

# MISIA

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**ELECTRIC CHAIN HOIST**

## **MH SERIES**

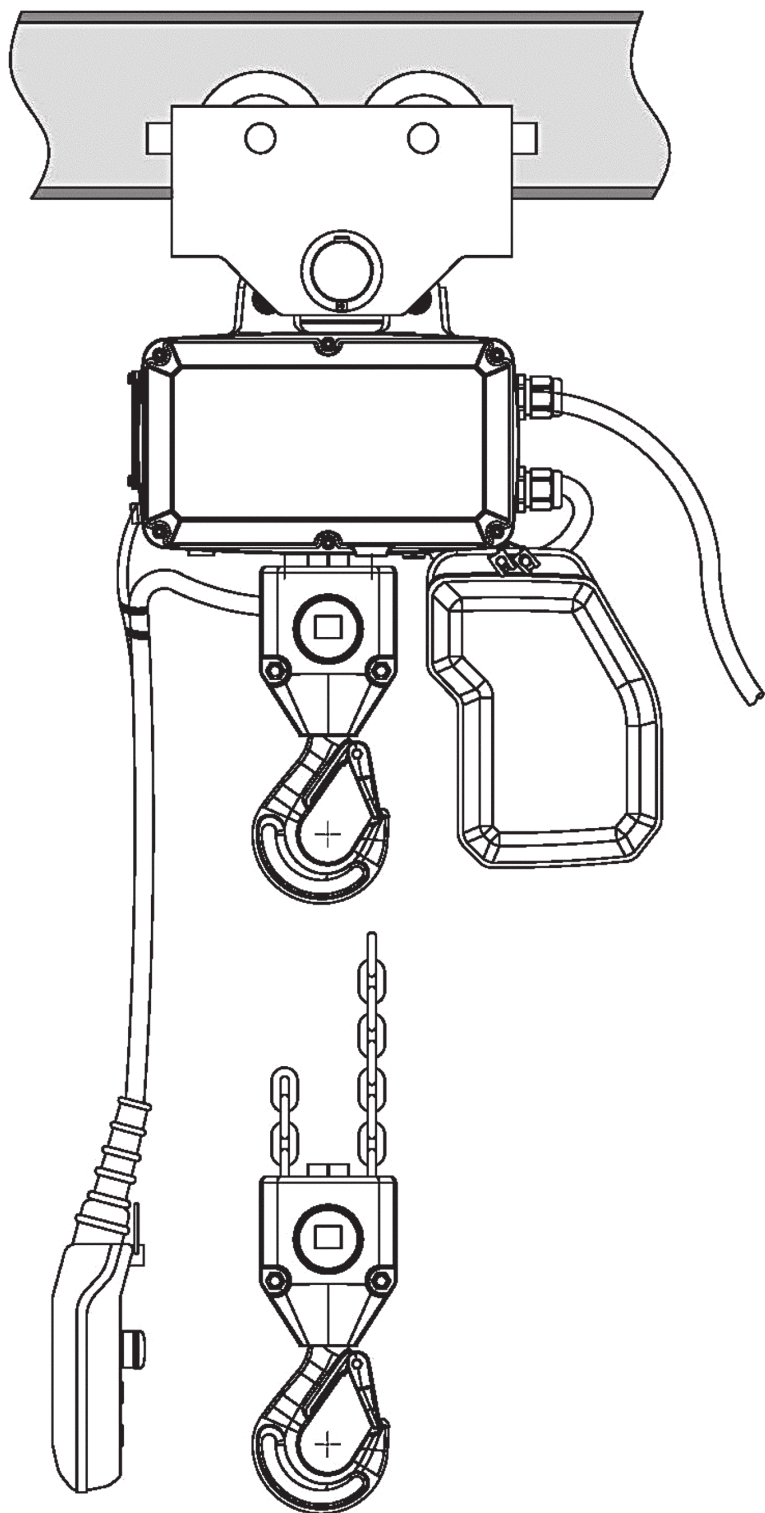
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**ASSEMBLY, OPERATING  
AND SERVICE INSTRUCTIONS**

**incl. INSPECTION SCHEDULE**



M 30/11/15



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These Operating Instructions are intended for an English-language recipient country and an English-speaking skilled operative as the user.

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## 1. GENERAL

### 1.1 HOW TO USE THESE INSTRUCTIONS

These assembly, operating and service instructions must be read thoroughly and understood before the MISIA Electric Chain Hoist is delivered, and must be accessible by operators at all times during use.

By its nature a hoist represents a potential hazard as a result of the lifting and handling of loads, and so Chapters **2 Safety** and **6 Testing and Servicing** should be read with particular care and attention.

These instructions also contain danger, warning and safety advice and instructions – these are indicated by the following symbols:

#### Caution!



Hazard to persons.

Failure to comply with these instructions can expose persons to direct risk or to risk from premature damage to the product.



Advice on the proper and efficient use of the chain hoist.

This hazard information must be complied with. Subject to technical modification without notice.

### 1.2 PROPER USE

MISIA Electric Chain Hoists are designed solely for lifting and also for the horizontal off-floor handling of loads when used in conjunction with travel trolleys.

The Safe Working Load (SWL) is stated in the Inspection Schedule and on nameplates, the FEM classification and the operating time and number of switching operations must be observed.

The chain hoists can be operated as hoists mounted on static supporting structures or as travelling hoists suspended from suitable running rails by means of manual or electric travel trolleys. In all cases the supporting structure must be adequately designed having regard to the SWL and dead weight of the hoists and the relevant regulations.

The hoists are designed essentially for operation inside factory buildings within non-aggressive environments and at temperatures between -20°C and +40°C. Higher ambient temperatures will require a reduction in the maximum operating times. Operation above +80°C is not possible.

Non-standard operating conditions and configurations must be specially inspected and agreed, and the manufacturer's approval may be necessary.

Improper use includes:

- Exceeding the SWL
- Dragging loads at an angle
- Pulling jammed loads free, dragging or towing loads
- Catching falling loads
- Carrying persons with the load or load carrying devices
- 'Jogging' ('inching') operations
- Slack chaining
- Straight reversing, i.e. reversing the hoist while it is running
- Intentionally running up against emergency limit switches

(see also Chapter 2.2 "Safety Guidance for the User")

### 1.3 REGULATIONS

MISIA Electric Chain Hoists are designed, manufactured, tested and must be operated in accordance with European standards and regulations. The standards and regulations on which the product is based and which must be observed by the user are listed in the Certificate of Conformity (Point 12.2).

### 1.4 WARRANTY

MISIA can accept no liability for damage to the crane or hoist caused by improper use or by work which has not been properly carried out or carried out by unskilled personnel, and can accept no liability for claims made by third parties.

#### Caution!



The terms of the warranty for the hoist are voided if the user alters parts arbitrarily, assembles the hoist other than as directed in these instructions or uses parts that are not MISIA original parts.

It is essential for the safe operation of the product that only **MISIA original parts** are used.

Safe operation within the stated service life can only be guaranteed when the chain hoist is operated according to its product classification and when these assembly, operating and service instructions are followed. Please refer to the Inspection Schedule or product data sheet for the drive group of your chain hoist.

Information on the theoretical service life of the chain hoist will be found in the appropriate assembly, operating and service instructions.

## 1.5 OTHER INFORMATION

The Certificate of Conformity / Manufacturer's Declaration is given in the Inspection Schedule. (Item 12.2)

The year of manufacture is shown on the product nameplate.

To ensure that the product performs its tasks reliably and satisfactorily it may only be operated, serviced and maintained by personnel who are duly appointed by the user and who are familiar these assembly, operating

and service instructions and the relevant safety regulations, e.g. Accident Prevention Regulations.

The assembly, operating and service instructions must be made available to the appointed personnel at all times.

MISIA products are essentially maintenance-free.

The limited amount of service work that is necessary must be carried out carefully and according to the assembly, operating and service instructions and the service schedule.

## 2. SAFETY

### 2.1 ORGANISATIONAL INFORMATION

The operating, service and maintenance personnel must have read and understood the operating instructions before they start work.

The user has a duty to ensure that operation is safe and hazard-free. This can be assisted by a number of measures including:

- Providing and publishing the operating instructions
- Testing the product prior to commissioning and after major modifications
- Performing the routine tests and inspections
- Logging test results in the Inspection Schedule and keeping the Inspection Schedule in a safe place
- Keeping a record of elapsed service life

Only reliable, trained and properly appointed personnel may carry out work on or with the chain hoist.

The user has a duty to supervise the safety conscious handling of the chain hoist by his personnel.

### 2.2 SAFETY INFORMATION FOR THE USER

#### Caution!



A thorough knowledge of these assembly, operating and service instructions by operating and maintenance personnel is an essential of safe working practice.

Any and all arresting devices must be released before the start of operation.

The rotary "Emergency Stop" switch must be turned off in case of danger.

At the end of work, load carrying devices such as grippes and magnets must be detached, the empty hook pulled up and the chain hoist moved to its park position.

Any arresting device must be engaged and the rotary "Emergency Stop" switch turned off.

The relevant safety regulations, e.g. Accident Prevention Regulations and official requirements, specifically the operating regulations for hoists, must be followed when operating and servicing the chain hoist.

If the user or company is governed by national regulations for the use of chain hoists then the following instructions still apply unless expressly contradicted by the national regulations.

1. The user must ensure that chain hoists and their supporting structures are inspected and tested by an expert before first-time commissioning and before re-commissioning following major modifications.
2. The user must ensure that chain hoists and their supporting structures are inspected and tested at least once a year by an expert. He must also have them inspected by an expert at other times as the need arises depending on the conditions of use and internal company circumstances.
3. The inspection and test before first-time commissioning referred to in Point 1 includes examining for proper assembly and operational readiness.
4. During the inspection referred to in Point 2 the user must determine the elapsed proportion of the theoretical service life of chain hoists. He should appoint an expert to do this if necessary.
5. The user must ensure that records are kept of the results of the tests on chain hoists carried out in accordance with Points 1 to 4.
6. The results of tests on the chain hoist must be logged in an Inspection Schedule.
7. The user may only entrust the assembly, servicing and unsupervised operation of the chain hoist to insured persons who are suitable and familiar with it.

