

# DAESAN<sup>®</sup> SC

125Kg, 250Kg and 500Kg

## INSTRUCTION MANUAL

for

Installation / Operation / Maintenance / Parts



**Serial Number :** \_\_\_\_\_

### **⚠ WARNING**

This equipment should not be installed, operated or maintained by any person who has not read all the contents of these instructions. Failure to read and comply with these instructions or any one of the limitations noted herein can result in serious bodily injury or death, and/or property damage.

CAUTION: "To Reduce the Risk of Electric shock or Injury, Use Indoors Only"

There are no other warranties which extend beyond the description on the Order Acknowledgement and as it may apply to the specifications provided in this publication. The IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED. DAESAN shall in no event be liable for any special, direct, indirect incidental or consequential damages to anyone beyond the cost of replacement of the goods sold hereby.

\* Specifications are subject to change without prior notice for improvement - Product drawings / images / parts are representative only and are subject to change for improvement







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## SAFETY ALERT SYMBOL

The Safety Alert Symbol is used in this manual to indicate hazards and to alert the reader to information that should be known, understood, and followed in order to avoid DEATH or SERIOUS INJURY.

Read and understand this manual before using the hoist.

Important issues to remember during operation are provided at various locations on the hoist and in this manual by DANGER, WARNING, or CAUTION instructions or placards. That alert personnel to potential hazards, proper operation, load limitations, and more.

### DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

### WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

### CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

## CAUTION

These general instructions deal with the normal installation, operation, and maintenance situations encountered with the equipment described herein. The instructions should not be interpreted to anticipate every possible contingency or to anticipate the final system, crane, or configuration that uses this equipment

This manual includes instructions and parts information for a variety of hoist types. Therefore, all instructions and parts information may not apply to any one type or size of specific hoist. Disregard those portions of the instructions that do not apply.

Record hoist serial number on the front cover of this manual for identification and future reference to avoid referring to the wrong manual for information or instructions on installation, operation, maintenance, or parts.

Use only the authorized replacement parts in the service and maintenance of this hoist.

## **⚠ WARNING**

Equipment described herein is not designed for and should not be used for lifting, supporting, or transporting humans.

Equipment described herein should not be used in conjunction with other equipment unless necessary and/or required safety devices applicable to the system or application are installed by the system designer, system manufacturer, crane manufacturer, installer, or user.

Modifications to upgrade, rerate, or otherwise alter this equipment shall be authorized only by the original equipment manufacturer or qualified professional engineer.

Equipment described herein may be used in the design and manufacture of cranes or monorails. Additional equipment or devices may be required for the crane or monorail to comply with applicable crane design and safety standards. The crane designer, crane manufacturer, or user is responsible to furnish these additional items for compliance.

The System designer, system manufacturer, crane designer, crane manufacturer, installer, or user is responsible to assure that the installation and associated wiring of these electrical components is in compliance with all applicable and local codes of the country the hoist being installed.

Failure to read and comply with any one of the limitations noted herein can result in serious bodily injury or death, and/or property damage.

## **⚠ DANGER**

**HAZARDOUS VOLTAGES ARE PRESENT IN THE CONTROL BOX, OTHER ELECTRICAL COMPONENTS, AND CONNECTIONS BETWEEN THESE COMPONENTS**

Before performing ANY mechanical or electrical maintenance on the equipment, de-energize (disconnect) the main switch supplying power to the equipment; and lock and tag the main switch in the de-energized position. Personnel Protection – Lockout/Tagout of Energy Sources.



**⚠ DANGER**

Do not operate the equipment without control enclosure cover or covers in place.

Only trained and competent personnel should inspect and repair this equipment

**NOTICE**

It is the responsibility of the owner/user to install, inspect, test, maintain, and operate a hoist in accordance with the standard for overhead hoists and electrical code of the country the hoist is being installed. If the hoist is installed as part of total lifting system, such as an overhead crane or monorail, it is also the responsibility of the owner/user to comply with the applicable regulation that addresses that type of equipment.

It is the responsibility of the owner/user to have all personnel that will install, inspect, test, maintain, and operate a hoist read the contents of this manual and applicable portions of safety standard for overhead hoists and national electrical code of the country the hoist is being installed.

This manual contains information for safe operation of an overhead hoist. Taking precedence over any specific rule, however, is the most important rule of all – USE COMMON SENSE. “Operation of an overhead hoist involves more than operating the controls. The operator must consider and anticipate the motions and actions will occur as a result of operating the controls.

If the hoist owner/user requires additional information, or if any information in the manual is not clear, contact DAESAN INOTEC INC. KOREA or the distributor of the hoist. Do not install, inspect, test, maintain, or operate this hoist unless this information is fully understood.

When contacting DAESAN INOTEC INC or the distributor of the hoist, always make reference to the serial number of the hoist.

A regular schedule of inspection of the hoist in accordance with the requirements of the country the hoist is being installed should be established and records maintained.

## **⚠ WARNING**

Before installing, removing, inspecting, or performing any maintenance on a hoist, the main switch shall be de-energized. Lock and tag the main switch in the de-energized position. Follow other maintenance procedures outlined in this manual and applicable regulation of the country the hoist is being installed.

Additional WARNINGS are listed in various portions of this manual. Personnel shall read and follow these WARNINGS. Failure to read and comply with these WARNINGS as well as other instructions or any limitations noted in this manual and applicable regulation of the country, could result in serious bodily injury or death, and/or property damage.

## 1. Features

DAESAN SC hoists are designed for lifting in tight spaces with low headroom. They can be used for various purposes in warehouses, workshops, factories, etc. VFD control hoist comes with stepless control for particularly smooth lifting, lowering and positioning of load. The operator can adjust the speed for the task they need to perform optimizing the efficiency.

## 2. DAESAN SC Hoist Standard Specifications

- Classification: FEM 3m (three phase) / 2m (single phase)
- Power Cable: 2.5SQ VCT Cable (2.5SQ×4C)
- Control Voltage
  - ✓ Contactor hoist : 110VAC
  - ✓ VFD hoist : 24VDC
- Color: Orange & Black
- Brake Capacity: 150% of the Capacity or more.
- Power Cable Length: 1.5m
- Hoist Motor Spec.

Input Power(V)	Control Type		Motor(V)	Insulation rating	Short Time duty Rating	%ED
	Inverter(V)	M/C(V)				
1Ø 110	110/220	110/220	110/220	F	DL 1 Ø : 20% ED DL 3 Ø : 40% ED EDL1 : 20% ED ~ 40% ED EDL3 : 20% ED ~ 40% ED	
1Ø 220			110/220			
3Ø 220		220~480	220/380			
3Ø 380	480					
3Ø 480						

Contact the manufacturer for special voltages.

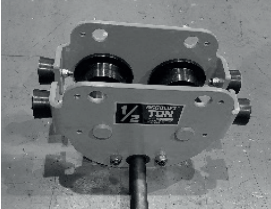
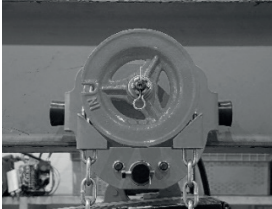

- Standard Voltage
  - ✓ DL125, 250, 500 (3Phase) : 220V (Can be changed to 380V)
  - ✓ DL125,250 (1Phase) 220V (Can be changed to 110V)
  - ✓ EDL125, 250, 500 (1 Phase) 220V (Can be changed to 110V)
- Working Environment data
  - ✓ Ambient temperature: from -20°C to 40°C
  - ✓ Protection class: IP54(Hoist), IP65(Pendant)
  - ✓ Sound level: 80dB (measured at 1m away from hoist)
  - ✓ Humidity: 85% or less

### 3. Model Name & FEM Group

<Table 3-1> Top Suspension Classification

		
<b>Hook Suspension</b>	<b>Light Rail Suspension</b>	<b>Trolley Suspension</b>

<Table 3-2> Trolley Classification (Manual, Hand Geared, Motorized)

		
<b>Manual Trolley</b>	<b>Hand Geared Trolley</b>	<b>Motorized Trolley</b>

<Table 3-3> FEM Mechanism Group

Mechanism group	1Bm	1Am	2m	3m	4m	5m
<b>Load group</b>	Average operating period day(h)					
<b>Light(<math>k \leq 0.5</math>)</b>	2	2-4	4-8	8-16	16	-
<b>Medium(<math>0.5 &lt; k \leq 0.63</math>)</b>	1	1-2	2-4	4-8	8-16	16
<b>Heavy(<math>0.63 &lt; k \leq 0.8</math>)</b>	0.5	0.5-1	1-2	2-4	4-8	8-16
<b>Very Heavy(<math>0.8 &lt; k \leq 1.00</math>)</b>	0.25	0.5	0.5-1	1-2	2-4	4-8

- ✓ 3-Phase Hoist: FEM 3m
- ✓ 1-Phase Hoist: FEM 2m

## 4. Model Specification & Standards

### 4.1 Hook & Light Rail Suspension Models

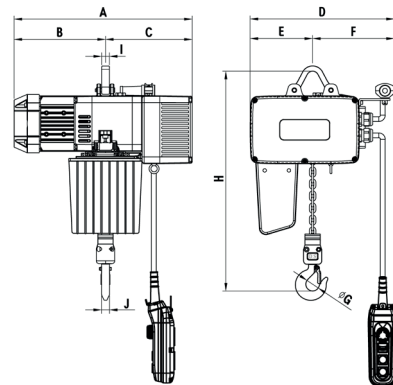
Model		DL-			EDL-			DL-		EDL-			
Capacity	Kg	125	250	500	125	250	500	125	250	125	250	500	
Input Power	Phase	3 Ø						1 Ø					
	V	220 / 380 / 440 / 460 / 480						110 / 220					
Chain No.	No.	1											
Standard Lift	m	4											
Pushbutton Cord Length	m	3.5											
Lifting Speed	50Hz	m/min	14.2	8.3	6.3	2.8~17	1.7~10	1.3~7.6	8.3	5.3	2.8~1.7	1.7~10	1.1~6.4
	60Hz		17	10	7.6				10	6.4			
Lifting Motor	Kw	0.75											
Load Chain(dia.×pitch)	mm	Ø5.0 X 15.0											
Net Weight	Kg	27		28	27		28		27		28		
Weight for additional 1m of Lift	Kg/m	0.74											

Contact the Manufacturer for Special Voltages.

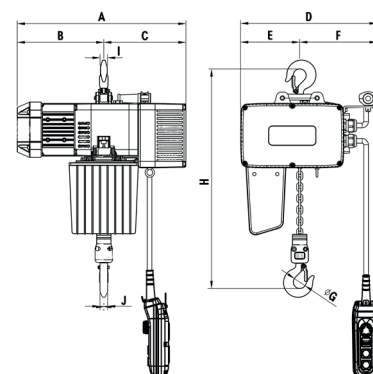
<Table 4-1> Top Suspension Models (mm)

Model-Ton	DL/EDL-125, 250	DL/EDL-500	DL/EDL-125, 250	DL/EDL-500
Hook Type	Light Rail Hanger		Top Hook	
A	446			
B	229			
C	217			
D	360			
E	156			
F	204			
G	30	34	30	34
H	315	320	340	350
I	20		18	
J	18	20	18	20

Type1: Light Rail Type



Type2: Hook Type



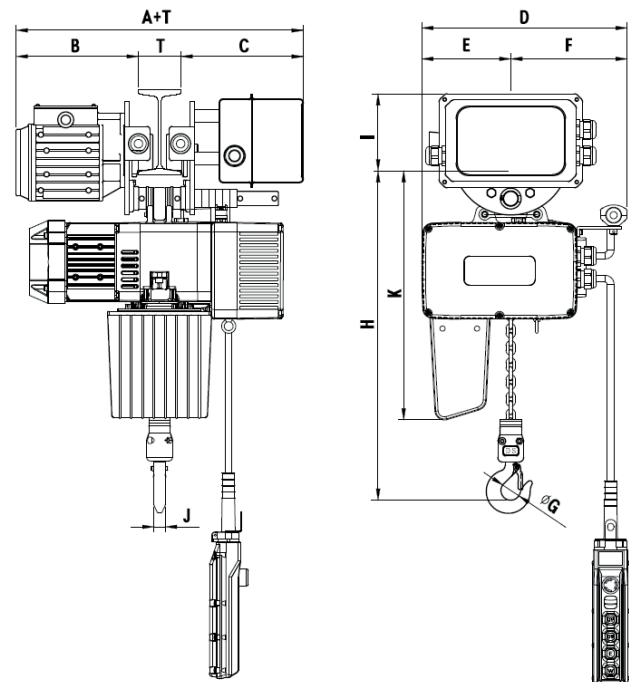
### 4.2 Motorized Trolley Models

Model		DL-PT			EDL-PT			DL-PT		EDL-PT			
Capacity.	Kg	125	250	500	125	250	500	125	250	125	250	500	
Input Power.	Phase	3 Ø						1 Ø					
	V	220/380/440/460/480						110/220					
Chain No.	No.	1											
Standard Lift	m	4											
Pushbutton Cord Length	m	3.5											
Lifting Speed	50Hz	m/min	14.2	8.3	6.3	2.8~17	1.7~10	1.3~7.6	8.3	5.3	2.8~17	1.7~10	1.1~6.4
	60Hz		17	10	7.6				10	6.4			
Traversing Speed	50Hz	m/min	17.3			3.5~20.7			17.3		3.5~20.7		
	60Hz		20.7						20.7				
Lifting Motor	Kw	0.75											
Traversing Motor	Kw	0.4											
Load Chain (dia.× pitch)	mm	Ø5.0 x 15.0											
Net Weight	Kg	51.5	52.5	51.5	52.5	51.5	52.5	51.5	52.5	51.5	52.5	51.5	52.5
Weight for additional 1m of Lift	Kg/m	0.84											
I-Beam Flange	mm	75~150											
I-Beam curve radius	mm	800											

Contact the Manufacturer for Special Voltages

<Table 4-2> Motorized Trolley Models (mm)

Model-Ton	DLM/EDLM 125, 250	DLM/EDLM 500
A	405+T	
B	214	
C	191	
D	360	
E	156	
F	204	
G	30	34
H	345	350
I	135	
J	18	20
K	438	



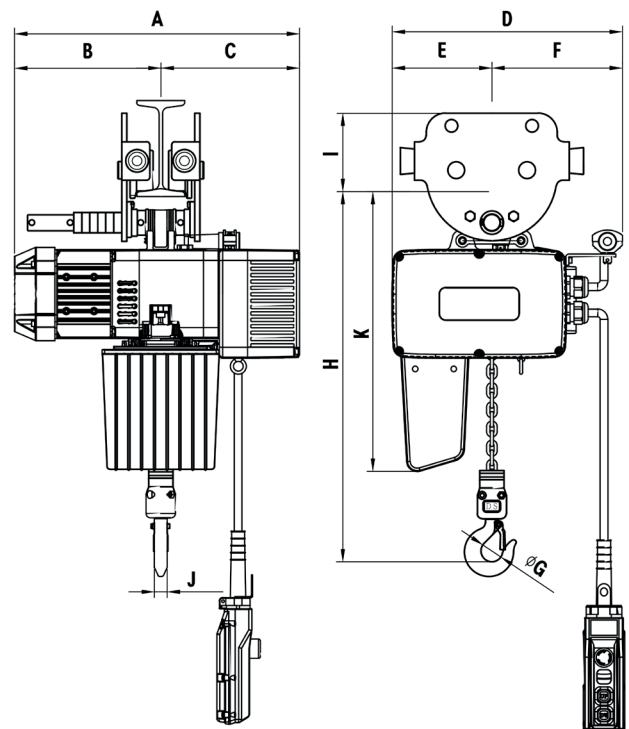
### 4.3 Manual Trolley Models

Model		DL-PT			EDL-PT			DL-PT		EDL-PT			
Capacity	Kg	125	250	500	125	250	500	125	250	125	250	500	
Input Power	Phase	3 Ø						1 Ø					
	V	220 / 380 / 440 / 460 / 480						110 / 220					
Chain No.	No.	1											
Standard Lift	m	4											
Pushbutton Cord Length	m	3.5											
Lifting Speed	50H	m/min	14.2	8.3	6.3	2.8~17	1.7~10	1.3~7.6	8.3	5.3	2.8~1.7	1.7~10	1.1~6.4
	60Hz	m/min	17	10	7.6				10	6.4			
Lifting Motor	Kw	0.75											
Load Chain (dia. x pitch)	mm	Ø5.0 X 15.0											
Net Weight	Kg	40	41	40	41	40	41	40	41				
Weight for additional 1m of Lift	Kg/m	0.74											

Contact the Manufacturer for Special Voltages

<Table 4-3> Plain Trolley Standard (mm)

Model-Ton	DLP/EDLP 125, 250	DLP/EDLP 500
A	446	
B	229	
C	217	
D	360	
E	156	
F	204	
G	30	34
H	345	350
I	122.5	
J	18	20
K	438	
I-Beam Flange	75 - 150	
I-Beam curve radius	800	



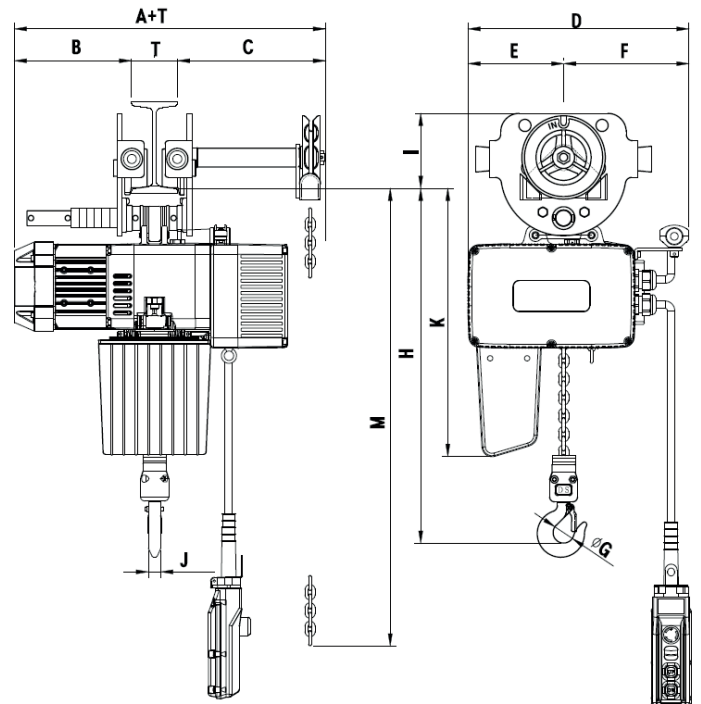
### 4.4 Hand Geared Trolley Models

Model		DL-GT			EDL-GT			DL-GT		EDL-GT			
Capacity	Kg	125	250	500	125	250	500	125	250	125	250	500	
Input Power	Phase	3 Ø						1 Ø					
	V	220 / 380 / 440 / 460 / 480						110 / 220					
Chain No.	no.	1											
Standard Lift	m	4											
Pushbutton Cord Length	m	3.5											
Lifting Speed	50Hz	m/min	14.2	8.3	6.3	2.8~17	1.7~10	1.3~7.6	8.3	5.3	2.8~1.7	1.7~10	1.1~6.4
	60Hz		17	10	7.6				10	6.4			
Lifting Motor	Kw	0.75											
Load chain (dia. × pitch)	mm	Ø5.0 x 15.0											
Net Weight	Kg	45		46	45		46		45		46		
Weight for additional 1m of Lift	Kg/m	0.74											

Contact the Manufacturer for Special Voltages

<Table 4-4> Hand Geared Trolley Standard (mm)

Model-Ton	DLG/EDLG 125, 250		DLG/EDLG 500
	A	432+T	
B	191		
C	241		
D	360		
E	156		
F	204		
G	30		34
H	345		500
I	122.5		
J	18		20
K	438		
M	3500		
I-Beam Flange	75 - 150		
I-Beam curve radius	800		



M dimension is based on standard hoist lift of 4m.



## 5. Motor Information

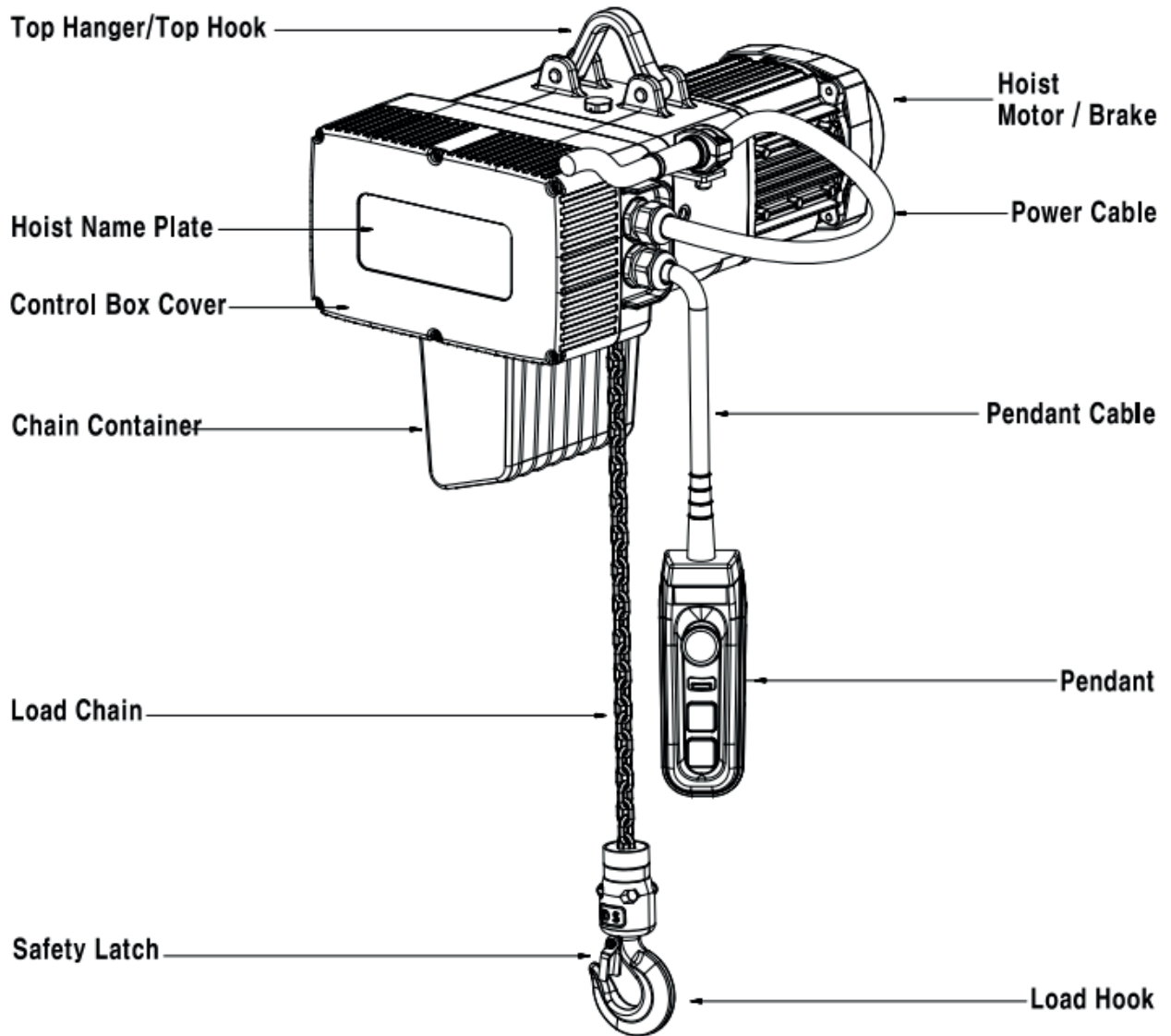
High Torque and heavy-duty hoist motor with class “F” insulation. Duty rating is 30min (20 min for single phase hoist). With the built-in thermal sensor, it automatically stops the operation to cool down when the motor internal temperature exceeds 135°C.

