

STAGEMAKER®



MASTER SM16

English

13.11.2008



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13.11.2008



Read the instructions supplied with the product before installation and commissioning.



Keep the instructions in a safe place for future reference.

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2 SAFETY INSTRUCTIONS



WARNING !

THE FOLLOWING INSTRUCTIONS FOR SAFE USE MUST BE FOLLOWED IN ORDER TO AVOID PERSONAL INJURY OR MATERIAL DAMAGE

Do not let an unqualified person use the hoist.

Make sure that the safety rules are followed (personal safety equipment, clearance of work areas, posting up of instructions to be followed in the area...).

Always be ready during operation to press the emergency stop button. This makes all functions inactive.

Never lift more than the maximum working load indicated on the hoist. Shocks or accidental collision of the load with objects can cause excess loads.

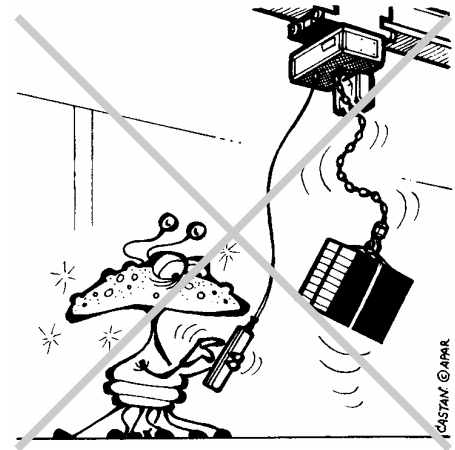
Before operation, check that the load is correctly fastened and installed on the hook. The hook safety latches should be closed correctly.

Do not drive the hook block into the bottom of the hoist. Also do not drive the chain out of the chain bag up to the slack fall stop. These may break the chain and allow the load to drop.

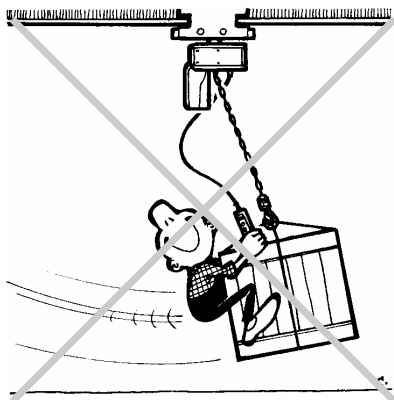
Never use the hoist to transport people.

Never twist the load chains (turning the hook block around...).

Never transport a load with people nearby. Do not pass the hook, with or without a load, above a person. Never go under the load.



Do not let an unqualified person use the hoist.



Never swing the load intentionally.

Never swing the load intentionally

Never remove the hook safety latches.

Never sling onto the hook jaw (as there is a risk of damage to the hook and of the load falling).

Always lift the load from the floor. Never add load to a lifted hook.

3 Instructions for proper operation and maintenance.

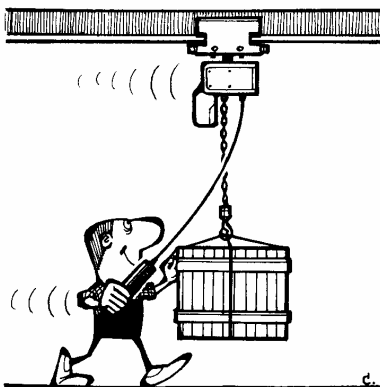


Follow the instructions below in order to keep your equipment in good condition and to keep your product safe

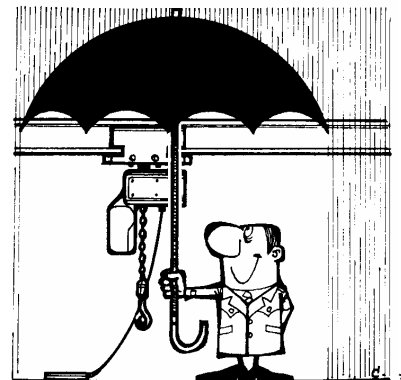
- Never move or lift the hoist by the electric cables.
- Do not set down the hoist without having an adapted support, to avoid damaging the components on the underside (electric cable, lifting chain, cable gland, chain bucket...).
- Never modify the hoist unless the constructor has studied and authorized the modification.
- Never modify the values and adjustments of the safety components, outside the limits provided for in the manual, or without the approval of the constructor.
- Never try to repair or modify the hoist without the authorization of the constructor or a trained maintenance agent.
- Never block, adjust or remove the limit switches or stops installed on the hoist without the authorization of the constructor or a trained maintenance agent.
- Never use the hoist to extract, loosen, or pull sideways.
- Do not touch the moving components.
- Do not operate the hoist if your physical condition does not allow it.
- Never use the hoist when in bad repair (wear, deformation...).
- Do not subject the hoist to brutal shocks.
- Never use the lifting chain as a sling
- Never use a hook other than in the vertical position.
- Never distract the operator while the hoist is being operated.



Make sure that the hoist is always clean.



If manually moving the hoist, push the load



Material used outdoors should be protected as well as possible against bad weather conditions.

- Never leave a suspended load hanging, if it is not necessary.
- Never use the hoist as an earth reference for welding.
- Do not use the hoist for a purpose or in an area for which it is not intended.
- If manually moving the hoist, push the load.
- Do not use the safety components (end buffers, emergency stop,...) as operation components.
- Do not use the controls needlessly (avoid inching - stop-start operation of the buttons). This can cause overheating and even damage to the hoist.

Do not use the hoist with a power supply that is different to the one recommended (under-voltage or over-voltage, absence of phase...).

Handle the hoist by its structure, or by the devices provided for this purpose, or in its original packing.

Do not expose the hoist to an aggressive atmosphere (temperature, acidity...).

Make sure that the hoist is always clean and protected from corrosion (lubrication...).

Use the material under normal working conditions (ambient temperature, atmosphere...). Material used outdoors should be protected as well as possible against bad weather conditions. The hoist should be covered to avoid water going inside the chain bucket. In outdoor use a drain hole must be made to the chain bucket's bottom.

Store the hoist in its normal operating position (without load) away from aggressive atmospheres (dust, humidity...).

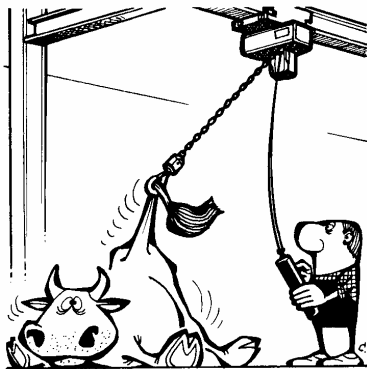
The hoist should be installed by a competent person

Make sure that the hoist attaching and supporting structure is rigid.

The hoist should be maintained regularly, following the instructions in this manual.

Keep the moving components including the chain clean and oiled as indicated in this manual. The components should only be replaced by original parts that are compatible with the type of hoist. Never use suspect spare parts or parts whose origin is not known.

Make sure that the limit stops are in place.



Never pull the load slantwise.

Never pull the load slantwise, maximum angle 3 degrees.

Make sure that the load is correctly balanced before moving it.

Avoid lifting using only one point of the load. Use adequate accessories (slings, lifting beam...). Pay attention to the center of gravity of the load to be moved.

The elements used to hang the load should be free in relation to the load to be moved (prefer a sling to a rigid beam).

When moving the load, make sure that it is sufficiently raised and clear of surrounding machines and other objects.

Make sure that the hoist is vertical to the load before hoisting.

Avoid swinging the load or the hook when using the travelling trolley or crane. In the case of several speeds, do the starting and braking operations at low speed.

The use of several machines to move a single load should be done by an experienced supervisor. All the necessary precautions

should be taken to carefully ensure the distribution of the loads and to avoid overloading a single machine. The machines should be carefully checked before such an operation.

Notify the necessary people after a dangerous operation or if the hoist seems problematic (abnormal noise, abnormal behaviour...).

4 Guarantee

Our electric chain hoists are guaranteed for two years from the date of delivery.

If for a reason outside the control of the vendor, the delivery is delayed, the time lag cannot exceed three months.

If the use (installation) of the hoist is delayed, the corresponding extension of the guarantee (a single extension limited to three months) must be requested, and written confirmation obtained.

The vendor undertakes to eliminate all operating errors originating from the concept, the execution, the components or the materials themselves.



The guarantee does not cover normal wear, nor the failures resulting from lack of regular and periodic maintenance. It does not cover damage due to a lack of supervision, to false operation or to a bad utilization of the hoists, particularly due to overload conditions, slantwise drawing, undervoltage or overvoltage or a connection error.

The guarantee does not apply when there is disassembly, modification or replacement of parts (mechanical or electrical) by an unauthorized party or without our prior agreement.

The guarantee only applies for original, factory-installed spare parts.

For the duration of the guarantee, the vendor undertakes to replace or repair, free of charge, the parts that are acknowledged to be damaged following examination by a qualified and authorized technical service.

The guarantee excludes any other services or indemnities. The repairs covered by the guarantee are carried out, as a rule, in the workshops of the vendor or authorized agent. When servicing of the equipment is done outside these workshops, the labor costs for disassembly or assembly of these parts are borne by the vendor when these are done exclusively by his staff or by an authorized agent. The replaced parts become the property of the vendor and must be returned to the vendor at his expense.

For components of a relative particular importance that are not manufactured by the vendor and which carry the brand name of specialized manufacturers, the manufacturer's guarantee (which can vary according to the manufacturer) is applicable.



The guarantee does not apply for expendable parts defined by the manufacturer :

- Lifting chain
- Chain guide
- Rubber buffer
- Sprockets
- Chain bucket
- Hooks
- Friction and brake discs
- Control box cable

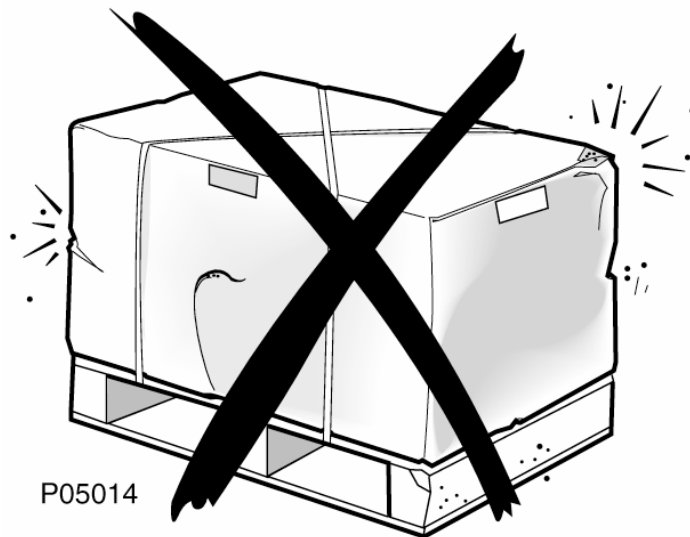
5 Acceptance of the material

Visually inspect the packaging to ensure that it is intact.

