

**Oxford Humanities**

**Operation & Maintenance Manual**

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**PA SUSPENSION SYSTEM**

Document No. : 4334-02-OM-0002

Revision : B

Date of Issue : 17/11/2025

Project Code : 4334

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# 1. Document Control

## 1.1. Identification

Client: Laing O’Rourke

Project Name: Oxford Humanities

J&C Joel Project Reference: 4334

Document Name: PA Suspension System – Operation & Maintenance Manual

Document Reference: 4334-02-OM-0002

## 1.2. Document History

Rev	Date	Description	Author	Checked
A	13/08/2025	First Issue	JC	SS
B	17/11/2025	Updated as per consultant comments	SS	JC

## 1.3. Contact Details

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## 1.4. Warranty

Limited warranty is valid for twelve (12) months from the date of practical completion and handover to the client or clients representative (whichever occurs first.)

1. The warranty shall be limited to the free supply of replacement materials and workmanship for the faulty materials or workmanship and shall not cover other damage or defects how so ever caused.
2. It shall be the client's responsibility to notify J&C Joel Ltd for any defects in the machinery and the warranty shall be void if repairs or other works were carried out by third parties.
3. This warranty shall only apply to the areas where J&C Joel Ltd have been applied and completed the works.
4. The supply of replacement materials and workmanship under this warranty shall in no event exceed the quantity specified and supplied and shall only be applied to proven defective areas by checking and tests conducted under the control of the owner, the consultant or its representative and J&C Joel Ltd or its representatives.
5. This warrantee shall be interpreted according to the laws of the United Kingdom.

## 1.5. Copyright

This document contains material that is proprietary to J&C Joel Ltd. This information is provided on the understanding that it is used solely for the purpose of information, installing and maintaining the equipment described, and that it will not be revealed to third parties or otherwise disposed of without the prior written consent of J&C Joel Ltd.

Copyright for all design, software, electronic circuits, drawings and the text of this manual remains with J&C Joel Ltd. This publication or parts thereof may not be reproduced in any form, by any method, for any purpose. Further copies may be obtained from J&C Joel Ltd. on request.

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## 2. How to use this manual

Read the instructions carefully before use and follow them accordingly. Keep this document safe for future reference. Non-observance of these instructions may lead to hazardous situations and / or malfunctions or to failure of the equipment, resulting in damage or injury.

The user is advised not to operate or undertake any work on the system without first reading and understanding the contents of this manual.

All maintenance should be carried out strictly in accordance with the instructions contained in this and the manufacturer's reference manuals attached and undertaken by suitably trained and qualified personnel.

This manual describes the J&C Joel supplied lifting point system at the Oxford Humanities building. This information is pertinent to both spaces where the lifting points are installed. Servicing or repairs of main fault conditions is not covered; in such cases please contact J&C Joel immediately.

This document is intended to provide the user with sufficient information to allow maintenance of the equipment described.

If in doubt about anything contained in this manual please contact the Projects Department at J&C Joel Ltd. T: +44 (0)1422 833835 – E: [ukprojects@jcjoel.com](mailto:ukprojects@jcjoel.com)

## 3. Health and Safety

### 3.1. General

The machinery is designed for use in theatres and venues of public entertainment and must be operated strictly according to its intended purpose. Compliance with all relevant local laws, regulations, and machinery directives regarding operation and accident prevention is mandatory. Regular inspections and maintenance are essential for ensuring the equipment's proper functioning. Only fully trained and competent personnel should conduct operations, inspections, and maintenance activities.

Personnel are required to possess comprehensive knowledge of the equipment, including adherence to operating and maintenance guidelines. The client's staff bear the responsibility for ensuring safe operation in accordance with the client's safety manual and must promptly address any defects or damages. Minor issues may be rectified by the client's operating company; otherwise, please contact J&C Joel Ltd to ensure proper safety measures are taken.

In situations where the condition of the equipment is uncertain, operations should be conducted exclusively under the supervision of a qualified expert. Ensure that all loads are removed or securely fastened prior to inspecting or maintaining movable installations.

The maintenance supervisor is accountable for complying with all relevant health and safety regulations and must ensure that maintenance switches are deactivated when servicing drive units.

Authorized personnel are required to inspect, maintain, and lubricate parts regularly. Safety devices, such as protective covers, should be properly installed. Equipment and installations should be used only for their intended purposes, following all operating instructions and technical specifications.

The client's technical supervisor is required to verify that all operators or technicians engaged in work on live equipment up to 400 VAC possess the necessary training and qualifications.

The electrical equipment must be connected to an appropriate power supply that meets the required technical specifications and tolerances. The client is responsible for ensuring proper equipotential bonding.

- Nominal Voltage = 230 V AC (in accordance with EN 60204-1).
- Nominal frequency: = 50 Hz, (in accordance with EN 60204-1).
- Control voltage: Consult Control System Operation Manual

The client's supervisor is responsible for ensuring that a current copy of the company's local health and safety regulations is always accessible within the venue. The supervisor must ensure that all personnel who are required to work on the equipment and systems referenced in this manual are fully acquainted with the health and safety regulations and are provided with the necessary personal protective equipment prior to commencing any work on the equipment. Additionally, they must have the appropriate tools and equipment as listed herein and thoroughly understand the requirements of BSEN 17206:2020 Entertainment Technology Machinery for Stages and Other Production Areas, Safety Requirements and Inspections and Use.

### 3.2. Disposal Instructions

At the end of the service life of the equipment, normally between 15 and 20 years, any parts or items that may be upgraded or replaced must be removed and disposed of in accordance with laws and regulations in force at the time. Generally, the equipment comprises of non-hazardous steel fabrications and machinery, electrical installation materials and accessories, and electronic assemblies. Some PLC components contain batteries which must also be disposed of correctly. Gearboxes have small amounts of lubricating oil inside which should be disposed of using a properly licensed facility.

### 3.3. Electrical Maintenance Safety



**CAUTION**



Many racks feature multiple power supplies, including mains supplies, clean supply, and auto-transformer supply, among others. Each supply has a warning indicator located on the front panel. Additionally, within the equipment and contactor racks, there are exposed live terminals that must be handled with caution. **Ensure that all supplies are isolated and locked off before attempting to carry out any work.**

After isolating all supplies, it is imperative to display a warning notice at the isolation point. This notice must indicate that maintenance is being performed on the downstream equipment and that re-energizing is strictly prohibited.

In situations where it is unavoidable to work on live equipment, it is imperative that the individual performing the task is appropriately trained and that the work adheres to the regulations set forth by the "Health and Safety at Work Act".

Microprocessor systems are inherently complex, requiring specialized knowledge for detailed fault diagnosis. It is essential that individuals servicing this equipment have attained sufficient expertise before undertaking such tasks. Consequently, this manual does not provide tutorials on electronic circuits and microprocessor systems; it assumes that the reader is fully competent in this area.

## 4. General

Four EXE Rise LV 1000kg D8+ chainhoists have been installed in the concert hall loft space. They are primarily designed to operate as pairs that lift a 3m section of Litec QX30SA truss, but can be repositioned and repurposed for other uses. The hoists are fitted to beams with beam clamps. This system is identified as the PA Suspension System.

The system has been installed in the marked location as shown on drawings but can be moved to other locations.

Load monitoring integrated within the hoist bodies, this will stop upwards motion of all connected hoists should any one be overloaded.

### 4.1. List of Drawings

DRAWING NO.	TITLE
UOONHB-JCJ-CH-ZZ-DR-OT-020001	Concert Hall - Cross Stage Flying System - Plan View - General Arrangement
UOONHB-JCJ-CH-ZZ-DR-OT-020002	Concert Hall - Cross Stage Flying System - Section View
UOONHB-JCJ-CH-ZZ-DR-OT-020003	Concert Hall - Cross Stage Flying System - Elevation View
UOONHB-JCJ-CH-ZZ-DR-OT-990101	Concert Hall - Control Layout - Technical Loft
UOONHB-JCJ-CH-ZZ-DR-OT-990111	Concert Hall - Overstage Equipment Control System - Line Diagram
UOONHB-JCJ-CH-ZZ-DR-OT-990112	Concert Hall - Overstage Equipment Control System - Power Diagram
UOONHB-JCJ-CH-ZZ-DR-OT-990113	Concert Hall - Overstage Equipment Control System - Control Diagram
UOONHB-JCJ-CH-ZZ-DR-OT-990114	Concert Hall - Overstage Equipment Control System - General Arrangement
UOONHB-JCJ-CH-ZZ-DR-OT-990115	Concert Hall - Overstage Equipment Control System - PLC Map Diagram
UOONHB-JCJ-CH-ZZ-DR-OT-990141	Concert Hall - E-Stop - Electrical Schematic
UOONHB-JCJ-CH-ZZ-DR-OT-990142	Concert Hall - E-Stop - General Arrangement

### 4.2. Care When Using

1. It is advised that protective gloves are worn when interacting with the hoists, or when fitting items to the truss.
2. Consideration for the use of a bump cap or hard hat is recommended when working in the loft space due to the presence of low steel beams.
3. Special care should be taken when working and moving materials around the loft space, due to low beams and exposed MEP.
4. The truss should be monitored during movement especially when passing near other building structure.
5. The system does not have encoders, so will not self level. Synchronised movement is possible through the control but it should not be relied upon for levelling.
6. It is advised that prior to first use of the PA Suspension System by new people, training should be offered to ensure they are comfortable and confident in using the points.

## 5. PA Suspension System

The PA Suspension is mounted to the system chain hoists which are mounted to secondary steel beams (not by JCJ) running up and down stage. Each hoist is attached to the steel beam using 2Ton WLL Beam Clamps. The system should only be used to lift vertical loads.



Care should be taken when working around the chain hoists in the concert hall technical loft. Steel wire rope from cross stage hoists are present. Care should be taken when working around them and it is recommended that hoists near to the working area are isolated to stop movement.

If the hoists are moved care should be taken to ensure the correct installation of the beam clamps. Architectural ceiling and concrete plugs should be installed in unused ceiling openings.

The chain bag should be clipped on tightly to ensure that the chain bag is not resting on the floor.



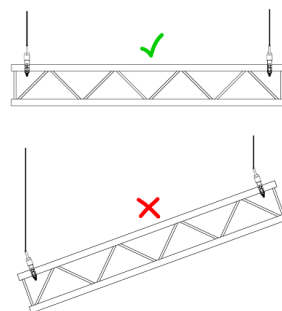
Two pairs of ports are provided in the technical loft on stage left and stage right. Ideally each hoist should be connected to the nearest hoist, helping with identification and usability.

10m cable looms have been supplied for each hoist. Care should be taken to avoid trip hazards.



The pairs of chain hoists are designed to carry a 3m section of Litec QX30SA truss. The WLL on the truss is 1000KG uniformly distributed.

The truss is suspended from the chain hook using Doughty 1000Kg solid hanging truss adaptors (T55785) with a WLL of 1000KG. They should only be used to suspend horizontal loads. Modifications should not be made to this or any other part of the system.



The use of the PA Suspension chain hoists to carry any loads outside of those specifically designed for by J&C Joel, would require appropriate review and assessment by an appropriately trained individual.

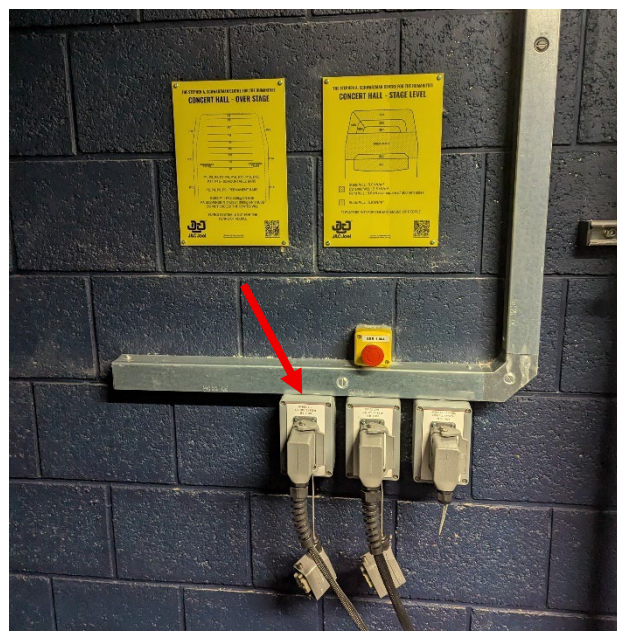


## 5.1. Operation and Control

The EXE hoists supplied conform to the BGV D8+ standard. No secondary suspension is required. The hoists must not be used for moving loads above people.

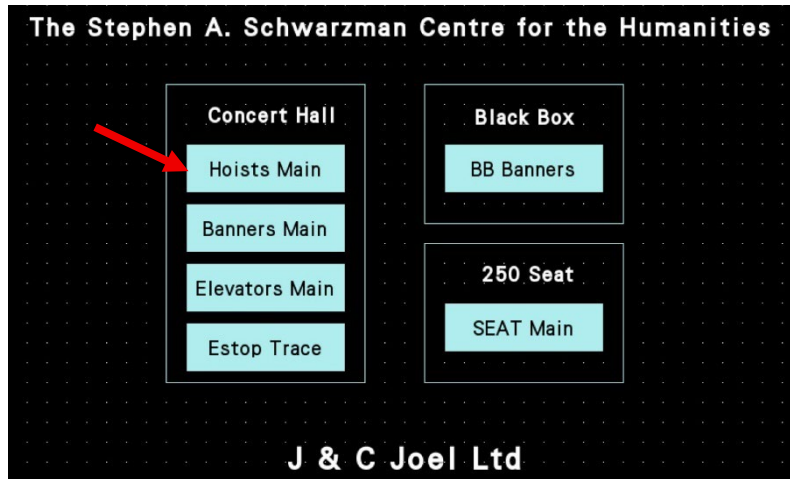
The hoists are controlled by plugging the control pendant into the Overstage Control System Plug in Point (SEB-1-001) situated in the stage left corridor.

Note: This section should be read alongside 4334-99-OM-0001, which provides further information on the control system.

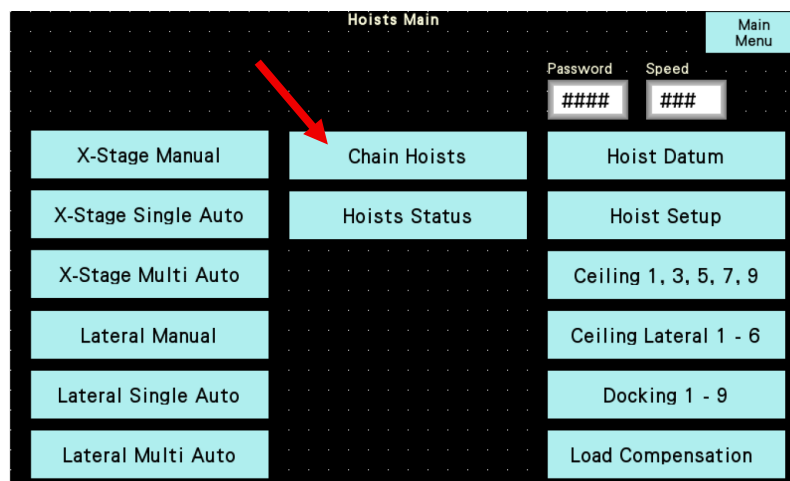


Once plugged in, turn on the control pendent by turning the key. You will be presented with the following screen.

Select Concert Hall – “Hoists Main”.



To control the hoists select “Chain Hoists”.

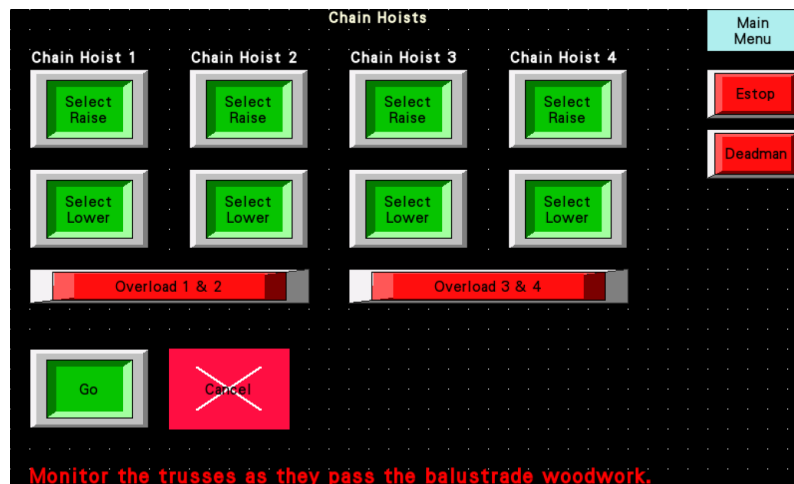


You will now be presented with the following screen.

To move hoists, select the desired hoists and direction. Then press and hold the “Go” button.

Pressing “Cancel” will clear all currently selected hoists.

