



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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# **INFORMATIONS**

#### **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 ; F-31

**REVISION C** 

10/19

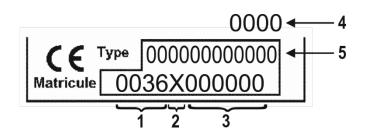
DESIGNATION	PAGE
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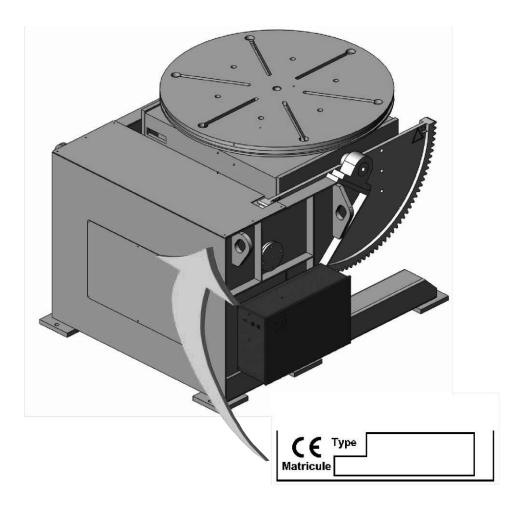


Please enter the number of your machine in the following box.

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).

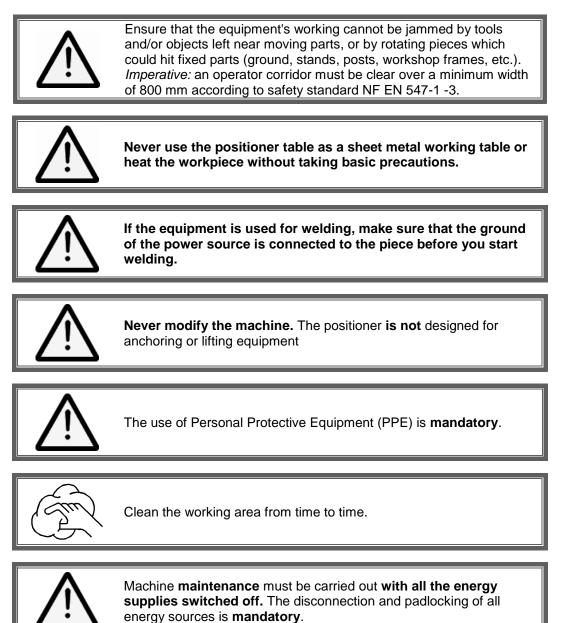


Do not let loads fall hard on the equipment.



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





### **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**

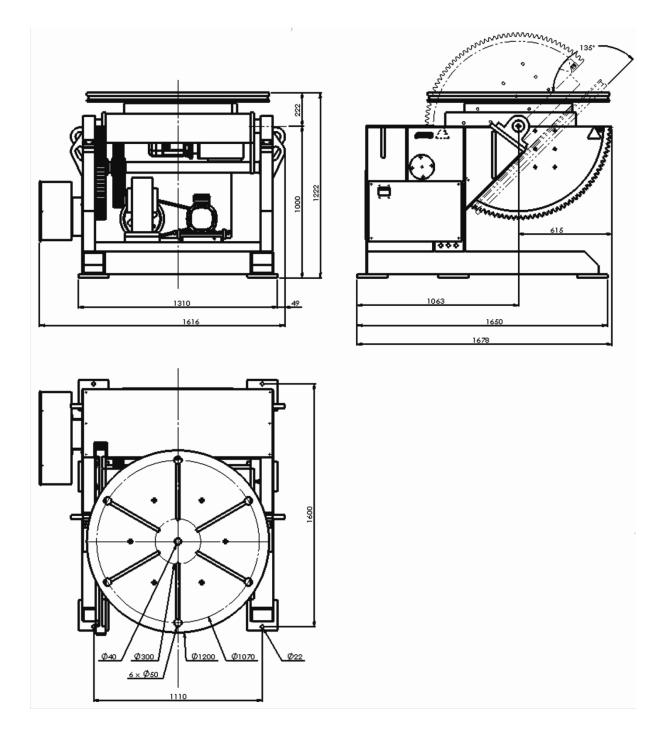
• **POSIMATIC PS30** is a device which enables parts with varied shapes to be positioned in order to optimize operations such as welding, oxycutting, resurfacing, metallization, etc. by presenting the working line in the best position.