If not, notify it as required.

Check that the hoist corresponds to your order.

For transport reasons the chain bucket is delivered disassembled.



6 Description - technical characteristics

6.1 Types of hoist

Type	Load kg	Speed m / min. 50 Hz	Speed ft / mn 60 Hz	Power mot. / kW	Falls	Chain d/t
SM16 1608 m1	1600	8	32	3,5 x 0,86	1	9 x 27
SM20 2008 m1	2000	8	32	3,5 x 0,86	1	11,3 x 31
SM25 2506 m1	2500	6,3	25	3,5 x 0,86	1	11,3 x 31
SM25 5003 m1	5000	3,25	12,5	3,5 x 0,86	2	11,3 x 31

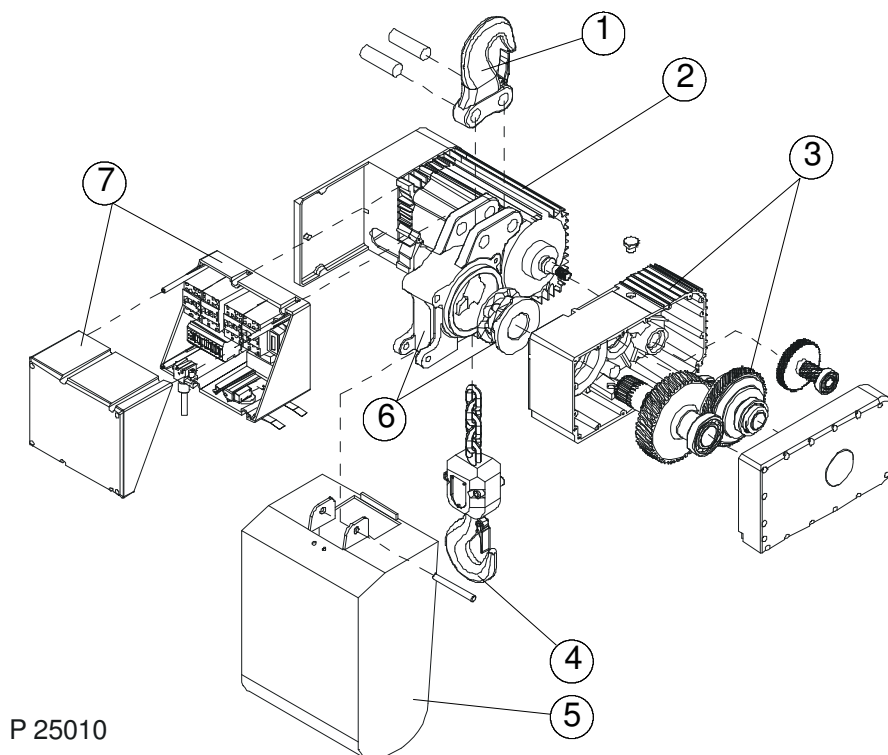


The slipping clutch is factory adjusted at a value of 130% (+0 + 10%) of a nominal load. Then for the maintenance operations, the setting value will be 125% of the nominal load. This difference is due to the running in of the friction lining.



EN 14492-2 standard imposes a setting value included between 110 % and 160% of the nominal load.

6.2 Main sub-assemblies



P 25010

- | | |
|--|-------------------------------|
| 1- Suspension hook | 5- Chain bucket |
| 2- Motor | 6- Chain guide/chain sprocket |
| 3- Gear box / slipping clutch assembly | 7- Electric box |
| 4- Hook block | |



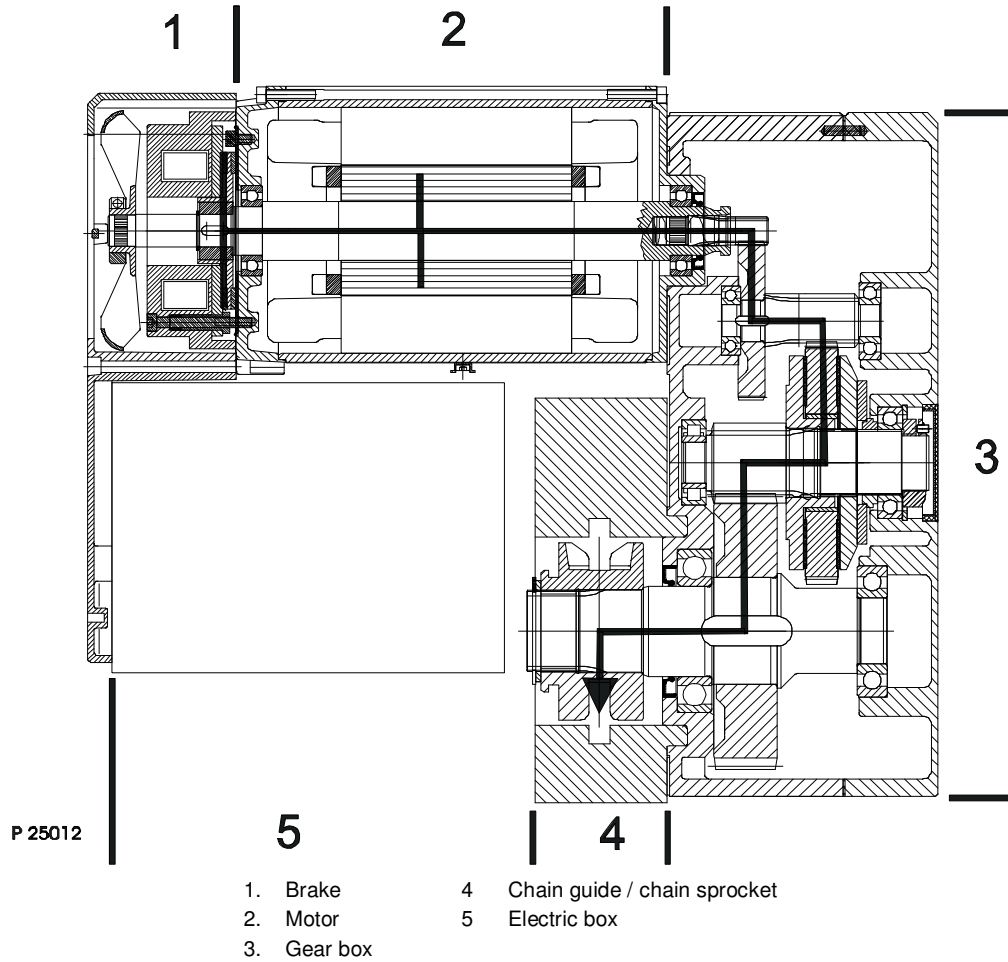
The hoist which you have just purchased should only be used with a maximum load equal to the nominal load (refer to the table above).



The length of its useful service life depends on the demands placed on it, the average operating time, the number of start-ups and its maintenance.

6.3 Operation of the hoist

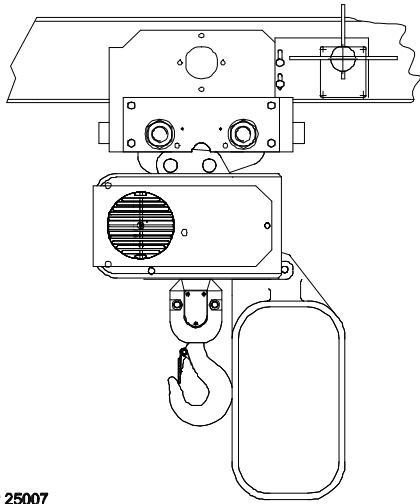
Kinematic chain



6.4 Hoist dimensions and weight

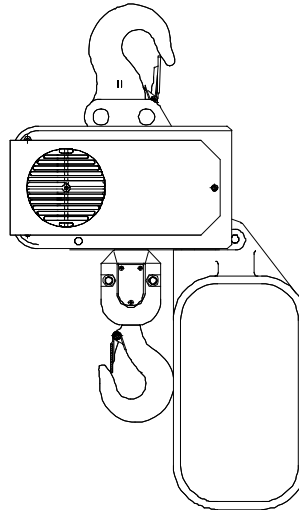
Refer to dimensional drawings

6.5 Attachment of the hoist



P 25007

Suspension using motorized



Suspension hook.

6.6 Environmental data

Ambient temperature : -20°C to +40°C

Protection class : IP55 as standard

Side pulling angle : 3 degrees maximum

Impact on the environment :

Sound level : 73 decibels

7 Double brake (Option)

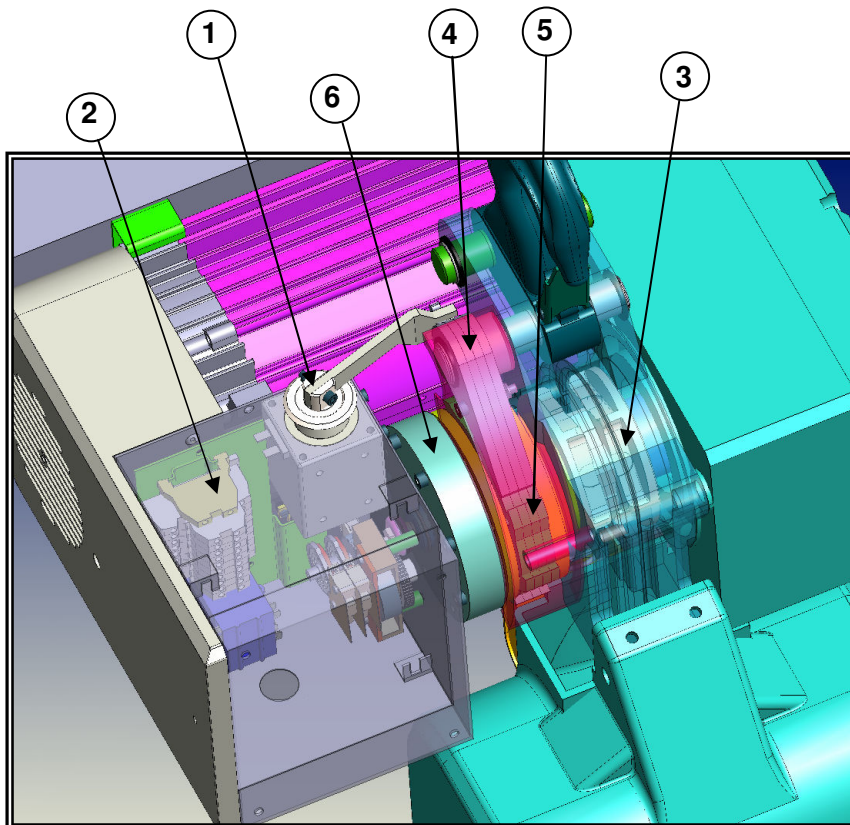
7.1 Presentation

Addition of a second brake on the output shaft of the gear box. directly in connection with the lifting sprocket. It is a safety brake, allowing to stop the load after a failure on the top of the output shaft of the gear box.

