





### ATTENTION! GENERAL WARNINGS!

To install, use and maintain this hardware set safely, a number of precautions must be taken. For the safety of all concerned pay heed to the warnings and instructions given below! If in doubt, contact your supplier.



- ! This manual has been written for use by experienced fitters and as such
- is not suitable for d.i.y. purposes or for use by trainee fitters.
- ! This manual only describes the installation of the hardware set components and as such must be supplemented with instructions for any additional components.
- ! Before starting, read this manual carefully.
- ! Certain components may be sharp or have jagged edges. As such you are advised to wear safety gloves.
- ! All the components which have been supplied are designed for use with this specific overhead door. Including additional components may have an adverse effect on the safety of, and the guarantee on, the door.
- ! During tensioning, springs can exert large forces. Work carefully. Use the proper equipment. Ensure that you are standing in a steady position.
- ! Ensure that there is sufficient light during installation. Remove obstacles and dirt. Make sure that there is no one else present other than the fitters. Other people (children!) may get in the way or endanger themselves during the installation.

### Guarantee, conditions and terms

The general terms and conditions of delivery and payment issued by the Metaalunie and designated as METAALUNIE CONDITIONS are fully applicable to all our quotations, contracts and their implementation. We expressly reject all other terms and conditions. On request we will send you a copy of these terms and conditions free of charge. A copy may also be downloaded from our website <u>www.flexiforce.nl</u>.

Flexi-Force strives to deliver 100 % in conformance with the order. In practice, in spite of all our controls, this is not always possible. However we will rectify any errors as quickly as possible, in order to minimise the inconvenience caused to you or the user. As such, it is important that you inform us as soon as possible about any problem with the delivery (include the order number and week of production) and give us the opportunity to offer a suitable solution.

FlexiForce will only reimburse third party costs if we have given explicit permission for this in advance. The reimbursement is based on normal rates and travelling expenses over distances of 1 hour away at most.

For large-scale projects we strongly advise you to first install 1 door completely before installing the other doors. In this way, any errors can be detected early on and rectified comparatively cheaply.

This manual does not confer any rights. Technical modifications may be made without written notice.

Flexi-Force has endeavoured to design and put together this hardware set in conformance with the applicable CE-norms. However, please check our interpretation with your local national specifications body.

Flexi-Force B.V. P.O. Box 37, 3770 AA Barneveld The Netherlands Tel. +31-(0)342-427777 Fax. +31-(0)342-414679 E-mail: <u>ff@flexiforce.nl</u> Internet: <u>www.flexiforce.com</u>

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### Introduction

Flexi-Force has developed a completely new hardware set for residential (garage) overhead doors. Especially designed for situations where the available space is at a minimum (renovation projects). The set includes the following features:

- Suitable for single and double garages to W > 5000
- Spring package behind the horizontal tracks
- Fitted with cable within the tracks and spring breaking device meeting CE standards
- Restricted installation sizes

In this handbook we shall restrict our instructions for the proper assembly of our hardware set parts. For the installation of the complete door, including any components added by the supplier, as well as for a user handbook, we refer you to the supplier of the complete overhead door who is also responsible for the correct CE marking of the door. These instructions have been prepared for use by experienced professional fitters and are therefore not suitable for the "DIY" fitter or the apprentice fitter. The article codes of the parts are given in parentheses

#### The hardware set consists as standard of:

- A The track set (vertical and horizontal)
- B Standard parts and/or fastening material. (including spring break device)
- C Hardware (hinges, bottom brackets, top roller holder etc.) in version selected
- D The assembled cable set
- E Tubular shaft
- F Torsion springs (galvanized or powder coated) in version selected

Att. The attachment material required to secure the track set to the wall or to suspend it from the walls or ceiling is not part of the delivery.

- G Connection /suspension profiles for horizontal track set
- H Top seal for on the lintel
- I Electric drive (RES-E-500) drawbar type
- K Warming labels
- J 1 box packaging

### We wish you every success with the installation of this hardware set. If anything is unclear or should you have queries, you should of course contact Flexi-Force B.V..