#### a) Main characteristics

	POSIMATIC PS30	POSIMATIC PS30 PLASMA	
All positions load (Kg)	3000	3000	
Maximum tilt torque (m.kg)	1300	1300	
Time for 135° (s)	54	54	
Table tilt angle (°)	135	135	
Tilt axis/plate distance (mm)	222	222	
Minimum rotation speed (in rpm)	0.1	0.05	
Maximum rotation speed (in rpm)	1.5	1.5	
Accuracy (%)	5	1	
Plate diameter (mm)	1200	1200	
total weight of the machine (Kg)	2100	2100	
Power (KVA)	6	5.5	
Maximum absorbed current (A)	8.7	8	
Welding ground connection (A at 100%)	1000	1000	



### b) Dimensions and space requirements

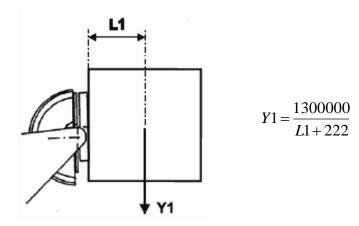


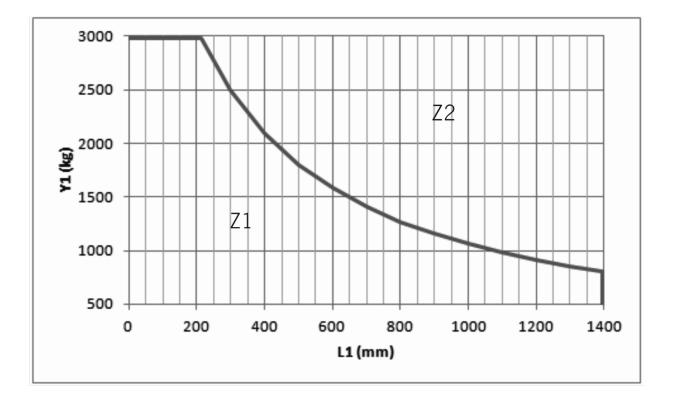
### **POSIMATIC PS30**



#### 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.



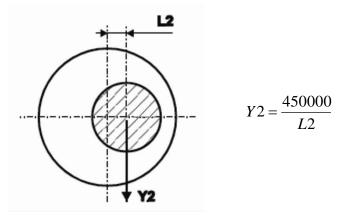


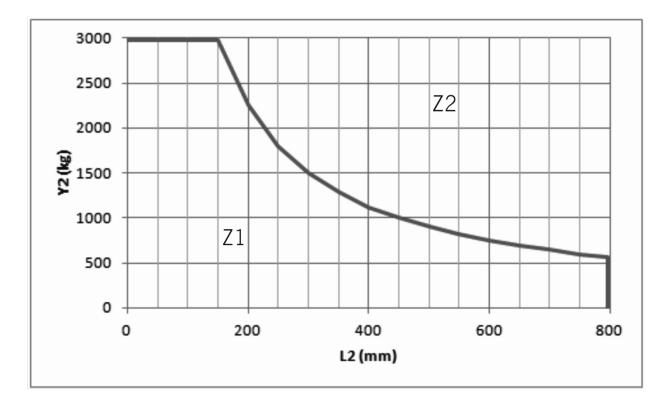
- Z1 Authorized area
- **Z2** Prohibited area (vertical plate)
- Y1 Load in daN
- L1 Distance / plate in mm



#### 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.



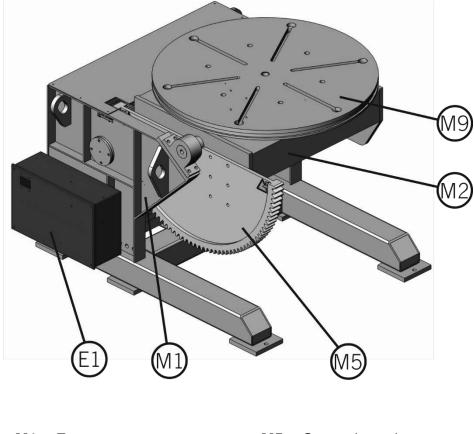


- Z1 Authorized area
- **Z2** Prohibited area (vertical plate)
- Y2 Load in daN
- L2 Distance / plate in mm



#### 2 - DETAILED DESCRIPTION

#### a) General appearance



M1	Frame	M5 Cogged quadrant		
M2	Tilting frame	M9	Plate	
		E1	Electrical cabinet	

The **POSIMATIC PS30** 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 rotatin 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.

