cleanness of the gas filters.
. Remove the pressure gauge.
. Re-tighten the pressure test point screw.

Do not forget to tighten the pressure test point screw.

Injection pressures must be set while all the heaters are running.

e) Tightness of heater connection

* for each heater, check gas tightness with a foaming product, from the output of the individual valve to the injector

f) Close the inspection trapdoor

4. RECEIPT OF INSTALLATION

To be performed by the installer in the presence of the customer.

- ❑ Check that **the gas type and pressure comply with** the type of heater installed (see rating plate)

- ❑ Check that an **individual valve** is installed prior to each heater.

- ❑ Check that the " **XD - XD D HEATERS USER GUIDE**" (at the end of the user instructions) is displayed next to the control unit, after being **stamped by the installer**.

- ❑ Indicate to the customer the **locations** of :

  - valves.

  - electric switches.

  - control units.

- ❑ **Explain** to the customer how all **control units operate**.

- ❑ Schedule the **initial maintenance visit** (**1 year** after start-up).

Provide the customer with a copy of each user manual included in the product boxes and this installer's manual.

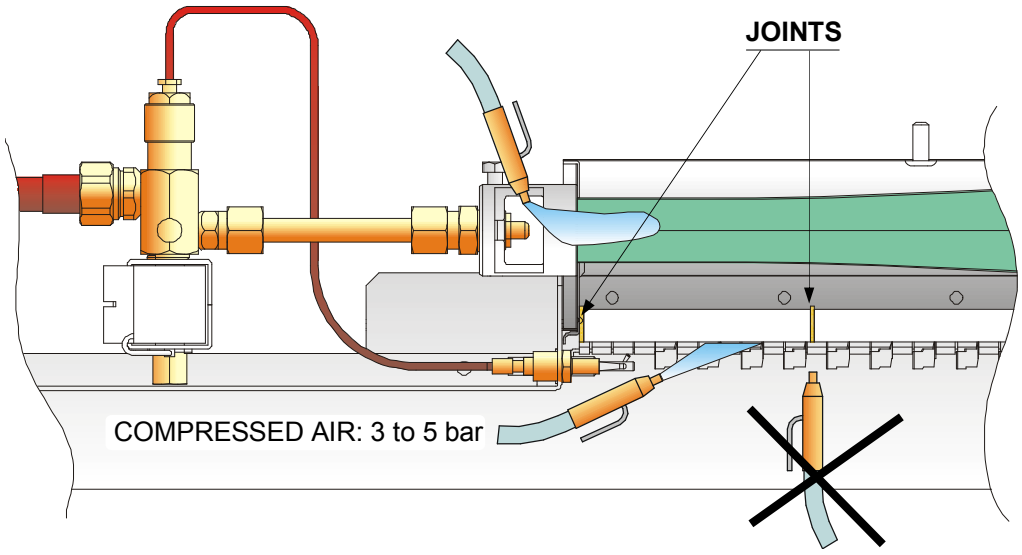
5. MAINTENANCE

Switch-off the appliance and close the gas valve before carrying out any service operation.

List of operations to be performed during the annual maintenance visit.

❒ Dust removal

- On site, after opening the inspection trapdoor, heaters off and cold.



Do not aim at the joints between ceramic plates : risk of damaging the burner.

❑ Check condition of ceramic plates (**visual inspection**).

❑ Check heater fixture.

❑ Check tightness of gas accessories.

❑ Check heater operation.
Switch on all heaters, check ignition and combustion.
A combustion temperature of approximately 900°C (uniform orange red colour) ensures heater cleanliness and correct gas supply pressure.

❑ Check operation of solenoid valves.
Check that all solenoid valves properly close (heaters switched off).

❑ Check controls.

❑ Check all settings.

After maintenance, return the system to operation with the original settings.

6. REPAIRS

❒ Problem on a single heater.

First, check compatibility of heaters with the gas type and pressure.

ONE HEATER DOES NOT LIGHT

- No spark
  - Check RP3 fuse
  - Check screw tightness of prewired plug
  - Check igniter :
    - wire
    - ceramic
    - distance between earth-pin and igniter (5 mm)
    - connection to BA block
  - Replace BA block
- Spark
  - Check individual valve opening
  - Check gas flow throught the injector block ("click" ?)
    - "Click"
      - Check cleanness :
        - regulator/governor gas inlet filter
        - heater gas inlet filter
        - injector(s)
    - "No click"
      - Replace BA blocka and/(or) injector block

ONE HEATER LIGHTS AND GOES OUT AFTER 45 seconds

- Check thermocouple properly tightened on injector block
- Replace thermocouple
- Replace injector block

