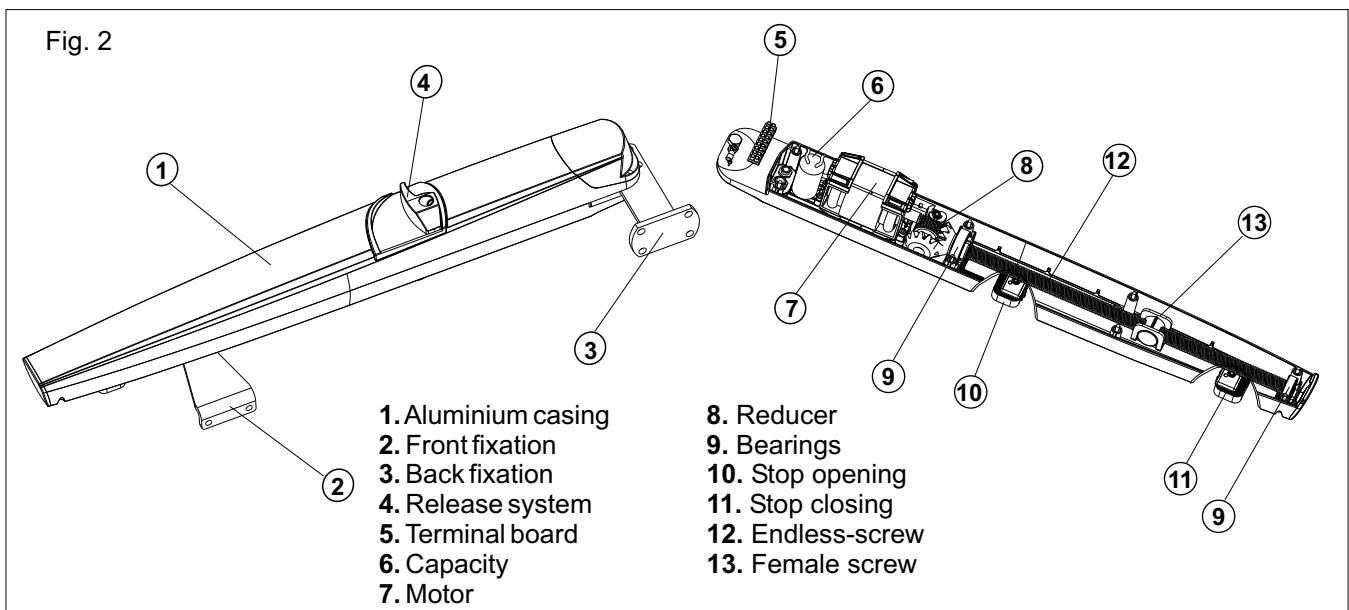
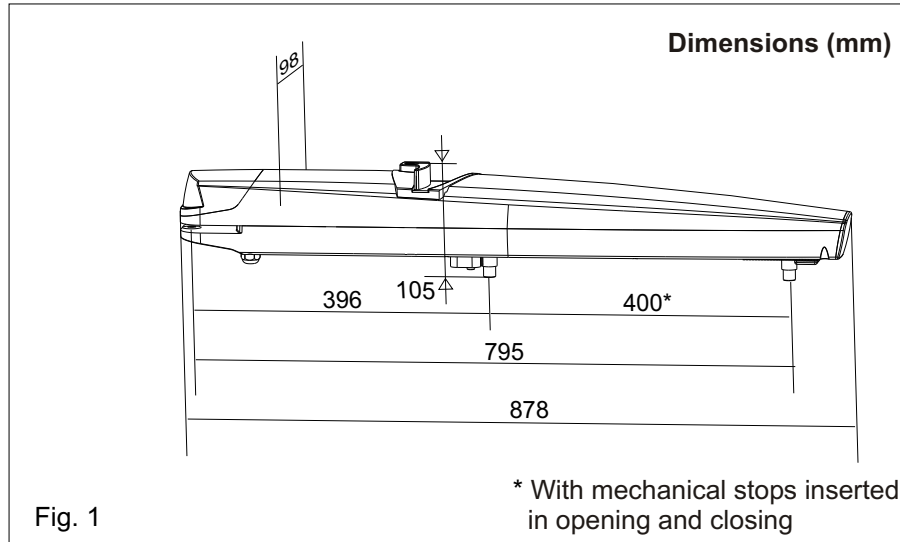


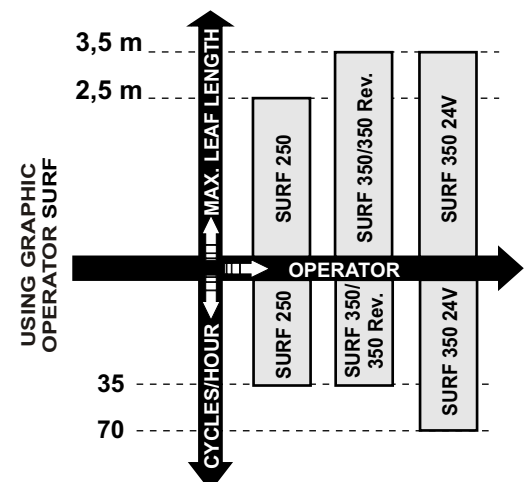
CHARACTERISTICS AND SPECIFICATIONS

SURF is an irreversible, strong and safe, easy to install electromechanical swing gate operator, for leaf lengths up to max. 3,5 m.

The SURF operator has both an external release system with cable and security box and a release system with key, which in case of emergency or black out, allows the manual of the leaf.



TECHNICAL DATA	SURF 250 - SURF 350	SURF 350 Reversible	SURF 350 24V
Power supply	230 V~ 50/60 Hz		24V ---
Motor power supply	230 V~ 50/60 Hz		24V ---
Max. Power	180 W	300W	70 W
Max. Absorbed current	0,90 A	1,6A	2,5 A
Stroke	400 mm		
Speed	1,6 cm/s	2,2 cm/s	Adjustable
Cycle/hour (operating temp. 20°C)	35		70
Operating temperature	-20°C / +50°C		
Motor thermal protection	130°C		/
Max. thrust	2000 N		
Capacitor	6,3 µF	8 µF	/
Operator weight	7,5 kg		7,8 kg
Protection	Ip44		
Max. Leaf length	2,5 m - 3,5 m	3,5 m	
Leaf opening degree	90° - 120°		



Note: The frequency of use is valid only for the first hour at 20°C room temperature.

