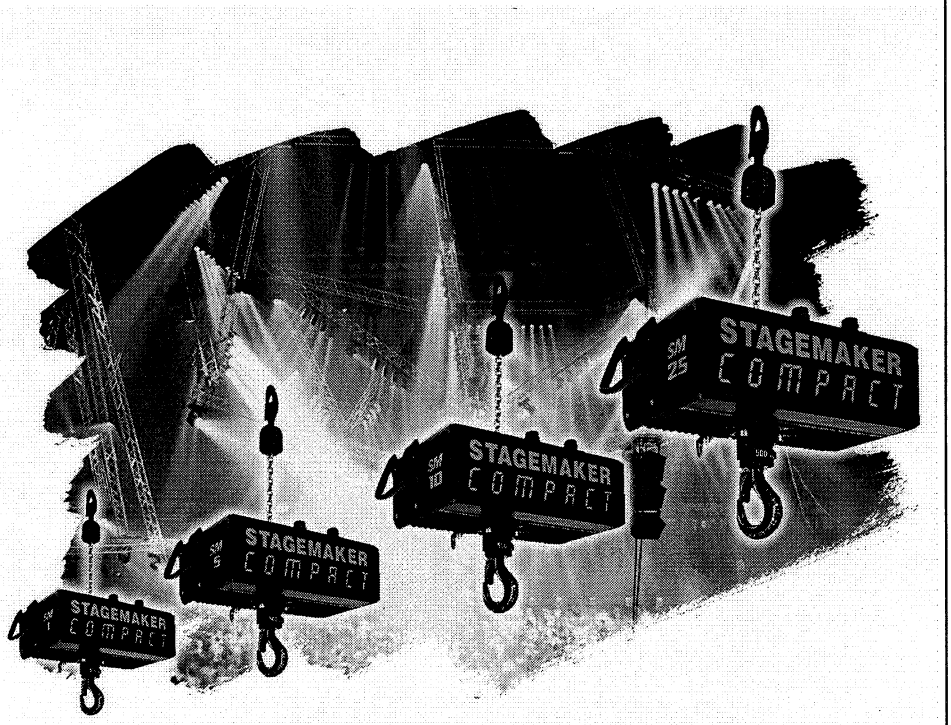
STAGEMAKER



INSTALLATION

MAINTENANCE

SPARE PARTS

ELECTRIC CHAIN HOIST TYPE SM 1

VERLINDE
LIFTING EQUIPMENT

ANGLAIS

Table of contents

1 - EC Declaration of conformity

VERLINDE
LIFTING EQUIPMENT

Vernouillet - France

As defined by the EC directive relating
to machinery 89/392/EEC.
Annex II A
Herewith, we declare that the product:

Wire rope hoist	Belt hoist	**Electric chain hoist**	Manual chain hoist	Electric trolley	Manual trolley	Manual winch
		●				
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Complies with the following provisions applying to it:
- Machinery directive 89/392/EEC (93/68/EEC).
- Machinery directive 91/368/EEC.
- Directive 73/23/CEE.
- "EMC" Directive 89/336/EEC

Applied harmonized standards, in particular:
- EN 60204-1,
- EN 292, parts 1 and 2 (safety of the machines).
- ISO 2141,
- ISO 2766.

National regulations, standards and specifications:
- order of June 9, 1993 / circular of September 22, 1993.
- decree no. 92-765, 92-766, 92-767, of July 29, 1992.
- DIN 5684,
- DIN 15400; DIN 15401,
- NFE 26-010,
- NFE 26-030.

Technical standards and specifications complied with, in particular:
- FEM 9.511 "classification of the mechanisms".
- FEM 9.661 "dimensions and quality of the drive and cable lifting block elements for mass-produced lifting devices".
- FEM 9.671 "chain quality, choice criteria and technical requirements".
- FEM 9.681 "choice of travel motors".
- FEM 9.682 "choice of lifting motors".
- FEM 9.755 "steps to be taken to determine the operating periods for mass-produced motorized lifting mechanisms (S.W.P.)".
- FEM 9.811 "electric hoist specifications sheet".
- FEM 9.901 "bases of design for the mass-produced lifting devices for travelling cranes equipped with mass-produced lifting devices".
- IEC 34-1 "assigned characteristics and operating characteristics".
- IEC 34-5 "classification of the degees of protection".
  IEC 947-5-1 "low voltage equipment".

According to annex V of the EC machinery directive:
- Application of the EC mark to the machines.
- Supply of the technical, installation and user documentation with the machines.

2 - What not to do

Never move or lift the hoist by the electric cables.

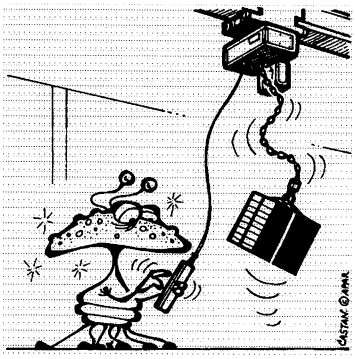
Do not set down the hoist without having an adapted support, to avoid damaging the components on the underside *(electric cable, lifting chain, fixed point, PG cable gland, chain bucket...)*.

Never modify the hoist unless the manufacturer 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 manufacturer.

Never try to repair or intervene on the hoist *(welding...)* without the authorization of the manufacturer or a trained maintenance agent.

Do not let an unqualified person use the hoist.

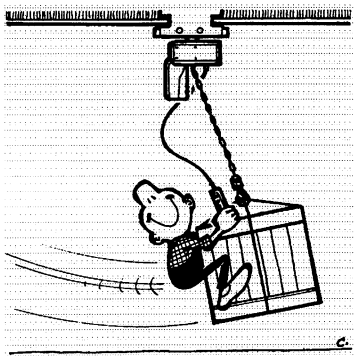


Do not allow unqualified person use the hoist.

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.

Never remove the hook safety catches.

Never block, adjust or remove the limit switches or stops to go higher or lower moving distances.



Never swing the load intentionally.

Never use the hoist to extract, loosen, or pull sideways.

Never use the hoist to transport people.

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...)*.

Never use suspect spare parts or parts whose origin is not known.

Never swing the load intentionally.

Do not subject the hoist to loading shocks.

Do not use the mechanical stops as a repetitive means of stopping.

Never use the lifting chain as a sling.

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

Never use a hook other than in the vertical position.

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

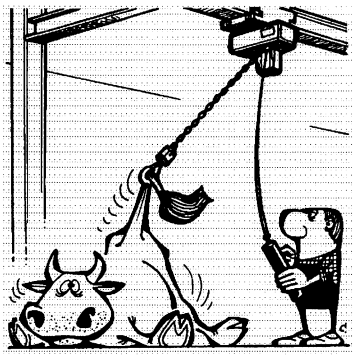
Never distract the operator while the hoist is being operated.

Never leave a suspended load hanging.

Never use the hoist as grounding for welding.

Do not use the hoist for a purpose or in an area for which it is not intended.

Do not expose the hoist to an inappropriate atmosphere *(temperature, acidity... Refer to 6.7: Environmental data)*.



Never side pull the load.

Do not use the safety components 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.

Never angle pull the load, maximum angle 3 degrees.

Do not use the hoist with a power supply that is different to the one recommended *(undervoltage or overvoltage, absence of phase...)*.

Never transport a load with people nearby. Do not move the hook, with or without a load, over personnel.

3 - What to do

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

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

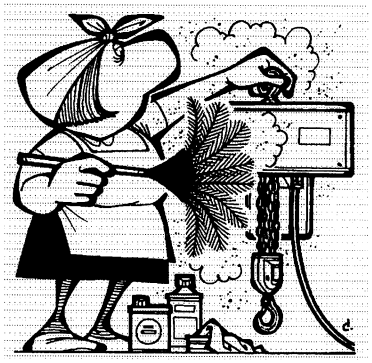
Make sure that the hoist is always clean and protected from corrosion *(lubrication...)*.

The hoist should be installed by a competent.

Make sure that the hoist attaching structure is rigid.

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

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



Make sure that the hoist is always clean.

Keep the moving components 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.

Make sure that the limit stops are in place.

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

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

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.

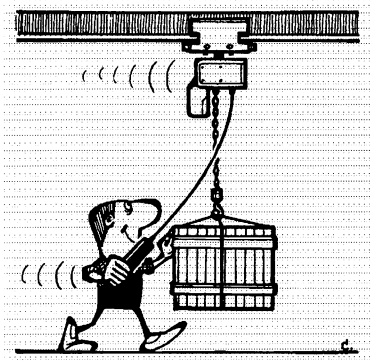
The elements used to hang the load should be free in relation to the load to be moved *(prefer a sling to a rigid beam)*.

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

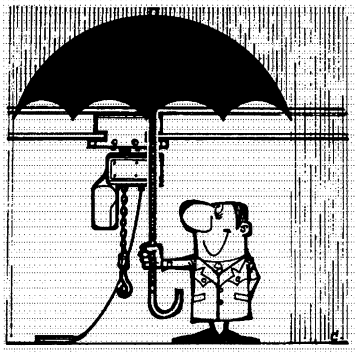
Make sure that the hoist is vertical to the load before hoisting.

