

ROTATOR

ROTAMATIC ST 6

SAFETY INSTRUCTIONS FOR USE AND MAINTENANCE

MACHINE W000315296 - W000315297
 W000315298



EDITION : EN
REVISION : B
DATE : 06-2018

Instruction manual

REF: **8695 6426**

Notice originale

LINCOLN[®]
ELECTRIC

Thank you very much for the trust you have shown by choosing this piece of equipment. It will give you trouble-free service if it is used and maintained as recommended.

Its design, component specifications and manufacturing are in accordance with applicable European directives.

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

The manufacturer shall not be liable for any combination of parts not recommended by it.

For your safety, please follow the non-limitative list of recommendations and obligations, a large part of which are included in the Labour Code.

Please inform your supplier if you find any error in this instruction manual.

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INFORMATION

DISPLAYS AND PRESSURE GAUGES

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 use and maintenance.

REVISIONS

REVISION B

06/18

DESIGNATION	PAGE
To change logos	

A - IDENTIFICATION

The information below should be provided in all correspondence.

Please note the serial number of your equipment in the box below.

			0000	← 4
CE		Type	000000000000	← 5
Matricule		0036X000000		
		1	2	3

1	Manufacturing plant code	4	Year of manufacture
2	Year of manufacture code	5	Type of product
3	Product serial number		



B - SAFETY INSTRUCTIONS

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



1 - AIRBORNE NOISE

Refer to the special instructions "8695 7051" supplied with the equipment.

2 - PARTICULAR SAFETY INSTRUCTIONS



Do not exceed the permissible loads, torques and tangential forces or the minimum and maximum diameters of shells.



Make sure that the guard covers of the electrical and mechanical parts are in place before starting up the equipment.



Carry out a dry test run of the rotation movement.



Do not drop loads on the equipment.



Make sure that the working of the equipment is not hindered by tools and/or objects left close to the rotating part or by its appendages, which could strike fixed elements (ground, frame, posts).



Make sure that the power and control conductors of the equipment are in good condition.



Maintain the centre to centre distance of the rollers depending on the diameter of the shell (see section D).



No object is to be placed on the rolling tracks.



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.



Clean the working area from time to time.



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 rotator **is not** designed for anchoring lifting equipment.



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



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

C - DESCRIPTION

1 - DESCRIPTION

- **ROTAMATIC ST** rotators are designed for rotating cylindrical pieces with variable diameters and weights, depending on their range.
- Each rotator is made of a low-floor frame and rollers that may or may not be powered, with adjustable spacing.
- The powered version of the rotator has an electrical cabinet.
- It also has a remote control for both rotation directions, and a potentiometer for speed variation.
- As standard, powered rotators make it possible to automatically start rotator operation with the start of welding (simple external contact).
- As standard, powered rotators display the linear speed in cm/min on the variable drive display in the cabinet.
- The spacing of the rollers is adjustable by means of compound screws

The **ROTAMATIC ST 6** range can support shells weighing 6 tonnes or less.

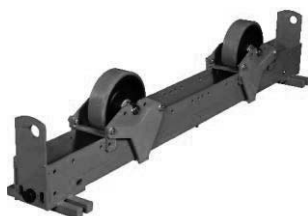
2 - ROTAMATIC WITHOUT OPTIONAL EQUIPMENT



DOUBLE POWER VERSION

ROTAMATIC ST 6W

part no. W000315296



**NON-POWERED VERSION
(IDLER)**

ROTAMATIC ST 6F

part no. W000315298



SINGLE POWER VERSION

ROTAMATIC ST 6M

part no. W000315297

3 - ROTAMATIC WITH/WITHOUT OPTIONAL EQUIPMENT

	A	B	C	D	Description	Product no.
6T M	X	X			ROTAMATIC ST 6M	W000315297
	X	X	X		ROTAMATIC ST 6M ADR	W000272464
	X	X	X	X	ROTAMATIC ST 6M ADRC	W000272466
6T W	X	X			ROTAMATIC ST 6W	W000315296
	X	X	X		ROTAMATIC ST 6W ADR	W000272469
	X	X	X	X	ROTAMATIC ST 6W ADRC	W000272470

A) AUTO CONTROL (A)

This option makes it possible to automatically make the powered rotator start rotating with the start of welding (simple external contact).

B) DISPLAY (B)

This option makes it possible to display the linear speed in cm/min on the variable drive display in the cabinet.

C) OPTIONAL TIG-PLASMA REGULATION (C)

This option makes it possible to precisely regulate the rotator rotation speed to +/-1%. This option is required when the rotator is used along with a TIG or plasma welding installation.

D) OPTIONAL ENCODER, 5000 CPR (D)

This option makes it possible to accurately measure the distance covered by the shell using an encoder placed on the roller shafts.

E) OPTIONAL TRUCK W000272574

This option includes two supports (left and right hand), to move the **ROTAMATIC** transversally on a track.

F) OPTIONAL SETPOINT $\pm 10V$ (ON REQUEST)

This option makes it possible to control the direction and speed of operation of the rotator by an external $\pm 10V$ setpoint.

G) OPTIONAL PEDAL KIT (OPTION ALONE W000273453)

The pedal kit makes it possible to put the powered rotator into rotation when the operator keeps the pedal pressed down.

H) OPTIONAL STEEL ROLLER (ON REQUEST)