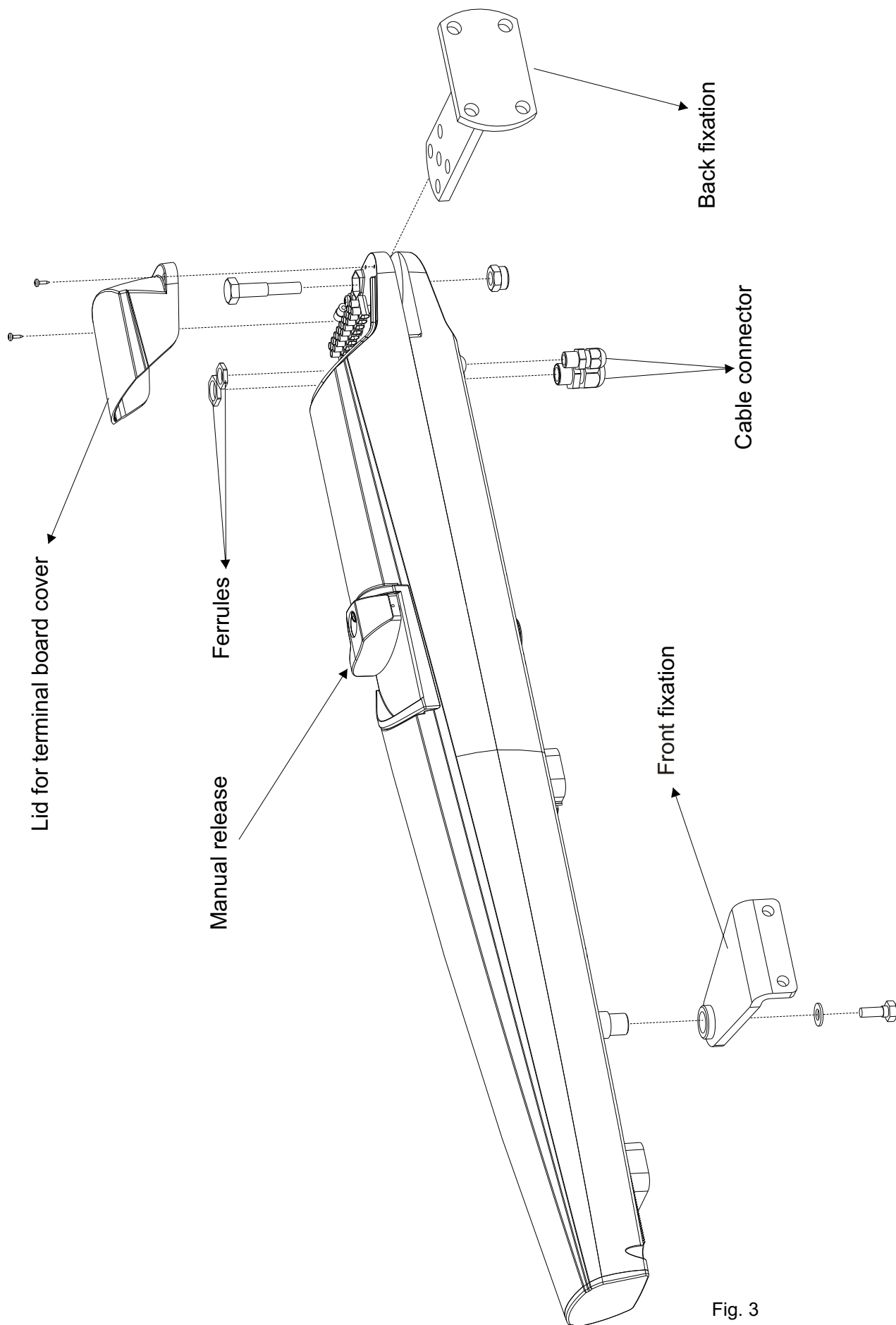


Fig. 3

STANDARD INSTALLATION Model SURF 230V

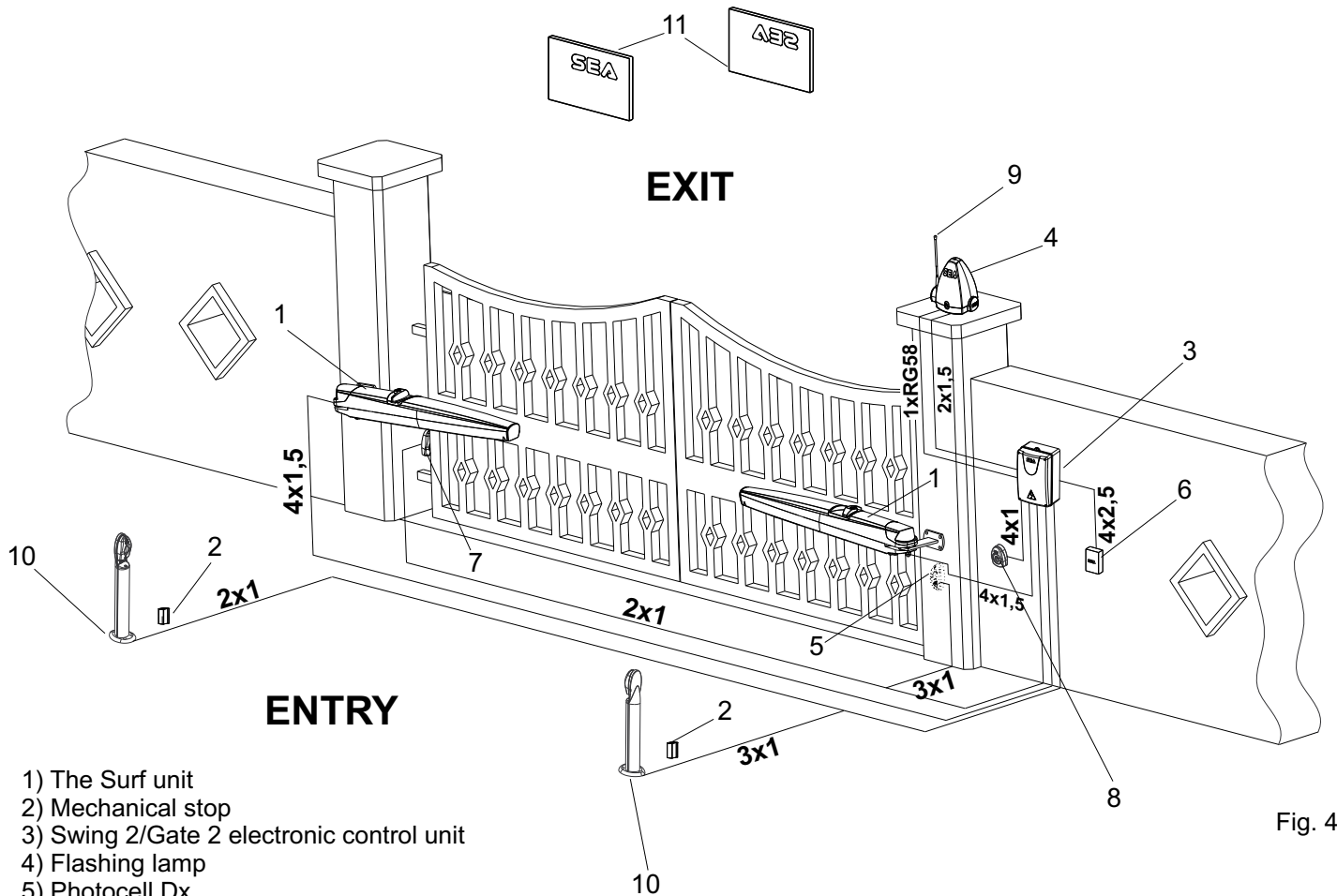
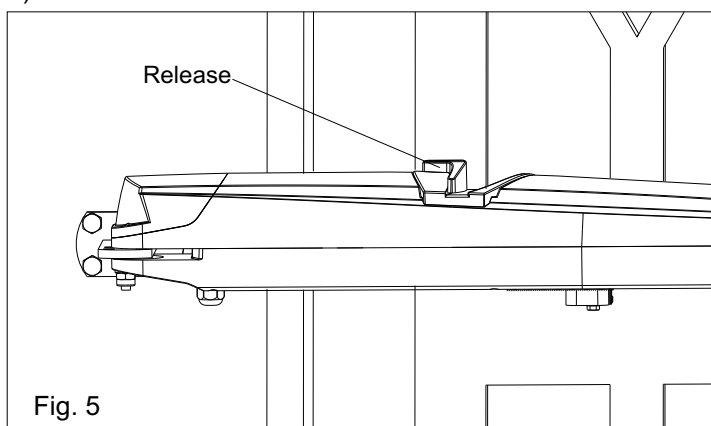


Fig. 4

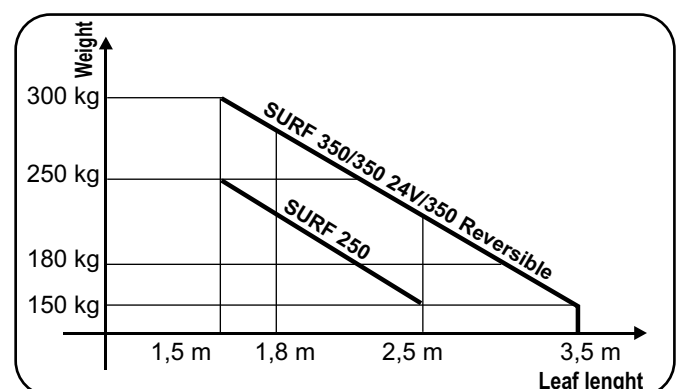
- 1) The Surf unit
- 2) Mechanical stop
- 3) Swing 2/Gate 2 electronic control unit
- 4) Flashing lamp
- 5) Photocell Dx
- 6) Differential switch 16A - 0,03A
- 7) Photocell Sx
- 8) Start - stop push button with key
- 9) Antenna
- 10) Support for photocells with photocells
- 11) Warning notice

Note:

The motor must be mounted with the release turned up (Fig. 5)



SURF 250/SURF 350/350 24V/350 Reversible

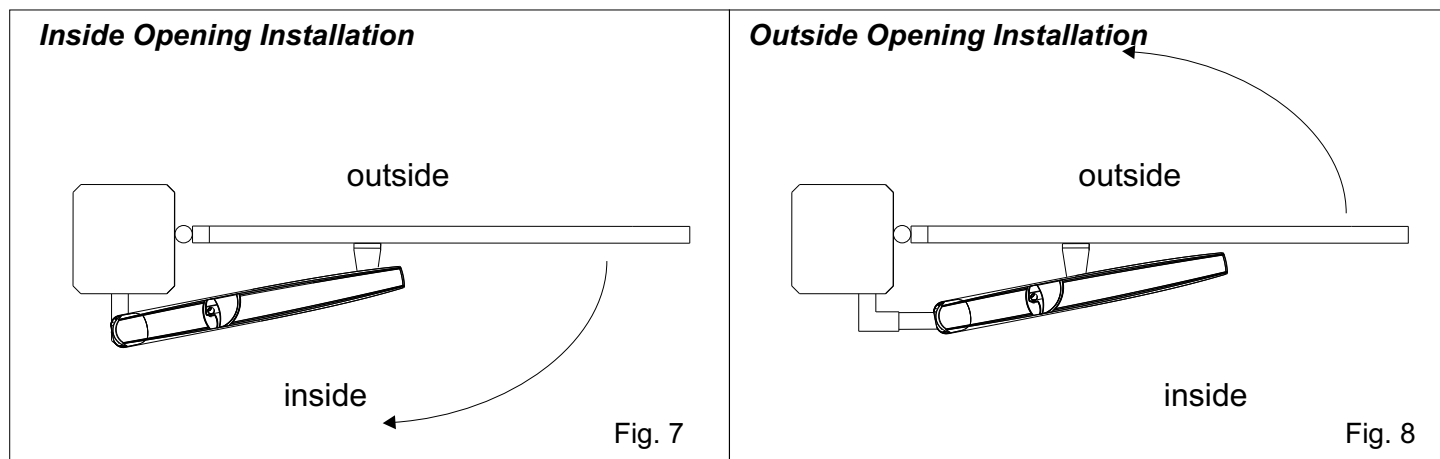
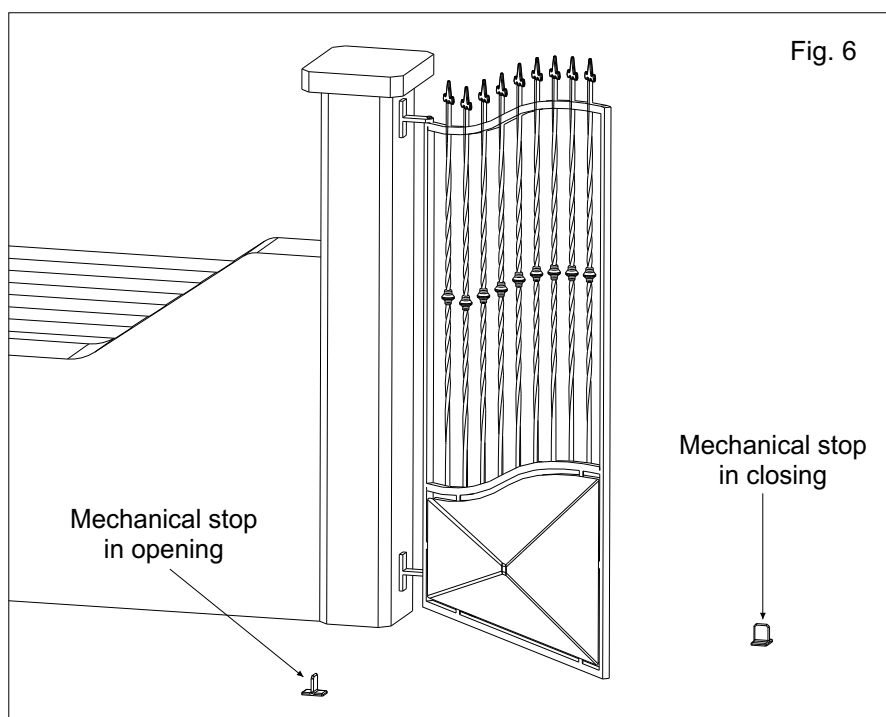