If manually moving the hoist, push the load.

Use plastic stops, or better still, electric limit switches, to avoid repetitive stops on the stops.



If manually moving the hoist, push the load.



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

The prevention instructions to be carried out during the different operations should be well known.

Avoid rocking the load or the hook when using the traveling trolley or crane, by limiting the starting and braking jerks.

In the case of several speeds, do the starting and braking operations at low speed.

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 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 behavior...*).

Material used outdoors should be protected as well as possible against bad weather conditions. Hoist should be covered to avoid water going inside the chain bucket. A hole must be made to the chain bucket's bottom to let water to drain out.

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 delay 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 prior agreement with manufacturer.

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

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.

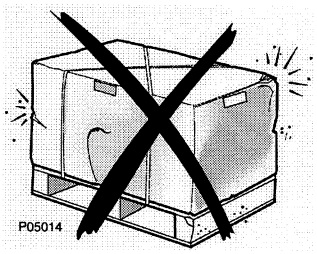
For components of a relative particular importance that are not manufactured by the vendor and which carry the brand name of specialized manufacturers, the manufacturer's guarantee (which can vary according to the manufacturer) is applicable.

* 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 - General

5-1 Acceptance of the material



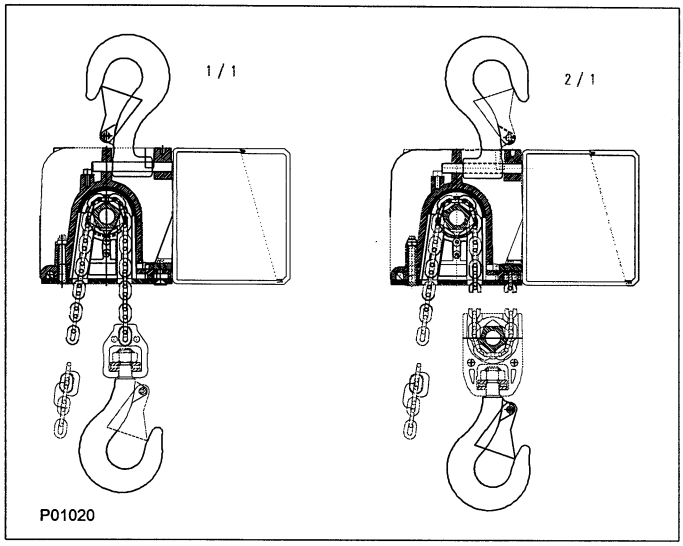
Visually inspect the packaging to ensure that it is intact.
If not, notify it as required.
Check that the hoist corresponds to your order.
For transport reasons the chain bucket is delivered disassembled.

5-2 Installation

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 understood.
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:

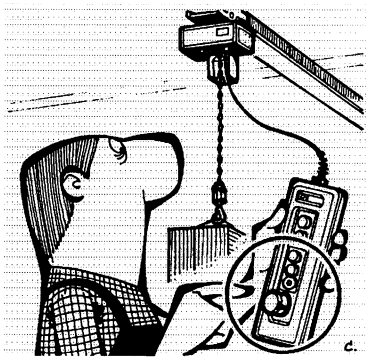
- The electrical connection *(refer to 9-4: Electrical connection).*
- Fitting of the chain bucket *(refer to 8.1: Chain bucket).*
- Check that the suspension hook is correctly positioned, depending on whether for 1 or 2 falls.



- Check that the tightening torques of the hook blocks, locking plates and chain guide conform to the torques indicated in this manual *(refer to 10.5: 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.

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 limiter: operate the hoist, without a load, until it reaches the upper and lower hook positions and let the limiter slip for a maximum of 3 seconds. The chain should not move and the motor should continue to run.
- Check the operation of the brake: lift up a nominal load and then lower it.
- Check the operation and the adjustment 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.



IMPORTANT !

The slack fall stop is a safety component , not a functional one.
A correct length of chain is required to avoid using it . The hook should not be ran against the body of the hoist during normal use.

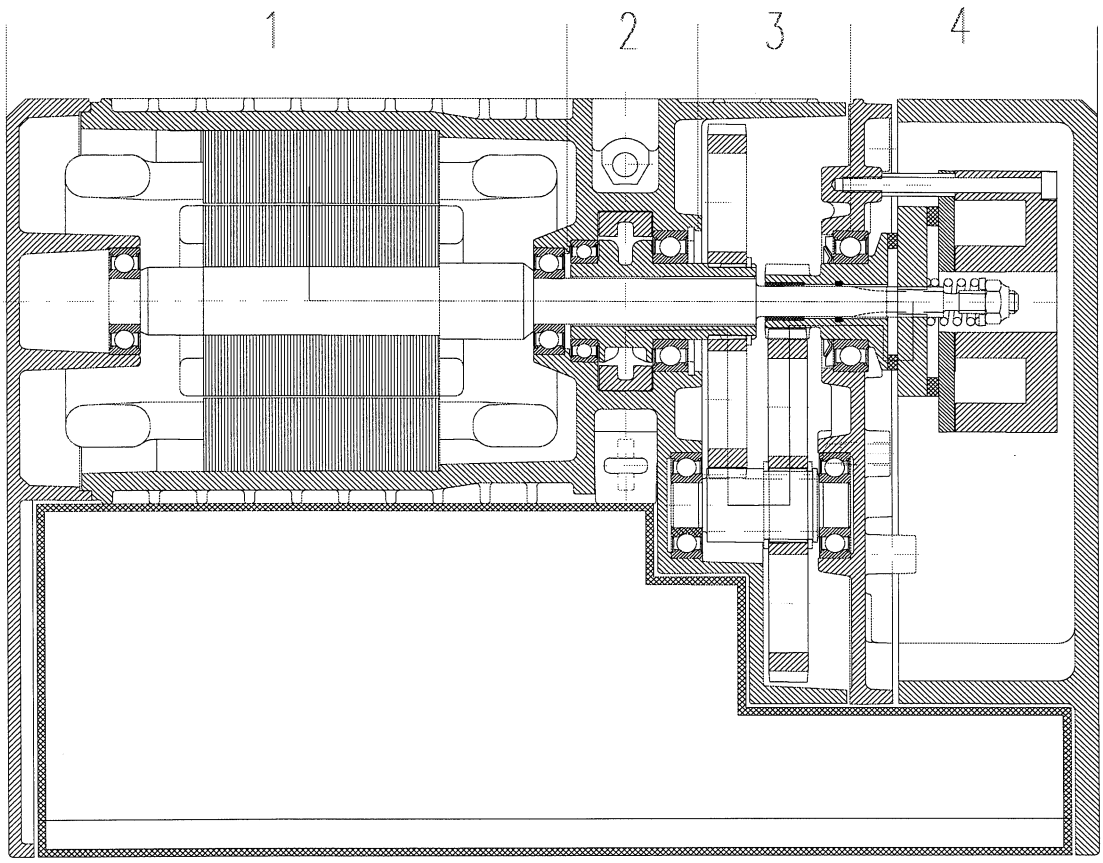
6 - Description - technical characteristics

6-1 Types of hoist

Type	Load kg	Number of falls	Speed m/min.	Motor power kW	FEM group	Chain d/t
SM1 0616 b1	60	1	16	0,2 / 0,05	1 Bm	3.1 x 9.3
SM1 068 b2	60	1	8	0,2 / 0,05	2 m	"
SM1 128 b1	125	1	8	0,2 / 0,05	1 Bm	"

The slipping clutch is factory adjusted at a value of 140% +/-5% of the nominal load. So after a while, the setting comes down to 125% of the nominal load.

6-2 Main sub-assemblies / cinematic chain

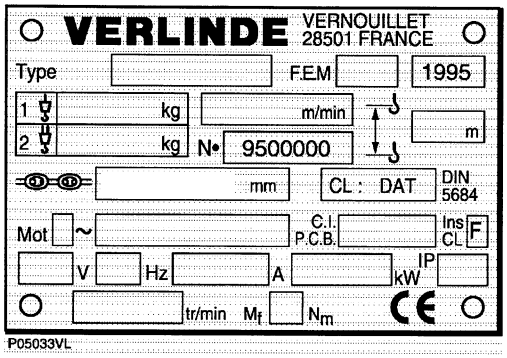


P01012

1. Motor
2. Chain sprocket
3. Gear
4. Brake/limiter

Technical advantage
The position of the limiter allows, should it slip, the load to be held in all cases by releasing the control box button.