7.2 Principle of operation

When a movement to lift up is required, the magnet (1), in the box (2) on the lifting sprocket side (3), returns, starting up a switch allowing the movement.

- When moving, it comes to lift the keeping finger (4) and so, releases the brake system.
- When loosening up button, motor is no more supplied, main brake stops the load and the keeping finger falls down on gear wheel within 1 second after loosening of the button.
- When there is a failure on the main brake, on a gear pinion, on the slipping clutch or any other component making the load falling down, after released, keeping finger comes into the ratchet wheel (5) to brake and stop the load fall with the friction disks (6).



7.3 Procedure to follow when safety brake is activated

- Take down the hung load with an other lifting machine.
- Do a lift up movement to release the keeping finger of the gear wheel.
- The hoist should be given for an expertise by a qualified mechanic to know the real cause of the safety brake activation.
- Replace the safety brake assembly if it presents any distortion.
- The working life of the safety brake is limited to 50 operations.

7.4 Braking torque adjustment

The adjustment of the braking torque is done with 8 screws (head H M6), tightening torque : 6Nm.

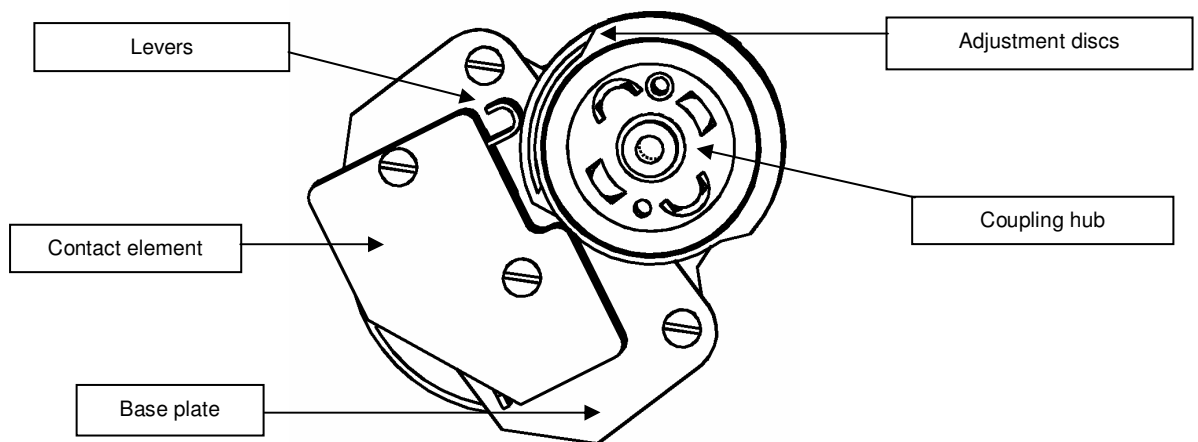
7.5 Troubleshootings

Problems	Causes	Solutions
The hoist doesn't work when it goes down	- Safety brake is activated	- See § «Procedure to follow when safety brake is activated».
	- Magnet switch is not operated	- Check the wiring - Check the release
	- The link between the brackets and the magnet is working loose	- Tighten the link screws

7.6 Description of Gear limit switch

It is situated into the electric panel of the hoist
Or into the subsidiary panel
Or behind the brake cover
and is adjusted in our works.

This device prevents the operation of torque limiter as upper and lower gear limit switch.
Less solicited, this device is subject to a reduced wear and less adjustment.



To modify this setting or to change it (after load chain replacement for example), proceed as follow :

1. For upper limit switch : Move the external adjustment disc
2. For lower limit switch : Move the internal adjustment disc
3. Check the rotation direction of the disc by operating the hoist
4. Each disc includes two movable sectors independent from the other, one red, one grey

Move each of the two, red and grey, discs in the desired direction, keeping a gap of 10 mm between the two discs.(1). Control the limit switch operates in the good position. If not, readjust.

If your hoist is fitted with a chain bucket, you can adjust the upper limit switch so that the load does not touch the bucket.

- (1) When lever is down, the hoist can move.
When lever is up, the hoist is stopped.

8 Installation of hoist

The service life of the hoist depends on the way it is installed.

The instructions in this manual must be followed carefully for the installation, use and maintenance of the hoist.

Any use contrary to our instructions can be dangerous. In this case, the manufacturer will not accept any responsibility.

Do not use the hoist until this manual has been fully read and assimilated.

Always keep this manual near the hoist, available to the operator and the person in charge of maintenance.

Make sure that the safety rules are followed (harness, clearance of work areas, posting up of instructions to be followed in the area...).

Carry out:

The electrical connection (refer to : Electrical connection).

Fitting of the chain bucket (refer to : Chain bucket).

Check that the suspension hook is correctly positioned, depending on whether for 1 or 2 falls (refer to : suspension hook).

Check that the tightening torques of the hook blocks, locking plates and chain guide conform to the torques indicated in this manual (refer to : Screw tightening torques).

Check that the chain is not twisted.

Check that the slack fall stop is correctly attached in the chain bucket and that the fixed point and the 2-fall chain are correctly held.

Measure the dimension of the opening of the suspension hooks and the hook block. Note it for a follow-up.



Don't forget to fix the safety chain on the chain box

Once these checks have been completed, proceed as follows (be ready to press the emergency stop button at all times).

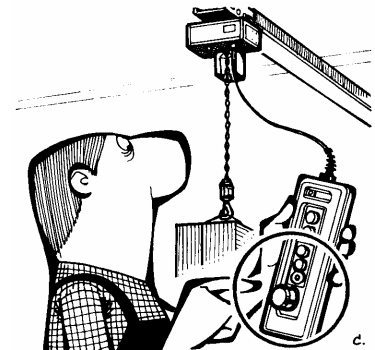
Oil and start to run in the chain by a few movements without load.

Check, when not under load, that the movement of the hook corresponds to the direction of the arrows on the control box. If not, invert 2 supply phases.

Check the operation of the brake: lift up a nominal load and then lower it.

Check the operation of the limit switch.

Carry out dynamic tests with +10% of the nominal load and static tests with +25% of the nominal load on your installation equipped with our hoist.



If the hoist has been stored or unused for a long period of time, the setting clutch should be checked.

8.1 Electricity



Before any operation on the electric box, check that the hoist supply is disconnected.



An isolator switch should be installed at a maximum of 6 meters from the hoist.

8.1.1 Electrical connection

The customer must supply the power supply cable, the fuses and the main isolator switch (refer to the wiring diagram).

Check that the mains system is correct for the hoist.

Check that the voltage does not vary by more than $\pm 5\%$ from the nominal value.

Neutralize the electric sources.

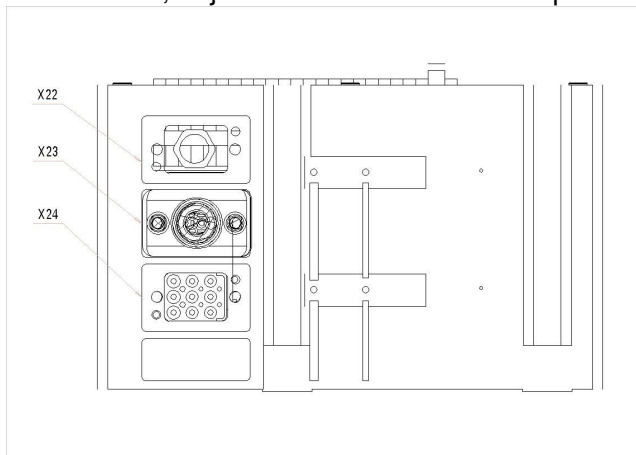
Make sure that the main hoist electric power switch is off.

Do not use binding posts (luster terminals, etc.) to connect the power supply cable to the hoist.

Do not use rigid cable or cable with a section different to that indicated below to supply the hoist.

Never shunt the isolators, the power switches or the limitation or prevention equipment.

Never block, adjust or remove the limit stops or switches to go higher or lower than these allow.



X22 : Power supply

X23 : Control box connection

X24 : Trolley connection



If power supply is through plug in connection option, then connect the power supply cable to the female plug X22, plug it and tighten the fixing screws.

Minimum cores section:

(see electrical drawing)



Do not change the travel direction labels in the control box or in the hoist internal wiring.

8.2 Lifting assembly



Only a genuine, manufacturer's chain may be used.



Never use the lifting chain as a sling.



Never twist the lifting chain.



Do not bundle the chain into the chain bucket.



Always keep the chain clean and oiled and check that it is in good condition every day.



In case of use outside, the chain bucket must be pierced.

8.2.1 Slack fall stop (in the chain bucket)



The slack fall stop is a safety component, not a functional one.



