

**GAS FLOW PROGRAMMER**

# **PLASMA RDM**

**SAFETY INSTRUCTIONS FOR USE AND MAINTENANCE**

**No P95579025NG - P95579026NG - P95579028NG**



**ISSUE : EN**  
**REVISION : M**  
**DATE : 06 - 2023**

**Instructions for use**

**REF: 8695 5535**

**Original instructions**

**Thank you for the trust you have expressed by purchasing this equipment, which will give you full satisfaction if you follow its instructions for use and maintenance.**

**Its design, component specifications and workmanship comply with applicable European directives.**

**Please refer to the enclosed CE declaration to identify the directives applicable to it.**

**The manufacturer shall not be liable if the product is used in association with items not recommended by the manufacturer.**

**For your safety, below is a non-limitative list of recommendations or requirements, many of which appear in the labour code.**

**Lastly, please inform your supplier of any error you may find in this instruction manual.**

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# INFORMATION

This technical literature is intended for the following machines or products:

- P95579025NG → Plasma RDM unit, 10 metres
- P95579026NG → Plasma RDM unit, 17 metres
- Plasma RDM unit, 22 metres
- P95579028NG → Plasma RDM unit, 25 metres
- Plasma RDM unit, 30 metres



These instructions and the product covered by them refer to the applicable standards.



Please read these instructions carefully before installing, using or maintaining the machine. Keep these instructions in a safe place for future reference. These instructions must accompany the described machine or equipment if there is a change in ownership, up to the time of destruction.



**Display and pressure gauge:**

Measurement instruments or displays of voltage, intensity, speed, accuracy etc. are to be considered as indicators, whether they are analogue or digital.



For operating instructions, adjustments, troubleshooting and spare parts, please refer to the special instructions for safe operating and maintenance.

# REVISIONS

REVISION : B DATE : 01/05

DESCRIPTION	PAGE
Update	9-19-20

REVISION : C DATE : 11/05

DESCRIPTION	PAGE
Overall dimensions of the gas unit	C7

REVISION : D DATE : 07/06

DESCRIPTION	PAGE
Change logos	

REVISION : E DATE : 09/08

DESCRIPTION	PAGE
Complete update + newoffer spare parts	-

REVISION : F DATE : 06/10

DESCRIPTION	PAGE
Update	D-8; F-20

REVISION : G DATE : 10/10

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Update => Valve unit	

REVISION : H DATE : 01/11

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REVISION : I DATE : 03/13

DESCRIPTION	PAGE
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REVISION : J DATE : 07/03

DESCRIPTION	PAGE
Change to NERTAMATIC Plus	

REVISION : K DATE : 10/15

DESCRIPTION	PAGE
Update « Spare parts »	F-13


























REVISION : L DATE : 06/18

DESCRIPTION	PAGE
Change logos	

REVISION : M DATE : 06/23

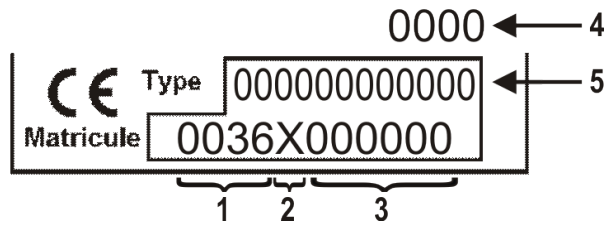
DESCRIPTION	PAGE
Update Linc-Master installation added	

# MEANING OF SYMBOLS

	Reading the manual/instructions mandatory.		Indicates a hazard.
	Use of safety shoes mandatory.		Warning of an electrical risk or hazard.
	Use of auditory protection mandatory.		Warning of a risk or hazard due to an obstacle on the ground.
	Use of safety helmet mandatory.		Warning of a risk or hazard of falling, with a level difference.
	Use of safety gloves mandatory.		Warning of a risk or hazard due to suspended loads.
	Use of safety glasses mandatory.		Warning of a risk or hazard due to the presence of a hot surface.
	Use of safety visor mandatory.		Warning of a risk or hazard due to moving mechanical parts.
	Use of safety clothing mandatory.		Warning of a risk or hazard due to the closing movement of moving mechanical parts of a machine.
	Cleaning the working area mandatory.		Warning of a risk or hazard due to the presence of a laser radiation.
	Use of breathing protection mandatory.		Warning of a risk or hazard due to an obstacle at a height.
	Visual inspection required.		Warning of a risk or hazard due to the presence of a pointed part.
	Indicates a lubrication operation.		Wearers of pacemakers may not be admitted in the designated area.
	Requires maintenance action.		