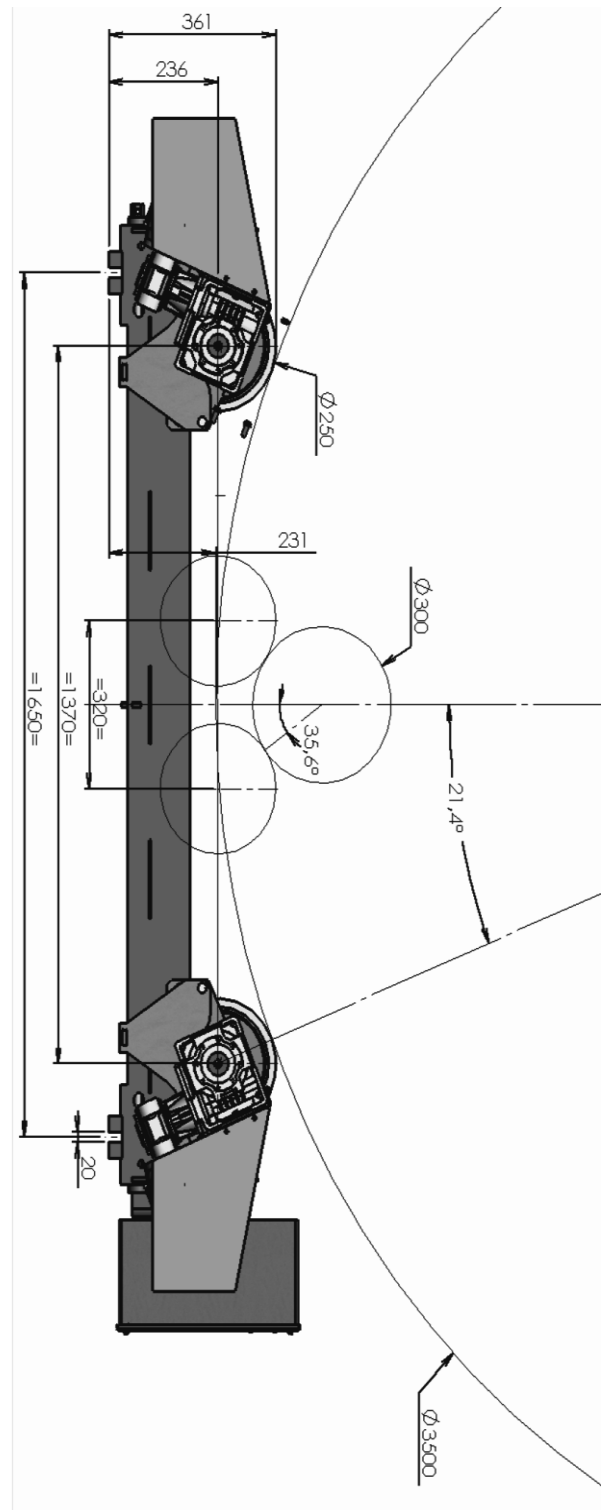
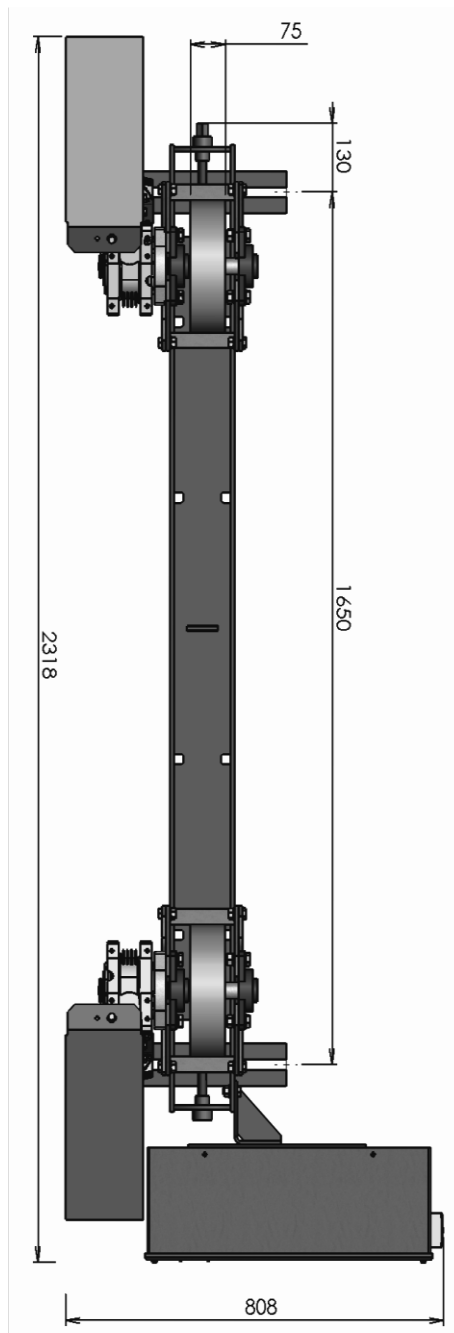
This option makes it possible to rotate pre-heated shells.

It is required when the temperature of the part is greater than 60°C.

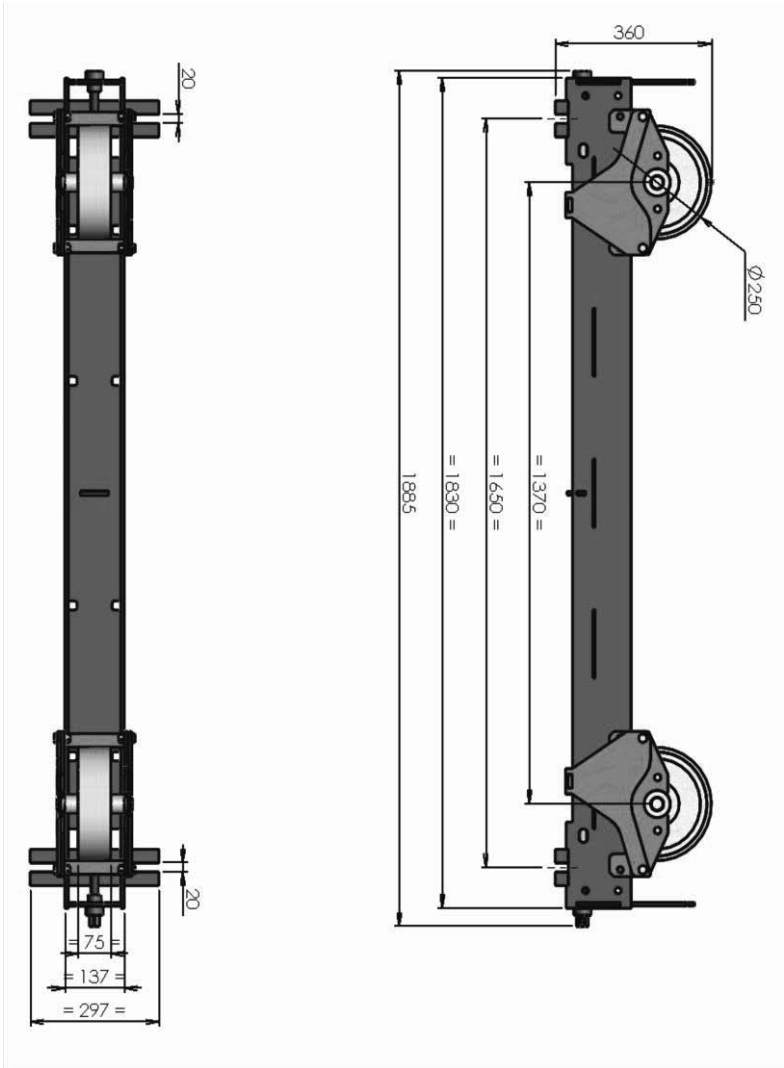
4 - SPECIFICATIONS

	ROTAMATIC ST 6M ROTAMATIC ST 6W	ROTAMATIC ST 6F
Rotation speed in cm/min	min.: 12 max.: 120	-
Permissible shell diameter (in mm)	min.: 300 max.: 3500	min.: 300 max.: 3500
Diameter of idler and drive rollers (mm)	250	250
Width (in mm) and material of rollers	75 polyurethane	75 polyurethane
Roller distance (in mm)	min.: 320 max.: 1370	min.: 320 max.: 1370
Power (kVA)	2.5	-
Supply voltage (V)	3 x 400 (50/60Hz)	-
Maximum consumed current (A)	3.6	-
Net weight (kg)	WPV: 138 MPV: 128	FPV: 108
Gross weight (kg)	WPV: 178 MPV: 168	FPV: 118
Maximum driven load (kg)	6000	-
Maximum supported load (kg)	3000	3000
Tangential force (daN)	W: 528 M: 264	