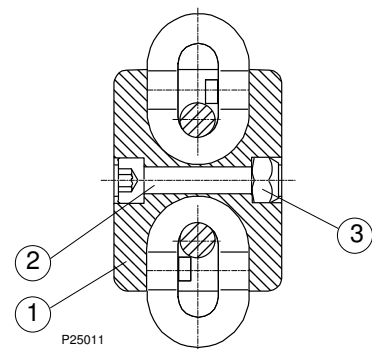
A correct length of chain is required to avoid using it

Removal :

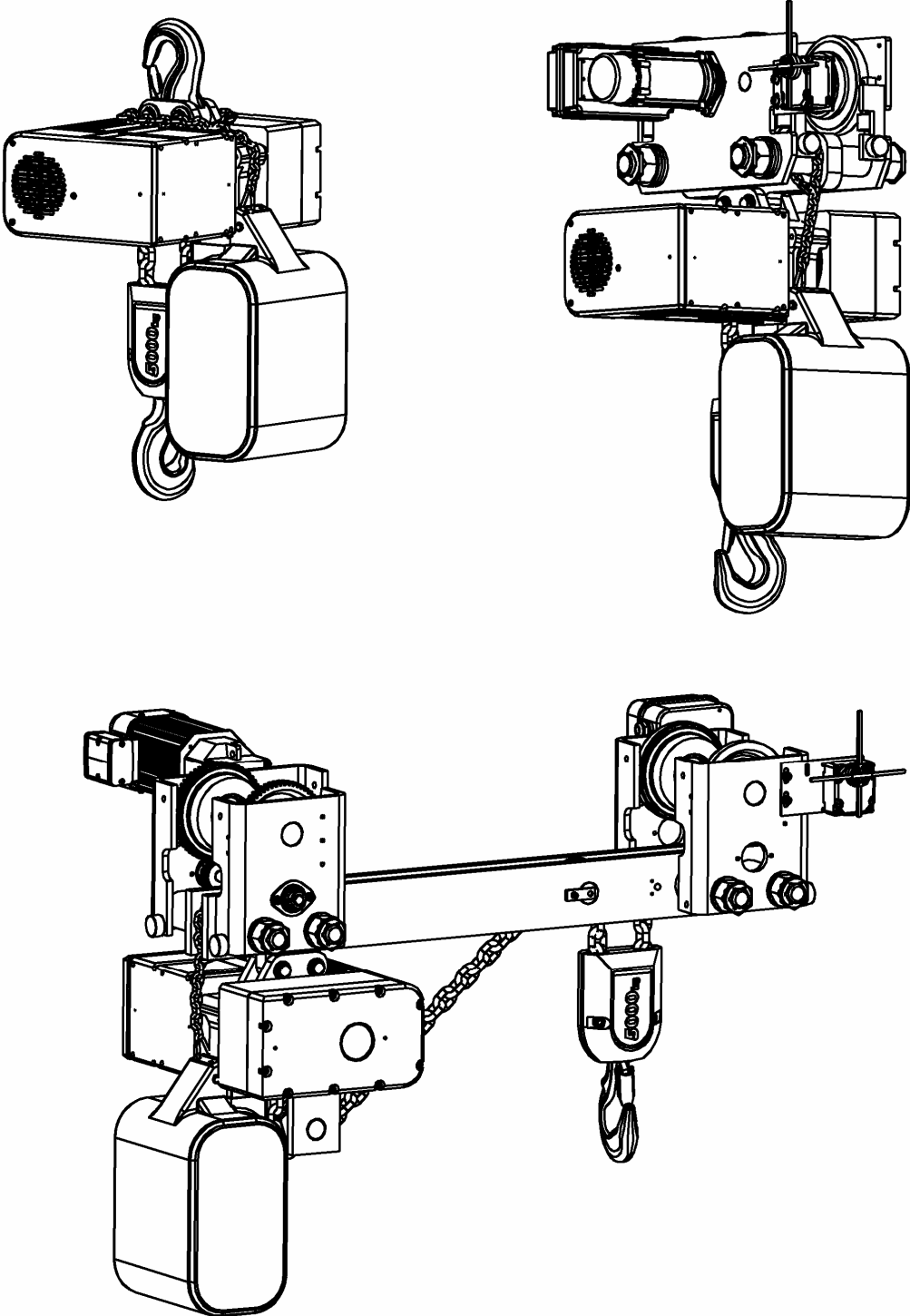
- 1. Remove the nut.(3)
- 2. Remove the screw.(2)
- 3. Remove the two halves of the stop.(1)

Replacement :

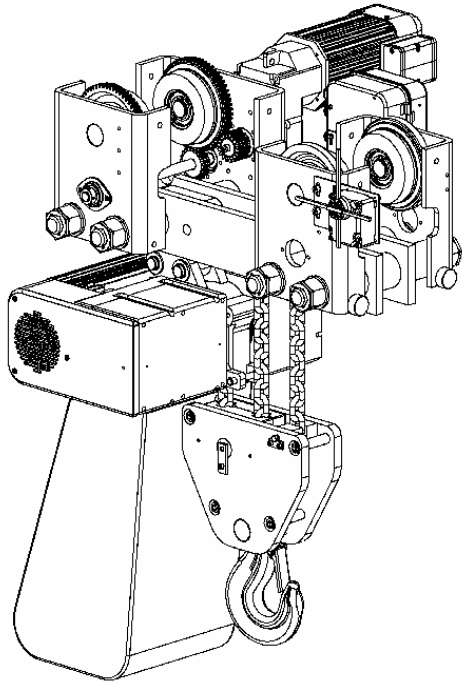
- Check that there is at least 150 mm of chain under the slack fall stop.
- Position the two halves of the stop around the chain
- Insert the screw.
- Put the nut.



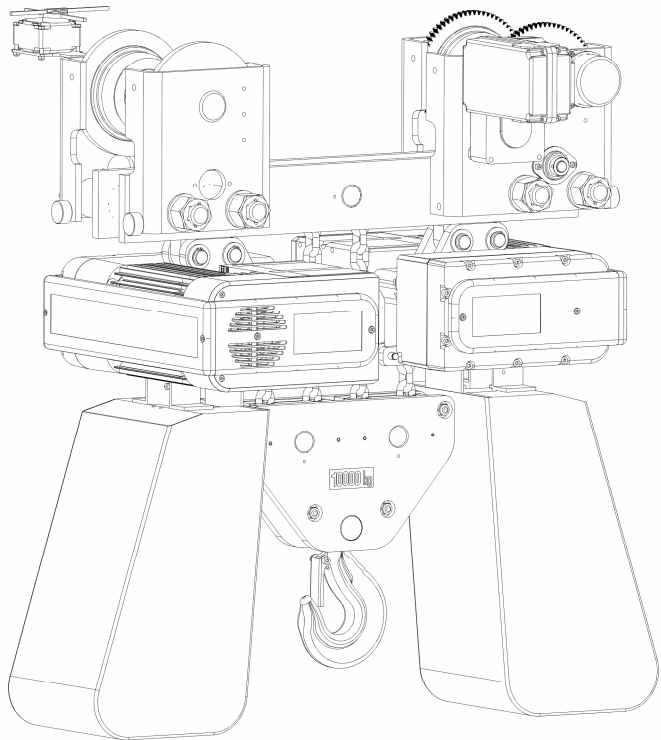
8.2.2 Chain bucket



C20-C25 3 falls – C25 4 falls



3 falls



4 falls

9 Maintenance – Replacement of hoist

9.1 Maintenance table

Check	Interval *	Qualification of the customer's personnel
Brake operation	Daily	Operator
Visual inspection of the chain	Daily	Operator
Suspension of the control box by the steel wire	Daily	Operator
Cleanness and lubrication of the chain	Monthly	Operator
Clutch operation	Monthly	Operator
End limit switches operation	Every 3 months	Operator
Measuring of the wear on the chain	Every 3 months	Operator
Measuring of the wear on the hooks	Annually	Qualified mechanic
Visual checking of hook and hook bottle	Every 3 months	Operator
Tightening of the hook block screws	Every 3 months	Operator
Checking of the tightness of the brake screws	Annually	Qualified mechanic
Lubrication of the idler sprocket	Annually	Operator
Checking of the screw tightening torques and checking for signs of corrosion	Annually	Qualified mechanic
Adjustment of the clutch and brake	Annually	Qualified mechanic
Lubrication of the gears	Lubricated for life	



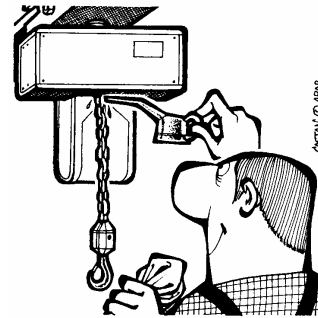
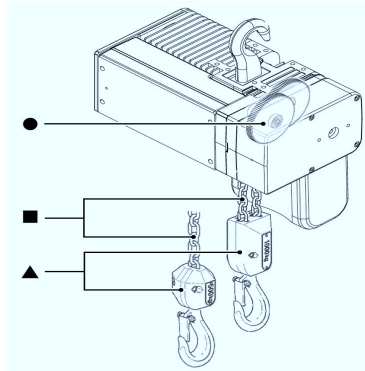
* These intervals should be shortened depending on national regulations.



CAUTION ! These intervals should be shortened if the hoist is used a lot, if it is used with maximum loads or in difficult ambient conditions.

9.2 Lubricants

Lubrication point	Specifications	Possible brands	Quantity
Chain ■	Oil or liquid grease	Chain lubricating fluid (Ceplattyn or similar)	As required
Idler sprocket ▲ slide bearing + bearing	Grease (without MoS2) KP 2 (DIN 51 502) Soap-based lithium Approx. drip point + 260 °C Worked penetration 265 - 295° Operating temperature - 20 °C à + 130 °C	ARAL : Aralub FK 2 BP : BP Energrease LS - EP 2 ESSO : Unirex N2 MOBIL : Mobilgrease HP SHELL : Shell Alvanio EP Grease 2 DEA : Paragon EP 2 FUCHS : Renolit Duraplex EP 2	As required
Gears ●	Oil EP220	MOBIL : L-CKC220 BP : Energol XP220 ESSO : Spartan EP 150/220 NESTE : Vaihde 150 EP SHELL : Omala 150/220	1,6 liter



Oil the chain regularly

9.3 Brake / Clutch Assembly

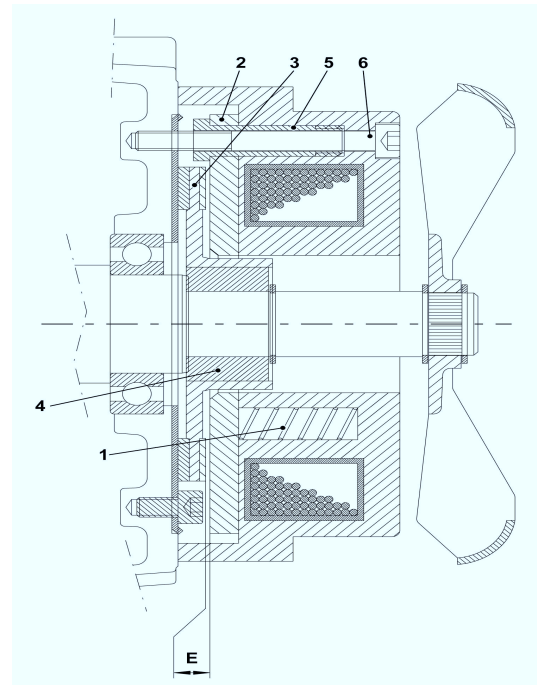
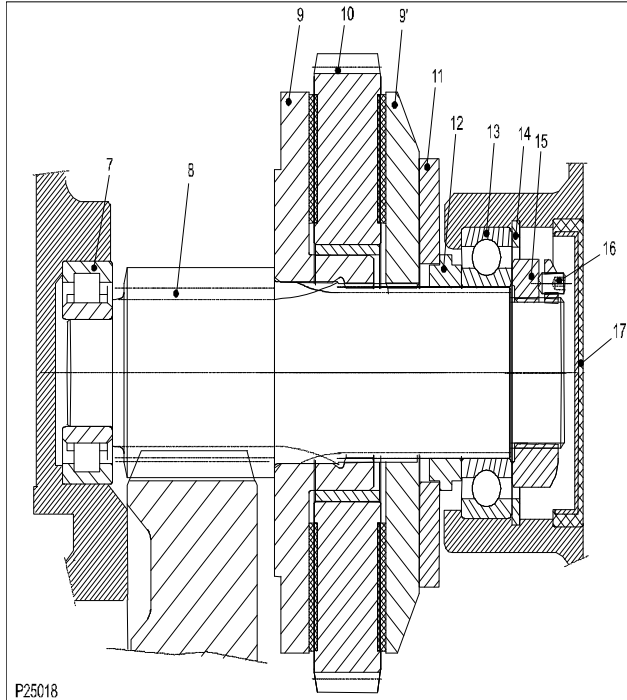
9.3.1 Clutch

Description :

The direct-action lifting power limiting device is a friction torque clutch which is activated at a maximum working load X by the activation coefficient. This coefficient is $1.25 + 5\%$. At this point, the hoist must be calibrated again.