8. Insured persons may not assemble, service or operate chain hoists unsupervised unless they have been appointed by the user for this purpose.
9. The User must ensure that the operating instructions supplied by the manufacturer is available and accessible to those insured persons to whom the assembly, servicing or unsupervised operation of the chain hoist has been entrusted.
10. If internal company circumstances so require, the user must produce readily understandable operating procedures in the language of the insured persons and based on the operating instructions supplied by the manufacturer, setting out measures for safe operation in accordance with company circumstances.
11. The insured persons must observe these operating instructions and procedures.
12. When assembling the chain hoist the user must ensure that its control stand is positioned or protected such that the chain hoist operator is not put at risk by the chain hoist, load carrying devices or the load itself.
13. The user must ensure that the chain hoist is only mounted on structures and suspensions that are capable of safely accepting the anticipated forces.
14. The user must ensure that the chain hoist is assembled, positioned or attached such that its position cannot be accidentally changed by the forces which occur during operation.
15. The user must ensure that the chain hoist is assembled or positioned such that load-carrying devices are not drawn across edges and the chain is not deflected to the side when it enters the chain hoist.
16. The chain hoist operator must ensure that load-carrying devices are not drawn across edges.
17. The user and chain hoist operator must ensure that the safe working load of the chain hoist is not exceeded.
18. Where loads are lifted by several chain hoists together, then the user must ensure that the chain hoists are selected and positioned such that individual chain hoists are not overloaded even when the load is unevenly distributed.
19. The chain hoist operator must test emergency stop equipment – except slipping clutches – at the beginning of each working shift.
20. If the chain hoist operator finds obvious defects with the chain hoist including the load carrying devices, rollers, equipment and supporting structure, he must rectify these immediately. If this is not his responsibility or if he does not possess the necessary skills he must take the chain hoist out of service if necessary and report the defect to the user.
21. The user must ensure that loads are not slung by being wrapped around with the lifting chain.
22. Insured persons must not sling loads by wrapping the lifting chain around them.
23. The chain hoist operator must not initiate any load movement until he is satisfied that the load is safely slung and that personnel have cleared the danger area, or after he has received a sign from the slinger.
24. The chain hoist operator must keep all movements by the loads and load carrying devices under observation.
25. If the chain hoist operator cannot observe all movements by the load or load carrying devices from the control stand, then the user must take precautions to ensure that persons are not at risk from the load or load carrying devices.
26. Where work is to be carried out on or beneath loads lifted with chain hoists, the user must ensure that the loads are additionally secured against dropping on stable supports before work commences.
27. Where work is to be carried out on or beneath loads lifted with the chain hoist, the chain hoist operator must additionally secure the loads against dropping on stable supports before work commences.
28. The chain hoist operator must not leave the control stand of the chain hoist when the load is suspended.
29. If contrary to Point 28 the chain hoist operator has to leave the control stand when the load is suspended, then the user must create the conditions whereby the danger area beneath the load can be protected.
30. If contrary to Point 28 the chain hoist operator has to leave the control stand when the load is suspended, then he must protect the danger area beneath the load.
31. The chain hoist operator must not carry persons with the load or load carrying devices.
32. The user must ensure that the chain hoist is not used to handle molten substances.
33. The chain hoist must not be used to handle loads which are jammed or which can become caught, snagged or obstructed as they move.
34. The chain hoist operator must not drive the chain hoist against emergency limits as part of normal operating practice.
35. The user must take the chain hoist out of service at the end of its theoretical service life.
36. Contrary to Point 35 the chain hoist may continue in operation provided an expert
  - a) confirms that there are no objections to continued operation, and
  - b) the conditions for continued operation have been established. These conditions must be recorded in the Inspection Schedule.
37. The user must ensure that continued operation complies with the conditions according to Point 36 b).
38. Insured persons may not carry out service and inspection work unless they are satisfied that the chain hoist has been switched off and locked out. They may only carry out service work that cannot be done from the ground from work stands or staging.



39. The user must direct and supervise the following safety precautions for all repairs and modifications to the chain hoist and for work in areas where persons may be at risk from the chain hoist:
- The chain hoist must be switched off and locked out.
  - If there is a risk from falling objects, then the danger area beneath the chain hoist must be protected with barriers or by posting safety assistants.
  - If the safety precautions described in a) and b) are not appropriate or not relevant or adequate for company reasons, then the user must direct and supervise other or additional safety precautions.
40. Following repairs or modifications, or work carried out within its danger area, the chain hoist may only be put into service when the user has approved the resumption of operation. Before giving his approval, the user or his representative must satisfy themselves that
- the work has definitely been completed
  - the complete chain hoist is in a safe condition
  - all personnel involved in the work have cleared the danger area.

### 2.3 GENERAL GUIDANCE ON HAZARDS

The product is designed to be operated on industrial power systems. There are hazardous live bare parts and moving/rotating parts in the interior of the product while it is in operation.

Serious injury to persons and damage to property may result from

- the prohibited removal of covers
- improper use
- incorrect operation
- inadequate servicing and maintenance.

Failure to observe the safety information given in these instructions may cause injury or even death.

The product may constitute a danger to life and limb if it is operated or used by untrained or inadequately trained persons or if it is not operated for its intended purpose. The user must ensure that his operator and maintenance personnel receive training in good time before they work with or on the product.

Owing to the risk of injury, e.g. from becoming caught or pulled into the product, this personnel must wear no loose clothing, loose long hair or jewellery, including rings (!).

No work of any kind with or on the product may be carried out by persons who are under the influence of narcotics, alcohol or medication which affects their ability to react.

Contact with concentrated acids or alkalis can attack plastic housings and cause dangerous corrosion of metal parts; any parts affected in this way must be promptly replaced. The product must not be used in areas subject to explosion hazards unless specifically prepared for this purpose.

During operation:

All actions specified in the instructions both before, during and after commissioning, and guidance on general safety, especially those affecting operational safety and accident prevention, must be strictly followed; failure to do so may cause accidents with fatal consequences.

The use of prohibited or unsuitable tools or equipment can cause injury. The movement or rotation of parts can cause pinch and/or shear hazards both on the product and between the product and parts of its surrounding area; adequate safety distances from moving or rotating parts should be maintained at all times to prevent persons from reaching into them and clothing, parts of the body or hair from being caught.

Extreme heat (e.g. from welding), sparks produced when using cleaning agents and naked flame in the vicinity of materials that are flammable or which can distort in heat (e.g. wood, plastics, oils, greases, electrical plant or cables) must be avoided, otherwise there is a risk of fire with the release of hazardous gases or damage to insulation etc.

## 2.4 MEASURES FOR ENSURING SAFE WORKING PERIODS

The EC Machine Directive stipulates safety measures for avoiding hazards with hoists as a result of material fatigue and ageing. The following measures have therefore been taken to ensure safe working periods (S.W.P.).

### 2.4.1 THEORETICAL SERVICE LIFE D

The manufacturer or supplier of the production hoist is required to state the theoretical service life D in his operating instructions. This is shown in the following table for MISIA electric chain hoists.

#### Theoretical Service Life D (h)

	Drive Groups	1Dm M1	1Cm M2	1Bm M3	1Am M4	2m M5	3m M6	4m M7	5m M8
Line	Load populations / Factor of load spectrum	Theoretical Service Life D (h)							
1	light 1 / L1 $K = 0.5$ ( $Km_1 = 0.125 = 0.5^3$ )	800	1600	3200	6300	12500	25000	50000	100000
2	medium 2 / L2 $0.5 < K < 0.63$ ( $Km_2 = 0.25 = 0.63^3$ )	400	800	1600	3200	6300	12500	25000	50000
3	heavy 3 / L3 $0.63 < K < 0.8$ ( $Km_3 = 0.5 = 0.8^3$ )	200	400	800	1600	3200	6300	12500	25000
4	very heavy 4 / L4 $0.8 < K < 1$ ( $Km_4 = 1 = 1^3$ )	100	200	400	800	1600	3200	6300	12500

### 2.4.2 RECORD OF OPERATING PERFORMANCE

The user has a responsibility to ensure that the actual operating performance of the chain hoist is recorded and documented in the Inspection Schedule at least once a year.

Thereby, the user must record the load collectives and operating hours according to the FEM guideline FEM 9.755. A general overhaul has to be carried out by the user no later than 10 years after commissioning. This must be conducted by an authorised person and documented in the Inspection Schedule.

### 2.4.3 ASSESSMENT OF THE SAFE WORKING PERIOD (S.W.P.)

The expert responsible for inspecting the production hoist must check at every routine inspection whether the production hoist is still being used within the S.W.P.

### 2.4.4 MEASURES WHEN THE THEORETICAL SERVICE LIFE D IS REACHED

- The user must take the chain hoist out of service at the end of its theoretical service life.
- Contrary to Point 1 the chain hoist may continue in operation provided an expert
  - confirms that there are no objections to continued operation, and
  - the conditions for continued operation have been established. These conditions must be recorded in the Inspection Schedule.
- The user must ensure that continued operation complies with the conditions according to Point 2 b).



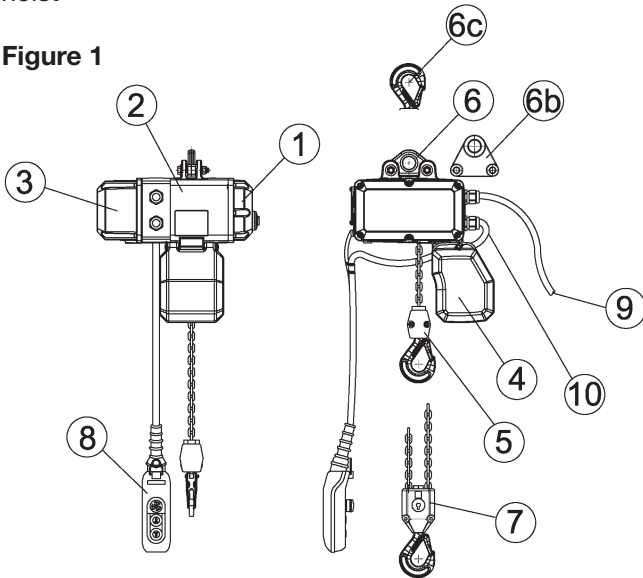
## 3. TECHNICAL DESCRIPTION

### 3.1 FUNCTIONAL DESCRIPTION

#### 3.1.1 LAYOUT

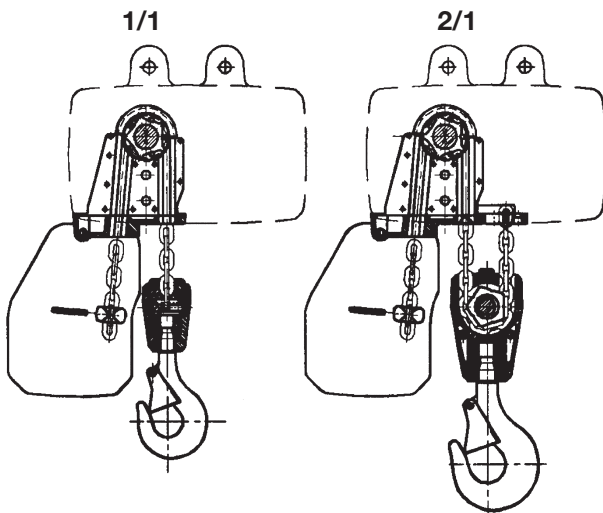
The illustration shows the external parts of the chain hoist

Figure 1



1. Gear cover
2. Chain hoist
3. Brake cover
4. Chain bucket
5. 1-fall hook block
6. Suspension eye type 2S
- 6b Suspension eye type 1S
- 6c Hook suspension type 1G
7. 2-fall hook block
8. Pendant control
9. Power supply cable
10. Push button cable

Figure 2 - Schematic of Chain Path



#### 3.1.2 DRIVE

The hoisting motor is a three-phase pole change self brake motor. When the motor is shut down or in the event of a power failure the load is held by an electromagnetic spring-loaded disc brake. A short stopping distance is achieved by means of a special electrical circuit.

#### 3.1.3 GEARBOX

The motor drives the chain drive across a multi-stage helical gearbox running in an oil bath.

The first gear pair incorporates a slipping clutch for overload limiting and is an emergency limiter device which is set at the factory according to the rated load and the shock factors to be allowed for.

#### 3.1.4 CHAIN DRIVE

The high-tensile round steel chain is driven by a five-lobe chain wheel. The close tolerance chain guide and chain wheel are specially designed and matched to ensure especially low-wear, low-noise operation. The chain drive is designed to EN 818-7 (FEM 9.671). The chain is grade DAT(8 SS)

#### 3.1.5 SUSPENSION

The suspension eye is attached to the body of the chain hoist by two stud bolts and can be used to suspend the hoist from a trolley or as a static unit.

#### 3.1.6 LOWER LOAD CARRYING DEVICE

The load is carried by a load hook which rotates in a hook housing. With single fall operation the load end of the chain is positively clamped in the hook housing and secured by means of a fully heat-treated straight pin. In the two-fall version the chain is guided over a chain wheel in the bottom block and attached to an anchor on the housing.