## A - IDENTIFICATION

Please enter the number of your equipment in the following box.  
Quote this information in all correspondence.



1	Manufacturing factory code	4	Year manufactured
2	Manufacturing year code	5	Product type
3	Product serial no.		



## B - SAFETY INSTRUCTIONS

For general safety instructions, please refer to the specific manual supplied with the equipment.

## 1 - Reminder

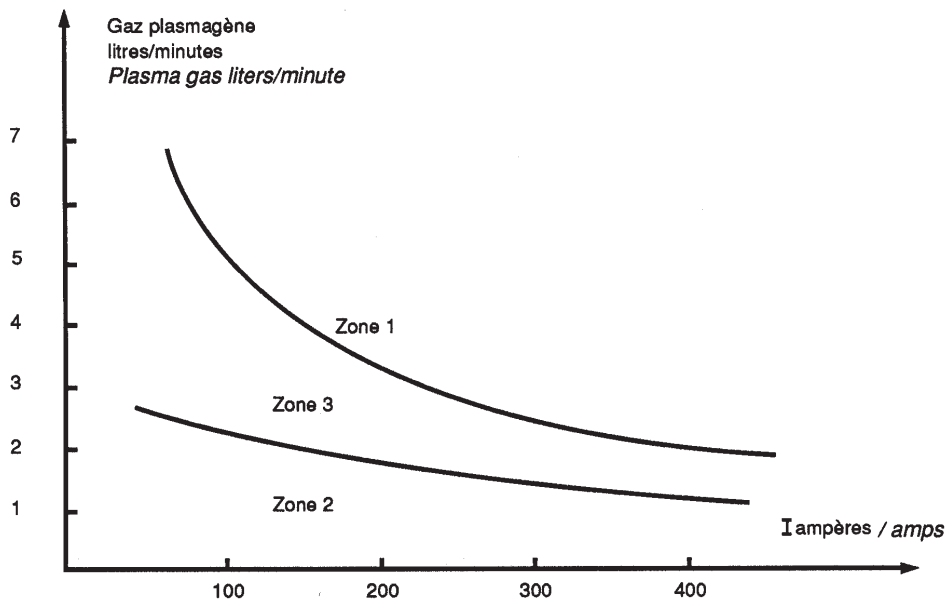
With automatic keyhole plasma welding, any of the following defects may occur if the arc is switched off suddenly with no precaution:

- The plasma jet hole remains.
- The hole disappears but the high plasma gas flow and the decreasing intensity leads to gouging in the metal that is being solidified, with the appearance of blow holes.

These defects are not generally critical in the case of longitudinal welding, as the weld bead often starts and ends on end plates. But they are not acceptable in circular welding. In that case, you must use a gas flow programmer, which is used to control the decrease in the flow of plasma gas for a given welding cycle, in order to eliminate the defects described above in a reliable and reproducible way.

## 2 - Need for programmer

- **AREA 1** = Through jet welding area
- **AREA 2** = Area where the plasma gas flow associated with appropriate intensity leads to welding similar to TIG welding (no keyhole).
- **AREA 3** = Transit area (risk of defects)



The problem of the fading phase consists in moving from **area 1** to **area 2** without any defect.

For conventional stainless steel grades up to 4 mm, **area 3** is narrow and the switch-off cycle is easy to create by controlling the plasma gas flow and the welding intensity.

While welding more delicate grades and for thicknesses of 5 mm or more, you need to control not only the plasma gas flow and the welding intensity during the switch-off phase, but also the movement of the torch relative to the part, the arc voltage sensing and the filler material.