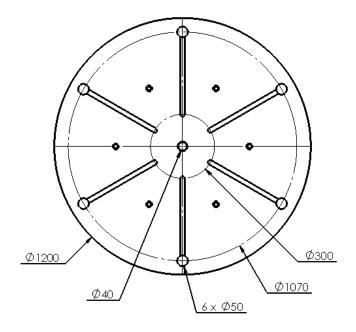


#### b) The plate (M9)

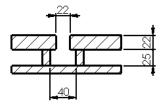
The work table or plate (M9) made of heavy plate provides easy attachment of parts to be welded.

Grooves are provided to accommodate bolts in such a maner that bolts cannot be accidently remove from the slots.

The central hole Ø40 is extended by a tube that runs through the tilting frame (**M2**). It allows the gas supply for welding applications for example.

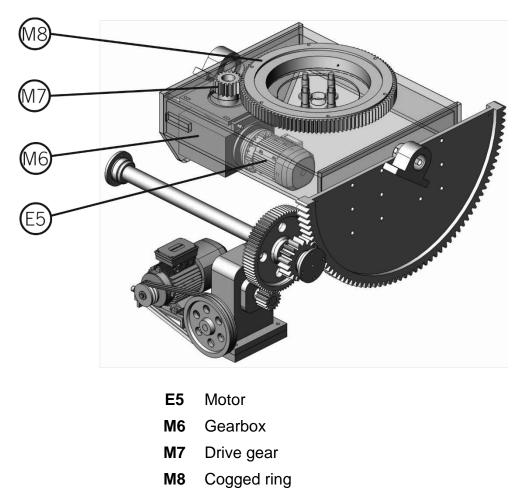


**Dimensions of grooves** 





#### c) Rotation components

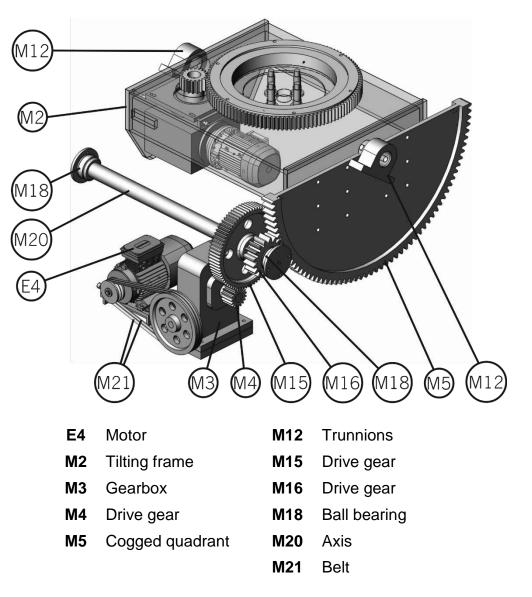


A wheel and worm reduction gear (E5-M6) transmits the rotation movement to the cogged ring (M8) through the drive gear (M7).

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



#### d) Tilting components



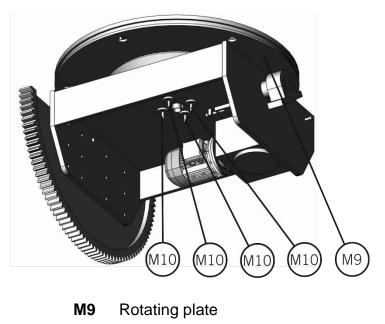
The motor (E4) actuates the wheel and worm reduction gear (M3) by pulleys and belt (M21).

The gear unit (M3) transmits the motion to the cogged quadrant (M5) via the drive gear (M4), and pinions (M16) and (M17) fixed with with the axis (M20). The axis (M20) is mounted on bearings (M18) in the frame (M1).

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



M10 Welding ground connection

**POSIMATIC PS30** is fitted with four ground connectors (**M10**). They are made up of an assembly with two brushes pushed by springs that rub against the plate (**M9**).