5 - DIMENSIONS



ROTAMATIC ST 6W and 6M

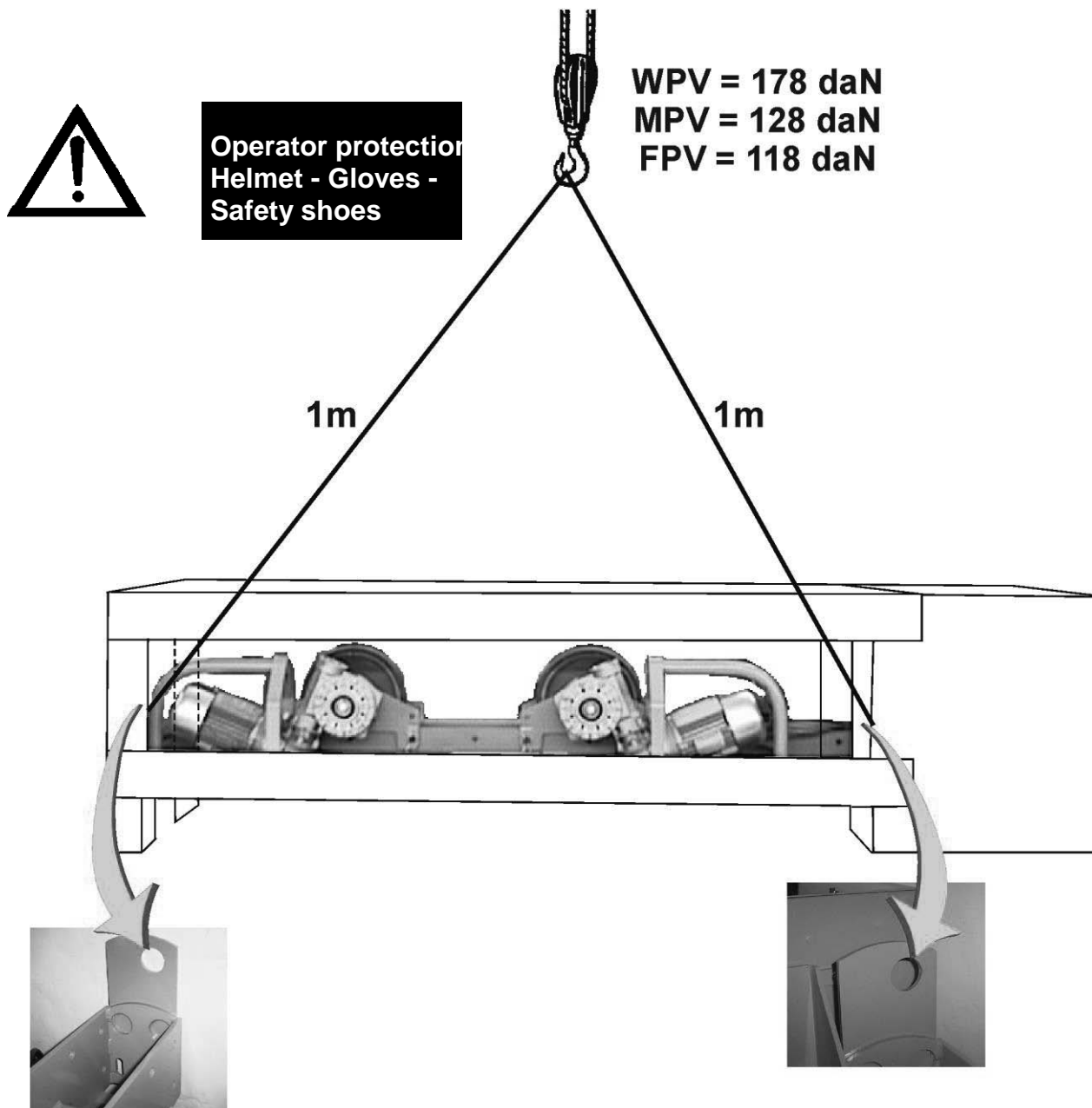


ROTAMATIC ST 6F

D - ASSEMBLY AND INSTALLATION

1 - HANDLING OF ROTAMATIC

- Sling the **ROTAMATIC ST** rotator in its wooden packaging as indicated in the drawing.
- Unpack the **ROTAMATIC ST** rotator from its delivery packaging.
- Sling the **ROTAMATIC ST** rotator, always using the opposite holes at each end.



2 - PUTTING IN PLACE



The cross members of the rotators must be placed parallel in order to avoid screwing effects.
The centre line of the shell must be parallel to the line of the supporting rollers.

In order to line up the cross members, you may use the pads fixed symmetrically under the rotator frame as your reference.

3 - FASTENING OF ROTAMATIC ST

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 ROTAMATIC ST:

Brand	Type of anchors	Reference	Drilling diameter (mm)	Permissible 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 **ROTAMATIC ST** 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

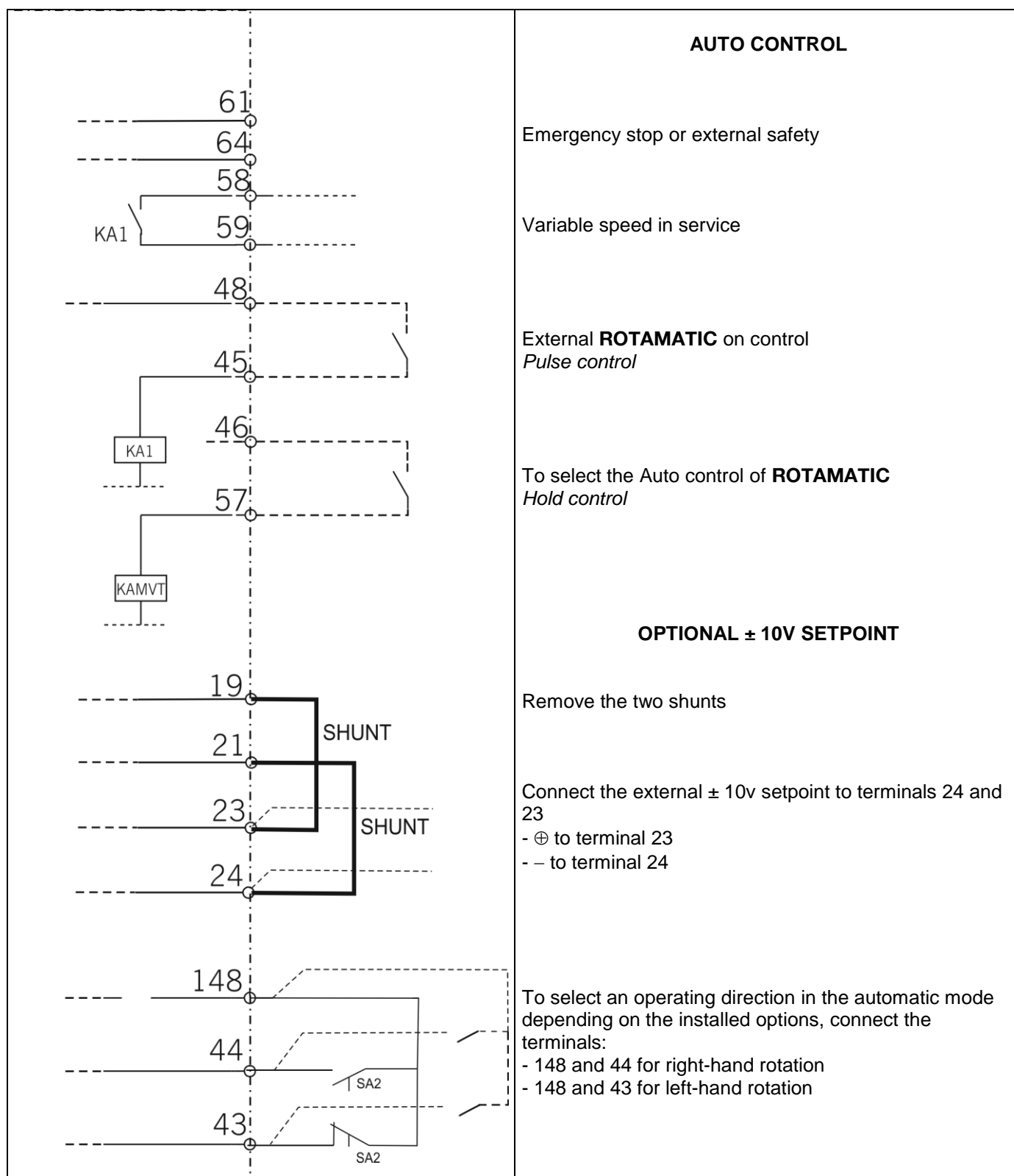
The protective sectioning switch must offer breaking capacity of 100KA.