### 3 - Description

#### 3.1 Composition

The **plasma RDM** system includes:

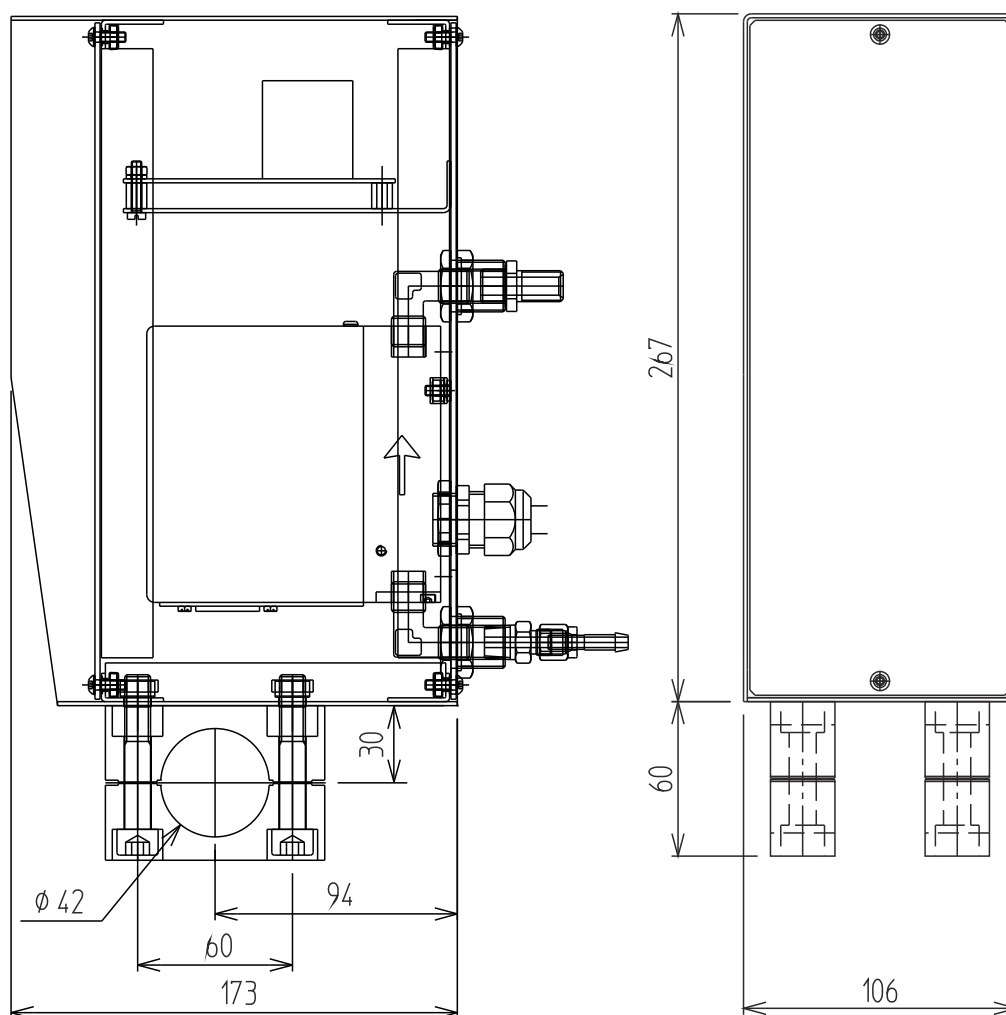
- A gas unit containing a mass flow regulating valve.
- A set of bundles with a length of:

<b>10m</b>	W000377990
<b>17m</b>	W000377991
<b>25m</b>	W000377992
<b>30m</b>	P95577106