#### 3.1.7 CHAIN BUCKET

A chain bucket made from impact and fracture resistant plastic is mounted beneath the static chain exit on the housing to hold the chain. Different sizes are available for short and long hook travel.

#### 3.1.8 HOIST CONTROL

The hoist is usually controlled with the MISIA pendant which is directly connected to the chain hoist by connectors.

Contact control is available as an option to the standard direct control.

## 3.2 SPECIFICATIONS

### 3.2.1 EXPLANATION OF TYPE DESIGNATION

<b>MH</b>	<b>5</b>	<b>LD / 1S</b>	
Series	SWL (kg) size	Hoisting speed	Type of suspension

### 3.2.2 BOLT TORQUE SETTINGS

Tighten all bolts using a torque wrench!

#### Chain hoist type MH1 - MH3 - MH5 - MH10LD

	Bolt size	Strength grade	Torque setting
Chain guide	M6	8.8	5 Nm
Chain anchor	M6	12.9	12 Nm
Brake cover	M5	8.8	2 Nm
Hook housing	M5	10.9	8 Nm
Hook housing	M6	10.9	15 Nm
Bottom block	M6	10.9	15 Nm
Strain relief clamp	M6	8.8	6 Nm
Stud bolt for suspension eye	M10	10.9	49 Nm
Brake	M4	8.8	3 Nm

#### Chain hoist type MH10SD - MH20LD

	Bolt size	Strength grade	Torque setting
Chain guide	M8	8.8	25 Nm
Brake cover	M5	8.8	2 Nm
Hook housing	M8	10.9	35 Nm
Bottom block	M8	10.9	35 Nm
Strain relief clamp	M6	8.8	6 Nm
Stud bolt for suspension eye	M12	10.9	85 Nm
Brake	M6	8.8	10 Nm

### 3.2.3 MAIN FUSE AND CABLE RATINGS

Guideline value for approx. 5% voltage drop

#### Chain hoist type MH1 - MH3 - MH5 - MH10LD

		Supply cable for		
		220-240V 50Hz	380-415V 50Hz	440-480V 60Hz
Motor rating max.	kW	up to 0.5	up to 0.5	up to 0.5
Cable size	mm <sup>2</sup>	1.5	1.0	1.0
Supply cable length max. for above cable size, direct control, without trolley	m	40	120	160
Fuse rating, Utilisation category gL	A	10	6	6

**Note:**

The maximum supply cable lengths given in the table are for guidance only and produce a voltage drop of approx. 5% at the chain hoist.

The power cable sizes and maximum cable lengths should be determined by the user when additional loads are in use (e.g. power trolley). The voltage drop at the chain hoist should not exceed 5% of operating voltage.

#### Chain hoist type MH10SD - MH20LD

		Supply cable for					
		220-240V 50Hz		380-415V 50Hz		440-480V 60Hz	
Motor rating max.	kW	up to 1.2	up to 1.9	up to 1.2	up to 1.9	up to 1.2	up to 1.9
Cable size	mm <sup>2</sup>	1.5	1.5	1.0	1.0	1.0	1.0
Supply cable length max. for above cable size, direct control, without trolley	m	25	25	50	50	75	75
Fuse rating, Utilisation category gL	A	16	16	10	10	10	10

### 3.2.4 LOADINGS

The maximum loading for the track or suspension consists of the weight of the chain hoist as shown below and the SWL of the chain hoist. The figures are based on a hook drop of 3 metres.

#### 3.2.4.1 OVERLOAD LIMITER

The slipping clutch incorporated in the gearbox acts as both overload limiter and overload protection. It is set at the factory to a factor of 1.3 to 1.4 the stated rated load. These values must be taken into consideration when designing the supporting structure.

### 3.2.6 NOISE EMISSION LEVELS

Because the distance from the workplace to the noise source cannot normally be precisely defined with hoists, the sound power level is given below as well as the sound pressure level, given here for a distance of 3 m. The sound pressure level (under free-field conditions) can be calculated from the sound power level for any distance.

Chain hoist model	Sound pressure level Lp,m db(A) at 3m	Sound power level LW,m db(A)
MH1/MH3/MH5/MH10LD	55	72
MH10SD/MH20LD	61	78

The measurements were carried out by reference to standard EN regulations, Part 61 using the substitution method with a sound power source.

## 3.3 LUBRICANTS

### 3.3.1 LUBRICANTS USED IN THE CHAIN HOIST

The service life of the gearbox oil and ball-bearing grease is designed for the first safe working period (S.W.P.) of the chain hoist. All gearboxes are filled with the required amount of lubricant at the factory.

Component	Lubricant Standard designation	Type	Quantity
Gearbox MH1 - MH3 - MH 5 MH10LD	ATF type IID	DEA Deafluid 4011	1100 cm <sup>3</sup>
Gearbox MH10SD - MH10LD	ATF type IID	DEA Deafluid 4011	1600 cm <sup>3</sup>
Return wheel in bottom block		KI ber NBU 8 EP	
Chain	Engine oil	SAE 20W50	

### 3.3.2 ALTERNATIVE LUBRICANTS

#### For DEA Deafluid 4011

- Shell Super ATF
- DEA 5060
- ESSO ATF D 21611
- or equivalent oils of other suppliers with standard designation ATF Type II D



#### Caution!

Synthetic lubricants must not be mixed together with mineral lubricants

## 4. ASSEMBLY AND COMMISSIONING

### 4.1 DELIVERY CONDITION

Unless otherwise stated, the chain hoist is delivered with the suspension eye mounted, retracted chain and load hook as well as the chain store fitted. Additional assembly operations are described below.

Should the suspension eye, chain with load hook or chain store not be attached to the chain hoist on delivery, then these items must be assembled as described in Points 4.3 to 4.5.

The chain hoist must be stored in a clean dry place if not be to assembled immediately.

### 4.2 ELECTRICAL SYSTEM

#### Caution!



Work on the electrical system must be carried out by a qualified electrician and with the chain hoist isolated from the supply.

The chain hoist must be operated from a three-phase power supply with a clockwise phase sequence. If the directions of movement do not match the symbols on the pendant control then two phases in the supply lead must be interchanged.

Details of the control system are shown in the attached circuit diagram.

Check first that the voltage and frequency ratings shown on the nameplate match your supply specifications.

#### 4.2.1 SUPPLY LEAD (MAIN POWER SUPPLY)

The sizes of the supply leads from the sub-distribution board via the mains connection switch or a plug-and-socket connection to the chain hoist must be decided by the user. The size of the supply lead must be selected such that the voltage at the chain hoist does not fall below the lower limit of the voltage range.

See Point 3.2.4 for the main fuse rating and cable cross-sections.

#### 4.2.2 MAINS CONNECTION SWITCH (NOT SUPPLIED)

The mains connection switch must be located off the chain hoist, its purpose being to isolate the main power supply for repair and maintenance work. If necessary this switch/connector may also be used for Emergency Stop or Emergency Off. The mains connection can be locked out with up to three padlocks to prevent unauthorised use.

### 4.2.3 PENDANT CONTROL

The pendant control is supplied loose with its control cord.

#### (Figure 1, Item 8)

Different pendant controls are used for direct control and contactor control – the pendants are wired differently.

Simultaneous operation of the control buttons in opposite directions is prevented by the mechanical interlocking of the switch elements.

The function of **Emergency Stop** from the floor/operating position is provided by the **red** rotary button.

#### Caution



'Emergency Stop' is not the same as 'Emergency Off', i.e. only the power supply to the drives is interrupted and the brakes engage - the equipment is still connected to the supply.

Emergency Stop is operated by hitting the red button; this button is reset by turning clockwise.

Emergency Stop must be operated in the following cases:

- when the hoist operator leaves the control stand.
- if the movement drives cease to obey the normal control commands and can cause danger as a result.

### 4.2.4 PENDANT CONTROL

#### A. Installing the pendant control

The pendant unit hangs by a strain relief steel wire which must be shorter than the control cable to take the pendant's weight. The working height of the pendant unit should be set to approx. 100 cm above floor level.

The wire is mounted under the left hand connector in a special recess provided in the housing.

(Fig 1, Item 9)

#### B. Connecting the power supply

Connect to power supply cable to terminals  
(Fig 1, Item 10)

The cable must be connected as follows:

- Depending on the type of cable round or flat cable gland into the grommet housing.
- Insert cable through the PG cable gland.
- Strip back insulation and fit connector sleeves to ends. Ensure that the wire of the PE conductor is longer than the live conductors.
- Connect wires 1,2,3 to terminals 1,2,3 cut off the neutral conductor (N).
- Pull cable back through the gland and screw socket insert to grommet housing.
- Tighten down the PG gland.

- Connect the other end of the cable to the supply (ensure clockwise phase sequence).
- The chain hoist can now be operated.

### C.Connecting the electric travel trolley

If the chain hoist is to be used in conjunction with an electric travel trolley then the electrical connection of the trolley must be referred to the electrical diagram.

## 4.3 ASSEMBLY OF CHAIN AND HOOK

If the chain or hook have to be assembled, this should be done as described below. Chain replacement is described in **Chapter 6.5**.

- Attach threading aid (4) (e.g. cable tie or thin wire) to the last chain link and introduce into outer hole of the chain guide above the chain store.
- The first chain link runs vertically around the sprocket, the weld (3) on vertical chain links must face outwards.
- Pull the chain into the guide until resistance is felt, then feed the chain with the motor. Keep the chain under tension until the end of the chain emerges from the guide, and then remove the threading aid.
- For 1-fall chains (1/1), fit the emerging end of the chain into the hook housing and secure it with the straight pin (2). Now assemble the two halves of the hook housing and tighten to the torque settings given in Section 3.2.3.
- For 2-fall chains (2/1), feed the chain through the bottom block and attach the end of the chain to the anchor. To do this, unscrew the anchor, insert the last chain link into it and secure using the pin (1). Ensure that the chain is not twisted. The torque settings for the anchor bolts given in Section 3.2.3 must be observed.
- Fit the chain stop to the last-but-one link at the free end of the chain using the chain stopper

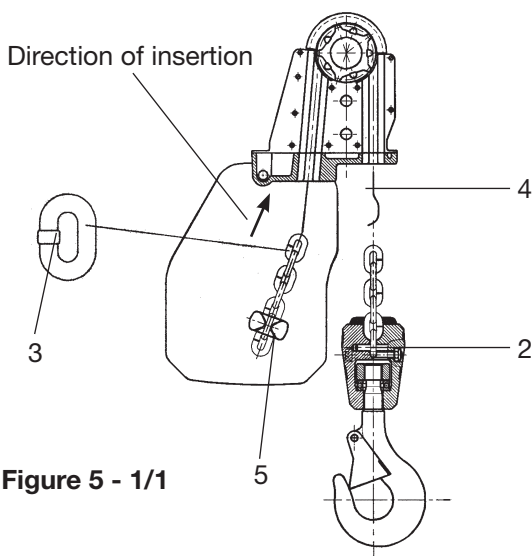


Figure 5 - 1/1

Direction of insertion

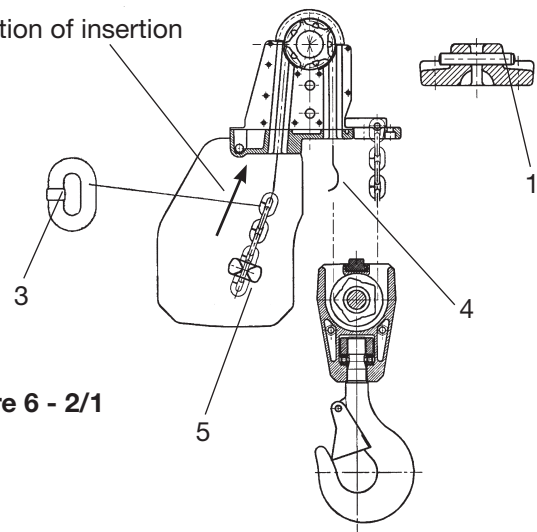


Figure 6 - 2/1

## 4.4 CHAIN STORE

The chain store – **Figure 7, Item 1** – must be fitted before the chain hoist is delivered. Thread the pin (2) through the holes provided in the container and the housing, then secure it by fitting the retaining clips (3) in the grooves machined into both ends of the pin. Remember that the chain store must be assembled correctly otherwise it may constitute a hazard.