<Table 5-1> Motor Rating of Hoist & Trolley

	Hook suspension hoist	Capacity (kg)	Load chain dia.X Pitch (mm)	Lifting Speed (m/min-50/60hz)	Control	Motor Phase, Motor kw& Poles	AMP DRAW (V=A)		
Hoist Motor	DL	125	Ø5 x 15	14.2 / 17	Contactor	3 Ø 0.75×4	220=4.5 380=3.5 440=3.0 460=2.9 480=2.8		
	DL	250	Ø5 x 15	8.3 / 10					
	DL	500	Ø5 x 15	6.3 / 7.6					
	EDL	EDL	125	Ø5 x 15	2.8~1.7	Inverter	3 Ø 0.75×4	220=4.5 380=3.5 440=3.0 460=2.9 480=2.8	
		EDL	250	Ø5 x 15	1.7~10				
		EDL	500	Ø5 x 15	1.3~7.6				
	DL	DL	125	Ø5 x 15	8.3 / 10	Contactor	1 Ø 0.75×4	110=22 220=11	
		DL	250	Ø5 x 15	5.3 / 6.4				
		EDL	EDL	125	Ø5 x 15	2.8~1.7	Inverter	1 Ø 0.75×4	110=9.0 220=7.0
			EDL	250	Ø5 x 15	1.7~10			
			EDL	500	Ø5 x 15	1.1~6.4			
	Motor	Motor trolley hoist	Capacity (kg)	Travel Speed (m/min-50/60hz)	Control	Motor Phase, Motor kw & Poles	AMP DRAW (V=A)		
Trolley Motor	DLM	125	17.3 / 20.7	Contactor	3 Ø 0.4×4	220=3.0 380=2.0 440=1.5 460=1.4 480=1.3			
	DLM	250	17.3 / 20.7						
	DLM	500	17.3 / 20.7						
	EDLM	EDLM	125	3.5~20.7	Inverter	3 Ø 0.4×4	220=3.0 380=2.0 440=1.5 460=1.4 480=1.3		
		EDLM	250	3.5~20.7					
		EDLM	500	3.5~20.7					
	DLM	DLM	125	17.3 / 20.7	Contactor	1 Ø 0.4×4	110=10 220=5		
		DLM	250	17.3 / 20.7					
	EDLM	EDLM	125	3.5~20.7	Inverter	1 Ø 0.4×4	110=6.0 220=3.0		
		EDLM	250	3.5~20.7					
		EDLM	500	3.5~20.7					

## 6. General Hoist Parts & Label Identification

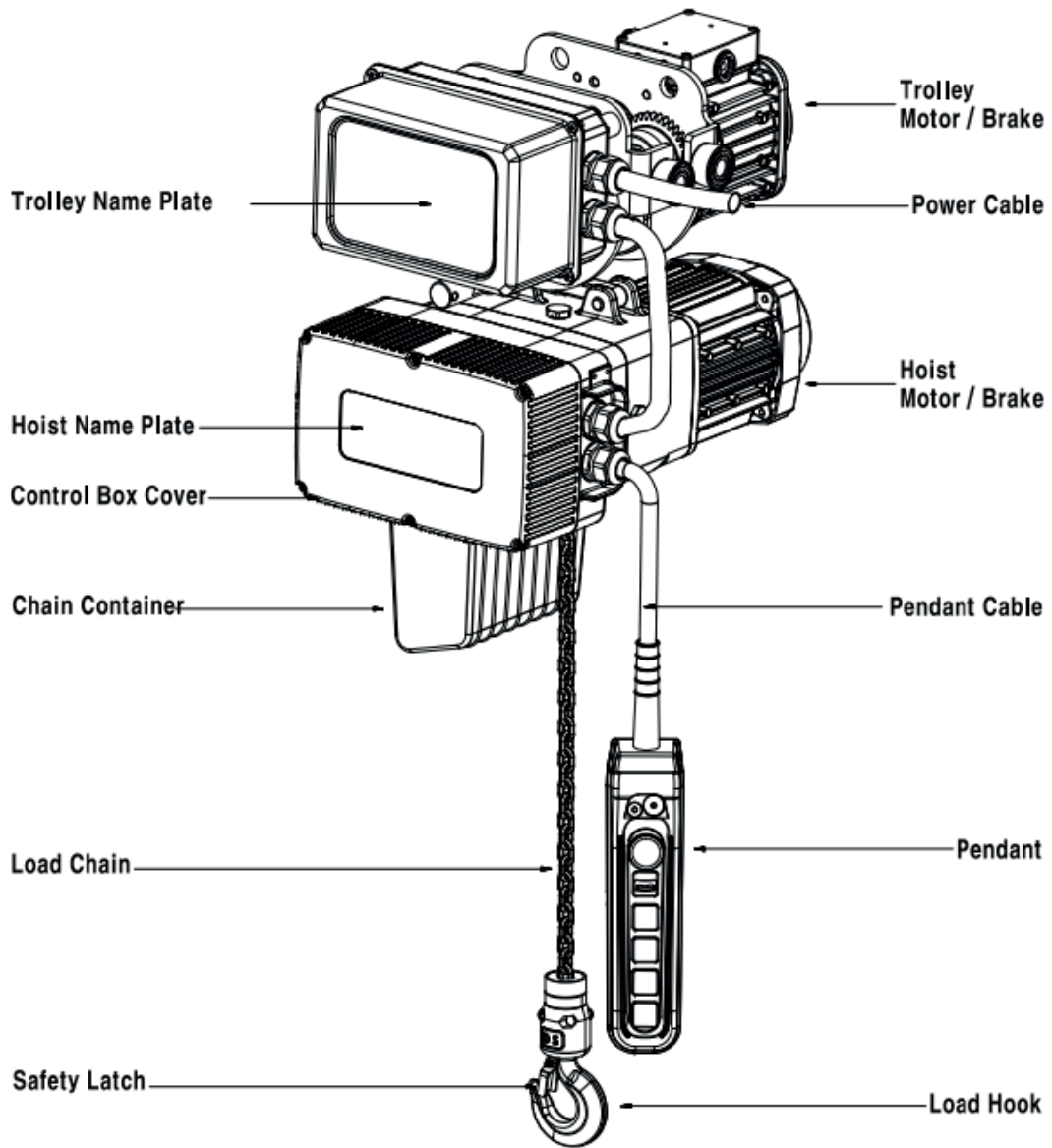
### 6.1 Hook & Light Rail Suspension Hoist



## **⚠ WARNING**

There are parts or locations with a warning label other than above. In this case, the instructions on the warning label must be followed.

## 6.2 Motorized Trolley Hoist









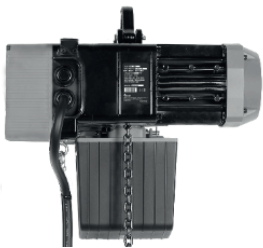

### **⚠ WARNING**

There are parts or locations with a warning label other than above. In this case, the instructions on the warning label must be followed.

## 7. Motor Nameplate & Hoist Labels

All labels and name plates shall remain on the products at their original placement. Do not allow the labels and name plates to become obstructed or defaced.

<Table 7-1> Example of Label & Nameplate Location

Item	DBR Danger Sticker	Warning sticker	Motor Nameplate	Nameplate
Sticker				
Location				

## 8. Safety Precautions

### 8.1 Emergency Stop Button

As a safety device, all pendants are equipped with an emergency stop button (red)

It is compact to enable easy one-handed sure grip control. The pendant cable is provided with a built-in strain relief to help prevent cable damage.

After the power is cut off, inspect the pendant as follows and if defect is found, replace it.

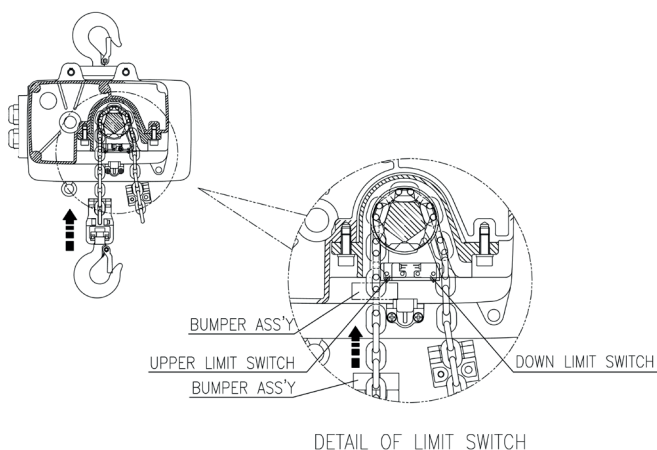
- ✓ Does the hoist operate according to the directional arrows (up/down/left/right)?
- ✓ Is there any damage or bending to the pendant case and/or cover?
- ✓ Check for loose bolts on pendant assembly.
- ✓ Check for dirt and wear on the contact points.

### 8.2 Over Winding Limiter

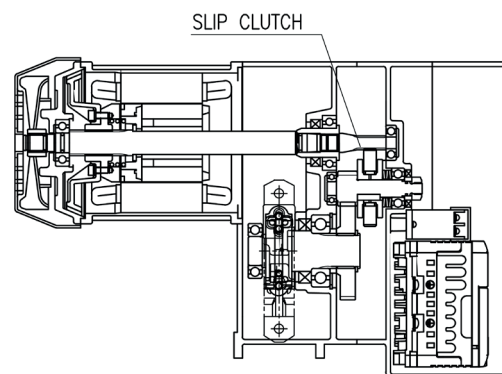
The friction clutch acts not only as an overload protection device that prevents lifting when overloaded but also as an over-winding prevention device. An upper & lower micro-limit switch is additionally installed to prevent unnecessary clutch wear.

- 1) **Step 1: When the hoist is raised to high hook or lowered to its lower limit, the upper and lower limit switch activates and stops the hoist motor.**
- 2) **Step 2: In case of limit switch error, the friction clutch built into the hoist gearing is operated to control the hoist operation.**

\* If the limit switch device does not work normally, contact a dealer for repair.



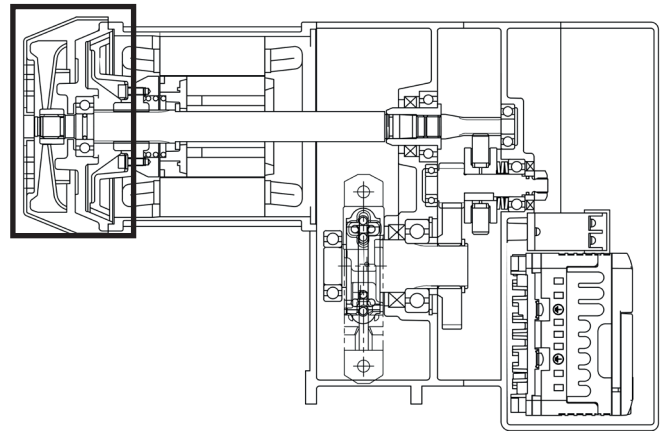
Over winding protection: Limit Switch



Overload protection: Slip Clutch

### 8.3 Motor Brake

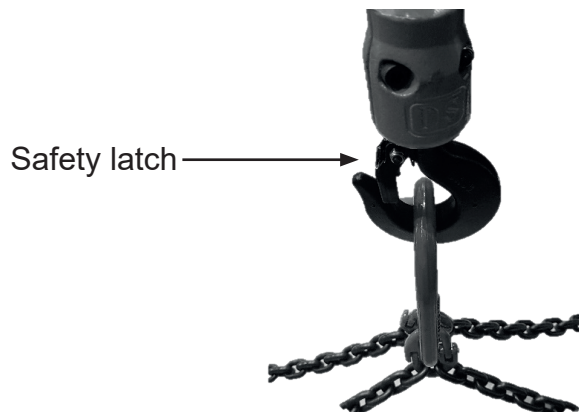
This product has a brake system using pull-rotor type magnetic force. Simple fast acting conical style motor brake.



### 8.4 Hook Safety Latch

If safety latch is missing or damaged, replace it immediately.

When attaching a load, close the latch after positioning the sling completely inside the bottom hook as shown in the photo.



**⚠ WARNING**

- The user should always check whether there is any deformation or abnormality of Safety latch.
- If a failure occurs, it must be replaced immediately.
- In the event of a failure, personal and physical damage may occur due to falling load.

## 8.5 Hour Meter.

All inverter-controlled models provide the ability to check operational time. This time can be used along with data from this manual to assure safe operation and provide a maintenance schedule. Refer to table 12.1 for instructions on checking the Inverter for run time.

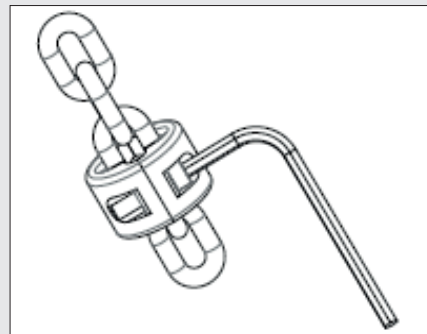
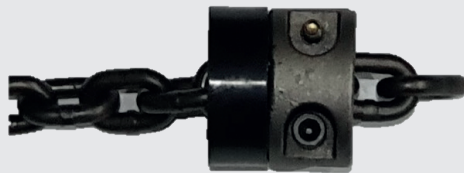
## 8.6 Load Chain Stopper / Bumper Stopper

### 1) Load Chain Stopper

#### ⚠ WARNING

Replace and fix the chain stopper and rubber bumper if any of the below problems occur

- ✓ Damage of chain stopper on load or non-load side
- ✓ Socket bolts are loosened on load or non-load side
- ✓ Damage of rubber bumper on load or non-load side



Upper & lower chain stopper is a device which shuts down the hoisting operation when the rubber bumper contacts the limit switch in the maximum, upper or lower position. Lower chain stopper must be positioned with at least two unused links below it as shown in the above photo. Check the tightness of the chain stopper bolts frequently and tighten as required.

### 2) Bumper Stopper

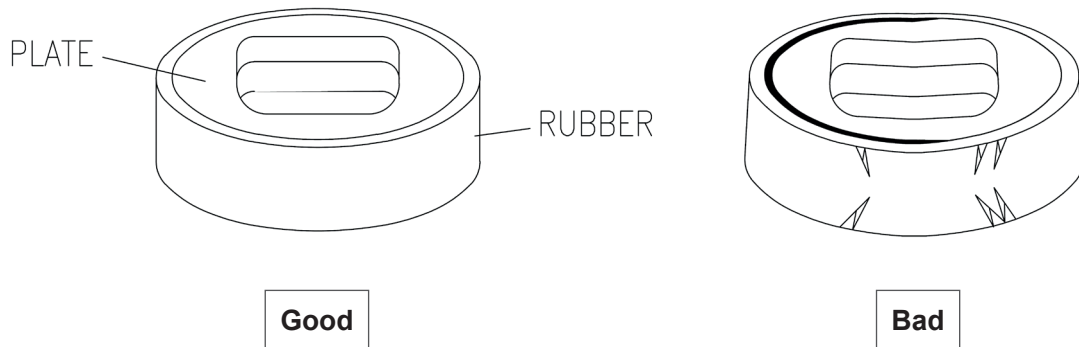
If any damage is found on bumper stopper, never use it. Replace it before using hoist.

- \* When hoist is operated where there is no rubber or damaged rubber on the stopper, chain breakage could occur causing injury/death/damage to property.

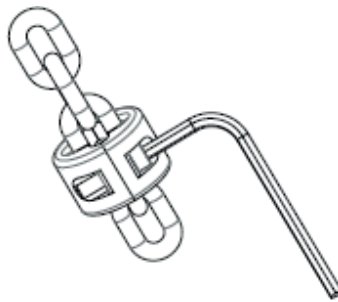
### ■ Bumper inspection

- \* If the upper and lower plates are deformed or the rubber is damaged between the plates, or if the plate and the rubber are separated, replace them.

### ■ How to replace.



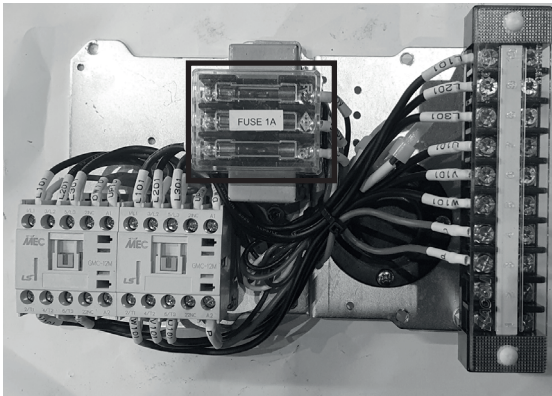
Remove wrench bolt of chain stopper → Remove Chain stopper → Take out the bumper and replace → Assemble in reverse chronology



## 8.7 Control Transformer Fuses (250VAC 1A)

Primary and secondary fusing if the control transformer is provided.

### ■ Single Speed Contactor Panel





## 9. Installation.

Each complete electric chain hoist is load tested at the factory at 125% of the rated capacity.

The service life of the hoist depends on the application. Always keep this manual near the hoist, available to the operator and the person in charge of maintenance. Make sure that all safety rules are followed.

### 9.1 Product Inspection

- 1) **Check the product to see if there is any damage or deformation from transportation.**
- 2) **Check the specification of the hoist you purchased as listed below.**
  - ✓ Model no.
  - ✓ Rated capacity (Ton)
  - ✓ Lifting length of load chain (meter)
  - ✓ Power supply
  - ✓ Pendant assembly (2-Button, 4-Button)
  - ✓ Customized items.
  - ✓ Beam width for trolley installation

Store the hoist in its normal operating position without load, away from aggressive atmosphere such as dust or humidity. Make sure that the hoist is always clean and protected from corrosion and is lubricated per manual.

### 9.2 Installation Check List

- ✓ The chain hoist must be installed by a technician who has experience installing material handling equipment.
- ✓ Be sure to read and understand the electrical wiring diagrams included.
- ✓ Make sure that the structure you are installing the chain hoist on is secure and adequate for the load.
- ✓ The lifting height must be dimensioned such that the load hook is on the ground in the lowest hook position. If the length of load chain equipped on the hoist is shorter than the required lifting height of the hoist, the hoist could get damaged due to excessive operation of the upper/lower limit switch. Therefore, it is important to check the hoist is equipped with proper length of load chain.
- ✓ Check that the power supply voltage is correct for the hoist
- ✓ Check that voltage does not vary by more than +/- 10% from the nominal value.
- ✓ After installation, check that the bolts, nuts, and pins are assembled correctly.

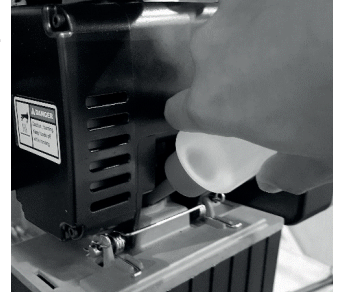
### 9.3 Installation

Follow the maintenance procedures outlined in this manual.

#### 1) Oil lubrication on Load Chain

Use the oil container packed with the product to lubricate the load chain. Oil can be applied to a cloth and then wiped generously onto the load chain after installing the hoist. The load chain must be oiled before starting operation.

- ✓ Using a dry load chain may cause chain wear, noise and breakage.
- ✓ Depending on the oil lubrication, the life of the load chain can vary up to 10 times compared to non-oiled load chain.



### ⚠ WARNING

Standard chain container can hold a maximum of 9 meter  
Do not attempt to store more than 9 meters (Ø 5.0 x 15.0). When containing more than the maximum specified quantity, it may result in serious damage to hoist and hazardous conditions to the operator and nearby people or goods.

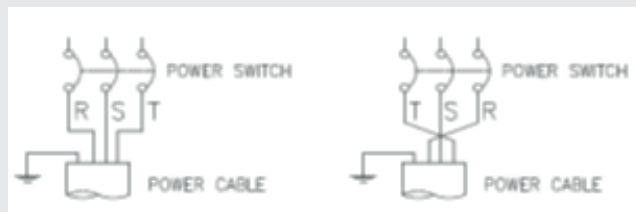
#### 2) Phasing

After installation, the operator shall check UP/DOWN motions by pressing the Pendant buttons. If hoist does not operate in the proper UP/DOWN direction, it indicates incorrect phasing of input power supply lines.

### ⚠ WARNING

Before operation under load, operator shall check hoist operation with Pendant control. If the hoist operates in the opposite direction of the Pendant control, phasing of the input power supply line is incorrect.

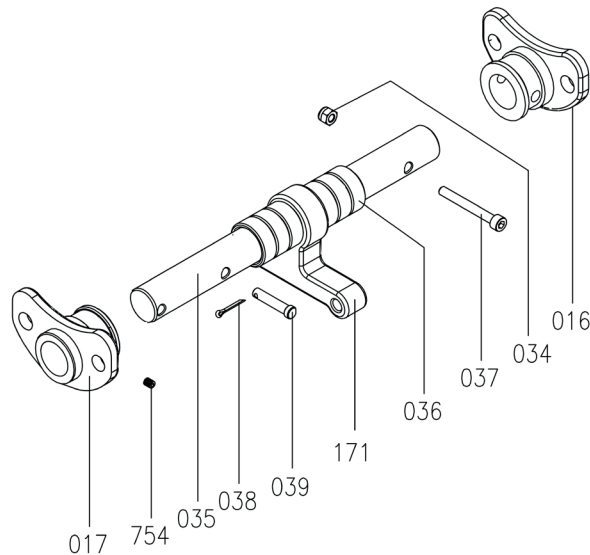
In this case, reverse TWO of the THREE Power supply phase lines as illustrated.