GATE ARRANGEMENT

You must do some checks on the gate to see if fitting a SURF system is possible:

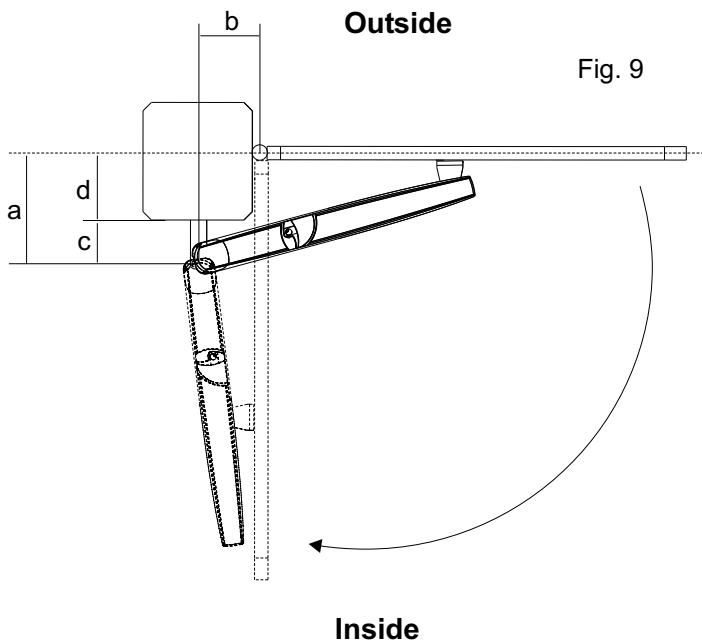
- A.** (Make sure that) the fixed and moving parts of the gate are strong and non-deformable;
- B.** the length of each gate leaf must not exceed 3,5 m for SURF 350/350 24V/350 Reversible and 2,5 m for SURF 250, always respecting the graph;
- C.** the weight of each gate leaf must not exceed 300 kg for SURF 350/350 24V/350 Reversible and 250 kg for SURF 250 always respecting the graph;
- D.** The hinges and general structure must be in good conditions and the gate must move smoothly throughout its whole travel;

The SURF operator already comes with adjustable mechanical stops. Where possible, it is advisable to install limit switch stops on the ground for a good functioning of the operator.



INSIDE OPENING INSTALLATION

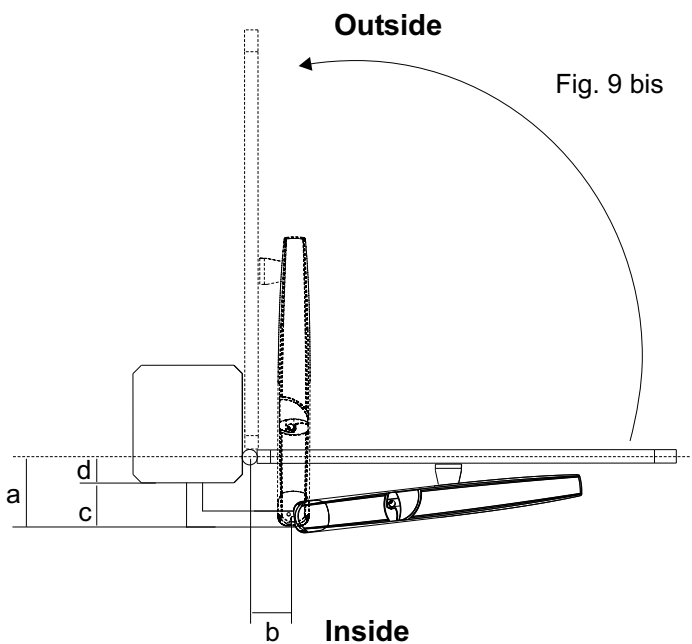
Total stroke 400 mm - max. recommended stroke 380 mm



a (mm)	b (mm)	d _{max} (mm)	Max. Opening Angle	Max. Stroke (mm)	Stroke for 90°(mm)
180	160	50	115°	390	340
130	170	50	130°	370	300
200	140	70	110°	370	340
140	160	70	120°	360	300
210	130	80	105°	365	340
150	150	80	115°	345	300
230	110	100	100°	360	340
170	130	100	110°	330	300
250	100	120	98°	365	355
190	110	120	105°	320	300
260	100	140	95°	375	370
210	100	140	100°	320	310
260	100	160	90°	380	
230	100	160	95°	340	335
280	90	180	90°	380	
250	90	180	95°	355	350
280	90	200	90°	380	
270	90	200	92°	375	370
300	70	220	90°	380	
290	70	220	91°	375	370
310	60	240	90°	380	
310	60	240	90°	380	

OUTSIDE OPENING INSTALLATION

Total stroke 400 mm - max. recommended stroke 380 mm



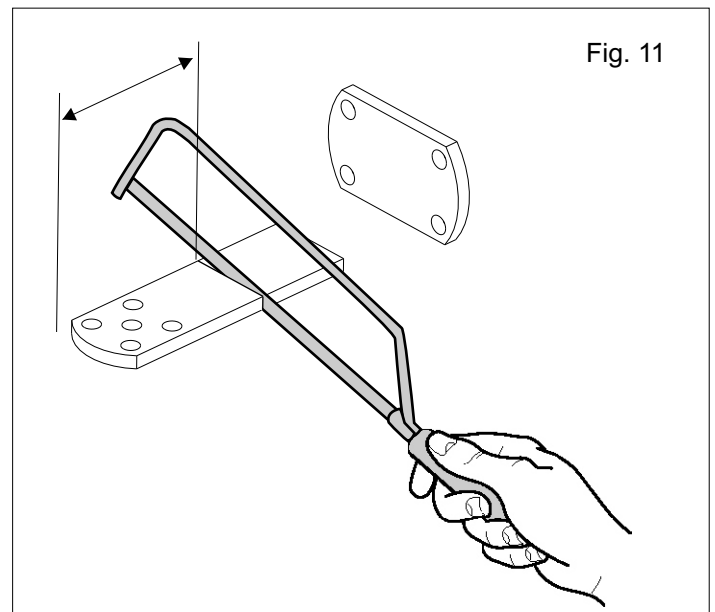
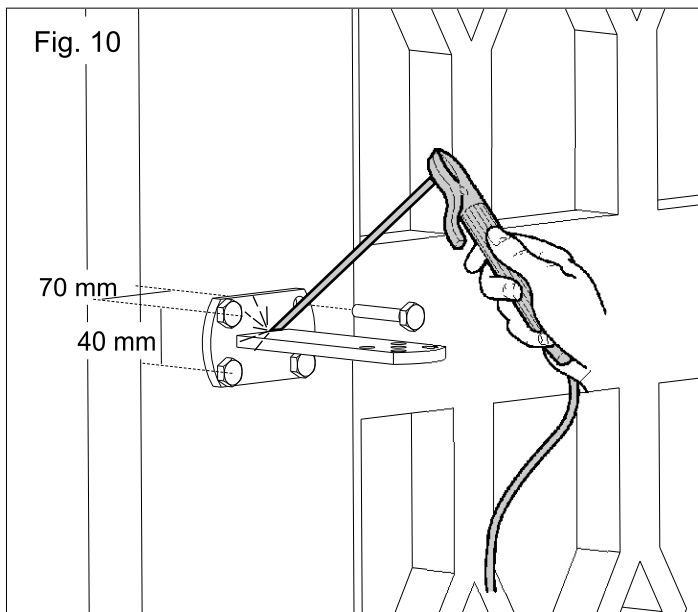
a (mm)	b (mm)	Max. Opening Angle	Max. Stroke (mm)	Stroke for 90°(mm)
130	70	90°	210	
130	80	95°	225	220
130	90	98°	240	230
130	100	100°	255	240
150	70	90°	230	
150	80	94°	245	240
150	90	97°	260	250
150	100	100°	275	260
180	70	90°	260	
180	80	93°	272	267
180	90	95°	285	275
180	100	98°	300	285
200	70	90°	275	
200	80	93°	290	285
200	90	95°	300	290
200	100	97°	315	300

BACK FIXATION MOUNTING

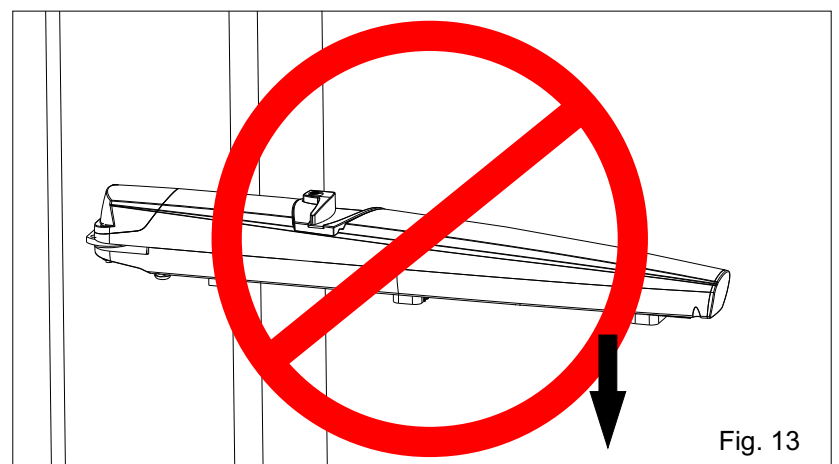
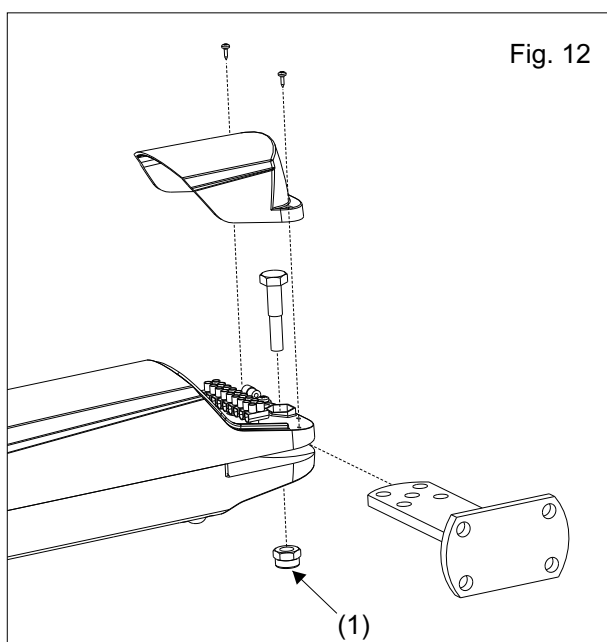
According to the chosen opening type (inside or outside) and according to the chosen max. rotation of the leaf (see page 20) the bracket must be first cut respecting the measurement "a" on pag. 20 and than welded as in fig.10.