Identification plate

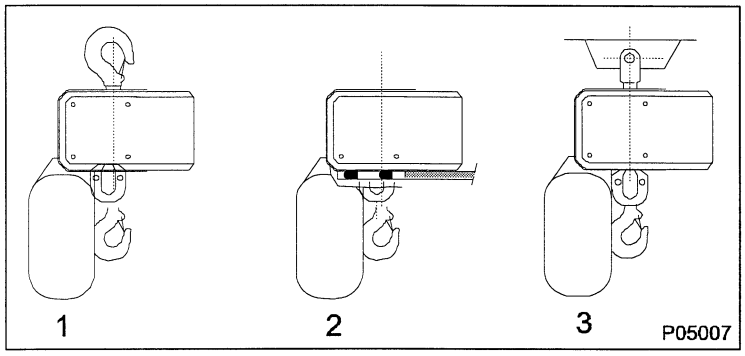


The hoist which you have just purchased should only be used with a maximum load equal to the nominal load (refer to the table above).
The length of its useful service life depends on the demands placed on it, the average operating time, the number of start-ups and its maintenance.

6-3 Hoist dimensions and weight

See overall dimensions drawings

6-4 Attachment of the hoist



1. Suspension hook
2. Base mounting
3. Suspension using the coupling part

6-5 Environmental data

Ambient temperature:	-20°C to +40°C
Protection class:	IP55 as standard
Side pulling angle:	3 degrees maximum

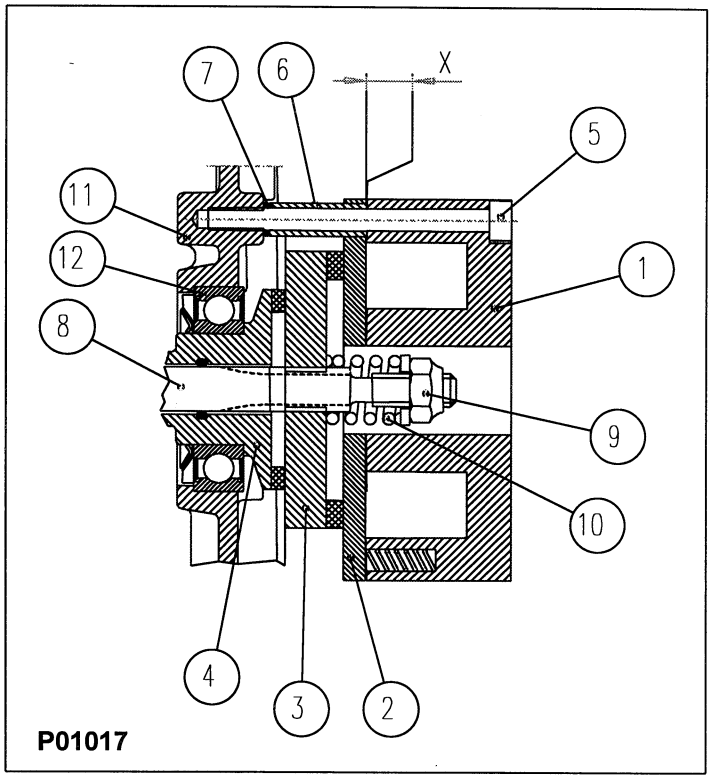
Impact on the environment:

Sound level:	72 dB(A)

7- Brake/clutch assembly

7-1 Operation

The brake and clutch disc (3) is mounted free on the gear input shaft (8). Other brake parts are mounted on the gear cover (11).
The spring (10) keeps a pressure between the clutch lining (4) and brake and clutch disc (3).
The nut (9) maintains the assembly on the gear input shaft.
When the coil (1) is energized, during lifting or lowering, it pulls the brake lining plate (2) and releases the brake and clutch disc (3) (*there is an airgap X for this purpose).*
The discs (3 and 4) turn freely, transmitting the movement to the gearbox.
Braking occurs when the coil is no longer energized and the brake springs (in the coil) drive back the brake lining plate (2) against the disk (3).



P01017

7-2 Adjustment of the clutch:

1. Hook a load of 1.25 times the nominal load into the hoist.
2. Remove the brake end cap and the sealing.
3. Raise the load at slow and fast speed.
4. Use a key to turn the adjusting nut (9) in the required direction.
   - Turn the nut clockwise to increase the torque.
   - Turn the nut counterclockwise to decrease the torque.
5. Repeat steps 3 and 4 until the load can barely be lifted at fast speed. The clutch is now adjusted.
6. Fit the sealing and the brake end cap taking care not to squeeze the brake leads.
7. Check, at fast speed, the lifting of a nominal load.

Note: That when the clutch is being adjusted the brake end cap must be removed and the motor must not be running.
Do no touch the moving components. Before pressing the "lift" button on the control box, check that there is nothing in contact with the adjusting nut *(key, for example).*

7-3 Adjustment of the brake

1. Before starting the adjustment, remove the load and switch off the power supply.
2. Remove the brake end cap and the sealing.
3. Use feeler gauge to measure the air gap (**X**) between the brake lining (2) and the electromagnet (1) at at least three points around the electromagnet.
4. To adjust the brake : Tighten or untighten the screws (5) which compress or uncompress the elastic washers.
5. Check the operation of the brake
6. Fit the sealing and the brake end cap taking care not to squeeze the brake leads

Brake air gap	**Minimum air gap** (mm)	**Maximum air gap** (mm)
Between brake lining plate (2) and coil (1)	**X** = 0.15	**X** = 0.5

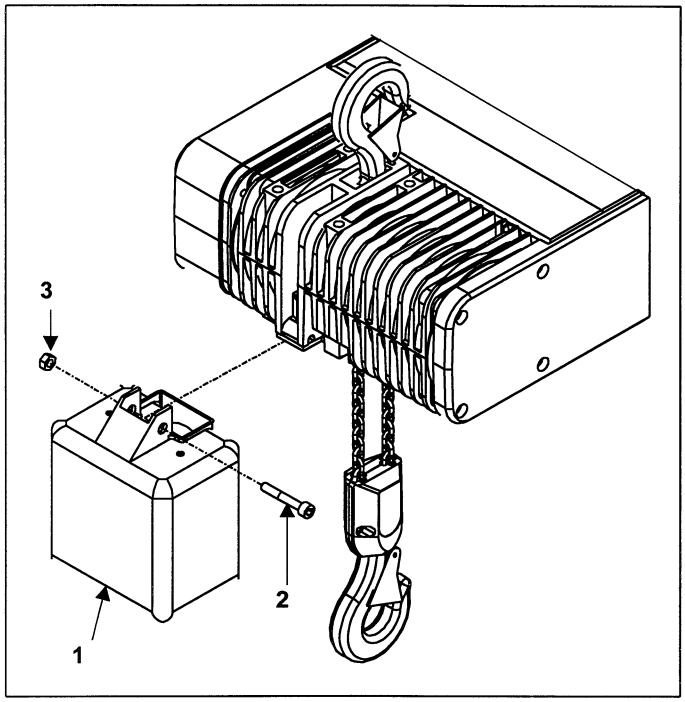
Note: To replace the brake/clutch assembly, the electromagnet supply wires inside the electric box must **first of all** be disconnected.

8 - Lifting assembly

CAUTION!

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.

8-1 Chain bucket



INSTALLATION:
1. Insert the chain into the bucket (1)
2. Position the bucket on the chain guide and install the suspension screw (2).
3. Put the nut (3) on the screw without tightening it (one thread over the nut).

Several chain buckets are available, a standard bucket contains up to 8 m of chain. Special buckets are available for other lengths.

8-2 Slack fall stop (in the chain bucket)

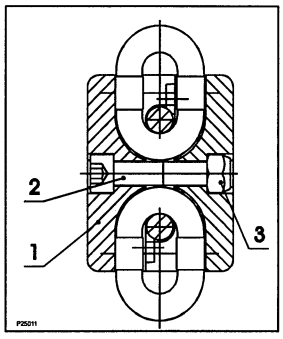
IMPORTANT !

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

A correct length of chain is required to avoid using it regular.

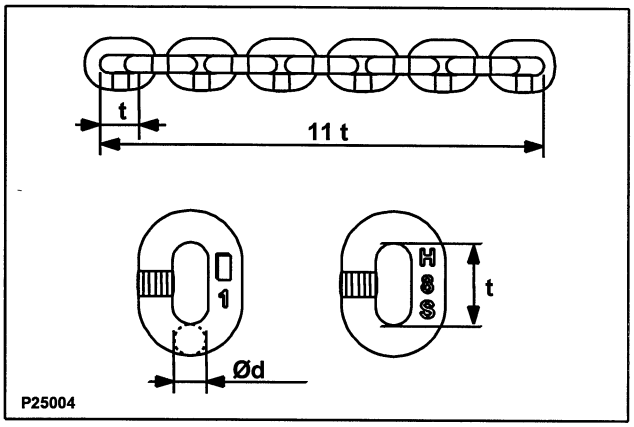
REMOVAL:
1. Remove the nut.
2. Remove the screw.
3. Remove the two halves of the stop.

REPLACEMENT:
1. 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.
2. Insert the screw.
3. Put the nut.



