

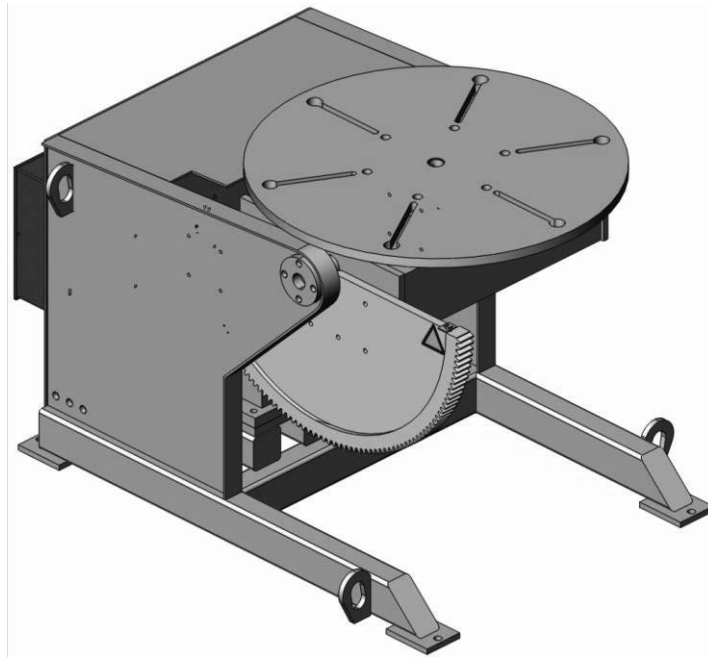
POSITIONERS

POSIMATIC PS15

SAFETY INSTRUCTIONS FOR USE AND MAINTENANCE

POSIMATIC PS15
POSIMATIC PS15 PLASMA

W000385393
95032121NG



EDITION : EN
REVISION : E
DATE : 06-2019

Instructions for use

REF : **8695 6647**

Original instructions

LINCOLN[®]
ELECTRIC

Thank 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 will not be held responsible where items not recommended by themselves are associated with this product.

For your safety,there follows a non-restrictive list of recommendations or requirements, many of which appear in the employment code.

Finally we would ask you kindly to inform your supplier of any error which you may find in this instruction manual.

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DISPLAYS AND PRESSURE GAUGES

The measuring devices or displays for voltage, current, speed, pressure, etc., whether analog or digital, should be considered as indicators.

For operating instructions, adjustments, troubleshooting and spare parts see safety instructions for use and maintenance.

REVISIONS

REVISION B 11/17

DESIGNATION	PAGE
Update	E-18 ; D-17

REVISION C 05/18

DESIGNATION	PAGE
To change logos	

REVISION D 04/19

DESIGNATION	PAGE
Update	F-27 ; F-29 ; F-31

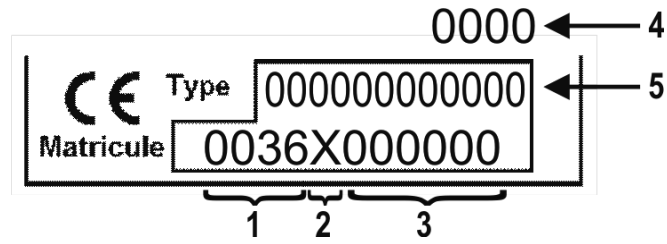
REVISION E 06/19

DESIGNATION	PAGE
Update	F-31

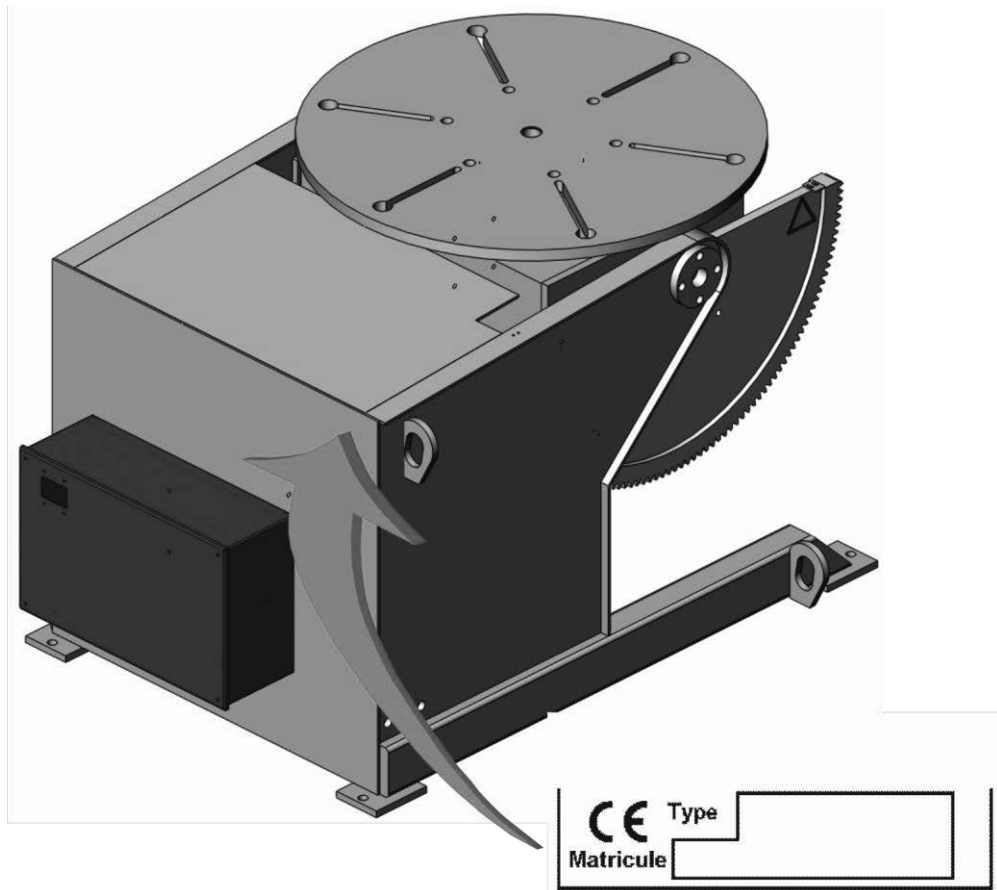
A - IDENTIFICATION

Please enter the number of your machine 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 - AIRBORNE NOISE

Please refer to the specific manual « 8695 7051 » supplied with the equipment.

2 - SPECIFIC SAFETY INSTRUCTIONS



We recommend a concrete floor for the machine to be satisfactorily stable.

If necessary level the machine and it should be anchored to the floor through the holes provided for that purpose in the frames.



Before using the machine, make sure that all the guards are in place. All guard covers must be screwed in.

Only authorised personnel may access electrical cabinets, which must have locking systems.



Check the state of the electrical cables (supply and controls).



Try the movements without load and check the good functioning of safety equipment and devices, particularly limit-switches.



Do not exceed the tilting and rotating torques which determine the maximum admissible load (see diagrams on the equipment).



Do not let loads fall hard on the equipment.



Fully tighten the workpiece(s) on the positioner table.



Ensure that the equipment's working cannot be jammed by tools and/or objects left near moving parts, or by rotating pieces which could hit fixed parts (ground, stands, posts, workshop frames, etc.).
Imperative: an operator corridor must be clear over a minimum width of 800 mm according to safety standard NF EN 547-1 -3.



Never use the positioner table as a sheet metal working table or heat the workpiece without taking basic precautions.



If the equipment is used for welding, make sure that the ground of the power source is connected to the piece before you start welding.



Never modify the machine. The positioner **is not** designed for anchoring or lifting equipment



The use of Personal Protective Equipment (PPE) is **mandatory**.



Clean the working area from time to time.



Machine **maintenance** must be carried out **with all the energy supplies switched off**. The disconnection and padlocking of all energy sources is **mandatory**.

3 - IMPORTANT RECOMMENDATIONS



When starting-up or when changing a connection, there is one chance in two that the connection of phases will be inverted, in which case the tilt limit switches become totally ineffective and there are great risks of damage (refer to chapter page D17).