The support must be positioned so that the operator is in perfect horizontal position (Fig. 10, Fig.14).

N.B.: During assembling the back and front fixations lubricate with water- repellent grease.
Cut the back fixation as in fig.11 on the base of the chosen measurements "a" and "b" (page 20).



When tightening the nut (1) make sure to not lock the rotation of the operator on the back fixation.



POSITIONING OF THE FRONT FIXATION

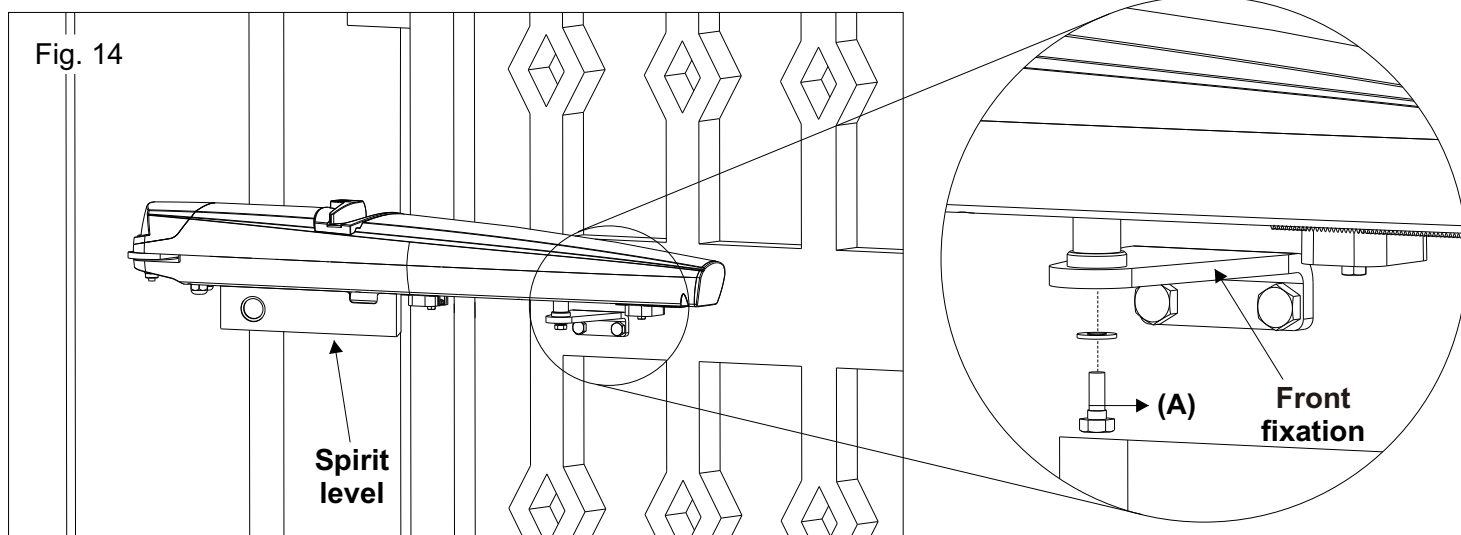
Once the operator has been mounted on the back fixation close the leaf and do as follows:

- 1) Release the operator.
- 2) Mount the operator on the front fixation.

ATTENTION: When mounting the operator on the front fixation lubricate the pivot with grease.

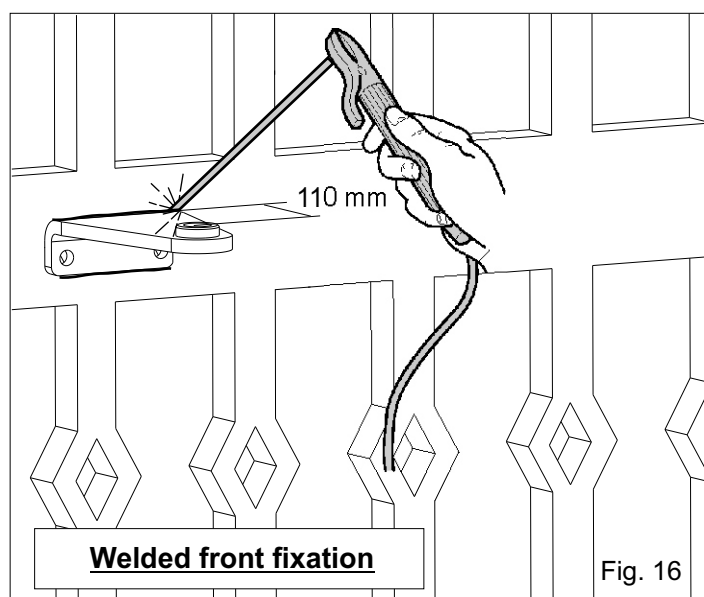
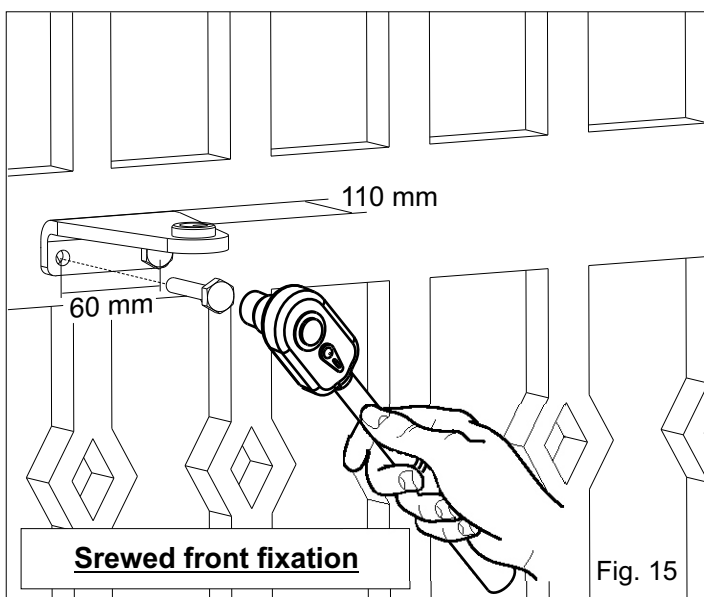
- 3) Tighten the screw (A) at max 8,5 Nm.

WARNING: For the proper operation of the actuator and of the limit switches (if any) it is important to put the motor and the front and back fixings in a perfectly horizontal position, using the spirit level as shown in Fig.14.



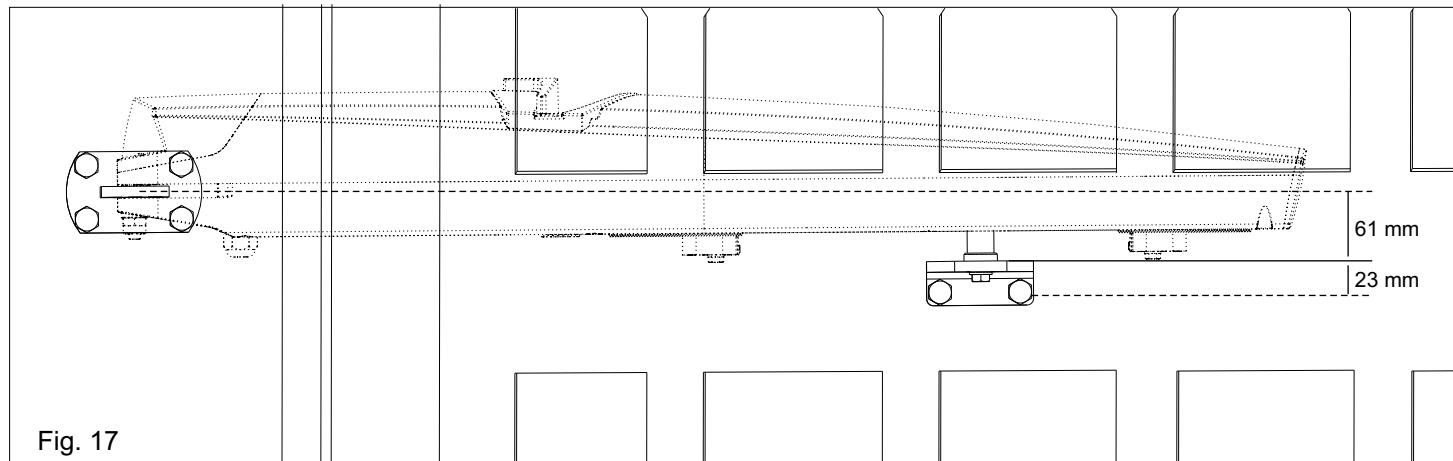
WELDING OF THE FRONT FIXATION TO THE GATE

Depending on the type of the gate (wood, iron, aluminium) the front fixation can be welded or screwed.