Remind : The value of the factory setting is $(1,4 + 10\%) \times$ the nominal load because friction lining are not running in yet.



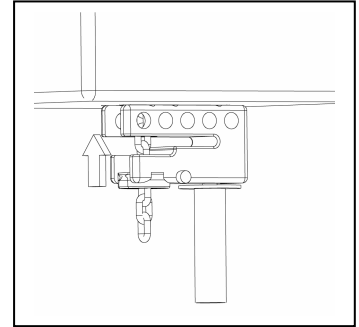
Operation :

- The clutch gear (10) which slides on the shaft (8) is held between two friction disks (9, 9') which are integral with the shaft through the splines.
- The gear (10) is kept under pressure by means of the spring washer(s) (11).
- The pressure exerted by the spring washer(s) is greater or lesser depending on the tightness of the nut (15), which causes the shaft (8) to slide.

- In order to unlock the nut (15), you have to untighten the screw (16).



To adjust the slipping clutch, it is recommended to use the chain force measuring device (→ 2000 kg). Nevertheless, it is possible to use loads.



9.3.2 Brake

Description :

The brake assembly is connected to the hoist by means of :

- 3 socket head screws (6)
- 4 Splined hub
- 1 Spring
- 5 Adjusting rod
- 2 Armature
- 6 Screw
- 3 Friction disk

Operation :

When the coil is energized, during lifting or lowering, it creates a magnetic force which acts against the pressure of the springs (1). The armature (2) presses against the inductor and the value of the air gap **E** is zero.

There is therefore a play between the friction surfaces of the disk (3) and the armatures (2). The hub (4) and the disk (3) therefore rotate freely.



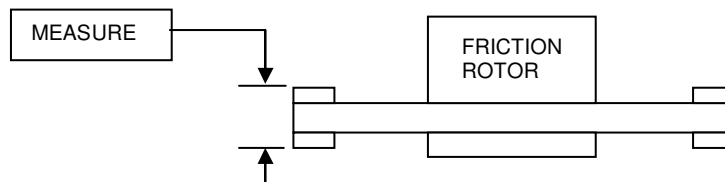
Note : The air gap of the brakes can't be adjusted. If the brake airgap is measured above 0,5 mm, then the linings must be replaced.



WARNING ! : The voltage of the brake's coil must be adapted to the main voltages.

9.4 Thickness of brake lining

HOISTS	THICKNESS AS NEW	REPLACE WHEN
C16	10,3 mm	9,3 mm
C20	10,3 mm	9,3 mm
C25	10,3 mm	9,3 mm



9.5 Chain

9.5.1 Removal of the chain

1-fall chain :

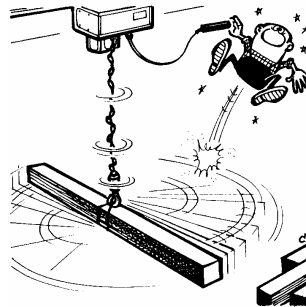
- Remove the load from the hook.
- Disassemble the hook block.
- Lower the chain into the chain bucket.
- Remove the chain bucket and unscrew and remove the lower chain guide.

2-fall chain :

- Raise the hook block to about 30 cm from the hoist body.
- Remove the chain bucket.
- Carefully remove the lower chain guide.
- Disassemble the fixed point of the chain.
- Remove the 2-fall hook bottle, without disassembling it, letting the chain run through it.
- Let the rest of the chain slide through the chain sprocket.

9.5.2 Replacement of the chain

- Take an electric wire of about 50 cm in length.
- Insert it into the chain guide and push until it comes out the other side of the guide.
- Hook the chain onto the end of the electric wire on the load side.
- Pull on the wire to bring the chain into contact with the chain wheel (check its positioning at the same time: the welds of the vertical links should be to the opposite side of the chain wheel).
- Press the lift control button to run the motor.
- Take care not twist the chain.
- Put the chain bucket back in place.



Never twist the lifting chains (Turning around of the hook block)

9.5.3 Measuring the wear on the chain

This should be done by measuring the dimensions, at several points of the chain, of one link (d) and (t), and over 11 links (11 t).

Maximum wear allowed :

	1 & 2 falls	1 – 2 - 3 & 4 falls
Type of chain :	9.0x27.0	11.3x31.0
Minimum link thickness allowed (d):	8.1 mm	10.1 mm
Maximum pitch allowed (t) :	28.3 mm	32.5 mm
Maximum length allowed (11 t) :	347.5 mm	303 mm



The chain must be lubricated when the hoist is installed and kept clean and lubricated when it is used.



If these limits are exceeded, **the chain must be replaced immediately**. In this case, the wear on the guide chain and chain sprocket should also be checked and they should be replaced if necessary.

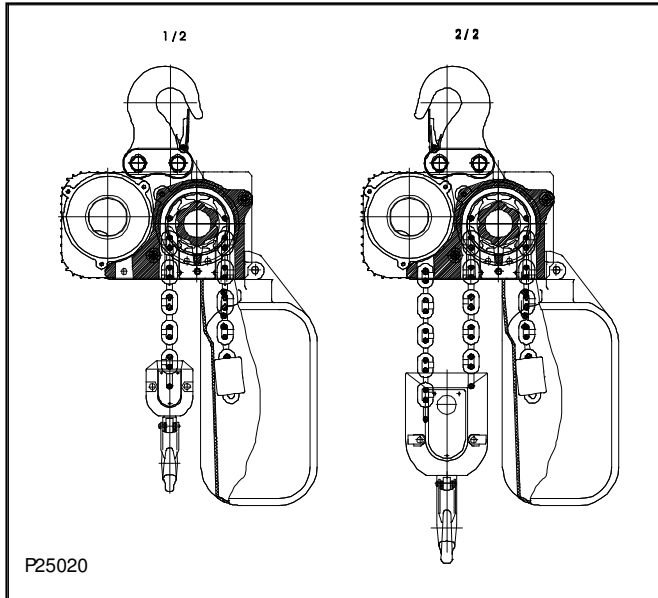


If a single link is defective in any way whatsoever, **the chain must be replaced**.



CAUTION ! A usual and systematic stop and start at the same place cause the wear of 2 or 3 links of chain, which stop in the chain sprocket.

9.6 Suspension hook



Removal

- Remove the retaining ring and the washer on one side.
- Remove the two pins.
- Take the hook out.

Replacement

- Put the hook into its housing.
- Place the two pins inside the hook without forgetting to put the washers before the retaining rings.
- Fit the washers and the retaining rings.



The hook should be set depending on 1/1 and 2/1 falls.

9.6.1 Measurement of the wear on the hooks

The wear on the lifting hooks (dimension **a2**) see below table) should be checked regularly.

Class :	05T	08T	1T	16T
a2 maxi allowed:	39	43	46	51

If the lifting hook reach the dimension a2 maxi, the hook must be changed.

The wear on the suspension hook should be controlled alike the lifting hook, the dimension of 47 mm should not be greater than 15%. (54 mm)

9.7 Spare parts replacement table

Further to a long storage time or during annual service, check the function and the setting of the safety devices (brake, end limit switch, clutch...). If any component is disformed, or if abnormal wear is noticed, the pieces must be changed.



CAUTION ! Disconnect the power supply before replacing any parts.

Spare part	To be replaced by	Qualification of the personnel
Suspension and chain guide.	Authorized manufacturer personnel	Qualified mechanic
Output shaft	Authorized manufacturer personnel	Qualified mechanic
PG cable gland	Authorized manufacturer personnel	Qualified electrician
Motor	Authorized manufacturer personnel	Qualified mechanic
Clutch	Authorized manufacturer personnel	Qualified mechanic
Gearing (1st/2nd stage)	Authorized manufacturer personnel	Qualified mechanic
Brake cap/endcap sealing	Customer	Qualified mechanic
Other sealings and O-rings	Authorized manufacturer personnel	Qualified mechanic
Brake-clutch	Authorized manufacturer personnel	Qualified electrician
Brake endcap	Customer	Qualified mechanic
Chain ejector	Customer	Qualified mechanic
Electric box	Authorized manufacturer personnel	Qualified electrician
PC-board	Authorized manufacturer personnel	Qualified electrician
Plugs	Customer	Qualified electrician
Chain	Customer	Qualified mechanic
Chain bucket	Customer	Qualified mechanic
Slack fall stop	Customer	Qualified mechanic
Suspension hook	Customer	Qualified mechanic
Hook block (1/1; 2/1)	Customer	Qualified mechanic
Control box	Customer	Qualified electrician

Once a part has been replaced, check the operation of the hoist (refer to : Installation).

9.8 Screw tightening torques

	M5	M6	M8	M10	M12	Plastic*
Standard screws	6	10	24	48	83	1
Self-tapping screws	5	8	20	40	72	1

(*)Screws for fixing plastics parts

9.9 Discarding the hoist

Once the hoist has been used for the FEM class duration, all of the components must be checked by an authorized agent or by the manufacturer. The hoist should no longer be used, unless agreement is obtained from the authorized agent or the manufacturer.