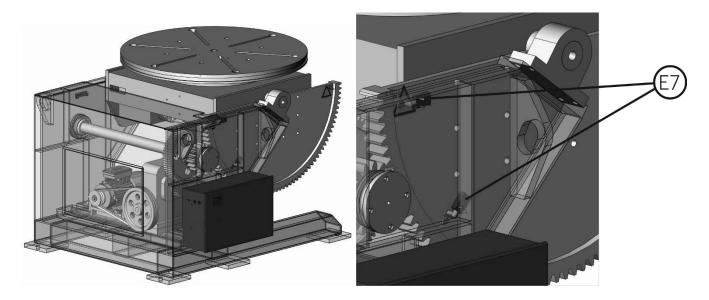
The capacity of this welding ground connection (1000A for a 100% duty factor) is such that it enables nearly all welding processes to be used.

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.

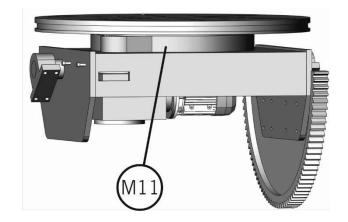


#### f) Safety systems



**E7** Tilting limit switch

Two limit switches (**E7**) switch off motor power supply when the mobile sub-assembly reaches the extreme position ( $0^{\circ}$  and  $135^{\circ}$ ).



M11 Toothing protective

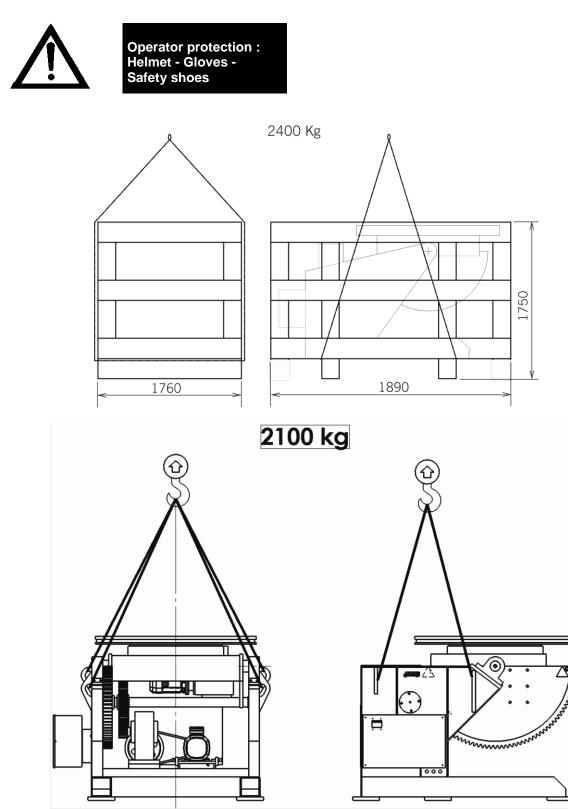
A toothing protective (M11) keeps the operator safe by eliminating the risks from the rotating mechanism (M8 and M7).



# **D - ASSEMBLY - INSTALLATION**

### **1 - HANDLING THE POSIMATIC**

- $\succ$  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.



#### 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/m<sup>3</sup>) single continuous concrete screed with metal reinforcement, completed since at least 21 days (standard BAEL 91).

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

#### EQUIPMENT RECOMMENDED FOR FASTENING POSIMATIC:

### **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  $3 \times 400 \text{ V} / 50-60 \text{Hz}$  system with equipotential bonding.

# <u>VERY IMPORTANT</u>

For compliance with European safety standards, the connection to the electricity supply is to be made via a wallmounted 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.