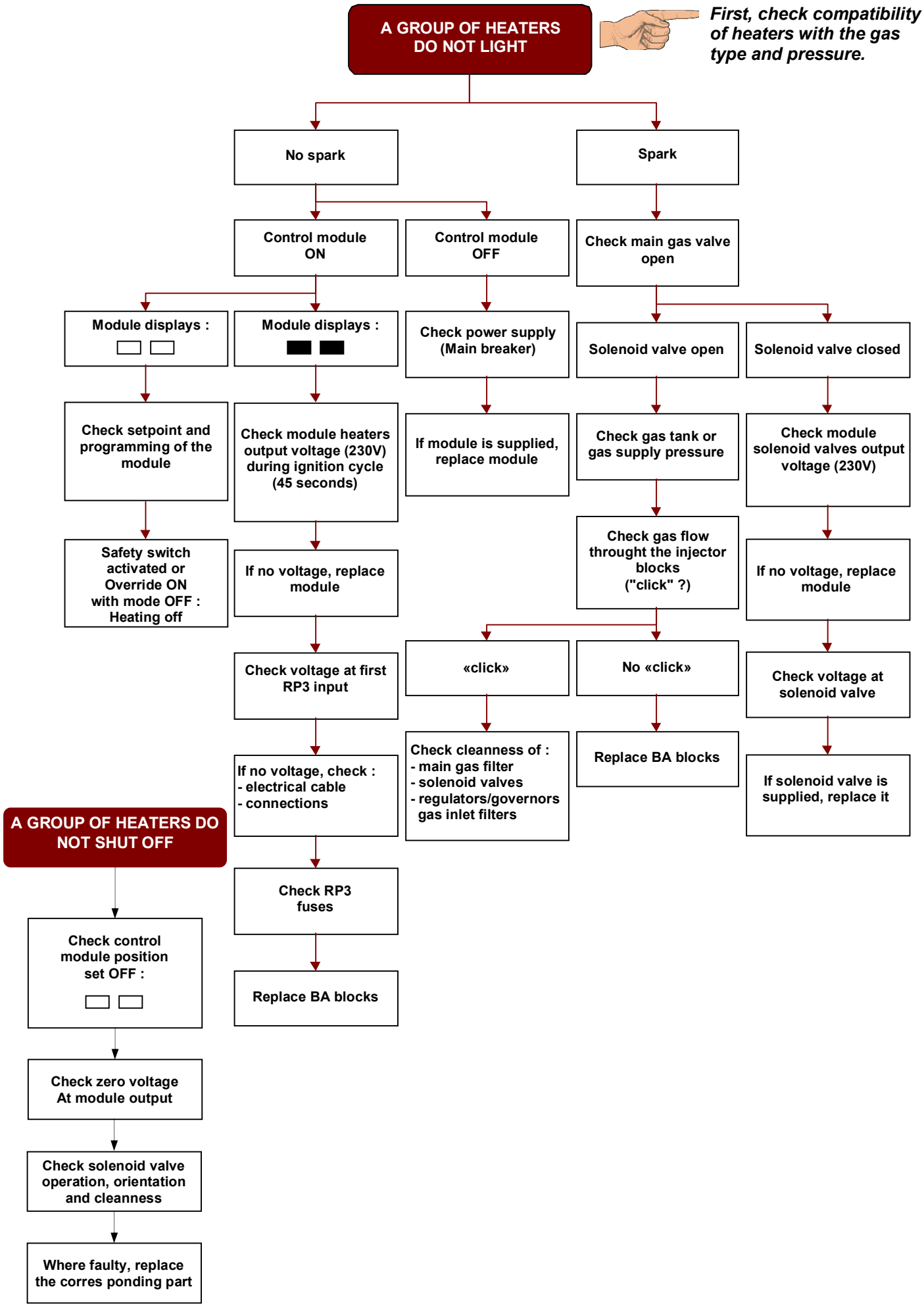
A HEATER IS TO HOT (>950°C)

- Check injection pressure (see 2.2)
- Inlet pressure excessive, check the gas supply pressure
- If gas supply pressure excessive, replace the regulator/governor

A HEATER IS NOT HOT ENOUGHT (<850°C) (or stuttering flame)