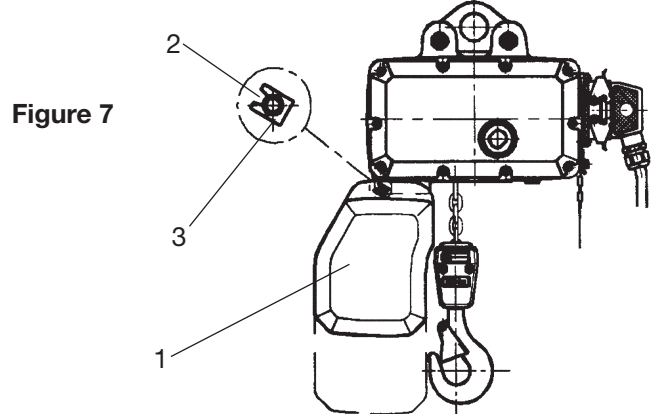


Figure 7

## 4.5 SUSPENSION EYE

Refer to Figure 8. The suspension eye (1) is fitted on top of the chain hoist housing by means of two stud bolts (2) mounted in the four lugs provided. Each stud bolt is secured with compression stop nuts (3). A washer (4) must be fitted under the bolt head and the nut. The torque settings for the nuts (3) are given in Table 3.2.3. The nuts should also be secured with LOCTITE 243 thread-lock.

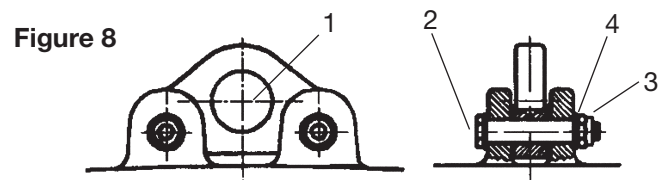


Figure 8

## 5. OPERATION

### 5.1 PENDANT CONTROL

The chain hoist and any electric travelling trolley are controlled using the pendant. Any other forms of control must be referred to the supplier. The ergonomic design of the pendant facilitates single-handed operation. The hoist motor is controlled with the two-stage pushbutton (pole-changing motor). The pendant incorporates a mechanical interlock to prevent opposing movements from being operated simultaneously. Jog controls should be avoided where possible as they can cause serious contact erosion and premature wear to the switchgear.

The following functions can be performed with the pendant:

- Pushbutton released => Stopped
- Pushbutton depressed half-way (figure 9)  
=> Precision speed / slow
- Pushbutton depressed fully (figure 10)  
=> Main speed / fast



Figure 9



Figure 10

- Red emergency stop button pressed (figure 11)  
=> Function stop, even if other button is pressed
- Turn red emergency stop button clockwise (figure 12)  
=> Function reset

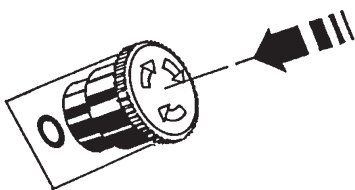


Figure 11



Figure 12

### 5.2 ATTACHING LOADS

Loads may only be lifted using the loadhook. The chain must not be run across edges; under no circumstances may it be used as a sling.

Chain slings or webbing slings should be used as necessary.

When lifting the load the operator must ensure that the load is correctly attached to the hook and that the safety catch is closed.

If the bottom block lay on the load or on the floor before the load is lifted, then jamming by the chain must be prevented.

The operator or an assistant must keep the bottom block and the hook in view while lifting is in progress.

The load should be lifted at slow speed until the chain is taut so as to minimum wear on the hook, chain and suspension.

The chain hoist must never be used to pull loads at an angle, and the hoist must be positioned directly above the load for this reason.

Pulling loads free, dragging or towing loads with the chain hoist is prohibited.



## 6. TESTING AND SERVICING

### 6.1 ACCEPTANCE AND TESTING

(User's responsibility)

#### Caution!



Where the acceptance and test procedure is not carried out by the user himself and he entrusts these tasks to third parties, then he is responsible for appointing suitable personnel and for initiating / carrying out the test.

The select expert must satisfy the following requirements:

- He must possess a thorough knowledge of the mechanical and electrical systems of chain hoists
- He must have adequate experience in the operation, assembly, servicing and maintenance of chain hoists
- He must be versed in such codes of practice, directives and safety regulations, e.g. accident prevention regulations, as relate to equipment acceptance procedures.

#### 6.1.1 ACCEPTANCE TEST BEFORE FIRST-TIME COMMISSIONING

The user must ensure that the chain hoist including its supporting structure is inspected and tested by an expert before it is operated for the first time.

The personnel necessary for the test, e.g. hoist operator, slinger etc., must be qualified for this type of work and must be made available by the user. Those involved in the test must be able to communicate with one another without misunderstanding. The user must provide suitable equipment if direct communication between slinging and operating positions is not possible.

The following items in particular should be checked as part of the acceptance test:

- The inspection schedule should be checked against its contents list
- The assembled equipment must be checked for compliance with technical requirements
- Check for compliance with mandatory safety requirements, e.g. accident prevention regulations
- Safety devices and safety measures and all brakes to be tested for efficiency
- Check for compliance with mandatory safety distances

The chain hoist and supporting structure must not display any defects which affect operation or which compromise the safety of personnel.

- The results of the tests must be recorded in the Inspection Schedule.
- The expert must decide whether commissioning can proceed.
- Any defects revealed during the course of the test must be remedied by the user; the expert must decide whether a re-test is required once defects have been remedied.

#### Caution!



The acceptance test as described in this section does not affect any tests required under national regulations which must also be performed as required.

If national test regulations require test loads higher than 1.1 times nominal under dynamic loading and 1.2 times nominal under static loading, then these must be referred to the chain hoist manufacturer before the tests are carried out.

#### 6.1.2 ACCEPTANCE TEST AFTER MAJOR CHANGES

A further acceptance test as described in Point 6.1.1 must be carried out by an expert before operation following major changes.

Major changes include:

- Moving the chain hoist to a different supporting structure
- Welding work on members of the supporting structure
- Design changes to the supporting structure

#### 6.1.3 ROUTINE TESTS

Depending on its conditions of use (level of capacity utilisation, frequency of use and environmental conditions), the chain hoist and its supporting structure must be tested by an expert as required **and at least once a year**.

For example, a hoist which is in virtually constant use close to maximum capacity will require testing more frequently than a hoist that is only used for occasional erection work and for which an annual test is perfectly adequate.

Dusty and aggressive environments can also require shorter test intervals.

Test intervals other than the maximum of 1 year between tests must therefore be decided by the user based on his specific requirements, and he should consult the manufacturer if in doubt.

The results of these tests must be recorded in the Inspection Schedule.

Routine tests should comprise the following items as a minimum requirement:

- Check the identity of the product against the details in the Inspection Schedule
- Check the condition of components and equipment for damage, signs of wear and corrosion and other deterioration
- Check that safety devices and brakes are complete and operate correctly
- Check the supporting structure
- Determine how much of the theoretical service life has elapsed
- Re-test following rectification of defects that affect safety.

### Caution!



The user must take the chain hoist out of service at the end of its theoretical service life. Continued operation is only permitted when an expert has confirmed that there are no objections to continued operation and the conditions for continued operation have been determined. These conditions must be recorded in the Inspection Schedule.

The user must ensure that the conditions for continued operation are complied with.

## 6.2 INSPECTION AND SERVICE SCHEDULE

Item	Inspection Criterion	Inspection times		
		Before service	Daily	Routine inspection
Brake	Function test	•	•	•
	Check air gap between lining and hub			•
Slipping clutch	Function test	•		•
Chain	Visual check		•	•
	Lubricate	•	•	•
	Measure for wear			•
Chain store	Check attachment	•		•
Hook housing / Bottom lock	Visual check			•
	Check return wheel roller bearing			•
Loadhook	Check bearing	•	•	•
	Safety catch operation	•	•	•
	Check for distortion and wear			•
Suspension eye/hook	Correct mounting of twist lock	•		•
	Check for distortion and wear			•
Controls	Function test	•	•	•
	Condition of power supply			•
Optional lift limit switch	Function test	•	•	•
Chain Hoist	Theoretical service life "Measures for Ensuring Safe Working Periods"; see Chapter 2.4			•

## 6.3 SERVICING THE BRAKE

### 6.3.1 CHECKING THE BRAKE

Despite the brake lining's very long service life the brake must be checked regularly and adjusted as necessary depending on the severity of use. Brake wear can be checked by watching how far the load runs on when being lowered, i.e. the user should observe and measure the distance by which the load runs on after the brake is applied. The brake should be adjusted if this distance is at all noticeable.

The air gap should be checked as part of normal routine servicing as described in Section 6.1.3 and adjusted as required. The condition of the brake lining and brake hub including the key fit should also be examined. This is done by first removing the brake cover, then slackening the solenoid retaining screws and removing the solenoid. Following inspection, the solenoid is refitted and the air gap set as described in Section 6.3.2.

The thickness of the brake lining must not be below the following minimum limits:

Type	Brake lining	
	New	Minimum
MH1 - MH3 - MH5 - MH10LD	11 mm	8.0 mm
MH10SD - MH20LD	10.5 mm	7.5 mm

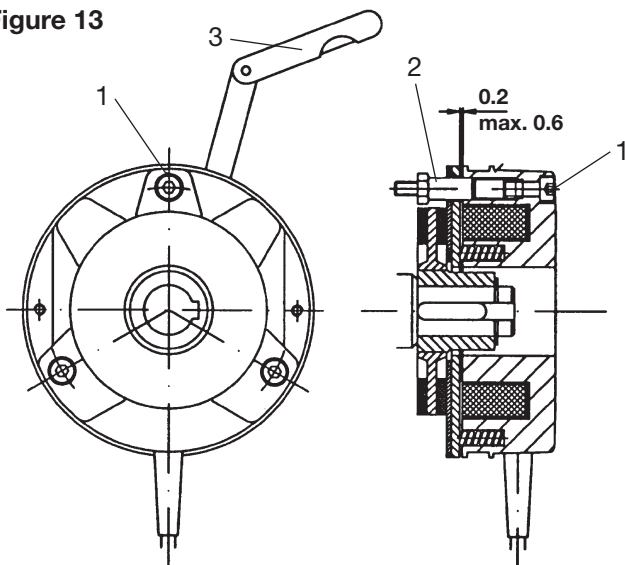
### 6.3.2 ADJUSTING THE BRAKE

The brake cover is attached to the housing by six Allen screws.

Once the brake cover has been removed the brake will be found in the left hand side of the housing. Use a feeler gauge (3) to measure the air gap – this must not exceed 0.6 mm, and is adjusted as follows:

1. Slacken the Allen screws (1)
2. Turn the adjuster sleeves in or out as required (2)
3. Tighten the Allen screws (1)
4. Measure the new gap with a feeler gauge (3)
5. Repeat the process until the desired gap (0.2 mm) has been achieved
6. Always remember to tighten the Allen screws (1) when adjustment is complete

Figure 13



The complete brake disc (brake lining and back plate) must be replaced when the lining has been adjusted twice because of load.