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 OF OPTIONAL EQUIPMENT



5 - POSITIONING OF SHELLS AND STARTING UP



Before starting up, always make sure that the following setting up conditions and precautions have been followed:

- Set the centre distance of the rollers depending on the diameter of the shell to work on.
- The cross members of rotators must be positioned under the pieces, away from any openings in the shells and away from protruding parts that could hinder the rotation of the shell.
- Balance the load on the two cross members on the basis of the tables below.
- With polygonal pieces, the maximum permissible loads must be divided in half.

ROTAMATIC ST 6M

6 000 Kg

Ø (mm)	E min (mm)	α (°)	E max (mm)	α (°)
300	320	71	380	87
500	320	51	520	88
1000	500	47	840	84
1500	700	47	1020	71
2000	900	47	1170	63
2500	1100	47	1300	56
3000	1300	47	1370	50
3500	1370	43	1370	43

P 3000 kg

V 12-120 cm/mn

3x400 V

2,5 kVA

3,6 A

50/60 Hz

Ø (mm)	500	1000	1500	2000	2500	3000	3500
α (°)	56	57	58	59	56	50	43
E (mm)	350	600	850	1100	1300	1370	1370

M= 2P (kg)	Balourd max / Max unbalance (m.kg)						
500	6	13	20	26	32	36	39
1000	13	26	39	52	64	72	77
1500	19	39	59	78	96	107	116
2000	25	52	78	105	128	143	154
2500	32	65	98	131	160	179	193
4000	32	64	95	127	160	199	238
6000	16	32	47	63	81	105	132

ROTAMATIC ST 6W

6 000 Kg

Ø (mm)	E min (mm)	α (°)	E max (mm)	α (°)
300	320	71	380	87
500	320	51	520	88
1000	500	47	840	84
1500	700	47	1020	71
2000	900	47	1170	63
2500	1100	47	1300	56
3000	1300	47	1370	50
3500	1370	43	1370	43

P 3000 kg

V 12-120 cm/mn

3x400 V

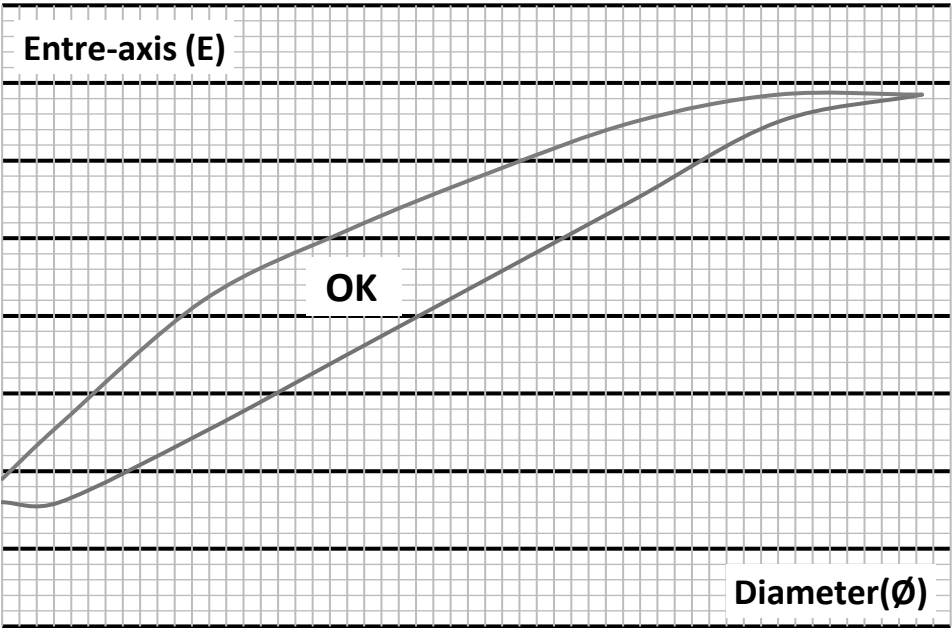
2,5 kVA

3,6 A

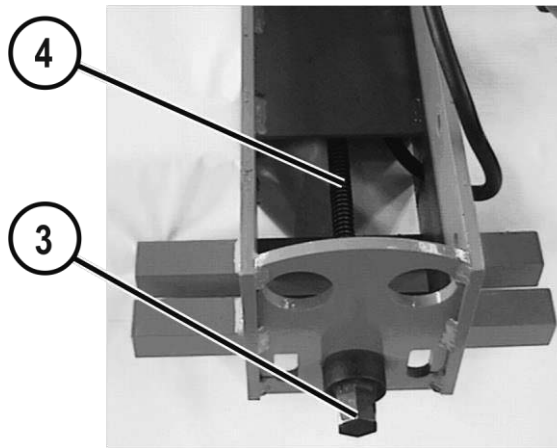
50/60 Hz

Ø (mm)	500	1000	1500	2000	2500	3000	3500
α (°)	56	57	58	59	56	50	43
E (mm)	350	600	850	1100	1300	1370	1370

M=2P (kg)	Balourd max / Max unbalance (m.kg)						
500	13	26	40	54	65	71	74
1000	26	53	80	107	130	141	147
1500	39	79	120	161	195	212	221
2000	51	105	160	214	260	282	294
2500	64	132	200	268	325	353	368
4000	95	192	287	383	480	522	545
6000	55	106	156	206	269	352	416



6 - PUTTING IN PLACE THE IDLER AND POWERED ROLLERS



VARIABLE PITCH

The variable-pitch rollers are fixed to a compound screw (**ref.4**) that allows them to be positioned symmetrically and accurately over the whole length of the frame.

They are positioned by turning a perforated screw (**ref 3**) using an appropriate hex key or a rod in the hole of the screw.



Users are strongly advised against changing the position of the variable-pitch rollers when a shell is placed on the rollers.

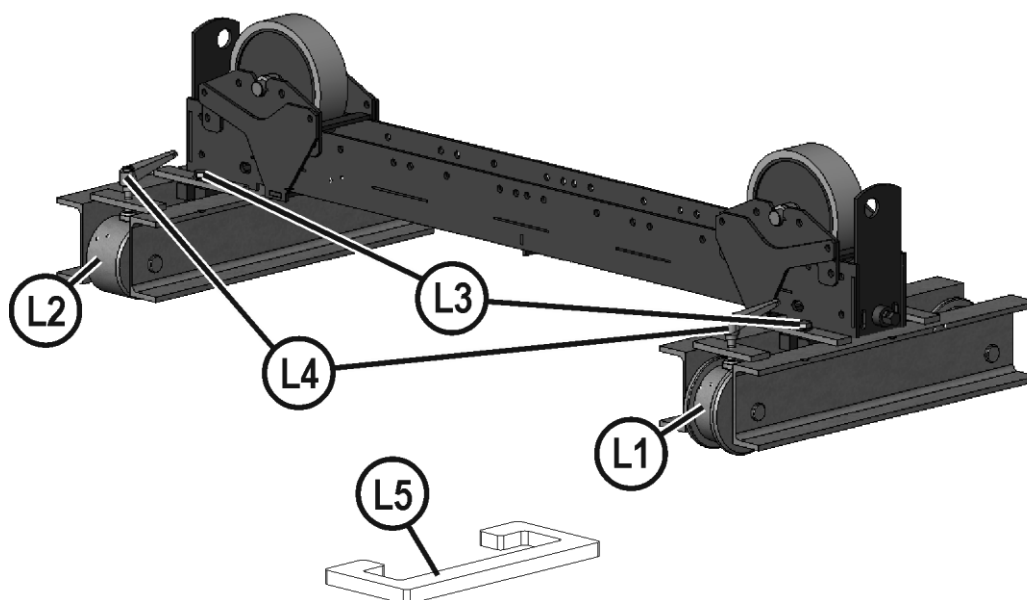
If pneumatic or electrical equipment is used for manoeuvring a compound screw, the operator must take care to not strike the stops too hard.