### 3) Installation of Trolley Mounted Models

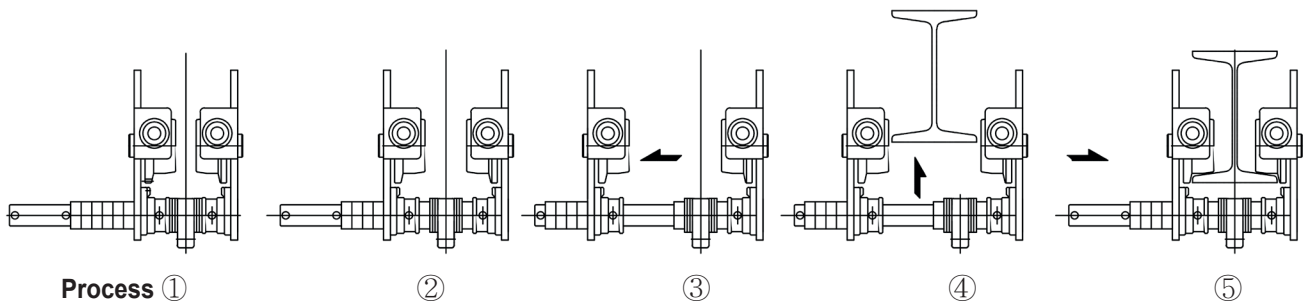
- ✓ There are THREE types: Plain Trolley, Hand Geared Trolley and Motorized Trolley.
- ✓ First, check the difference between beam flange width and guide roller spacing.

\* Parts to adjust trolley width



MT016. Bracket A
MT017. Bracket B
MT034. U-Nut
MT035. Shaft
MT036. Adjusting Collar
MT037. Bolt W/HEX, HOLE
MT038. Cotter pin
MT039. Stopper Pin
MT171. Connector
MT754. Set Screw

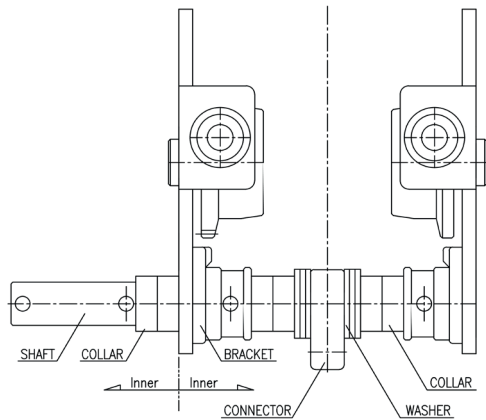
### 4) Adjusting Trolley for Beam Width



Trolleys can be adjusted for various beams by inserting adjusting collars and washers.

Remove MT039 stopper pin. Remove trolley side plate (attached to MT017), trolley washers & MT036 adjusting collars. Remove other trolley side plate (attached to MT016) while attached to MT035 shaft. In accordance with the following instructions, add the correct combination of washers and collars on MT035 shaft and reinsert into hoist trolley connector MT171. Install the same combination of collars and washers (washer qty. may differ by 1) and install the trolley side plate attached to MT017. MT039 stopper pin can now be inserted into first hole (outer) in MT035 shaft. This allows the trolley to be opened enough to place trolley on beam. Once trolley is on beam, the side plates can be moved inward and MT039 stopper pin MUST be moved into the second hole (inner) in MT035 shaft to position trolley on beam flange correctly.

5) Determining Required Collar & Washer Numbers



Each collar width per pcs: 12.5mm  
 Each washer width per pcs: 3mm

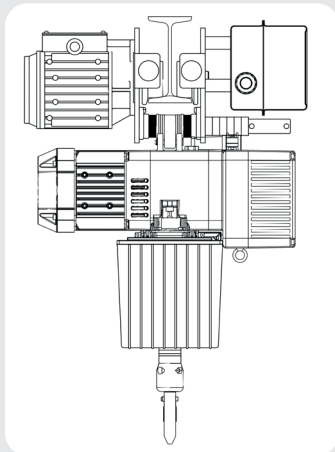
Beam Flange Width(mm)		75	100	125	150	
Cap.(kg)	Spacer Type					
125 250 500	Washer	Inner	6	6	6	6
		Outer	0	0	0	0
	Collar	Inner	0	2	4	6
		Outer	6	4	2	0

For beam flange widths other than indicated, distribute collars and washers equally on left side and right side so that the total clearance between beam flange and trolley side guide rollers is no less than 1mm and no more than 5mm. A difference of one washer between left side and right side is permissible. No difference in quantity of collars between left side and right side is permissible. Standard beam flange width is 75 – 150mm.

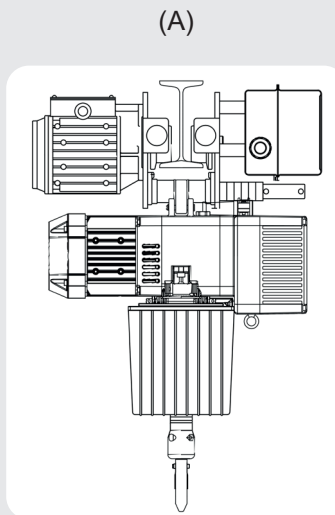
\* For 175~200mm beam flange width is optional upon request.

**⚠ WARNING**

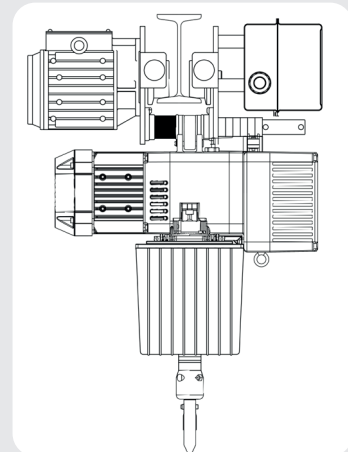
**RIGHT Installation:** Both sides of the trolley side plates have the same number of adjusting collars.  
**WRONG Installation:** Adjusting collars distributed incorrectly can result in serious accidents.



**RIGHT Installation**



(A)



(B)

**WRONG Installation**

(A) Without collars, the connection between hoist and trolley is loose.  
 (B) With all collars on one side the hoist will be un-balance.

**6) How to Connect Electric Power Source**

- (1) In parallel with beam, install the power cable to optimize the trolley movement.

**NOTICE**

(WHEN INSTALLING SINGLE PHASE)

RECOMMENDED POWER SUPPLY WIRE GAGE (COPPER AWG)

	7.5m	15m	23m	30m	45m	60m	75m	60m
110V	12	10	8	6	6	4	-	-
220V	-	16	14	14	12	10	10	8

\* For contactor hoist single phase model is wired from the factory for 220-1-60 power supply.

Voltage can be changed to 110-1-60. Check the wiring schematic on page 60 and 61. Motor and transformer wiring, inverter element pin location change is necessary to convert 220V to 110V. Only trained and competent personnel or electrician should perform the voltage change.

### 9.4 Initial Start-Up

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

- 1) Start operating the hoist without a load.
- 2) Check, when not under load, that the movement of the hook corresponds to the direction of the arrows on the pushbutton station.
- 3) Check the operation of the hoist limit switch: operate the hoist, without a load, until it reaches the upper and lower hook positions and let the limiter slip briefly. Limit switch should stop operation of hoist motor.
- 4) Check the operation of the brake: lift up a nominal load and then lower it. Make sure there is no hook drift.
- 5) Perform a dynamic load test with 110% of the rated load (or static tests with 125% of the rated load).
- 6) The hoist which you have just purchased should only be used with a maximum load equal to the hoist's rated load. The length of its useful service life depends on the demands placed upon it (average operating time, average load lifted, number of start-stops and proper maintenance).

### 9.5 Precautions and Operation

#### **⚠ WARNING**

Indicates a potentially hazardous situation, which, if not avoided, MAY result in serious injury.

To avoid such a potentially hazardous situation, THE OPERATOR SHALL

- 1) Perform a daily inspection according to the instruction manual.
- 2) Inspect the load chain for any type of deformation or damage and check the load chain lubrication.
- 3) Visually inspect hooks and hook latches for any type of deformation of throat opening, wear on saddle or load bearing point, and twisting.
- 4) Report missing or illegible warning labels to the supervisor.
- 5) Not operate the hoist if any damage or malfunctions exist.
- 6) Know hand signals used for hoist operation as per instruction manual.
- 7) Always notify others when a load transport is about to begin.
- 8) Always make sure that the supporting structures are strong enough to support the weight of load and hoist.
- 9) Maintain firm footing or be otherwise secured when operating the hoist.
- 10) Check brake function by tensioning the hoist prior to each lift operation.
- 11) Use hook latches. Latches are to retain slings, chain, etc. under slack conditions only.

12) Place slings balanced on the bottom hook. Avoid “Improper” slinging cases shown below.



- 13) Make sure the hook latches are closed and not supporting any parts of the load.
- 14) Make sure the load is free to move and will clear all obstructions.
- 15) Avoid swinging the load or hook
- 16) Make sure hook travel is in the same direction as shown on the controls.
- 17) Inspect the hoist regularly, replace damaged or worn parts, and keep appropriate records of maintenance.
- 18) Use only manufacturer’s recommended parts when repairing the unit.
- 19) Lubricate load chain per hoist manufacturer’s recommendations.
- 20) NOT use the Hoist’s overload limiting clutch to measure load.
- 21) NOT use limit switches as routine operating stops. They are emergency devices only.
- 22) NOT allow your attention to be diverted from operating the hoist.
- 23) NOT allow the hoist to be subjected to sharp contact with other hoists, structures, or objects through misuse.
- 24) NOT adjust or repair the hoist unless qualified to perform such adjustments or repairs.
- 25) The hoist should be maintained regularly, following the instructions in this manual.
- 26) Keep the moving components clean and oiled as indicated in this manual.
- 27) Make sure that the limit switch stops are in place, and that all limit switches are functioning properly.
- 28) Before operation, check that the load is correctly fastened and installed on the hook
- 29) When moving the load, make sure that it is sufficiently raised and distant from the surrounding machines and other objects to avoid all obstacles during operation.
- 30) Make sure that the hoist is vertical to the load before moving it.
- 31) If manually moving the hoist, push the load.
- 32) Avoid rocking the load or the hook when using the trolley or crane, by limiting the starting and stopping motions.
- 33) Use the material under normal working conditions (ambient temperatures, atmosphere)
- 34) Use only for indoor operation of hoist. For outdoor operation, provide adequate protection to ensure a dry environment.
- 35) NOT operate the hoist if any damage or malfunctions exist. Damages or malfunctions shall be reported to the supervisor.
- 36) NOT operate the hoist if it is tagged-out.
- 37) NOT lift, lower, or transport personnel by means of the hoist, hoist trolley, hoist hook, or load.
- 38) After hoist installation – confirm load chain is well lubricated, not twisted and move freely into the chain container. This applies to the original installation and anytime the hoist is relocated.

## 10. Maintenance and Servicing

To extend the life of the hoist, safety inspections must be carried out daily, monthly, and annually.

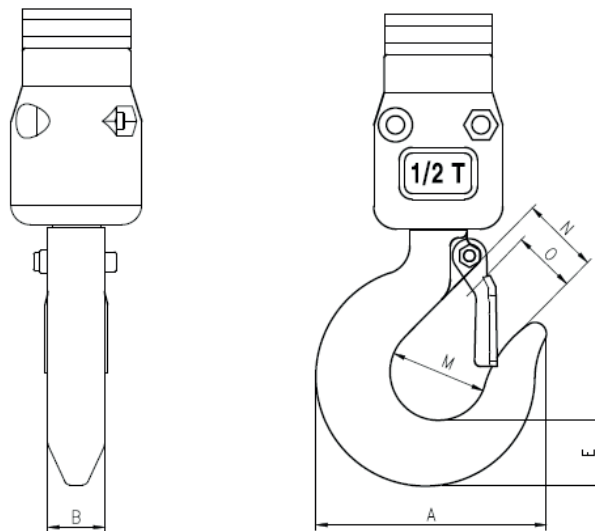
Before removing the control box cover, check that the hoist power supply is disconnected, locked, and tagged. Repair should never be carried out with a load on the hoist. Before repairing the hoist, a safety warning sign such as “under repair” or “inspection” must be displayed.

### 10.1 Load Hook

Check hooks for deformation or cracks. Hooks must be replaced if throat opening has increased by more than 5%, throat opening has any twist from plane of straight hook or if depth at load bearing point has worn more than 10% of original section dimension (E). The top hook and load hook shall be checked regularly for wear. Measure the throat opening. If the throat opening exceeds the maximum opening allowed, replace the hook. Damaged safety latches shall be replaced immediately. Measure the section dimension E. If this measurement is less than the minimum allowed, replace the hook.

<Table10.1-1> Specification of Hook

Capacity (kg)	Standard Hook Dim's(mm)						Replacement Criteria (mm)	
	A	B	E	M	O	N	Maximum Throat opening =N * 105%	Minimum Depth =E * 90%
125	73	18	21	25	21	25	N ≥ 26.25	E ≤ 18.9
250								
500	81	20	23	34	23	27.5	N ≥ 28.88	E ≤ 20.7





10.2 Load Chain

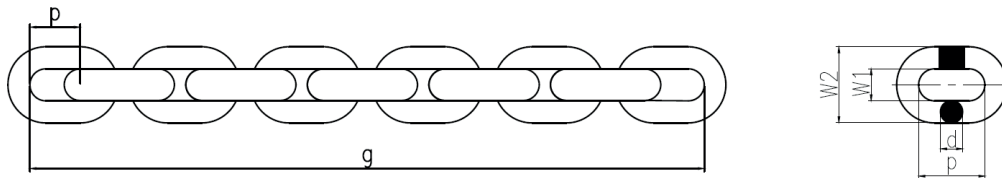
**⚠ WARNING**

Check for twist in the load chain.  
 Never try to use the hoist when the load chains are entangled.  
 Pull the bottom hook to the normal vertical position before use.  
 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.  
 Only genuine manufacturer's load chain should be used.

<Table10.2-1> Specification of Load Chain

Dia. x Pitch(mm)	unit	Ø5 x 15
Class, Grade		DAT. HE G80 RS
Surface Hardness		520-620 HV10
Manufacturers Test Force Min.	kN	20
Breaking Force Min.	kN	31.5
Breaking Elongation Min.	%	10
Working Load Limit, 1 Fall	kg	500
Weight Per Meter	kg	0.54
Dimension (mm)	d	5
	p	15
	W1	6.2
	W2	17.2

<Table10.2-2> Measurement of Wear and Replacement of Load Chain



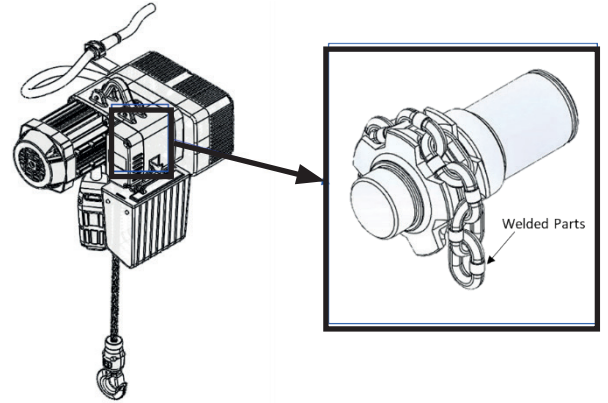
Dimension of load chain: Dia. X Pitch(mm)	Unit	Ø5 x 15
Minimum link diameter allowed(d)	mm	4.75
Maximum pitch allowed(p)	mm	15.45
Maximum Gage Length allowed(g): (11links pitch measurement)	mm	169.95

**NOTE:** Replace load chain if link diameter has decreased by more than 5% or if the pitch has increased by more than 3%

Check the load chain for deformation or cracks. In this case, the wear on the chain guide and load sheave 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. If these limits are exceeded, the chain must be replaced immediately. The gage dimension to be checked shall be measured over 11 links from inside end of link to inside end of link (as shown in figure on previous page.)

### 10.3 Chain Alignment (the welded part outward from the center)

Before installation, check to assure that the welded section of checked the load chain is in correct position to assure safe operation. The welded part of the chain link should be opposite the contact point of the load sheave. If not aligned correctly outward, it can cause a hazardous condition. Chain must be removed from hoist and installed correctly. The weld should not face the machined surface of the load sheave (chain pocket wheel).



### 10.4 User Safety Check Label and Nameplate Management

All product nameplates and labels must be located where they are originally attached to the product and if they are covered or damaged, must be replaced with product from the supplier immediately.

### 10.5 Hoist Motor Brake Operation

Check the slip of the load chain with a known capacity load and without a load. If there is any slip of the load chain during operation (hook drift), the brake is malfunctioning and must be adjusted/repared.

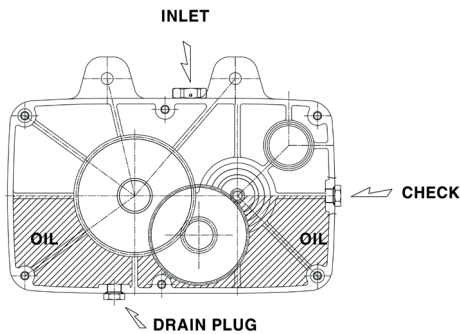
## ⚠ WARNING

Before replacing brake lining, make sure electric power is turned off and load on the hook is removed.

## ⚠ CAUTION

After replacing the brake lining, operate the hoist in the order of without load, with light load and with rated load to check the brake function.

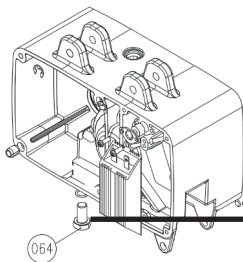
### 10.6 Lubrication



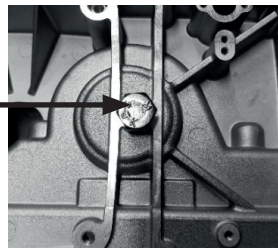
Oil level should be checked in the gear case. The oil level can be inspected using the oil level plug as shown on the left. Hoist must be level when checking. Remove top vent plug (inlet) and clean breather passage first and then remove oil level check plug. If oil is at top of check plug, gearbox has correct amount of oil. If oil does not slowly come out of hole, add oil in inlet until it does. Replace check plug and vent plug.

See below for recommended lubricants.

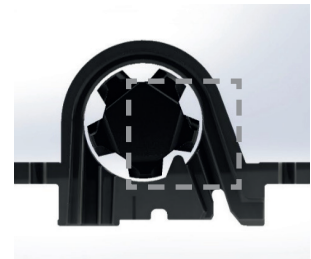
Lubrication point	Possible brands	Quantity & Applied model no.	
Chain	Chain lubrication	As required	
Gears	SHELL OMALA 220 MOBIL VACTRA OIL No.4 MOBIL GEAR XP 220 ESSO SPARTAN EP 220 CALTEX MEROPA 220	0.7 liter	125kg 250kg 500kg



Picture 1



Picture 2



Picture 3

Maintenance Tip : Take out the Hex Bolt 064 (Picture 1) to drain out the gear oil and use Hex Bolt 064 to push out and disassemble the load sheave (Picture 2). Careful approach is required while disassembling the load sheave to avoid Chain Guide and Load Sheave damage (Picture 3).

### 10.7 Gear Oil change

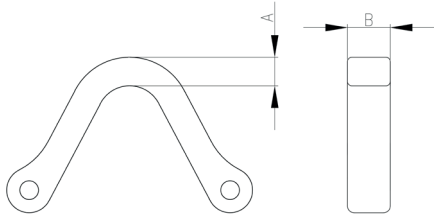
The Hour meter (only on VFD Models) can be used in conjunction with the average load lifted by the hoist to estimate when the gear oil should be changed. Refer to Table 10.7-1

<Table 10.7-1> Criteria for Recommended Gear Oil Replacement

Loading During Normal Operation		Change Gear Oil After(hours)
Rating	Average % of Rated Capacity	
Light	0% to 33%	360
Medium	33% to 67%	240
Heavy	67% to 100%	120

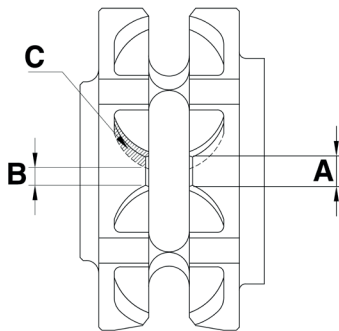
- Refer to the table 12.1 Inverter Parameter Setting & Run Time Check

### 10.8 Top Hanger Inspection



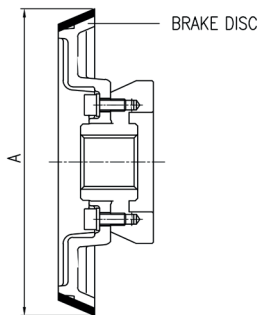
Capacity (kg)	A Dim`s.		B Dim`s.	
	Standard	Discard	Standard	Discard
125, 250, 500	13.0mm	12.4mm	19.5mm	18.5mm

### 10.9 Load Sheave Inspection.



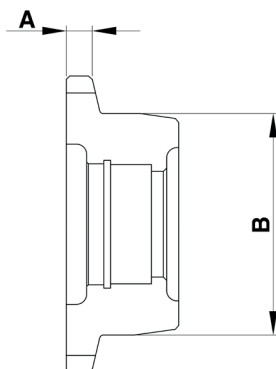
Capacity (kg)	Thickness	
	Standard(A)	Discard(B)
125, 250, 500	4 mm	3 mm
※ Point "C" is Worn Portion.		

### 10.10 Hoist Motor Brake Lining Inspection.



Capacity (kg)	Outer Diagram(A)	
	Standard	Discard
125, 250, 500	126 mm	125 mm

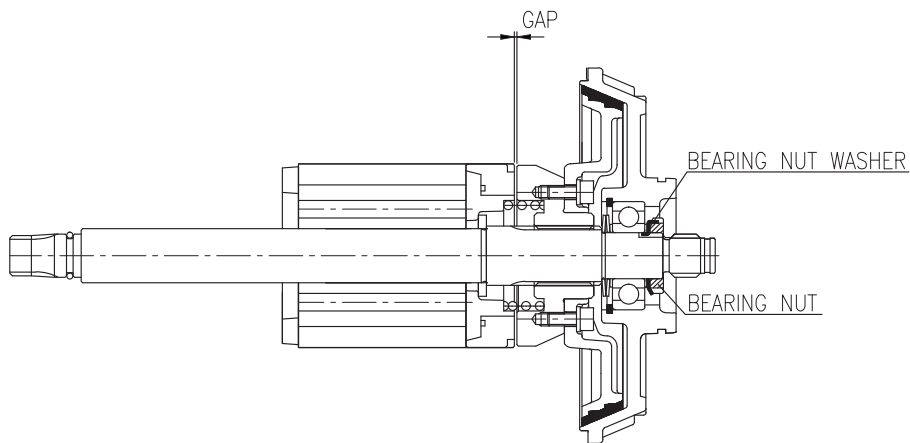
### 10.11 Trolley Wheel Inspection.