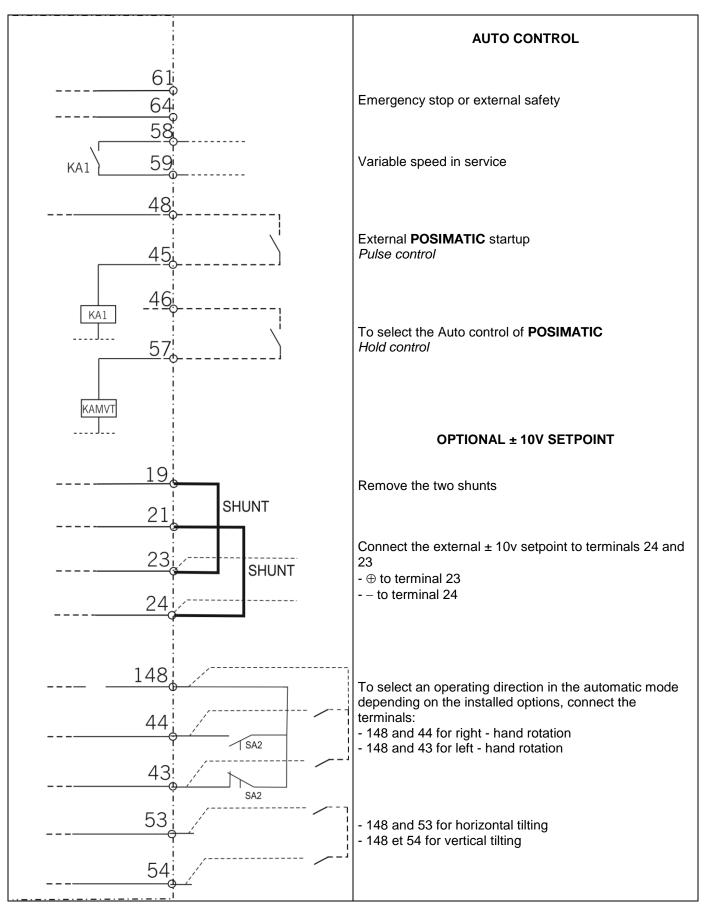
We market cabinets that meet the criteria set out.

#### 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 »



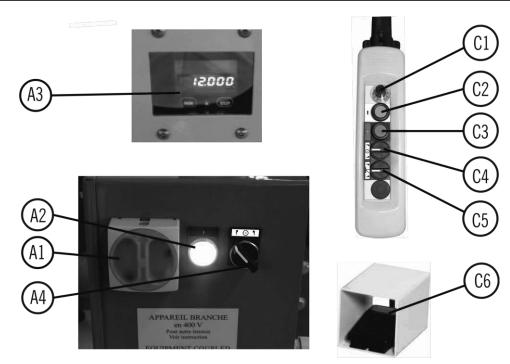
- the plate lowers: the phases are connected properly
- the plate rises: invert two phases at the connection of the mains supply

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 <b>on</b> 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.				
レイレ	<b>C5</b> 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.				



8695 6650 / C

E - OPERATOR MANUAL



# **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 <u>MANDATORY</u> 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)	<ul> <li>1) Unmount the plate.</li> <li>2) Clean the cogging, especially the bottom of th teeth.</li> <li>3) Grease the cogging with brush.</li> </ul>		Grease HPG 400
Positioning ring (bearing)	ST A	Grease the bearing with the help of greasers accessible when plate is unmounted.	Esso beacon 2
Bearings of the tilting drive gears	STA	Grease the bearing with the help of greasers	Esso beacon 2
Gearboxes	ST A	Drain the gearboxes and fill them with new oil	Oil HAFA SYNTEC 220



# Periodical servicing and controls

WEEKLY			
Parts		Operations	Lubrication
PLATE		Check the tightening of the plate fixation screws. 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.	
WELDING GROUND CONNECTION		Check the condition of the contact surfaces.	

# **EVERY 2 WEEKS**

Parts		Lubrication	
GEARS	STPR.	<ol> <li>Check the condition of the teeth of the cogged sector of the tilting mechanism</li> <li>Grease the cogging of the positioning ring</li> </ol>	Grease HPG 400
BELTS		Check the tension	



# **EVERY 6 MONTHS**

Parts		Operations	Lubrication
GEARBOXES	STA.	Drain the gearboxes and fill them with new oil	Oil HAFA SYNTEC 220
Positioning ring (bearing)	STA	Grease the bearing with the help of greasers accessible when plate is unmounted.	Esso beacon 2
Bearings of the tilting drive gears	STA.	Grease the bearing with the help of greasers	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.	
Belts		Check the wear state.	
Brake of the tilting motor		Check the adjustment of the air gap and wear state of the pad (see procedure). Replace pad before exceeding the minimum limit thickness (1.5mm).	

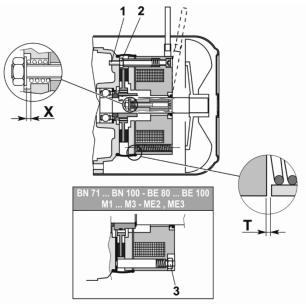


#### PROCEDURE FOR ADJUSTMENT OF THE TILTING MOTOR BRAKE

 $\Rightarrow$ Untighten the nuts « 2 ».