C - DESCRIPTION

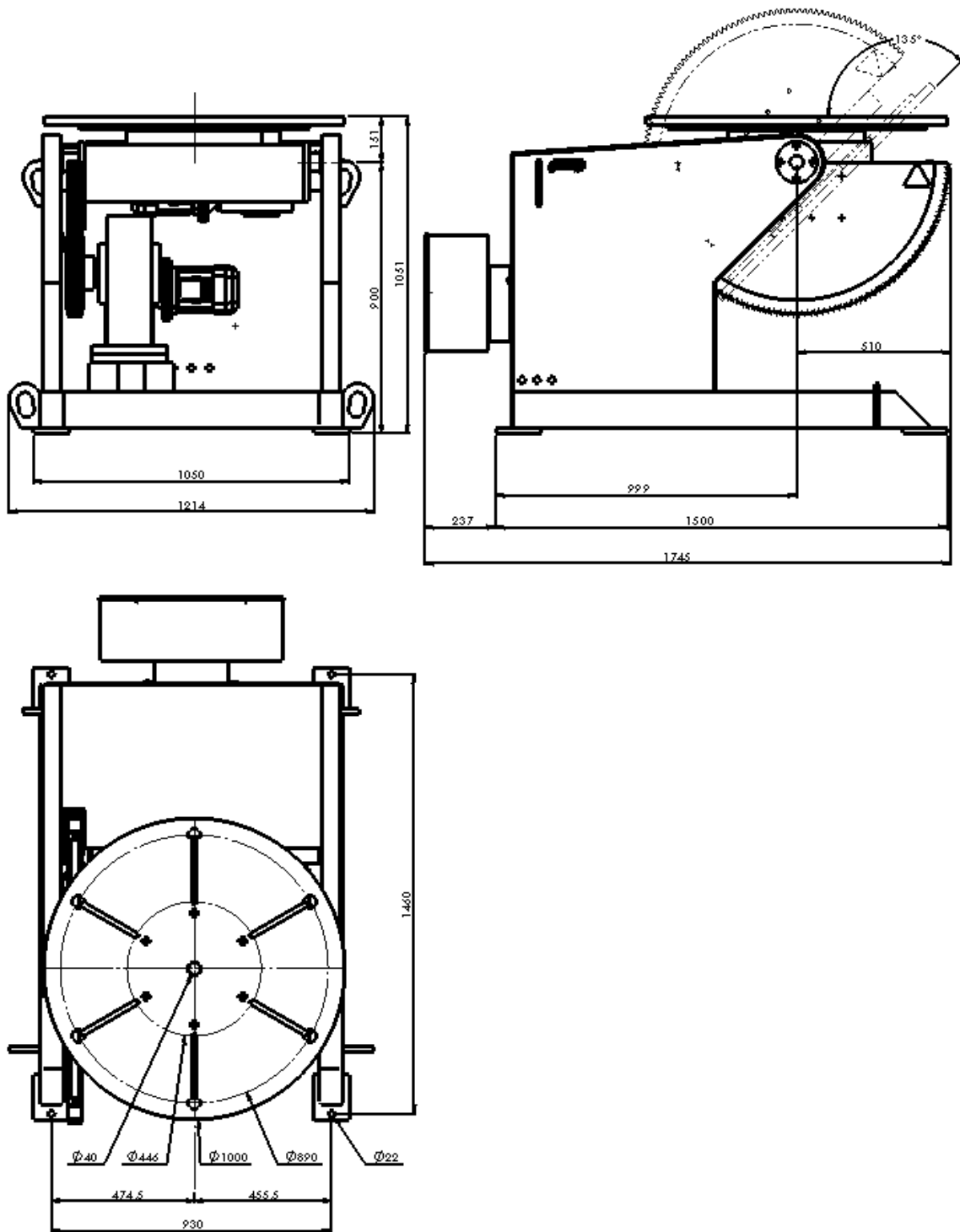
1 - DESCRIPTION

- **POSIMATIC PS15** is a device which enables parts with varied shapes to be positioned in order to optimize operations such as welding, oxycutting, resurfacing, metallization, etc. by presenting the working line in the best position.

a) Main characteristics

	POSIMATIC PS15	POSIMATIC PS15 PLASMA
All positions load (Kg)	1500	1500
Maximum tilt torque (m.kg)	550	550
Time for 135° (s)	56	56
Table tilt angle (°)	135	135
Tilt axis/plate distance (mm)	151	151
Minimum rotation speed (in rpm)	0.14	0.06
Maximum rotation speed (in rpm)	1.8	1.8
Accuracy (%)	5	1
Plate diameter (mm)	1000	1000
total weight of the machine (Kg)	1900	1900
Power (KVA)	3.5	3
Maximum absorbed current (A)	5.1	4.4
Welding ground connection (A at 100%)	1000	1000

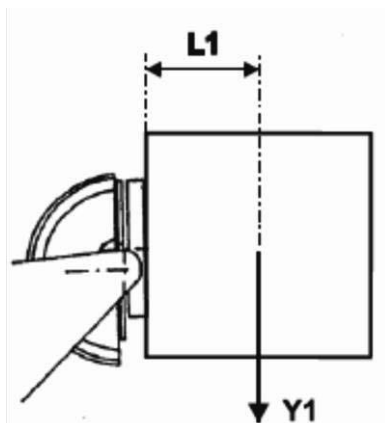
b) Dimensions and space requirements



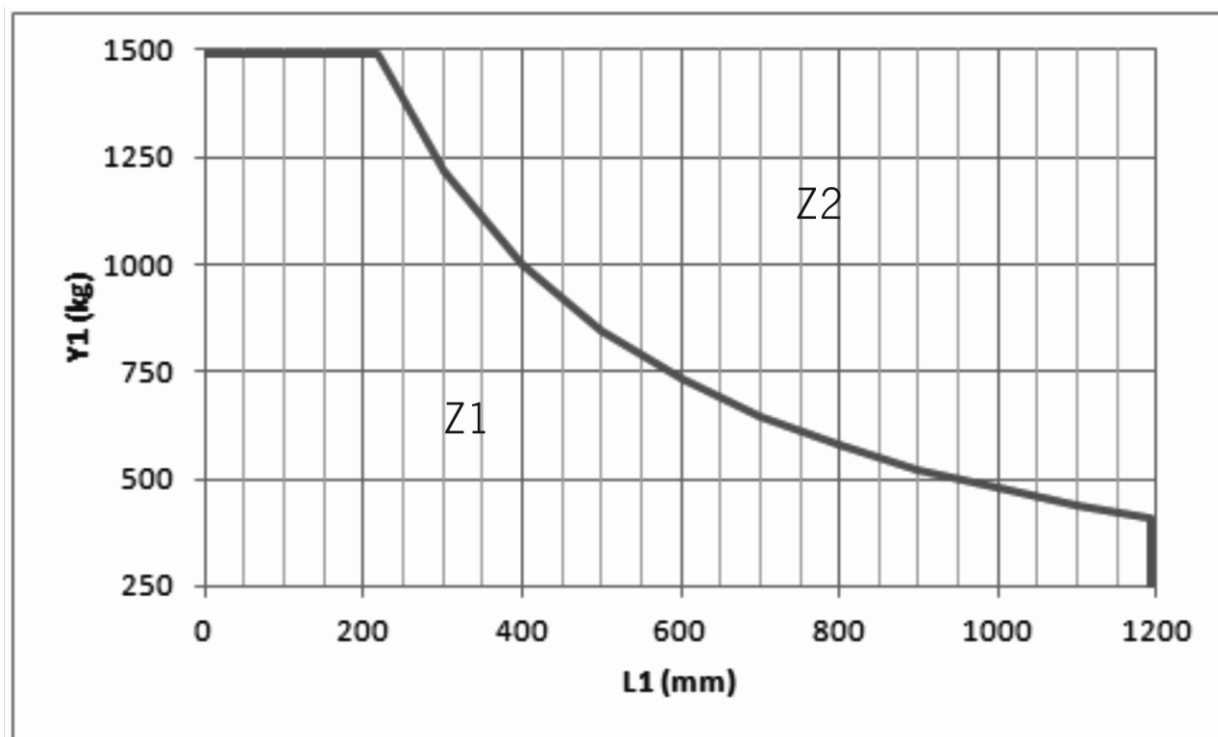
POSIMATIC PS15

c) Diagram of the tilting torque

Admissible load in daN (**Y1**) in relation to the distance in mm (**L1**) of the part centre of gravity in relation to the surface of the plate.