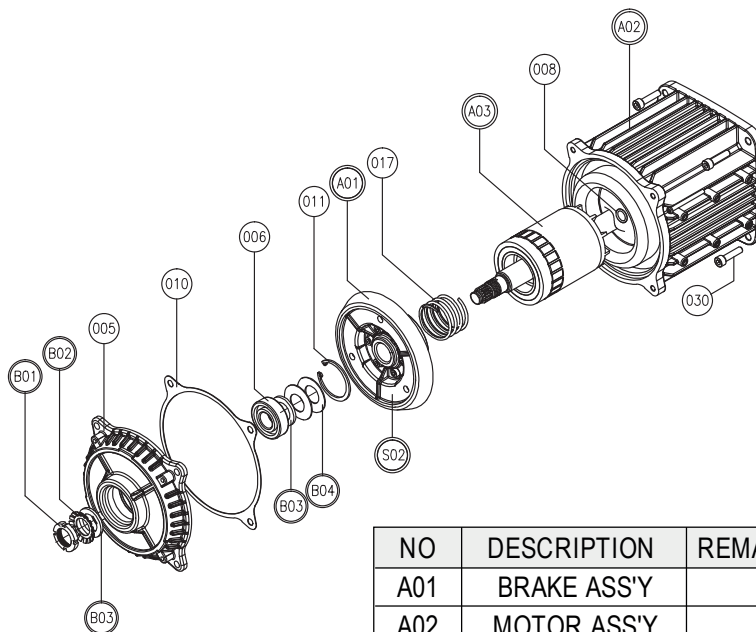
Capacity (kg)	Roller Flange(A)		Diameter Dim`s.(B)	
	Standard	Discard	Standard	Discard
125, 250, 500	7.65 mm	6.4 mm	65 mm	63 mm

### 10.12 Procedure of Replacing Brake Lining

Procedure of Replacing Brake Lining Please refer to attached parts spread view. Loosen the wrench bolt (2) and remove the rotor and brake Part. Loosen the bearing nut and disassemble A1 brake disc, and A3 rotor assembly. Replace A1 brake disc, and adjust the gap between two parts to per below chart. Lubricate the brake disc's inside spline for smooth operation of brake disc. Make sure to check the brake disc operation after replacing.



BRAKE GAP (MM)	0.7mm	0.9mm
MODEL NO	EDL-125-3 (1)	-
	EDL-250-3 (1)	-
	EDL-500-3 (1)	-
	DL-125-3	-
	DL-250-3	DL-125-1
	DL-500-3	DL-250-1



NO	DESCRIPTION	REMARK
A01	BRAKE ASS'Y	
A02	MOTOR ASS'Y	
A03	ROTOR ASS'Y	

## 11. Stepless Control

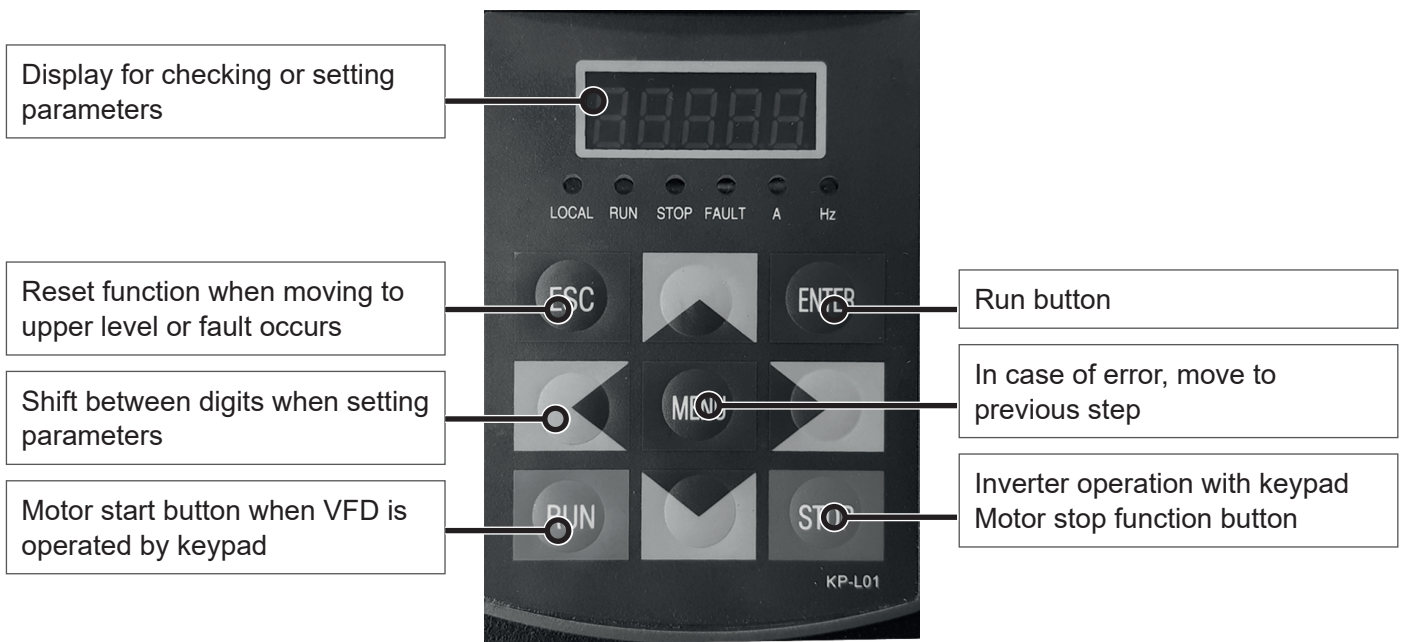
The stepless control hoist speed is variable from low to high speed. This is achieved by pressing the push buttons on the pendant (in & out). The further the button is pressed, the faster the hoist and/or trolley speed. Letting up on the button slows the motion.

There may be a short delay when accelerating or decelerating.

### ⚠ WARNING

Stepless control hoist comes with pendant that uses a magnetic component to adjust the speed. Be careful not to place magnetic objects near the pendant during hoist operation as a malfunction may occur. Stepless control (VFD equipped) pendant is equipped with a precise PCB, so avoid impacts of pendant. Do not let pendant swing into objects.

## 12. Inverter Button Functions



### ⚠ WARNING

The VFD is preprogrammed at the factory. Do not change any parameter value of the VFD without instruction from manufacturer. Any change in parameter value may affect the operation and safety of the hoist.

### 12.1 Inverter Parameter Settings & Checking Run Time

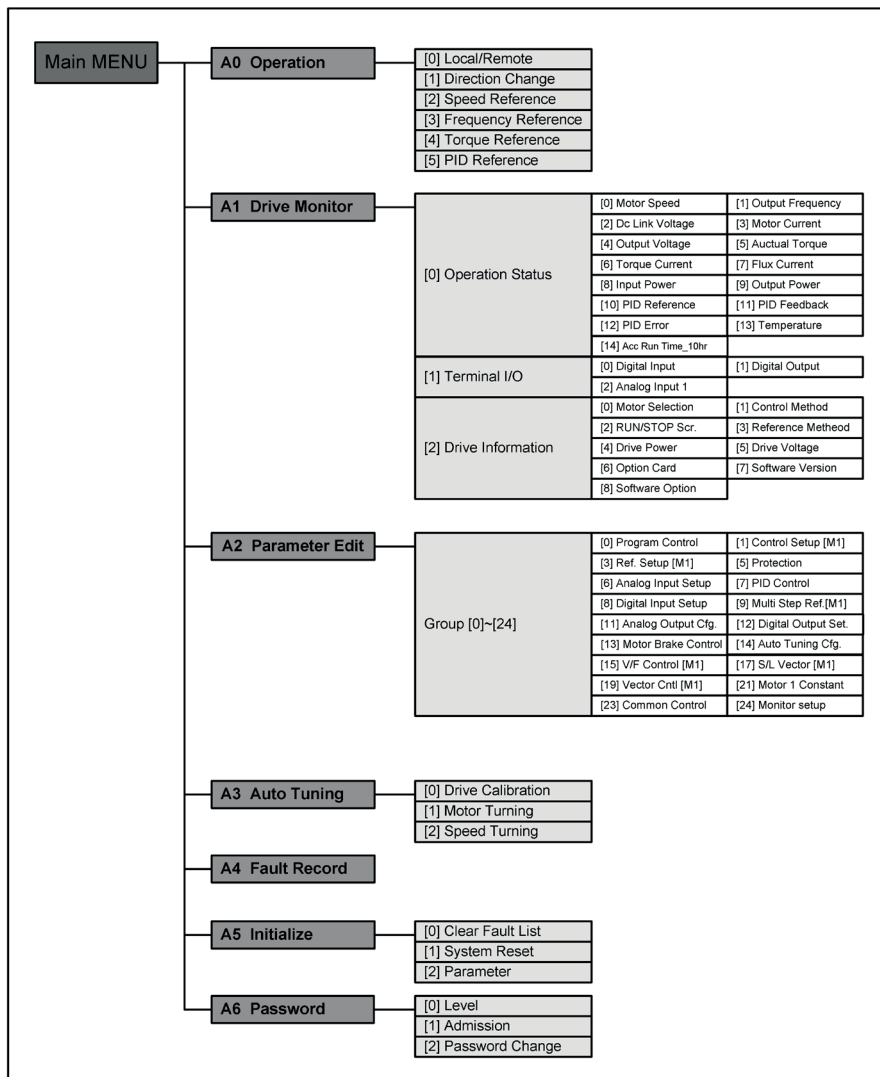
Capacity(kg)	Hoist/Trolley Hz SETTING	Hoist/Trolley ACCEL SETTING	Hoist/Trolley DECEL SETTING
	SET P15.01/P15.02 = Min/Max Freq.	SET P3.16	SET P3.33
125	P15.01 :10 , P15.02 : 60	0.2 SEC	0.2 SEC
250	P15.01 :10 , P15.02 : 60	0.2 SEC	0.2 SEC
500	P15.01 :10 , P15.02 : 60	0.2 SEC	0.2 SEC

Run Time Check

A1 Drive Monitor -> 0 Operation status -> [14] Acc. Run Time (1 = 10hr, 2 = 20hr, 3 = 30hr...)

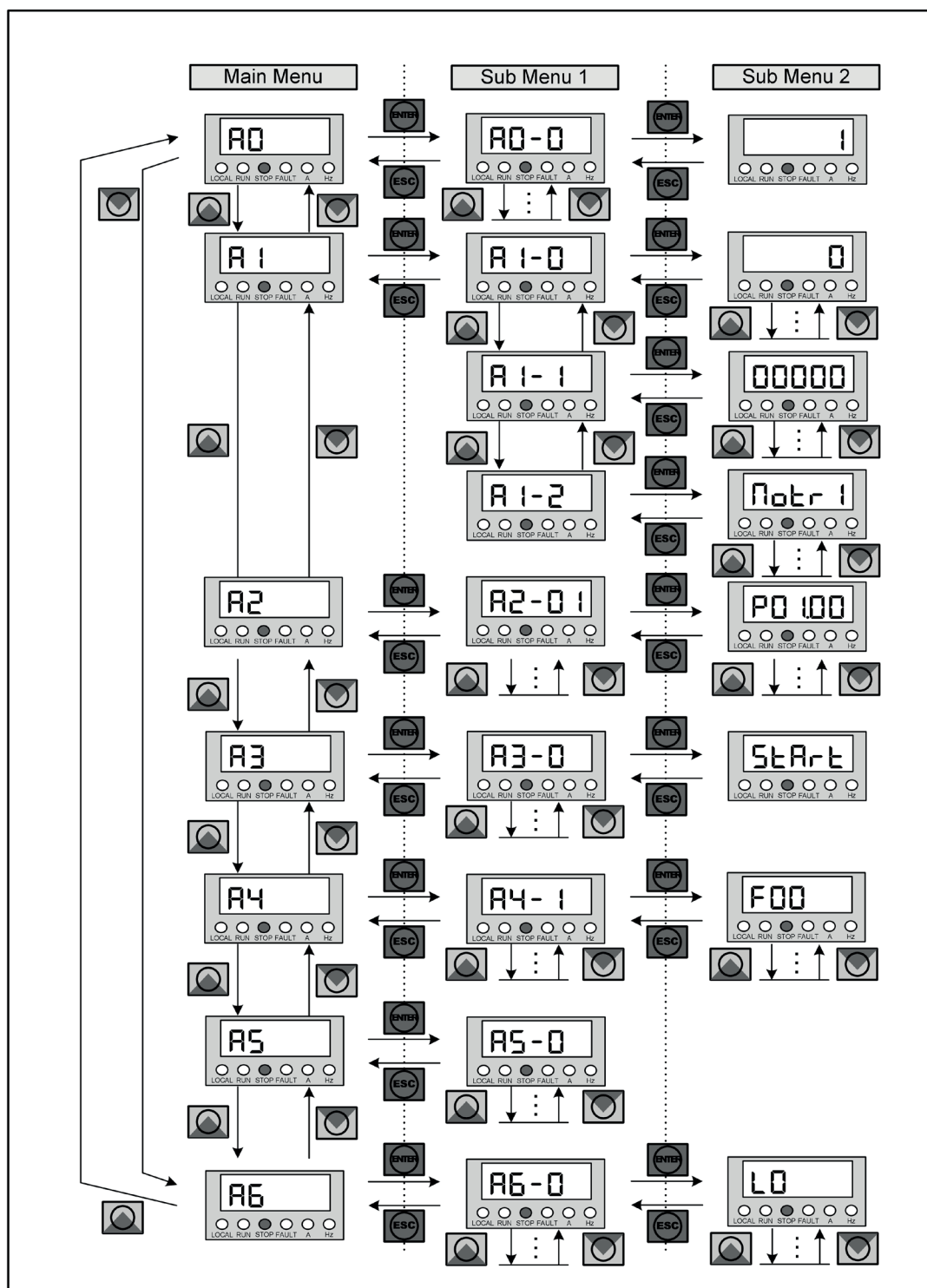
\* Please note that the parameter setting is subject to change without prior notice by the manufacturer.

### 12.2 Main Menu Tree.



### 12.3 Inverter Menu Display

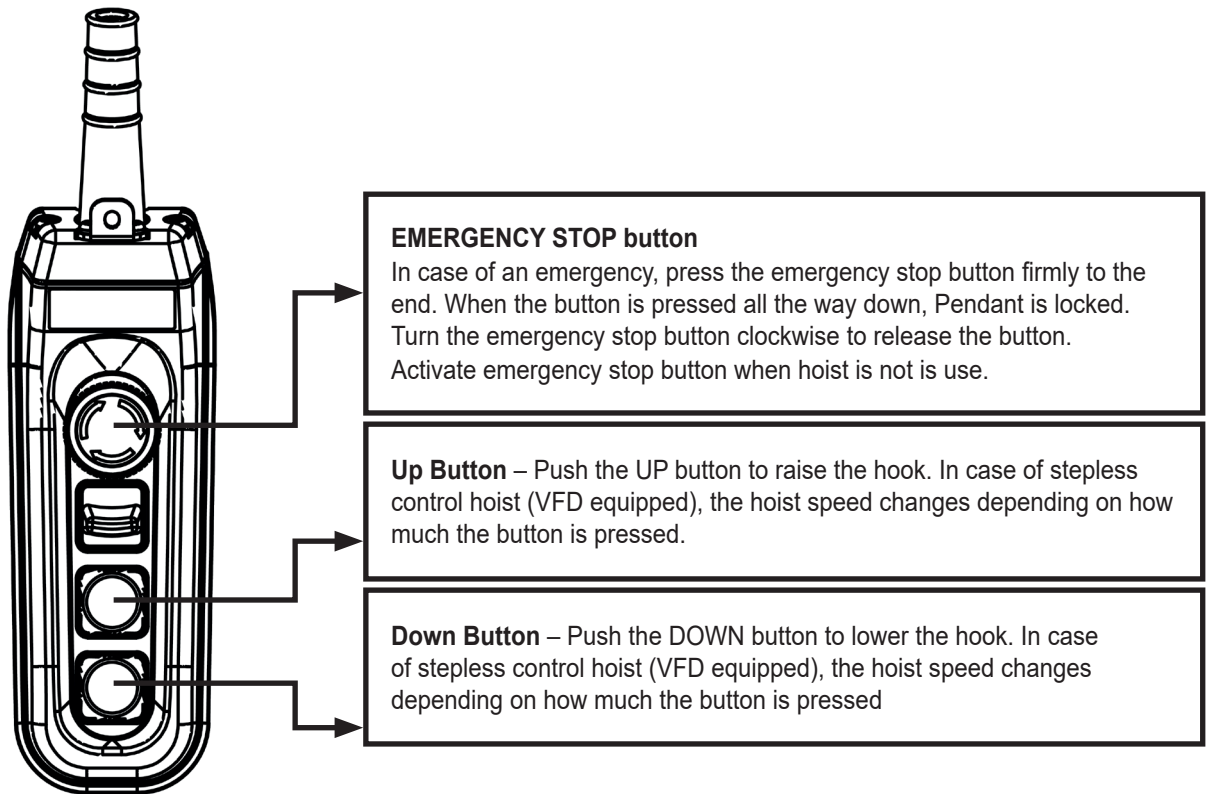
The data values of the keypad are displayed in the Main Menu and its Sub Menu as shown below. To move from Main Menu to the Sub Menu press ENTER. Press ESC to shift from the Sub Menu to Main Menu. Use the Up / Down button to increase or decrease parameter values. Left / Right button to change the digit of parameter value.





## 13. Pendant

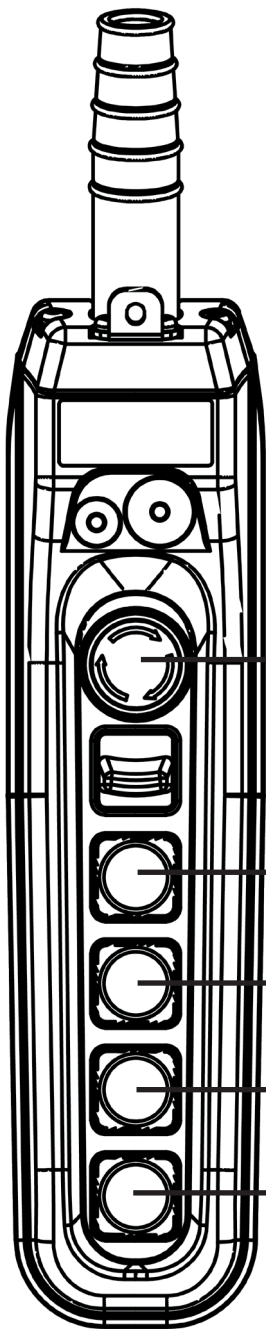
### 13.1 2- Button Pendant



## ⚠ CAUTION

Stepless control (VFD equipped) pendant is equipped with PCB so if strong impact is continuously applied, variable speed operation may not work. Assembly can only be replaced with DAESAN SC Push Button Pendant.

13.2 4-Button Pendant



**EMERGENCY STOP button**

In case of an emergency, press the emergency stop button firmly to the end. When the button is pressed all the way down, Pendant is locked. Turn the emergency stop button clockwise to release the button. Activate emergency stop button when hoist is not is use.

**Up Button** – Push the UP button to raise the hook. In case of stepless control hoist (VFD equipped), the hoist speed changes depending on how much the button is pressed.

**Down Button** – Push the DOWN button to lower the hook. In case of stepless control hoist (VFD equipped), the hoist speed changes depending on how much the button is pressed.

**East Button** – Push the E button to move the hoist to the East. In case of stepless control trolley (VFD equipped), the trolley speed changes depending on how much the button is pressed.

**West Button** – Push the W button to move the hoist to the West. In case of stepless control trolley (VFD equipped), the trolley speed changes depending on how much the button is pressed.

**⚠ CAUTION**

Stepless control (VFD equipped) pendant is equipped with PCB so if strong impact is continuously applied, variable speed operation may not work. Assembly can only be replaced with DAESAN SC Push Button Pendant.