7 - PUTTING IN PLACE THE TRUCKS

- Place truck L1 on the track with side machining.
- Place truck L2 on the other track.
- Immobilise the truck by fastening the handles L3.
- Place the **ROTAMATIC** on the trucks and fix with the four L4 screws. (Check if **ROTAMATIC** is perpendicular to the tracks before tightening the screws).

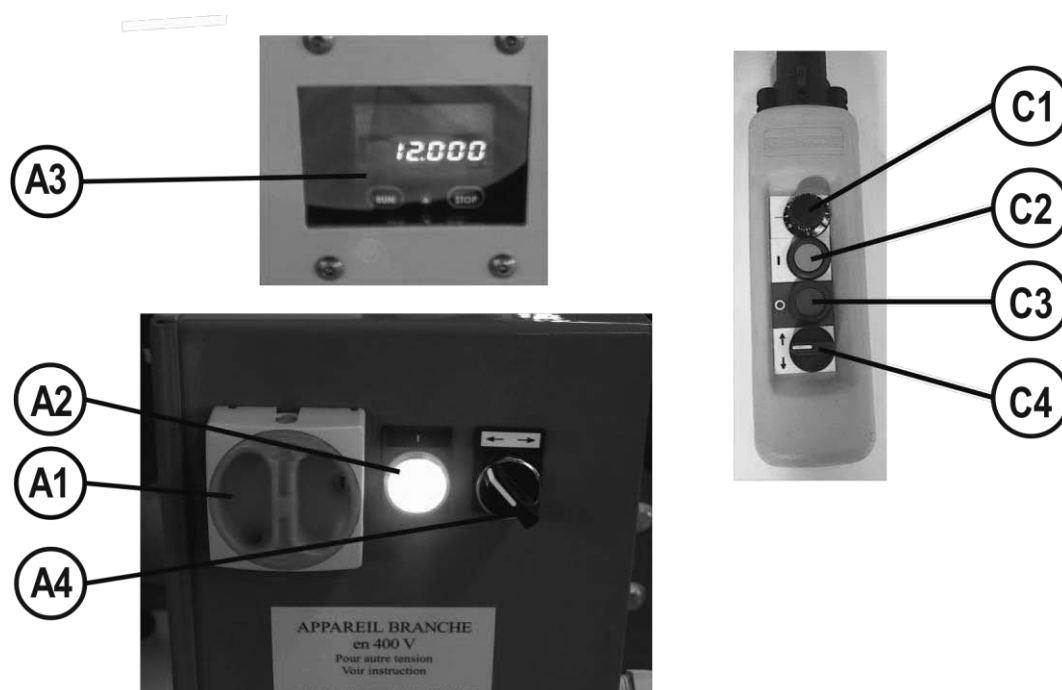
NB:

The pieces L5 are not used with **ROTAMATIC ST6** and **ST15**.



E - OPERATING MANUAL

1 - CONTROL BUTTONS ON CABINET



Ref.	Description
A1	Main power button.
A2	Power on indicator
A3	Variable drive speed display
A4	Rotation direction with automatic starting up
C1	Rotation speed adjustment potentiometer, variable from 12 to 120 cm/min.
C2	Power on pushbutton (variable drive)
C3	Power off pushbutton (variable drive)
C4	Switch with three fixed positions for rotation direction. The central position is the idle position.

2 - OPTIONAL SYNCHRONISATION (FACTORY ASSEMBLED ONLY)

This option allows the synchronised or non-synchronised operating of two powered **ROTAMATIC**. It makes it possible to rotate a piece supported by several powered and idler rollers from a single remote control or a single external control.

- Synchronised mode (*master/slave*):

This mode controls two **ROTAMATIC** via the remote control or from the external inputs of the main (master) **ROTAMATIC**. An indicator on each **ROTAMATIC** confirms that the synchronised mode has been selected. The remote control of the slave **ROTAMATIC** is inactive, with the exception of the stop button.

- Desynchronised mode (*independent*):

This mode makes it possible to control the **ROTAMATIC** via their remote controls or from the external inputs of the **ROTAMATIC**, independently from each other. All the remote controls of the **ROTAMATIC** are active.

- Selecting the synchronised/desynchronised mode:

Switching from the synchronised mode to desynchronised mode is via the connecting cable between the powered **ROTAMATIC** rotators.

Synchronised mode: connecting cable connected and synchronisation indicator on cabinets on.

Desynchronised mode: connecting cable disconnected and synchronisation indicator on cabinets off.

In synchronised mode, the maximum driven load is 3/2 times the load of the powered rotator:

For **ROTAMATIC ST6**: $3/2 \times 6T = 9T$



F - MAINTENANCE

1 - CARE

- For a long and trouble-free life, the machine requires a minimum level of care and maintenance.



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 reduction drives of **ROTAMATIC ST** have permanent lubrication and have no oil filling, topping up or draining plugs.

As a result, they need no maintenance.

These reduction drives can operate at an ambient temperature from 0 °C to +50 °C.

INSPECTION 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 screws and nuts of the roller spacing system, the wearing of wheel and screw reduction gear, power cables of motors and remote control, motor ventilation etc., must be inspected after every three months.

TYRE MAINTENANCE AND PROTECTION

For a long life, the instructions below must be followed:

- ⇒ Do not overload (no impact when the shell is squeezed)
- ⇒ Do not place the rollers under a heavy load, as that could permanently deform their solid tyres
- ⇒ Do not put hydrocarbons on the rollers. If that were to happen, clean them very promptly.

In the event of pre-heating, the temperature of the shell area in contact with the tyres may not exceed 60 to 70 °C and the piece must be in continuous motion.

2 - TROUBLESHOOTING

Possible symptoms	Probable causes	Possible remedies									
The rotator indicator goes off after the power is switched on with the switch QS1.	The indicator lamp has blown	Replace the bulb									
	Fuses FU1 or FU3 have blown	Replace the blown fuses on the basis of the fuse rating table.									
The rotator 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.									
		Check that the thermal relays FR1 or FR2 have not tripped. Then check that the thermal relay is correctly adjusted according to the table below: Double power rotator:									
		<table><tr><td>type:</td><td>6T</td><td></td><td></td><td></td></tr><tr><td>value (A)</td><td>1</td><td></td><td></td><td></td></tr></table>	type:	6T				value (A)	1		
type:		6T									
value (A)	1										
The rotator runs for a short time and then stops.	Over-intensity leading to: - a thermal relay fault or over-intensity leading to: - a variable drive fault F0102 or F0103	Check the condition and adjustment of the thermal relays (double power version) according to the table above.									
		Check that you have followed the table with the admissible load and unbalance values for your rotator.									
		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.									