### 6.3.3 BRAKE LINING REPLACEMENT

Slacken the mounting screws and remove the body of the brake. The brake disc sits on a splined hub and it can now be withdrawn.

Now mount the new brake disc and re-assemble in reverse order of dismantling. Following brake lining replacement the air gap must be adjusted as described above in section 6.3.2.

### 6.4 SERVICING THE SLIP CLUTCH

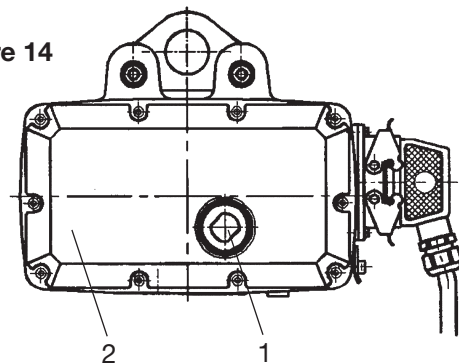
The slip clutch requires no adjustment under normal operating conditions. The clutch runs in an oil bath and the linings are virtually wear-free. The initial set-up is done in the factory and any subsequent adjustment must be carried out by authorised service personnel. Increasing the release torque above the factory setting is not permitted.


Correct operation of the slip clutch can be determined by checking whether the hoist raises the rated load promptly without a delay and / or that the load does not drop back during raising. The slip clutch may require adjustment after a long period of severe operating conditions.

To adjust, proceed as follows:

1. Slacken the screw plug (1) on the gear case (2) with a 19 mm open-end spanner and remove.

Figure 14



2. Adjust the clutch by turning the locknut clockwise (17 mm spanner).
3.  If the chain moves during adjustment, it must be locked in position where it enters the chain guide.
4. Check the adjustment by lifting/lowering the test load a number of times. The slip clutch must be adjusted so that it can still just lift 1.3 to 1.4 times the rated load.
5. Repeat from step 2 if adjustment is not sufficient.
6. After adjusting, check the O ring on the screw plug and replace if necessary.
7. Tighten the screw plug.

#### Caution!



The slip clutch should never be used as a hook travel limiter for normal operation. A dedicated limit switch must be used for this purpose as required by regulations.

Do not under any circumstances undo the Allen screws in the gearbox cover as this will allow gear oil to leak out!

## 6.5 CHAIN CARE AND REPLACEMENT

### 6.5.1 CHAIN CARE

The life of the chain depends largely on the condition of the lubricant. The inspection and servicing intervals will vary according to environmental influences and the severity of use. A daily visual check on the chain (see Point 6.2) will indicate the quality of the lubrication, and the chain should be oiled accordingly or an oil change carried out. Soiled chains must be cleaned before oiling. Chains should be lubricated in the relaxed condition to ensure that the oil can flow into the joints. We recommend the use of a standard commercially available engine oil, e.g. 20W/50, as the lubricant.

### 6.5.2 INSPECTING THE CHAIN

A decision to replace the chain should take account of the following criteria:

- Chain length
- Surface damage
- Corrosion.

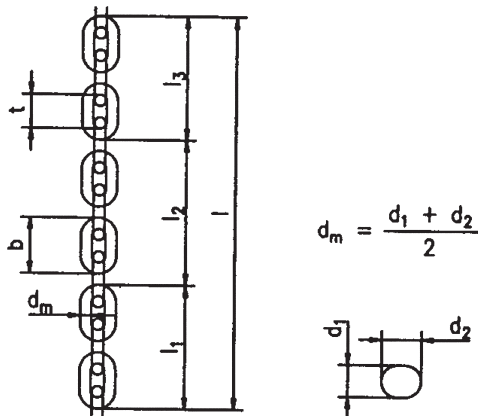


Figure 15

Type		MH1 - MH3 MH5 - MH10LD	MH10SD MH20LD
Chain size	dxt	5 x 15	7 x 21
Min.link thickness joint	dm	4.5	6.3
Max.internal pitch	t	15.9	22.2
Max.length over 11t	l	178.5	249.9

Measuring the chain length over 11 links (Figure 15) can be done directly or in stages. Staged measurement is done on 2 x 3 and 1 x 5 links. The chain should be pre-tensioned slightly when measuring. The three measured values L1 + L2 + L3 should not exceed the stated limit "L" when added together. If any of the stated limit measurements is exceeded the chain must be replaced by a new original MISIA approved chain. The chain must also be replaced if there is any surface damage such as nicks or necking, or signs of corrosion.

### Caution!



Corrosion significantly reduces the safe working load of the chain and can be the immediate cause of chain failure.

### 6.5.3 CHAIN REPLACEMENT

The chain may need to be replaced when worn after a long period of service or if the lifting height is modified. Please ensure that the new chain is lubricated before or immediately following replacement.



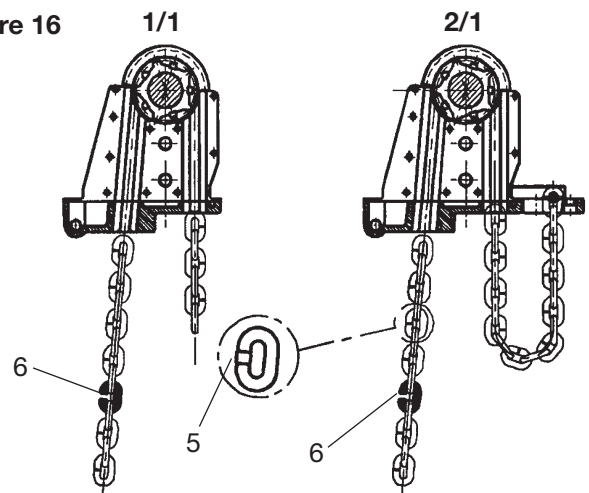
### Important Note!

Use only MISIA Approved Chains!

The chain is replaced by attaching the old chain to the new one. Proceed as follows:

- Remove the chain store and chain stop.
- Attach new chain to the old chain with a C link (Figure 16, Item 6).
- The position of the weld (Figure 16, Item 5) must be as shown.
- Feed the new chain through using the "Lower" control function.
- For single-fall chains (1/1) open the hook housing, insert the last chain link, secure it with the pin and re-assemble the hook housing. The screw torque settings given in Point 3.2.3 must be followed without fail.
- For two-fall chains (2/1) the chain is fed through the bottom block and the last chain link is attached to the chain anchor. To do this, unscrew the anchor, insert the last link and secure with the pin.
- Take care not to twist the chain when fitting. The screw torque settings for the chain anchor given in Point 3.2.3 must be followed without fail. The pin should be replaced whenever the chain is replaced.
- Finally re-assemble the chain stop and chain store.

Figure 16



Normal chain maintenance should include routine checks for wear and tear, and chain lubrication should also be changed every 100 operating hours. Heavily soiled chains must be cleaned before lubricating. Normal commercial 20W/50 engine oil is the recommended lubricant.

Always lubricate the chain in the relaxed condition to ensure that oil film can enter the joints.

## 6.6 TESTING AND SERVICING LOAD CARRYING DEVICES

Load carrying devices should be inspected as a normal part of routine safety checks. A regular visual examination of the external parts is sufficient, i.e. buffer pad, hook and safety catch. Replace the buffer pad if cracked or distorted. The hook housing or bottom block will have to be dismantled for this purpose. The hook bearing is tested by rotating the hook manually with a load attached. The complete hook must be replaced if there is any defect.

### 6.6.1 HOOK HOUSING

No replacement is necessary in the hook housing other than the parts described in Section 6.6.

### 6.6.2 BOTTOM BLOCK

The bottom block houses a return wheel for the chain. To check the condition of the chain wheel's ball bearings, open the bottom block by removing the two socket head screws. Take out the chain and hook together with the hook bearing. The smooth running of the wheel can now be checked by placing it in one half of the bottom block and spinning it by hand. To check the bearing pin for surface damage, lift the return wheel and its bearing off the pin. If any of these parts is damaged, replace both halves of the bottom block, the bearing pin and the wheel including its ball-bearing. Renew lubrication as required.

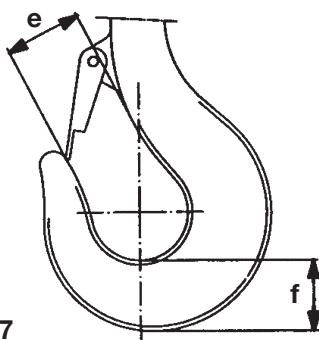
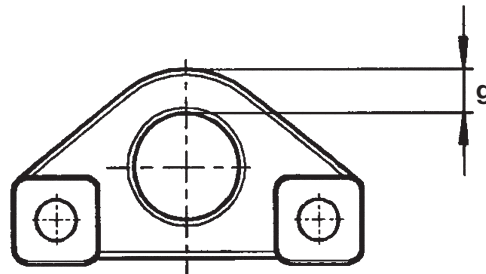


Figure 17

Hook type	MH1 - MH3 MH5 - MH10LD	MH10SD	MH20LD
Max expansion "e"	25	25	34
Min main section "f"	28	28	32

## 6.7 SUSPENSION EYE

Measure the eye thickness  $g$ . If  $g$  is less than as shown in the above table, replace the eye. It must also be replaced if cracked or damaged.



Suspension type	Hoist	Eye min d. mm	Min eye thickness "g" Mm
Type A	MH1 - MH3 - MH5 MH10LD	30	17
	MH10SD MH20LD	30	24
Type F	MH1 - MH3 - MH5 MH10LD	36	11
	MH10SD MH20LD	36	14


## 7. TROUBLE-SHOOTING CHART

The faults listed in the chart must be rectified by a specialist technician



### Caution!

The chain hoist must be isolated from the supply prior to executing any work on its electrical system

Fault	Possible cause	Remedy	Remarks
Chain hoist fails to operate	No supply	Check current collector Check EMERGENCY	
		STOP button and contactor K1	Contactor K1 with contactor control only
	Lift limit switch of hoist has tripped	Check phase angle	Only when chain hoist fitted with lift limit switch
		Check operation of lift limit switch	
		Check setting of lift limit switch	
	No control voltage	Check control fuse on control transformer	With contact control only
Motor fails to run in either direction and does not 'hum' even when pendant is operated	No supply	Check voltage	
	Mains connection not correct	Connect all 3 phases correctly	
	Faulty fuse	Replace fuse	Refer to circuit diagram
	Q/R connectors, mains connection of pendant not properly connected or fused	Push Q/R connectors home and secure with retaining clips	
	Faulty contact in pendant, open circuit in supply wiring or in pendant or possibly in travel drive	Check wiring for open circuit, replace control cable if necessary	
Motor fails to run in either direction but 'hums' when pendant is operated	Faulty supply connection or main fuse blown	Check mains connection	
	Faulty contactor	Replace contactor	With contactor control only
 <b>Caution!</b> Motor winding can burn out			
Motor labouring	Brake fails to release, motor running against closed brake	Refer to brake faults	



## 7. TROUBLE-SHOOTING CHART

ELECTRIC CHAIN HOIST  
**MH SERIES**



Fault	Possible cause	Remedy	Remarks
Hoist moves in one direction only	Faulty switching element in pendant	Check element and replace as necessary	
	Open circuit	Check control cable	
	Faulty contactor	Replace contactor	With contactor control only
	Lift limit switch (if fitted) was operated	Check limit switch	Only with lift limit switch fitted
Brake fails to release	No supply to brake coil, no a.c. supply at rectifier input	Check connections and repair as necessary	
		Check motor	
	Rectifier not correctly connected or faulty	Check d.c. supply at brake coil (approx. 90 Vdc); connect rectifier correctly or replace	Refer to circuit diagram
	Brake coil without continuity and faulty	Replace brake coil	Refer to operating instructions
Excessive stopping distance	Air gap at maximum (limit of wear has been reached)	Adjust brake	Refer to operating instructions
Chain hoist fails to lift load	Overload protection has tripped	Check setting and adjust as necessary	
		Reduce load to SWL	
Chain wearing too fast	No or inadequate chain lubrication. Chain is entraining solid dust particles due to severe conditions. Chainwheel and/or chain guide worn from extreme operating conditions or excessive period of use	Oil chain regularly. Regularly clean and degrease chain then lubricate, replace with new parts	Refer to service schedule. Check chainwheels and guides for wear when replacing worn chains
Excessive 'rattle' in chain drive	Chain is over its wear limit, chain too long incorrect chain fitted	Replace chain with a new original ABM chain	Check chain regularly according to service or inspection schedule
Load occasionally drops back when lifting with nominal load	Slipping clutch set too loose	Adjust clutch as described in Point 6.4	Follow operating instructions carefully

## 8. REPAIRS



### Caution!

All repairs must be carried out by skilled personnel.