## 14. Preventive Maintenance

### 14.1 Recommended Periodic Maintenance and Inspection Table

Check	Interval	Qualification of the customer's personnel
All Operational Functions for Mis-adjustment or Unusual Sounds	Daily	Operator
Brake Operation	Daily	Operator
Visual Inspection of the load chain	Daily	Operator
Hook Latch Operation	Daily	Operator
Cleanliness and Lubrication of the Load Chain	Monthly	Operator
Limiter Operation	Monthly	Operator
Measuring Wear of the Load Chain	Quarterly	Operator
Measuring Wear of the Hooks	Quarterly	Operator
Tightening Hook Block Screws	Quarterly	Operator
Checking Locking Plate Screws	Quarterly	Operator
Evidence of Excessive Wear on Motor & Brake	Quarterly	Operator
Evidence of Damage of Supporting Structure or Trolley (if used)	Quarterly	Operator
Warning Label Properly Attached to the Hoist and Legible	Quarterly	Operator
End Connections of Load Chain	Quarterly	Operator
Checking Screws for Tightness and for Signs of Corrosion	Annually	Qualified mechanic
Adjustment of the Hoist Motor Brake	Annually	Qualified mechanic

## 14.2 Inspection Methods & Criteria

Item	Method	Criteria	Action
Functional Operating Mechanism	Visual Auditory	Mechanism should be properly adjusted and should not produce unusual sounds when operated	Repair or Replace as Required
Load Chain	Visual	Surface condition should be free of nicks, gouges, dents, and weld splatter. Link should not be deformed and should not show signs of abrasion. Surface where links bear on one another should be free of significant wear.	Replace
	Measure	“p” dimension should not be greater than maximum allowed value listed in Table 10.2-2. “d” dimension should not be less than minimum value listed in Table 10.2-2	Replace and Inspect Load Sheave
	Lubrication	Entire surface of each chain link must be lubricated and should be free of dirt and grime. Chain should not make cracking noise when lifting or lowering a load.	Clean and Lubricate
Hook	Visual	Hooks and suspension hanger surface should be free of significant rust, weld splatter, nicks, or gouges.	Replace
	Measure	For fretting wear “e” dimensions should not be less than replacement value listed in Table 10.1-1	Replace
	Measure	For hook stretch “n” dimensions should not be greater than replacement value listed in Table 10.1-1	Replace
	Visual, Function	Latch should not be deformed and should not be loose. Latch spring should not be weak or missing. Latch should not be stiff. It should snap smartly to its closed position when depressed and released	Replace
	Visual	Shank and neck portion of hook should be free of deformation	Replace
Bumper	Visual	Should be free of significant deformation	Replace
Chain Guide	Visual	Chain guide should be free of significant wear. Chain guide surface should be free of deformation by nicks and gouges, and abrasion.	Replace
Chain Container	Visual	Container should not be damaged. Brackets should not be deformed or missing and firmly fixed.	Replace
Housing and Mechanical Components	Visual, Auditory Vibration Function	Hoist components including load blocks, suspension and chain attachments, bolts, shafts gears, bearings, pins, and rollers should be free of cracks, distortion, significant wear, and corrosion. These can be detected visually or by unusual sound or vibration during operation	Replace
Pendant cord	Visual Electrical Continuity	Surface of cord should be free of nicks, gouges, and abrasion. Pendant strain relief cable should absorb the force applied to the pendant. Each conductor in cord should have 100% electrical continuity even when cord is flexed back and forth.	Replace
Pendant Housing	Visual	Pendant housing should be free of cracks and mating surfaces or parts should be sealed without gaps.	Replace

<b>Item</b>	<b>Method</b>	<b>Criteria</b>	<b>Action</b>
Pendant Buttons	Function	When depressed and released, Pendant should make corresponding movement of the hoist according to the designated direction. Hoist should be completely stopped when emergency stop switch is pressed and activated. Pendant should be interlocked mechanically or electrically to prevent simultaneous energization of circuits for opposing motions (up & down).	Replace only With DAESAN SC Push Button Pendant
Inverter	Visual, Function	There should be no fault codes	Replace as Needed
Brake Assembly	Measure, Visual	The motor brake gap is directly related to brake wear. As the brake pad wears, the brake dimension gets smaller until it reaches the discard value. At this point, it needs to be changed. Brake gap/wear dimension should not be equal to or less than discard value listed in table "10.10 Hoist Motor Brake Lining Inspection". Bolts and screws should not be loose. Load chain should not make slippage of more than 15mm with the brake.	Replace brake assembly
Load Sheave	Function, Visual	Pockets of load sheave should be free of significant wear. Refer to Table "10.9 Load Sheave Inspection" for load sheave wear dimension	Replace
Motor	Function, Auditory	Insulation resistance should be 1MΩ or more at DC 500V mega	Repair or replace
Labels	Visual	All warning, capacity and name plate labels should be affixed and legible	Replace
Bolts, Nuts	Visual	There should be no missing bolts, nuts, washers and rivets and should not be loose	Tighten and replace
Trolley Side Plates	Visual	Must be free of significant deformation	Replace
Trolley Wheel flange	Visual	Trolley wheel flange should be free of significant wear. Refer to Table "10.11 Trolley Wheel Inspection" for trolley wheel flange wear dimension.	Replace
Trolley Suspension Shaft	Visual Measure	Suspension shaft should not be bent. Diameter should not be worn by more than 10% (Standard Dim`s: 25mm / Discard Dim`s: 22.5mm)	Replace

## 15. Troubleshooting

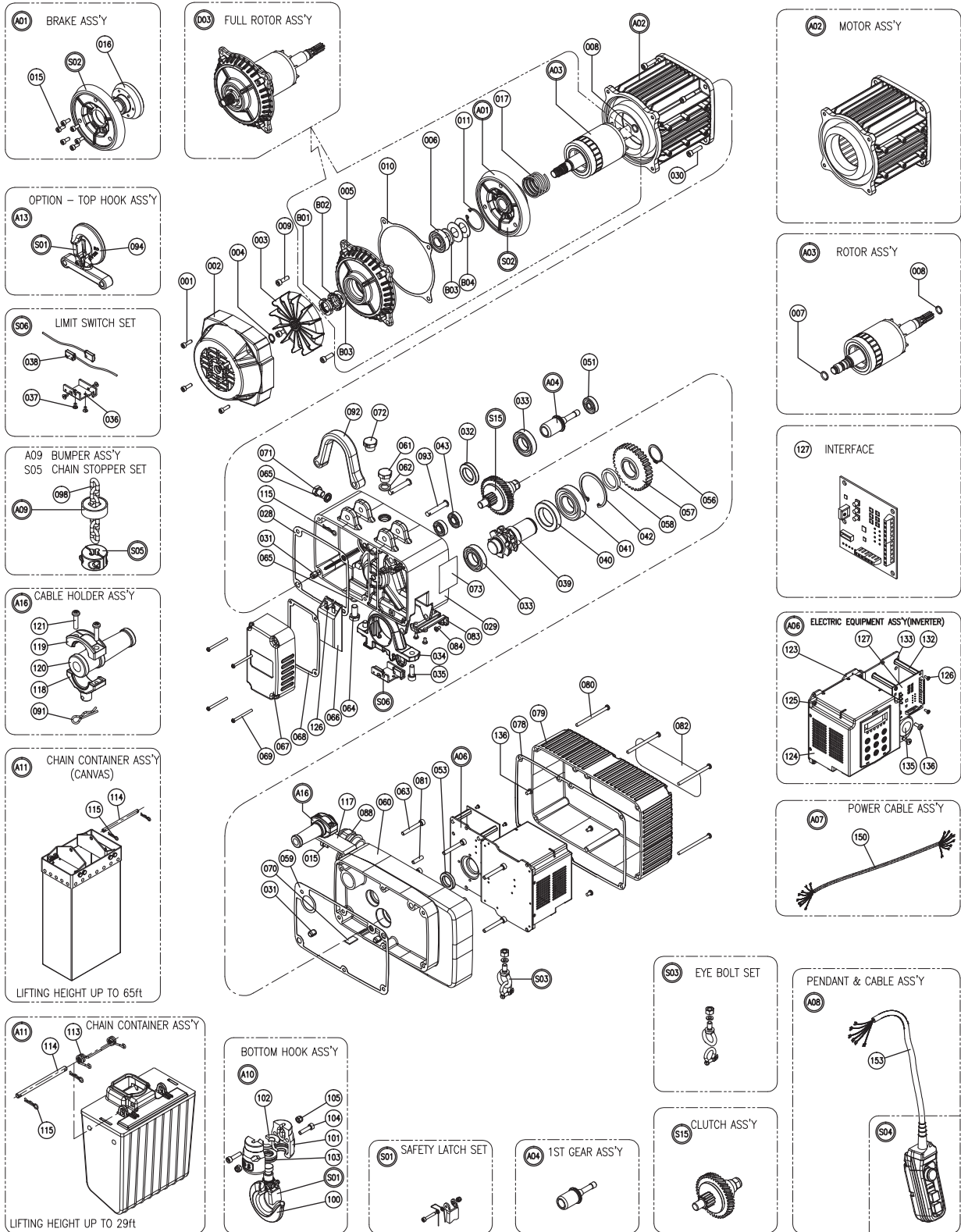
Problem	Cause	Solution
The chain hoist and trolley does not work	The emergency stop button is activated	Deactivate it
	Triggered fuse	Replace the fuse
	Contactors terminal screws loose	Tighten them
	Built in thermal sensor is activated	Allow the motor to cool down
	Main switch is off	Turn it on
	Brake does not release	Replace
	Loose, improper or broken wire in hoist electrical connection	Shut down power supply and check wiring connection on hoist control panel as well as Pendant
	Motor burned out	Replace motor and rotor assembly.
	Wrong voltage or frequency	Check voltage and frequency of power supply against the rating on name plate on the motor
Impossible to lift the load	Hoist overloaded	Reduce load within rated capacity of the hoist
	Broken conductor in Pendant cord	Check the continuity of conductor in the cable. If one is broken, replace the cord
	Faulty friction clutch	Replace
	Low voltage in hoist power supply	The voltage should be measured at the hoist contactor. Supply voltage should fall within plus or minus 10% of the voltage specified on motor name plate.
Hook drift exceeds 15mm	Brake lining worn	Replace the brake assembly
Hoist moving in wrong direction	The power supply is incorrectly connected	Change two phases of the power supply.
Motor or Brake overheating	Overloaded	Reduce load within rated capacity of the hoist
	Excessive duty cycle	Reduce frequency of lifts
	Wrong voltage of frequency	Check voltage and frequency of power supply against the rating on name plate on the motor
	Very hot environment	Above ambient temperature of 40°C, frequency of hoist operation must be reduced to avoid overheating of the motor. Additional measure should be provided to ventilate and shield hoist from the heat
Variable speed control is not working	PCB inside hoist got damaged or malfunctioning	Replace
	PCB inside Pendant got damage or malfunctioning	Replace
Electric leakage.	Electric flow on hoist body and chain	Check connection to an earth ground Check insulation resistance Check moisture on Pendant and dry

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Abnormal noises while the load is being moved	The chain components are not lubricated	Lubricate the components
	Load chain is worn	Replace
	Load sheave or chain guide is worn	Replace
	A supply phase is missing	Replace

## 16. Exploded View of Parts

### 16.1 Exploded View of Inverter Hook Suspension Model

EDL 125, 250, 500kg

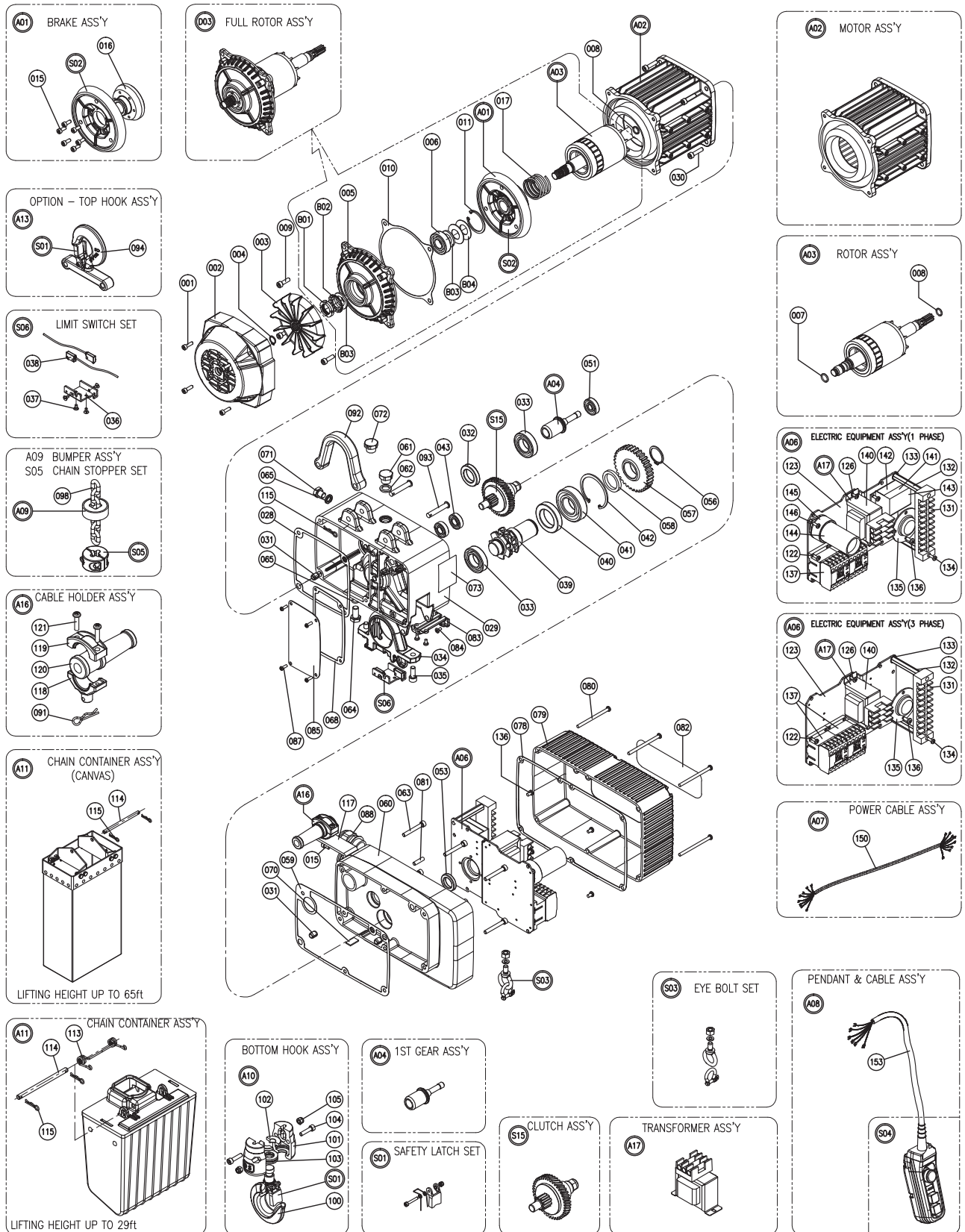


\*For reference, only assembly parts available A01, S03, S04, S05, A02, A03, A04, A11, A15



## 16.2 Exploded View of Single Speed Hook Suspension Model

DL 125, 250, 500kg



\* For reference, only assembly parts available A01, S03, S04, S05, A02, A03, A04, A11, A15

16.3 Part List - Hook Suspension Model

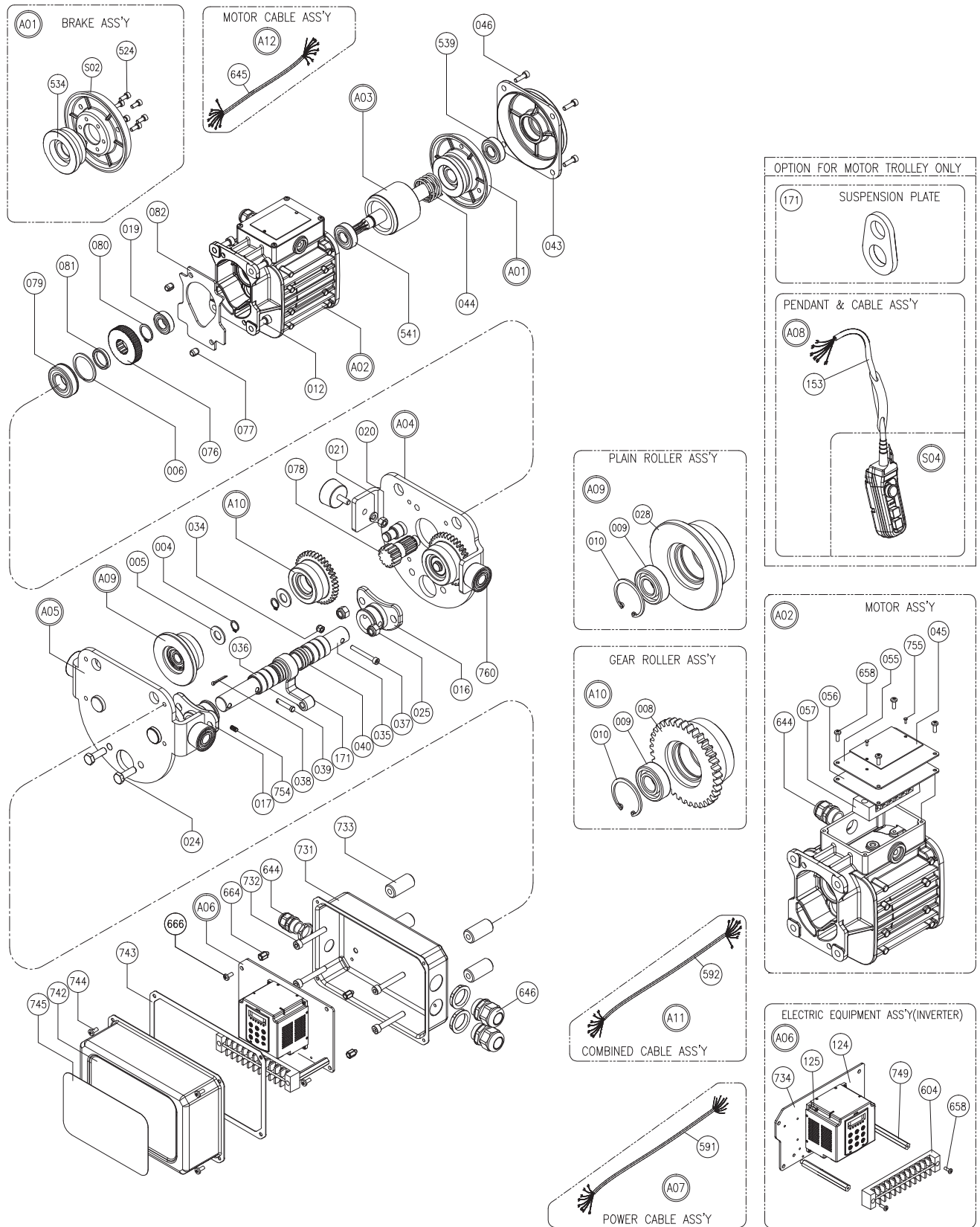
CAPACITY		125KG				250KG				500KG			
MODEL		DL3	EDL3	EDL1	DL1	DL3	EDL3	EDL1	DL1	DL3	EDL3	EDL1	
DESCRIPTION													
D03	FULL ROTOR ASS'Y	DL1 PHASE	N/A				N/A				N/A		
		DL3 PHASE	N/A				N/A				N/A		
		EDL	N/A	N/A			N/A			N/A			
A01	BRAKE ASS'Y												
A02	MOTOR ASS'Y	3Ø 220V/380V	N/A				N/A				N/A		
		3Ø 115V/230V	N/A				N/A				N/A		
		1Ø 115V/230V	N/A				N/A				N/A		
A03	ROTOR ASS'Y	1 PHASE	N/A				N/A				N/A		
		3 PHASE	N/A				N/A				N/A		
A04	1ST GEAR ASS'Y												
A06	ELECTRIC EQUIPMENT ASS'Y (2 BUTTON)	1SPEED- 1 Phase	N/A				N/A				N/A		
		1SPEED- 3 Phase	N/A				N/A				N/A		
		STEPLESS- 1PH/3PH - 220-230	N/A	N/A			N/A				N/A		
		STEPLESS- 3PH -380-460	N/A	N/A			N/A				N/A		
	ELECTRIC EQUIPMENT ASS'Y (4 BUTTON)	1SPEED- 1 Phase	N/A				N/A				N/A		
		1SPEED- 3 Phase	N/A				N/A				N/A		
		STEPLESS 1PH/3PH - 220-230	N/A	N/A			N/A				N/A		
		STEPLESS 3PH - 380-460	N/A	N/A			N/A				N/A		
A07	POWER CABLE ASS'Y	2.5SQ x 4C											
A08	PENDANT & CABLE ASS'Y	2-Button- 1SPEED	N/A				N/A				N/A		
		2-Button- 2SPEED	N/A	N/A			N/A				N/A		
		2-Button- STEPLESS	N/A	N/A			N/A				N/A		
A09	BUMPER ASS'Y												
A10	BOTTOM HOOK ASS'Y												
A11	CHAIN CONTAINER ASS'Y	9M											
	CHAIN CONTAINER ASS'Y	20M											
A13	Type2: TOP HOOK ASS'Y												
A16	CABLE HOLDER ASS'Y												
A17	TRANSFORMER ASS'Y	3 PHASE	N/A				N/A				N/A		
		1 PHASE	N/A				N/A				N/A		
S01	SAFETY LATCH SET												
S02	BEAKE DISC SET												
S03	EYE BOLT SET												
S04	PENDANT ASS'Y	2-Button 1SPEED	N/A				N/A				N/A		
		2-Button 2SPEED	N/A	N/A			N/A				N/A		
		2-Button STEPLESS	N/A	N/A			N/A				N/A		
S05	CHAIN STOPPER SET												
S06	LIMIT SWITCH SET												
S15	CLUTCH ASS'Y												
1	WRENCH BOLT S/W P/W	M5x15											
2	FAN COVER												
3	FAN												
4	SNAP RING	S-13											
5	BRAKE COVER												
6	BALL BEARING	6203DD											
7	O RING	P12.5											
8	O RING	P11.2											
9	WRENCH BOLT S/W	M6x20											
10	PACKING BRAKE COVER												

CAPACITY			125KG				250KG				500KG		
MODEL			DL3	EDL3	EDL1	DL1	DL3	EDL3	EDL1	DL1	DL3	EDL3	EDL1
DESCRIPTION													
11	SNAP RING	R-40											
15	WRENCH BOLT S/W	M5x12											
16	MOVING CORE												
17	BRAKE SPRING	CONTACTOR TYPE		N/A			N/A				N/A		
		INVERTER TYPE	N/A			N/A				N/A			
28	PACKING MOTOR CASE												
29	GEAR CASE												
30	WRENCH BOLT S/W	M6x25											
31	SPRING PIN	Ø10x12											
32	OIL SEAL	25x40x8											
33	BALL BEARING	6005ZZ											
34	CHAIN GUIDE												
35	WRENCH BOLT S/W	M8x20											
36	LIMIT SWITCH BOARD												
37	SUNK BOLT	M4x8											
38	LIMIT SWITCH												
39	LOAD SHEAVE												
40	OIL SEAL	35x55x11											
41	BALL BEARING	6206ZZ											
42	SNAP RING	R-62											
43	BALL BEARING	6001ZZ											
51	BALL BEARING	6200ZZ											
53	OIL SEAL	20x32x6											
56	SNAP RING	S-30											
57	4TH GEAR												
58	COLLAR												
59	PACKING GEAR CASE												
60	GEAR CASE COVER												
61	OIL PLUG	M16											
62	O RING	P16											
63	WRENCH BOLT S/W	M6x45											
64	HEX BOLT	M10x25											
65	ORING	P-8A											
66	BRAKING RESISTOR	60W 40Ω	N/A			N/A			N/A				
67	RESISTOR COVER	Inverter Type	N/A			N/A			N/A				
68	PACKING RESISTOR COVER												
69	WRENCH BOLT S/W	M4x45	N/A			N/A			N/A				
70	MAGNET	15x10x3T											
71	HEX BOLT	M10x10											
72	AIR HOLE BOLT												
73	MAIN NAME PLATE												
78	PACKING CONTROL BOX COVER												
79	CONTROL BOX COVER												
80	WRENCH BOLT S/W	M5x85											
81	SPRING PIN	Ø4x25											
82	BRAND NAME PLATE												
83	CABLE HOLDER												
84	MACHINE SCREW S/W P/W(S)	M4x12											
85	COVER			N/A			N/A				N/A		
87	MACHINE SCREW S/W P/W(S)	M4x12		N/A			N/A				N/A		
88	CABLE GRAND	PG21											
91	R-PIN	R12											
92	Type1: TOP HANGER												
93	CONNECTING PIN												
94	TOP HOOK												
98	LOAD CHAIN	Ø5x15											
100	BOTTOM HOOK												
101	BOTTOM HOOK COVER(SET)												
102	BOTTOM SPLIT RING												
103	THRUST BEARING	51103											
104	WRENCH BOLT	M6x25											
105	U NUT	M6											
113	CHAIN CONTAINER SPRING												
114	CHAIN CONTAINER SUPPORT PIN												