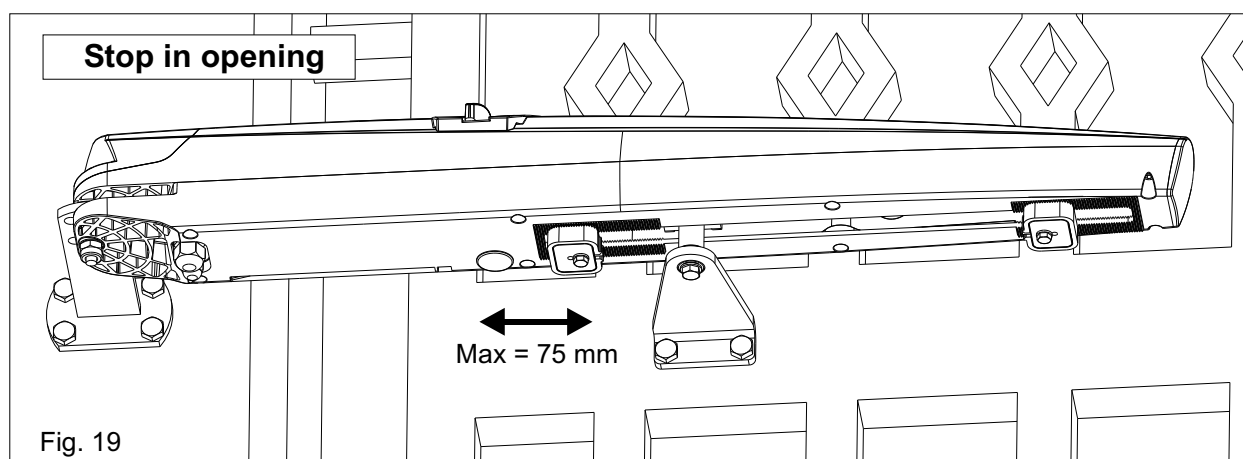
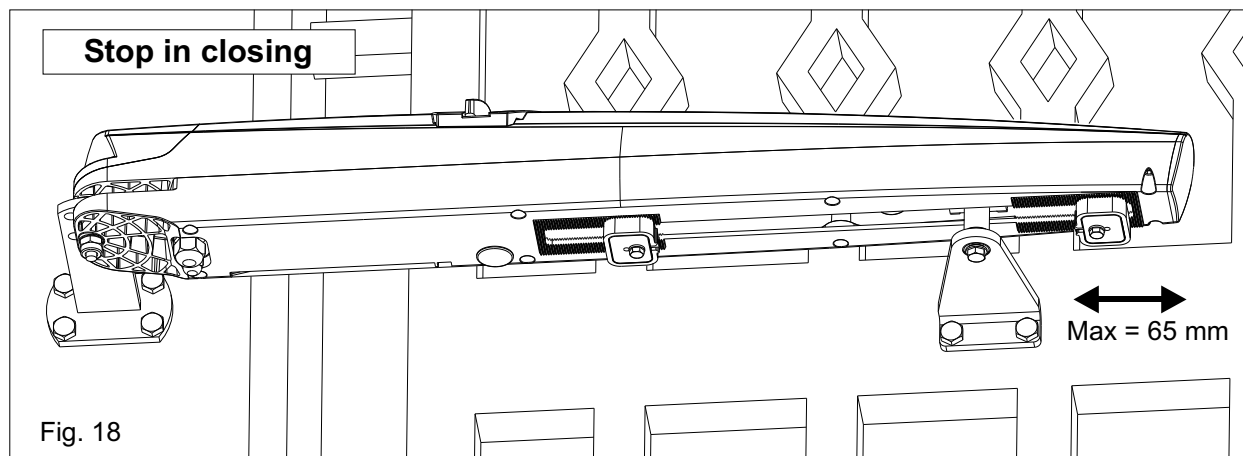


NOTE:

When placing the front fixation on the gate, consider the shift in comparison to the central axle of the operator (Fig. 17).

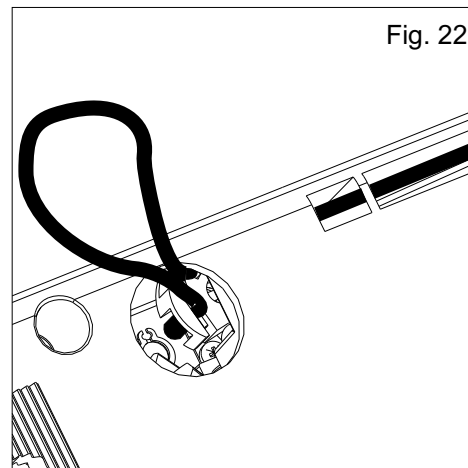
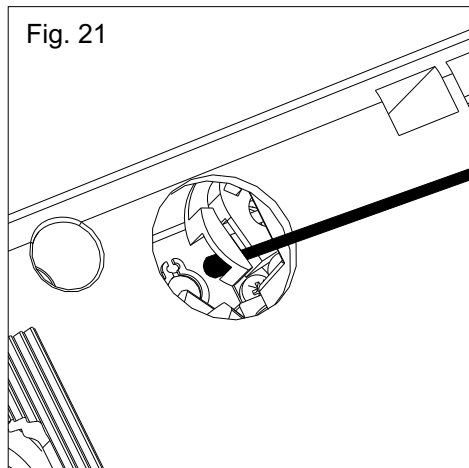
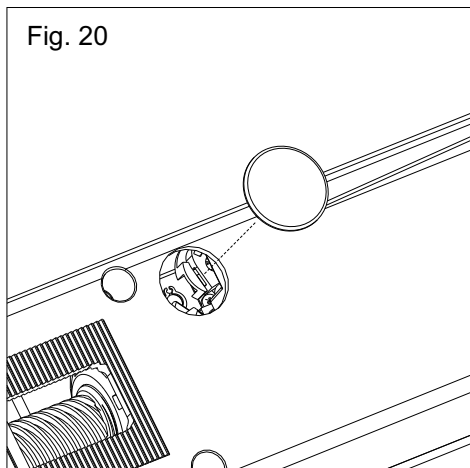


INSTALLATION OF THE MECHANICAL LIMIT SWITCH STOPS

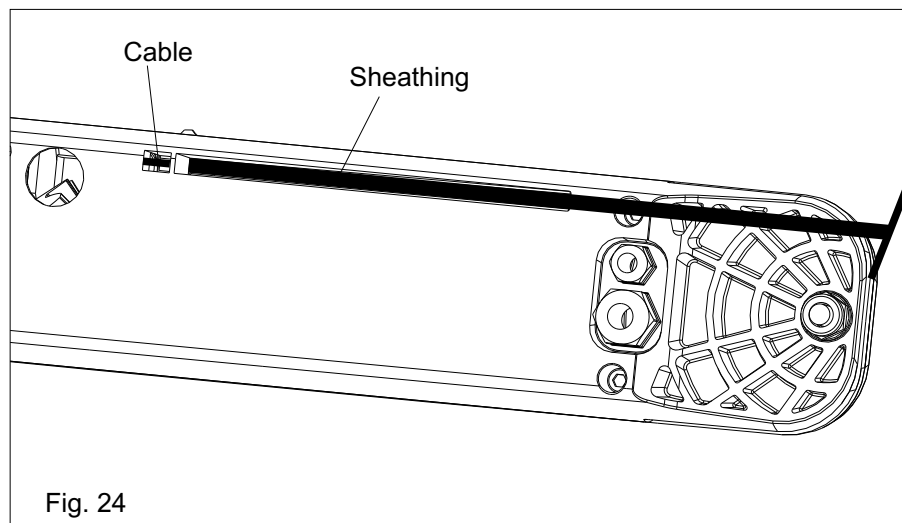
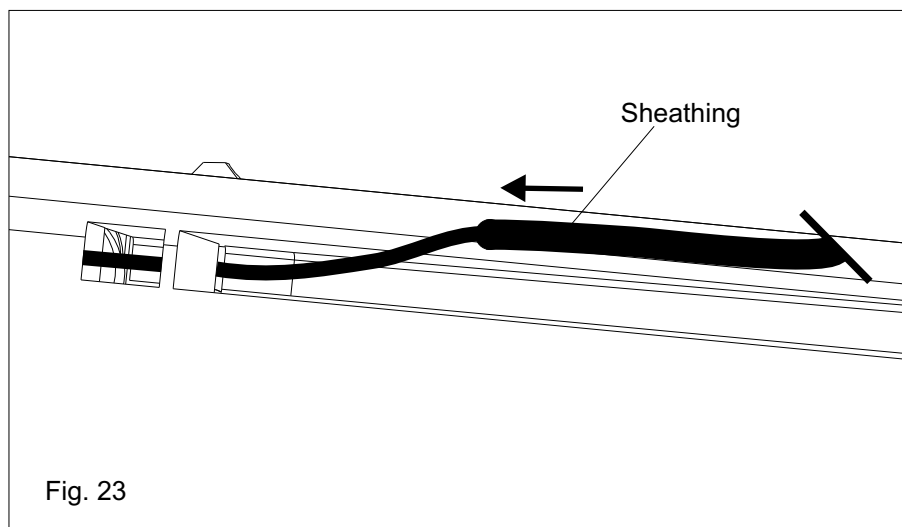


EXTERNAL RELEASE SYSTEM

- Open the cap (fig.20)

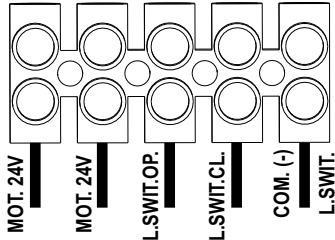


- Insert the release cable through the cam fissure (as in fig.21)
- Insert the opposite end of the cable inside the cable passage and make it come out from the opening on the inferior part of the Surf casing (fig.22).
- Insert the sheathing on the cable (fig.23)
- Connect the cable with the external security box.



CONNECTIONS

24V With mech. and elect. limit switch



⚠ ATTENTION:
The limit switches must be used only for the connection to the control units and not directly connected to the electric motor.