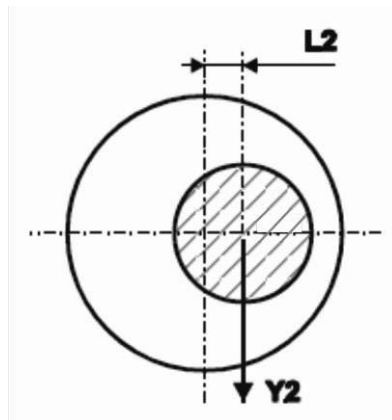
$$Y1 = \frac{550000}{L1 + 151}$$



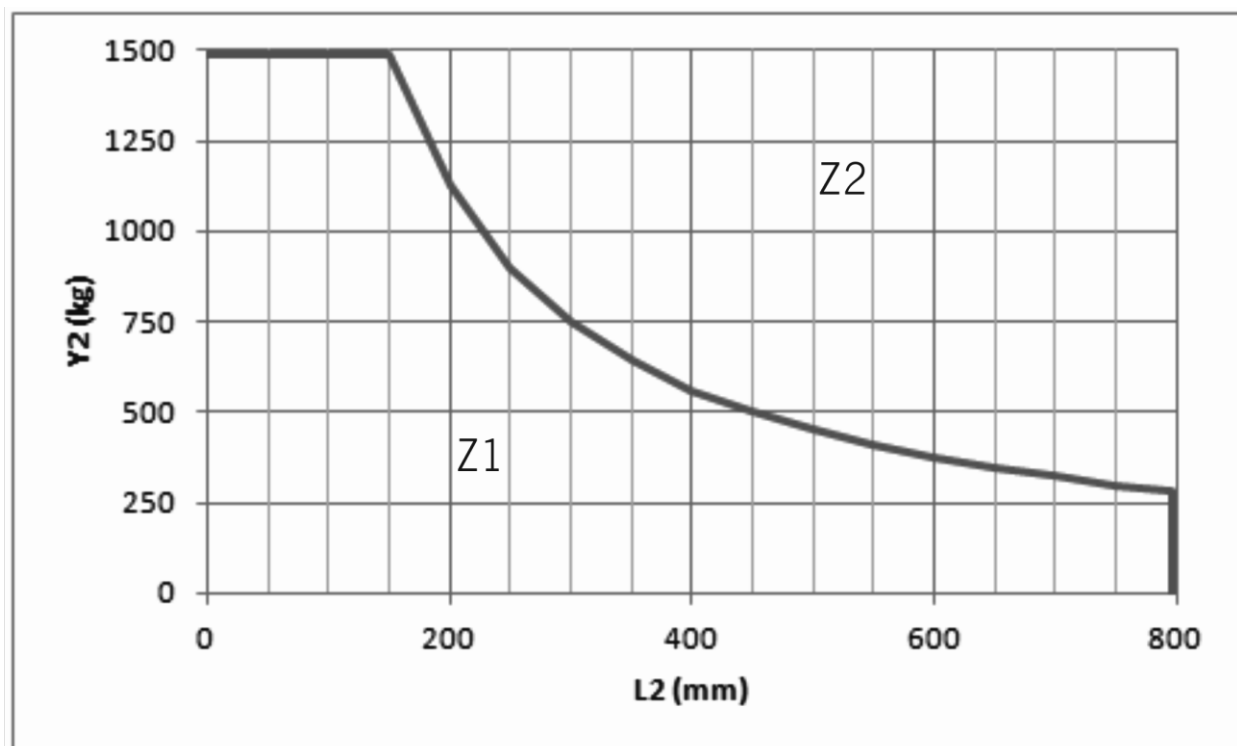
- Z1** Authorized area
- Z2** Prohibited area (vertical plate)
- Y1** Load in daN
- L1** Distance / plate in mm

d) Diagram of the rotating torque

Admissible load in daN (**Y2**) in relation to the distance in mm (**L2**) between the centre of gravity and the rotation axis.



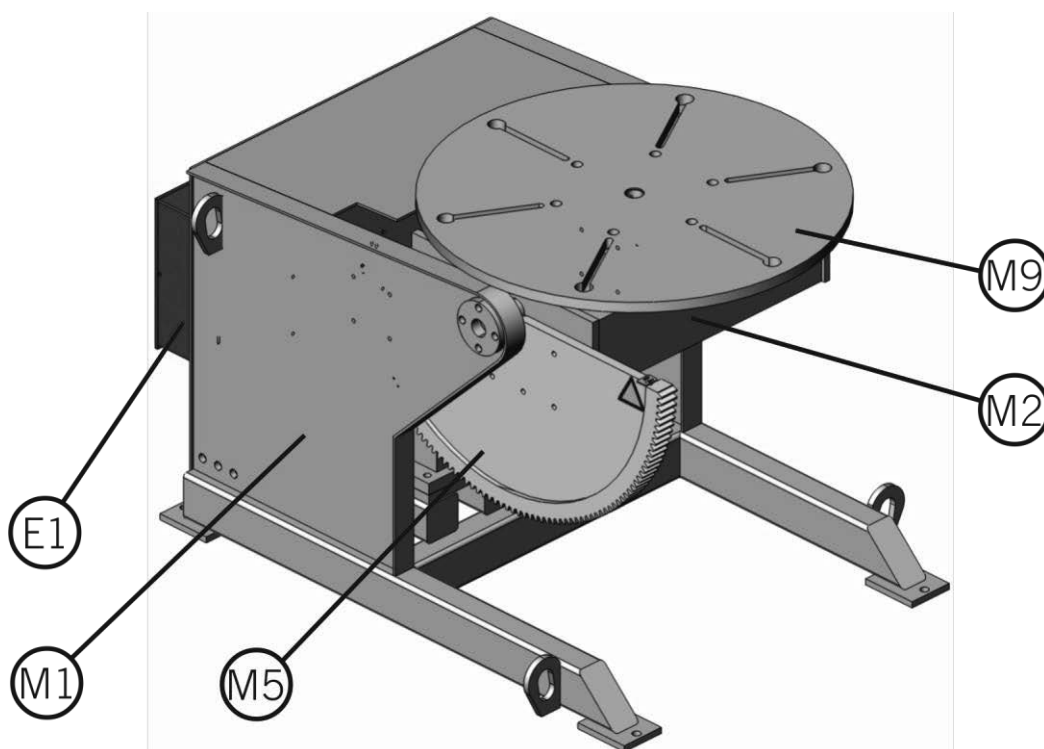
$$Y2 = \frac{225000}{L2}$$



- Z1** Authorized area
- Z2** Prohibited area (vertical plate)
- Y2** Load in daN
- L2** Distance / plate in mm

2 - DETAILED DESCRIPTION

a) General appearance



M1 Frame

M2 Tilting frame

M5 Cogged quadrant

M9 Plate

E1 Electrical cabinet

The **POSIMATIC PS15** mainly comprises a frame (**M1**) in which the tilting mechanical (**M2**) components are mounted. It supports the rotating plate (**M9**).

The frame (**M1**) supports also :

- The tilting gearbox (**M3**).
- The electrical cabinet (**E1**).

The tilting frame (**M2**) supports :

- The cogged quadrant (**M5**).
- The rotating plate (**M9**) the cogged ring (**M8**).
- The rotating gearbox (**M6**).

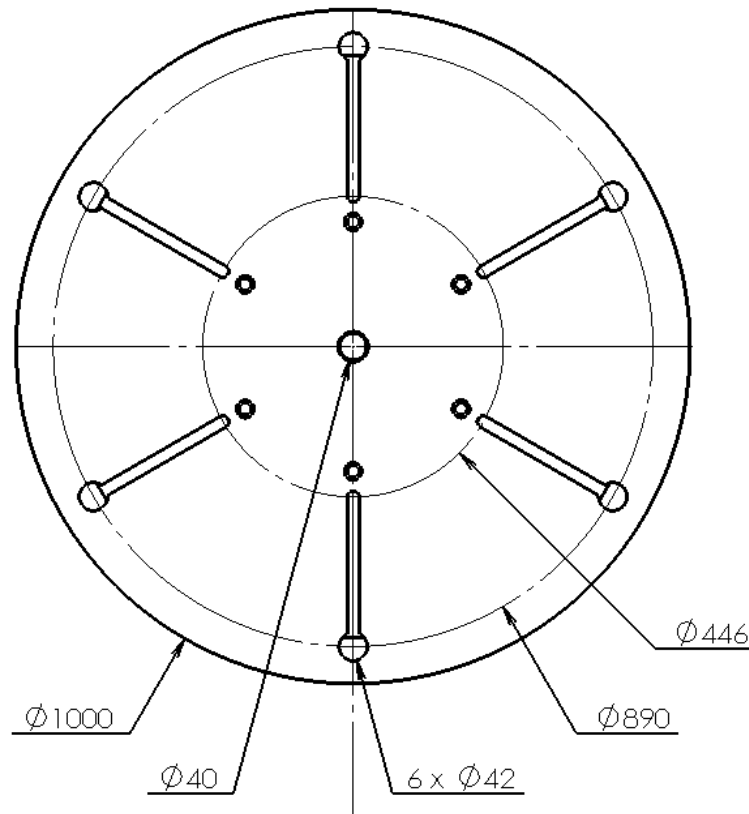
A control box (**E2**) connected by means of a multi conductor cable is used for tilting and rotation movement remote control.

b) Le plateau (M9)

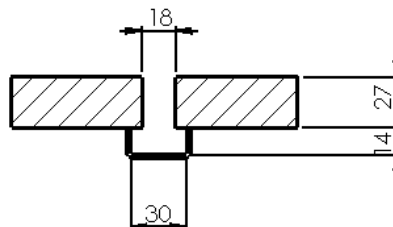
The work table or plate (**M9**) made of heavy plate provides easy attachment of parts to be welded.