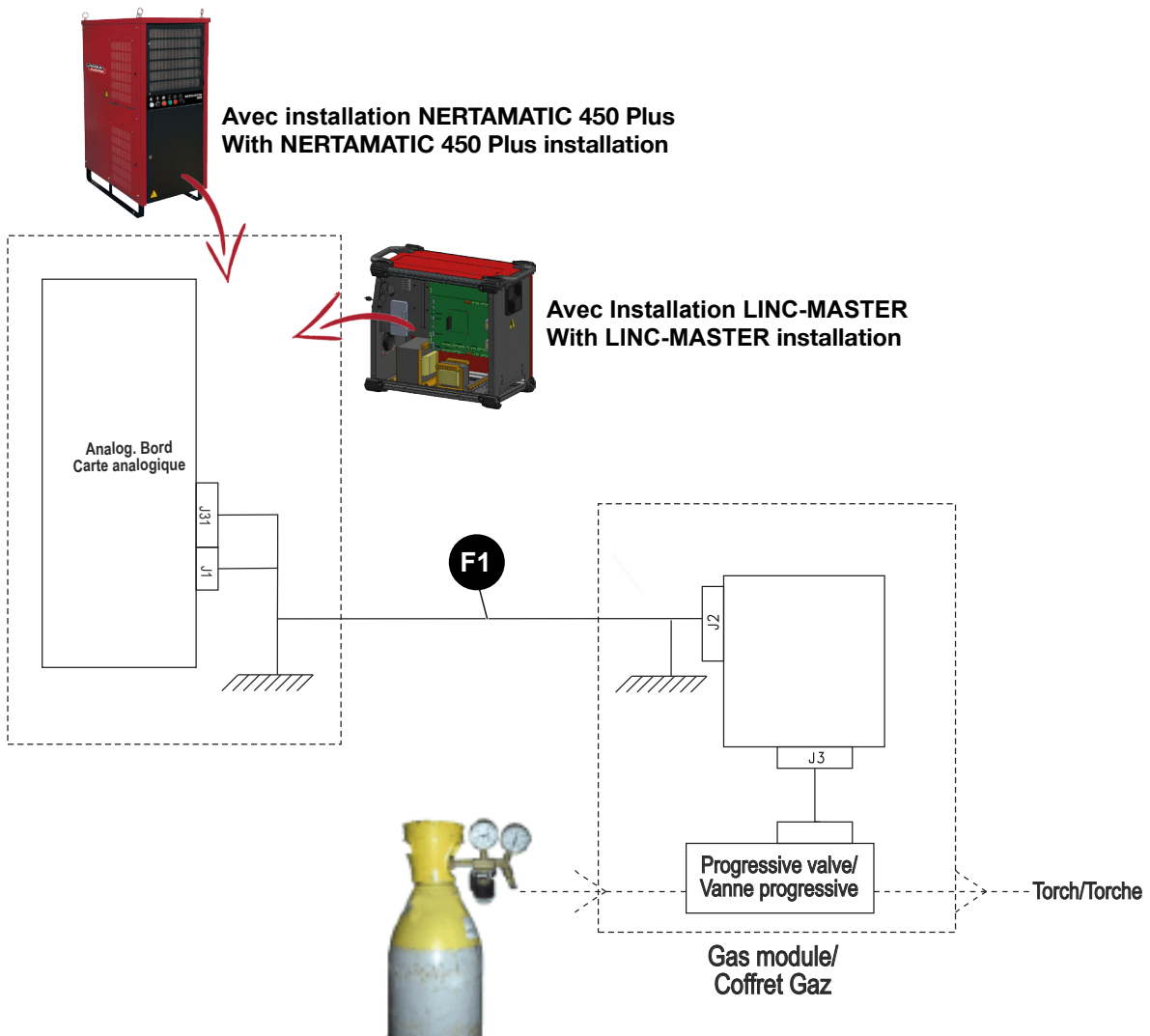
No pipe included.

#### 3.2 Overall dimensions of the gas unit



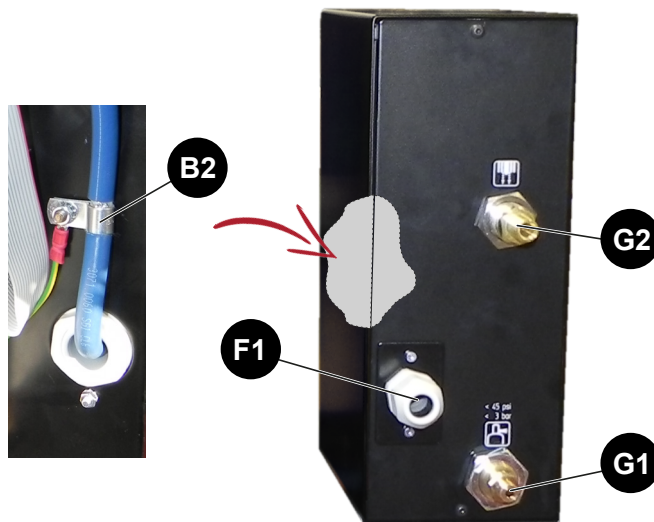
Fasten the unit to the support tube.