250 Without limit switch/Without Encoder 350 Reversible

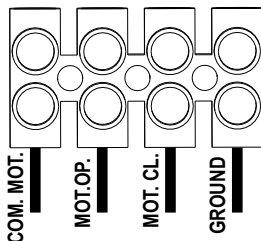
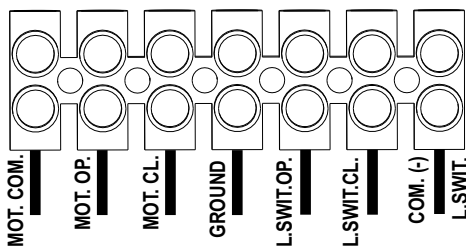


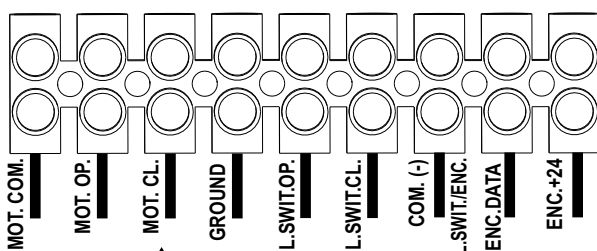
Fig. 25

350 With limit switch

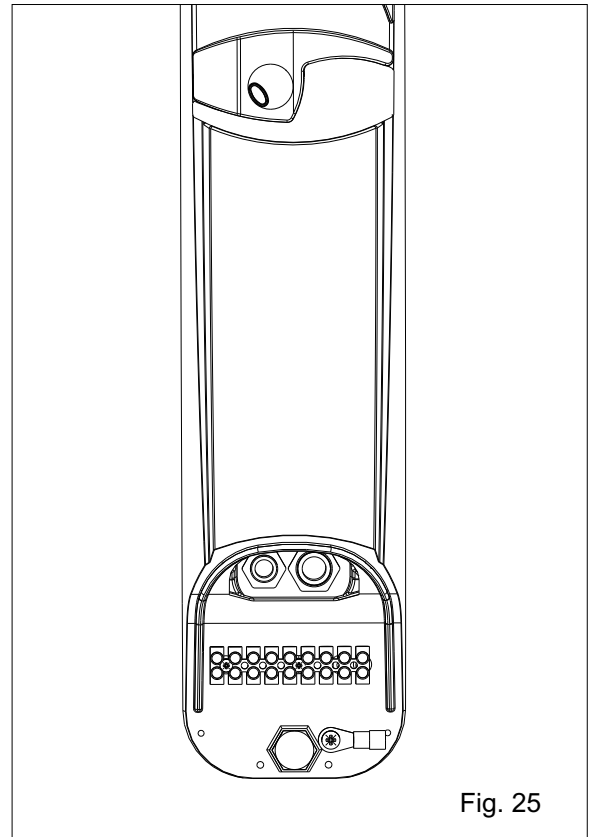


⚠ ATTENTION:
The limit switches must be used only for the connection to the control units and not directly connected to the electric motor.

350 With limit switch/Encoder



⚠ ATTENTION:
The limit switches must be used only for the connection to the control units and not directly connected to the electric motor.



PERIODICAL MAINTENANCE

Check the solidity and the stability of the gate, especially the points of support and/or rotation of the gate (pivots).	Annual
Check the release function	Annual
Check and grease the fixing pivots and the endless screw	Annual
Check the integrity of the connection cables	Annual
Verify the functionality and the conditions of the limit switch stops in opening and closing (where foreseen)	Annual
Verify the good condition of all apparatus which are subject to stress (back attachment, oscillating fork and front attachment)	Annual
Check the functionality of all the accessories, in particular way of all safety disposals	Annual
After having executed the periodical maintenance it is necessary to repeat the test of the automation and its putting in service	Annual

All the above described operations **MUST** be made exclusively by an authorized installer.

INITIAL TEST AND STARTING OF THE AUTOMATION

After having completed the necessary operations for a correct installation of the SURF product, as described in this manual, and after having valued all resting risks which could arise in any installation, **it is necessary to test the automation to guaranty the maximum security and, in particular way, to guaranty that the laws and norms of this sector are fully respected.** Especially the test must be executed following the norm **EN 12445** which establishes the methods of tests for checking the gate automations respecting the limits established by the rule **EN 12453**.

SAFETY PRECAUTIONS:

All electrical work should conform to current regulations. A 16 A 0,030 A differential switch must be incorporated into the source of the operators main electrical supply and the entire system properly earth bonded. Always run mains carrying cables in separate ducts to low voltage control cables to prevent mains interference.

INTENDED USE:

The SURF operator is been designed to be solely used for the automation of swing gates.

SPARE PARTS:

To obtain spare parts contact:

SEAs.r.l. -Zona Ind.le, 64020 S. ATTO Teramo Italia

SAFETY AND ENVIRONMENTAL COMPATIBILITY:

Don't waste product packing materials and/or circuits.

When being transported this product must be properly packaged and handled with care.

LIMIT OF GUARANTEE

For the guarantee see the sales conditions on the official SEA price list.

MAINTENANCE AND OUT OF SERVICE:

The decommission and maintenance of this unit must only be carried out by specialised and authorised personnel.

NOTE: THE MANUFACTURER CAN NOT BE DEEMED RESPONSIBLE FOR ANY DAMAGE OR INJURY CAUSED BY IMPROPER USE OF THIS PRODUCT.

SEA reserves the right to do changes or variations that may be necessary to its products with no obligation to notice.

To the attention of users and technicians

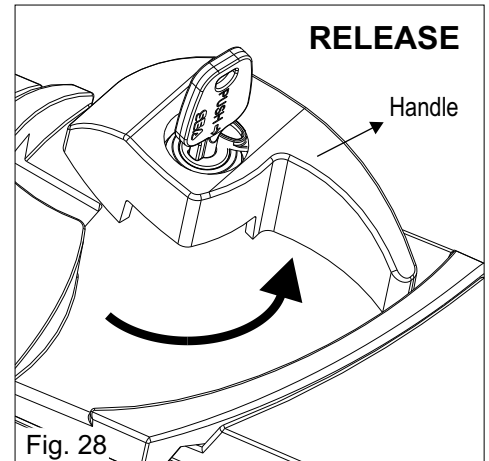
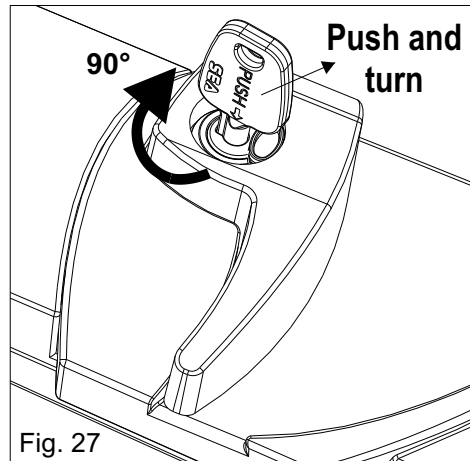
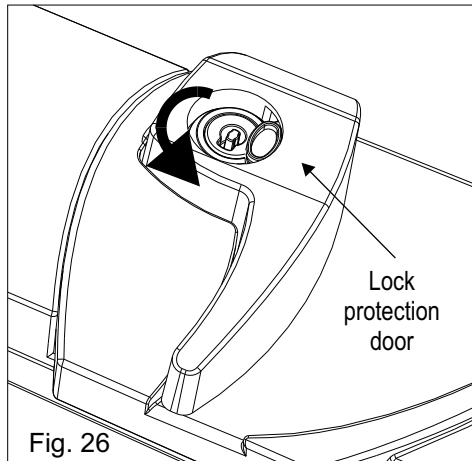
INSIDE RELEASE SYSTEM

To release operate as follows:

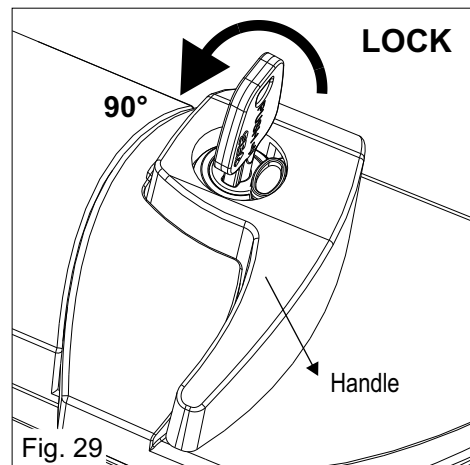
- 1) Turn counter- clockwise the lock protection door (fig. 26);
- 2) Insert the key, push and turn about 90° clockwise (fig.27);
- 3) Turn the handle anti -clockwise to release the operator (fig.28).

To relock the operator do as follows:

- 1) Turn the handle clockwise and then turn the key about 90° degrees counter-clockwise (fig.29);
- 2) After having relocked the operator, reclose the lock protection to prevent damages through weather.

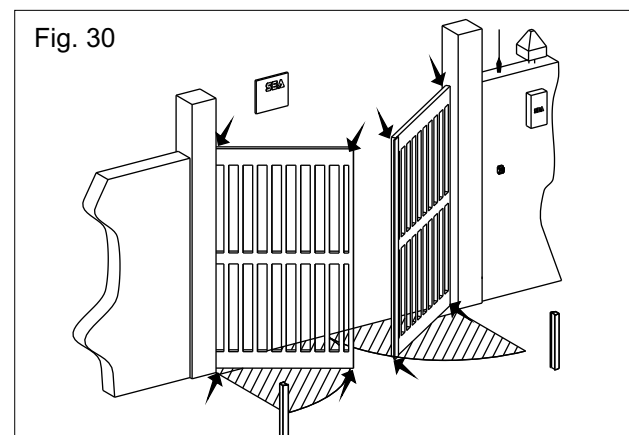


Note: For more safety on the release, we recommend to install the lock kit for SURF release (Cod.12715280) optional.



RISK EXAMINATION

The points pointed by arrows in Fig. 30 are potentially dangerous. The installer must take a thorough risk examination to prevent crushing, conveying, cutting, grappling, trapping so as to guarantee a safe installation for people, things and animals (Re. Laws in force in the country where installation has been made).