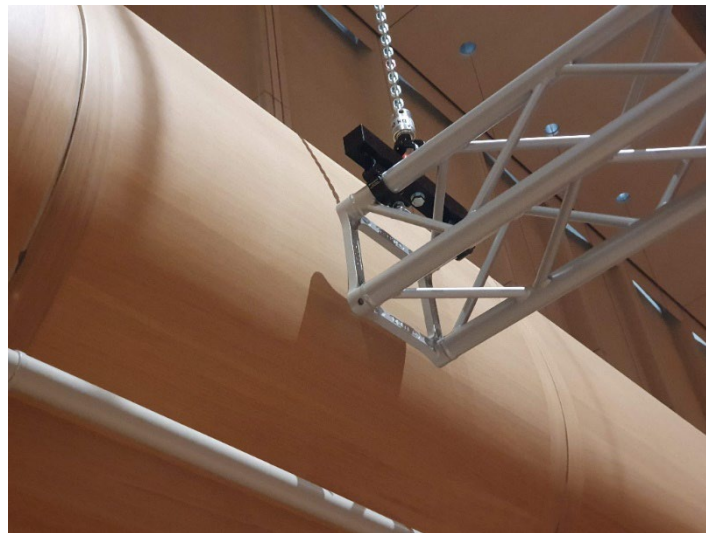
The icons marked “Overload 1 & 2” and “Overload 3 & 4” must be green, or none of the hoists will move. The overload will activate if any individual hoist is loaded with more than 1000KG. The overload system will also show as red should the overload system is not plugged in or is not powered up.

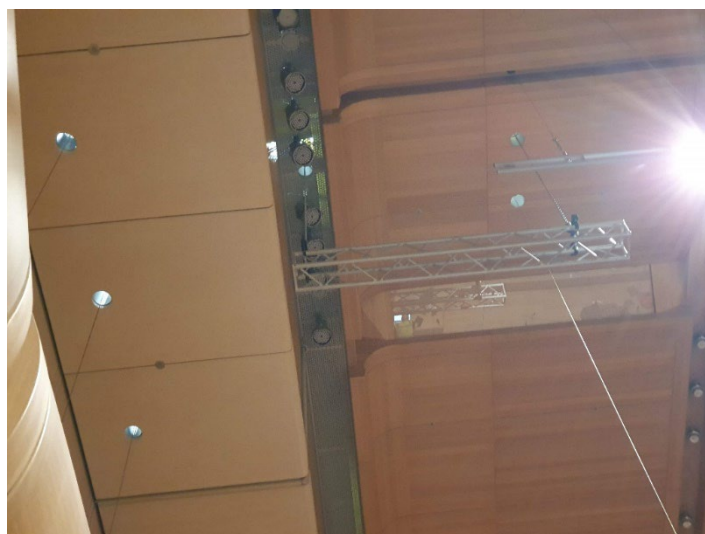


When raising or lowering the truss, special care should be taken that the truss or any suspended items clear the curved wooden balustrade and the GRC of the gantry.

The hoists come with 20m of chain, limits will activate should the limits of travel be reached.

The limits are **not** set to ceiling or stage level. The control system will not stop you hitting the floor or ceiling. The truss must be closely monitored continuously during motion.

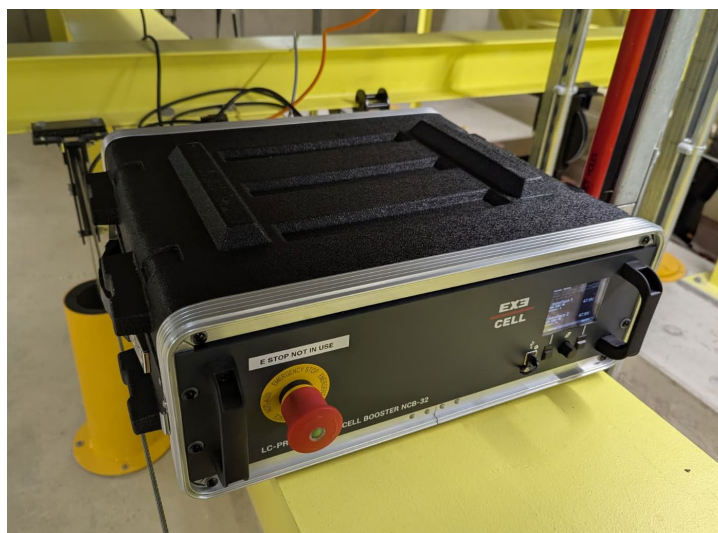




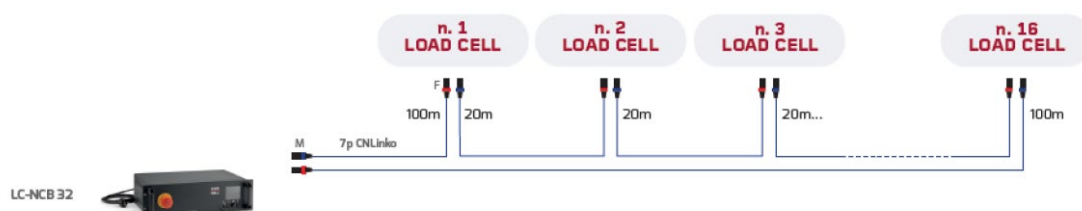
The PA Suspension chain hoists are connected to the Concert Hall Global E Stop system, if any EStop is pressed, it will stop all movement of the chain hoists.

## 5.2. Load Monitoring

Load monitoring is provided by EXE Swivel Cell hooks integrated into the top of the hoist, along with an integrated screen and controls on the end of the hoist.



These are then daisy chained to an LC-NCB-32 load monitoring controller, using 7Pin CNLinko cables to Interface 1 on the rear of the NCB-32. 5x 12m cables have been supplied. The NCB-32 has been supplied in a small mobile flight case.



Once wired up the dummy plugs should be fitted into the External E Stop In ports on the rear of the NCB-32. Interface 2 should be bypassed using the short cable as shown.



To connect the load monitoring system to the control system a 4 pin DMX cable should be run between the NCB32 and the over stage control cabinet (SER-1-200). One end should be plugged into the “Chain Hoist Overload System” port on the right side of the cabinet. 1 x 20m cable has been supplied.

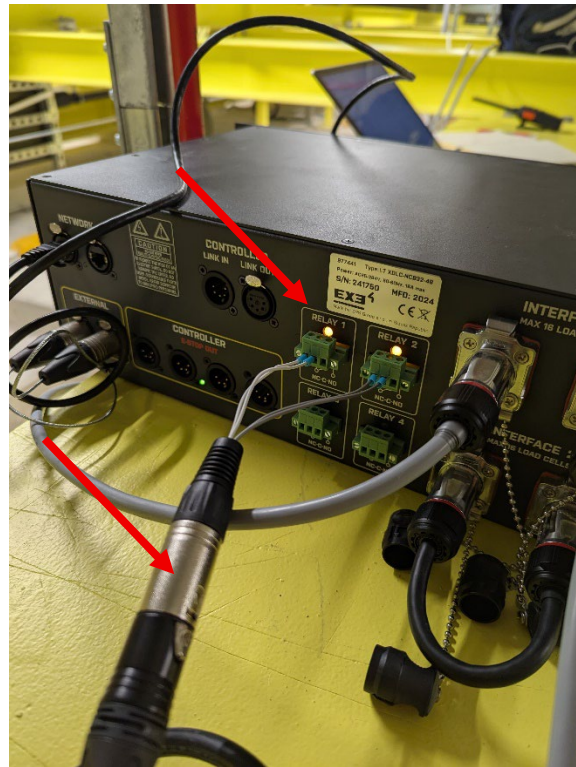


The other end should be plugged into the DMX extension on the rear of the NCB32.

Care should be taken when running this cable to avoid trip hazards and other moving machinery. It is recommended to run this looped over the existing overhead containment.

Should be extension be removed from the NCB-32, the white pair of cables should be connected to Relay 1 and the grey pair to Relay 2.

Once powered up the LED indicators above the Relays on the rear of the NCB-32 should be illuminated when **not** overloaded.



The NCB-32 should then be powered up using a Schuko cable plugged into a 13A socket (AC 100-230V MAX 16A). A short extension lead has been provided to make this more easily possible.

As long as the hoists are not overloaded the indicators on the Chain hoist control page on the control pendant should be indicating green. These are now ready to run.

**Note: The E Stop button on the front of the NCB-32 serves no function and is not part of the global E Stop system.**

For further information please see the documents attached to this file:

1. NCB-32 - EXE-CELL LC-PRO Instructions
2. LOAD CELL INTERFACE INSTRUCTION
3. ECE Rise Chain Hoist USE AND MAINTENANCE MANUAL

Instructions 1 and 2 are only required should the load monitoring system require modification, reconfiguration or maintenance.

**Note: Only the hoists supplied by J & C Joel Ltd as part of the Laing O'Rourke package have been set up to trigger the overload system. Should other hoists be connected they will need configuring to ensure correct operation of the overload system.**

### 5.3. Room Signage

The room signage for the overstage systems in the Concert Hall.

**THE STEPHEN A. SCHWARZMAN CENTRE FOR THE HUMANITIES  
CONCERT HALL - OVER STAGE**

P1, P3, P5, P7, P9, P10, P11, P12, P13, P14, P15 - DEMOUNTABLE BARS  
P2, P4, P6, P8 - PERMANENT BARS  
BARS P1 - P15 500kg ON BAR  
PA SUSPENSION TRUSS 1000kg ON TRUSS  
DO NOT EXCEED THE STATED WLL

FLYING SYSTEM IS NOT FOR THE FLYING OF PEOPLE

J&C Joel Ltd, Corporation Mill,  
Corporation St, Halifax, HX6 2QQ

JCJOEL.COM/43340XFORD



## 6.2. ML01 Check Sheet

### PA Suspension System

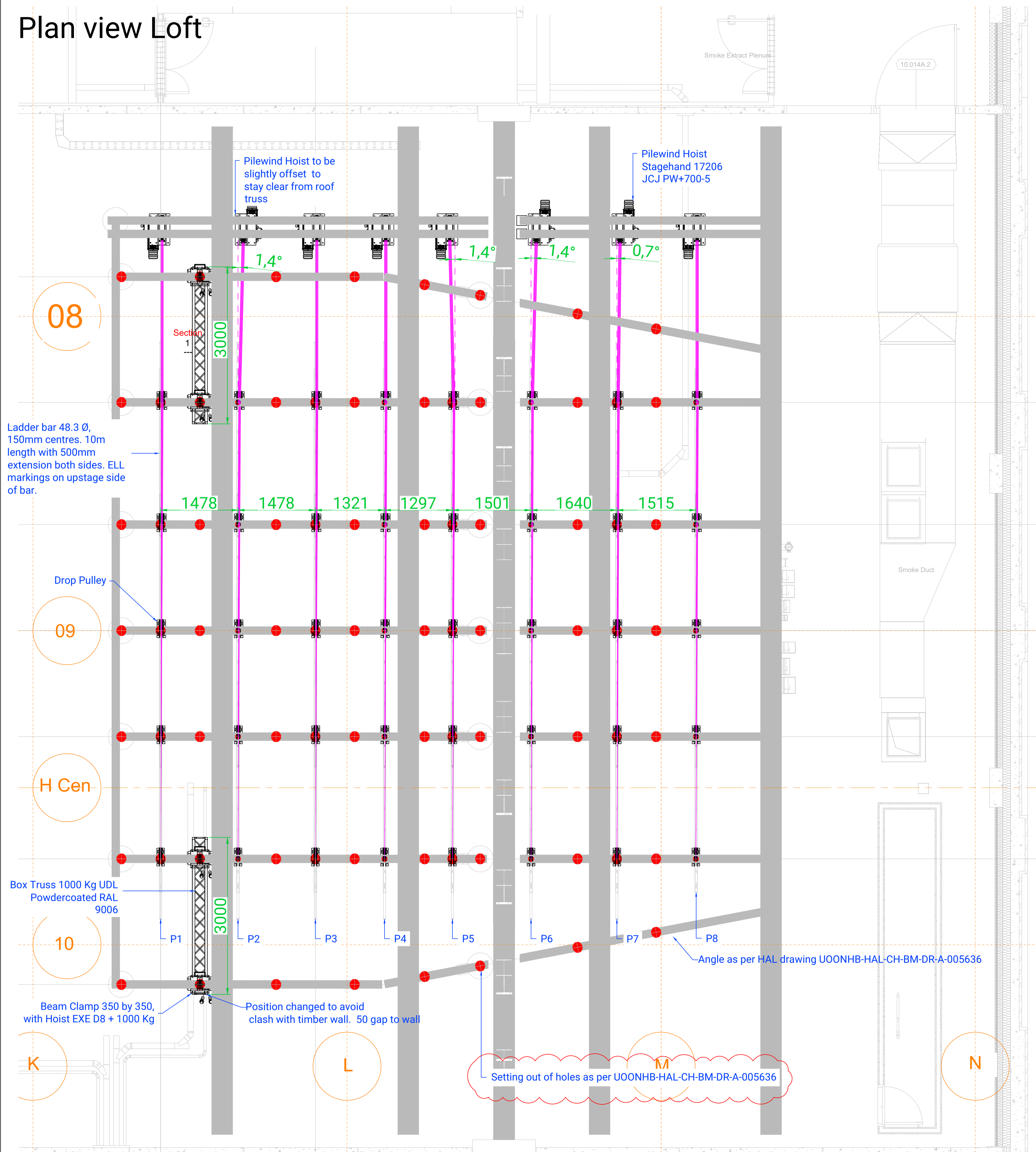
		Pass	Fail	Rectified	N/A
<b>1</b>	<b>Appearance</b>				
1.1	Check equipment is neat and tidy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2	Check equipment is clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>2</b>	<b>General</b>				
2.1	Check equipment for signs of water damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2	Check equipment for signs of any other damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>3</b>	<b>Mechanical</b>				
3.1	Check the chain for signs of wear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2	Check the beam clamp is secure and free from damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3	Check the shackle is secure and free from damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.4	Clean the beam clamp, shackle and chain hoist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.5	Check the hook for signs of wear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.6	Check the truss for signs of wear or damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.7	Check the hoist runs smoothly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.8	Clean the hoist assembly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.9	Check for wear on chain guides	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>4</b>	<b>Electrical</b>				
4.1	Check all electrical connections for security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2	Check all cable glands are secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3	Run hoist full travel to check limit switch function is correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.4	Check all cables to control and MCC are undamaged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.5	Check all cables are fixed away from snag risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.6	Check the isolators operate freely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.7	Check all lids or covers are fitted and all screws are present	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.8	Check for signs of arcing or overheating on panel contactors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.9	Check that the overload system operates correctly and stops hoists raising.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please note in addition to the above, a LOLER inspection must be carried out at least once every 12 months. This may need to be more frequent depending on the actual usage of the points, this will form part of the venue's internal risk assessment.

## 7. Referenced Drawings

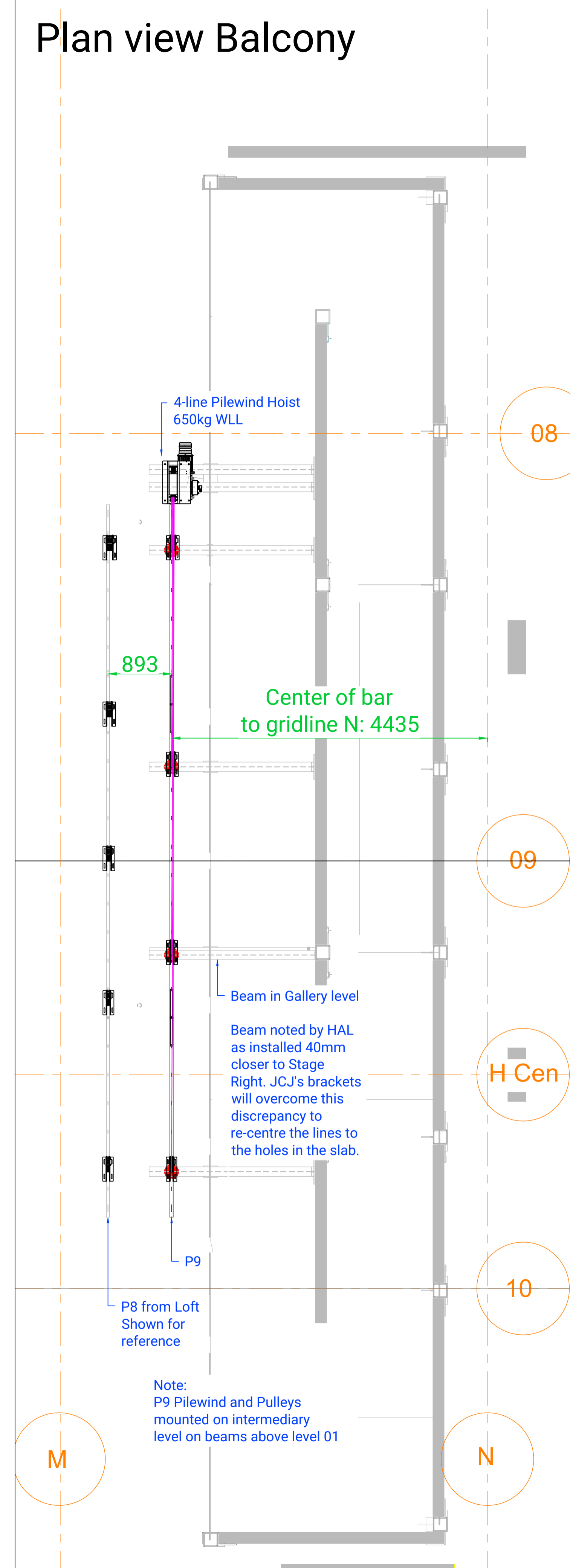
Drawings are shown overleaf.

# Plan view Loft



Scale 1:40

# Plan view Balcony



Scale 1:40

This drawing is the property of J&C Joel Limited and associated companies. It must not be copied or the contents divulged to any third party without prior written consent.

REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	22/09/2023
P02	AM	HOIST SETTING OUT UPDATED AS PER COMMENT	09/11/2023
C01	PT	RESPONSE TO CONSULTANT'S COMMENTS	22/02/2024
C02	SH	For record	16/04/2025

Notes:  
To be read in conjunction with;  
U00NHB-JCJ-CH-ZZ-DR-OT-020002  
U00NHB-JCJ-CH-ZZ-DR-OT-020003  
U00NHB-JCJ-CH-XX-DR-OT-020004

Status:  
A -  B -  C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	16/04/2025
CHECKED:	JC	DATE:	16/04/2025
APPROVED:	OS	DATE:	16/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

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PROJECT	4334 - Oxford Humanities
JCJ NO.	4334- GA-02-0001
Client No.	U00NHB-JCJ-CH-ZZ-DR-OT-020001

TITLE	Concert Hall Cross Stage Flying System Plan View General Arrangement
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PURPOSE	A5 - Accepted as Suitable for Record
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REV C02

REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	22/09/2023
P02	JC	AS PER COMMENTS	09/11/2023
C01	PT	RESPONSE TO CONSULTANT'S COMMENTS	22/02/2024
C02	SH	For Record	16/04/2025

Notes:  
To be read in conjunction with;  
UOONHB-JCJ-CH-ZZ-DR-OT-020001  
UOONHB-JCJ-CH-ZZ-DR-OT-020003  
UOONHB-JCJ-CH-XX-DR-OT-020004

Status:  
A -  B -  C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	16/04/2025
CHECKED:	JC	DATE:	16/04/2025
APPROVED:	OS	DATE:	16/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

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PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-02-0002
Client No.	UOONHB-JCJ-CH-ZZ-DR-OT-020002

TITLE	Concert Hall Cross Stage Flying System Section Elevation View Short Section View
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PURPOSE	A5 - Accepted as Suitable for Record
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REV C02

Note: Setting out of hoists as per holes detailed in Drawing UOONHB-HAL-CH-BM-DR-A-005636

Equipment Hidden from view by proscenium comes in Manufacturer's standard colour, typically RAL9005.

Box trusses shifted to avoid clashes with timber wall. Clearance: 50mm  
Box Truss 1000 Kg UDL Powdercoated RAL 9006 300 x 300 x 3000 mm

Box trusses are powder coated to RAL 9006

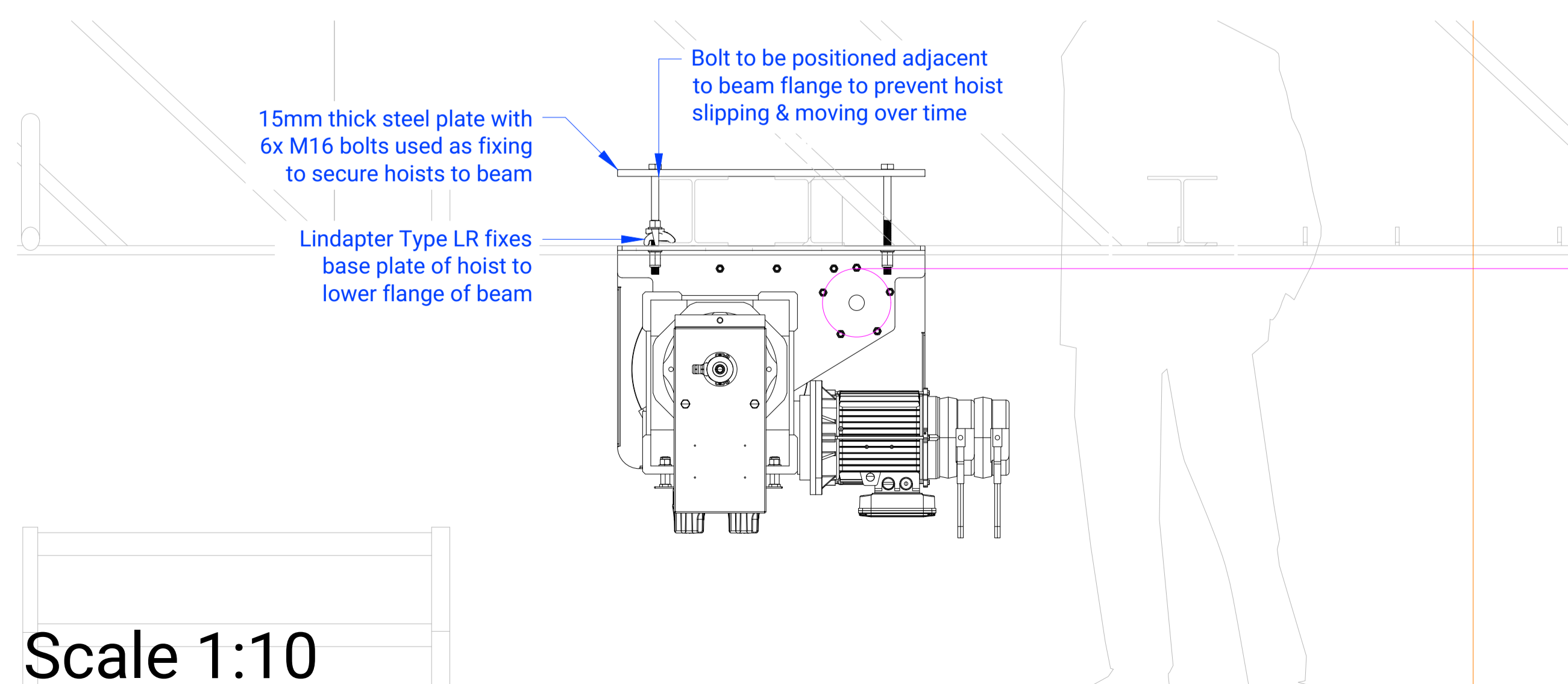
Box trusses shifted to avoid clashes with timber wall. Clearance: 50mm

(CH Dimmer Room) 62.590SSL  
(GF2) 62.272FFL

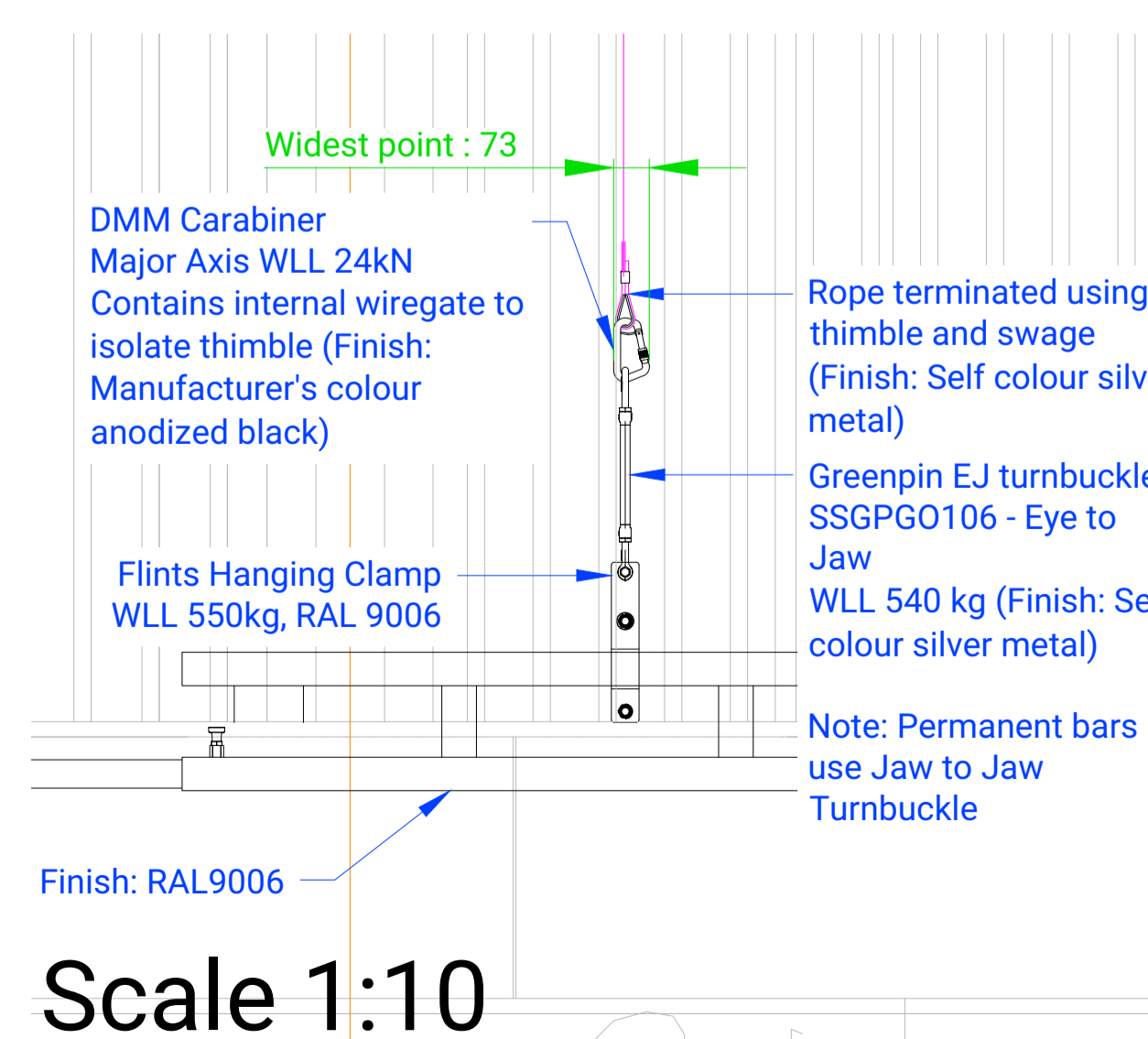
Flybars are powder coated to RAL 9006

(B1) 54.091FFL  
(Lower Stage Level) 53.612FFL

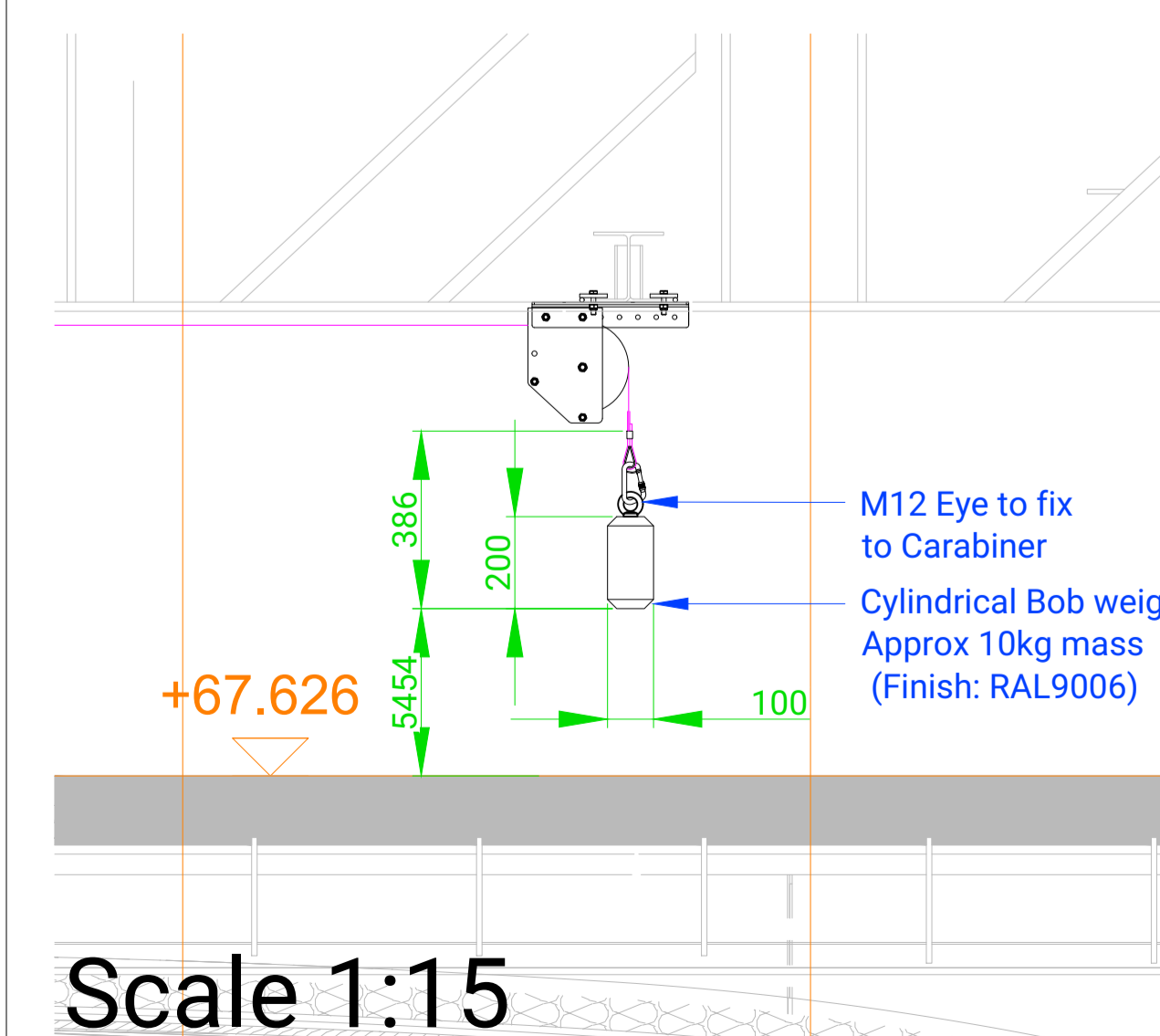
Scale 1:50



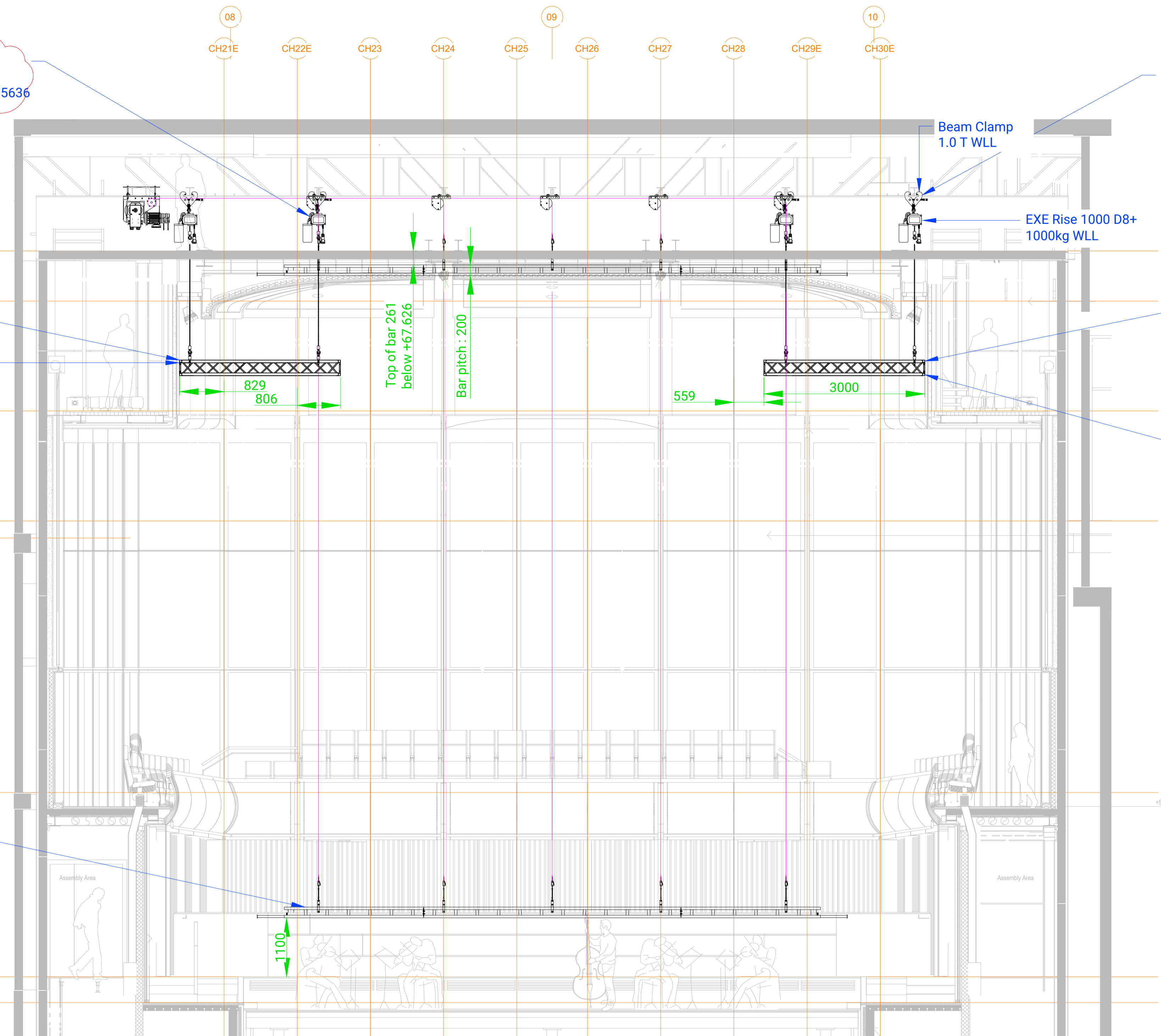
Scale 1:10



Scale 1:10



Scale 1:15



REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	22/09/2023
P02	JC	HOIST SETTING OUT UPDATED AS PER COMMENT	10/11/2023
C01	PT	HOIST SETTING OUT UPDATED AS PER COMMENT	21/02/2024
C02	SH	For Record	16/04/2025