8-3 Chain "certificate"

Chain type:	standard
Diameter (d) / pitch (t):	3.1 mm / 9.3 mm
Class:	DAT
Grade:	H8S or HE G80 RAS
Maximum working stress:	100 N/mm²
Hardened surface:	580 or 700 HV
Thickness:	0.1 to 0.2 mm
Standard:	EN 818
Marking (10 x t):	❐1 or ❐16
	H 8 S or A 8
Maximum working load, 1 fall:	125 kg
Breaking load:	11,2 kN
Maximum breaking stress:	800 N/mm²
Total breaking elongation:	>10% min.
Weight (per meter):	0.220 kg



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:

Minimum link thickness allowed (d):	2,8 mm
Maximum pitch allowed (t):	9,75 mm
Maximum length allowed (11 t):	104,3 mm

If these limits are exceeded, **the chain must be replaced immediately**. In this case, the wear on the chain guide 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 !

Any 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.

8-4 Removal of the chain

1-fall chain:

1. Remove the load from the hook.
2. Disassemble the hook block.
3. Lower the chain into the chain bucket.
4. Remove the chain bucket.

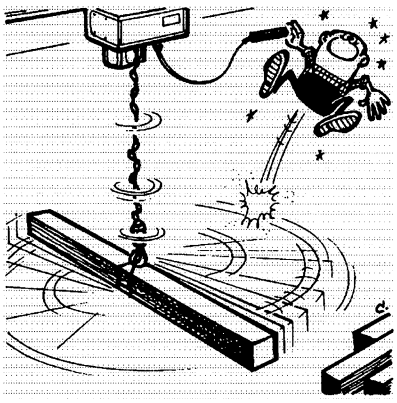
2-fall chain:

1. Raise the hook block to about 30 cm from the hoist body.
2. Remove the chain bucket.
3. Carefully remove the lower chain guide plate.
4. Remove the pin which holds the fixed point.
5. Remove the 2-fall hook bottle, without disassembling it, letting the chain run through it.
6. Let the rest of the chain slide through the chain sprocket.

8-5 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 sprocket.
- Press the lift control button to run the motor.
- Take care not twist the chain.
- Put the chain bucket back in place.

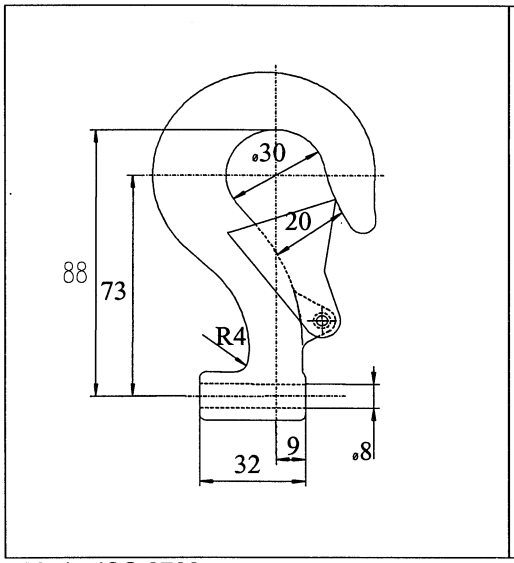
Note: in case of 2 fall hoist, the lifetime of the chain will be increased by putting the welds of the chain towards the lifting sprocket.

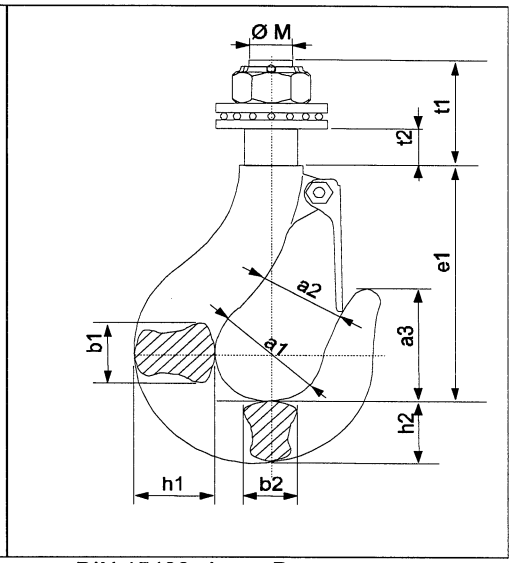


Never twist the lifting chains
(Turning around of the hook block)

8-6 Hook "certificate"

Load capacity (kg)	FEM group	Test load (kg)	Number of falls	Minimum ruin load (kg)	Marking Class	Dimensions (mm) Ø M	Ø a1	a2	a3	b1	b2	e1	h1	h2	t1	t2
60	2 m/1Bm	500	1	1250	012 P	14	30	20	34	19	15	83	22	19	32	10
80	2 m	500	1	1250	012 P	14	30	20	34	19	15	83	22	19	32	10
125	2m/1 Bm	500	1	1250	012 P	14	30	20	34	19	15	83	22	19	32	10
160	2 m/1Bm	500	1	1250	012 P	14	30	20	34	19	15	83	22	19	32	10
250	1 Bm	500	1	1250	012 P	14	30	20	34	19	15	83	22	19	32	10





Mark: ISO 2766
DIN model number: 15401

DIN 15400 class: P
DIN 15401 material: StE420

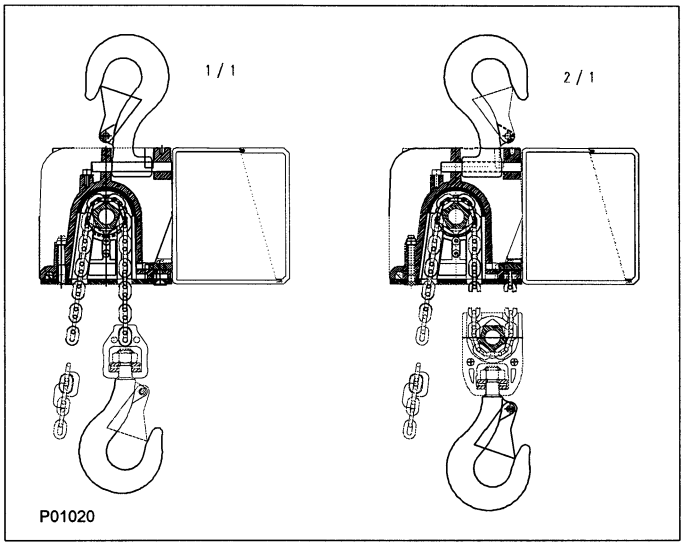
8-7 Suspension hook

REMOVAL:
1. Remove the screw which holds the suspension pin.
2. Remove the suspension pin.
3. Take the hook out.

REPLACEMENT:
1. Put the hook into its housing.
2. Place the pin inside the hook
3. Fit the screw without forgetting the safety washer.

(Refer to paragraph 10-4 for the tightening torque).

Note: The hook should be set depending on 1/1 and 2/1 revving.



8-8 Measurement of the wear on the suspension and lifting hooks

The wear on the suspension and lifting hooks (dimension **a2 and 20**- see drawing at top of page) should be checked regularly. Damaged safety catches should be replaced immediately.
If the throat airgap a2 (dimension 20), increases more than 15%, the hook should be replaced.

9 - Electricity

CAUTION!

Disconnect the hoist power supply before servicing the hoist electrics.
An disconnect (isolator) switch should be installed at a maximum of 6 meters from the hoist.

9-1 Electrical connection

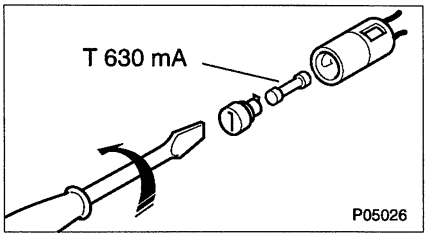
- The customer must supply the power supply cable, the **fuses** and the **main isolator** switch (refer to the wiring diagram).
- Check that the mains system is correct for the hoist.
- Check that the voltage does not vary by more than ± 5% from the nominal value.
- Isolate the electric sources.
- Make 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.