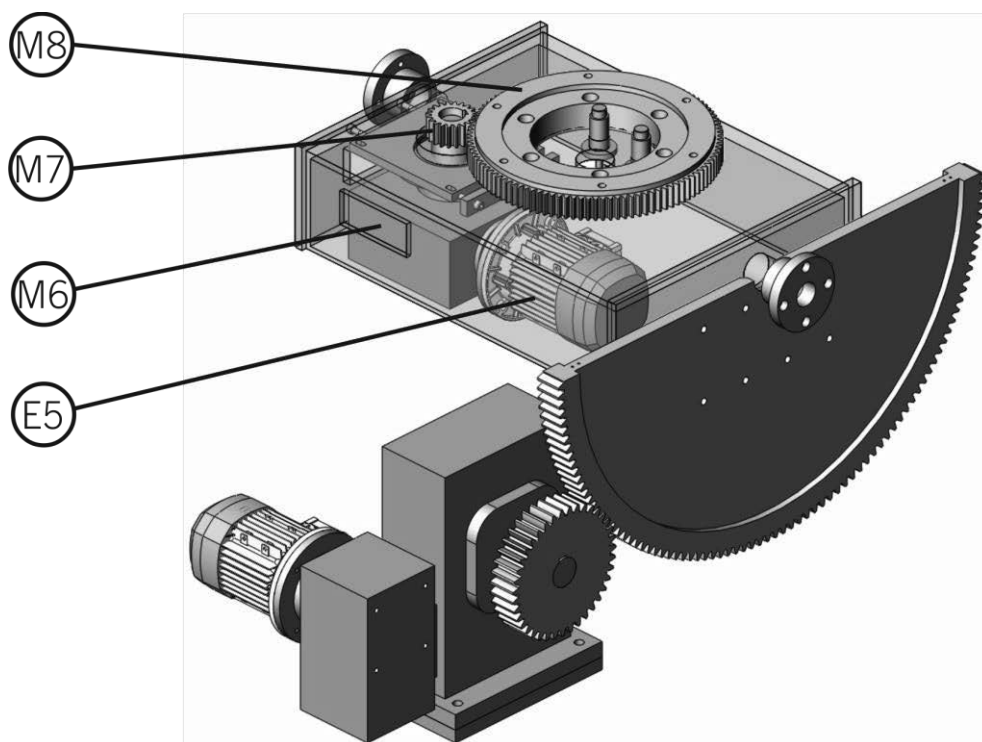
Grooves are provided to accommodate bolts in such a manner that bolts cannot be accidentally removed from the slots.

The central hole $\text{Ø}40$ is extended by a tube that runs through the tilting frame (**M2**). It allows the gas supply for welding applications for example.



Dimensions of grooves

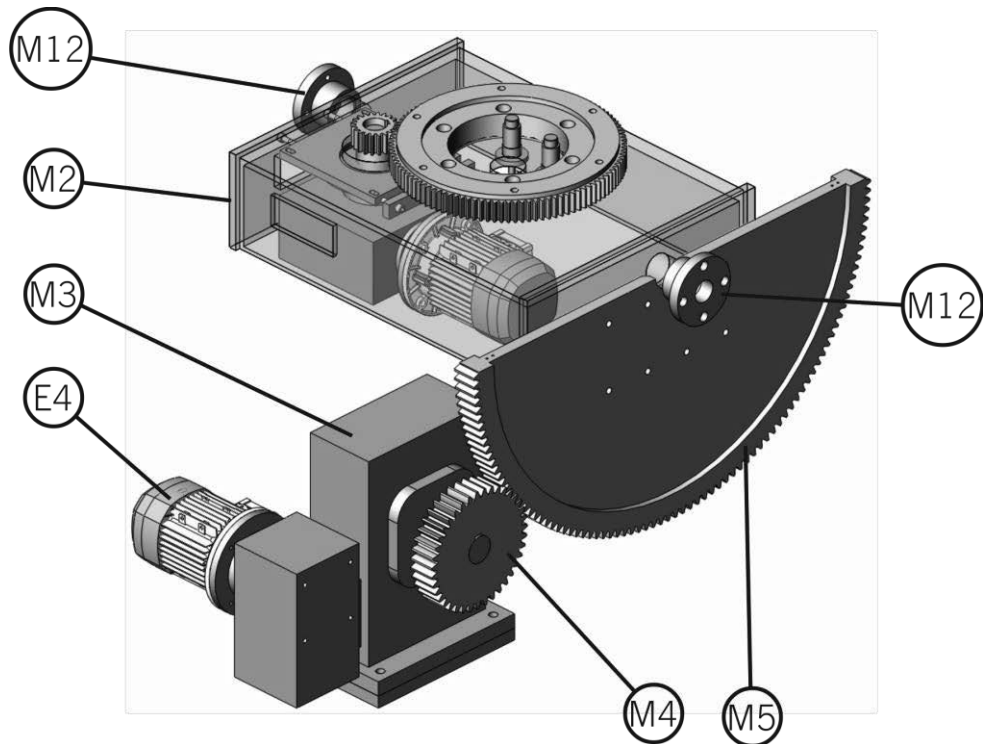


c) Rotation components

- E5** Motor
- M6** Gearbox
- M7** Drive gear
- M8** Cogged ring

A wheel and worm reduction gear (**E5-M6**) transmits the rotation movement to the cogged ring (**M8**) through the drive gear (**M7**).

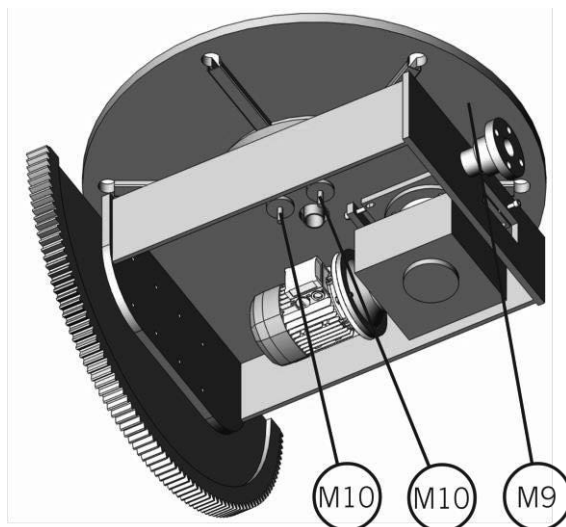
Speed control is made via a potentiometer fixed on the pushbutton box. A graduated dial shows speed setting.

d) Tilting components

- E4** Motor
- M2** Tilting frame
- M3** Gearbox
- M4** Drive gear
- M5** Cogged quadrant
- M12** Trunnions

A wheel and worm reduction gear (**E4-M3**) transmits the rotation movement to the cogged quadrant (**M5**) through the drive gear (**M4**).

The box (**M2**) is hinged on two horizontal trunnions (**M12**) mounted in bushes housed in the frame (**M1**) and accommodates the fixed part of the positioning ring (**M8**).

e) Welding ground connection

- M9** Rotating plate
M10 Welding ground connection

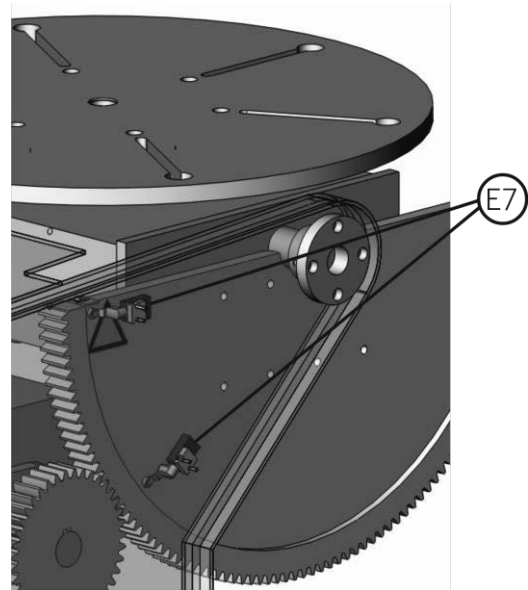
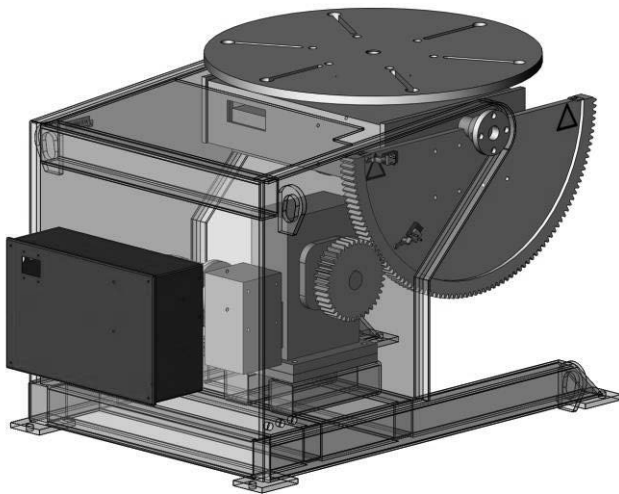
POSIMATIC PS15 is fitted with two ground connectors (**M10**). They are made up of an assembly with two brushes pushed by springs that rub against the plate (**M9**).