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### ACCOMPANYING FASTENING MATERIAL

1006B	M6×25	1068M	мв
1008B	M8x55	1070B-3.5	
1055BV	6.3x25		₩ M8×25
1062M	ме	1062B	M6×16

orizonta		(570-60 en 570-60),	spacer (2060-27) bracket (554BE	J) to the side plate (5	62-70) of the
	Number		Description	Fastening torque	Key size
	2	1008B	head bolt M8 x 55		,
	2	1068M	Flanged nut M8	x Nm	13
astening	of horizontal tr	ack set to the vertica			
	Number	Code	Description	Fastening torque	Key size
	6	1070B-3.5	head bolt M8 x 55		
	6	1068M	Flanged nut M8	x Nm	13
	4	1006B	head bolt M6 x 55		
	4	1062M	Flanged nut M6	x Nm	10
earing p	late support at o	end of double horizo	ntal tracks.		
	Number	Code	Description	Fastening torque	Key size
	8	1062B	head bolt M6 x 55		
	8	1062M	Flanged nut M6	x Nm	10
astening	of spring break	device to bearing p	late support.		
	Number	Code	Description	Fastening torque	Key size
	4	1070B-3.5	head bolt M8 x 55		
	4	1068M	Flanged nut M8	x Nm	13
	Number	Code	Description	Fastening torque	
	104				
		1055BV	Self-tanning screw 6.3 v 25		Key size
astoning	-	1055BV	Self-tapping screw 6.3 x 25	10 Nm	Key size 10mm
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	8	1068M	Flanged nut N	18 x Nm	13				
Fastening of	Fastening of bearing holder/bearing plate								
	Number	Code	Description	Fastening torque	Key size				
	4	1070B-3.5	head bolt M8 x	55					
	4	1068M	Flanged nut N	18 x Nm	13				
Fastening of	bearing plate	e/suspension	rofile						
	Number	Code	Description	Fastening torque	Key size				
	2	1070B-3.5	head bolt M8 x	55					
	2	1068M	Flanged nut N	18 x Nm	13				

### TOOLS REQUIRED FOR CORRECT AND RAPID ASSEMBLY

(Battery) drill with	Bit 4.0 mm
	Bit 6.5 mm
	Plug 10 mm
	Plug 13 mm
Hexagonal key	4 mm
Ring /open ended spanner	10 mm
Ring /open ended spanner	13 mm
Ring /open ended spanner	15 mm
Ring /open ended spanner	17 mm
Socket wrench	with ¼" square
Wrench	
Gluing clamp	
Cord	
Water level (hose)	
2 blocks of ca. 20 en 40mm	in height

#### **CHECKING DIMENSIONAL DETAILS** Figure 1 Before assembling the set the details D below should be checked on the basis of this figure. Figure 1 A = Clear width B = Clear height C = Side area В D = Top area 44 Panel assembly See enclosure A A С С Installation area required Side area C minimum 70 mm : Top area D minimum 70 mm for manual operation : minimum 100 mm for electric drive Clear passage height based on manually operated flat panel CH – 70 mm : CH - 56 mm Electrically driven : \* For an upper space between 70 and 100 mm, we recommend that top seal be fastened to the lintel.

For fitting of this, see "Assembly top seal".

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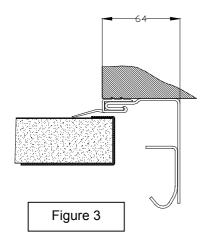
<u>4</u>. . . .

### ASSEMBLY VERTICAL TRACK SET

1

First mark "A" and "B" on both piers using a spirit level or water level hose and then mark "C". (Figure 2)

2 Fit both vertical tracks with the lower surface on mark line C and the edge 64 mm along the pennant (figure 3). The two bearing tracks should be parallel to one another.