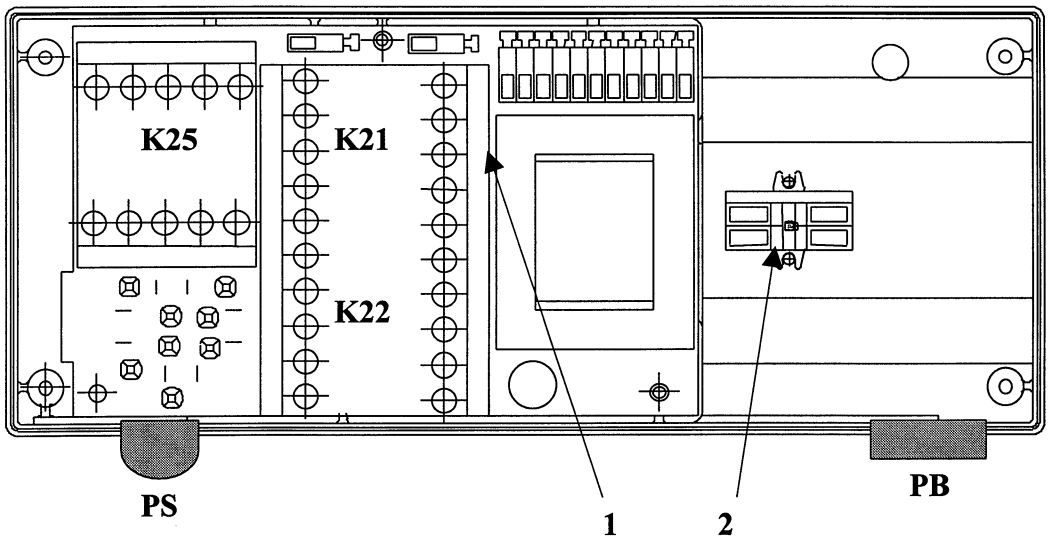
Connection:

1. Remove the control box cover.
2. Insert the cable (PS) into the box through the PG cable gland.
3. Connect phases L1 - L2 - L3 to contactor K21 (1), and the ground wire to the terminal board (2).
4. Check that the terminals are securely tightened on each contactor.
5. Close the box.
6. Check the hoist operation.

Minimum cable sections:

Power supply:	1 mm^2
Auxiliary current:	0.75 mm^2
Control box/hoist:	1.00 mm^2
Fuses:	T 630 mA for 48Vac
	T 500 mA for 115Vac
Main line fuses	2,5 A

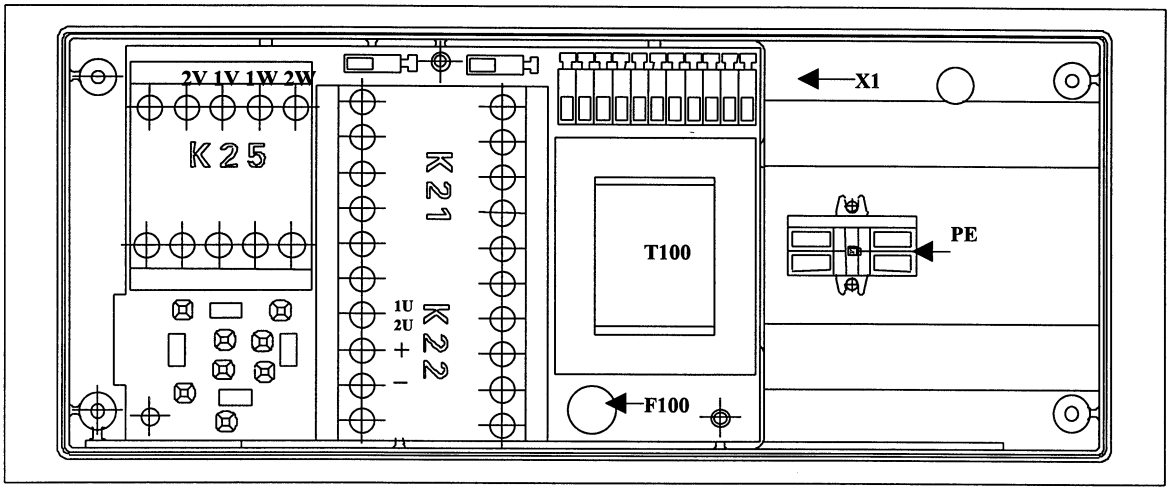




CAUTION!

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

9-2-1 Printed circuit board low voltage control (2 lifting speeds)



HOIST SUPPLY

L1	hoist supply
L2	hoist supply
L3	hoist supply
-	brake
+	brake
1W	motor supply first speed
2W	motor supply second speed
1V	motor supply first speed
2V	motor supply second speed
1U2U	motor supply first and second speed motor is internal star connected.

GROUND WIRES

ground terminal, 4 connections

PE	motor
PE	p.c. board
PE	trolley connection
PE	power supply

PRINTED CIRCUIT BOARD

Terminals X1

1	common control voltage – emergency stop.
2	lifting
3	lowering
4	hoisting speed selector
9	coil contactor common voltage

Options

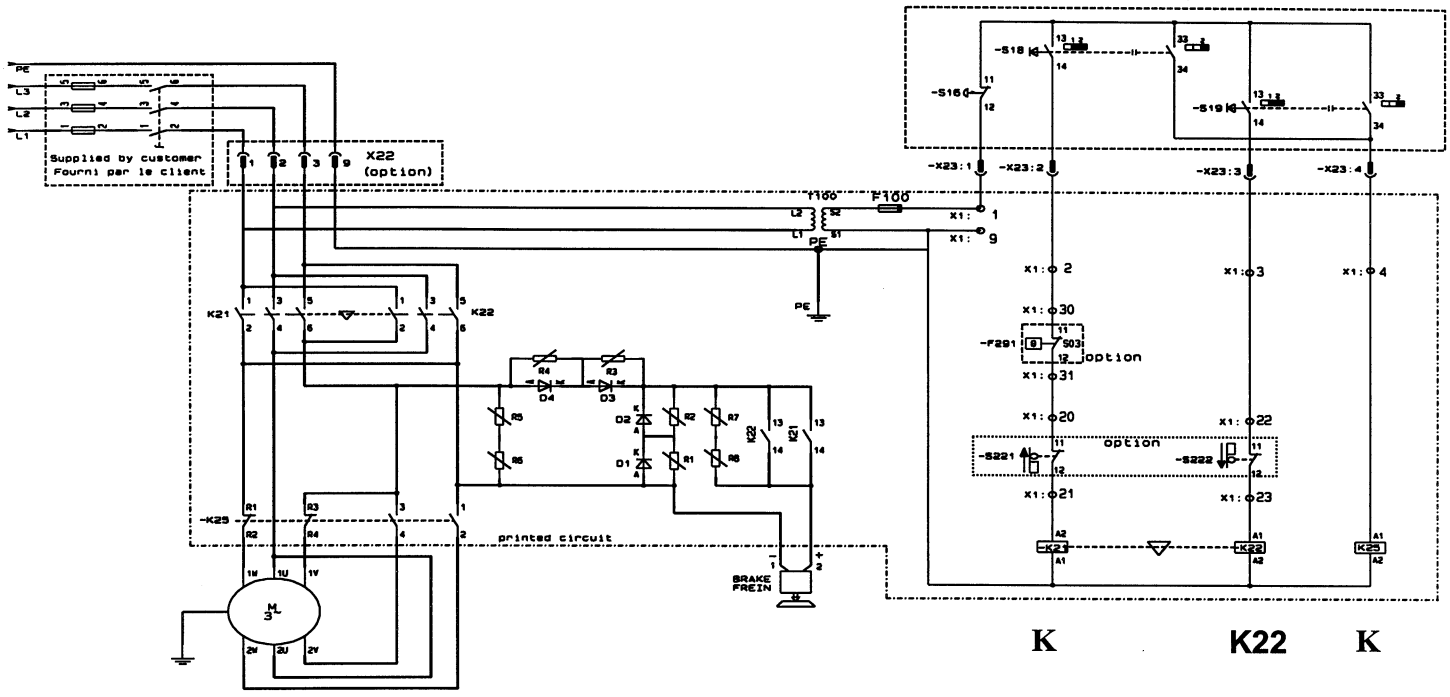
30-31	thermal protection *(replace the shunt)*
20-21	top limit switch *(replace the shunt)*
22-23	bottom limit switch *(replace the shunt)*

F100	T 630 mA for 48Volt / T500 mA for 115Volt
K21	Lifting contactor
K22	Lowering contactor
K25	Speed selection contactor
T100	Control transformer

9-2-2 HOIST CIRCUIT DIAGRAM low voltage control

CAUTION !

The supply cable must be equipped with a power switch or an isolator in conformity with the regulation.
The supply cable and the main isolator switch must be supplied by the customer.