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

ROTATOR FUSE RATINGS:

	STANDARD ROTATORS			OPTIONAL REGULATION
	FU1 (5x20)	FU2 (10x38)	FU3 (5x20)	FU2 (10x38)
ROTAMATIC ST 6	1 AaM	6 AaM	6 AgF	10 AaM

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:

✓	normally in stock
✕	not in stock
	on request

Item	Ref.	Stock	Order	Designation
1	W000XXXXXX	✓		Machine interface board
2	W000XXXXXX	✕		Flowmeter
3	9357 XXXX			Silk-screen printed front panel

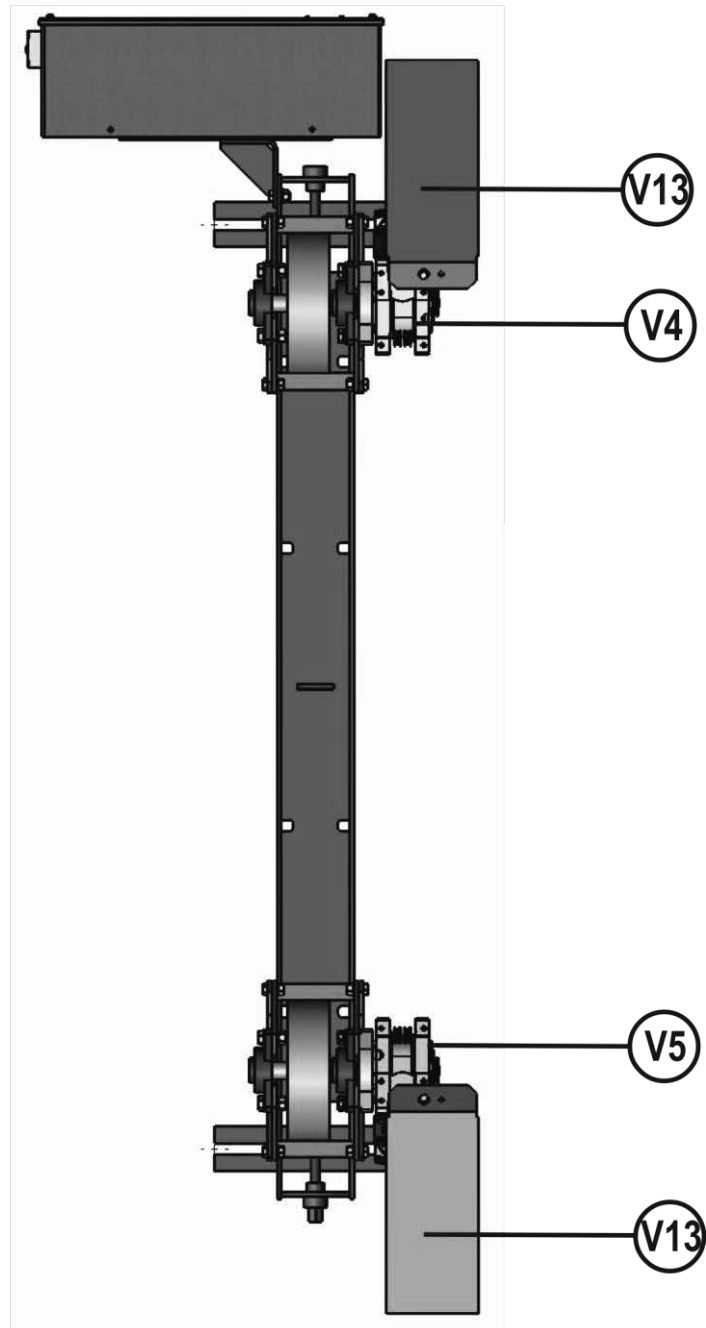
➤ For parts order, give the quantity required and put the number of your machine in the box below.

CE Type

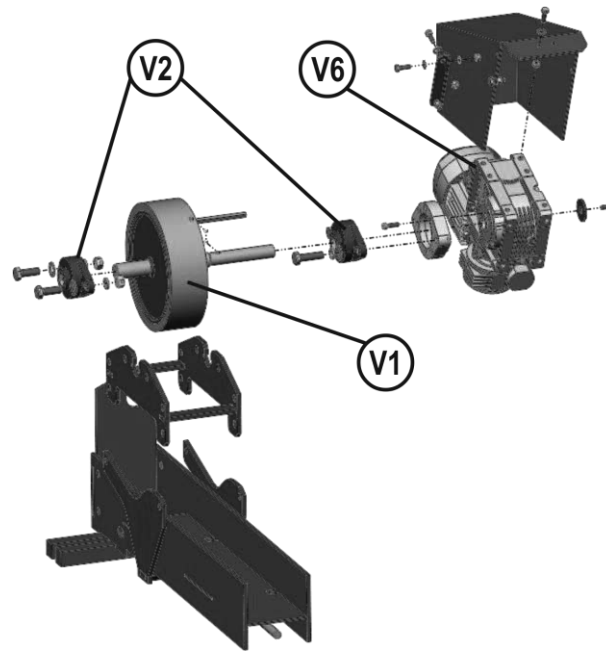
Matricule

TYPE:

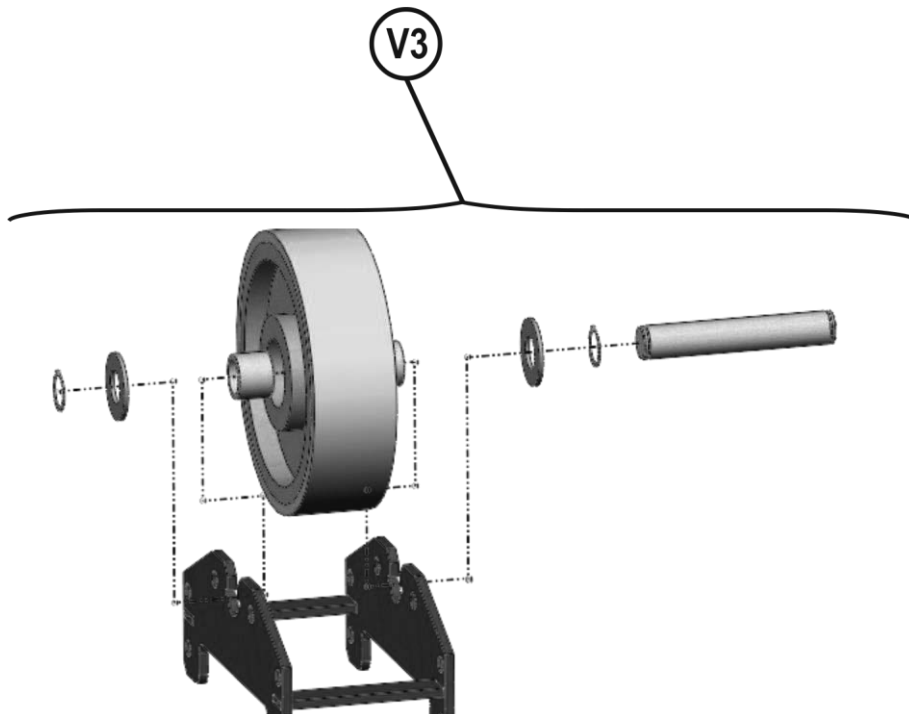
Number:

MECHANICAL PART**ROTAMATIC ST 6W**

ROTAMATIC ST 6M/W



ROTAMATIC ST 6F



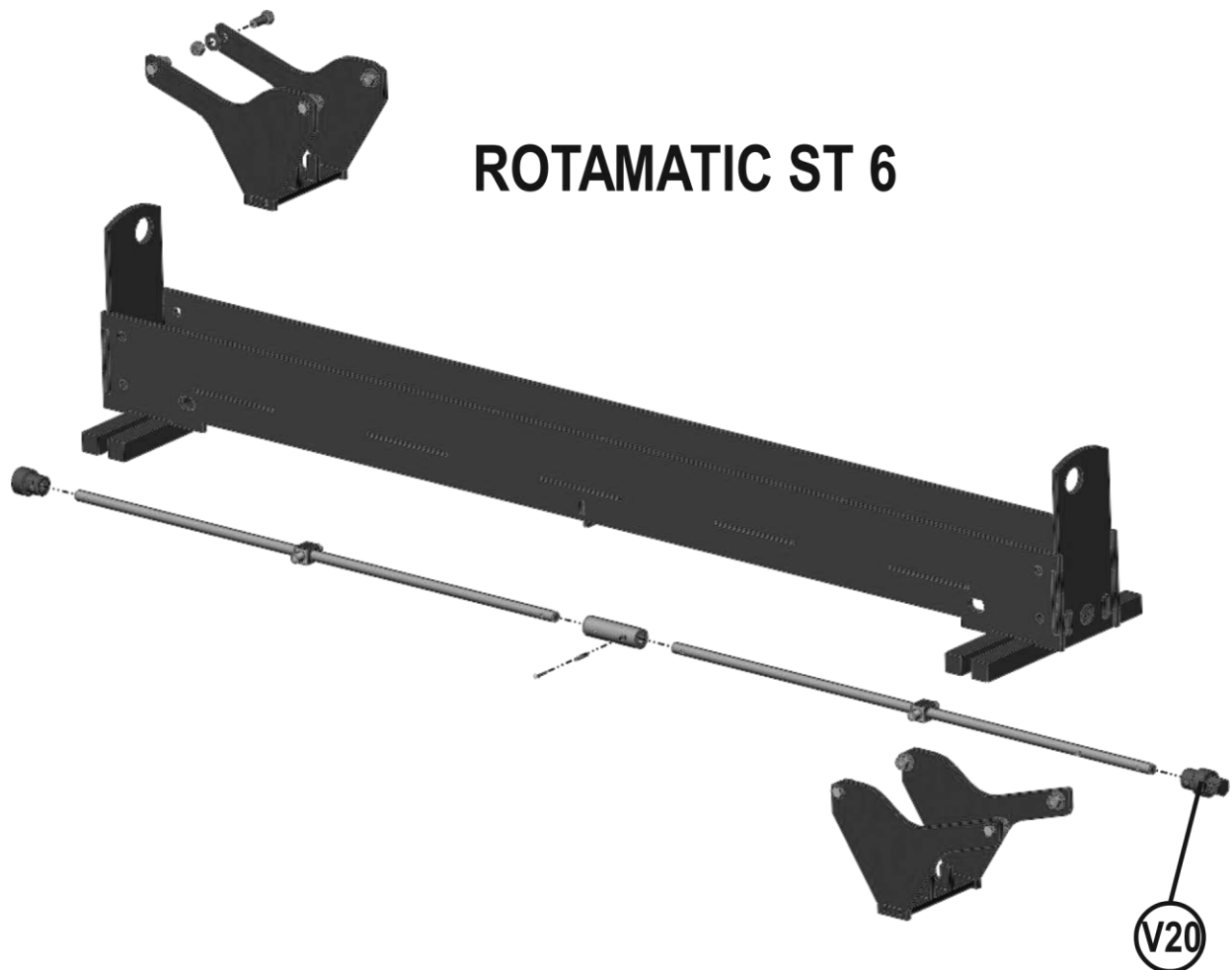
MECHANICAL PART

✓	normally in stock
✗	not in stock
	on request

Item	Ref.	Stock	Order	Designation
V1	W000137997	✓		Drive roller
V2	W000138001	✓		Drive roller bearing
V3	W000137999	✓		Equipped idler roller
V4	W000275300	✓		Right-hand reduction gear (for 6M and 6W)
V5	W000275299	✓		Left-hand reduction gear (for 6W)
V6	W000138002	✓		Motor
V13	0300 1308			Motor guard cover
V20	0300 1326			Drive trunnion

➤ 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:



OPTIONAL TRUCK

✓	normally in stock
✗	not in stock
	on request

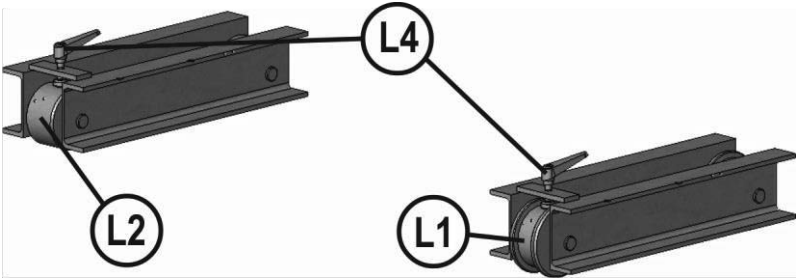
Item	Ref.	Stock	Order	Designation
L1	0300 5012			Flanged roller
L2	0300 5013			Smooth roller
L4	.620 7303			Indexable handle
	.620 7304			Pad screw
	.620 7305			Pad