The capacity of this welding ground connection (500A for a 100% duty factor) is such that it enables nearly all welding processes to be used, except that under conducting flux which requires higher current.

In order to avoid overheating of the ground connection, it is advised that welding cables be connected with a section compatible of course with the current conveyed and the duty factor.

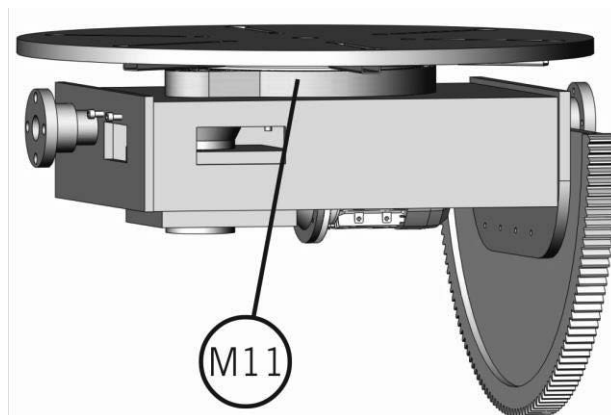
This ground connection must be made to avoid deteriorating the ball bearings of the positioner.

f) Safety systems



E7 Tilting limit switch

Two limit switches (**E7**) switch off motor power supply when the mobile sub-assembly reaches the extreme position (0° and 135°).



M11 Tothing protective

A tothing protective (**M11**) keeps the operator safe by eliminating the risks from the rotating mechanism (**M8** and **M7**).

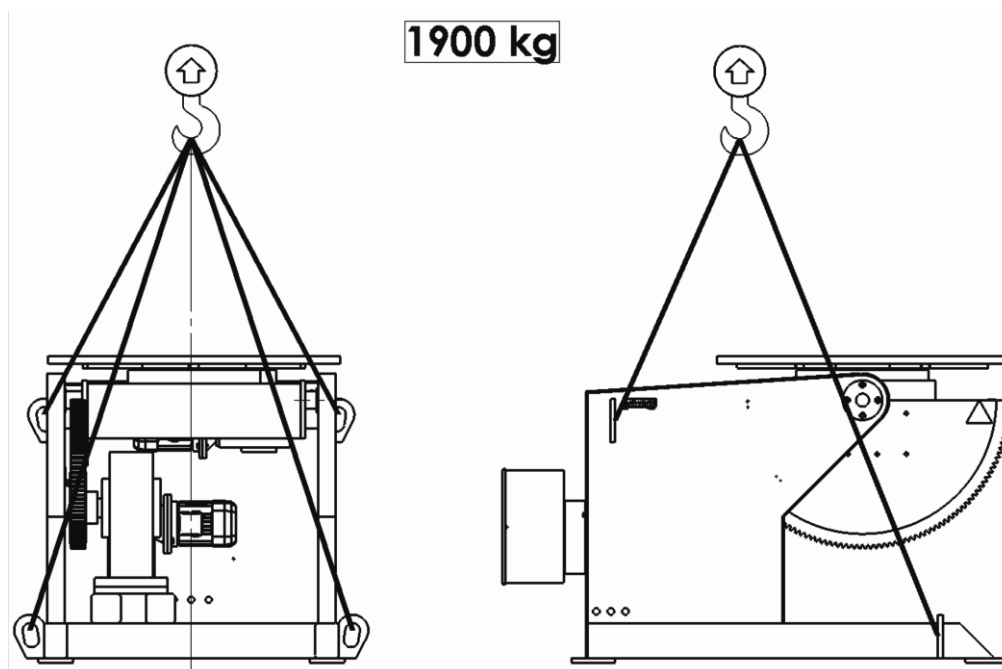
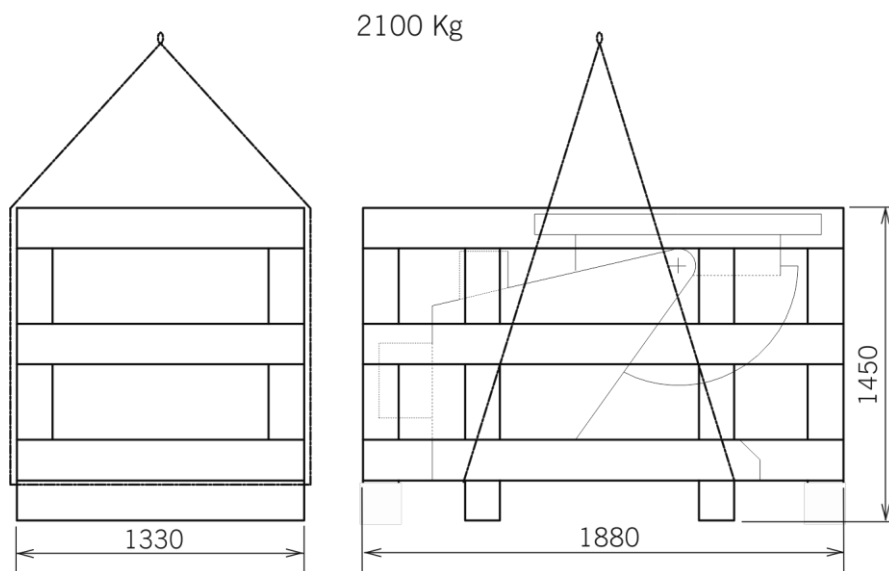
D - ASSEMBLY - INSTALLATION

1 - HANDLING THE POSIMATIC

- Sling the **POSIMATIC** in its wooden packaging as indicated in the drawing.
- Unpack the **POSIMATIC** from its delivery packaging.
- Sling the **POSIMATIC**, always using the slinging eyes which are provided for moving.



Operator protection :
Helmet - Gloves -
Safety shoes



2 - PUTTING IN PLACE

The positioner must be placed on a plane floor and strong enough.

Wedge the feet if necessary.

Ensure that the equipment's working cannot be jammed by tools and/or objects left near moving parts, or by rotating pieces which could hit fixed parts (ground, stands, posts, workshop frames, etc.).

Imperative: an operator corridor must be clear over a minimum width of 800 mm according to safety standard NF EN 547-1 -3.

3 - FIXING THE POSIMATIC

This machine must imperatively be anchored to the floor with four anchoring points in a 20 Mpa (350 kg/m³) single continuous concrete screed with metal reinforcement, completed since at least 21 days (standard BAEL 91).

EQUIPMENT RECOMMENDED FOR FASTENING POSIMATIC:

Brand	Pin type	Reference	Drilling Ø (mm)	Admissible load (daN)
HILTI	Metal	FBR M 16 x 130	Ø 16	800
	Chemical	HAS M 16 x 190 + HBP 16	Ø 18	2120
FISCHER	Metal	FA 16 x 20 FB 16 x 25	Ø 16 Ø 16	1200 1200
	Chemical	RM 16 + RGM 16 x 190	Ø 18	3750
SPIT	Metal	050680 FIX 16/45	Ø 16	810 à/to/bis 1270
	Chemical	M 16 - 5209 + SM 16 - 5224	Ø 18	2175

4 - ELECTRICAL CONNECTIONS

The **POSIMATIC** is connected electrically to the network by means of the five-metre cable located at the rear of the supply cabinet.

The cable, which has four conductors, is to be connected to a standardised 3 x 400 V / 50-60Hz system with equipotential bonding.