1 - RDM connection diagram

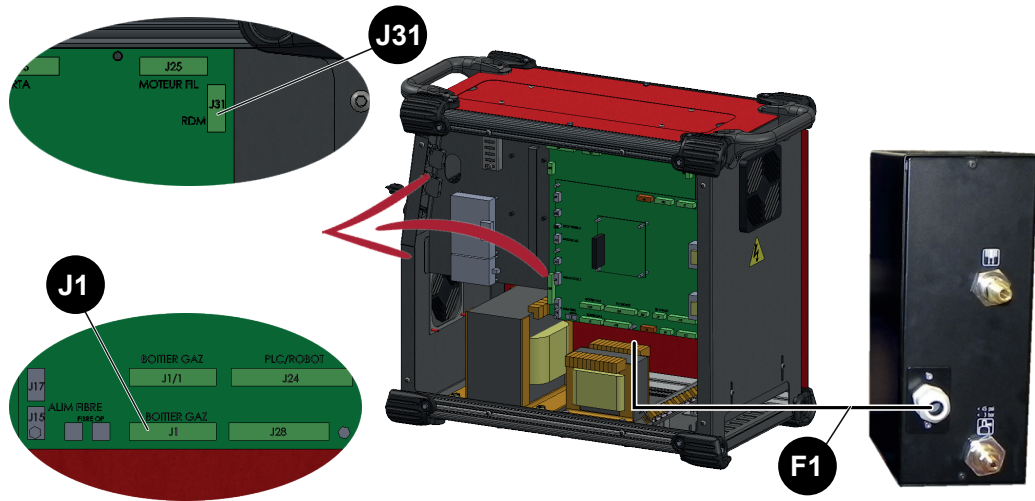


2 - Connections

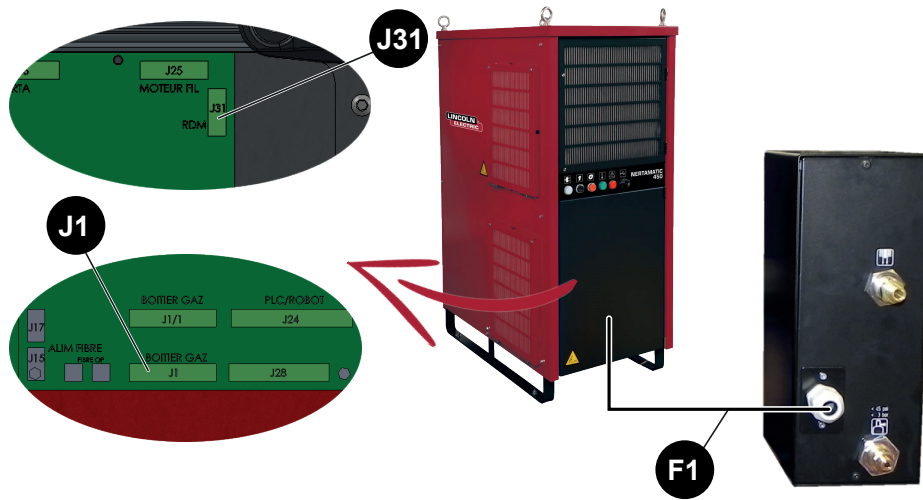
Connect F1, taking care to connect shielding B2.



• **Linc-Master** installation



• **Nertamatic 450 Plus** installation



Please refer to the document:

- 86955510: Nertamatic 450 Plus installation
- 86955520: Linc-Master installation



Refer to the electrical diagram:

- 93570112 => Linc-Master box

Connect pipe **G1** from the gas supply.

< 45 psi  
< 3 bar



Connect pipe **G2** to the **BRT**.



The assembly is factory adjusted and does not need to be modified.



Please refer to the document:

- 86955510: Nertamatic 450 Plus installation
- 86955520: Linc-Master installation

### 1 - Troubleshooting

Possible symptoms	Probable causes	Possible remedies
The cycle does not take place. No gas flow		Check the wiring of bundle <b>F1</b> Check the presence of gas P = 3 bar.

### 2 - Verification measurements

Use a voltmeter with a 30V rating.

		Board C4 P93578260
J2-1	J2-2	+ 24V AC $\pm 0.3$ V
J3-9	J3-7	+ 24V DC $\pm 0.3$ V



### 3 - Spare parts

#### Ordering procedure:

Almost all the parts of a machine or installation are referenced in the photographs and sketches.