CAPACITY			125KG				250KG				500KG		
MODEL			DL3	EDL3	EDL1	DL1	DL3	EDL3	EDL1	DL1	DL3	EDL3	EDL1
DESCRIPTION													
115	R-PIN	R10											
117	POWER CABLE HANGER												
118	POWER CABLE HOLDER A												
119	POWER CABLE HOLDER B												
120	POWER CABLE RUBBER												
121	TAP SCREW	M5x20											
122	MACHINE SCREW S/W P/W(S)	M4x12	N/A			N/A			N/A				
123	ELECTRIC EQUIPMENT BOARD												
124	INVERTER	1PH/3PH – 220~230	N/A			N/A			N/A				
		1PH –110	N/A		N/A		N/A						
		3PH – 380~460	N/A		N/A			N/A			N/A		
125	MACHINE SCREW S/W	M4x16	N/A			N/A			N/A				
126	MACHINE SCREW S/W P/W(L)	M4x8											
127	INTERFACE (2 Button)		N/A			N/A			N/A				
	INTERFACE (4 Button)		N/A			N/A			N/A				
131	TERMINAL BLOCK	20Ax10P	N/A				N/A				N/A		
132	HEX STAY PIN	M6x65, M6x35											
133	PLAIN WASHER	M6											
134	MACHINE SCREW S/W	M4x12	N/A			N/A			N/A				
135	BEARING COVER												
136	MACHINE SCREW S/W	M5x10											
137	MAGNETIC CONTACTOR	GMC-16M	N/A				N/A				N/A		
		GMC-12M	N/A				N/A				N/A		
140	TRANSFORMER	35VA- 1 PHASE	N/A				N/A				N/A		
		35VA- 3 PHASE	N/A				N/A				N/A		
141	START SWITCH	ECS124L	N/A				N/A				N/A		
142	START SWITCH HOUSING		N/A				N/A				N/A		
143	START SWITCH COVER		N/A				N/A				N/A		
144	CAPACITOR	125VAC 552µF	N/A				N/A				N/A		
145	CAPACITOR HOLDER		N/A				N/A				N/A		
146	MACHINE SCREW S/W P/W(S)	M4x12	N/A				N/A				N/A		
150	POWER CABLE		2.5SQx4C										
153	PENDANT CABLE	0.75SQx5C	N/A				N/A				N/A		
		0.75SQx7C	N/A			N/A				N/A			
B01	LOCK NUT	AN 03											
B02	SPRING	AW 03											
B03	PLAIN WASHER	Φ17.2 X Φ25 X 1T											
B04	CLUTCH SPRING	Φ17.1 X Φ31 X 1T											

### 16.4 Exploded View of Inverter Motorized Trolley Model

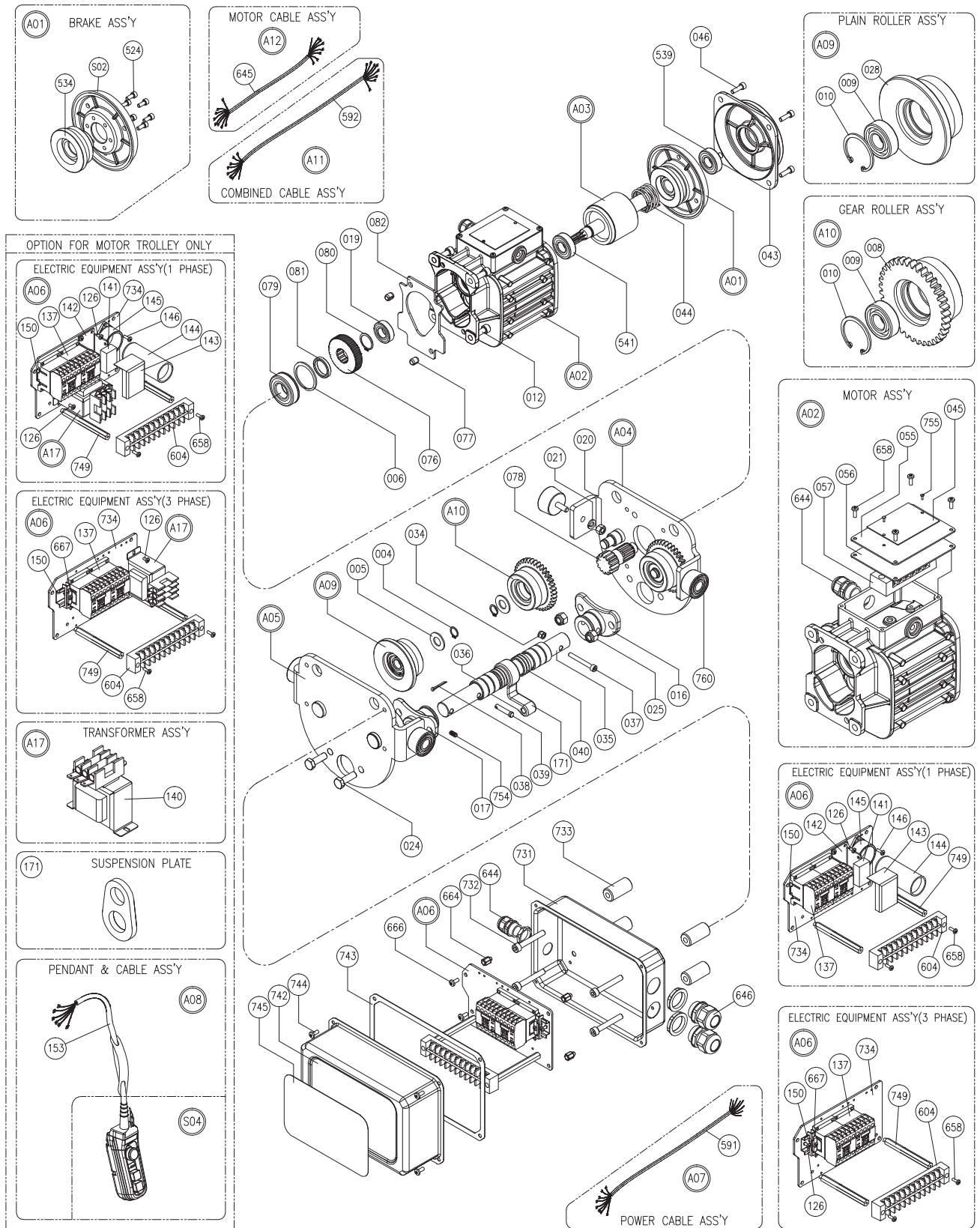
EDLM 125, 250, 500kg



\* For reference, only assembly parts available A02, S04, A09, A10

### 16.5 Exploded View of Single Speed Motorized Trolley Model

DLM 125, 250, 500kg



\* For reference, only assembly parts available A02, A03, S04, A09, A10

### 16.6 Part List - Motorized Trolley Model

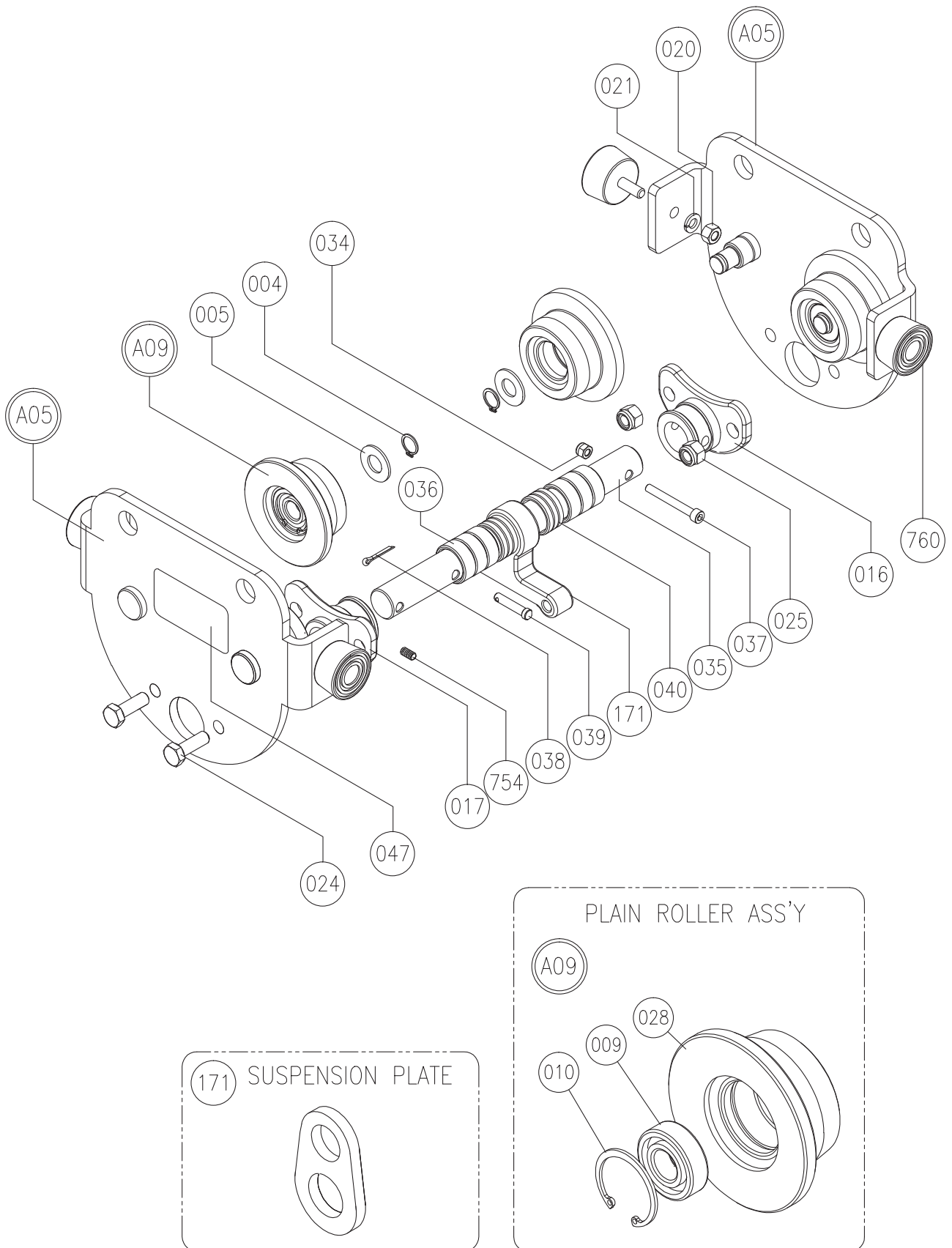
Capacity		125kg				250kg				500kg			Motorized Trolley only					
MODEL NO. (MOTOR TROLLEY MOUNTED)		DLM-125-3	EDLM-125-3	EDLM-125-1	DLM-125-1	DLM-250-3	EDLM-250-3	EDLM-250-1	DLM-250-1	DLM-500-3	EDLM-500-3	EDLM-500-1	MT-3	EMT-3	EMT-1	MT-1		
DESCRIPTION																		
A01	BRAKE ASSY																	
A02	MOTOR ASSY	3Ø 230V/460V	N/A				N/A				N/A			N/A				
		3Ø 115V/230V	N/A	N/A				N/A				N/A			N/A			
		1Ø 115V/230V	N/A				N/A				N/A			N/A				
A03	ROTOR ASSY	1 PHASE	N/A				N/A				N/A			N/A				
		3 PHASE	N/A				N/A				N/A			N/A				
A04	GEAR SIDE PLATE ASSY																	
A05	PLAIN SIDE PLATE ASSY																	
A06	ELECTRIC EQUIPMENT ASSY	1PHASE	N/A				N/A				N/A			N/A				
		3PHASE	N/A				N/A				N/A			N/A				
		1PHASE-MOTORIZED TROLLEY ONLY	N/A															
		3PHASE-MOTORIZED TROLLEY ONLY	N/A															
		1PH/3PH - 110/220~230	N/A	N/A				N/A				N/A			N/A			
		3PH - 380~460	N/A	N/A				N/A				N/A			N/A			
A07	POWER CABLE ASSY	2.5SQx4C																
A08	PENDANT & CABLE ASSY	2-Button 1SPEED	N/A															
		4-Button 1SPEED	N/A				N/A				N/A			N/A				
		2-Button STEPLESS	N/A															
		4-Button STEPLESS	N/A	N/A				N/A				N/A			N/A			
A09	PLAIN ROLLER ASSY																	
A10	GEAR ROLLER ASSY																	
A11	COMBINED CABLE ASSY	2.5SQx4C+ 1.5SQx8C																
A12	MOTOR CABLE ASSY																	
A17	TRANSFORMER ASSY	35VA-1PHASE	N/A															
		35VA-3PHASE	N/A															
S02	BRAKE DISC SET																	
S04	PENDANT ASSY	2-Button 1SPEED	N/A															
		4-Button 1SPEED	N/A				N/A				N/A			N/A				
		2-Button STEPLESS	N/A															
		4-Button STEPLESS	N/A	N/A				N/A				N/A			N/A			
4	SNAP RING	S-15																
5	PLAIN WASHER	15.5x29x2T																
6	NR SNAP RING	NR52																
8	GEAR ROLLER																	
9	BALL BEARING	6202ZZ																
10	SNAP RING	R35																
12	HEX BOLT S/W P/W	M8x20																
16	BRACKET "A"																	
17	BRACKET "B"																	
19	BALL BEARING	6003ZZ																
20	HEX NUT	M8																
21	SPRING WASHER	M8																
24	HEX BOLT	M10x30																
25	U-NUT	M10																
28	PLAIN ROLLER																	
34	U NUT	M8																
35	SHAFT																	
36	ADJUSTING COLLAR																	

Capacity			125kg				250kg				500kg			Motorized Trolley only			
MODEL NO. (MOTOR TROLLEY MOUNTED)			DLM-125-3	EDLM-125-3	EDLM-125-1	DLM-125-1	DLM-250-3	EDLM-250-3	EDLM-250-1	DLM-250-1	DLM-500-3	EDLM-500-3	EDLM-500-1	MT-3	EMT-3	EMT-1	MT-1
DESCRIPTION																	
37	WRENCH BOLT	M8x50x25															
38	COTTER PIN	Ø3x20															
39	STOPPER PIN																
43	BRAKE COVER																
44	BRAKE SPRING																
45	MOTOR NAME PLATE																
46	WRENCH BOLT S/W	M6x20															
55	TERMINAL BLOCK COVER																
56	PACKING TERMINAL BLOCK COVER																
57	TERMINAL BLOCK	6P															
76	2ND GEAR																
77	SPRING PIN	Ø10x12															
78	3RD GEAR																
79	BALL BEARING	6205ZN															
80	SNAP RING	S-25															
81	COLLAR FOR 3RD GEAR																
82	PACKING FLANGE																
124	INVERTER	1PH/3PH 110/220~230	N/A			N/A				N/A				N/A			N/A
		3PH380~480	N/A			N/A				N/A				N/A			N/A
125	MACHINE SCREW S/W	M4x16	N/A			N/A				N/A				N/A			N/A
126	MACHINE SCREW S/W P/ W(L)	M4x8															
137	MAGNETIC CONTACTOR	GMC-16M	N/A				N/A				N/A						
		GMC-12M		N/A				N/A				N/A					
140	TRANSFORMER	35VA- 1 PHASE	N/A														
		35VA- 3 PHASE	N/A														
141	STARTING SWITCH		N/A				N/A				N/A						
142	START SWITCH HOUSING		N/A				N/A				N/A						
143	START SWITCH COVER		N/A				N/A				N/A						
144	CAPACITOR	125VAC 552µF	N/A				N/A				N/A						
145	CAPACITOR HOLDER		N/A				N/A				N/A						
146	MACHINE SCREW S/W P/ W(S)	M4x12	N/A				N/A				N/A						
150	CHANNEL	95mm / 115mm		N/A				N/A				N/A					N/A
153	PENDANT CABLE	0.75SQx5C		N/A				N/A				N/A					N/A
		0.75SQx7C															
		0.75SQx12C	N/A				N/A				N/A				N/A		
171	CONNECTOR SUSPENSION PLATE																
524	WRENCH BOLT S/W	M5x12															
534	MOVING CORE																
539	BALL BEARING	6203DD															
541	BALL BEARING	6203DD															
591	POWER CABLE	2.5SQ x 4C															
592	COMBINED CABLE	2.5SQx4C + 1.5SQx8C															
604	TERMINAL BLOCK	12P															
644	CABLE GRAND	BC-M20-G															
645	MOTOR CABLE	0.75 x 12C															
646	CABLE GRAND	PG 21.0															
658	MACHINE SCREW S/W	M4x12															
664	HEX STAY PIN	12mm															
666	MACHINE SCREW S/W	M6x12															
667	CHANNEL STOPPER			N/A				N/A				N/A					N/A
731	CONTROL BOX																
732	WRENCH BOLT	M8x35															
733	SUPPORT COLLAR																
734	ELECTRIC EQUIPMENT BOARD																
742	CONTROL BOX COVER																
743	PACKING CONTROL BOX																
744	MACHINE SCREW S/W	M5x12															
745	NAME PLATE																
749	HEX STAY PIN	102mm															

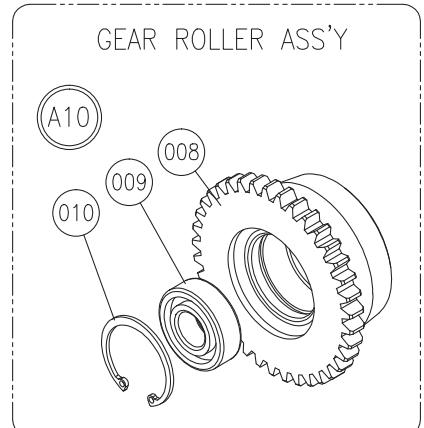
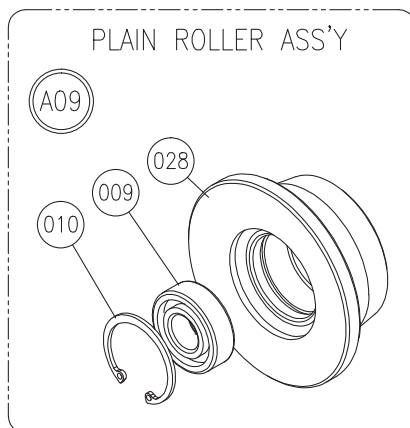
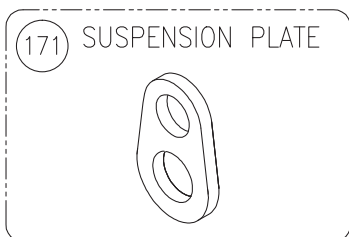
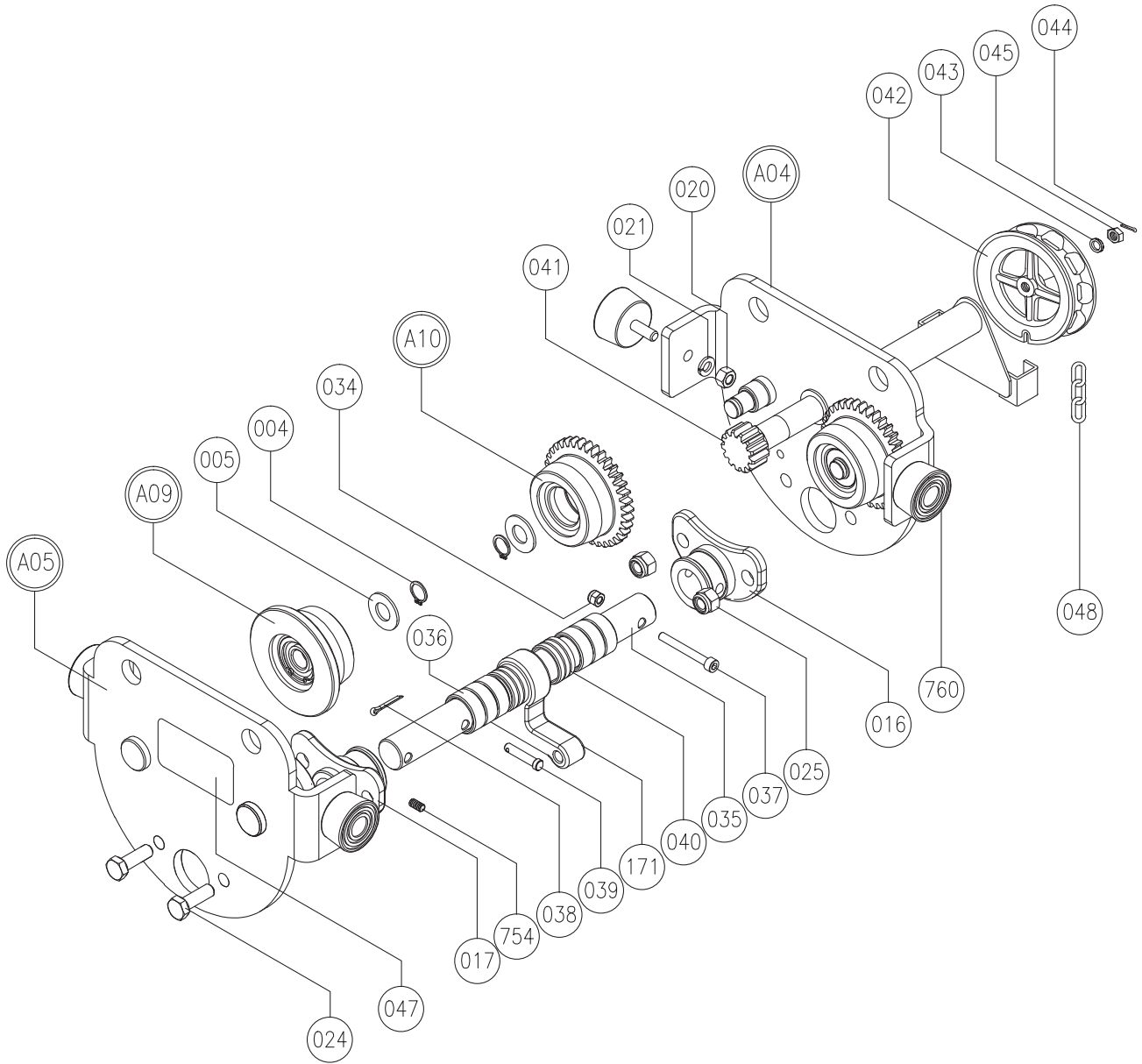