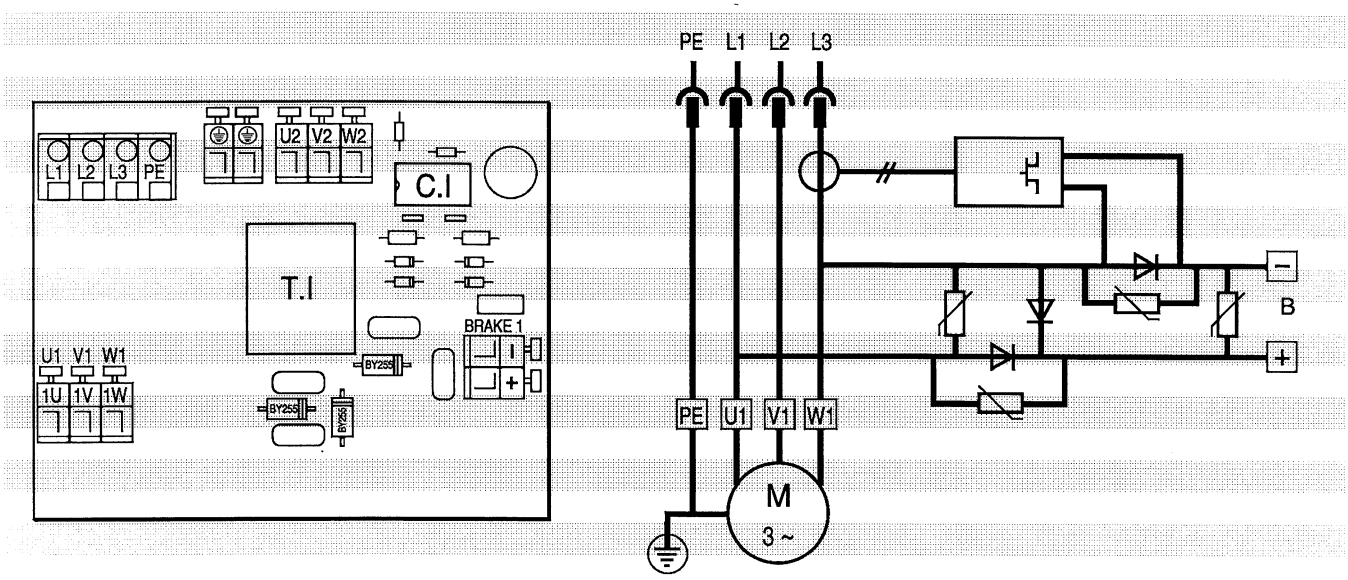


9-3 DIRECT CONTROL

ACF board

The ACFG board controls electronically the brake. It enables a rapid brake acceleration. (As the hoist is not equipped with contactor control electric's)

ACF 1, 1 liftingspeed



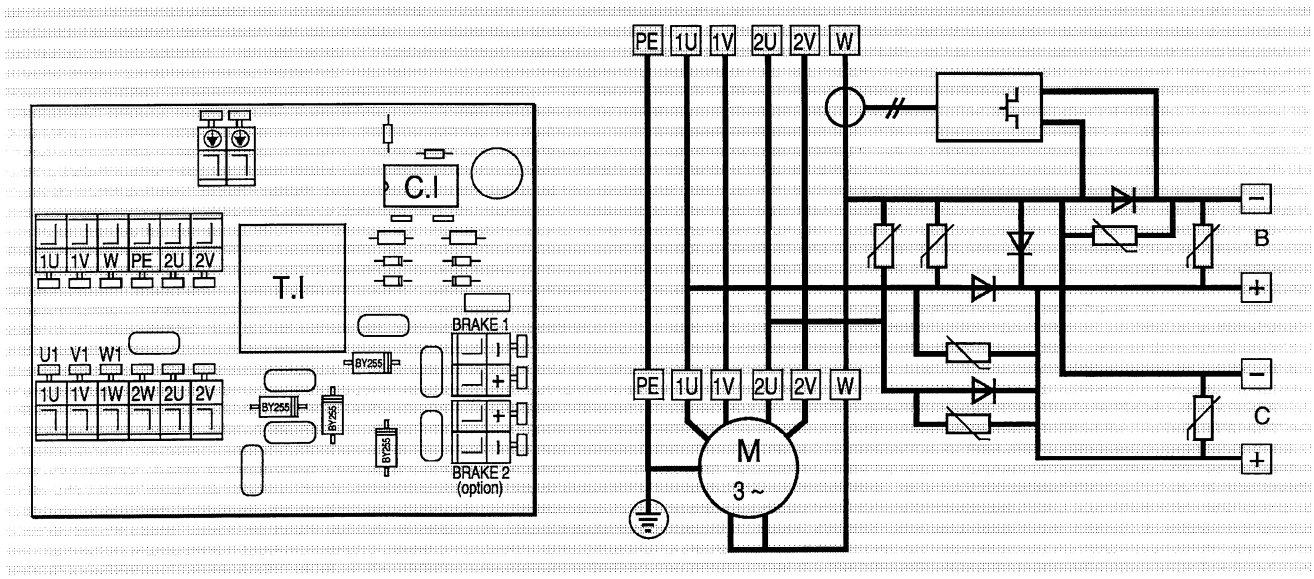
POWER SUPPLY :
L1 L2 L3 PE

MOTOR CONNECTIONS :

230V	U1 W2	400V	U1	U2
	V1 U2		V1	V2
	W1 V2		W1	W2

B- BRAKE :
+ — brake

ACF 2, 2 speed lifting



POWER SUPPLY :
1U 1V W 2U 2V PE

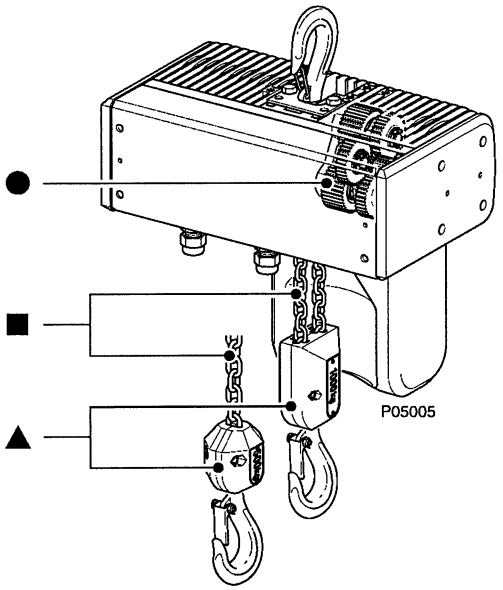
MOTOR :
1U 1V low speed
2U 2U high speed
1W 2W common

B- Main brake
C- Emergency brake (option)
+ - Brake

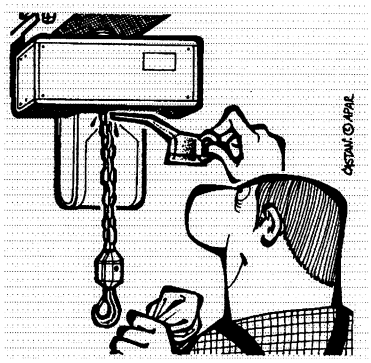
10 - Maintenance - Replacement

10-1 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
Limiter operation	Monthly	Operator
Measuring of the wear on the chain	Every 3 months	Operator
Measuring of the wear on the hooks	Every 3 months	Operator
Tightening of the hook block screws	Every 3 months	Operator
Checking of the locking plate screws	Every 3 months	Operator
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 limiter and brake	Annually	Qualified mechanic
Lubrication of the gears	Lubricated for life	



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.



Oil the chain regularly.

10-2 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 ●	KP 0 K grease (DIN 51502) Soap-based lithium + MoS 2 Approx. drip point + 180°C Worked penetration 355 - 385° Operating temperature - 30°C à + 130°C	**Tribol**: Molub Alloy multi-purpose grease **Aral**: Aral P 64037 grease Aralub PMD0 **BP**: Multi-purpose grease L 21 M **Esso**: Multi-purpose grease M **Mobil**: Mobilgrease Special **Shell**: Shell Retimax AM **Texaco**: Molytex grease EP 2 **Fuchs**: Renolit FLM0	0.2 liters

10-3 Spare parts replacement table

CAUTION! Disconnect the power supply before replacing any parts.

Spare part	To be replaced by	Qualification of the personnel
Upper chain guide	Authorized manufacturer personnel	Qualified electrician
Output shaft	Authorized manufacturer personnel	Qualified electrician
PG cable gland	Authorized manufacturer personnel	Qualified electrician
Gear input shaft + adjusting nuts	Authorized manufacturer personnel	Qualified mechanic
Motor endcap	Authorized manufacturer personnel	Qualified mechanic
Gearing (1st/2nd stage)	Authorized manufacturer personnel	Qualified electrician
Brake cap/endcap sealing	Customer	Qualified mechanic
Other sealings and O-rings	Authorized manufacturer personnel	Qualified mechanic
Brake-limiter	Authorized manufacturer personnel	Qualified electrician
Brake endcap	Customer	Qualified mechanic
Lower chain guide	Customer	Qualified mechanic
Rubber buffer	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 5.2: Installation).*

10-4 Screw tightening torques (Nm)