- A Figure 2 C C B A C Figure 4
- FITTING RETURN PULLEY AND BRACKET TO

compensated (for example with a wedge)

For sloping floors, one of the bearing tracks may be

#### THE END PLATE

The side plate contains 3 holes in which to fit a return pulley (A, B and C). See figure 4. <u>Application holes, cable pulley and cover plate</u>:

	Clear Width					
	_ 2500		> 2500 _ 5000			
	Hole	Cable pulley	Cover plate	Hole	Cable pulley	Cover plate
Manual	А			С		B-001 00
Electrical	В	570-60	R70PL60	0	570-80	R70PL80

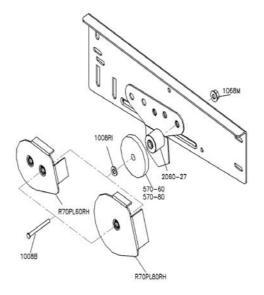
4

3

Insert the M8 press bolt (1008B) through the cover plate (R70PL80 or R70PL60) the return pulley (570-60 or 570-80), the spacer (2060-27) and hole A, B and C (see figure 5) of the reinforced end plate of the assembled horizontal track set. The spacer should be fitted with the flat side against the end plate. Fit the M8 nut (1068M) and tighten it.

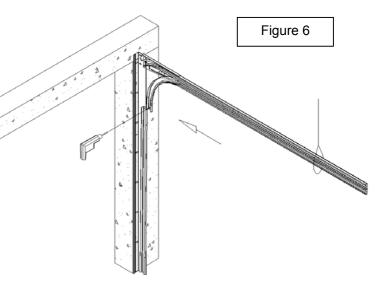


Figure 5



### ASSEMBLY HORIZONTAL TRACK SET

- 5 Attach a piece of rope to the ceiling or the roof structure to maintain the elevation of the rear side of horizontal tracks during the assembly process.
- 6 Slide the horizontal tracks in the direction of the vertical track set. Ensure that the flange of the vertical angle comes to rest between the end plate and the shortened upper bend of the horizontal tracks. The end plate will now be on the exterior of the vertical angle line. See figure 6.
- 7 Insert the 2 M6 press bolts (1006B) from the inside through the holes in shortened upper bend, the slotted holes in the vertical angle line and the side plate. Fit the M6 flanged nuts (1062M) and secure hand tight. Position the end of the bend in line with the vertical tracks and drill a hole of 6.5 mm through (the hole in the bend)



the vertical angle line. Insert the M6 press bolt from inside to outside through the drilled hole. Fit the M6 flanged nut.

8 Insert the 2 M8 press bolts (1070-3.5B) from outside to inside through the holes in the side plate and the holes in the vertical angle line. Fit the M8 flanged nuts (1068M) and secure these hand tight.



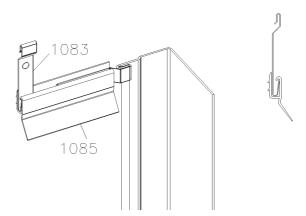
### ASSEMBLY TOP SEAL (OPTIONAL)

9

The seal profile (1085) to the lintel using the 4 spring clips (1083) (figure 7).

The top sealing profile (1085) replaces the top rubber 1036-36. This prevents the top rubber (1036-36) scraping along the ceiling.

! The fastening material required to attach the track set to the wall or to suspend it to the side walls or the ceiling is not included in the delivery

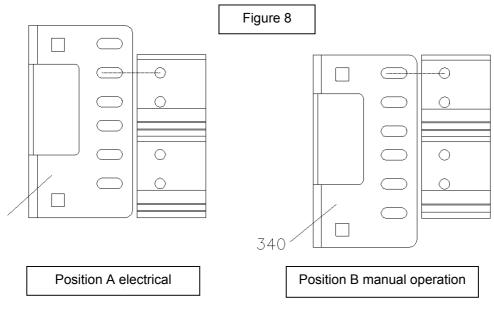


### ASSEMBLY BEARING PLATE SUPPORT AND SPRING PACKAGE

10

Fit the bearing plate support (340) to the end of the horizontal tracks. The position of the bearing plate support relative to the horizontal tracks will depend on the height available for installation (Figure 8).

- Position A: the position of the bearing plate support for an available installation space of at least 100 mm. Always for electrical drive and for manual operation when there is sufficient (>90 mm) height available.
- Position B: the position of the bearing plate support for an available installation height between 70 and 100 mm. Always for manual operation.