Capacity			125kg				250kg				500kg			Motorized Trolley only			
MODEL NO. (MOTOR TROLLEY MOUNTED)			DLM-125-3	EDLM-125-3	EDLM-125-1	DLM-125-1	DLM-250-3	EDLM-250-3	EDLM-250-1	DLM-250-1	DLM-500-3	EDLM-500-3	EDLM-500-1	MT-3	EMT-3	EMT-1	MT-1
DESCRIPTION																	
754	SET SCREW	M10x10															
755	RIVET																
760	BUMPER																

16.7 Exploded View of Plain Trolley Model



16.8 Exploded View of Geared Trolley Model



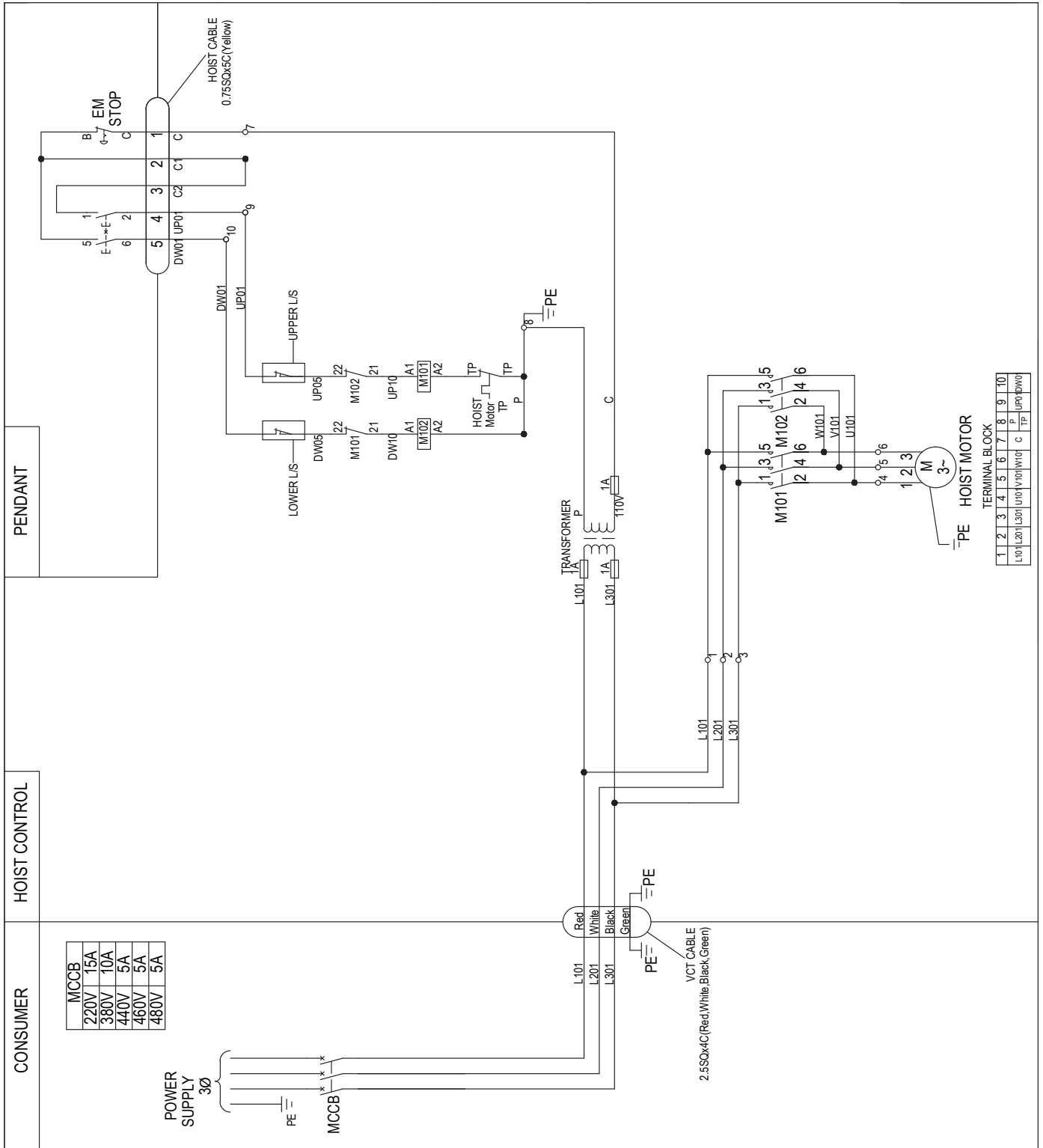
### 16.9 Part List – Plain & Geared Trolley Model

CAPACITY			500kg	
MODEL			PLAIN (DLP-500)	GEAR (DLG-500)
DESCRIPTION				
A04	GEAR SIDE PLATE ASS'Y (DLG ONLY)		N/A	
A05	PLAIN SIDE PLATE ASS'Y			
A09	PLAIN ROLLER ASS'Y			
A10	GEAR ROLLER ASS'Y		N/A	
4	SNAP RING	S-15		
5	PLAIN WASHER	15.5x29x2T		
8	GEAR ROLLER		N/A	
9	BALL BEARING	6202ZZ		
10	SNAP RING	R35		
16	BRACKET "A"			
17	BRACKET "B"			
20	HEX NUT	M8		
21	SPRING WASHER	M8		
24	HEX BOLT	M10x30		
25	U-NUT	M10		
28	PLAIN ROLLER			
34	U NUT	M6		
35	SHAFT			
36	ADJUSTING COLLAR			
37	WRENCH BOLT	M6x50x25		
38	COTTER PIN	Ø3x20		
39	STOPPER PIN			
40	ADJUSTING WASHER			
41	PINION GEAR		N/A	
42	HAND WHEEL		N/A	
43	PLAIN WASHER	M12	N/A	
44	COTTER PIN		N/A	
45	PINION NUT	M12	N/A	
47	NAME PLATE			
48	HAND CHAIN		N/A	REFER TO THE CHAIN PRICE LIST
171	CONNECTOR			
	SUSPENSION PLATE (SAME AS MANUAL)			
754	SET SCREW	M10x10		
760	BUMPER STOPPER			

# 17. Electric Wiring Diagram

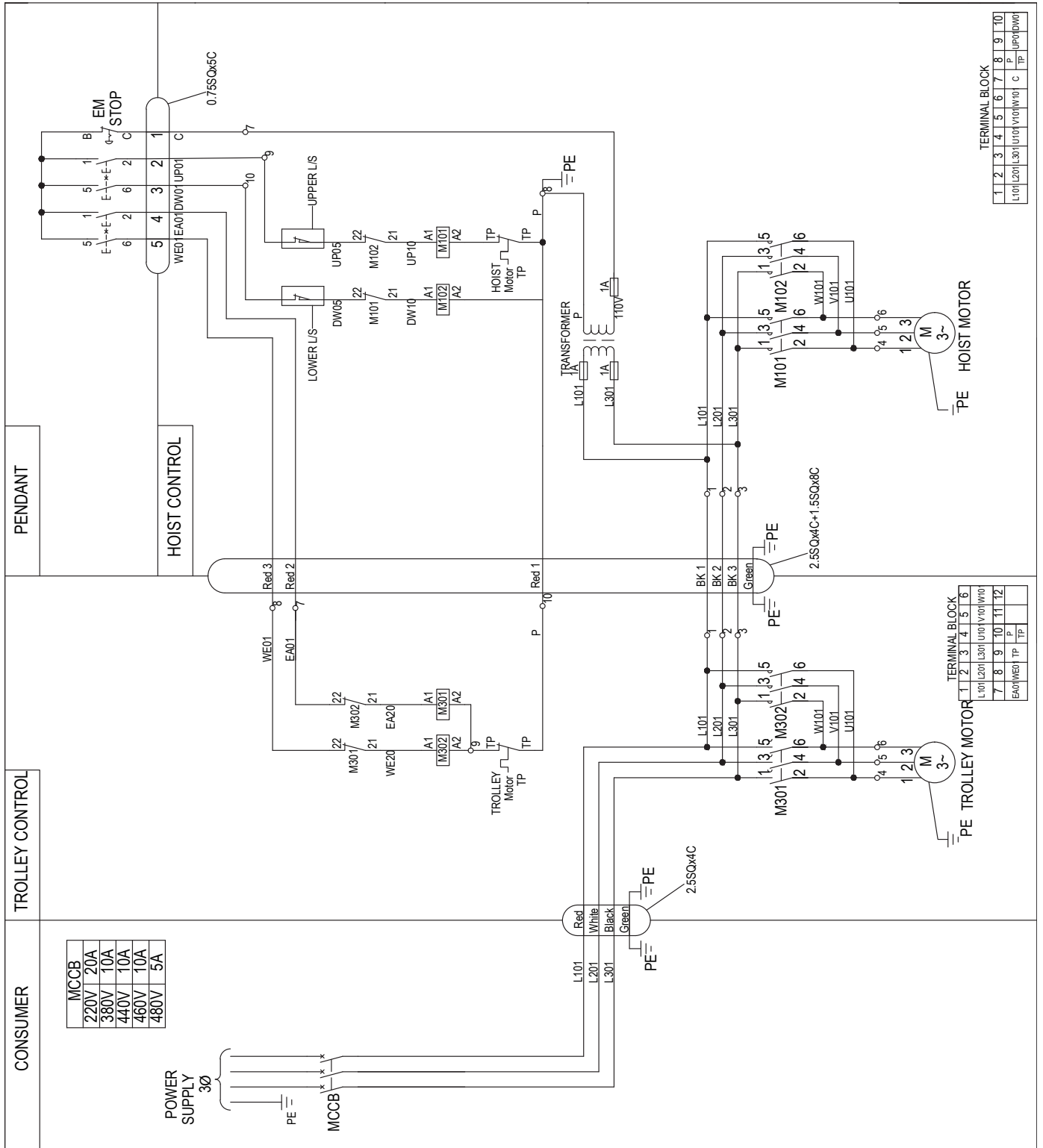
## 17.1 Three Phase Single Speed Hook/Light Rail Suspension Models

DL 125, 250, 500kg (3Phase)



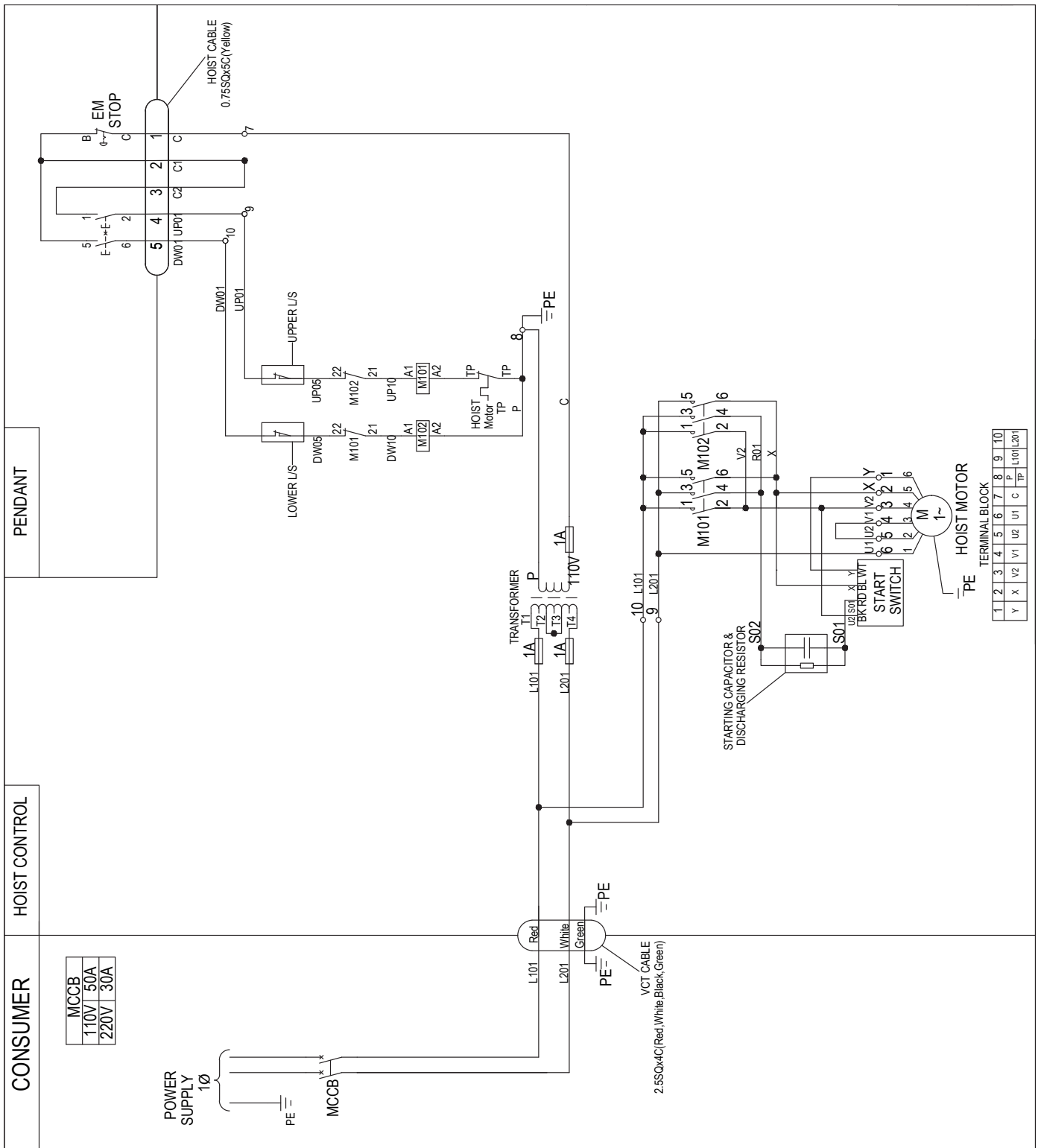
### 17.2 Three Phase Single Speed Motorized Trolley Models

DLM 125, 250, 500kg (3Phase)



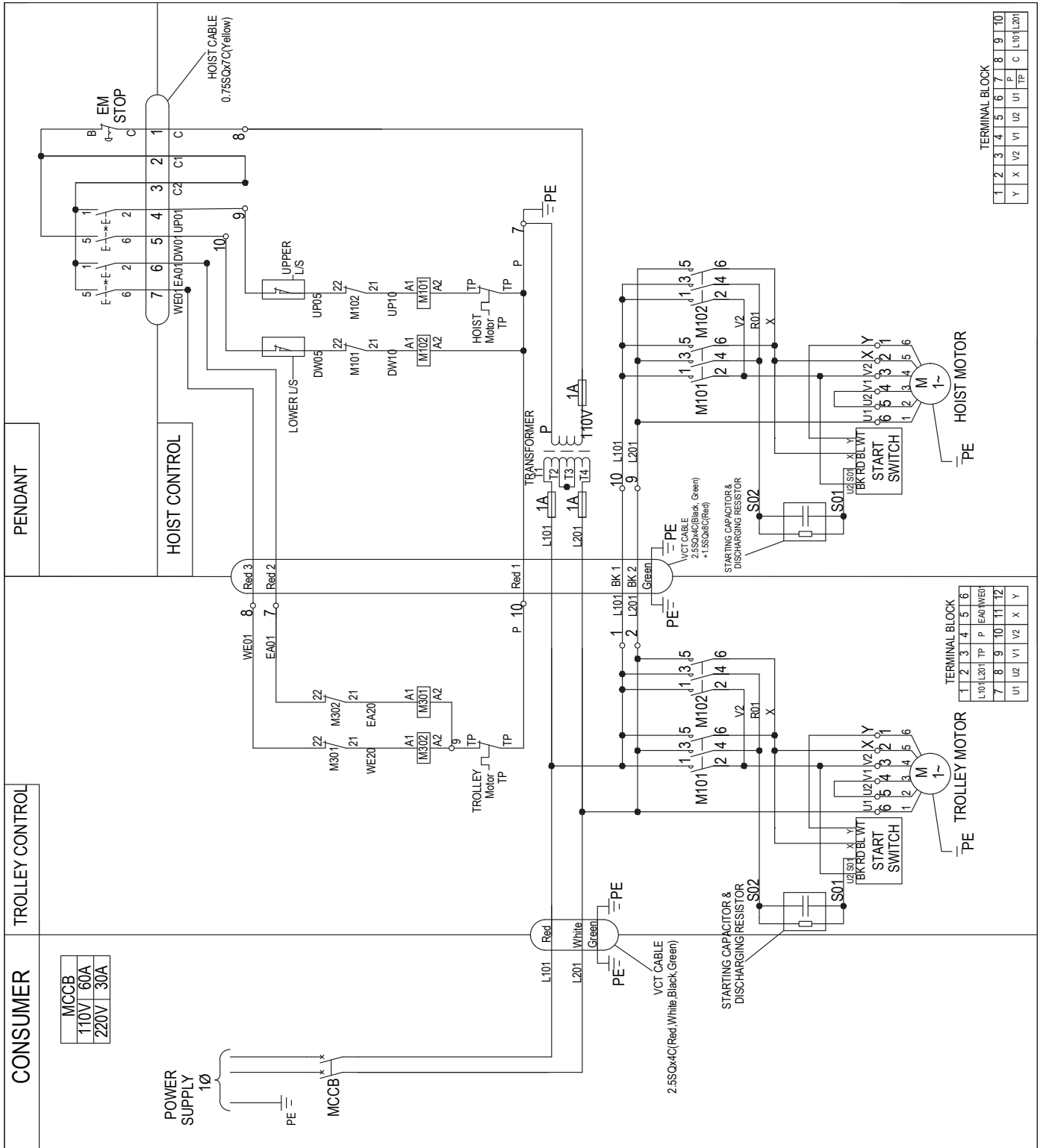
### 17.3 Single Phase Single Speed Hook/Light Rail Suspension Models

DL 125, 250kg,



### 17.4 Single Phase Single Speed Motorized Trolley Models

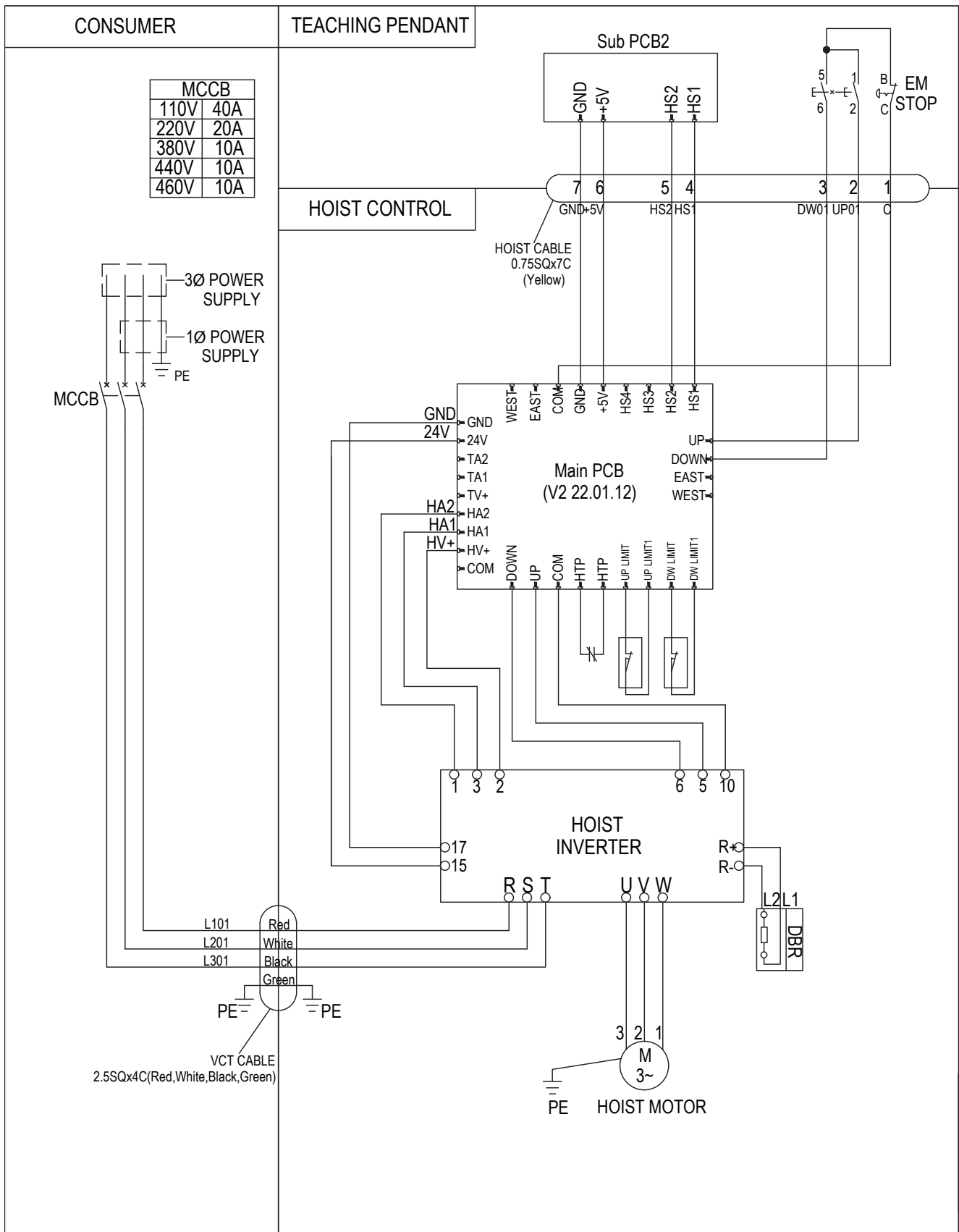
DLM 125, 250kg,





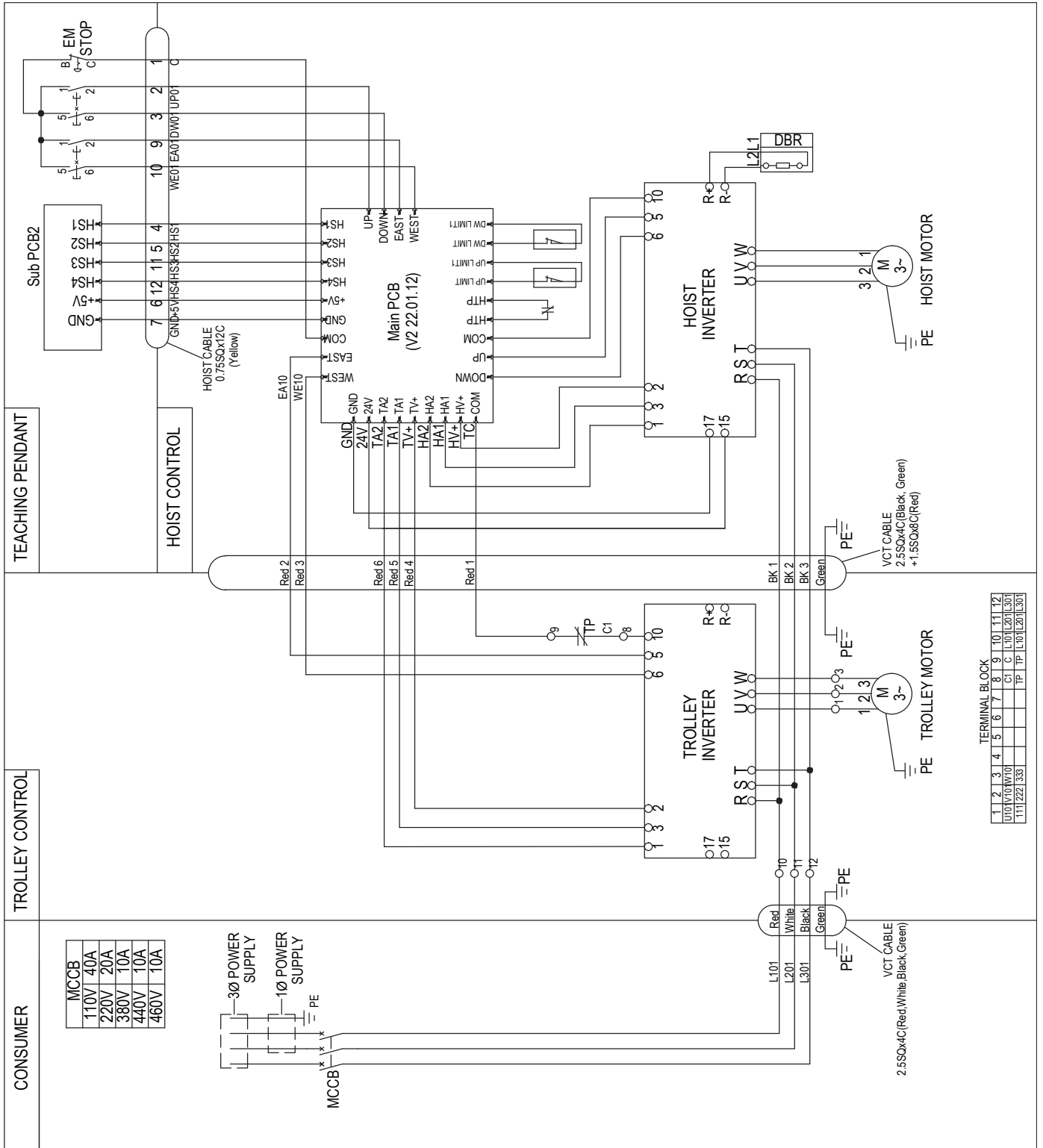
### 17.5 Single/Three Phase Inverter Hook/Light Rail Suspension Models