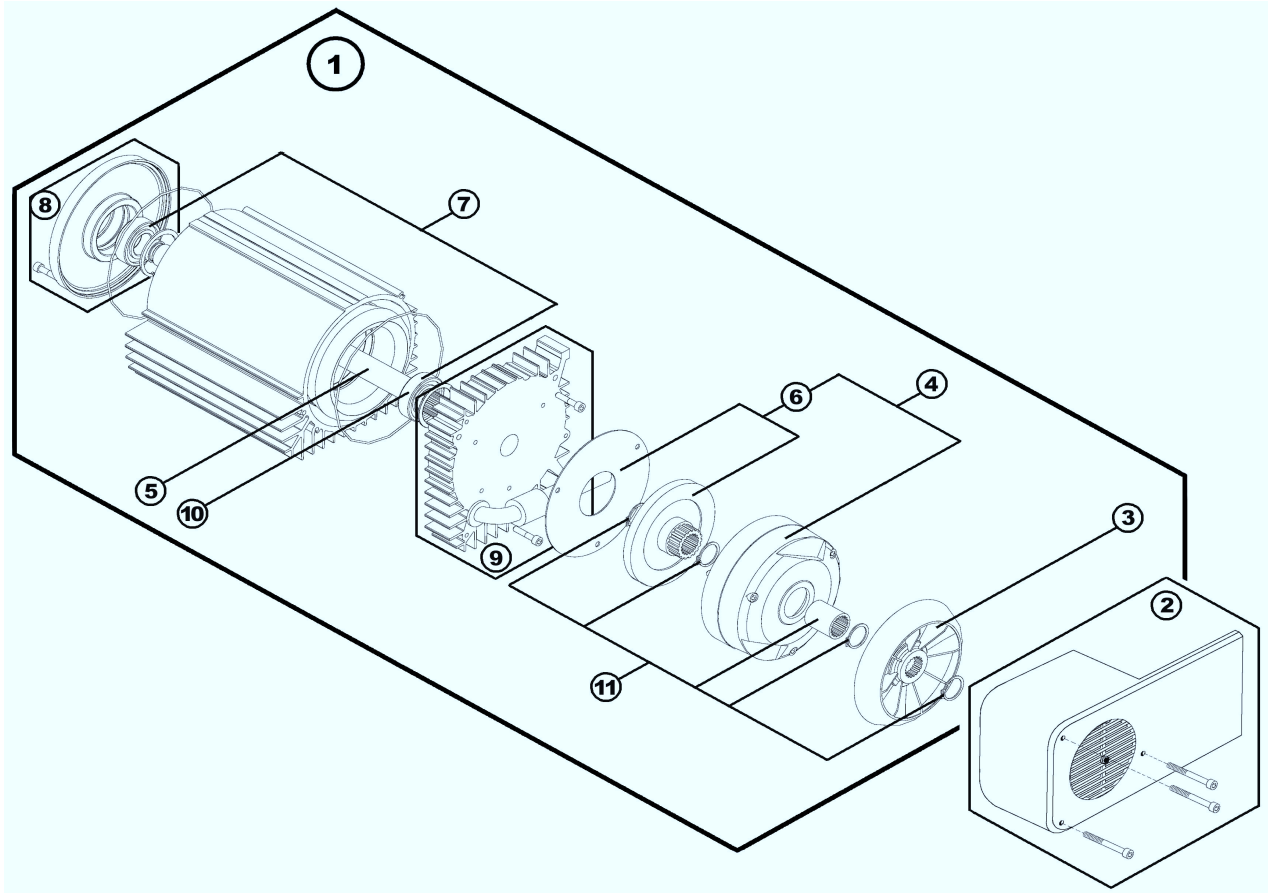
Remove all greases and oils from the hoist before discarding it.

10– Troubleshooting (3 phases)

Problem	Cause	Solution
The chain hoist does not work	• The emergency stop button is activated	• Desactivate it
	• Triggered fuse	• Replace the fuse
	• Temperature control (<i>optional</i>) activated	• Allow to cool down
	• Contactor terminal screws loose	• Tighten them
	• Main switch is off	• Turn it on
Impossible to lift the load	• Overload	• Reduce the load
	• Slipping clutch worn or incorrectly adjusted	• Adjust or replace it
Braking path of more than 10 cm	• Brake lining worn	• Adjust the brake and replace the brake components if necessary
The travel direction does not correspond to that indicated on the control box	• The power supply is incorrectly connected	• Change two phases of the power supply
Abnormal noises while the load is being moved	• The chain components are not lubricated	• Lubricate the components
	• Chain is worn	• Replace it
	• Sprocket or chain guide is worn	• Replace the sprocket or chain guide
	• Idler sprocket is worn	• Replace it
	• A supply phase is missing	• Check the connection of the 3 phases

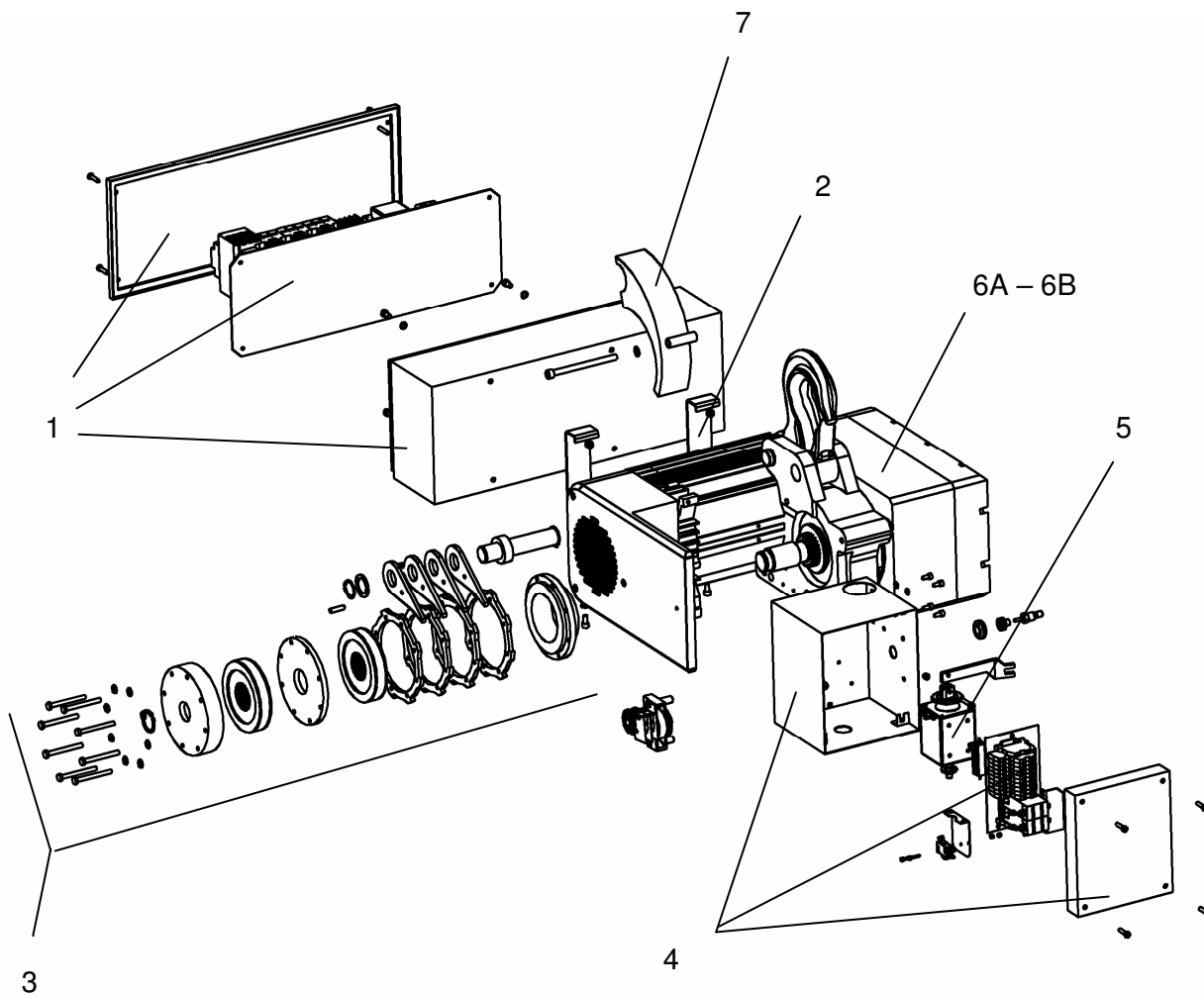
11- Illustrated catalogue hoist (16&20 / D&E)

11.1 Motor



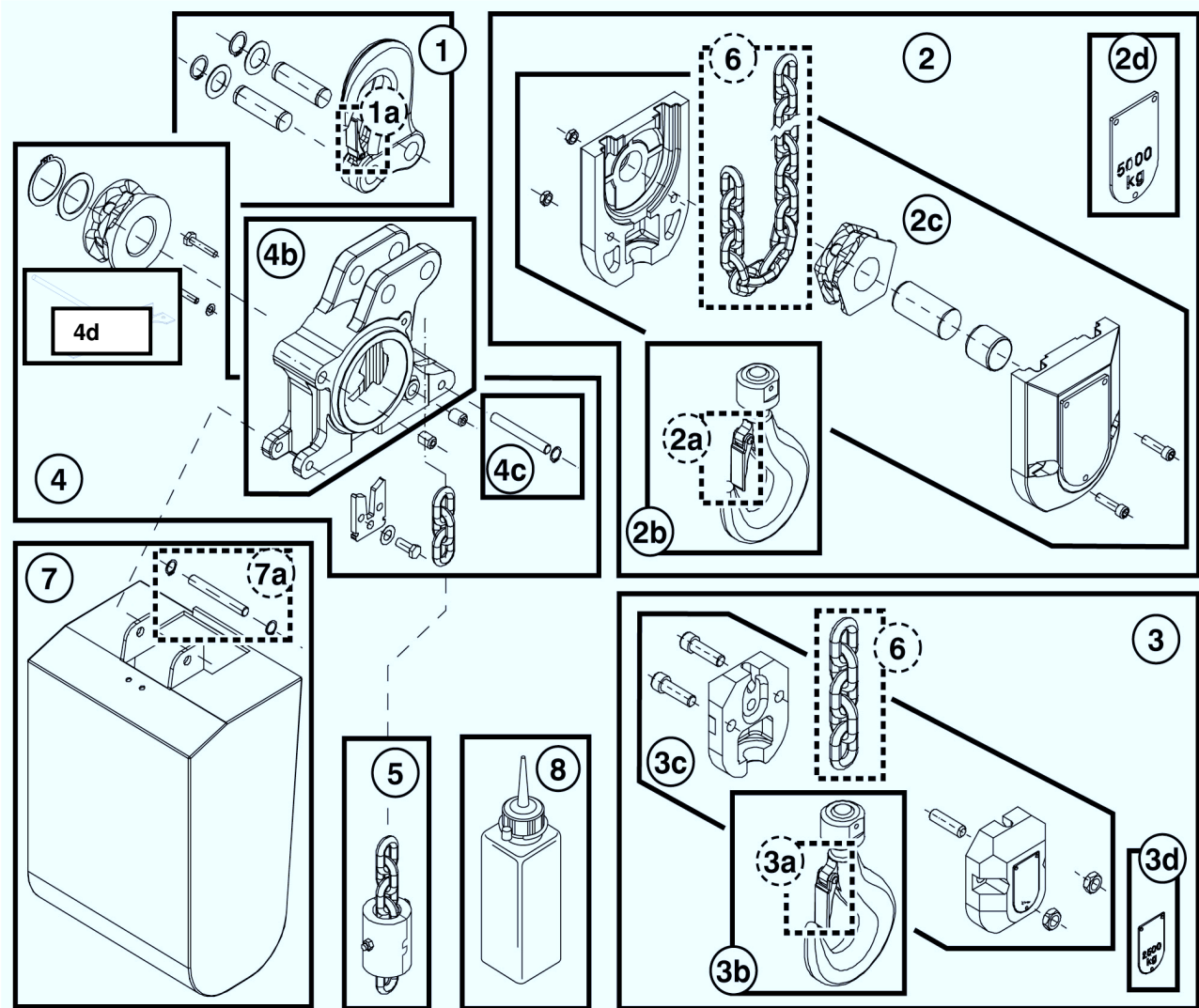
Item	Qty.	Code	Description
1	1	2245031	Complete motor 400V/50Hz-460V/60Hz
1	1	2245030	Complete motor 230V/50Hz
1	1	2245034	Complete motor 400V/60Hz
1	1	2245033	Complete motor 230V/60Hz
1	1	2245032	Complete motor 500V/50Hz-575V/60Hz
2	1	2279901	Brake end cap with screws
3	1	2275040	Fan set
4	1	2275045	Brake assembly - 100V type
4	1	2275042	Brake assembly - 180V type
4	1	2275043	Brake assembly - 240V type
4	1	2275044	Brake assembly - 290V type
5	1	2275051	Rotor assembly 2 speed
5	1	2275052	Rotor assembly inverter
6	1	2275041	Brake disc assembly for 2 speed and inverter motor
7	1	2275049	Bearing set 2 speed motor
7	1	2275050	Bearing set inverter motor
8	1	2275046	Gearbox side end flange
9	1	2275047	Brake side end flange
10	1	2275048	Sensor bearing (inverter)
11	1	2275053	Circlip and splined tube assembly