11

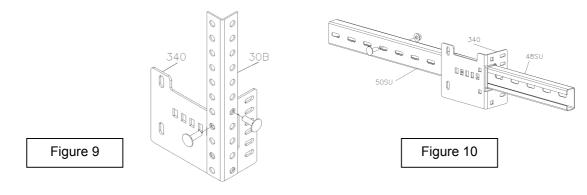
Depending on the option selected under G (page 3) one of the following instructions will apply. The construction (and assembly) for suspension of the horizontal tracks will be determined by others.



LH RFI

### 12A

With vertical suspension profile of horizontal tracks to ceiling or roof structure (Figure 9). Fit the perforated angle (30B0750) to the bearing plate support (340) with 2 M8 press bolts and nuts (1070-3.5B and 1068M).



**12B** With horizontal connecting profile between the horizontal tracks CW <2500 (Figure 10). Shorten when necessary the long C profile. The profile may then be used as measuring rod (L =Clear Width + 134 mm). The ends of the 50SU profile will then correspond with the exterior of the bearing plate support. Slide first onto both sides the short 48SU profile into the 50 SU profile. Then slide long C profile with slotted holes (50SU2750) on both ends into the rectangular recess of the bearing plate support (340) as mutual connection. The closed side should rest on the flange of the bearing plate support (340).

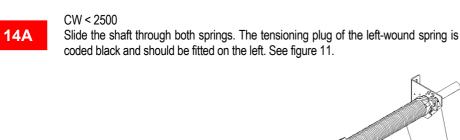
12C

13

 With horizontal connecting profile between the horizontal tracks
 CW >2500
 (Figure 10).

 Slide both C profiles into each other. Mark of a length of L =CW + 134 mm. This length is the external side of the bearing plate support. The closed side should rest on the flange of the bearing plate support (340).
 (Figure 10).

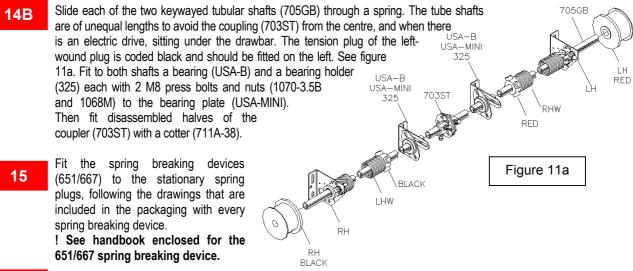
Connect the 50 SU profile to the bearing plate support (340) with 2 M8 mushroom bolts and nuts (1070-3.5B and 1068M). Then slide the short profiles (48SU) out until they reach a potential suspension point (sidewall) where they can be secured. Then secure finally the securing nuts of the connection between horizontal and vertical track set.



RH RH BLACK RH BLACK Figure 11



#### CW > 2500



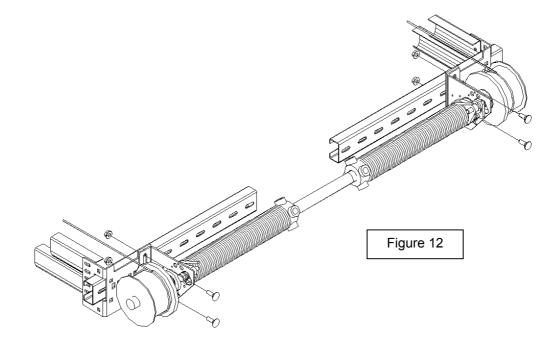
16 Slide on both sides a cable drum (FF-4X8 for CW <2500 and FF-4-13 for CW > 2500) onto the shaft. The cable drum coded RH, should be fitted on the left side. Turn the securing bolts of the cable drum FF –4x8 to secure these hand-tight to the tube shaft.

Secure each cable drum FF-4-13 with a cotter (711A-75).

### 17A

### CW < 2500

Fit the bearing plates with spring breaking device with shaft and spring package in conformity with figure 12 to the bearing plate supports, each with 2 M8 press bolts/nuts (1070B3,5 and 1068M).