EDL 125, 250, 500kg (1Phase / 3Phase)

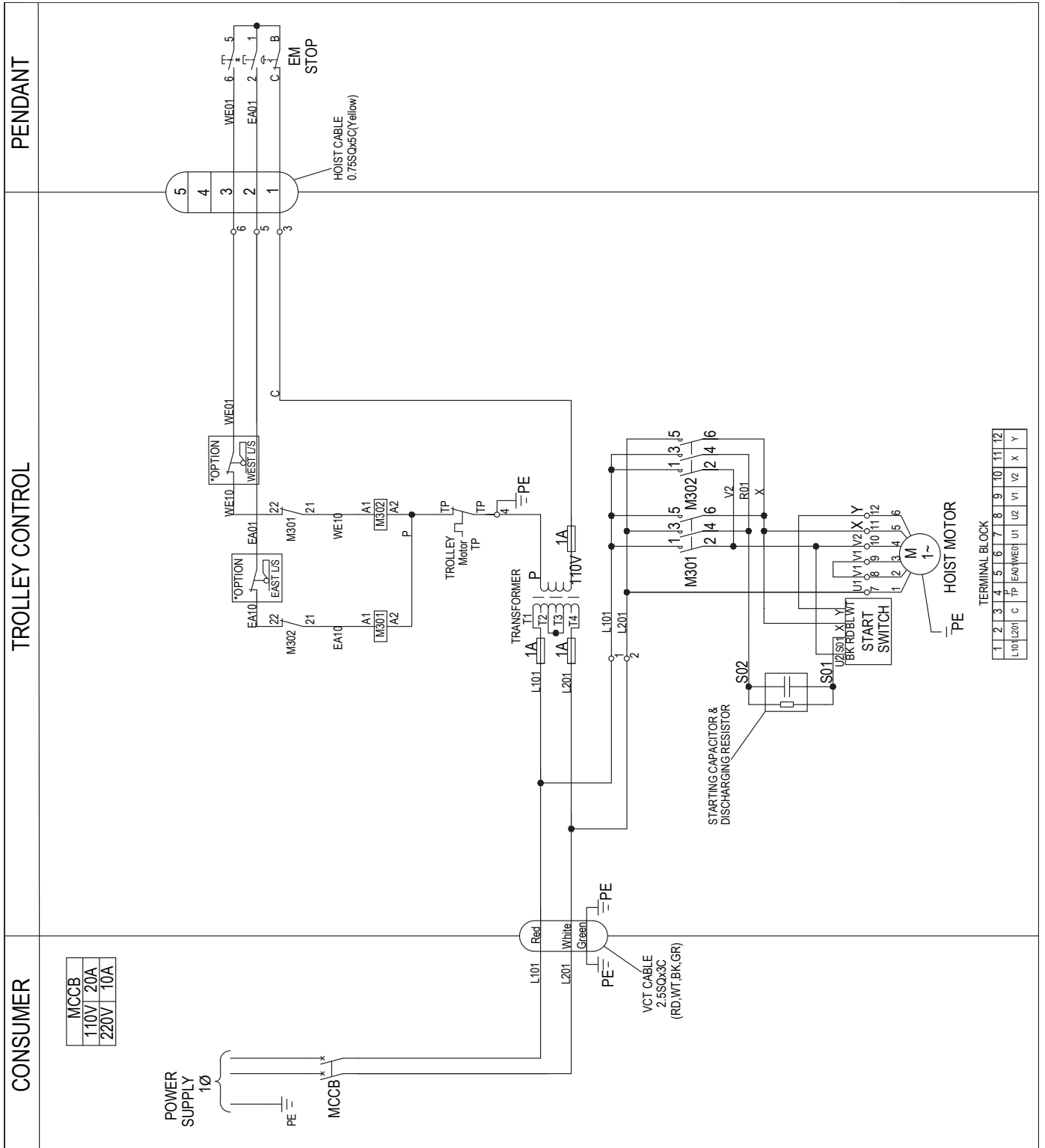


### 17.6 Single/Three Phase Inverter Motorized Trolley Models

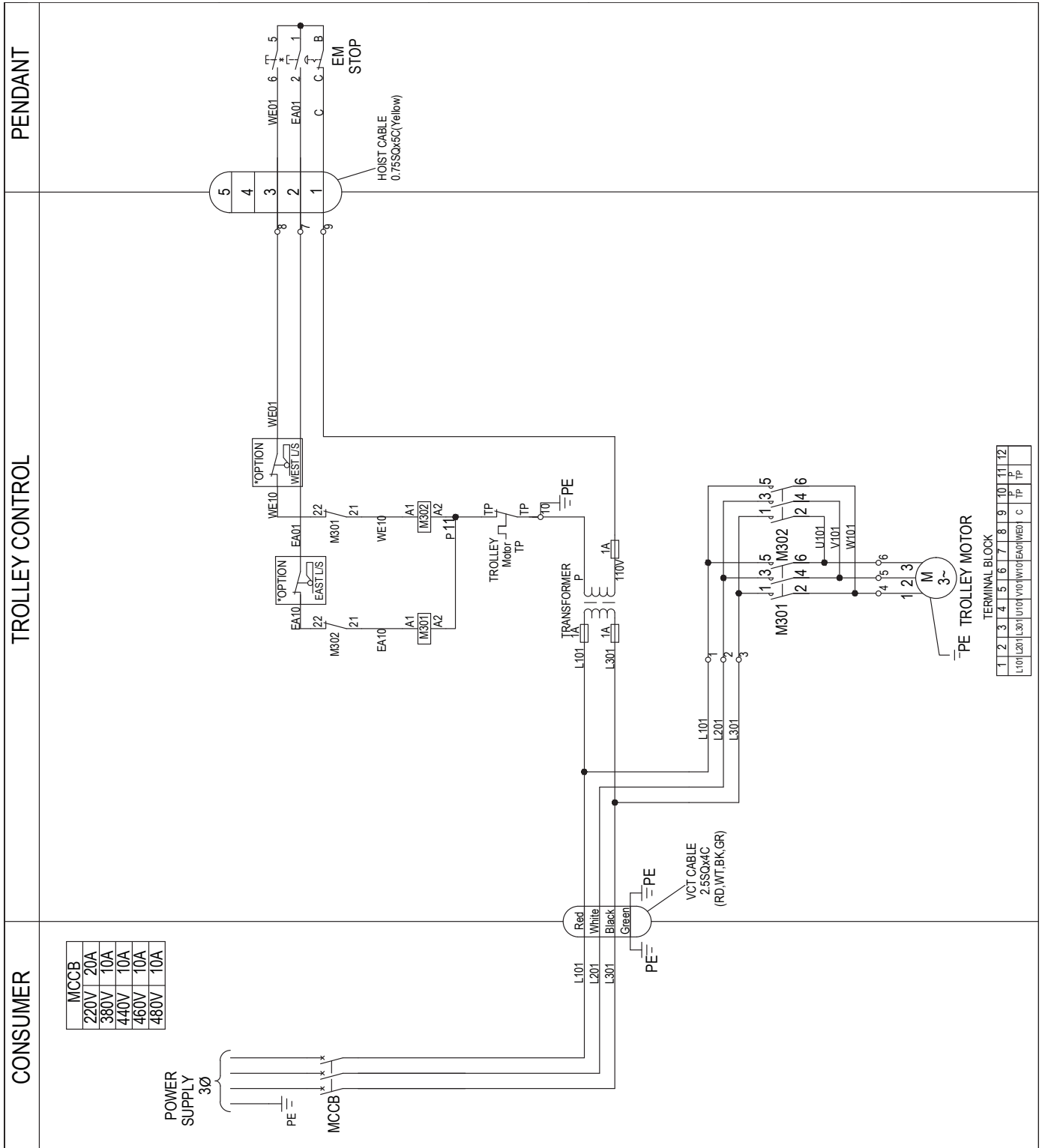
EDLM 125, 250, 500kg (1Phase / 3Phase)



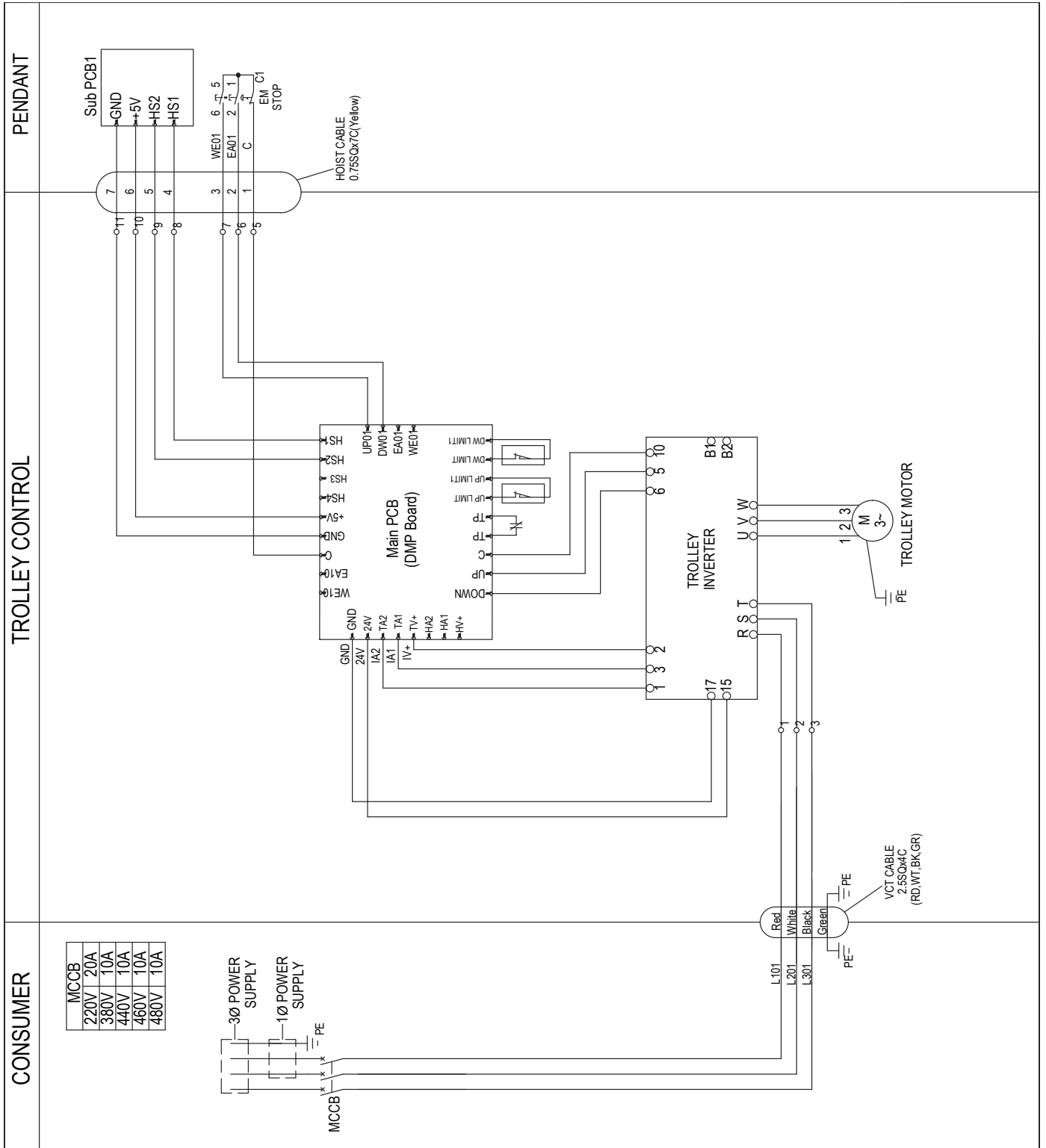
17.7 Single Phase Motorized Trolley Only



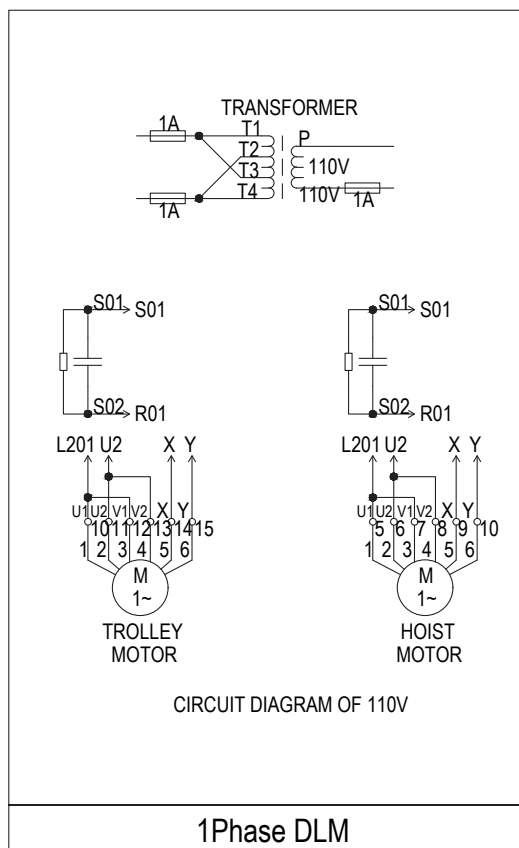
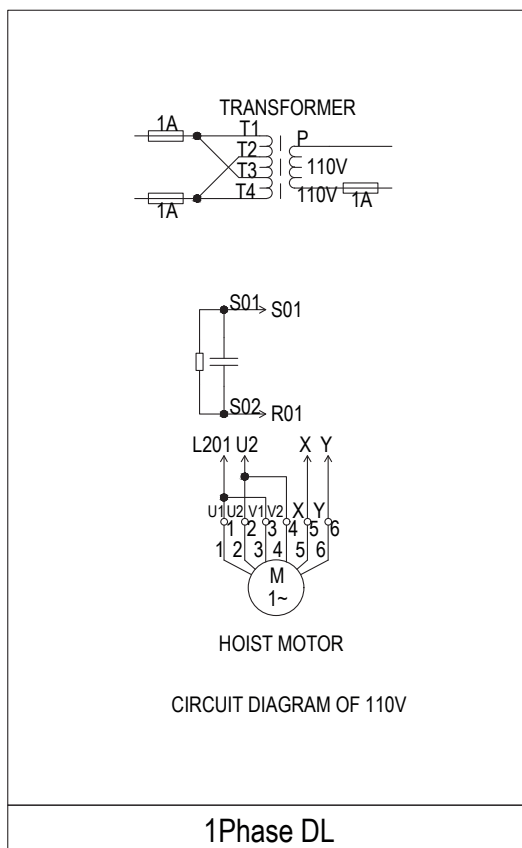
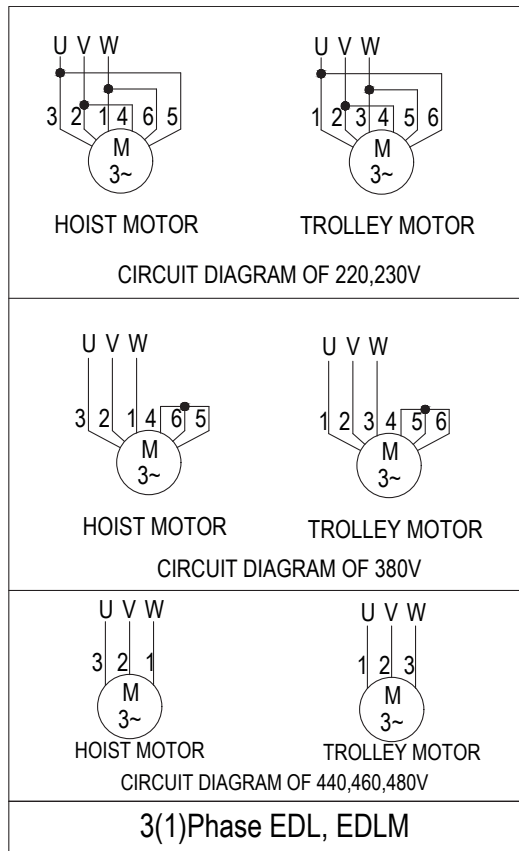
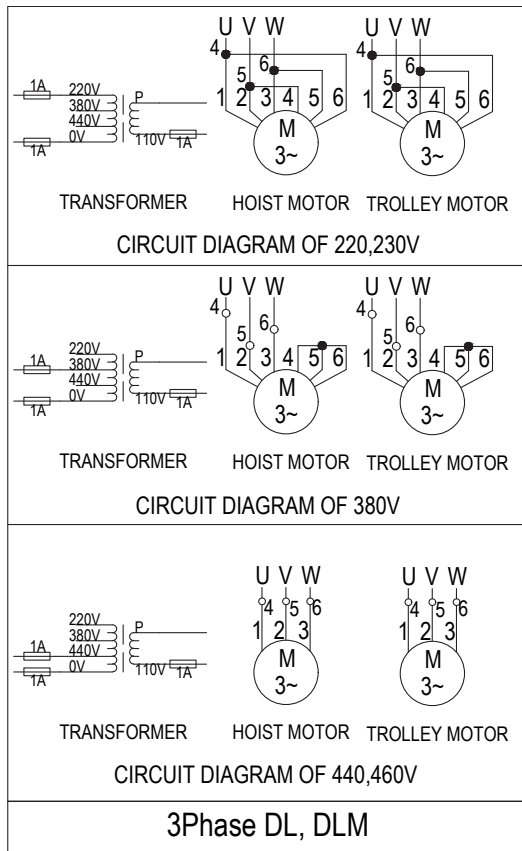
### 17.8 Three Phase Motorized Trolley Only



17.9 Single/Three Phase Inverter Motorized Trolley Only



17.10 Motor Circuit Diagram Each Model.















## GENERAL CONDITIONS OF WARRANTY

**WARRANTIES :** The seller warrants to the original using Buyer thereof the goods sold under this agreement free from defects in workmanship and materials for a period of one year from the date of shipment to the original using Buyer. No other express warranties are given and no affirmation of Seller or Seller's agents, by word or action, shall constitute a warranty. No warranty is made for components and accessories made by others when such items are warranted by their respective manufacturers.

Installation or operation of the equipment in any manner other than as recommended by Seller, shall void the warranty.

Any variations in details between the goods furnished herein and those covered in Buyer's specifications are due to standards of manufacture not to be construed as exceptions to the specifications.

### DISCLAIMER OF IMPLIED WARRANTIES :

- (a) SELLER MAKES NO WARRANTY OF MERCHANTABILITY IN RESPECT TO THE GOODS SOLD UNDER THIS AGREEMENT.
- (b) This sale is made WITHOUT ANY WARRANTY BY SELLER THAT THE GOODS ARE SUITABLE FOR ANY PARTICULAR PURPOSE.
- (c) Buyer hereby waives all other warranties, guarantees, obligations, liabilities, rights and remedies arising by law or otherwise including any obligation or liability of the Seller arising from tort, and Buyer shall indemnify Seller from any liability, loss damage, or claim arising from Buyer's tortuous use of the goods sold hereby.

### REMEDIES :

- (a) Under no conditions shall any goods be returned to Seller without its prior written consent.
- (b) The Buyer's sole and exclusive remedy for breach of any warranty is limited to Seller furnishing, at its expense, duplicate or repaired parts F.O.B Seller's plant with installation at Buyer's expense if discovery of a claimed defects occurs during the allowable warranty period, and if Seller's inspection determines a defect exists.
- (c) The quantity of material shown by invoice shall in all cases govern settlement for shortages, unless notice of shortage, appropriately documented, is given to the carrier and the Seller upon delivery by the Carrier.
- (d) Claims for errors, deficiencies or imperfections shall be deemed waived by the Buyer unless Seller is notified in writing of the basis of such claims within 10days after discovery of claimed defect and such discovery occurs within the warranted period.
- (e) Neither Buyer nor User shall be entitled under this Agreement to recover from Seller any incidental or consequential damages of any nature including but not limited to the cost of any labor expended by others in connection with the goods sold hereby by reason of any alleged nonconformity or breach of warranty on the part of the Seller, nor costs of material or account thereof, nor any lost profits whether determinable or speculative.



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