Notes:  
To be read in conjunction with;  
U00NHB-JCJ-CH-ZZ-DR-OT-020001  
U00NHB-JCJ-CH-ZZ-DR-OT-020002  
U00NHB-JCJ-CH-XX-DR-OT-020004

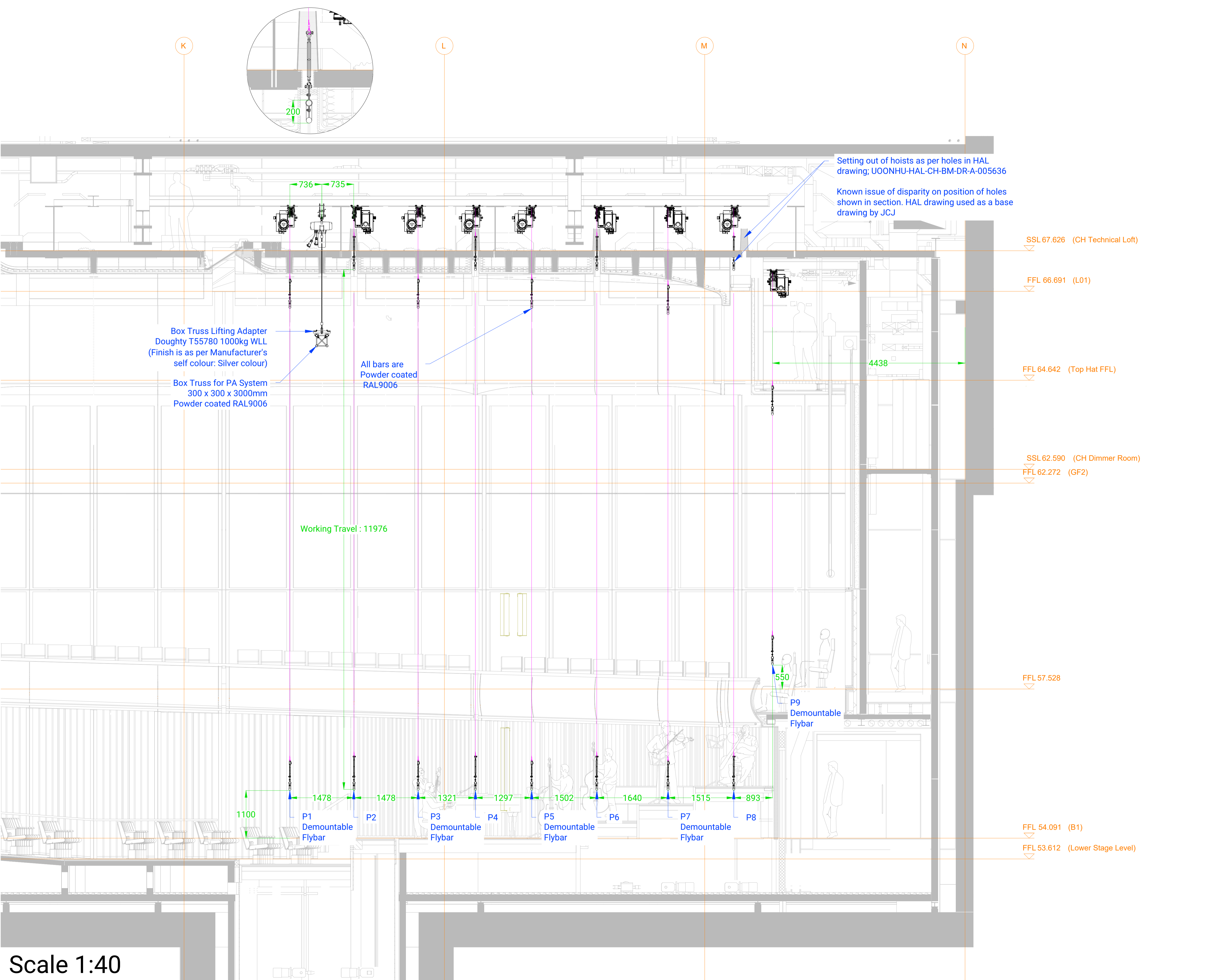
Status:  
A -  B -  C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	16/04/2025
CHECKED:	JC	DATE:	16/04/2025
APPROVED:	OS	DATE:	16/04/2025
SCALE:	ON SHEET	PAPER SIZE:	A1

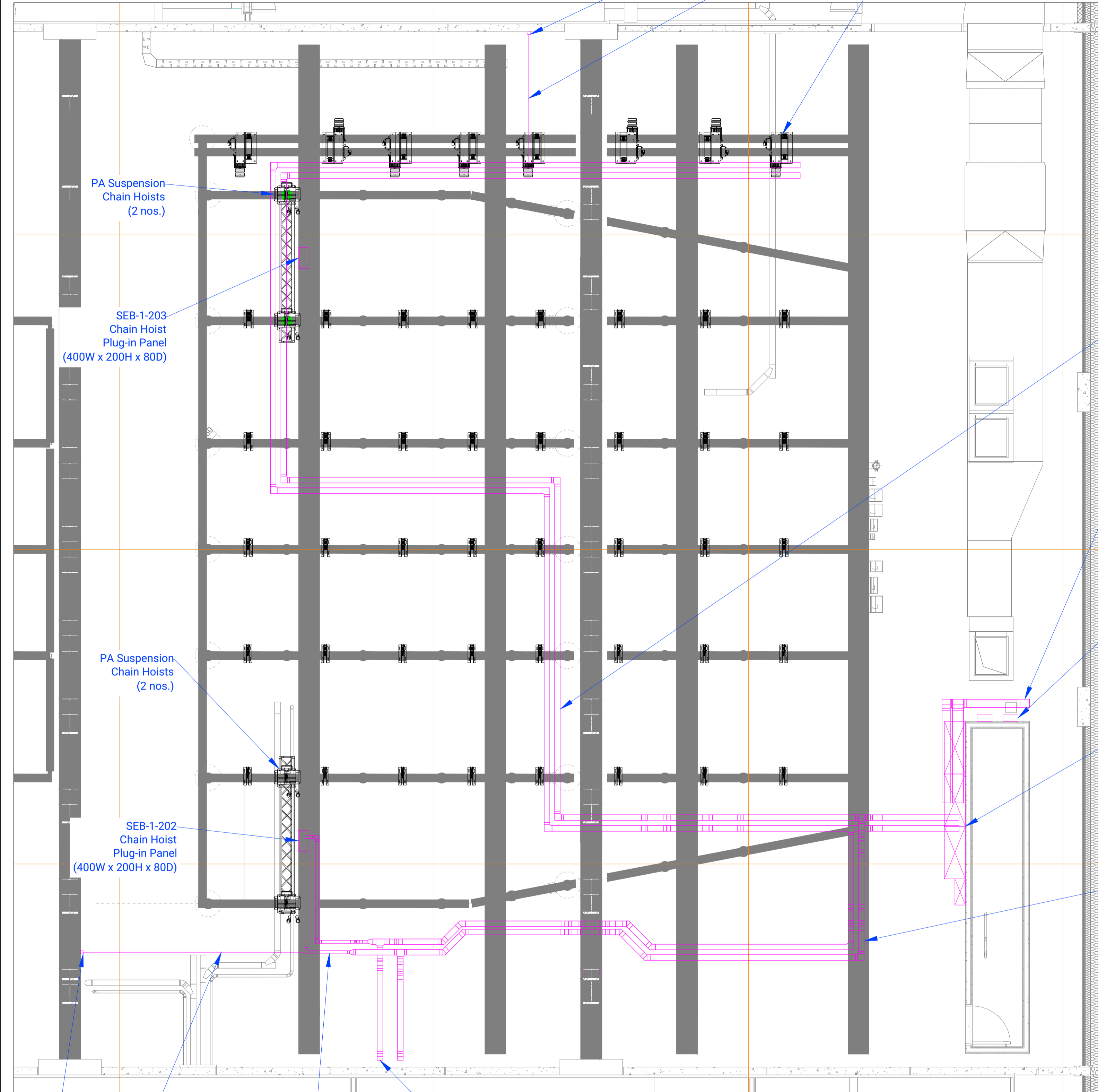
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PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-02-0003
Client No.	U00NHB-JCJ-CH-ZZ-DR-OT-020003
TITLE	Concert Hall Cross Stage Flying System Section Elevation View
PURPOSE	A5 - Accepted as Suitable for Record
REV	C02

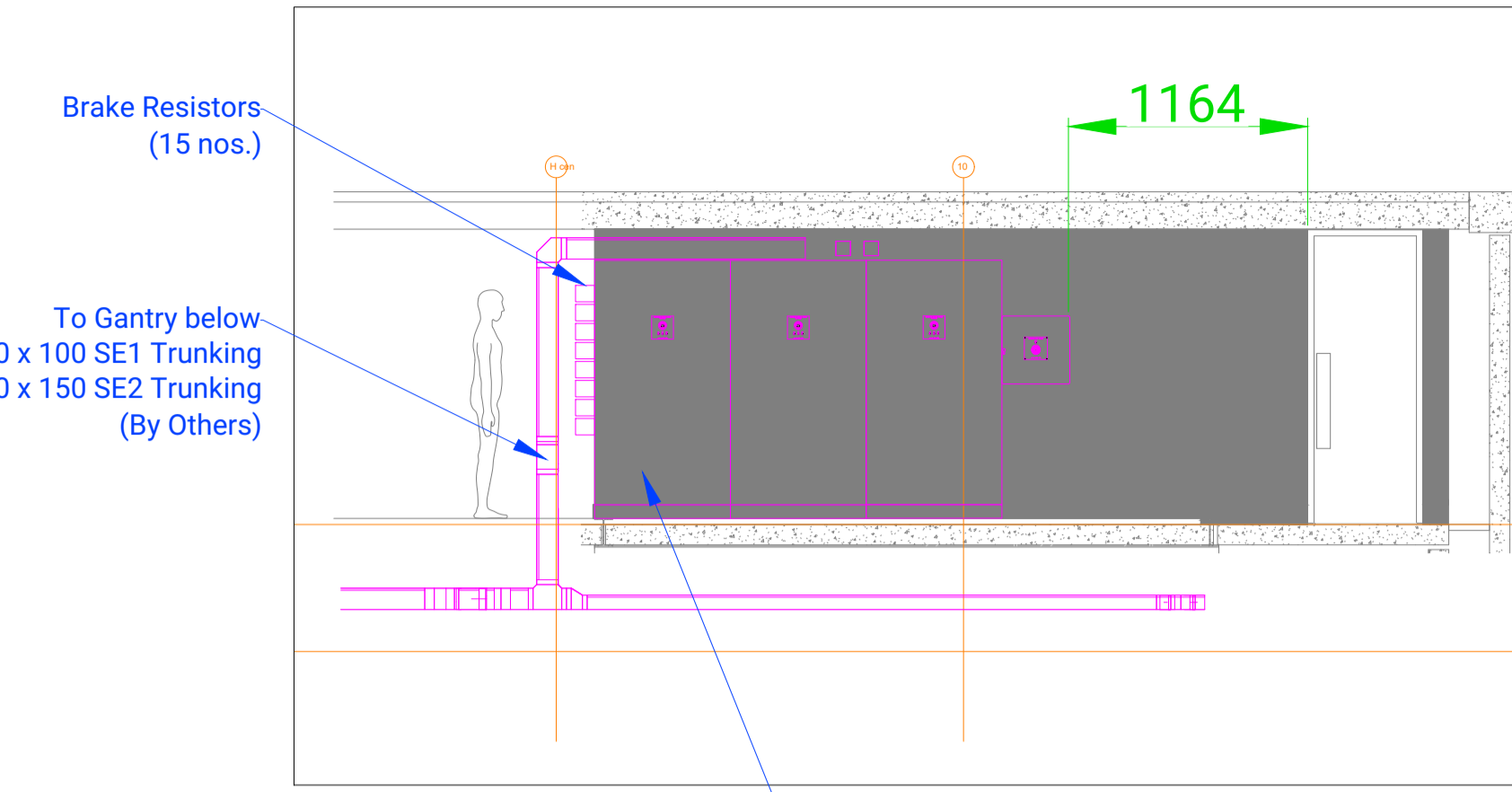


Scale 1:40

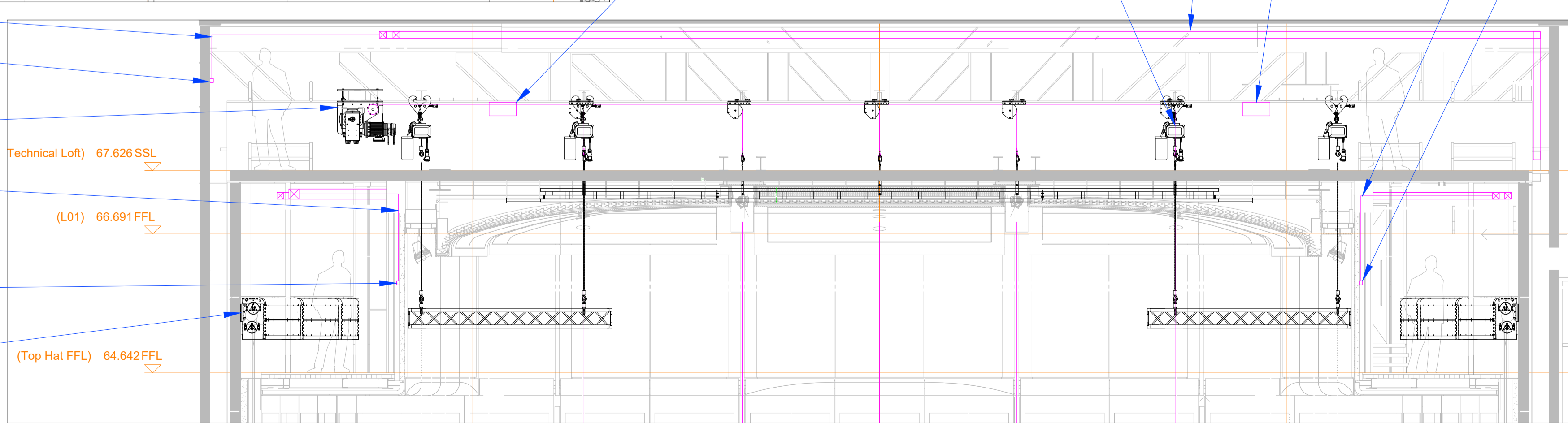
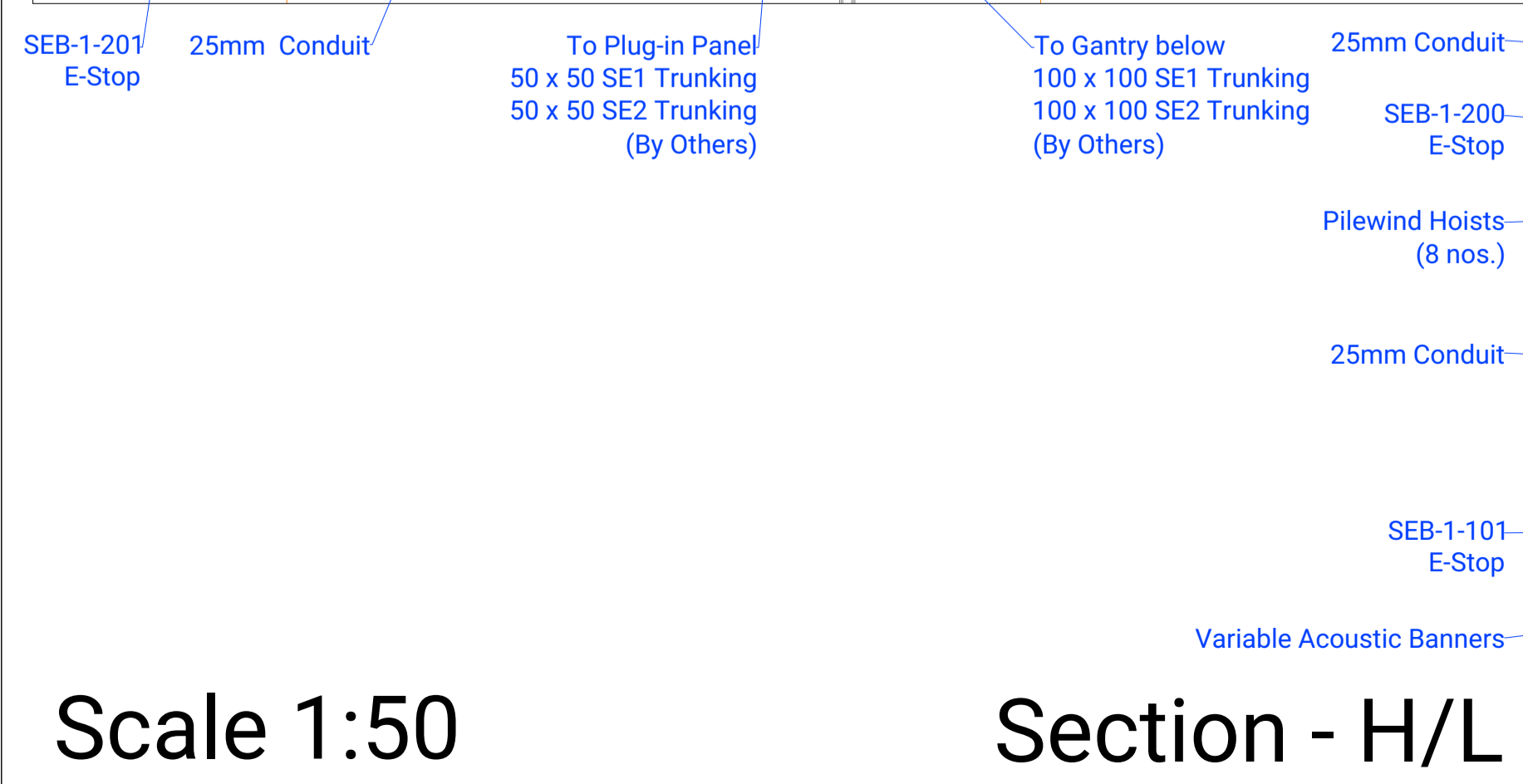
# Plan - Concert Hall (Technical Loft)