MISIA Electric Chain Hoists may only be serviced and maintained by trained and authorised engineers.

MISIA can accept no liability for damage due to repairs carried out incorrectly or by unauthorised personnel.

Please note that only MISIA Original Spare Parts should be used to ensure that warranty claims can be processed.

## 9. DISPOSAL, RECYCLING, DECOMMISSIONING

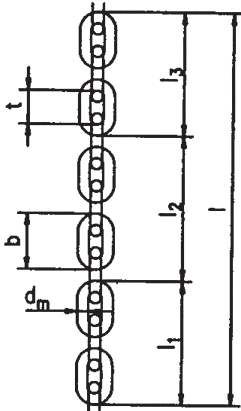
MISIA products are capable of environmentally friendly disposal/recycling after use.  
Details about disposal and recycling of the various components of the hoist are given in the table below.

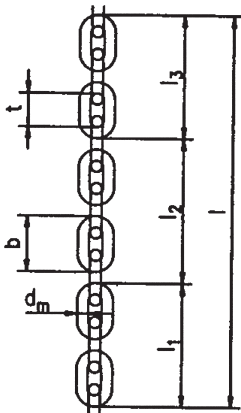
Painted products: depending on the type of coating these items should be sent for recycling or removed to special disposal sites in accordance with local statutory requirements regulations.

Product	Materials	Disposal
Housing, chainwheel, chain, suspension eye, motors, gearbox, loadhook	Metals	Grade different materials, recycle by melting down
Brake linings, slipping clutch lining	Composites	Remove to special sites complying with local statutory requirements
Covers, chain guide	Plastics	Recycle, incinerate
Lubricants	Oils and greases	Treat or dispose according to waste legislation, e.g. incinerations
Cables, housings, connectors, pendant control	Rubber, PVC, silicone, polychlorophen	Grade different materials, recycle
Electronic units	Plastics, metals, electrolytes	Remove to special sites complying with local statutory requirements



## 11. CHAIN

Chain hoist		MH1 - MH3 - MH5 - MH10LD	
Standard designation		RDT 5x15 H 80 D or HE KN ABM-G80 RAS - 5x15	 $d_m = \frac{d_1 + d_2}{2}$
Wire gauge	mm	5	
Pitch	mm	15	
Link thickness in joint	"dm" min.	4.5	
Internal pitch	"t" max.	15.9	
Lenght over 11 links	"l" max.	178.5	
Finish		Galvanised	
Material		Special chain steel	
SWL per leg	kg max.	500	
Production test load	kN min.	20	
Breaking load	kN min.	32	
Percentage elongation after fracture	% min.	10	
Weight per metre	kg/m	0.54	

Chain hoist		MH10SD - MH20LD	
Standard designation		RDT 7x21 H 80 D or HE KN ABM-G80 RAS - 7x21	 $d_m = \frac{d_1 + d_2}{2}$
Wire gauge	mm	7	
Pitch	mm	21	
Link thickness in joint	"dm" min.	6.3	
Internal pitch	"t" max.	22.2	
Lenght over 11 links	"l" max.	249.9	
Finish		Galvanised	
Material		Special chain steel	
SWL per leg	kg max.	1000	
Production test load	kN min.	40	
Breaking load	kN min.	60	
Percentage elongation after fracture	% min.	10	
Weight per metre	kg/m	1.10	

The original of the supplier's test certificate is held at the manufacturer's works. This works certificate complies with EN 10204. Measuring the chain length over 11 links (Figure) can be done directly or in stages. Staged measurement is done on 2 x 3 and 1 x 5 links. The chain

should be pre-tensioned slightly when measuring. The three measured values  $l_1 + l_2 + l_3$  should not exceed the stated limit "l" when added together. If any of the stated limit measurements is exceeded the chain must be replaced by a new original MISIA chain.

Inspected on: by:	Length over 11 links [mm]	Dim. t [mm]	Dim. dn [mm]	"g" [mm]	Safe working load [kg]	Remarks