VERY IMPORTANT

For compliance with European safety standards, the connection to the electricity supply is to be made via a wall-mounted cabinet with an individual protective sectioning switch with rating appropriate for the mains voltage and the consumption by the equipment

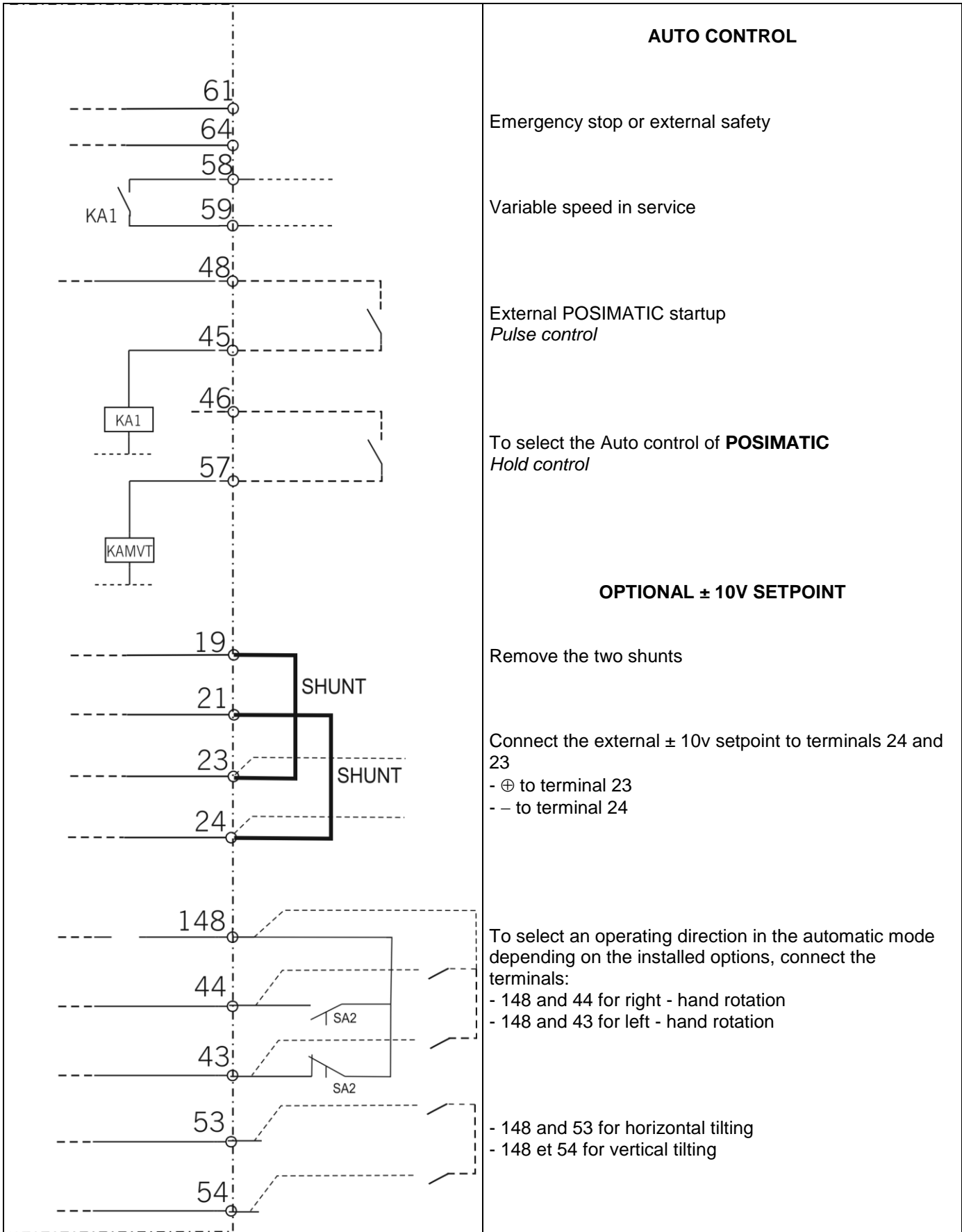
The protective sectioning switch must offer breaking capacity of 100KA.

We market cabinets that meet the criteria set out.

ARRANGEMENT OF CABLES AND FLEXIBLE HOSES

The customer must provide a means to support and protect cables and flexible hoses from mechanical, chemical or thermal damage, right from their point of origin.

EXTERNAL CONNECTION FOR THE DIFFERENT OPTIONS



5 - INSTALLATION

a) Checking after transport

The positioner is delivered ready for operation.

However, certain preliminary steps should be taken before starting-up:

- make sure that no visible element has been damaged during transport,
- check that the main elements are properly tightened; transport may have loosened them, especially tilt limit switches,
- check that electrical connections are correct.

b) Checking phase direction

- check that the electrical connections are correct,
- press the plate lowering button « C5 »

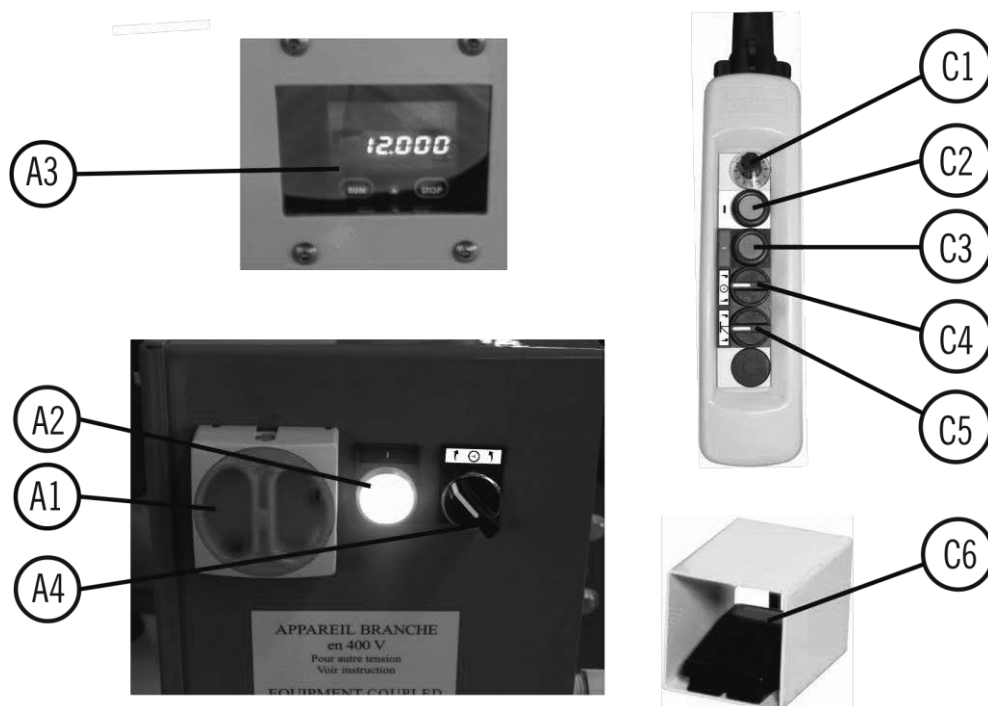


- the plate lowers: the phases are connected properly
- the plate rises: invert two phases at the connection of the mains supply

When these tests are conclusive, the positioner is ready for starting-up. Repeat these checks each time the positioner is moved.

E - OPERATOR MANUAL

1 - CONTROL BUTTONS ON CABINET



Rep	Description	
A1	Main power button.	
A2	Power on indicator	
A3	Power on indicator	
	A4	Rotation direction with automatic starting up
	C1	Rotation speed adjustment potentiometer
I	C2	Power on pushbutton (variable drive)
0	C3	Power off pushbutton (variable drive)
	C4	Switch with three fixed positions for rotation direction. The central position is the idle position.
	C5	Switch with three fixed positions for tiling direction. The central position is the idle position.
	C6	Pedal to allow the rotation movement of the plate.

F - MAINTENANCE

1 - SERVICING

- For the machine to continue to provide good service for as long as possible, a certain minimum of care and maintenance is necessary.



Before working on the machine, it is **MANDATORY** to lock out all the supplies of utilities to the machine (electricity, air, gas etc.).
Locking an emergency stop button is not sufficient.

LUBRICATION

The reducing gear of **POSIMATIC** are lubricated with oil. They are provided with level control windows, filling plugs and drain plugs.

This reduction gears can operate at an ambient temperature from 0°C to +40°C.

The bearing of the positioning ring is lubricated with grease.

External cogging is lubricated with grease.




CONTROL AND SAFETY

All the instructions in this manual must be followed closely, particularly those relating to the limits of use.

Further, the main parts of the equipment, particularly the coggings, the screws and nuts, power cables of motors and remote control, motor ventilation etc., must be inspected periodically.




After a long time of unusing the positioner, all the periodical controls should be done before restarting.