# Elevation - MCCs



- Power Requirement (By Others) :**
- Overstage Control MCC 1 & 2  
400VAC TPN&E 125A 50Hz
  - Acoustic Banner Control MCC  
400VAC TPN&E 64A 50Hz
  - E-Stop MCC  
200VAC 1PN&E 10A



Scale 1:50

## Section - H/L

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REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	AM	FIRST ISSUE	17/05/2024
C01	JC	CONSTRUCTION ISSUE	18/09/2024
C02	SH	FOR RECORD	28/04/2025

- Notes:
- Stage Engineering Equipment schedule listed in the material submission.
  - Should be read in conjunction with the following drawings:
    - UOONHB-JCJ-CH-ZZ-DR-OT-020001 ~ 003
    - UOONHB-JCJ-CH-01-DR-OT-030002
    - UOONHB-JCJ-CH-ZZ-DR-OT-030003 ~ 004
    - UOONHB-JCJ-CH-BM-DR-OT-040001
    - UOONHB-JCJ-CH-ZZ-DR-OT-040002 ~ 003
    - UOONHB-JCJ-CH-ZZ-DR-OT-990111 ~ 115
    - UOONHB-JCJ-CH-ZZ-DR-OT-990121 ~ 125
    - UOONHB-JCJ-CH-ZZ-DR-OT-990141 ~ 142
  - Base drawing used
    - UOONHB-HAL-CH-01-DR-A-005634\_P03
    - UOONHB-HAL-CH-ZZ-DR-A-005005\_C02
  - Primary containment SE1 & SE2 provided by others

Status:  
 A -     B -     C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	1 : 50	PAPER SIZE:	A1

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PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-GA-99-0101
CLIENT NO.	UOONHB-JCJ-CH-ZZ-DR-OT-990101
TITLE	Concert Hall Control Layout Technical Loft
PURPOSE	A5 - Accepted as Suitable for Record
REV	C02



REVISIONS

REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	03/01/2024
CD1	PT	Response to Consultant's Comments & For Construction	03/01/2024
C02	JC	OUES SCHEDULE ADDED	03/06/2024
C03	SH	FOR RECORD	28/04/2025

Notes:

Status:  
 A -  B -  C -

All dimensions in mm unless otherwise stated. Do not scale.

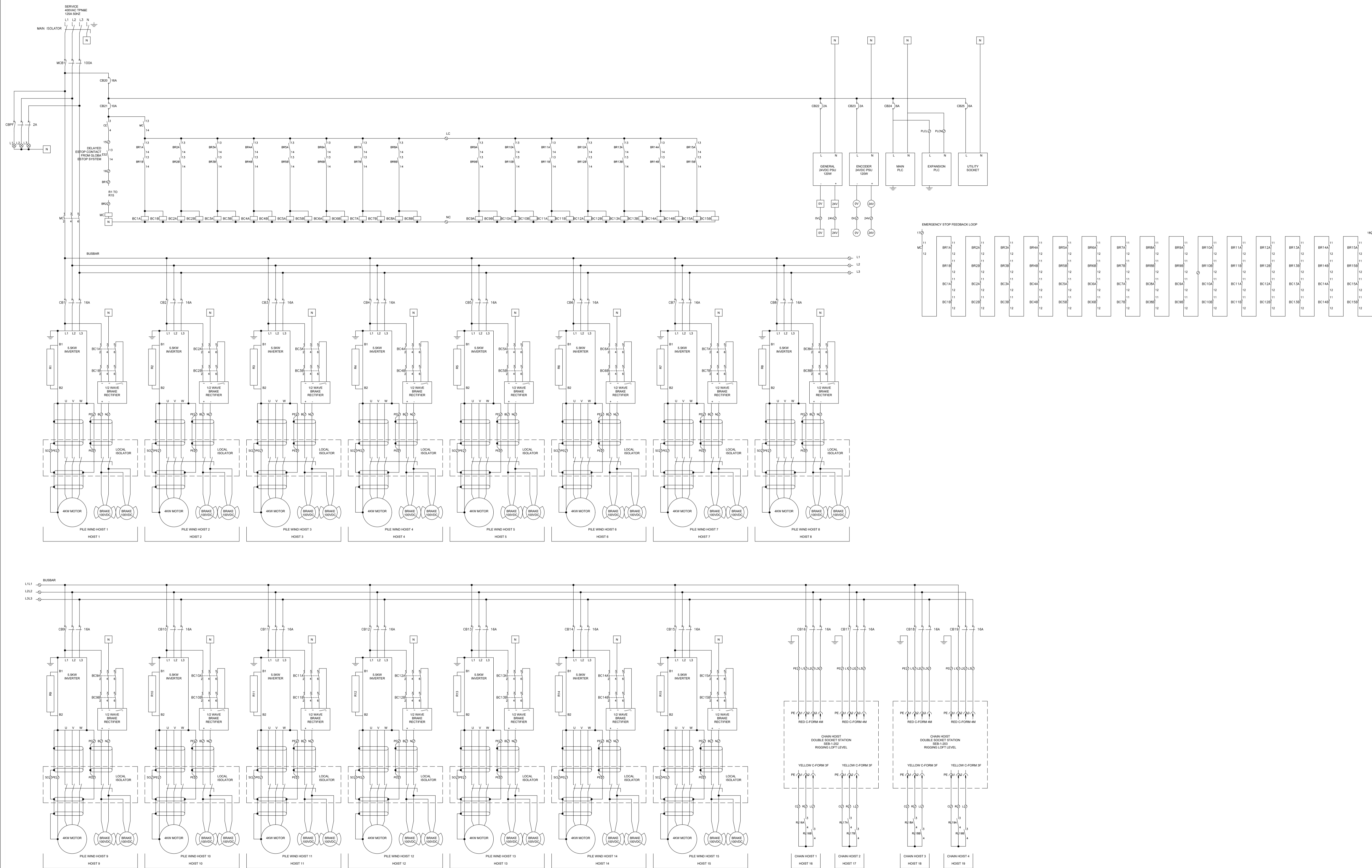
DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	N.T.S.	PAPER SIZE:	A1



PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-DE-99-0112
CLIENT NO.	U00NH-B-JCJ-CH-ZZ-DR-OT-990112

TITLE	Concert Hall Overstage Equipment Control System Power Diagram
PURPOSE	A5 - Accepted as Suitable for Record

Note: OUES Circuit Reference:  
10/016/103/01.123N



Scale N.T.S.

REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	03/01/2024
CD1	PT	For Construction	01/04/2024
C02	SH	FOR RECORD	28/04/2025

Notes:

Status:  
 A -  B -  C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	N.T.S.	PAPER SIZE:	A1



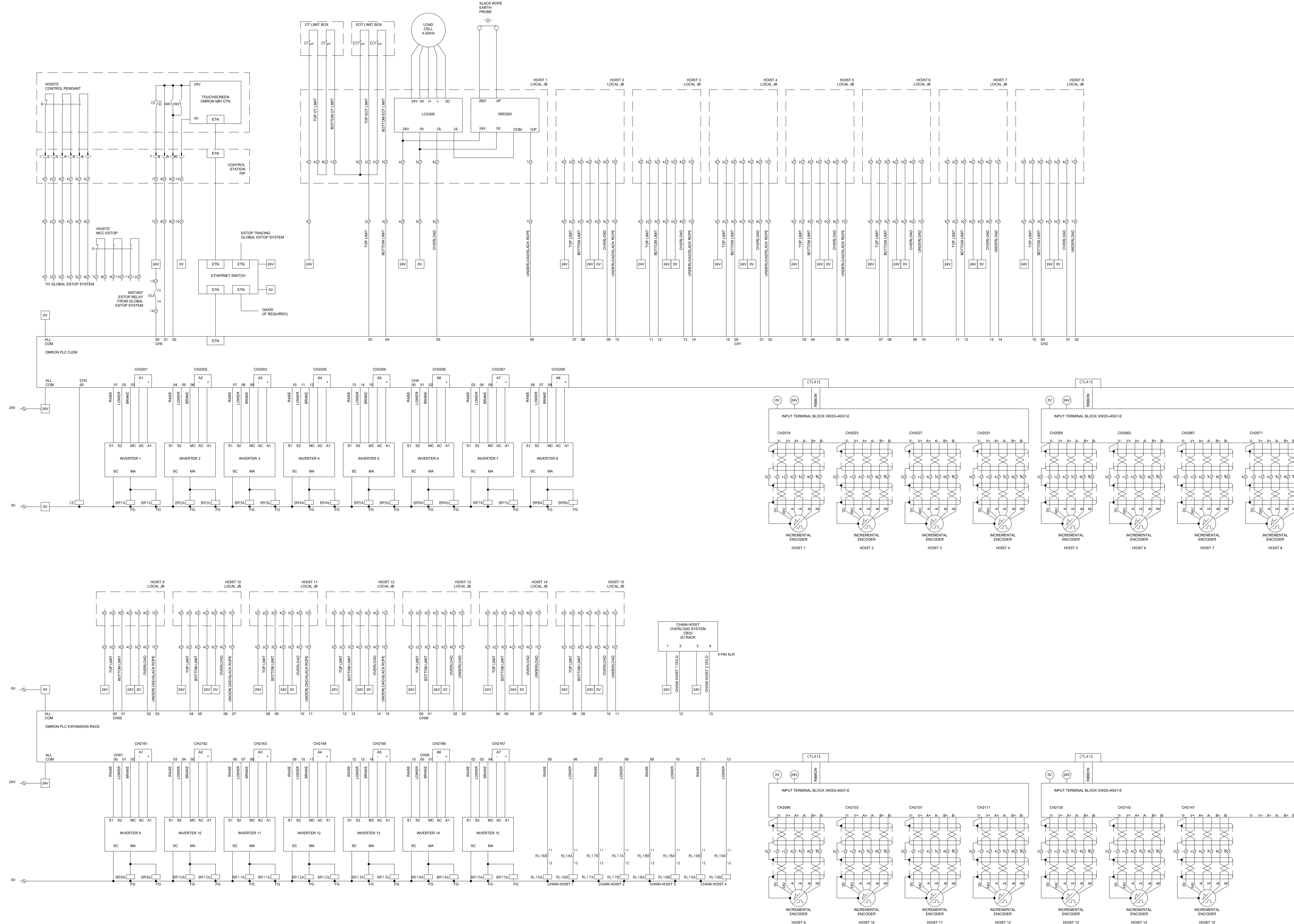
PROJECT 4334 - Oxford Humanities

JCJ NO. 4334-DE-99-0113

CLIENT NO. U00NH8-JCJ-CH-ZZ-DR-OT-990113

TITLE  
 Concert Hall  
 Overstage Equipment Control  
 System  
 Control Diagram

PURPOSE A5 - Accepted as Suitable for Record



Scale N.T.S.

REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	03/01/2024
C01	PT	Response to Consultant's Comments & For Construction	28/03/2024
C02	JC	OUES SCHEDULE ADDED	03/06/2024
C04	SH	FOR RECORD	28/04/2025

Notes:  
OUES Reference to be placed on door of MCCs;  
10/016/103/6L123N

Location of MCCs & E-Stops shown on;  
U00NHB-JCJ-CH-ZZ-DR-OT-990101

Status:  
A -  B -  C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	N.T.S	PAPER SIZE:	A1

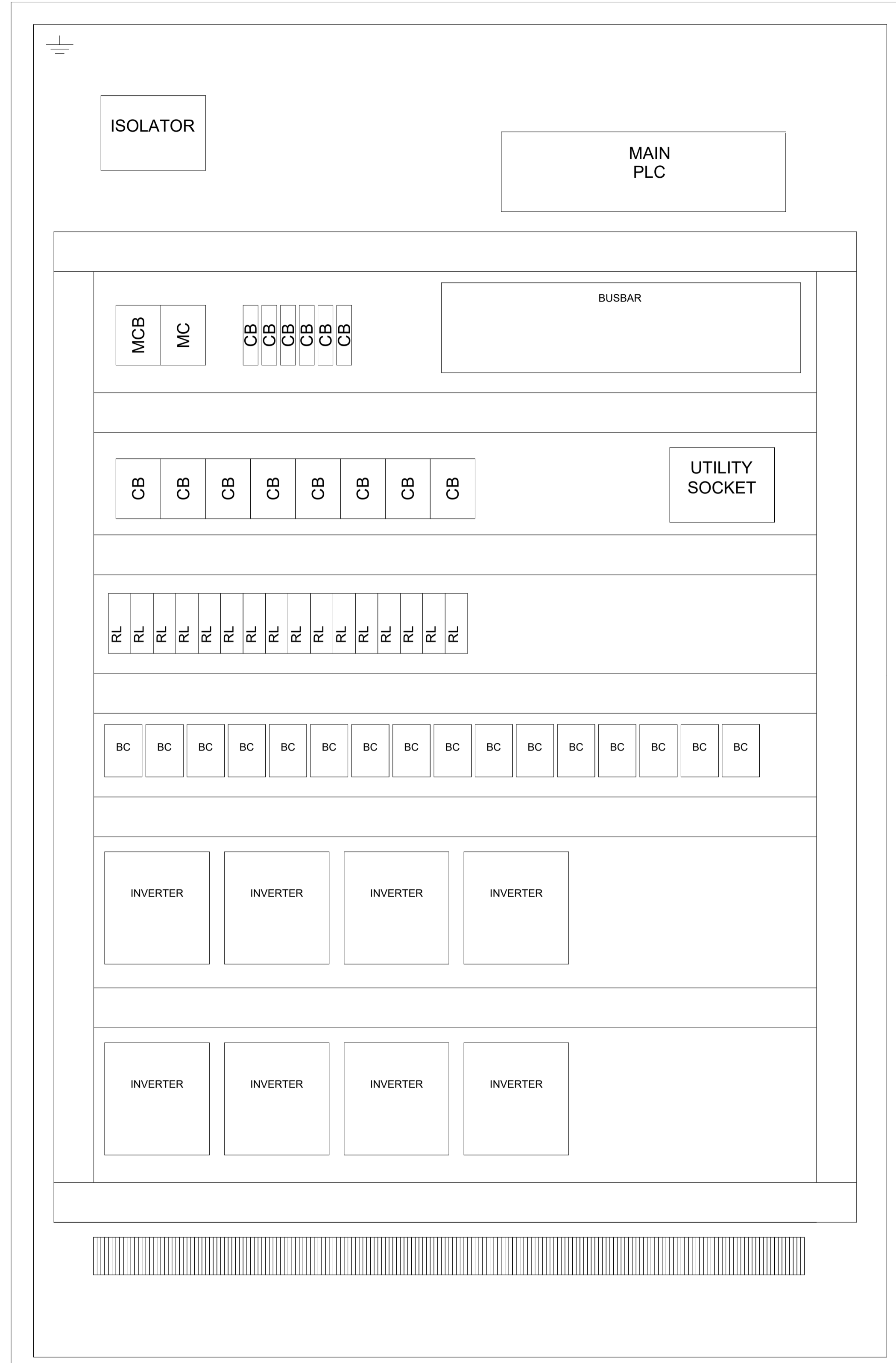
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PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-DE-99-0114
CLIENT NO.	U00NHB-JCJ-CH-ZZ-DR-OT-990114