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

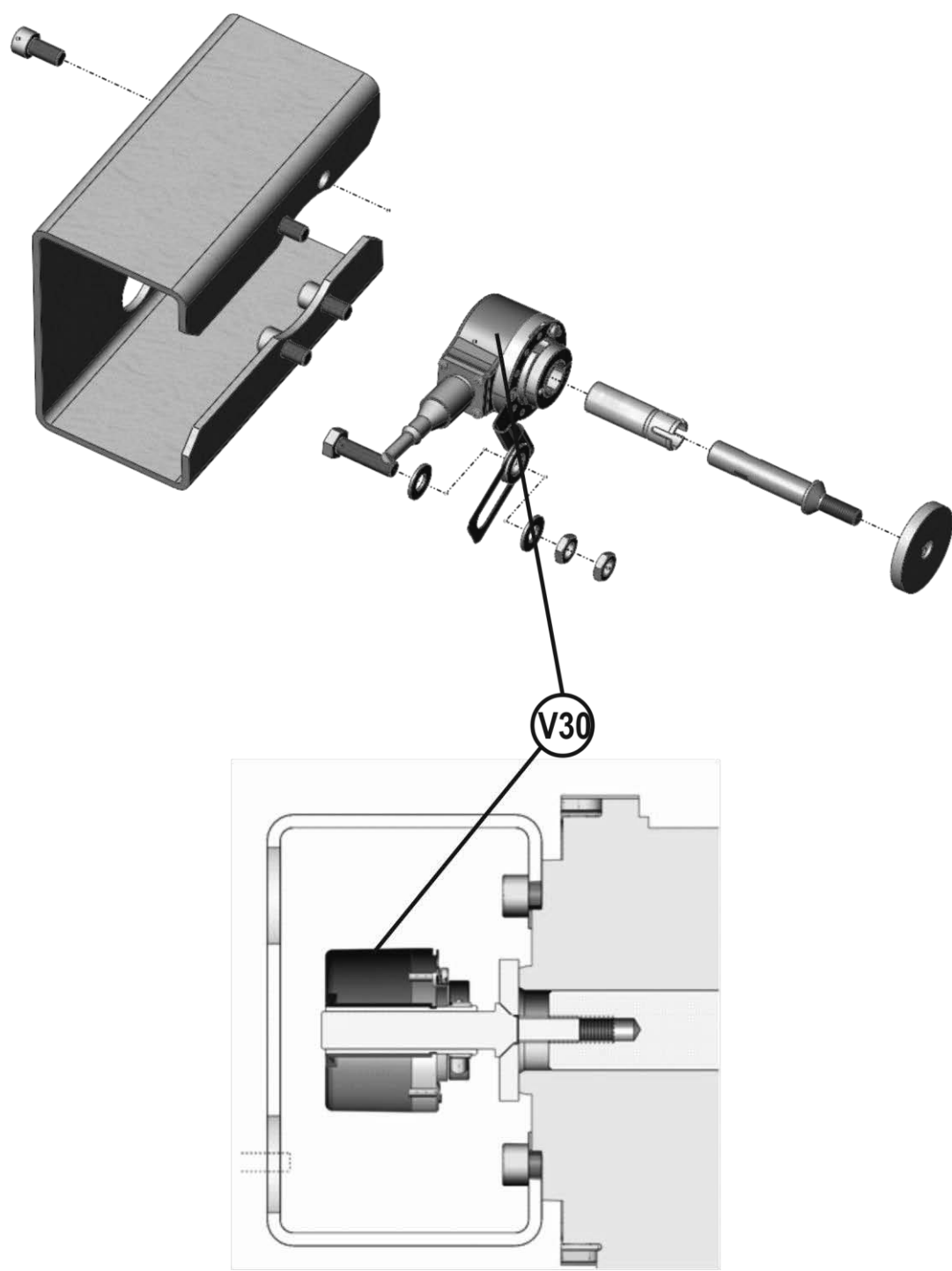
CE Type
Matricule

TYPE:

Number:



OPTIONAL ENCODER



		<div><div><div>✓</div><div>normally in stock</div></div><div><div>✗</div><div>not in stock</div></div><div><div></div><div>on request</div></div></div>		
Item	Ref.	Stock	Order	Designation
V30	W000383727			Encoder

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

CE

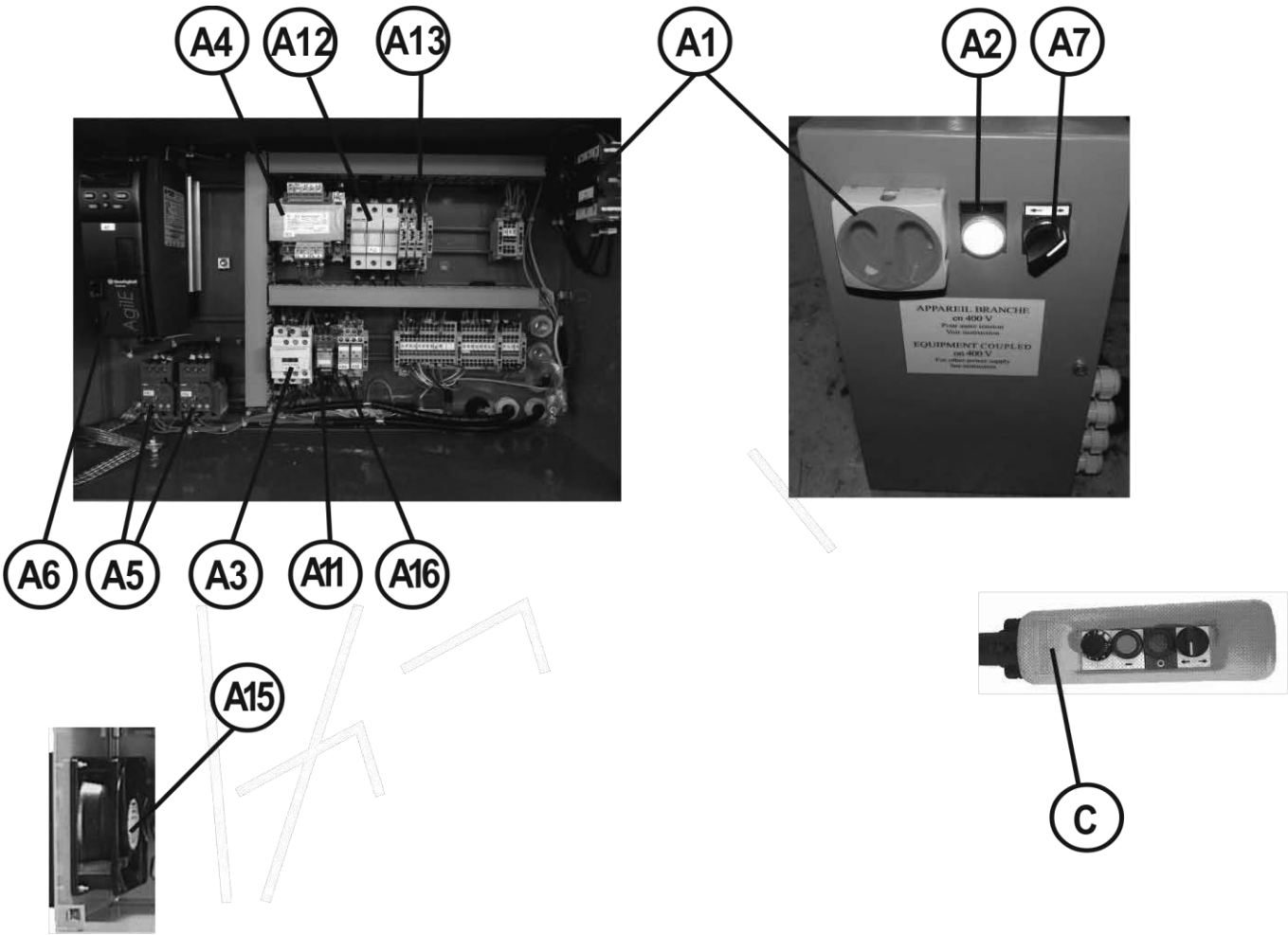
Type

Matricule

TYPE:

Number:

ELECTRICAL PART



ELECTRICAL PARTValid for serial number greater than **00361502155**

✓	normally in stock
✗	not in stock
	on request

Item	Ref.	Stock	Order	Designation
A1	W000140748	✓		Main switch
A2	W000137799	✓		24V BA9S bulb
A2	.570 4057			Indicator body
A2	.570 4054			Power on indicator head
A3	.570 1064			Auxiliary contactor KA1
A4	.570 6078			63VA 220-380/2x24V transformer
A5	.570 5027			Thermal relay
A6	W000383721	✓		0.75kW Agile variable drive for 6TM-6TM R-6TW R
A6	W000383722	✓		0.75kW Agile variable drive for 6TW
A7	W000366020	✗		Two fixed pitch selector head
A7	W000366042	✗		Body
A7	W000366044	✗		Contact
A11	9109 3173			Four-contact relay
A12	.570 5167			10x38 three-pole cut-off (FU2)
A13	.551 3716			5x20 fuse holder (FU1-FU3)
A13	.551 3727			Accessory - 5x20 fuse holder (FU1-FU3)
A13	.551 3728			Accessory - 5x20 fuse holder (FU1-FU3)
A15	W000140321	✓		Fan
A16	.560 6743			Relay 2 RT
C	W000137972	✓		Control housing with cable

➤ 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:

[illegible]