First servicing**80h or 1 month**


Parts	Operations		Lubrication
Positioning ring (cogging)		1) Unmount the plate. 2) Clean the cogging, especially the bottom of the teeth. 3) Grease the cogging with a brush.	Grease HPG 400
Positioning ring (bearing)		Grease the bearing with the help of greasers accessible when plate is unmounted.	Esso beacon 2
Gearboxes		Drain the gearboxes and fill them with new oil	Oil HAFA SYNTEC 220

Periodical servicing and controls






WEEKLY

Parts	Operations		Lubrication
<p>PLATE</p>		<p>Check the tightening of the plate fixation screws.</p>  <p>If an abnormality is detected (loose screw), it is advised to unmount completely the plate and also check the tightening of the screws that hold the positioning ring on the box.</p>	
<p>WELDING GROUND CONNECTION</p>		<p>Check the condition of the contact surfaces.</p>	

EVERY 2 WEEKS

Parts	Operations		Lubrication
<p>GEARS</p>		<ol style="list-style-type: none"> 1) Check the condition of the teeth of the cogged sector of the tilting mechanism 2) Grease the cogging of the positioning ring 	<p>Grease HPG 400</p>

EVERY 6 MONTHS

Parts	Operations		Lubrication
GEARBOXES		Drain the gearboxes and fill them with new oil	Oil HAFA SYNTEC 220
Positioning ring (bearing)		Grease the bearing with the help of greasers accessible when plate is unmounted.	Esso beacon 2
Positioning ring (cogging)		Check the condition of the teeth of the ring and his pinion gear.	
Tilting cogged sector		Check the condition of the teeth of the cogged sector of the tilting mechanism and his pinion gear .	
Tilting bushes		Check the wear state.	

2 - TROUBLESHOOTING

Possible symptoms	Probables causes	Possible remedies
The positioner indicator goes off after the power is switched on with the switch QS1.	Indicator lamp has blown	Replace the lamp
	Fuses FU1 or FU3 have blown	Replace the fuses on the basis of the fuse rating table.
The plate will not rotate after it is started up.	No rotation direction has been selected.	Select a rotation direction using the switch $\uparrow\downarrow$.
		With automatic control, the connection is not made between terminals 148 and 44 (right-hand rotation) or 148 and 43 (left-hand rotation) to control the operating direction. Make the connection with a shunt or external contact; see electrical connections.
	When using an external $\pm 10V$ setpoint, check the presence of voltage between terminals 23 and 24 (0V \rightarrow no rotation).	
	The motor is not powered	Check and replace the fuses FU2 if needed.
The plate turns for a short time and then stops.	Over-intensity leading to: - a variable drive fault F0102 or F0103	Check that you have followed the table with the admissible load and unbalance values for your positioner.
		Check that the load has not increased suddenly.
		Check that the terminals U, V and W of the variable drive are not shorted.
		Check that the motor cable is not shorted and that the motor is correctly coupled.

Possible symptoms	Probables causes	Possible remedies								
Tilting will not work.	No tilting direction has been selected.	Select a tilting direction using the switch ↑↓.								
		Check that no limit switch is actuated With automatic control, the connection is not made between terminals 148 and 54 (tilting up) or 148 and 53 (tilting down) to control the operating direction. Make the connection with a shunt or external contact; see electrical connections.								
	The motor is not powered	Check that the thermal relay Q3 has not tripped. Then check that the thermal relay is correctly adjusted according to the table below:								
		<table border="1"> <tr> <td>type:</td> <td>03</td> <td>08</td> <td>15</td> <td>30</td> </tr> <tr> <td>value (A)</td> <td>1.05</td> <td>1.85</td> <td>2.66</td> <td>5.20</td> </tr> </table>	type:	03	08	15	30	value (A)	1.05	1.85
type:	03	08	15	30						
value (A)	1.05	1.85	2.66	5.20						
Tilting runs for a short time then stops.	Over-intensity leading to: - a thermal relay fault	Check the state and adjustment of the thermal relay according to the table above.								
		Check that you have followed the table with the admissible load and unbalance values for your positioner								
		Check that the load has not increased suddenly.								
		Check that the motor cable is not shorted and that the motor is correctly coupled.								

DEFINITIONS OF ERRORS DISPLAYED ON THE VARIABLE DRIVE

NUMERO NUMBER/NUMMER	DESCRIPTION
F0102,F0103	Variable drive overload. Check the load behaviour. Check the motor parameter adjustments.
F0200...F0300	Temperature too high. Check cooling, flap, sensor and ambient temperature. Temperature low. Check the ambient temperature and the heating of the electrical cabinet.
F0400, F0403	Motor temperature too high or sensor faulty. Check the connection to X12.4. Phase fault. Check the motor and the wiring
F0500...F0507	Overload, short circuit or dispersion in the ground, motor current or phase fault. Check the load behaviour and the gradients (P420...P423). Check the motor and the wiring.
F0700...F0706	DC bus voltage too high or too low. Check the deceleration gradients (P421, P423) and the connected braking resistor. Check the network voltage. Check the network voltage, the fuses and the network circuit.
F0801,F0804	Electrical voltage (24V) too high or too low. Check the wiring of the control terminals
F1100...F1110	Maximum frequency reached. Check the control signals and adjustments. Inspect the deceleration gradients (P421, P423) and the connected braking resistor
F1310	Minimum output current. Check the motor and the wiring.
F1401	Signal of the reference value on the input X12.3 faulty, check the signal.
F1407	Over-intensity at input X12.3, check the signal.
F1408	Over-intensity at input X12.4, check the signal.
A0001...A0004	Variable drive overload. Check the load behaviour. Check the motor and application parameters.
A0008,A0010	Temperature too high. Check cooling, flap and ambient temperature.
A0080	Once the maximum motor temperature is reached, check the motor and sensor.
A0100	Network phase failure, check the main fuses and the power cable
A0400	Once the frequency limit is reached; output frequency limited.
A0800	Input signal at X12.3 too low. Increase the value
A1000	Input signal at X12.4 too low. Increase the value
A4000	The voltage of the DC bus has reached the minimum value

POSITIONER FUSES RATINGS

	STANDARD POSITIONERS		
	FU1 (5x20)	FU2 (10x38)	FU3 (5x20)
POSIMATIC PS15	1 A FsT	6 A aM	6 A FsF

3 - SPARE PARTS

How to order

The photos or sketches identify nearly every part in a machine or an installation

The descriptive tables include 3 kinds of items:

- those normally held in stock: ✓
- articles not held in stock: ✗
- those available on request: no marks

(For these, we recommend that you send us a copy of the page with the list of parts duly completed. Please specify in the Order column the number of parts desired and indicate the type and the serial number of your equipment.)

For items noted on the photos or sketches but not in the tables, send a copy of the page concerned, highlighting the particular mark.

For example:

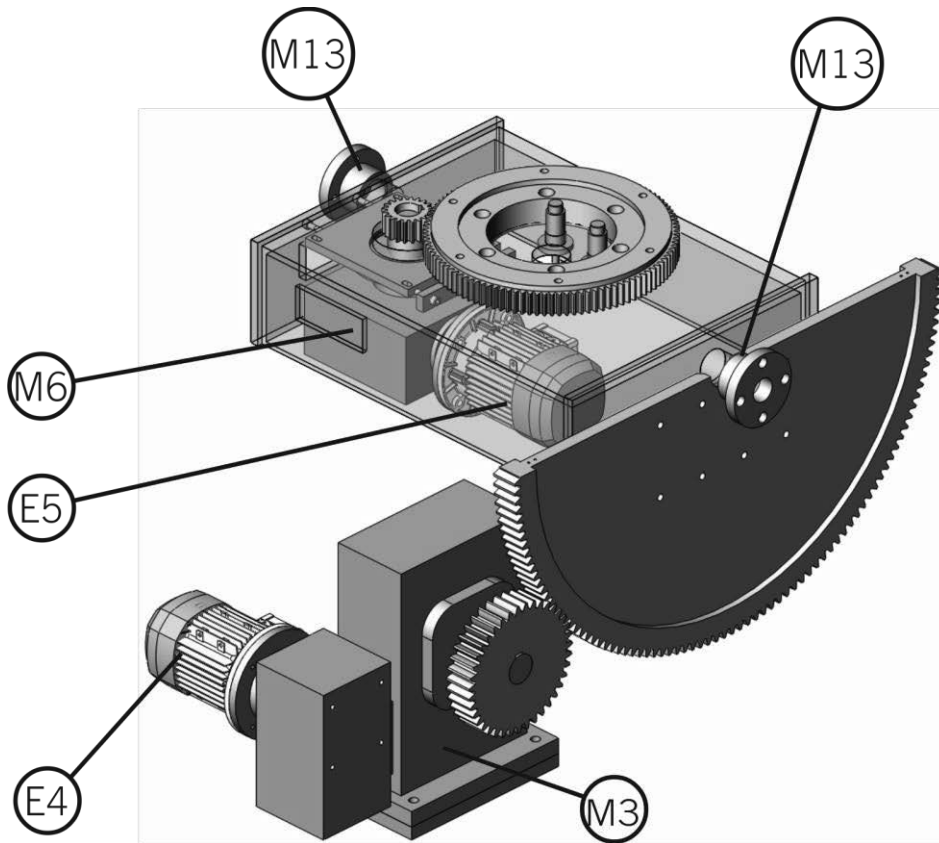
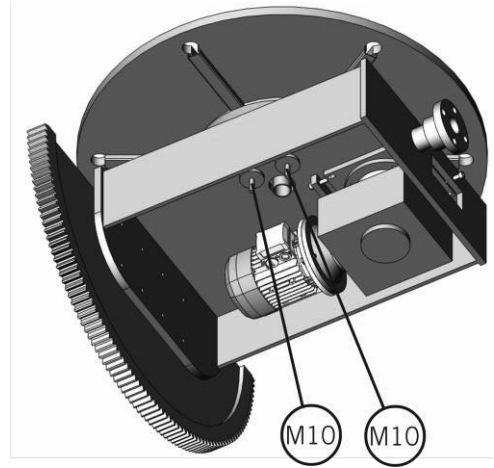
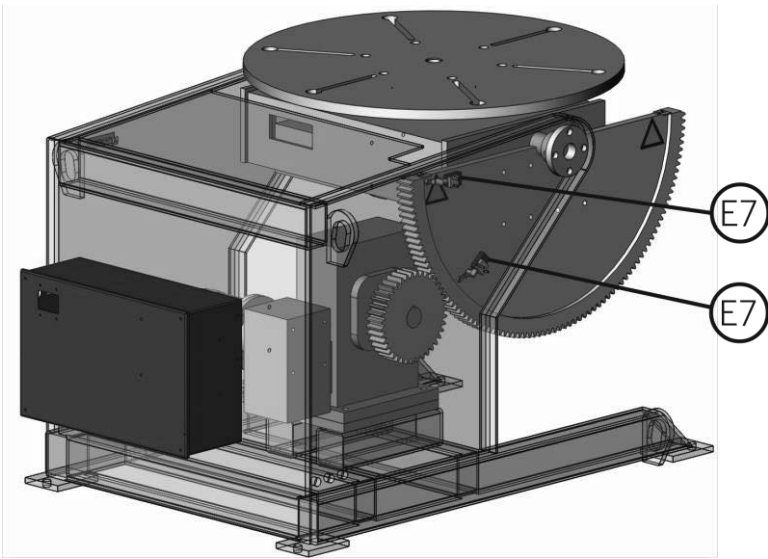
Rep	Ref.	Stock	Cde	Désignation
E1	W000XXXXXX	✓		Carte interface machine
G2	W000XXXXXX	✗		Débitmètre
A3	P9357XXXX			Tôlerie face avant sérigraphiée