# 12. CIRCUIT DIAGRAMS

## 12.1.1 WIRING DIAGRAM CHAIN HOIST TYPE DUAL SPEED

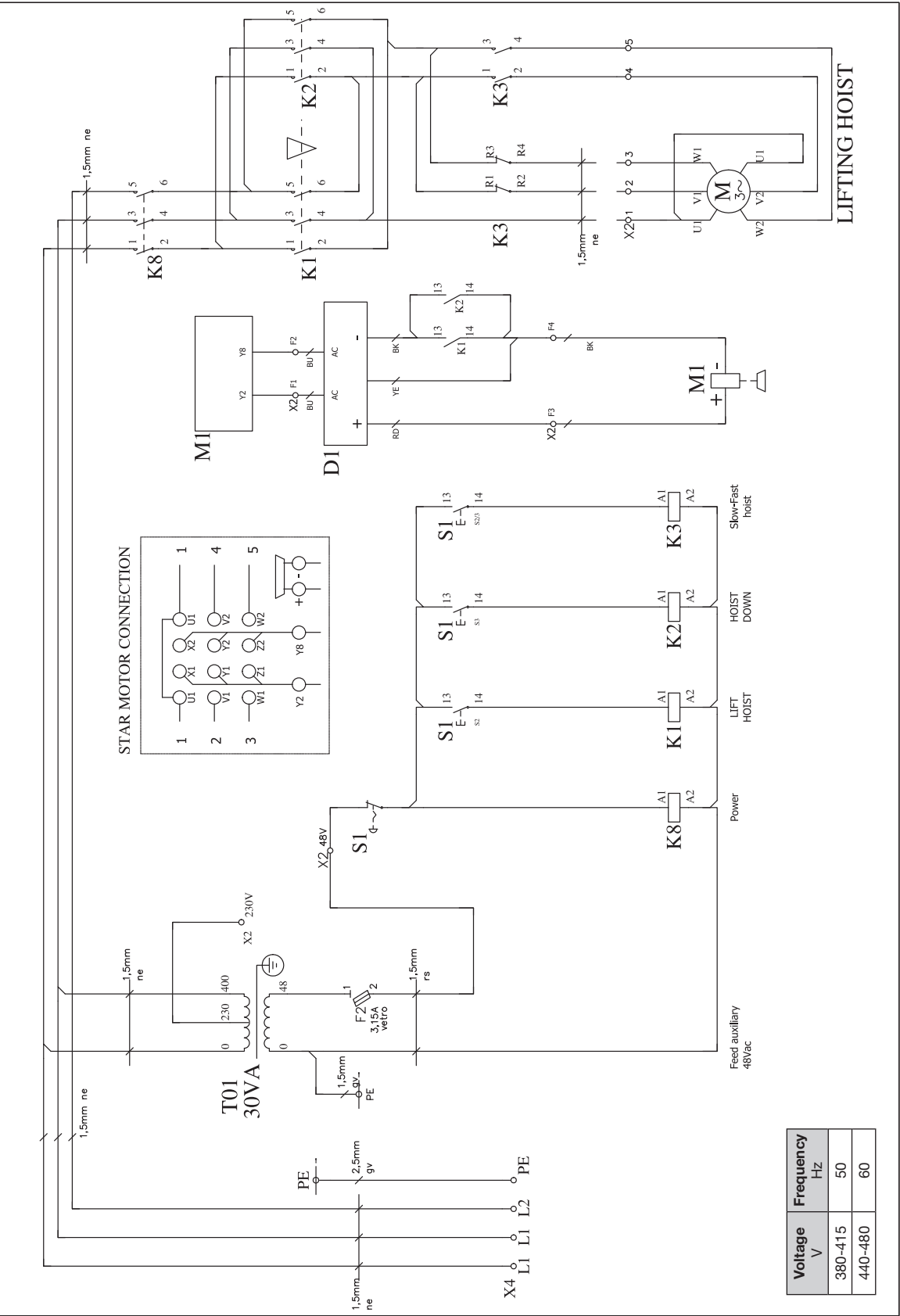


Figure 21a



### 12.1.2 WIRING DIAGRAM CHAIN HOIST WITH TROLLEY (HOIST DUAL SPEED – TROLLEY SINGLE SPEED)

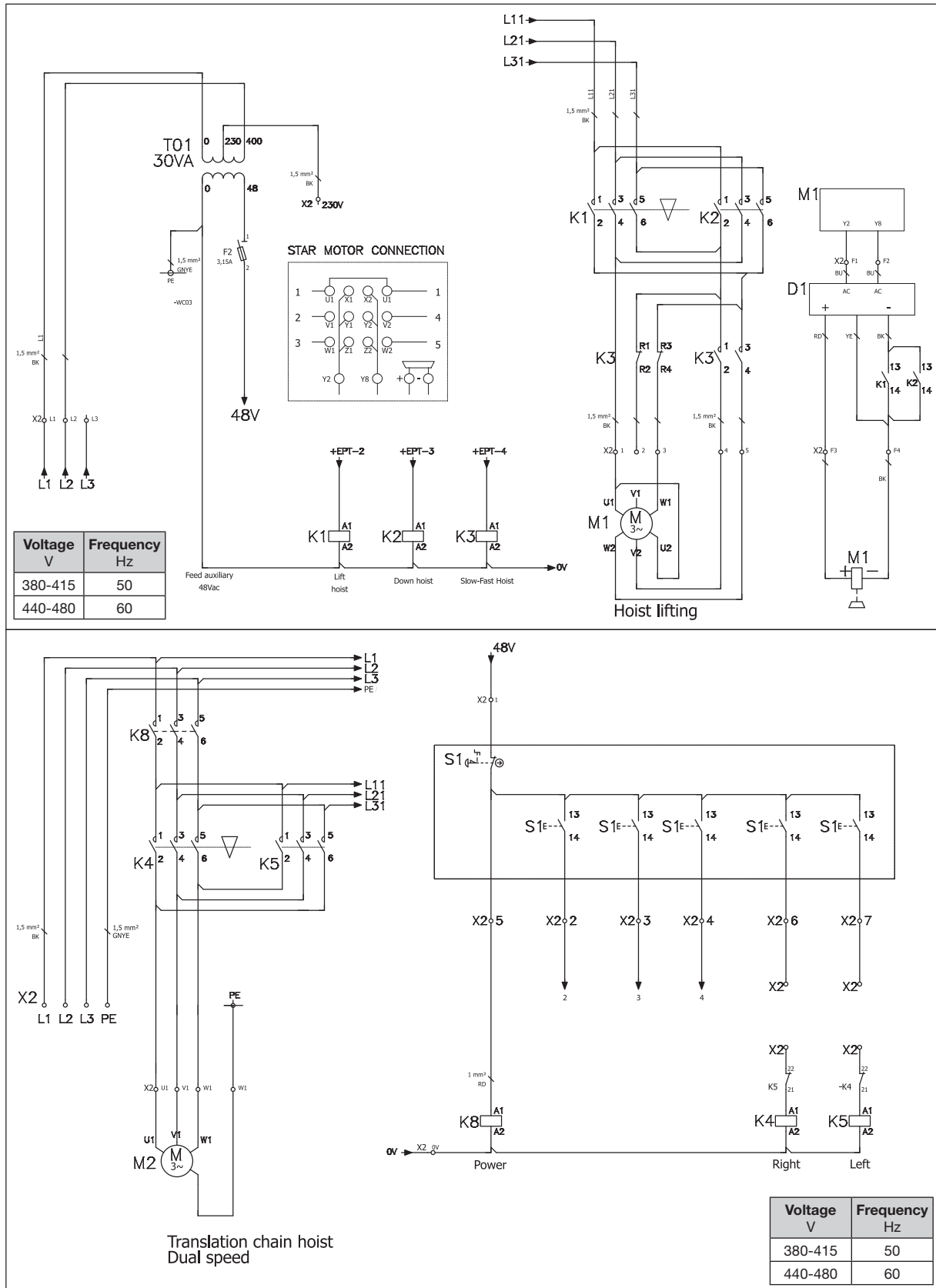


Figure 21b

### 12.1.3 WIRING DIAGRAM CHAIN HOIST WITH TROLLEY (HOIST DUAL SPEED – TROLLEY DUAL SPEED)

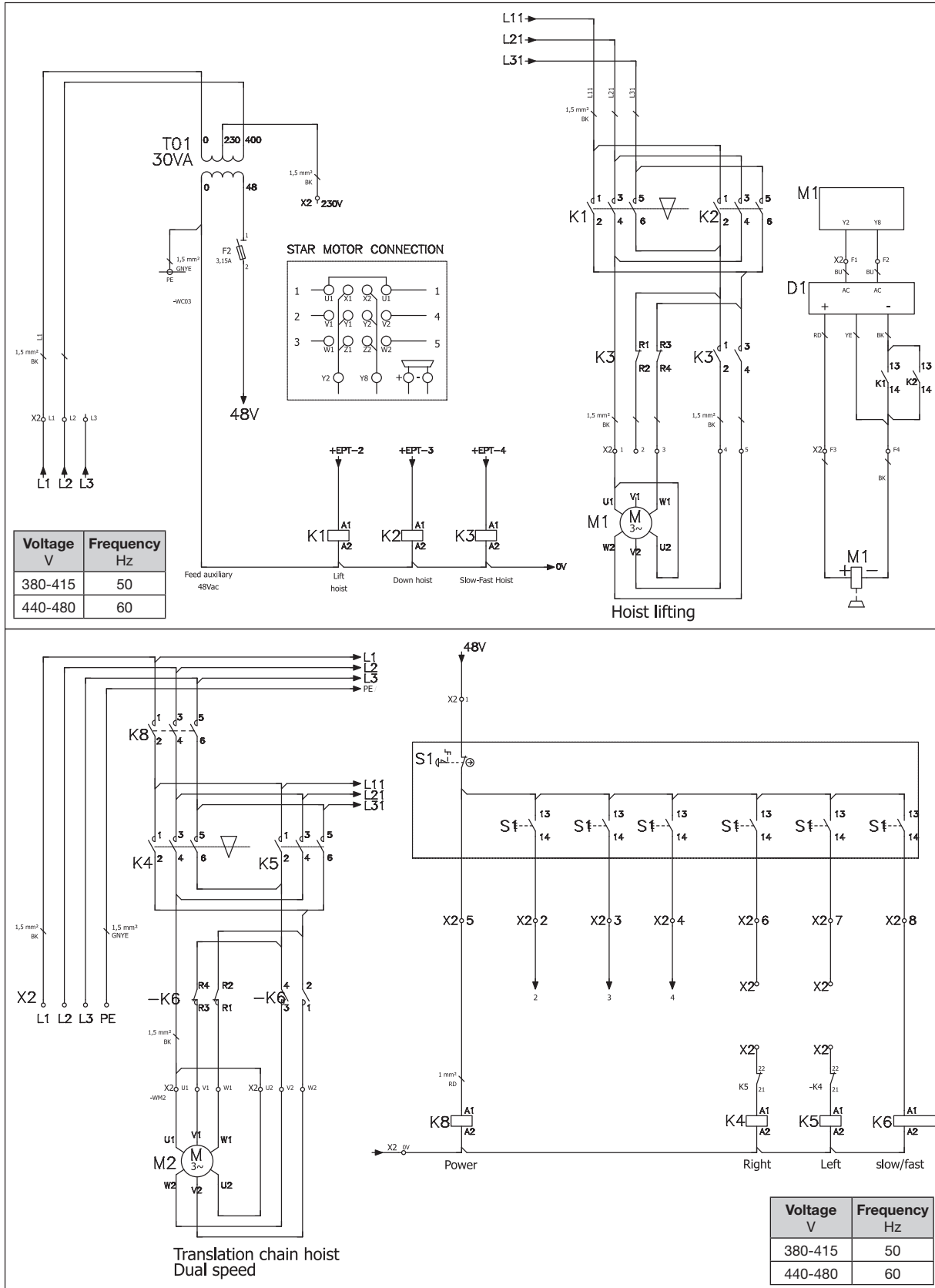


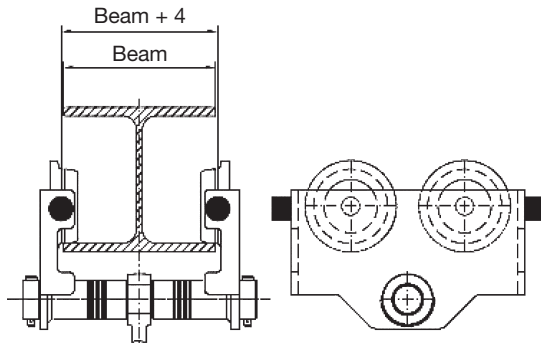
Figure 21c

## 13. MANUAL TROLLEY

### 13.1 INSTALLATION OF HOIST WITH MANUAL TROLLEY

The Misia manual trolley is supplied already set for the beam with 4mm gap. (see.fig 1)

**Fig1**



Anyway it's always possible to change or adjust the width of the trolley larger moving the spacer on the pin.

The maximum width is 300mm

- (1) The most simply mode of installation is to put the trolley from the end of the beam

After the operation, it's necessary to re-install the terminal stop in its original position.

- (2) If there isn't enough space between the end of the beam and the building it's necessary to proceed as follows:
  - remove the side plate with the identification tag from the suspension shaft.

After placing the side plate without the identification tag on the other side of the flange, re-assemble and re-install the side plate with the nameplate as before.

Then fold the cotter pin firmly of the stop shaft, (see fig.1)

### 13.2 AFTER INSTALLATION CHECK

After the installation, check as follows :

- (1) Ensure that the arrests of the beam are tightened to the same to prevent the exit of the trolley from the beam.
- (2) Make sure you have put all the bolts, nuts, cotter pins or snap rings and that all these details have been tightened properly.

## 14. ELECTRIC TROLLEY

### 14.1 INSTALLATION OF HOIST WITH ELECTRIC TROLLEY

Remove the cotter pin pos. 1, remove the pin pos. 2 and open the plate pos. 3 to allow the wheels to pass on the external edge of the beam flange.

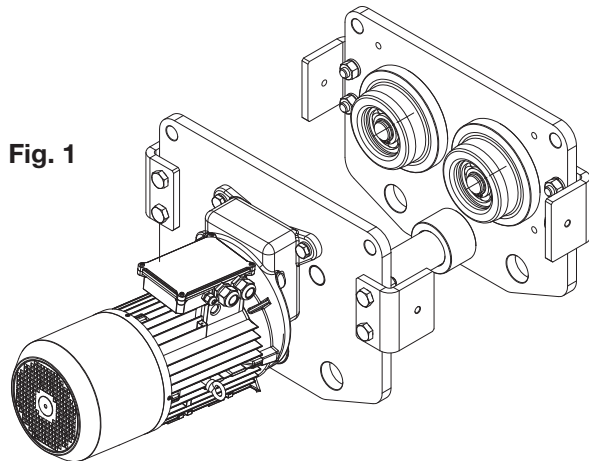


Fig. 1

Position the trolley and tighten the plates.  
The space between the wheels and the beam flange must be 3-4mm see fig 2.

Reassemble the pin pos. 2 and the cotter pos.1

After mounting, verify that the trolley travel smoothly and there are not obstacles, such as protections on the beam flanges, junctions, plates bolt heads, etc.  
Provide for rubber stoppers at the ends of the trolley as shown below.

At the end of the installation, ensure that the travel limit switch (5) is operating in both directions by suitable brackets (6) not supplied by Misia

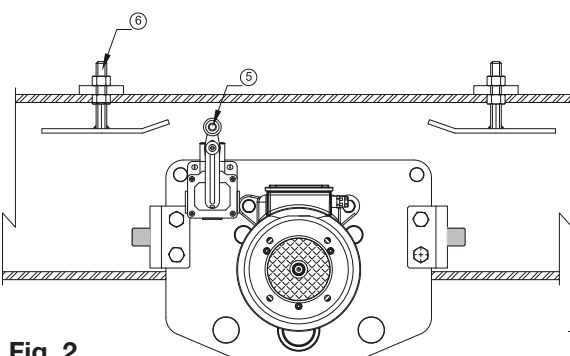
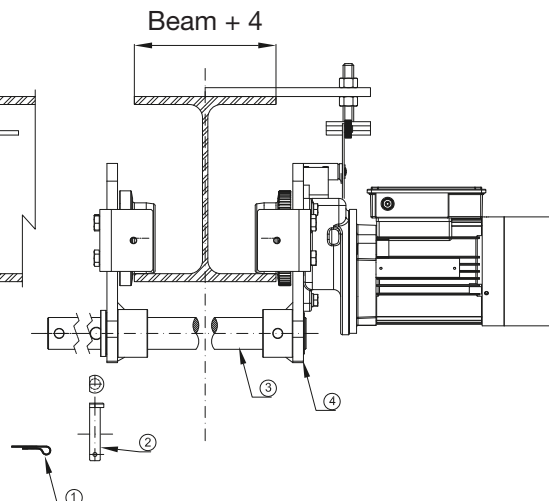


Fig. 2



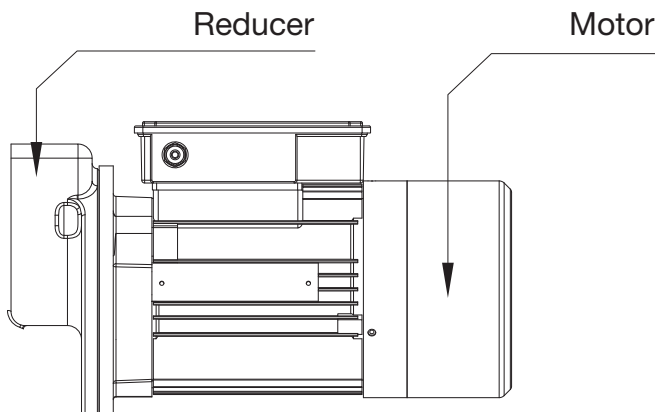
### 14.2 REMOVAL AND INSTALLATION PROCEDURE FOR TROLLEY MOTOREDUCER

#### TROLLEY MOTOR

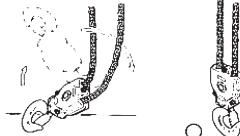
- **Removal:** Loosen the 3 screws Item 1 and pull out the motor.
- **Installation:** Install the motor turning it so that the drive shaft perfectly fits in its seat, paying attention to align the driving gear with the gear of the gearbox of the trolley (o pre-gearbox); and then definitively tighten the 3 screws Item 1.