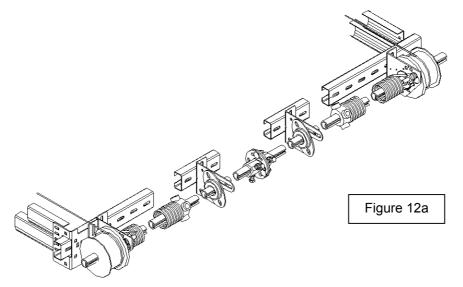




#### CW > 2500

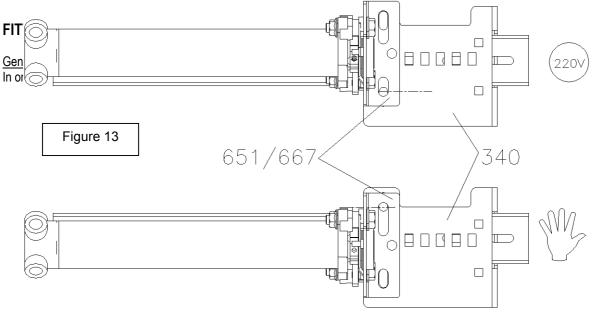
Fit the bearing plates with spring breaking device with shaft and spring package in conformity with figure 12a to the bearing plate supports, each with 2 M8 press bolts/nuts (1070B3,5 and 1068M) and the bearing plates each with 1 press bolt and nut (1070B3,5 and 1068m).

See for correct position figure 13. The position of the bearing plate relative to the bearing plate support will depend on the available installation height (Figure 13).



<u>Position A:</u> the position of the bearing plate support for an available installation height of at least 100 mm. Always for electrical drive and may be possible for manual operation (illustration above).

<u>Position B:</u> the position of the bearing plate support for an available installation height between 70 and 100 mm. In many instances for manual operation (illustration below).

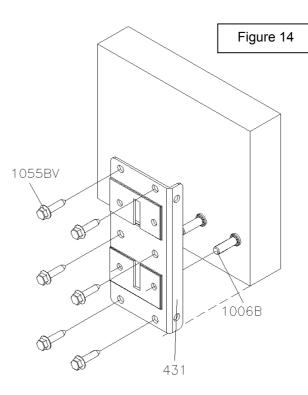


the panel material. Guideline value for steel insulated panels is 4.5 mm. orig\R70 manual GB.no2

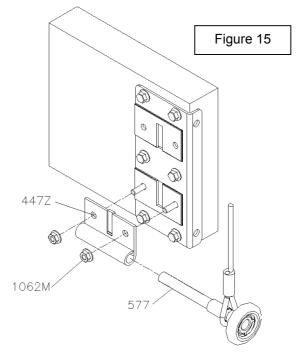


18

Place the bottom panel truly level between the bearing tracks on ca 20 to 40 mm high blocks. Insert two M6 pressure bolts (1006B) at the rear through the bottom bracket (431/431W) and secure the bottom brackets with the self-tapping screws (1055BV) (Figure 14).



**19** Insert the shaft of the bearing roller (577) through the loop of the lifting cable (k3x../k4x...) until the loop rests in the recess in the shoulder of the bearing roller shaft. Insert the shaft of the bearing roller in the bearing roller holder (447Z/447Z-W). Place the bearing roller holder with bearing roller on the 2 protruding M6 pressure bolts of the bottom bracket and secure them with 2 M6 flanged nuts (1062M). See figure 15.

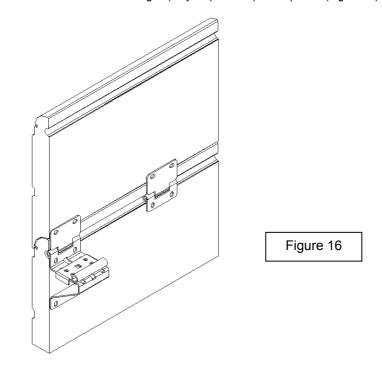




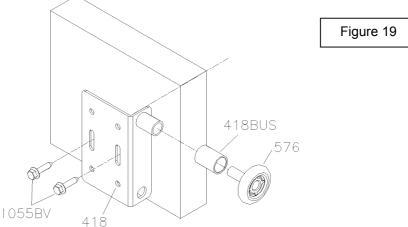
20



Place the remaining panels and secure the side and central hinges (may be pre-fitted) to the panels (Figure 16).