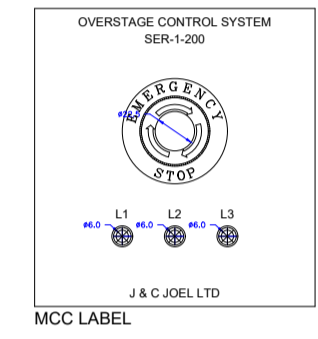
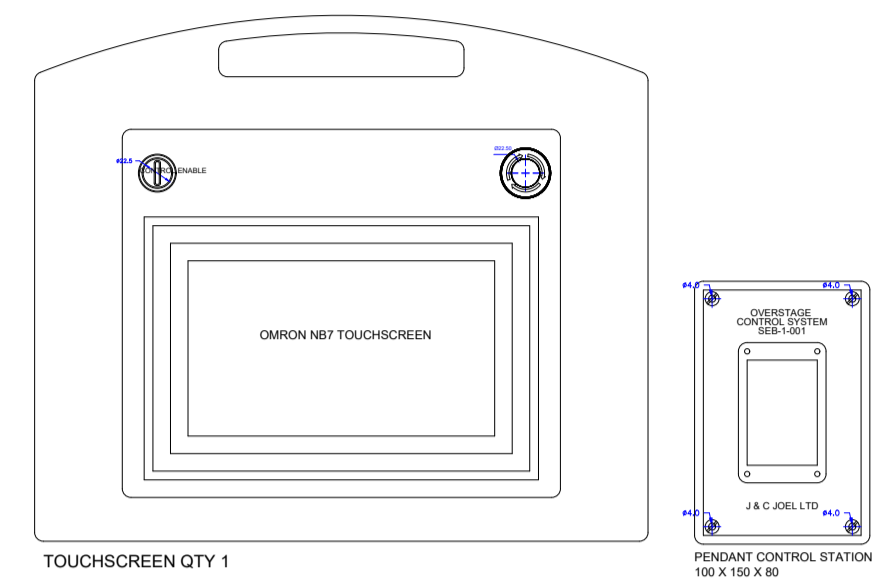
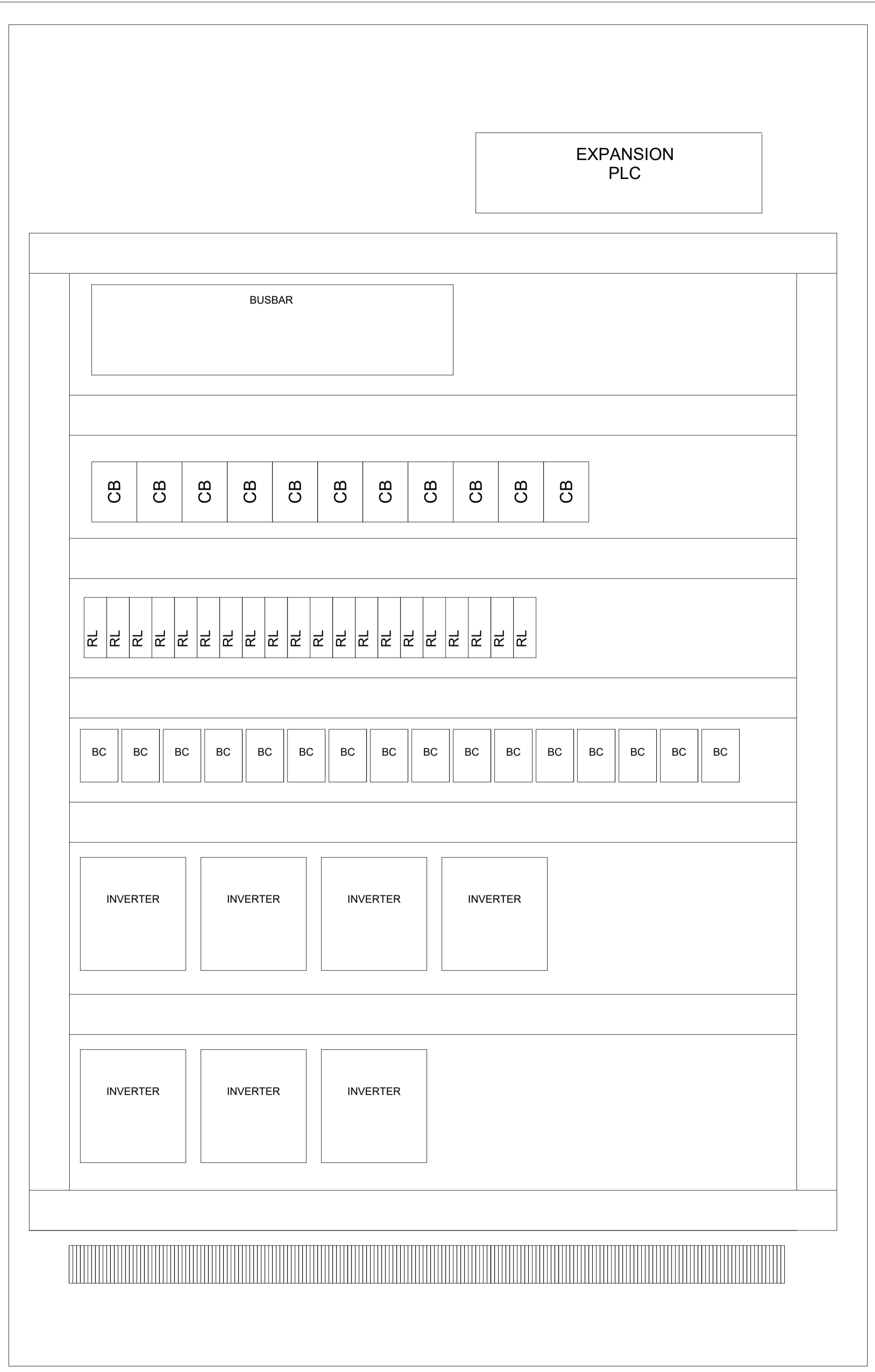
TITLE	Concert Hall Overstage Equipment Control System General Arrangement
-------	--

PURPOSE	A5 - Accepted as Suitable for Record
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REV C04



OVERSTAGE MCC  
2NO 1800 X 1000 X 400



BRAKE RESISTOR MOUNTING TBD

Scale N.T.S.



REVISIONS			
REV.	BY	DESCRIPTION	DATE
P01	PT	FIRST ISSUE	03/01/2024
CD1	PT	For Construction	01/04/2024
C02	SH	FOR RECORD	28/04/2025

Notes:

Status:  
 A -       B -       C -

All dimensions in mm unless otherwise stated. Do not scale.

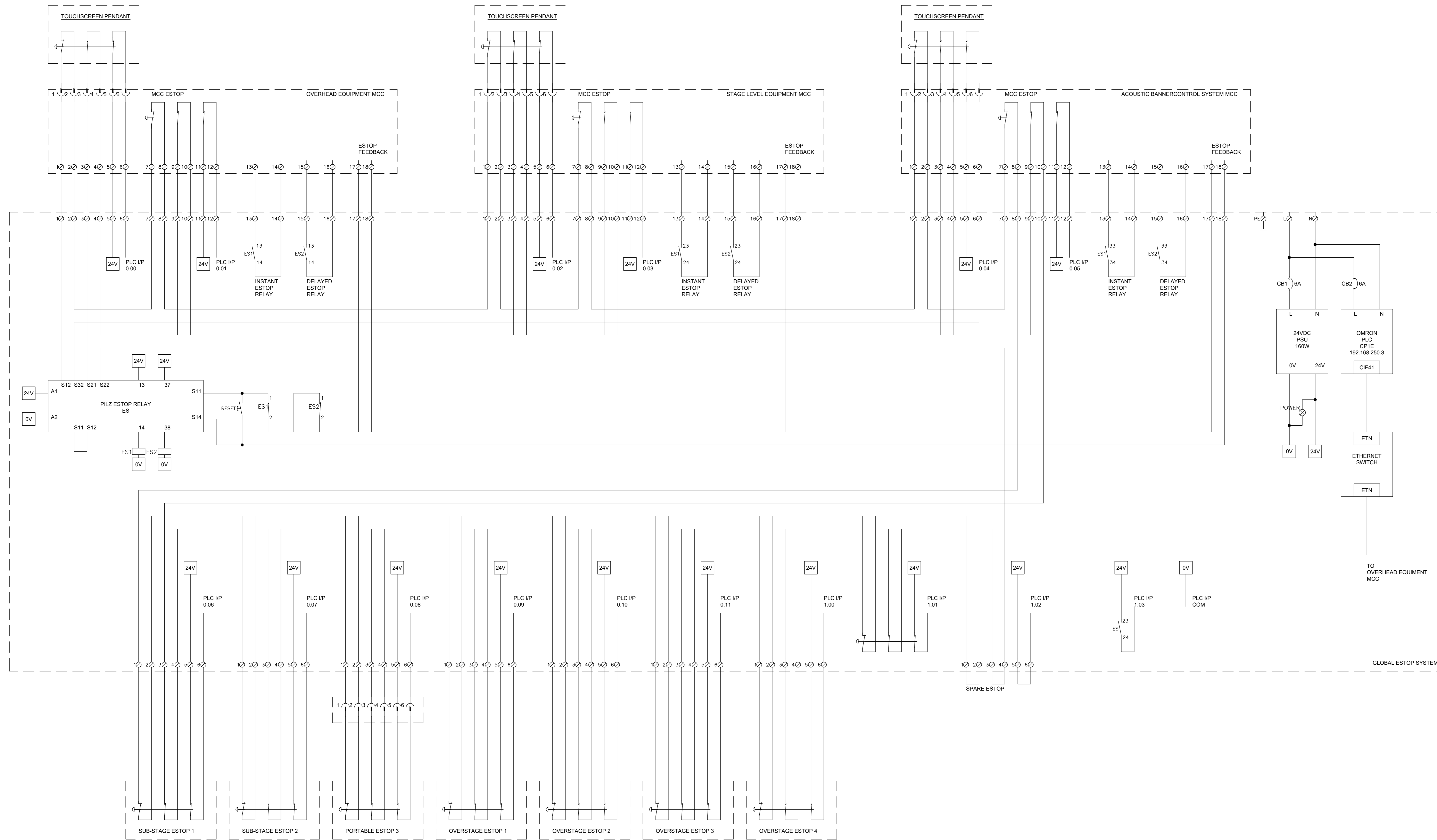
DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	N.T.S.	PAPER SIZE:	A1

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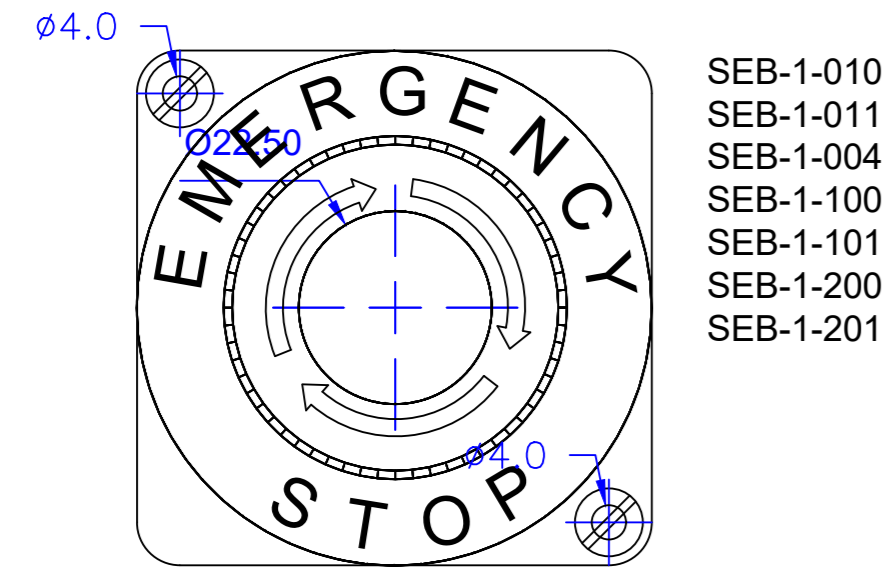
PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-DE-99-0141
CLIENT NO.	U00NH-B-JC-J-CH-ZZ-DR-OT-990141

TITLE	Concert Hall E-Stop - Electrical Schematic Diagram
-------	---

PURPOSE	A5 - Accepted as Suitable for Record
---------	--------------------------------------

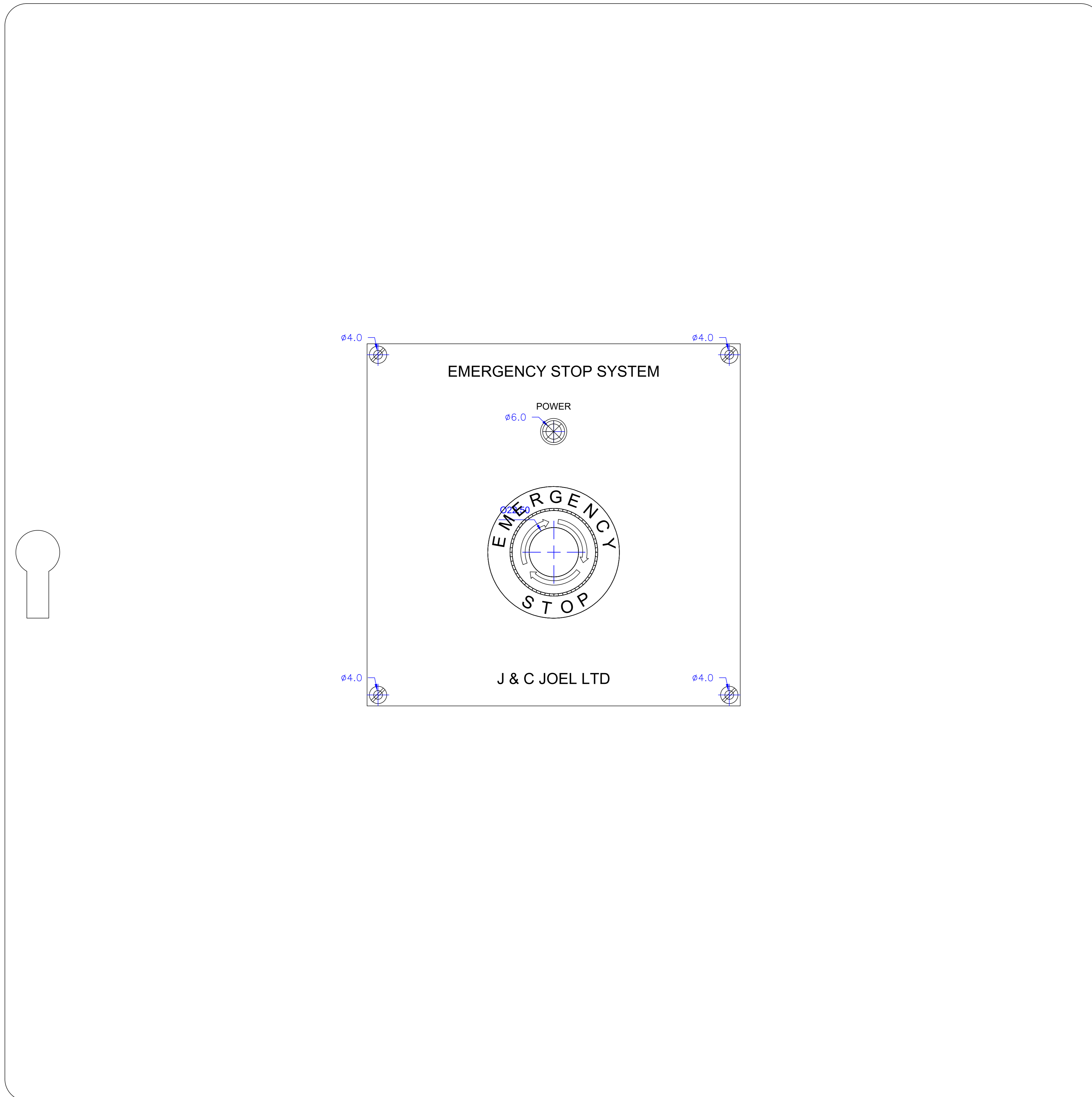


Scale N.T.S.



SEB-1-010  
SEB-1-011  
SEB-1-004  
SEB-1-100  
SEB-1-101  
SEB-1-200  
SEB-1-201

# ESTOP STATIONS QTY 7



See drawing

U00NHB-JCJ-CH-ZZ-DR-OT-990101  
U00NHB-JCJ-CH-ZZ-DR-OT-990102  
U00NHB-JCJ-CH-ZZ-DR-OT-990103

for Setting Out .

Colour Light Grey, No custom colour allowed for any item

Status:  
A -  B -  C -

All dimensions in mm unless otherwise stated. Do not scale.