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

Plastic

(*)Screws for fixing plastics parts

10-5 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.*

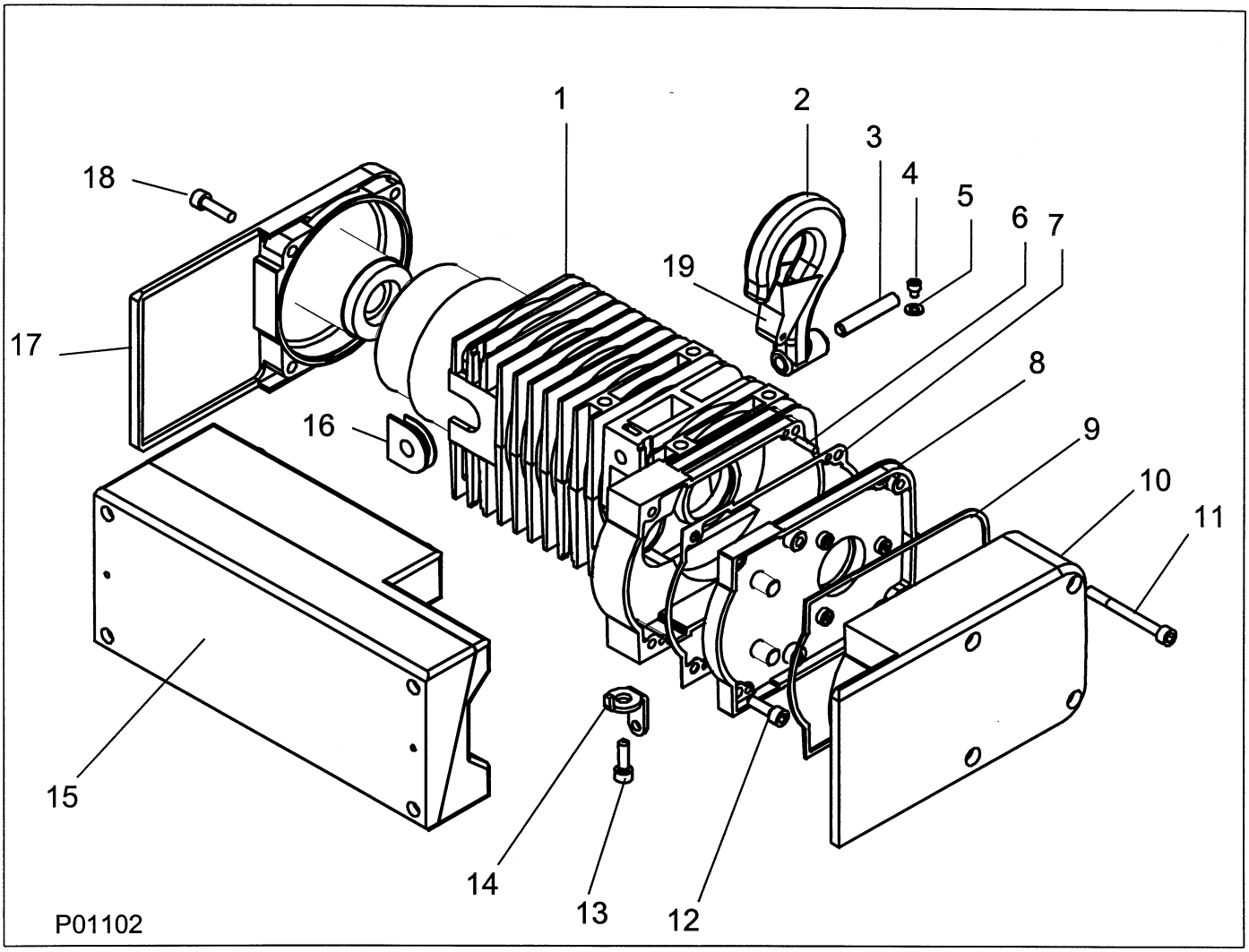
Remove all greases and oils from the hoist before discarding it.

11 - Troubleshooting

Problem	Cause	Solution
The chain hoist does not work	The emergency stop button is activated	Deactivate it
	Triggered fuse	Replace the fuse
	Temperature control *(optional)* 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
	Limiter 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