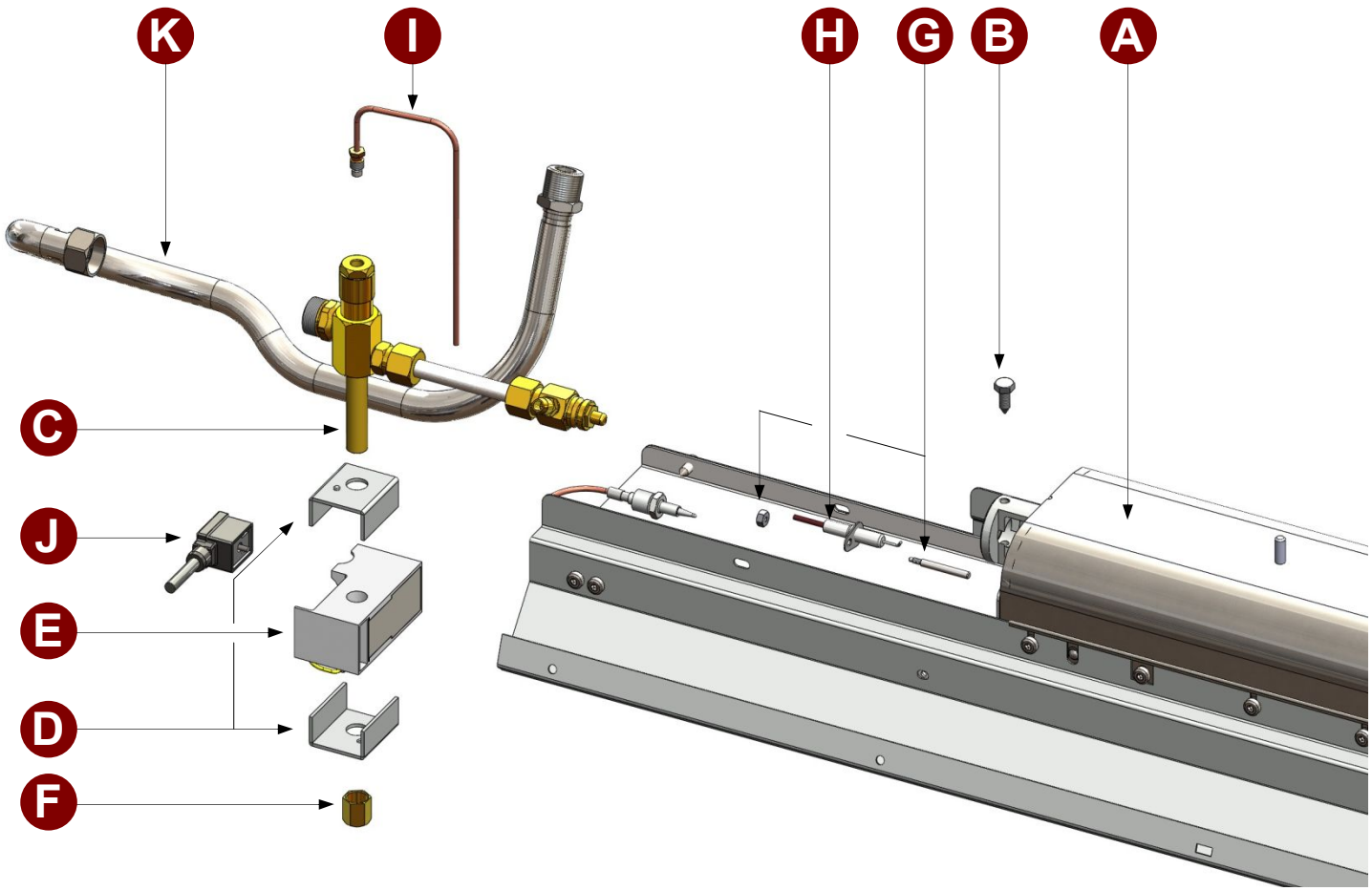
- Check cleaness of :
  - regulator/governor gas inlet filter
  - heater gas inlet filter
  - injector(s)
  - heater
- Check injection pressure (see 2.2)
- If injection pressure insufficient, replace governor

❒ Problems on a group of heaters.



❑ XD - XD D heaters spare parts.

With all spare part orders, please indicate :
- Type / serial number of the heater.
- Gas type.
- Operating pressure.
See rating plate.



REP	SPARE PARTS		
	SBM supply		Remarks
A	5007011 5010011 5012011 5016011	BR 8 XD/XDI BR 10 XD/XDI BR 12 XD/XDI BR 16 XD/XDI	Burner with reflector for XD8 Burner with reflector for XD10 Burner with reflector for XD12 Burner with reflector for XD16
B	9804000	10 LOCKING SCREW 6X100/16	Supplied by 10
C	5814604	BLOCK U-E-XXX-XXX-PP-DA-12G	supplied with its injectors mounted for XD8, XD10, XD12 and XD16
D	9801000	BA BRACKETS (2)	Supplied by 2
E	9801004	BA BLOCK	
F	9801001	BA NUT	
G	9801016	EARTH PIN L3-NUT	Supplied with a nut
H	9801002	IGNITER WITH WIRE	Ignition electrode 250 mm clip 2.8x0.8
I	9802002	THERMOCOUPLE FA	Supplied with a nut
J	9801013	PREWIRED PLUG 1M/3FT	Built-in gasket and captive screw
K	9803016	XD/XDI BUILT-IN FLEXIBLE HOSE	Supplied with a gasket

7. GAS CONVERSION

Conversion of the appliance's operating gas must be performed by a qualified installer.

❒ Gas and pressures

FAMILY	GAS	OPERATING PRESSURE
I_{2H}	G20	20 mbar
I_{3P}	G31	37 mbar

❑ Gas conversion

To convert from one gas to another, please contact your SBM agent.

End of life of the appliance :
The SBM heater includes electronic components (BA Block) that must be returned to a Waste Electrical and Electronic Equipment (WEEE) collection point.
Observe current waste disposal regulations when dismantling it.