DRAWN:	SH	DATE:	28/04/2025
CHECKED:	JC	DATE:	28/04/2025
APPROVED:	OS	DATE:	28/04/2025
SCALE:	N.T.S	PAPER SIZE:	A1

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PROJECT	4334 - Oxford Humanities
JCJ NO.	4334-DE-99-0142
CLIENT NO.	U00NHB-JCJ-CH-ZZ-DR-OT-990142

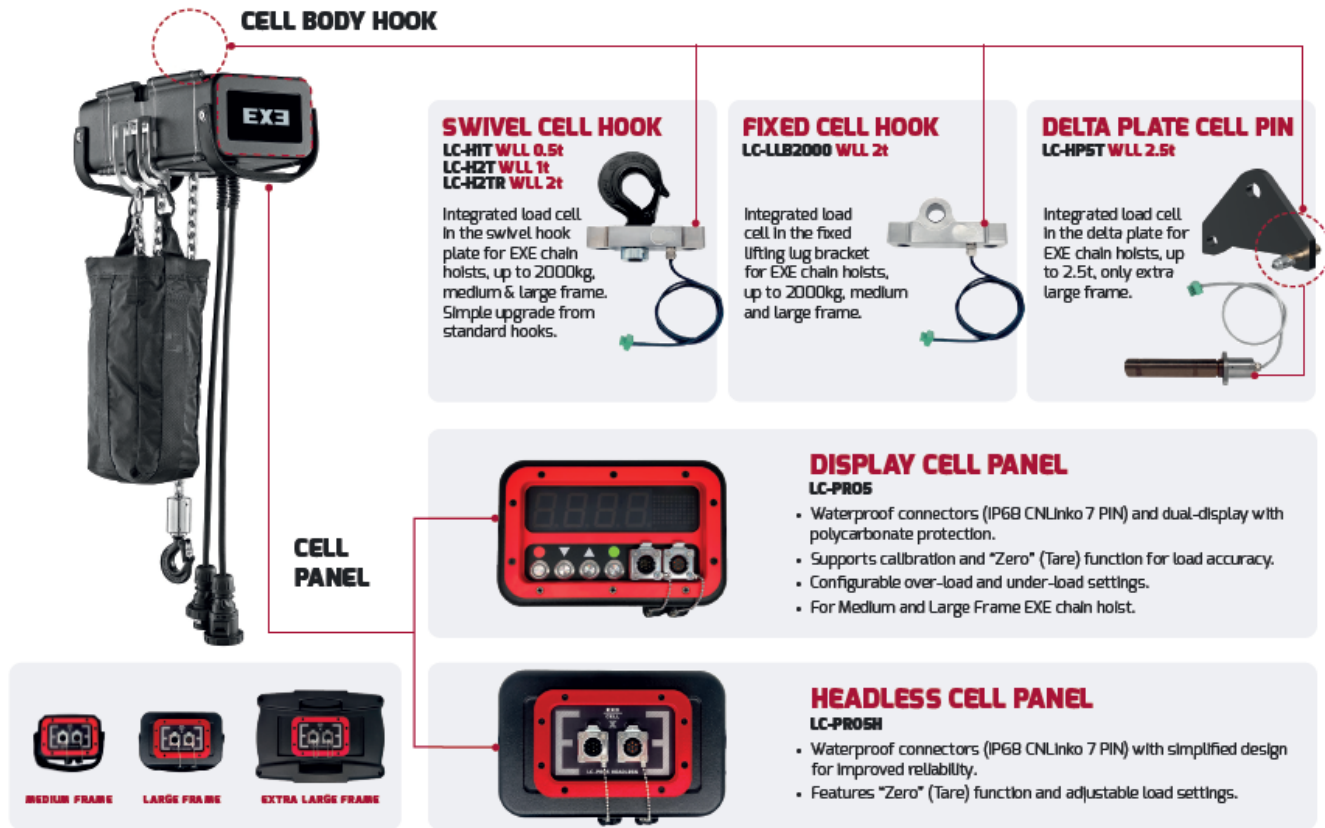
TITLE	Concert Hall E-Stop General Arrangement
PURPOSE	A5 - Accepted as Suitable for Record

# EMERGENCY STOP SYSTEM 500 X 500 X 200

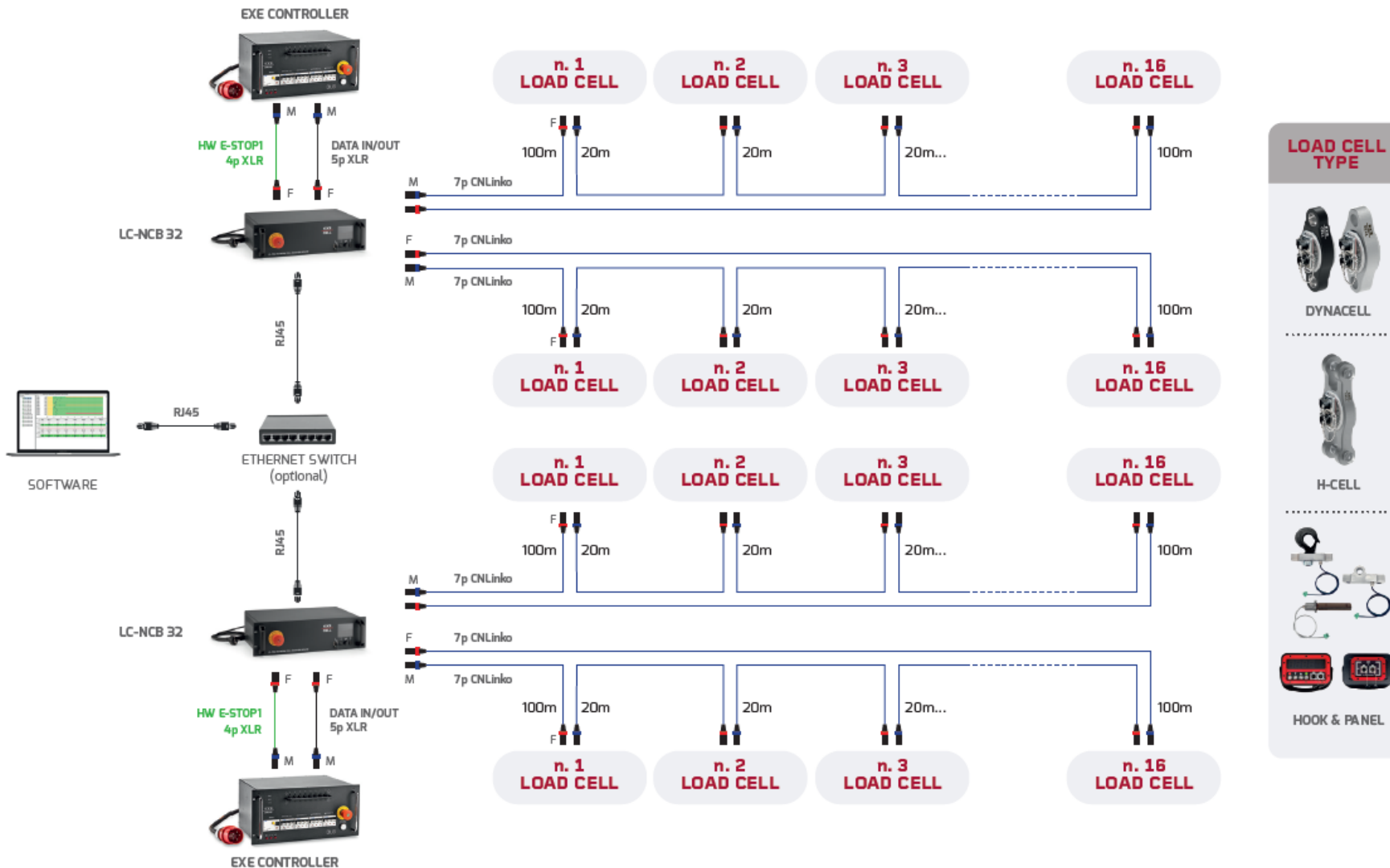
Scale N.T.S.

REV	C03
-----	-----

## **8. EXE-CELL LC-PRO Instructions**

**NCB32 SYSTEM COMPATIBILITY**

**EXAMPLE: LC-PRO SYSTEM CONFIGURATION**





**NCB32 BACK PANEL DETAIL NCB32**

## SOFTWARE INSTRUCTION



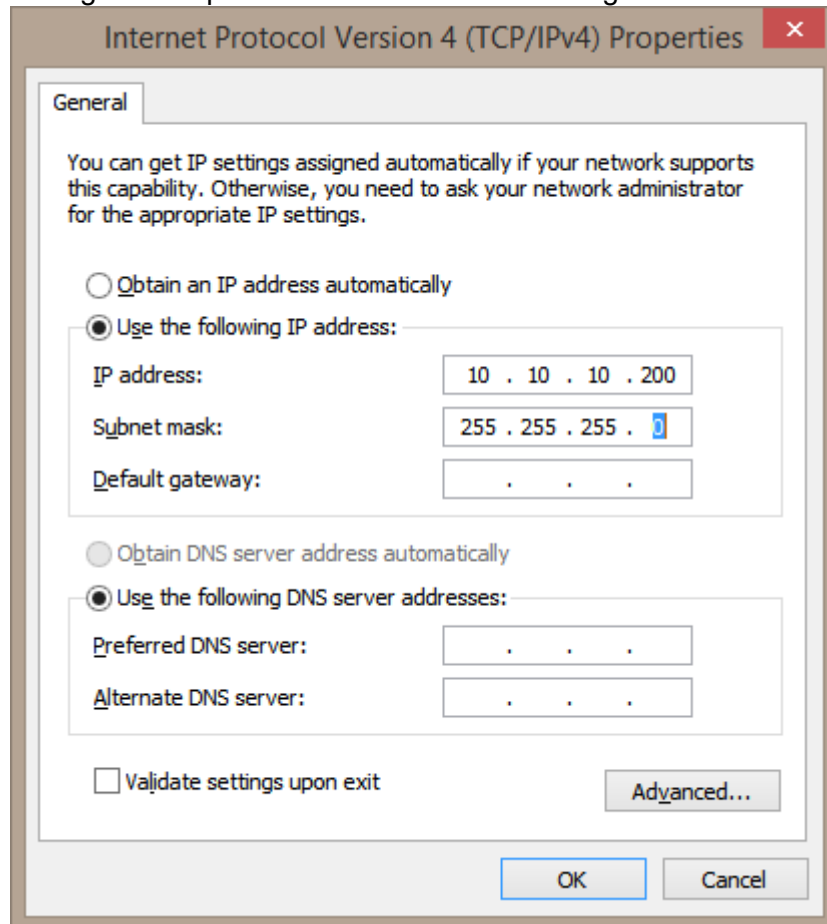
### USB KEY

The USB flash drive prepared for the client contains the folder '**HC\_v.01.05**', which has the following content inside. It is necessary to copy all the content of the flash drive to your PC.

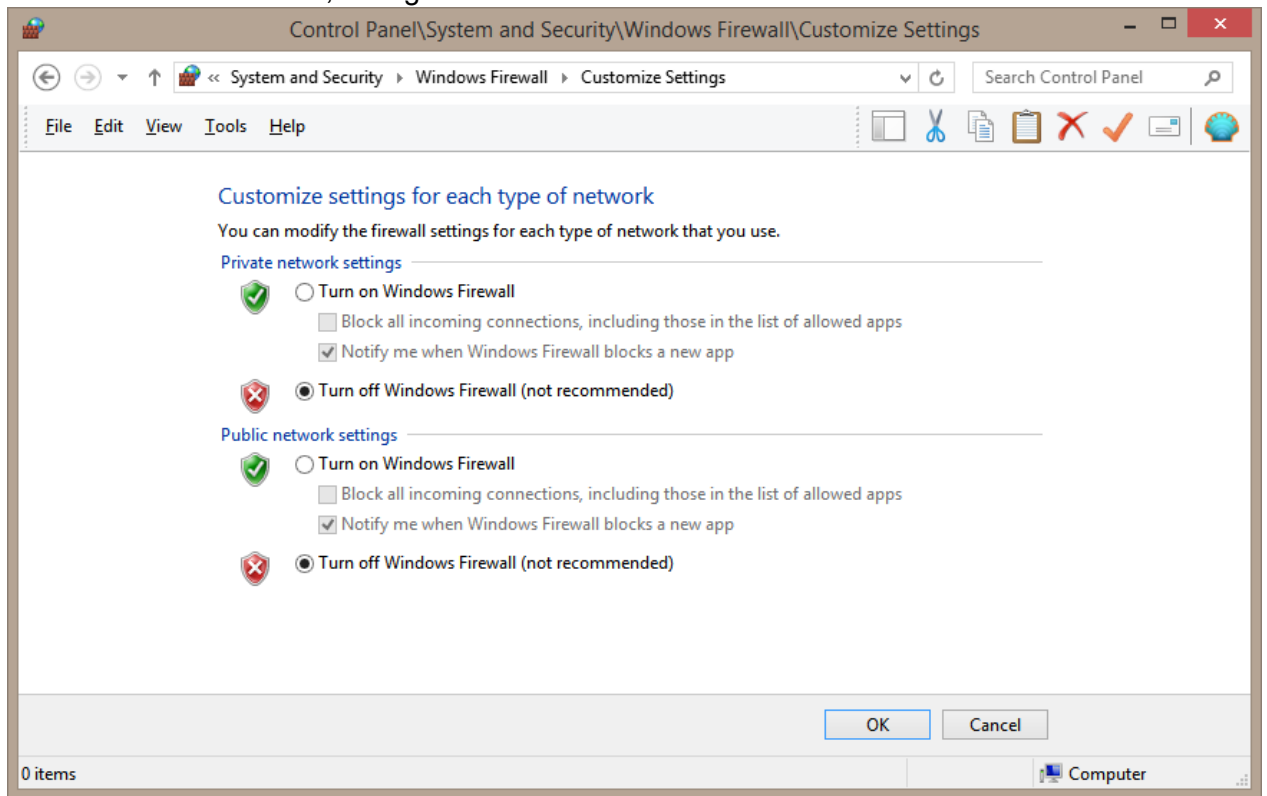
Nome	Ultima modifica	Tipo	Dimensione
 HCapp_ETH_v.01.05.exe	06/03/2025 15:31	Applicazione	224 KB
 HCapp_ETH_v.01.05.jar	06/03/2025 15:31	Executable Jar File	829 KB

### SETUP

1. The program works with Java, and if the system lacks it, install the program contained in the USB drive folder '**Java installation**' '**jre-8u441-windows-x64.exe**'.
2. Configure the network adapter to communicate via Ethernet cable between the PC and NCB32.
  - a. Change the IP port value as shown in the image:



3. In case of firewall issues, configure as follows:



4. If using up to 16 cells and a single interface, take the supplied CNLINKO 4-pin Male-Female cable and connect interface 2 as shown in the photo:



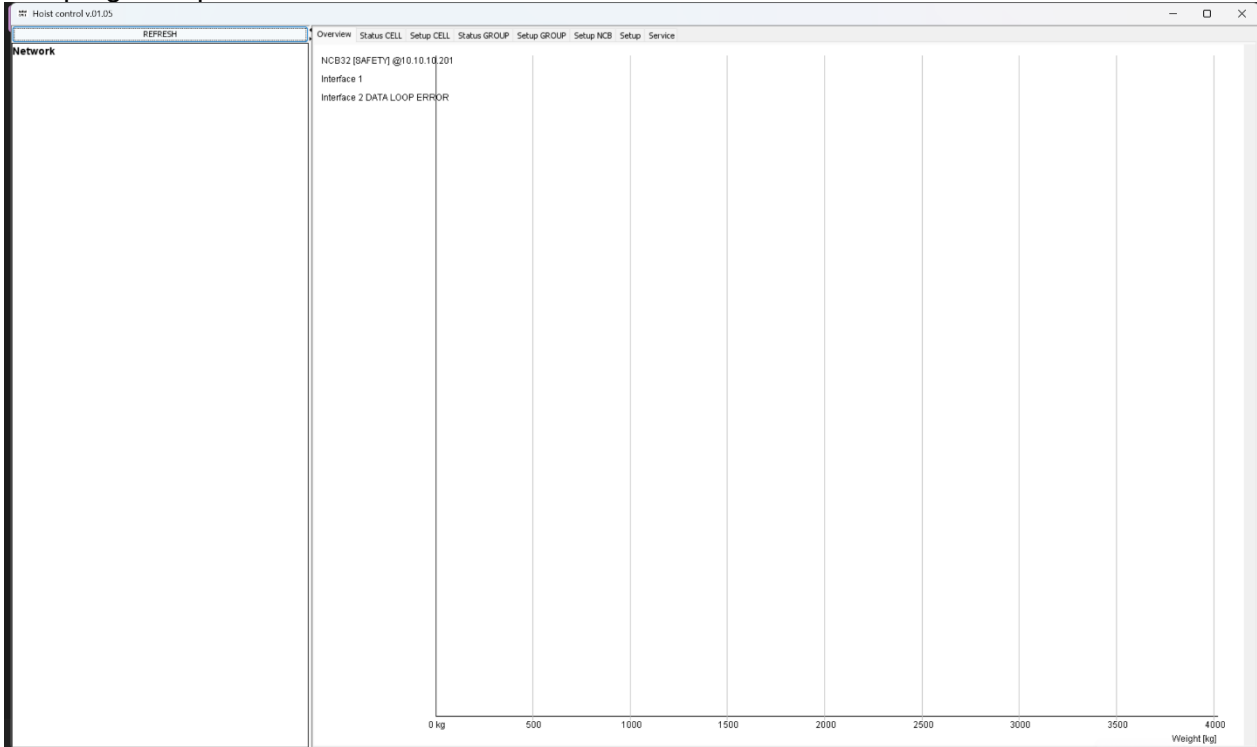
5. Connect the External E-stop connectors as shown in the photo:



6. Power the NCB32 with the supplied Schuko / Blue Powercon power cable (AC 100-230V MAX 16A).
7. Verify that the NCB32 power supply's Emergency mushroom button is not pressed. (If it is, rotate and release it.)
8. Connect the PC to the NCB32 via Ethernet cable.
9. Double-click to open the software with the program "**HCapp\_ETH\_v.01.05.exe.**"

## HOME PAGE

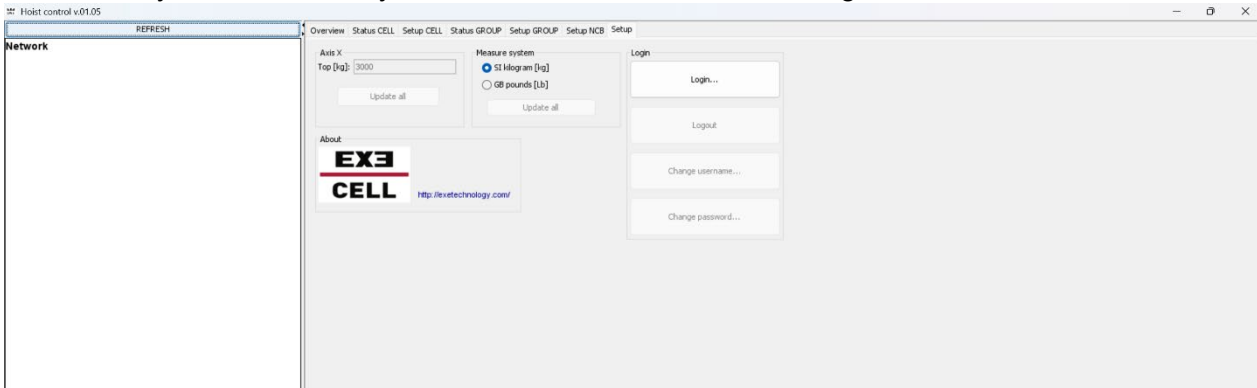
The program opens to its first screen.