- Adjust the bearing roller to the side hinge such that the nylon-bearing roller is located in the rounding of the track and that the play between panel and side seal is at a minimum. The shaft of the bearing roller should remain capable of turning by hand.
- 22 Slide the plastic bush (418BUS) over the bush of the top roller holder (418/-W). Then slide the shaft of the bearing roller (576) into the bush of the top roller holder (Figure 19).
- Place the bearing roller in the shortened upper bend and fix the top roller holder (418/-W0 to the upper side of the top panel with 2 self-tapping screws (1055BV) in both slotted holes. The remaining self-tapping screws (1055BV) will be secured at a later stage.



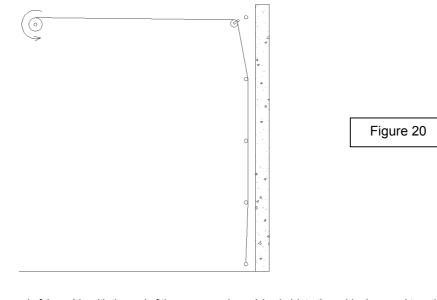




### FITTING CABLE AND TENSIONING THE SPRING PACKAGE

#### 24 Align the shaft.

25 Guide the cable from the bottom bracket, behind the bearing roller shafts and over the return pulley to the cable drum. See figure 20.



26 Hook the end of the cable with the end of the pressure clamp (circular) into the cable drum and turn the cable drum until the lifting cable is taut.

Figure 21

- Align the cable drum in such fashion on the tube shaft that the lifting cable is free to wind up through the recess in the bearing plate (see figure 21) and the cable cannot interfere with the plastic bush (418BUS). Secure finally the drum with the hexagon bolts to the shaft (without keyway) (tightening moment 10Nm). For a tube shaft with a keyway the drum must be secured with a cotter (711A-75) and bolts.
- 28 Block the shaft with for example a wrench.
- 29 Secure the other cable in the same fashion. Both cables must be tensioned equally while the door panel is truly level.
- Ensure that the door does not elevate. You can do this for example by placing wrenches in the vertical bearing tracks.



31

Tension the springs by the prescribed number of turns (see packaging list in the box), pull the spring  $\pm 5$  mm apart (to reduce friction) and secure the spring to the tube shaft using the screws of the tension plug (17 Nm).



#### CAUTION!

Torsion springs are subject to considerable tension. Proceed at all times with extreme caution. Installation, maintenance and repair should be carried out only by experienced and properly trained overhead door fitters.

Use correctly fitting and properly maintained tension levers.

#### Tensioning the spring

- a. Make sure that the marking strip on the spring forms a sharp line.
- b. Insert the 1<sup>st</sup> tension lever completely into the tensioning slot.
- c. Turn the 1<sup>st</sup> tension lever a quarter turn such that the spring is tensioned.
- d. Insert the 2<sup>nd</sup> tension lever completely into the following tensioning slot.
- e. Take over the tension of the spring from the 1<sup>st</sup> tension lever to the 2<sup>nd</sup> tension lever.
- f. Remove the 1<sup>st</sup> tension lever from the slot.
- g. Turn the 2<sup>nd</sup> tension lever a quarter turn such that the spring is tensioned.
- h. Repeat steps 2 through 7 until the spring has realized the prescribed number of turns.
- i. Secure the spring plug on the shaft by turning the bolts in the tension plug in the tube shaft.
- j. Remove the final tension lever.
- k. Check the number of turns by counting the number of turns that the marking strip has made.

Nu	Number of turns spring:				
<u>CW</u>	<u>4 panels</u>	5 panels			
2100	7.1 turns	6.8 turns			
2125	7.6 turns	7.3 turns			
2250	8.0 turns	7.7 turns			
2350	8.4 turns	8.7 turns			
2500	8.5 turns	9.2 turns			

30 Remove the restriction from the door in the tracks and from the shaft and check whether the door is properly balanced. When this is not the case you should correct this by tensioning or relaxing by at most 1 turn per spring. Make sure when doing this that both springs are equally corrected.