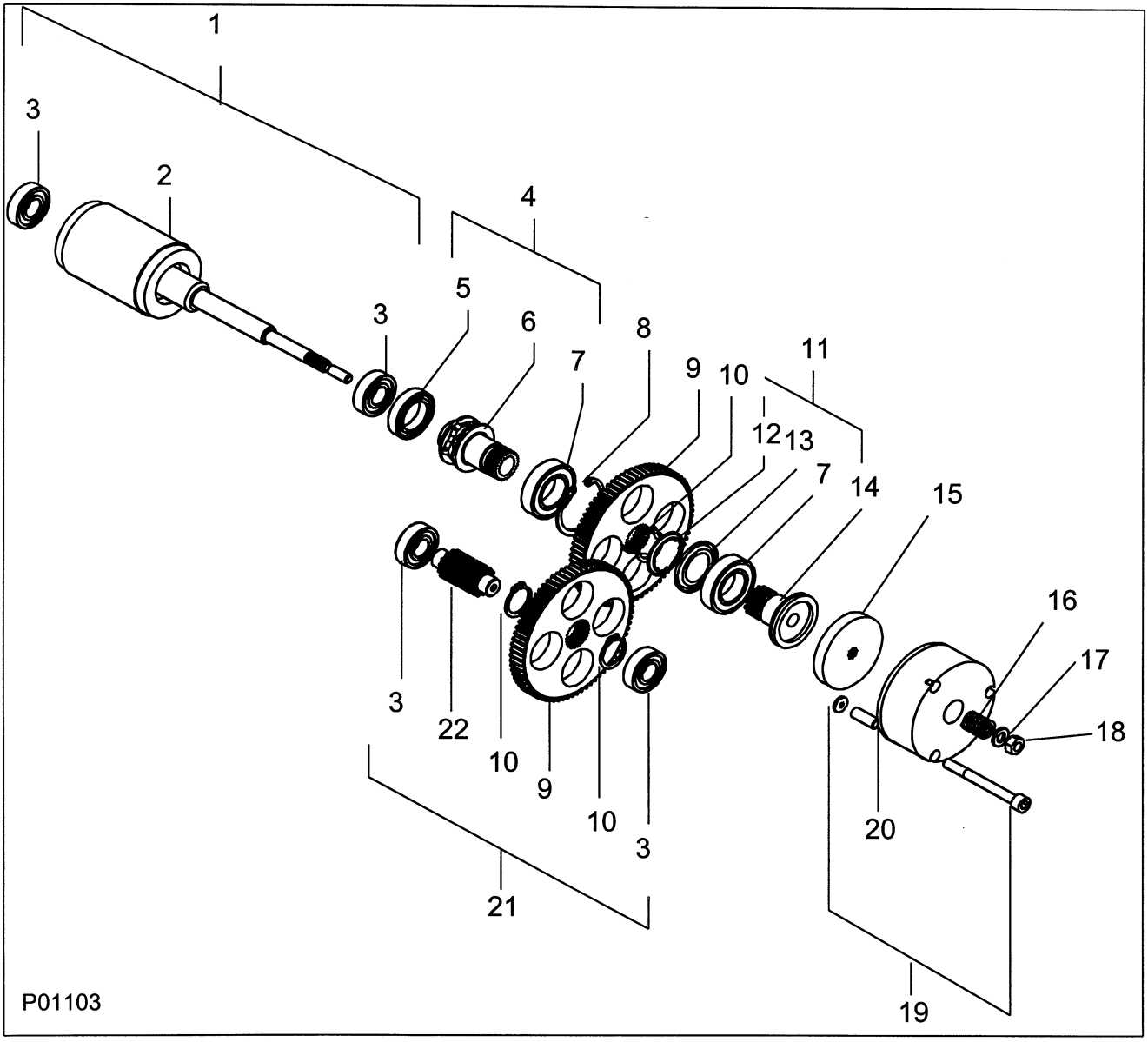
12 - Illustrated catalogue

12-1 Casings



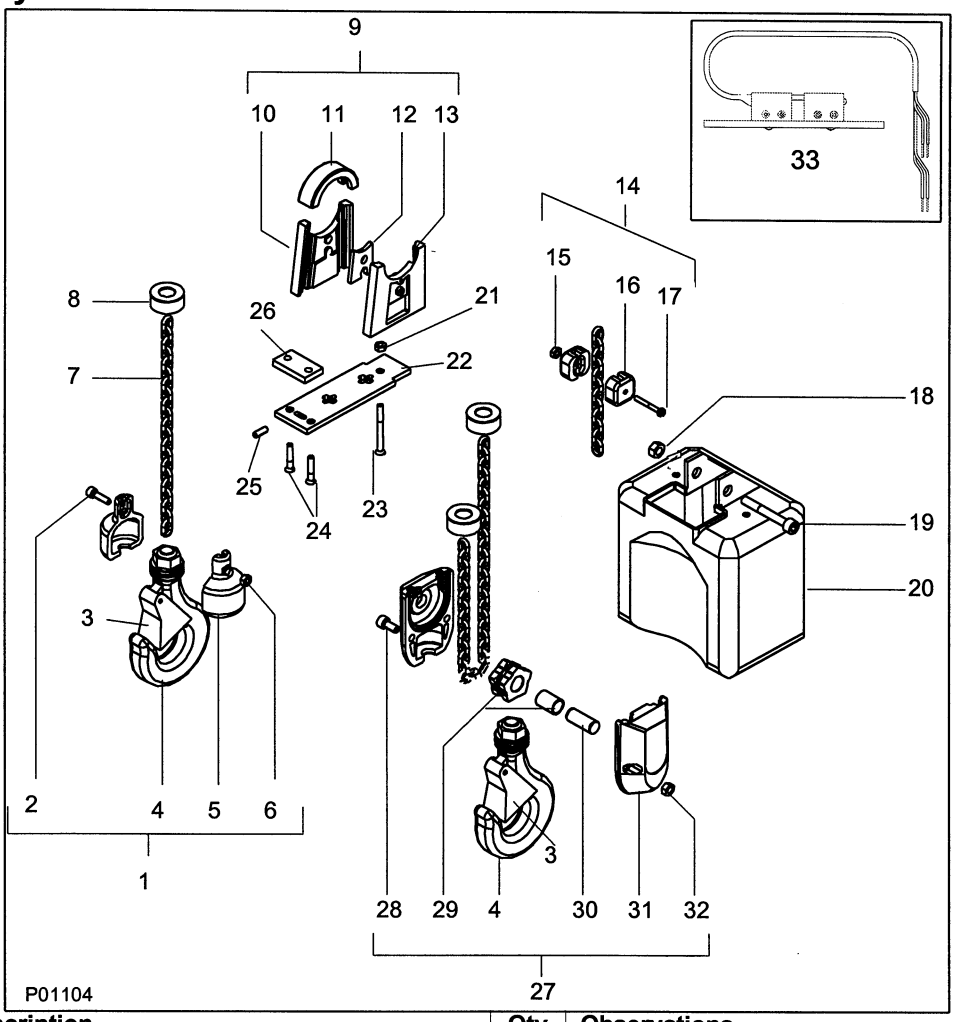
Item	Reference	Description	Qty	Observations
1	52260333	Casing, assembled with 400V/50Hz stator	1	
1	52260337	Casing, assembled with 230V/50Hz stator	1	
2	52253670	Suspension hook	1	
3	52253671	Suspension pin	1	
4	52253672	Screw	1	
5	52253878	Safety washer	1	
6	52253588	Locating pin	2	
7	52253585	Gear sealing	1	
8	52253586	Gear cover	1	
9	52253666	Brake cap sealing	1	
10	52253665	Brake cap	1	
11	52253667	Screw	4	
12	52253636	Screw	4	
13	52264431	Screw	1	
14	2213020	Cable fastening bracket	1	
15		Electric box	1	refer to page 12.4
16	2218004	Cable guide	1	
17	52258392	Motor end cap	1	
18	50003636	Screw	4	
19	50003846	Safety latch	1	

12-2 Mechanism / Brake



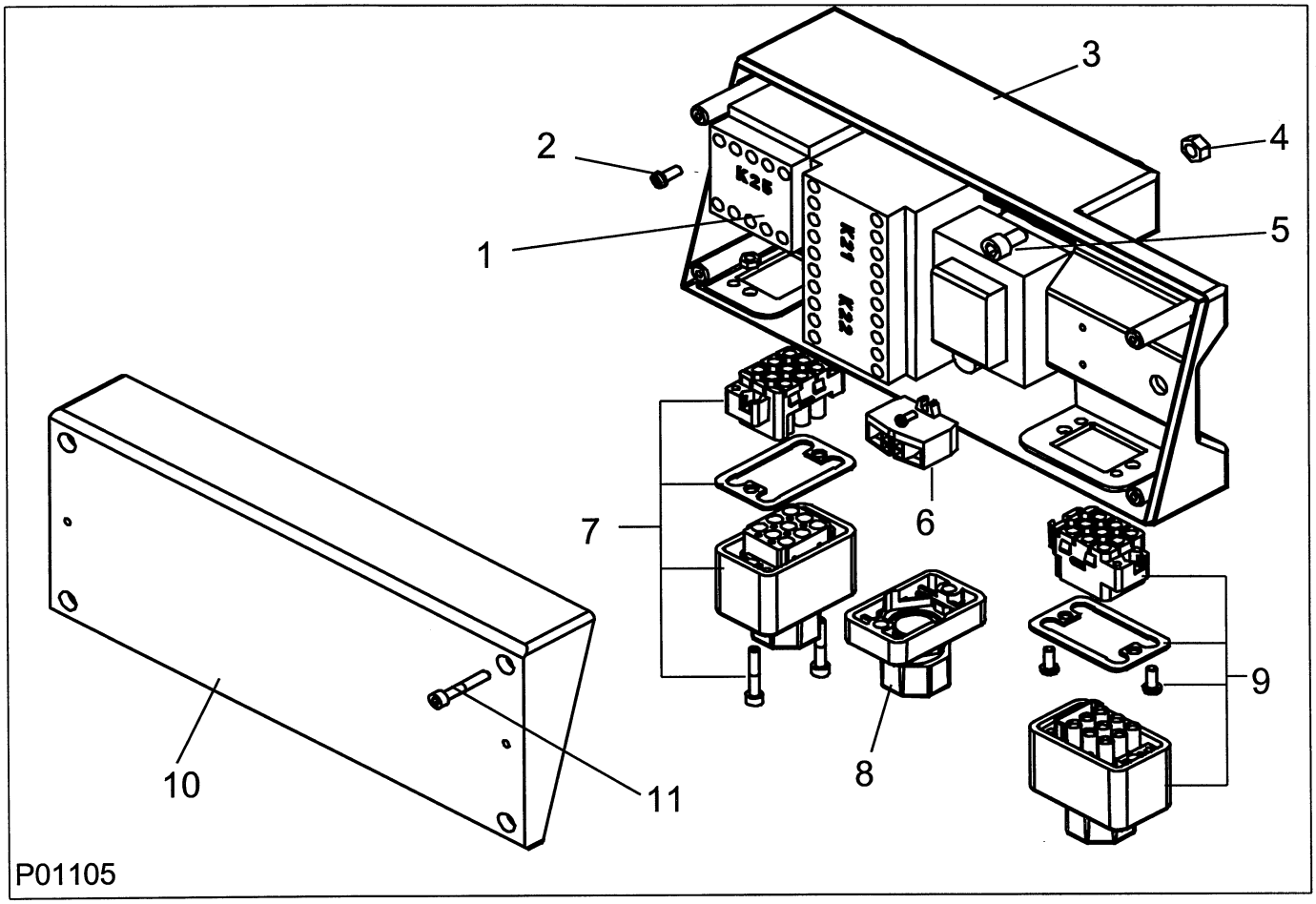
Item	Reference	Description	Qty	Observations
1	52260321	Complete rotor shaft	1	
2	52253058	Rotor shaft	1	
3	52253582	Ball bearing	4	
4	52254052	Complete sprocket	1	
5	52253276	Ball bearing	1	
6	52001399	Sprocket	1	
7	52253277	Ball bearing	2	
8	52000894	Internal retaining ring	1	
9	52253278	Gear wheel	2	
10	52000895	External retaining ring	3	
11	52253657	Complete clutch disc	1	
12	52253662	Locking ring	1	
13	52253661	Flange	1	
14	52253658	Clutch disc with lining	1	
15	52253656	Steel clutch disc	1	
16	52253664	Clutch spring	1	
17	50007413	Washer	1	
18	50003410	Nut	1	
19	52253644	Complete brake (400V)	1	
20	52260298	Brake disc with lining	1	
21	52254053	Complete gear stage	1	
22	52253327	Gear shaft	1	

12-3 Lifting assembly



Item	Reference	Description	Qty	Observations
1	52264306	1 fall hook block assembled	1	
2	60026651	Screw	2	
3	50003846	Safety latch	1	
4	52253890	Lower hook	1	
5	52253901	Hook block half	2	
6	60026460	Nut	2	
7	52253908	Chain, galvanized	*	depending on lifting height
8	52264447	Rubber buffer	2	3 for 2 fall unit
9	52264315	Complete chain guide set	1	
10	52254056	Half chain guide 1	1	
11	52254055	Upper chain guide	1	
12	52254058	Chain ejector	1	
13	52254057	Half chain guide 2	1	
14	52264313	Sack fall stop complete	1	
15		Nut	1	
16		Slack fall stop half	1	
17		Screw	1	
18	50000496	Nut	1	
19	60026666	Screw	1	
20	52253888	Chain bucket, 8 m	1	
21		Nut	1	
22		Lower chain guide plate	1	
23		Screw	1	
24		Screw	2	
25		Pin	1	
26		Thread plate	1	
27	52264307	Complete lower hook bottle	1	
28	60026654	Screw	1	
29	52264429	Idler sprocket with bushing	1	
30	52253904	Shaft	1	
31	52253902	Hook bottle half	2	
32	60026463	Nut	2	
33	52264394	Limit switch set	1	Option

12-4 Electric box



Item	Reference	Description	Qty	Observations
1	52264827	PC board 400V /48V	1	
1	52264828	PC board 230V / 48V	1	
2	52265186	Screw	3	
3	52258398	Control box	1	
4	50003309	Nut	3	
5	50003474	Screw	3	
6	50007579	PE terminal	1	
7	50007331	Complete power supply plug	1	
8	50004958	Complete PG gland assy	1	
9	50007329	Complete push button station plug	1	
10	52258399	Control box cover	1	
11	52265187	Screw	4	

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