✓	normally in stock
✗	not in stock
	on request

- For parts order, give the quantity required and put the number of your machine in the box below.

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



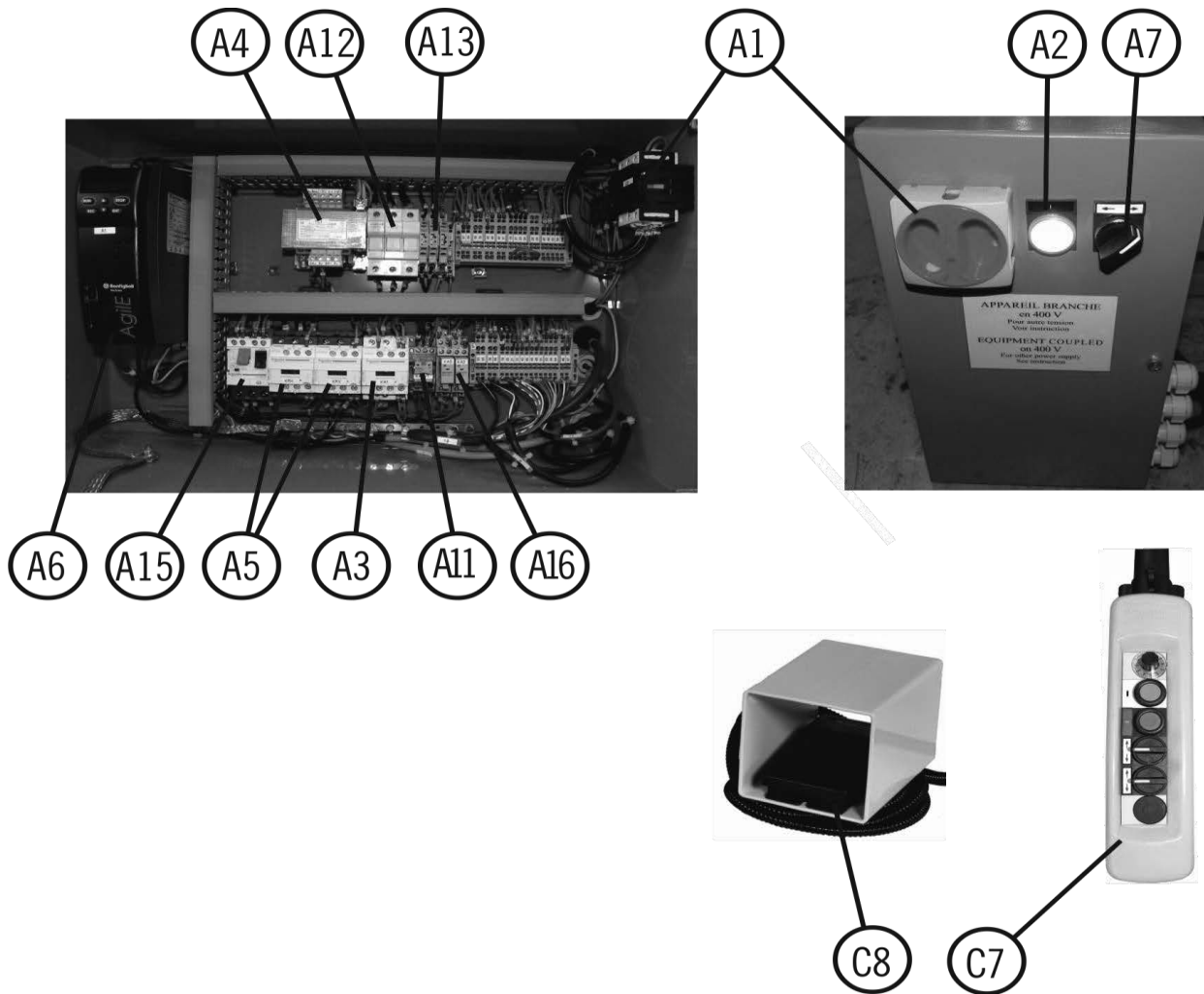
✓	normally in stock
✗	not in stock
	on request

Item	Ref. PS15	Ref. PS15 Plasma	Stock	Order	Designation
E5	W000386980		✓		Motor
E5		PC5700291			Motor
		PC5700278			Adapter flange
M6	W000386956	W000386956	✓		Gearbox
M10	W000386966	W000386966	✓		Ground connection
E4	W000386980	W000386980	✓		Motor
M3	W000386957	W000386957	✓		Gearbox
M13	W000386972	W000386972	✓		Bush
E7	W000386987	W000386987	✓		Sensor

➤ For parts order, give the quantity required and put the number of your machine in the box below.

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


ELECTRICAL PART



✓	normally in stock
✗	not in stock
	on request

Item	Ref. PS15	Ref. PS15 Plasma	Stock	Order	Designation
A1	W000140748	W000140748	✓		Main switch
A2	W000137799	W000137799	✓		24V BA9S bulb
A2	PC5704057	PC5704057			Indicator body
A2	PC5704054	PC5704054			Power on indicator head
A3	PC5701064	PC5701064			Auxiliary contactor KA1
A4	PC5706078	PC5706078			63VA 220-380/2x24V transformer
A5	PC5701025	PC5701025			Reversing contactor
A6	W000386985		✓		1.1KW AGILE drive for PS15
A6		PC5700270			ACU 401-09FA 3.2A drive for PS15 Plasma
		PC5700269			RES02 addon for PS15 Plasma
A7	W000366020	W000366020	✗		Two fixed pitch selector head
A7	W000366042	W000366042	✗		Body
A7	W000366044	W000366044	✗		Contact
A11	P91093173	P91093173			4 contacts relay
A12	PC5705167	PC5705167			10x38 three-poles cut-off (FU2)
A13	PC5513716	PC5513716			5x20 fuse holder (FU1-FU3)
A13	PC5513727	PC5513727			Accessory – fuse holder 5x20 (FU1-FU3)
A13	PC5513728	PC5513728			Accessory – fuse holder 5x20 (FU1-FU3)
A15	PC5705323 + PC5705342	PC5705323 + PC5705342			Thermal relay
A16	PC5606743	PC5606743			2 contact relay
C7	P95032002	P95032002			Control box with cable
C8	W000273453	W000273453	✓		Pedal

➤ For parts order, give the quantity required and put the number of your machine in the box below.

	TYPE :
	Number :