### Correction of the spring tension

- a. Insert the 1<sup>st</sup> tension lever completely into the tension slot.
- b. Take over the tension from the spring with this tension lever.
- c. Loosen the bolts in the tension plug.
- d. Turn the 1<sup>st</sup> tension lever in the direction required.
- e. Insert the 2<sup>nd</sup> tension lever completely in the next tension slot.
- f. Take over the tension of the spring from the 1<sup>st</sup> tension lever to the 2<sup>nd</sup> tension lever.
- g. Remove the 1st tension lever from the slot.
- h. Turn the 2<sup>nd</sup> tension lever a quarter turn in the direction required.
- i. Insert the 1<sup>st</sup> tension lever completely into the next tension slot.
- j. Take over the tension of the spring from the 2<sup>nd</sup> tension lever to the 1<sup>st</sup> tension lever.
- k. Repeat steps 4 through 10 until the correction required has been realized.
- I. Secure the spring plug on the shaft by turning the bolts in the tension plug in the tube shaft.
- m. Remove the final tension lever.



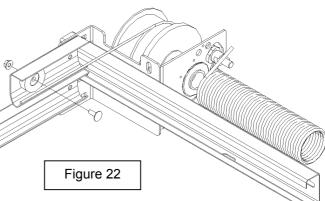
31 When the door panel is not hanging completely horizontally in the lifting cables in (almost) closed condition there are three options for fine adjustment.

- **A.** When the connection/suspension profile behind the horizontal tracks has not been finally adjusted the bearing plate support in the slotted holes may be adjusted relative to the horizontal tracks.
- **B.** Loosen the securing bolts of the cable drum and the drum relative to the tube shaft. For slight movements there is always a risk that the securing bolts 'slide' into the same shallow in the tube shaft and the adjustment is not improved.
- C. When a coupling is employed this may be adjusted to ensure a better horizontal setting.
- Close the door and secure the door panel. Loosen the two self-tapping screws (1055BV) securing the top roller holder so that it can be displaced with a slight tick. Press the top panel against the side (upper) seal and slide the top roller holder as far as possible (minimum play between door panel and seal). For a manually operated door the bearing roller should be displaced downwards. The bearing roller lies snugly in the rounding of the bearing tracks. For an electrically driven door the bearing roller should be displaced upwards. The bearing roller lies snugly against the flat side on the bearing tracks. Then secure the 2 self-tapping screws. When the top panel cannot from outside be pushed inwards, the remaining self-tapping screws may be secured.

When option "G" is selected, the suspension profiles of the horizontal connection profile (SU) may finally mounted.

#### **FINISHING THE DOOR**

- Fit any additional accessories that you have ordered separately such as: Handgrip, Lock, Bolt, a bolt may not be fitted to an electrically driven door.
   NB. Only lock 650 may be employed because it does not touch the cable.
- **36** Fit the rubber doorstop supplied with a press bolt M6x16 (1062B) and nut M6 1062M), to the end of the top horizontal tracks (Figure 22).
- 37 Oil all hinges and all bearing rollers with one drop of oil.
- 38 Grease the cables.
- **39** Grease the bearing roller shafts.
- 40 The torsion springs are already lightly oiled.



Place your CE identification plate on the door together with any warning labels required.

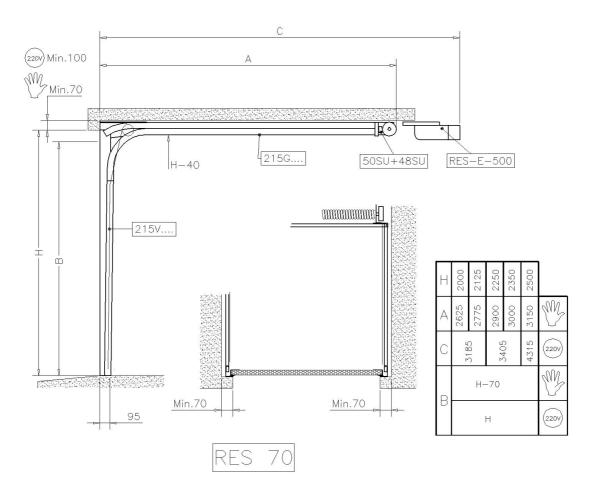
### **OPTION ELECTRICAL DRIVE**

When you have selected option I. Electrical drive (RES-E-500), then this should be assembled in conformity with the handbook supplied with the drive. You should clearly follow the instructions for electrical operation in this handbook. In order to maintain the closing force of the door within the standards set the attachment point of the drawbar should be 230 mm from the upper hinge point.