 $\Rightarrow$  Adjust the air gap « T » with the screws « 1 » or nuts « 3 », and set it to the minimum value mentioned in the table below.

 $\Rightarrow$  When adjustment is done, hold the screws « 1 » in position and tighten the nuts « 2 ».



TIPO DI FRENO / BRAKE TYPE / BREMSTYP / TYPE DE FREIN / TIPO DE FRENO									
F	D	FD 02	FD 03 FD 53	FD 04 FD 14	FD 05 FD 15	FD 06S	FD 06 FD 56	FD 07	FD 08 FD 09
					FD 55				
FA		FA 02	FA 03	FA 04 FA 14	FA 05 FA 15	FA 06S	FA 06	FA 07	FA 08
т	Min	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.5
1	Max	0.4	0.4	0.45	0.45	0.55	0.55	0.7	0.8
Х	≥	0.6	0.8	1.0	1.0	1.2	1.2	1.2	1.2



**WARNING :** The air gap has to be be checked regularly. It has to be inside the min. and max. values mentioned in the table. A too high value can lead to a more noisy braking and can prevent the unbraking.

With a unbraking lever, a too large air gap can lead to a null braking torque.



**WARNING :** The distance « **X** » has to be higher than in the table. The thickness of the brake pad has to be higher than 1.5mm.



### 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:	Check that you have followed the table with the admissible load and unbalance values for your positioner.
	- a variable drive fault F0102 or F0103	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	P	ossible	e reme	dies			
Tilting will not work.	No tilting direction has been selected.							
	Check that no limit switch is actuate With automatic control, the connect not made between terminals 148 ar (tilting up) or 148 and 53 (tilting dow control the operating direction. Make the connection with a shunt o external contact; see electrical							
	The motor is not powered	connections. Check that the thermal relay Q3 has no tripped. Then check that the thermal relay is correctly adjusted according to the tabl below:			6			
		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 thermal relation						
	with the admissible				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 i and that the motor is correct						



#### 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.
F0200F0300	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
F0500F0507	Overload, short circuit or dispersion in the ground, motor current or phase fault. Check the load behaviour and the gradients (P420P423). Check the motor and the wiring.
F0700F0706	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
F1100F1110	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.
A0001A0004	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 PS30	1 A FsT	6 A aM	6 A FsF				



F - MAINTENANCE



#### 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:

- $\succ$  those normally held in stock:  $\checkmark$
- 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:

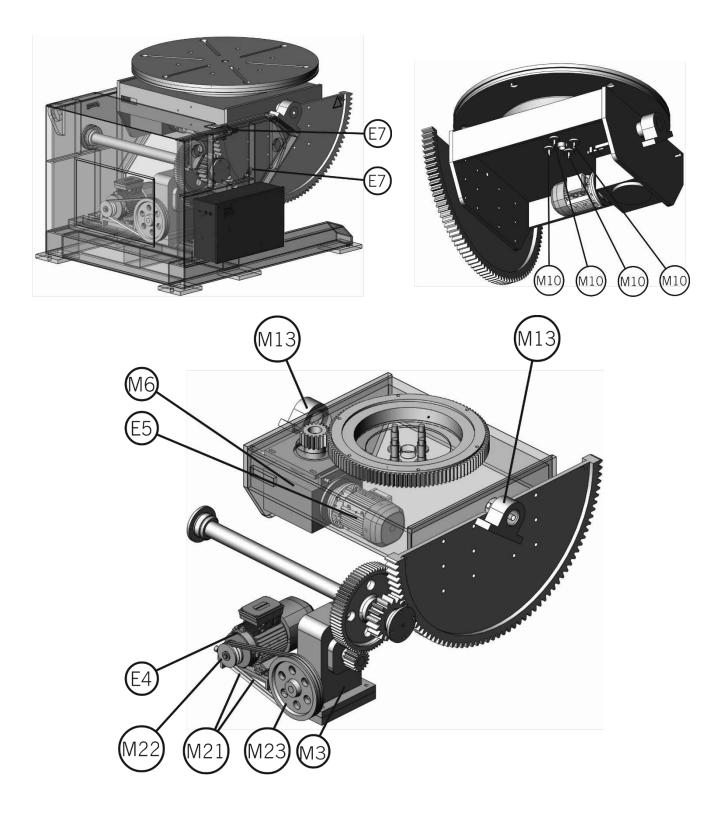
			×	normally in stock not in stock
		L I		on request
Rep	Ref.	Stock	Cde	Désignation
E1	W000XXXXXX	~		Carte interface machine
G2	W000XXXXXX	×		Débitmètre
A3	9357 XXXX		<b></b>	Tôlerie face avant sérigraphiée