11.2 Double brake (Option) C16 / C20 / C25



Pos.	Description	Qty	Reference
1	Complete box for low voltage	1	52336943
2	Support box assy for low voltage	1	52338342
3	Brake assembly	1	52337007
4	Complete magnet box	1	52336944
5	Magnet only	1	52335461
6-A	Gear C25 GE25-4 6.3/1.6 m/min	1	52337909
6-B	Gear C16 GE25-1 8/2 m/min		52337923
7	Casing	1	52335439

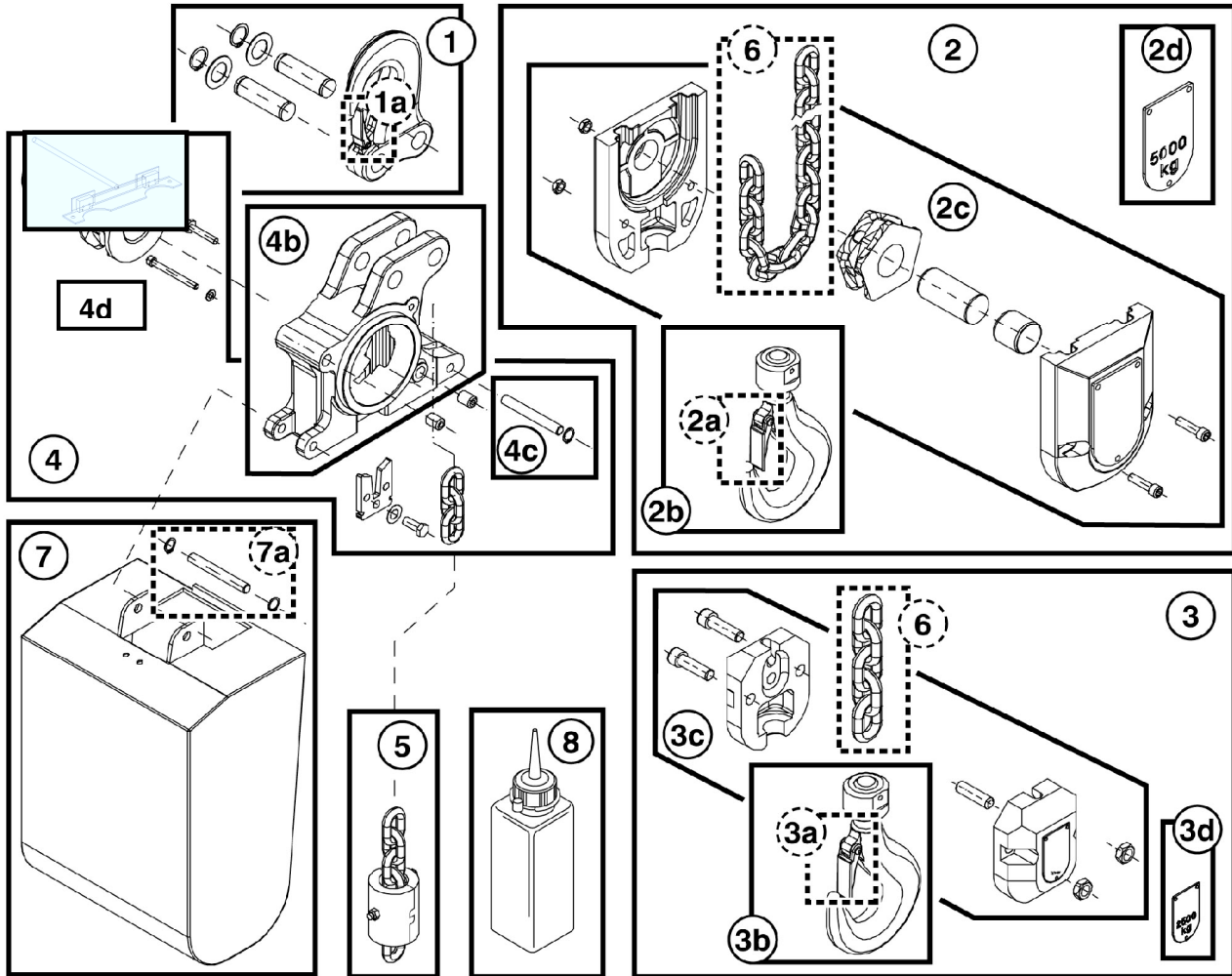
11.3 Lifting assembly (16 / D)



Item	Qty	Code	Description
1	1	2279955	Suspension hook assembly perp
1a	1	2279914	Safety latch - Steel plate
1bis	1	2279920	Perpendicular suspension bracket assembly for TDV 3000Kg trolley type
1bis	1	2279921	Perpendicular suspension bracket assembly for TDV 5000Kg trolley type
2	1	2269915	2-falls hook block assembly
2b	1	2267000	2-falls hook block
2c	1	2269916	Set of 2 half-casings with axle, return sprocket, and screws
2d	1	2269902	Load plates - 2 falls type 2000 kg (set of 10)
2d	1	2269920	Load plates - 2 falls type 2500 kg (set of 10)
2d	1	2269903	Load plates - 2 falls type 3200 kg (set of 10)
3	1	2269900	1-fall hook block assembly
3a	1	001513	Safety latch - Steel wire type
3b	1	2242021	1-fall hook block
3c	1	2269917	Set of 2 half-casings with axle, return sprocket, and screws
3d	1	2269909	Load plates - 1 fall type 1000 kg (set of 10)
3d	1	2269901	Load plates - 1 fall type 1600 kg (set of 10)
4	1	2269913	Chain sprocket assembly + ejector

4b	1	2265502	Chain guide
4c	1	2269914	Axle for fixed point assembly
4d	1	52332038	Set of end limit switches
5	1	2269942	Slack fall stop assembly
6	-	2263500	Load chain – 9 x 27 – Galvanized
7	1	2279930	Chain bucket – 16 m chain length capacity
7	1	2279931	Chain bucket – 30 m chain length capacity
7	1	2279932	Chain bucket – 50 m chain length capacity
7a	1	2279912	Axle set for chain bucket
8	1	9995008	Oil can
-	1	2279550	Rain cover

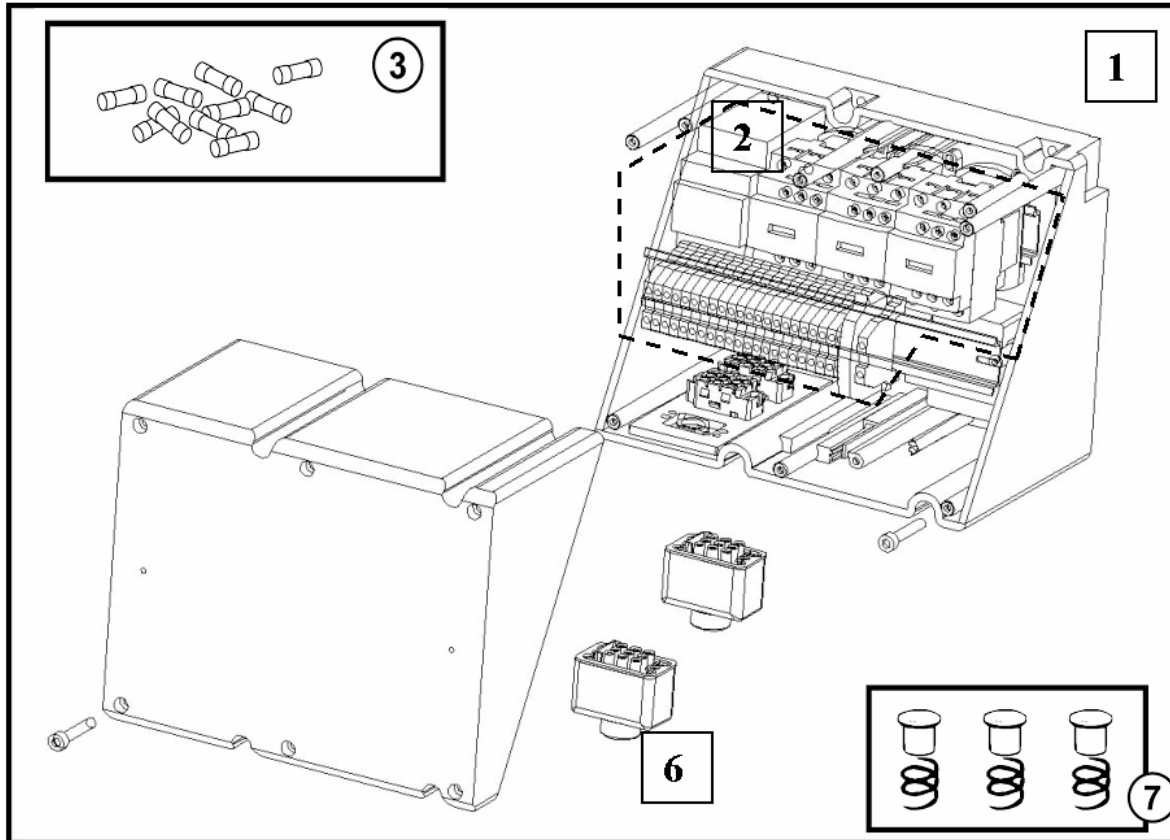
11.4 Lifting assembly (20&25 / E&F)