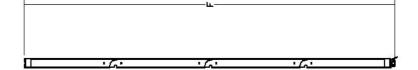


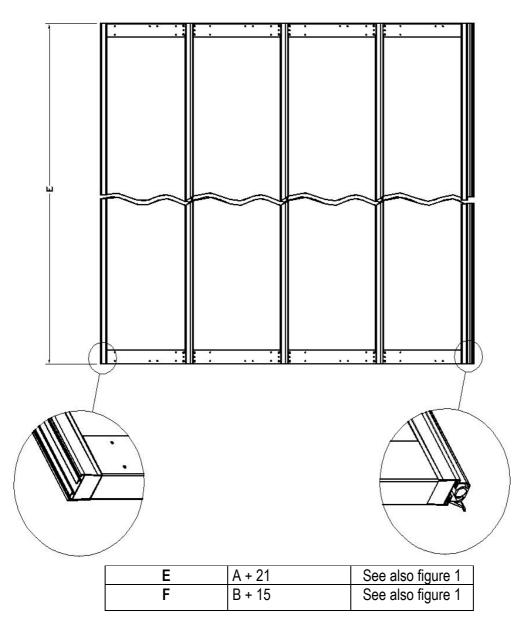


### **GENERAL SYSTEM DRAWING**









### Enclosure A

### **Basic Box**

R200BOX1		R200	BOX2	R70E	BOX1	R70E	BOX2
574-100	12	574-100	14	576	2	576	2
2602	10	2602	12	577	10	577	12
FF-4X8	1	FF-4-13	1	418BUS	2	418BUS	2
651LH	1	667LH	1	340LH	1	340LH	1
651RH	1	667RH	1	340RH	1	340RH	1
422	1	422	1	2060-27	2	2060-27	2
417	2	417	2	570-60	2	570-80	2
USA-B	2	USA-B	2	R70PL60LH	1	R70PL80LH	1
2100-15	2	2100-15	2	R70PL60RH	1	R70PL80RH	1
1068M	6	1068M	10	FF-4X8	1	FF-4-13	1
1070B-3,5	6	1070B-3,5	10	651LH	1	667LH	1
1006B	8	1006B	8	651RH	1	667RH	1
1062B	38	1062B	46	USA-B	2	USA-B	2
1062M	46	1062M	54	2100-15	2	2100-15	2
1055BV	88	1055BV	136	431	2	431	2
2066-07	2	2066-07	2	447Z	2	447Z	2
	•	711A-75	2	418LH	1	418LH	1
				418RH	1	418RH	1
				1008B	2	1008B	2
				1068M	20	1068M	26
				1070B-3,5	18	1070B-3,5	24
				1006B	8	1006B	8
				1062B	26	1062B	30
				1062M	38	1062M	38
				1055BV	88	1055BV	136

1008RI

5

450HZ+10

2

1008RI

711A-75

2

2



		_		
RBC	WXW			
711A-38	2			
703ST	1			
325	2			
USA-MINI	2			
USA-B	2			
	BOX SIDE	HINGE	I	
RBOX	420R		RBO	(450R
420RZ+10RES	8		450RZ+10	8
450SZ	8		450SZ	8
RBOX	420R2		RBOX	450R2
420RZ+10RES	10		450RZ+10	10
450SZ	10		450SZ	10
	BOX INTE	RMEDIAT	E HINGE	
RBOX	(420H		RBO	(450H

RBOX450V				
450RZ+10REV	8			
450SZ	8			

RBOX450V2				
450RZ+10REV	10			
450SZ	10			

420HZ+10RES

5