#### The descriptive tables contain three types of item:

- items normally held in stock: ✓
- items not held in stock: ✗
- items upon request: no reference

(For such parts, please complete the list of parts page and send us a copy. In the Order column, state the number of parts required and indicate the type and number of your equipment.)

For items referenced in the photographs or sketches but not included in the tables, please send us a copy of the relevant page and highlight the relevant reference.


#### Example:

Ref.	Part no	Stock	Order	Description
E1	W000XXXXXX	✓		Machine interface board
G2	W000XXXXXX	✗		Flow meter
A3	P9357XXXX			Printed front plates

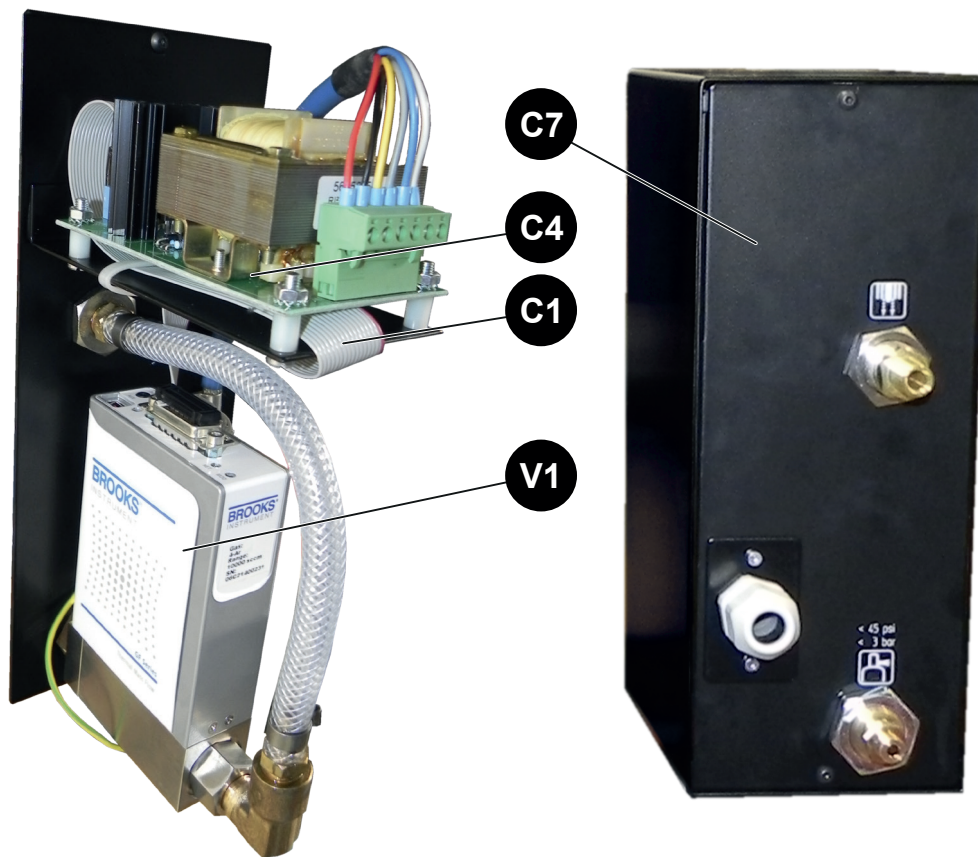
  

✓	normally held in stock.
✗	not in stock
	upon request.

- While ordering parts, please indicate the quantity and note the number of your machine in the box above.

 Type <input type="text"/> Matricule <input type="text"/>	→	TYPE:
	→	Number:

### 3.1 Valve unit



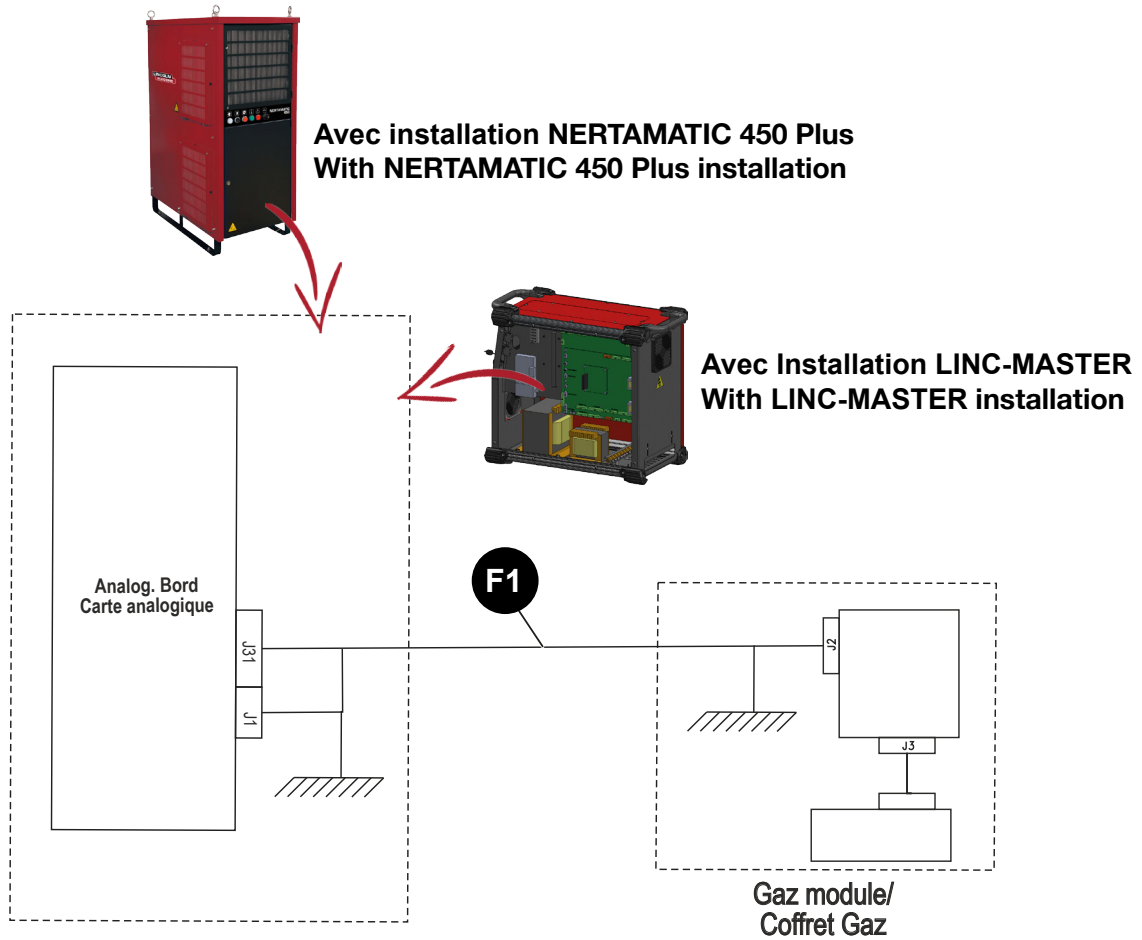
✓	normally held in stock.
✗	not in stock
	upon request.

Ref.	Part no	Stock	Order	Description
<b>C7</b>	W000235049	✓		Spare valve unit
<b>V1</b>	PC5907089			<b>RDM</b> valve bundle
<b>C1</b>	P93578103			<b>RDM</b> Power supply bundles
<b>C4</b>	P93578260		↑	Power supply board <b>RDM</b> valve bundle

- While ordering parts, please indicate the quantity and note the number of your machine in the box above.

CE Type <input type="text"/> Matricule <input type="text"/>	→	TYPE:	<input type="text"/>
	→	Number:	<input type="text"/>

### 3.2 Bundles



✓	normally held in stock.
✗	not in stock upon request.

Ref.	Part no	Stock	Order	Description
F1	W000377990	✗		RDM gas unit control bundle => 10 metres
	W000377991	✗		RDM gas unit control bundle => 17 metres
	W000377992	✗		RDM gas unit control bundle => 25 metres
	P95577106	✗	↑	RDM gas unit control bundle => 30 metres

- While ordering parts, please indicate the quantity and note the number of your machine in the box above.

CE Type <input type="text"/> Matricule <input type="text"/>	TYPE:
	Number:

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**Lincoln Electric France S.A.S.  
Avenue Franklin Roosevelt 76120 Le Grand Quevilly  
76121 Le Grand Quevilly cedex  
[www.lincolnelectriceurope.com](http://www.lincolnelectriceurope.com)**