Item	Qty	Code	Description
1	1	2279955	Suspension hook assembly perp.
1bis	1	2279920	Perpendicular suspension bracket assembly for TDV 3000Kg trolley type
1bis	1	2279921	Perpendicular suspension bracket assembly for TDV 5000Kg trolley type
2	1	2279915	2 falls hook block assembly
2a	1	2279914	Safety latch - Steel plate
2b	1	2277001	2-falls hook block
2c	1	2279916	Set of 2 half-casings with axle, return sprocket, and screws
2d	1	2269905	Load plates - 2 falls type 2500 kg (set of 10)
2D	1	2269927	Load plates - 2 falls type 3200 kg (set of 10)
2D	1	2269906	Load plates - 2 falls type 4000 kg (set of 10)
2d	1	2269908	Load plates - 2 falls type 5000 kg (set of 10)
3	1	2279900	1 fall hook block assembly
3a	1	2242017	Safety latch - Steel wire type
3b	1	2277000	1-fall hook block
3c	1	2279917	Set of 2 half-casings with axle, return sprocket, and screws
3d	1	2269911	Load plates - 1 fall type 1600 kg (set of 10)

3d	1	2269904	Load plates - 1 fall type 2000 kg (set of 10)
3d	1	2269912	Load plates - 1 fall type 2500 kg (set of 10)
4	1	2279911	Chain sprocket assembly + ejector
4b	1	2275502	Chain guide
4c	1	2279910	Axle for fixed point assembly
4d	1	52332038	End limit switches set
5	1	2279942	Slack fall stop assembly
6	-	2273500	Load chain - 11.3 x 31mm – Galvanized
7	1	2279930	Chain bucket – 16 m chain length capacity (1 & 2 falls)
7	1	2279931	Chain bucket – 30 m chain length capacity (1 & 2 falls)
7	1	2279932	Chain bucket – 50 m chain length capacity (1 & 2 falls)
7	1	52292004	Chain bucket – 3 m chain length capacity (3 falls) – 6 m chain length capacity (4 falls)
7	1	52293324	Chain bucket – 9 m chain length capacity (3 falls) – 15 m chain length capacity (4 falls)
7	1	52294886	Chain bucket – 15 m chain length capacity (3 falls) – 25 m chain length capacity (4 falls)
7a	1	2279912	Axle set for chain bucket
8	1	9995008	Oil can
-	1	2279550	Rain cover

11.5 Electric box / Upper and lower limit switch

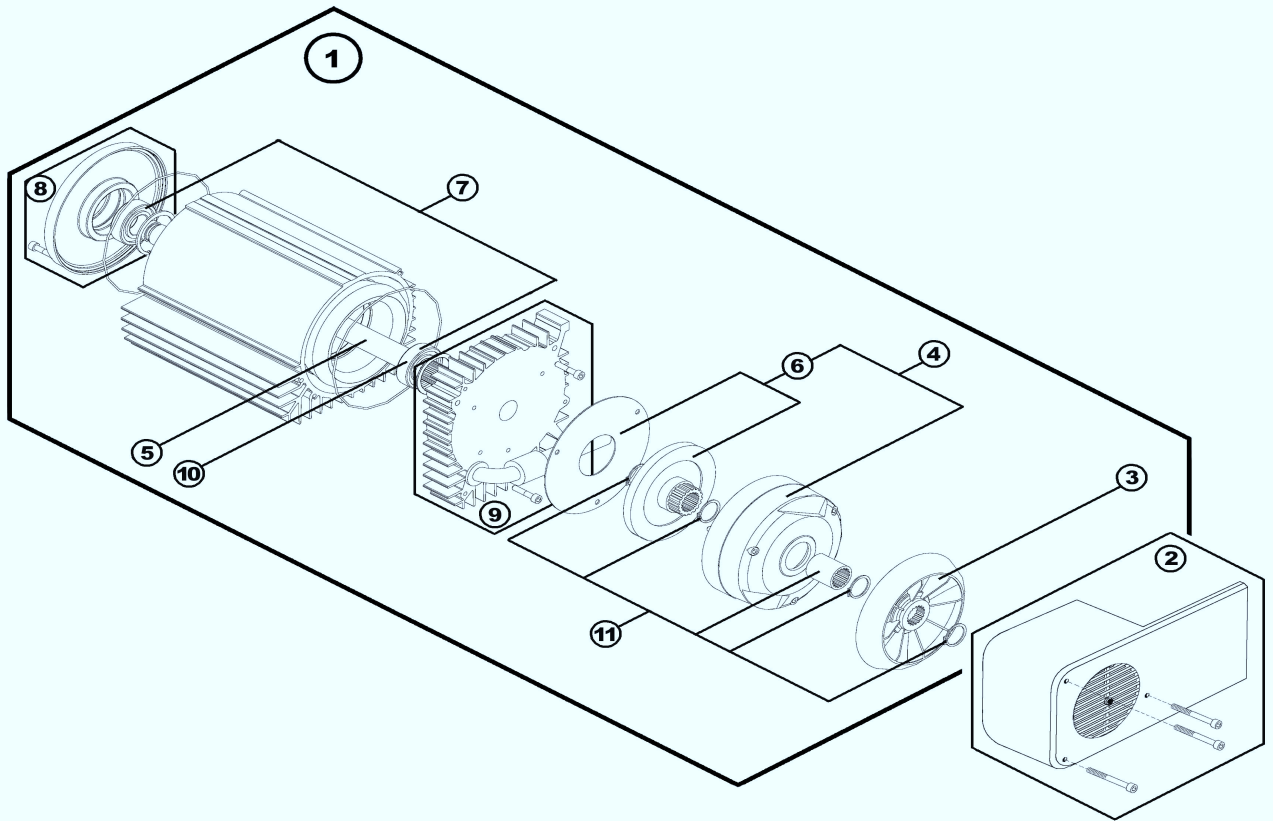


Item	Qty	Code	Description
1	1	2263015	Electric cubicle casing (box+cover)
2	1	2263004	Circuit board 2VL+MA 400V50&60Hz 48 vac
2	1	2263006	Circuit board 2VL+MA 230V50&60Hz 48 vac
2	1	2263007	Circuit board 2VL+MA 500V50&60Hz 48 vac
2	1	2263023	Circuit board 2VL+MA 000V50&60Hz 48 vac (without transfo.)
2	1	2263024	Circuit board 2VL+MA 000V50&60Hz 115vac (without transfo.)
2a	1	2213002	Hour counter 48 vac 50Hz
2a	1	2213027	Hour counter 48 Vac 60Hz
2a	1	2213028	Hour counter 115 vac 60Hz
2b	1	7532126U	Emergency stop contactor 48 vac for 400, 460, 500, 575 Vac power supply
2b	1	7532136E	Emergency stop contactor 115 vac for 400, 460, 500, 575 Vac power supply
2b	1	7532220W	Emergency stop contactor 48 vac for 230 Vac power supply
2b	1	7983066	Emergency stop contactor 115 vac for 230 Vac power supply
2c	1	7531122C	Reversing contactor 48 vac for 400, 460, 500, 575 Vac power supply
2c	1	7531132P	Reversing contactor 115 vac for 400, 460, 500, 575 Vac power supply
2c	1	7531220J	Reversing contactor 48 vac for 230 Vac power supply
2c	1	7983069	Reversing contactor 115 vac for 230 Vac power supply
2d	1	1113027	Selecting contactor 48 vac for 400, 460, 500, 575 Vac power supply
2d	1	7532132A	Selecting contactor 115 vac for 400, 460, 500, 575 Vac power supply
2d	1	1113029	Selecting contactor 48 vac for 230 Vac power supply
2d	1	7532336X	Selecting contactor 115 vac for 230 Vac power supply
2e	1	7983021	Transfo. 400V50&60Hz 48 vac

2e	1	7983023	Transfo. 230V50&60Hz	48 vac
2e	1	7983025	Transfo. 460V50&60Hz	48 vac
2e	1	7983022	Transfo. 500V50&60Hz	48 vac
2e	1	7983024	Transfo. 575V50&60Hz	48 vac
2e	1	7983029	Transfo. 400V50&60Hz	115 vac
2e	1	7983027	Transfo. 575V60Hz	115 vac
2e	1	7983026	Transfo. 230V/460V60Hz	115 vac
2f	1	2243060	Rectifier 230V/400V/460V/500V/575V	
2f	1	2243061	Rectifier 230V/460V reconnectable	
3	1	2249979	Set of 10 fuses	
4	1	2249947	Cable gland assembly	
5	1	2219814	Closing plate assembly	
6	1	2249945	Connecting plug set for push-button box	
6	1	2249946	Connecting plug set for trolley	
6	1	2249982	Connecting plug set for power supply	
7	1	2269010	Spring assembly + support (chain 9x27)	
7	1	2279010	Spring assembly + support (chain 11,3x31)	

12- Illustrated catalogue hoist (25 / F)

12.1 Motor



Item	Qty.	Code	Description
1	1	2245036	Complete motor 400V/50Hz-460V/60Hz
1	1	2245035	Complete motor 230V/50Hz
1	1	2245039	Complete motor 400V/60Hz
1	1	2245038	Complete motor 230V/60Hz
1	1	2245037	Complete motor 500V/50Hz-575V/60Hz
2	1	2279901	Brake end cap with screws
3	1	2275040	Fan set
4	1	2275045	Brake assembly - 100V type
4	1	2275042	Brake assembly - 180V type
4	1	2275043	Brake assembly - 240V type
4	1	2275044	Brake assembly - 290V type
5	1	2275051	Rotor assembly 2 speed
5	1	2275052	Rotor assembly inverter
6	1	2275041	Brake disc assembly for 2 speed and inverter motor
7	1	2275049	Bearing set 2 speed motor
7	1	2275050	Bearing set inverter motor
8	1	2275046	Gearbox side end flange
9	1	2275047	Brake side end flange
10	1	2275048	Sensor bearing (inverter)
11	1	2275053	Circlip and splined tube assembly