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

	►	TYPE :
CE Type Matricule		Number :



### MECHANICAL PART





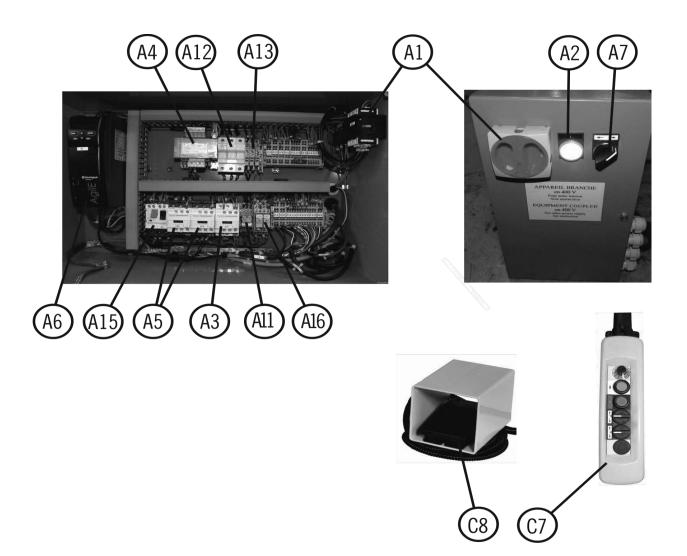
			Γ	<b>v</b>	normally in stock
				×	not in stock
			L L		on request
Rep	Ref. <b>PS30</b>	Ref. <b>PS30</b> Plasma	Stock	Cde	Désignation
E5	W000386982		~		Motor
E5		.5700276			Motor
		.5700278			Adapter flange
M6	W000386958	W000386958	~		Gearbox
M10	W000386969	W000386969	~		Ground connection
E4	W000386981	W000386981	~		Motor
M3	W000386959	W000386959	~		Gearbox
M13	W000386973	W000386973	~		Bush
M21	W000386975	W000386975	~		Belt
M22	W000386976	W000386976	~		Pulley
M23	W000386977	W000386977	~		Pulley
E7	W000386987	W000386987	~		Sensor

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

	►	TYPE :
Matricule		Number :



### ELECTRICAL PART





				×	not in stock
					on request
Item	Ref. <b>PS30</b>	Ref. <b>PS30</b> Plasma	Stock	Order	Designation
A1	W000140748	W000140748	~		Main switch
A2	W000137799	W000137799	~		24V BA9S bulb
A2	.570 4057	.570 4057			Indicator body
A2	.570 4054	.570 4054			Power on indicator head
A3	.570 1064	.570 1064			Auxiliary contactor KA1
A4	.570 6078	.570 6078			63VA 220-380/2x24V transformer
A5	.570 1025	.570 1025			Reversing contactor
A6	W000386986		~		1.5KW AGILE drive for <b>PS30</b>
A6		.570 0270			1.1 KW ACU drive for <b>PS30</b> Plasma
		.570 0269			RES02 addon for <b>PS30</b> Plasma
A7	W000366020	W000366020	×		Two fixed pitch selector head
A7	W000366042	W000366042	×		Body
A7	W000366044	W000366044	×		Contact
A11	9109 3173	9109 3173			4 contacts relay
A12	.570 5167	.570 5167			10x38 three-poles cut-off (FU2)
A13	.551 3716	.551 3716			5x20 fuse holder (FU1-FU3)
A13	.551 3727	.551 3727			Accessory – fuse holder 5x20 (FU1-FU3)
A13	.551 3728	.551 3728			Accessory – fuse holder 5x20 (FU1-FU3)
A15	.570 5278 + .570 5342	.570 5278 + .570 5342			Thermal relay
A16	.5606743	.5606743			2 contact relay
C7	9503 2002	9503 2002			Control box with cable
C8	W000273453	W000273453	~		Pedal

normally in stock

/

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

	TYPE :
Matricule	Number :





# PERSONAL NOTES

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