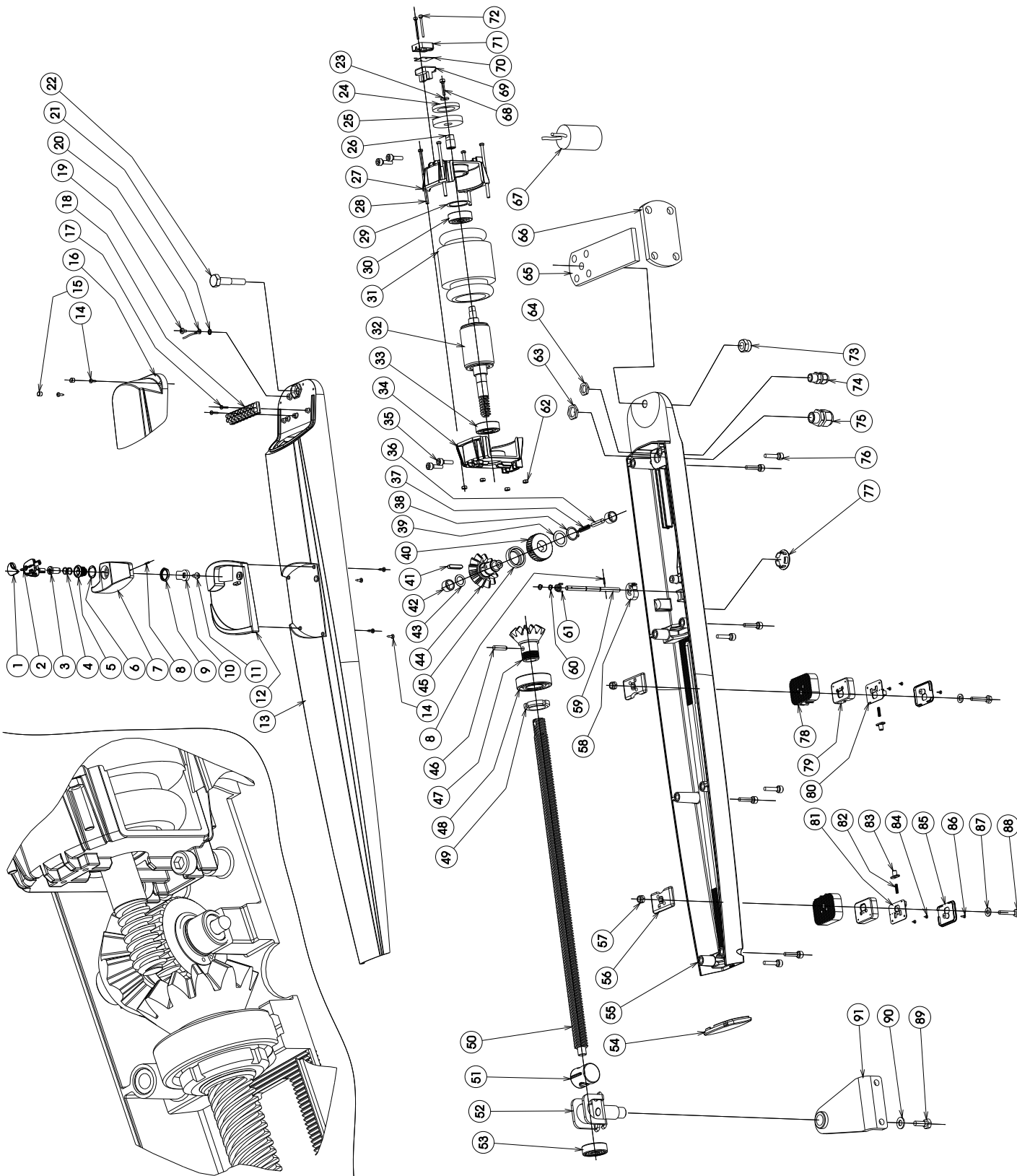
NOTICE

SEA s.r.l can not be deemed responsible for any damage or accident caused by product breaking, being damages or accidents due to a failure to comply with the instructions herein. The guarantee will be void and the manufacturer responsibility (according to Machine Law) will be nullified if SEA Srl original spare parts are not being used.

The electrical installation shall be carried out by a professional technician who will release documentation as requested by the laws in force. This is a quotation from the GENERAL DIRECTIONS that the installer must read carefully before installing.

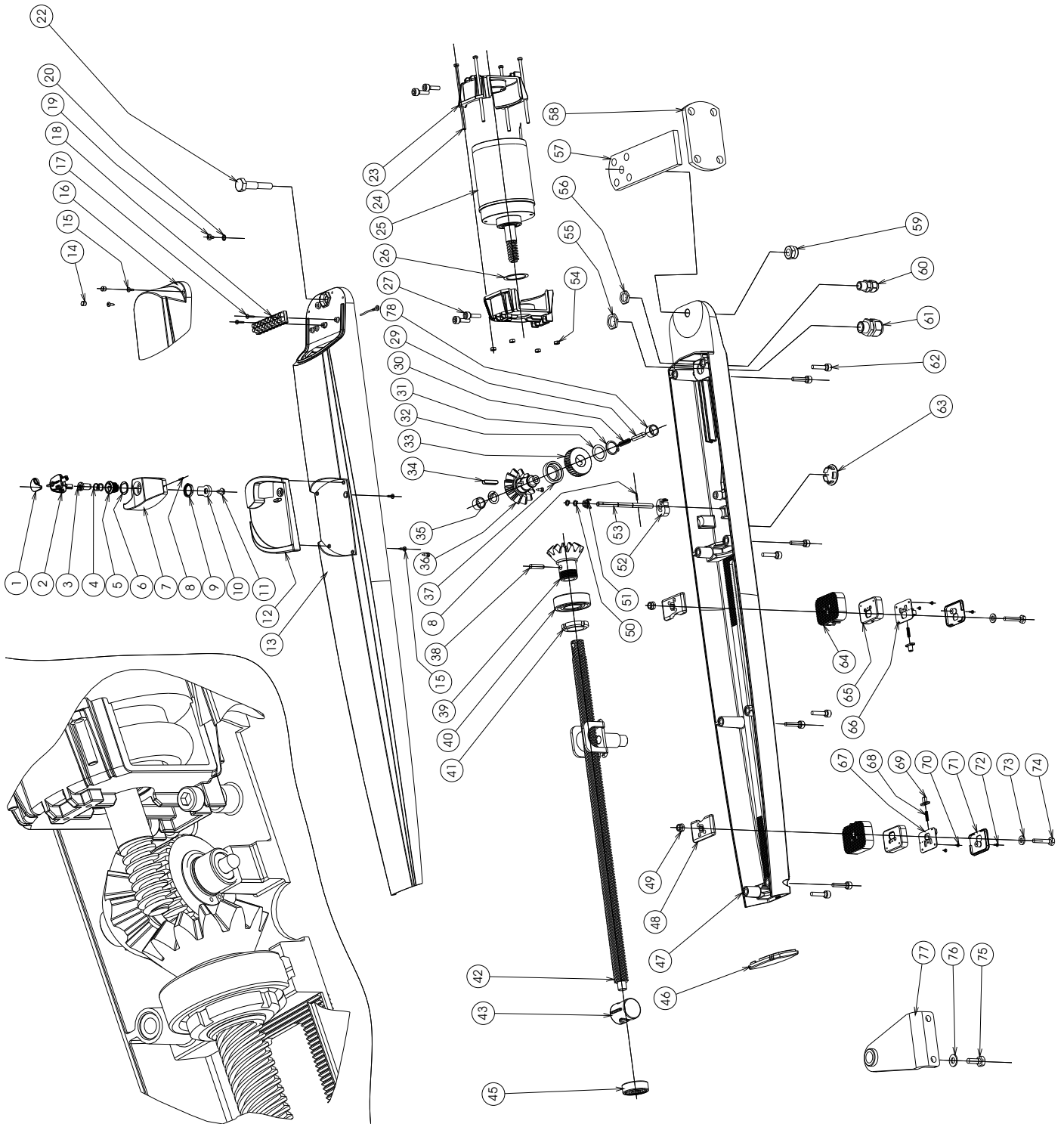
Packaging materials such as plastic bags, foam polystyrene, nails etc must be kept out of children's reach as dangers may arise.