#### TROLLEY REDUCER

- **Removal:** Remove the motor as previously described, and then loosen the screws Item 2 and 3 and pull out the pre-reducer.
- **Installation:** Install the reducer turning it so that its seat perfectly fits into that of the plate of the trolley. Place the reducer in its original position, tighten the screws, install the motor as previously described.



## 15. INSPECTION PROCEDURE

Class	Item	Inspection method	Discard limit/criteria	Remedy
Common for electric chain hoist and trolley	<b>1. Push button</b> (1) Function	Press the emergency stop button while the hoist is under no load condition.	The emergency stop function kicks in and the stopped state is maintained.	If equipment fails to stop in response to the emergency stop button or if the stopped state can not be maintained, replace the emergency stop device.
			After turning the emergency stop button to the right, the hook can be lifted or lowered, or the trolley can be traversed.	If the button can not be reset, replace the device.
	(2) Case cracking	Check visually.	Must be free of cracks.	Replace with a new case.
Electric chain hoist	<b>1. Push button</b> (1) Function	Operate the push buttons under no load condition.	Bottom hook can be lifted and lowered.	If the bottom hook won't move, check power source or see if the cord has become disconnected
	<b>2. Brake</b> (1) Function	Lift and lower 2 or 3 times under no load condition	When the push button is released, the brake operates and the motor stops immediately.	If the motor does not stop immediately, ask the service personnel to inspect and repair it.
	<b>3. Friction clutch</b> (1) Function	Lift and lower the hoist under no load condition to its limits and check from outside if the motor turns.	The motor should turn idly when the bottom hook stopped at the lift and lower limits.	If there are abnormalities, ask the service personnel to inspect and repair them.
	<b>4. Load chain</b> (1) Appearance	Check visually for greasing and twisting.	Load chain is well lubricated.	If oil has run short, apply the specified lubricant
			Load chain is not twisted or capsized. 	If chain is twisted, untwist it and restore it to normal chain condition.
	<b>5. Hook</b> (1) Bottom hook deformation	Check visually.	Shape has not deformed from what it was at time of purchase.	Replace the hook with a new one if deformed.
	(2) Hook latch operation	Move with hand or check visually.	Free of deformation and damage. Operates normally.	Replace the hook latch with a new one if abnormal.

Class	Item	Inspection method	Discard limit/criteria	Remedy
Motorized trolley	<b>1. Push button</b> (1) Function	Operate the push buttons under no load condition.	Traverses smoothly.	If a trolley does not move, check power source or see if the cord has become disconnected.
	<b>2. Traversing unit</b> (1) Motor brake operation  (2) Function	Run and stop 2 or 3 times under no load condition.	When a button is released, the motor stops immediately.	If there are any abnormalities, ask the service personnel to inspect and repair them.
			The trolley runs smoothly.	
	<b>3. Side plate</b> (1) Deformation	Check visually.	<b>NEVER</b> use if it seems to be deformed (as revealed by visual check).	Replace the side plate with a new one if deformed.
Common for electric chain hoist and trolley	<b>1. Push button</b> (1) Operation  (2) Emergency stop function  (3) Loose wiring joint	Push buttons in turn.	Movement is smooth without extreme play and interference.	Inspect and repair it if operation is abnormal.
		Stop and reset the equipment 2 or 3 times using the emergency stop button.	The button should operate smoothly and be void of extreme play and interference.	Inspect and repair it if operation is abnormal.
		Check visually.	Screws are not loose or missing.	Tighten further if it has loosened.
	<b>2. Main body and traversing unit</b> (1) Cable or cord joint damage	Check visually.	Free of noticeable damage.	Repair cables/ cords or replace them with new ones.
	<b>3. Power supply, ground, insulation and control circuit</b> (1) Control circuit fuse installation and capacity  (2) Grounding	Remove the controller cover and check visually fuse installation.	The fuse should be securely fit in the prescribed location.	Fit in the prescribed location.
		Check fuse capacity.	As indicated on the below table.	Install a fuse of the proper capacity.
		Check grounded point.	Grounding resistance should be 100 Ohm or less.  For the collector type, the trolley running surface of the beam is free of insulating materials, such as paint. Also, the beam is perfectly grounded.	Ground in compliance with local laws and regulations.  Remove insulating materials.
	(3) Voltage measurement of the connection box at receiving point	Measure with a voltmeter.	Voltage is within $\pm 10\%$ of rated voltage during rated running (of the electric chain hoist).	Check that both cable and power source capacity are appropriate.
	(4) Measurement of insulation resistance	Measure charged and uncharged parts with an insulation resistance tester.	Insulation resistance is 5 MOhm or more.	Investigate cause and replace defective parts.



Class	Item	Inspection method	Discard limit/criteria	Remedy
Electric chain hoist	<b>1. Main body</b> (1) Casing damage	Check visually.	Body is free of flaws and cracks.	Replace casing with a new one if damaged or cracked.
	(2) Abnormal sound during operation	Lift and lower by suspending a light load.	Motor or main body interior does not generate vibration, noise or irregular sounds.	If abnormal sounds are heard, ask the service personnel to run an inspection.
	(3) Quantity of gear oil and contamination	Check visually.	Change oil regularly in keeping with work frequency.	Provide oil if the quantity is insufficient. If oil has been badly contaminated, replace it with new oil.  Notice: Dispose of consumed oil in accordance with local regulations.
	(4) Controller cover damage	Check visually.	Free of deformation and cracks.	If deformation hinders function, replace the controller cover with a new one.
	(5) Name plate damage	Check visually.	WLL is readable.	Replace the name plate with a new one if illegible.
	(6) Loose or missing	Check visually.	Fitting screws are not loose or missing.	Tighten further if it has loosened.
	<b>2. Brake</b> (1) Function	Suspend the WLL. Lift, lower and stop it.	When switched off in the middle of lowering, the chain stops within about two links and less than 1% of lifting speed (m/min.) after turning off the hoist.	If the stopping distance is too large, ask the service personnel to inspect and repair it.
	<b>3. Friction clutch</b> (1) Function	Lift up the WLL.	The WLL should be lifted up.	If not, ask the service personnel to inspect and repair the hoist.

Class	Item	Inspection method	Discard limit/criteria	Remedy
Motorized trolley	<b>1. Power supply fitting</b> (1) Messenger wire tension	Check visually.	Strained to proper tension.	Tighten further.
	(2) Condition of cable hanger	Check visually.	Cable hangers are attached at equal intervals so that cable does not twist. Free of damage and moves smoothly.	Replace defective hangers with new ones.
	<b>2. Traversing unit</b> (1) Trolley inclination	Run trolley with light load suspended.	Trolley is not tilted when running. If tilted, a wheel may be worn incorrectly.	Adjust tilted trolley.
	(2) Bolt and screw loosening	Check visually.	Each of fitting points are not loosened.	Fasten tightly.
	(3) Missing snap rings	Check visually.	No snap rings are missing.	Insert snap rings if missing.
	(4) Wheel abrasion	Measure with slide calipers.	Abrasion of tread and flange do not exceed limits on the table shown below:	Replace with new wheels if abrasion limit is exceeded.
	(5) Side plate deformation	Check visually or with slide calipers as necessary.	No obvious deformation must be evident.	If damaged obviously, replace it with a new side plate.
	(6) Suspension shaft deformation and abrasion	Check visually or with slide calipers as necessary.	<b>NEVER</b> use a suspension shaft if bent.  <b>NEVER</b> use a suspension shaft if its diameter is worn down 10% or more.	Replace with new suspension shaft.
	(7) Movement of joint fittings	Move electric chain hoist back and forth and right and left.	Joint fittings move smoothly.	If the movement is not smooth, supply oil to the top pin.
	(8) Split pins damage for shaft stopper pins and missing split pins	Check visually.	Split pins are not damaged by rust or wear. Split pins should not be missing.	Replace with new pins if thinned. Insert split pins if missing.

## 16. INSPECTION SCHEDULE

### 16.1 MASTER SHEET WITH SPECIFICATIONS

To be completed by the customer

Company: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Date commissioned: \_\_\_\_\_

Location: \_\_\_\_\_

Manufactured by: MISIA PARANCHI  
Via dei Lavoratori 9/11  
20092 Cinisello Balsamo (Milano) Italia

Type:

MH1SD  
MH3LD  
MH3SD  
MH5LD  
MH5SD  
MH10LD  
MH10SD  
MH20LD

Serial number: see nameplate  
A .No.: see nameplate  
Year: see nameplate  
Group / FEM: see nameplate  
No. of falls: see nameplate  
Electrical data: see nameplate  
SWL: see nameplate  
Lift height: see nameplate  
Lifting speed: see nameplate  
Control: electrical  
Location: in factory shop  
Chain: 5x15 H 80 D or 7x21 H 80 D  
Load hook size: see Point 6.6  
Brake: disc brake

## 16.2 CERTIFICATE OF CONFORMITY

Valid when this chain hoist is operated as a standalone machine.

### Manufacturer's Certificate

Valid when this chain hoist is incorporated in another machine. The chain hoist must not be used until it has been certified that the machine in which the chain hoist is to be incorporated complies in full with the requirements of the stated EC Directives in the version valid at the time of issue.

We MISIA SRL  
Address: Via dei Laboratori 9/1  
20092 Cinisello Balsamo (Milano) ITALY

hereby certify that the product **MISIA Chain Hoist**

in the version we supply complies with the following relevant requirements in the version valid at the time of issue when used for its intended purpose:

- |                            |                       |
|----------------------------|-----------------------|
| - EC Machine Directive     | 2006/42/EC            |
| - EC Low Voltage Directive | 2006/95/EC            |
| - EC Directive on EMC      | Directive 2004/108/CE |

### Harmonised standards used:

- |                              |                                               |
|------------------------------|-----------------------------------------------|
| - EN ISO 12100-1-2           | Machine security                              |
| - EN 60204-1                 | Electrical Equipment of Machines              |
| - EN 818-77                  | Safety chain load                             |
| - EN 60439-1                 | low voltage electricequipment                 |
| - EN 55011                   |                                               |
| - EN 61000-6-4/ EN 61000-6-3 | Electromagnetic Compatibility, Emissions      |
| - EN 61000-6-1/ EN 61000-6-2 | Electromagnetic Compatibility, Noise Immunity |
| - EN 14492-2                 | Winche and Motorized hoist                    |
| - EN/UNI/ISO 13850           | Emergency stop                                |

### Applied national standards, directives and specifications:

- |             |                                            |
|-------------|--------------------------------------------|
| - FEM 9.511 | Classification of Drives                   |
| - FEM 9.683 | Selection of Lifting and Travelling Motors |

As required by the EC Machine Directive

- the CE symbol is affixed to the chain hoist
- the technical documentation is held at the manufacturer's works.

The contents of this certificate complies with EN 45014

MISIA operates a Quality Management System according to EN ISO 9001

[illegible]

## 18. ANNUAL INSPECTIONS

[illegible]







**Misia Paranchi srl**

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**M 30/11/15**