SURF 350 WITH ENCODER



Pos.	CODE	DESCRIZIONE	Q.TA
91	66201830	BACK FIXATION SURF	1
90	66804040	WASHER P8.4X17X1.6 UN6692 GALV.	1
89	66801354	T8 M8 X 20 ZINC. SCREW	2
88	66801519	WASHER M6X30 UN6539 GALV.	2
87	66804035	WASHER P6.4X12.6X1.6 UN6692 GALV.	2
86	66801054	SELFHR. SCREW TC CR.2.2X6.5 GALV.	2
85	66301885	LD STOP MICRO SURF	2
84	66801490	SELF. SCREW TC CR.2.2X4.5NC UN6954	4
83	66301890	BUTTON MICRO SURF	2
82	66401215	SPRING MICRO SURF	2
81	54020240	SURF CLOSING ELECTR. LIMIT SWITCH CIRC.	1
80	54020240	SURF OPENING ELECTR. LIMIT SWITCH CIRC.	1
79	66301865	CASING STOP MICRO SURF	2
78	65302555	EXTERNAL STOP MICRO SURF	2
77	54710186	TCEI SCREW M6X25 GAL. SEC.TRILOB.	8
76	66801248	CABL.CONN.TEC.SMI1616 M16X1.59AL9005	1
75	54701120	CABLE CONN.SKINTOP ST. M12X1.59AL9005	1
74	54701121	SHORT SELFL. NUT M10 GALV. DIN985	1
73	66803011	TCEI SCREW M3X30 GALV.	2
72	66801336	INFERIOR ENCODER SUPPORT "L"	1
71	66301075	CAPT. ENC. CARD 100CM+P	1
70	54020133	SUPERIOR ENCODER SUPPORT "U"	1
69	66301080	TCEI SCREW M4X20 GALV.	1
68	66801164	CAPAC. 6.3 MF 450V 2C. 1.5CM N.TANG	1
67	54500012	BACK FIXATION PLATE SURF	1
66	66201840	BACK FIXATION SURF	1
65	66803505	MET. COUNTER NUT HI 1512 M M12X1.5	1
64	66803500	MET. COUNTER NUT HI 1516 M M16X1.5	1
63	66803090	SPRING SHAFT -CAM RELEASE SURF	4
62	66401210	SEEGER EXT.D.6 INOX	2
61	66001485	CAM SHAFT RELEASE SURF	1
60	66001485	CAM RELEASE SURF	1
59	65302530	SHORT SELFL. NUT M6 GALV. DIN985	1
58	66803005	LIMIT SWITCH INTERNAL STOP SURF	2
57	65302550	INFERIOR HALF CASING SURF PAINT	2
56	65302560L	FRONT CLOSING CAP SURF	1
55	66301845	BEARING 6301 2RS	1
54	66501100	BACK TX. FORK SURF	1
53	66201825	FEMALE SCREW SURF BRONZE FINISH.	1
52	65202170L	ENDLESS SCREW 20X20X4- SURF	1
51	66102425	BLOC. FERRULE M25X1.5 DIN981	1
50	66804160	TAPER WHEEL M4 SURF	1
49	66501066	CYL. PLUG 6X25 UNIT 707	1
48	66501850	RELEASE RING SURF	1
47	66806048	TAPER WHEEL M4 + SHAFT SURF FINISH.	1
46	66301860	SHIM RING 12X18X0.5	1
45	65302535L	BRONZE SMT. BUSH 12X16X10 F7	2
44	66804131	SP LINE-A-5X5X25 UN66604	1
43	66505090	HELIC. WHEEL Z30 M1.25 SURF	1
42	66102117	COMP RING 17X24X0.5 DIN988	1
41	66510009	EXT. SEEGER D.17 RAW	1
40	66805011	STEEL SPRING. C100	1
39	66499050	RELEASE PLUG SURF D.6	1
38	66001328	TCEI SCREW M6X20 GALV. SEC.TRILOB.	4
37	66801241	MOTOR CAP SURF	1
36	66801241	BEARING 6202 ZZ COILEMQ	1
35	65302540	SHAFT + ROTOR SURF 220V	1
34	65802273	SIA WINDING 80X45X5ALPHA220V L=200	1
33	65802108	6300 ZZ CCV BEARING	1
32	66501096	MOTOR COMPENS. RING D.35	1
31	66501096	TE ROD TCCR 6.5 MAX80 F.45MM C40	4
30	66900080	MOTOR CAP SURF FINISHED	1
29	65302540L	ENCODER JOINT SURF	1
28	66301870	PLAST. SUPPORT TAURUS-MAGN.8POL-UL	1
27	66301065	RING MAGNET BPOLES D40D26X5	1
26	54710285	WASHER P4.3X1.2X1.5 GALV.	1
25	66804025	TE SCREW M10 X 50 GALV. UN5737	1
24	66804011	SECLR. WASHER KNURLED M4 UN1064 GALV.	1
23	66804011	GROUND WIRE WITH EYELET AND MOLEX	1
22	54705155	TCCR SCREW MAX6 ZN SEC.TRILOB.	1
21	66801535	SCREW CLAMP 12 POLES P8 H=13	1
20	54310040	SELFHR. TC SCREW CR 2.9X13 GALV.	1
19	66801030	BACK LID SURF	2
18	66301840	SURF SCREW COVER CAP	1
17	66301925	AUT.TCCR3X10 ZINC. UN19707 SCREW	2
16	66801037	PAINT SUPERIOR COVER SURF	6
15	65302565L	SURF RELEASE BASE	1
14	66801107	SELFHR. SCREW WITH RIM 4.2X9.5 ZN	1
13	66301830	PLASTIC LOCK LEVER	1
12	66302090	PLASTIC LOCK NUT	1
11	66302080	PLASTIC LOCK NUT	1
10	66804072	2.5X16 UN6875 INOX SPIRAL PLUG	2
9	65302545L1	SURF RELEASE LEVER	1
8	66302065	PLASTIC LOCK THICKENING RING	1
7	66302075	PLASTIC LOCK EXT. CYLINDER	1
6	66401240	SPRING FOR PLASTIC LOCK	1
5	66302070	CYLINDER FOR PLASTIC LOCK	1
4	66302085	RELEASE KEY FOR PLAST. LOCK	2
3	66301835	RELEASE DOOR SURF	1

SURF 350 24V WITH MECH.LIMIT SW. + ELECTRO. LIMIT SWITCH



Pos.	CODICE	DESCRIZIONE	Q.TA
78	66505090	BRONZE SINT. BUSH 1,2X16X10 F7	2
77	66201830	FRONT FIXATION SURF	1
76	66804040	WASHER P8.4X17X1.6 UN16592 GALV.	1
75	66801354	IE M8 X 20 ZINC. SCREW	1
74	66801519	IE SCREW M6X30 UN15739 GALV.	2
73	66804035	WASHER P6.4X12,5X1.6 UN16592 GALV.	1
72	66801054	SELFTHR. SCREW TCCR2, 2X6,5 GALV.	2
71	66301885	STOP LID MICRO SURF	2
70	66801490	SELF. TCCR SCREW 2,2X4,5NICKUN16954	4
69	66301890	BUTTON MICRO SURF	4
68	66401215	SPRING MICRO SURF	2
67	54020265	SURF CLOSING ELECTR. LIMIT SWITCH CIRC.	1
66	54020260	SURF OPENING ELECTR. LIMIT SWITCH CIRC.	1
65	66301865	STOP CASING MICRO SURF	2
64	65302555	EXTERNAL STOP MICRO SURF	2
63	54710186	CLOSING CAP MP161-240 BLACK	1
62	66801248	TCR SCREW M6X25 GALV. SEC. TRILOB.	8
61	54701120	CABLE CONN. TEC-SM1616 M16X1,5RA19005	1
60	54701121	CABLE CONN. TEC-SM1616 M12X1,5RA19005	1
59	66803011	SHORT SELBL. NUT M10.GALV/DIN985	1
58	66201840	BACK FIXATION PLATE SURF	1
57	66201835	BACK FIXATION SURF	1
56	66803505	COUNTERNUT METH1512 M M12X1,5	1
55	66803500	COUNTERNUT METH1516 M M16X1,5	1
54	66803090	NUT M4 GALV. UN16588	4
53	66001485	CAM SHAFT RELEASE SURF	1
52	65302530	CAM RELEASE SURF	1
51	66401210	SHAFT-CAM SPRING RELEASE SURF	1
50	66805032	SEGER EXT.D.6 INOX	2
49	66803005	SHORT SELBL. NUT M6 GALV/DIN985	2
48	65302550	INSIDE LIMIT SWITCH STOP SURF	2
47	65302560L	INSIDE PAINT. HALF. MONOCOQUE SURF	1
46	66301845	FRONT CLOSING CAP SURF	1
45	66501100	BEARING 6301 2RS IMP	1
44	66201825	FRONT FIX. FORK SURF	1
43	65202170L	FEMALE SCREW SURF BRONZE	1
42	66102425	ENDLESS SCREW 20X20X4 - SURF	1
41	66801160	BLOC. FERRULE M26X1,5 DIN981	1
40	66801066	BEARING 6205 2RS IMP	1
39	66301860	TAPER WHEEL M4 SURF	1
38	66806048	CYLINDR. PLUG. 6X25 UNIT1707	1
37	66301860	RELEASE RING SURF	1
36	65302535L	TAPER WHEEL M4 + SHAFT SURF	1
35	66801131	SHIM RING 12X18X0,5	1
34	66808045	SPLINE-A-SX5X25 UN16604	1
33	66102117	HELIC. WHEEL 230 M1,25 SURF	1
32	66510009	EXT. SEGER D.17 RAW	1
31	66805011	EXT. SEGER D.17 RAW	1
30	66490050	STEEL SPRING C100	1
29	66001328	RELEASE PLUG SURF D.6	1
27	66801241	ICEI SCREW M6X20 ZN SECT.TRILOB.	4
26	66510006	MOTOR COMPENS. RING D.35	1
25	65802260	24V MOTOR FOR ALPHA (EX-AMER)	1
24	65900085	TRITCCR 6,5 MAX93 F.35MM C40	2
23	65302540	MOTOR CAP SURF	4
22	66801428	IE SCREW M10 X 50 GALV. UN16737	1
21	54705155	GROUND WIRE WITH EYELET AND MOLEX	1
20	66804011	KNURLED SECURITY WASHER M4 UN17064 GALV.	1
19	66801535	TCCR SCRW M4X6 GALV. SECT. TRILOB.	1
18	54310040	SCREW CLAMP 2 POLES P8 H=13	1
17	66801030	SELFTHREAD. SCREW TC CR 2,9X13 GALV.	2
16	66301840	BACK LID SURF	2
15	66801037	AUT.TCCR X10 ZINC. UN19707 SCREW	6
14	66301925	SURF SCREW COVER CAP	2
13	65302565L	PAINT. SUP. HALF CASING SURF	1
12	66301830	RELEASE BASE SURF	1
11	66801107	SELFTHR. SCREW WITH RIM 4,2X9,5 ZN	1
10	66302090	PLASTIC LOCK LEVER	1
9	66302080	PLASTIC LOCK NUT	1
8	66804072	2,5X16 UN16875 INOX SPIRAL PLUG	2
7	65302545L1	RELEASE LEVER SURF FINISHED	1
6	66302065	PLASTIC LOCK THICKENING RING	1
5	66302075	PLASTIC LOCK EXT. CYLINDER	1
4	66401240	SPRING FOR PLASTIC LOCK	1
3	66302070	CYLINDER FOR PLASTIC LOCK	1
2	66302085	RELEASE KEY FOR PLAST. LOCK	2
1	66301835	RELEASE DOOR SURF	1