Before starting, go to:

## SETUP

From here, you can set the system's unit of measurement and log in.



Log in to access parameter editing by clicking 'Login'. Username 'user' – Password 'user' Once logged in, you enter the parameter editing mode for tare, warning, and max/min weight limits for each hoist after selecting it.

## CELL CONNECTION TO THE SYSTEM

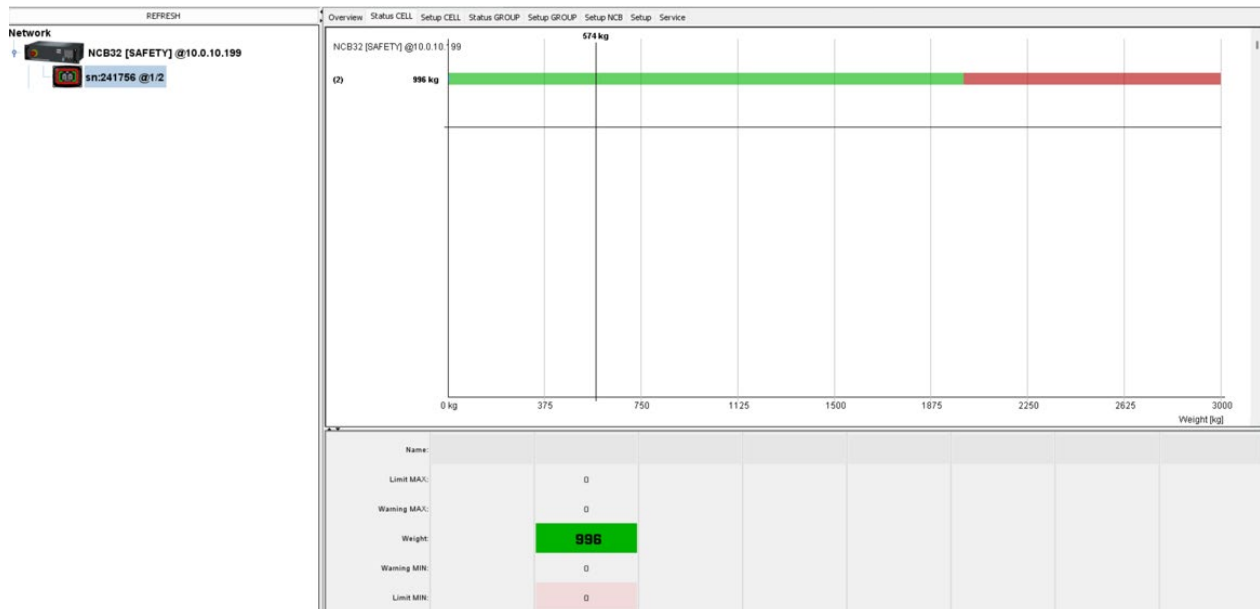
Using the CNLINKO 7-pin cables, you can daisy-chain multiple systems such as load cells, LCPRO systems with displays, and LCPRO in the Headless version.



As you add elements, they will appear on the left screen. If there are icons with '?', click the refresh button. If there are duplicate addresses, the icons will light up red, and you must resolve the conflict from the address assignment menu in the cell setup (explained in the appropriate menu).

## STATUS CELL

Under cell status, you can see all the connected cells.



## SETUP CELL

Here, you can set the load cell properties.

Overview Status CELL Setup CELL Status GROUP Setup GROUP Setup NCB Setup

**Device info**

Firmware ver.: 1.1

Serial nm.: 000241749

Sensor: 0.0°C 0% RH

DC in: 0.00 V

Battery: Not present

Calibr. time: 22.1. 2025 11:43:12

Running time: 2m47s

Real time:

Sync device time

Update firmware...

Factory reset

Show all weights

Show all DC in

Blackout all

Display all

Address: 1

Send address

Identify by SN

**Setup**

Name:

Relay setup: always ON

Relay status: Off

Group: 1. Group 1

Weight [kg]: 0

Peak [kg]: 543

Tare [kg]: 0

Sleeve mode: Off

Capacity [kg]: 500

Limit MAX [kg]: 340

Warn. MAX [kg]: 320

Warn. MIN [kg]: 0

Limit MIN [kg]: 0

Identify by Addr.

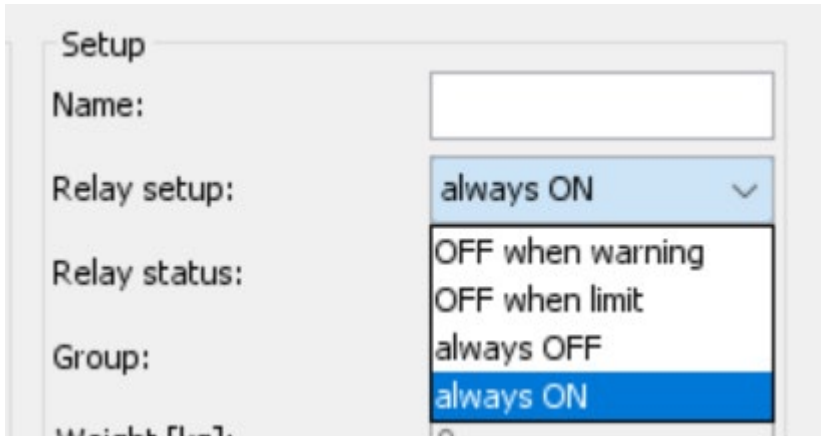
Update

Peak reset

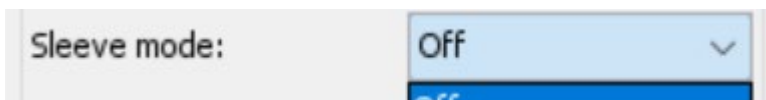
E-Stop override all

E-Stop reset all

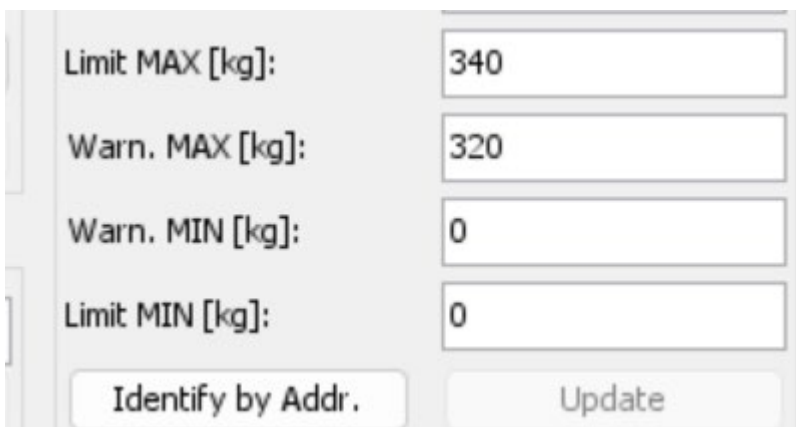
You can set the cell's behavior and alarm when the limit is reached or when in the warning zone. The 'Identify by SN' command allows you to illuminate the cell to see which one you are modifying.



You can set whether to use the cell in sleeve mode.

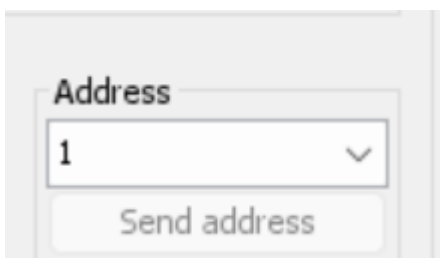


Under cell setup, you can set the maximum load, the warning load range, and the minimum underloading limit.



To confirm, press *update*.

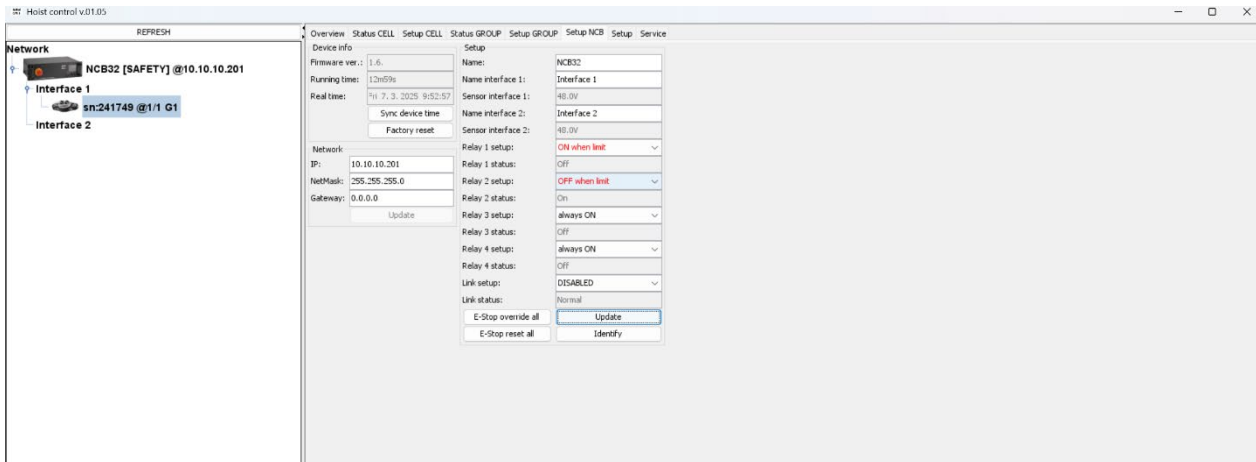
You can change the cell's address, but be careful because if two addresses are identical, the system will go into error and needs to be updated as follows:



Once changed, click *Send address* to confirm the new value.

## RELAY SETUP

If using the relay, you can go to the NCB Setup menu to set the outputs to NO or NC, which activate when the limit set in the cell is exceeded.



## MANUFACTURER IDENTIFICATION

**SRS LIGHT DESIGN s.r.o.**

Rybnicna 36/D, SK- 83106 Bratislava, Slovak Republic  
+421244681417



## **9. EXE-CELL INSTRUCTION**

**MENU:**

You can go via menu with the UP/DOWN button. If you want to edit item press OK first – the display start to blink and 7segment display is RED. You can change the settings via UP/DOWN buttons. For confirmation press OK, othewise ESC – exit without save.

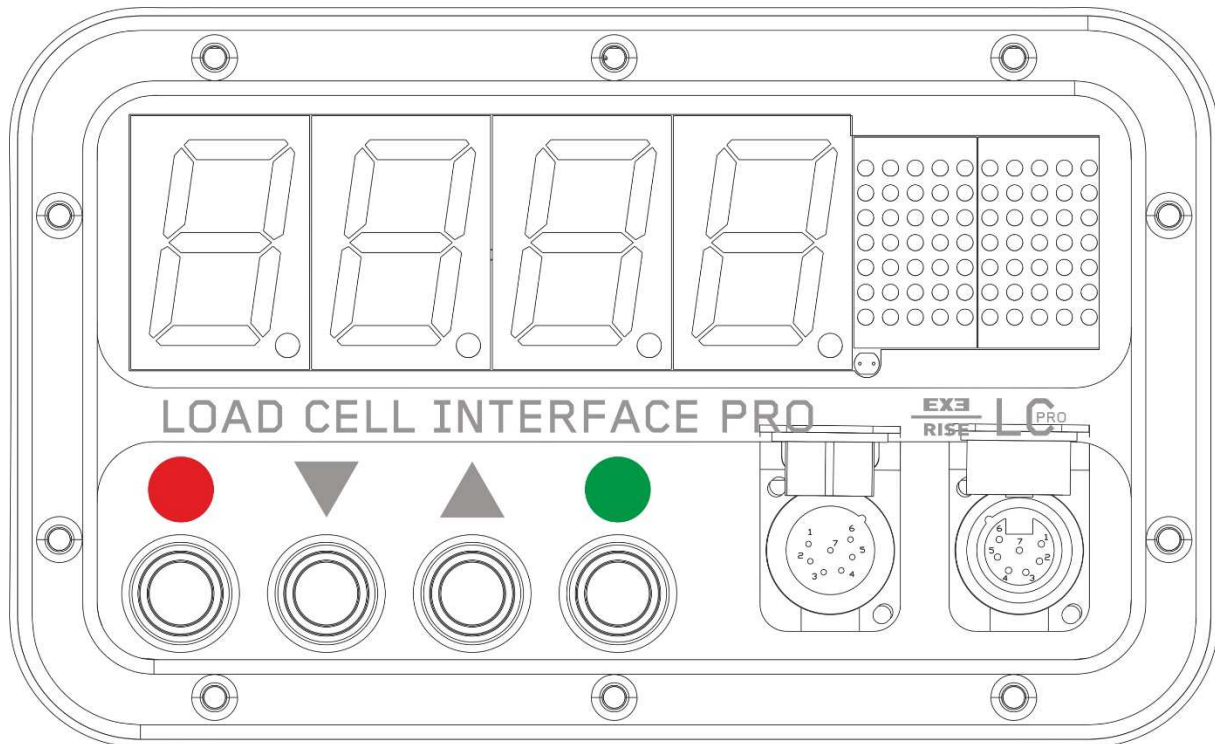
- |                   |   |           |
|-------------------|---|-----------|
| 1. MENU_ADDR      | address of the unit   |           |
| 2. MENU_PEAK      | peak value of weight detected   | READ ONLY |
| 3. MENU_LMAX      | Limit maximal value   |           |
| 4. MENU_WMAX      | Warning maximal value   |           |
| 5. MENU_WMIN      | Warning minimal value   |           |
| 6. MENU_LMIN      | Limit eminimal value  |           |
| 7. MENU_BATT      | Show the battery voltage  | READ ONLY |
| 8. MENU_BUZZ_LIM  | Buzzer sound when limit is hit  |           |
| 9. MENU_BUZZ_WARN | Buzeer sound when warning is hit  |           |
| 10. MENU_DISP_CON | Set contrast of display /AUTO, 10%-100%/  |           |
| 11. MENU_DISP_ON  | Time setup of ON display /in seconds/   |           |
| 12. MENU_DISP_OFF | Cycle time of ON display  |           |
| 13. MENU_RELAY    | Setup of E-stop relay /Lon,Loff,on,off/   |           |
|                   | <ul style="list-style-type: none"><li>• Lon is active if limit is hit</li><li>• Loff is NOT activated if limit si hit</li><li>• ON relay is allways on</li><li>• OFF relay is allways off</li></ul> |           |
| 14. MENU_GROUP    | Setup of GROUP  |           |
| 15. MENU_KGLIN    | Weight system kg/lb   |           |

**MANUFACTURER IDENTIFICATION  
SRS LIGHT DESIGN s.r.o.**

Rybnicna 36/D, SK- 83106 Bratislava, Slovak Republic  
+421244681417

[www.srslight.com](http://www.srslight.com) / [sales@srslight.com](mailto:sales@srslight.com),



**LOAD CELL INTERFACE INSTRUCTION**

Buttons from left to right: ESC, DOWN, UP, OK. IF is in inverted position the UP/DOWN are swapped.

Quick access menu, press the button without enter to any MENU:

**Quick press:**

DOWN show MIN limit

UP show MAX limit

**Long press: more than 5s**

OK SLEEVE mode on/off

ESC TARE mode on/off

DOWN edit the MIN limit

UP edit the MAX limit

**Two button press for more than 2s:**

OK+ESC sleep mode on/off

UP+DOWN enter the MENU

## **10. EXE Rise D8+ Chain Hoist Use and Maintenance Manual**

# USE AND MAINTENANCE MANUAL

Chain hoist from 198kg to 5000kg



**EN** [ TRANSLATION OF THE ORIGINAL INSTRUCTIONS ]

This product is intended for professional use only.  
Read the entire document before installing, using and inspecting the machine.

Code: LT ACHMIS028  
Revision 05  
Date of issue 15/03/2024

All rights reserved. Partial reproduction of the content of this document and/or its transmission is not permitted without prior written authorisation and for the purposes permitted by law.  
Offenders will be liable for damages.

It has been verified that the contents of this document correspond to the machines described in it.

The information contained in this document is reviewed regularly and any changes deemed necessary will be included in the next revision.

Any suggestions are welcome for consideration and, if necessary, for integration into the next revision.

AREA FOUR INDUSTRIES ITALIA allows this document to be provided also in digital form, to be printed entirely and kept.

**ABBREVIATIONS:**

**AREA FOUR ITALIA S.R.L. in A4I ITALIA**

**RWM S.R.L. in RWM**

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## 1 PREFACE

This manual contains the information regarding use, maintenance and processing of faults and anomalies, providing indications for the most suitable behavior for the correct use and correct operation of the machine as foreseen by the manufacturer.

### 1.1 IDENTIFICATION

The instructions in this manual concern only the products of the EXE RISE electric chain hoists range listed below.



#### CAUTION

Before installing the EXE RISE electric chain hoist for the first time, the machine owner must fill in the following tables by referring to the information on the machine identification plate. These information shall be provided whenever the technical assistance and maintenance service is contacted and updated in case of change of ownership of the hoist.

#### MACHINE SPECIFICATIONS

Model	
Serial number	
Rated capacity (WLL)	
Voltage	
Date of first purchase	

#### OWNER INFORMATION

##### NUMBER 1:

Company Name	
Address	
Telephone number	
Date of Purchase	
Date of transfer	

##### NUMBER 2:

Company Name	
Address	
Telephone number	
Date of Purchase	
Date of Transfer	

##### NUMBER 3:

Company Name	
Address	
Telephone number	
Date of Purchase	
Date of Transfer	

BODY FRAME	RANGE	CAPACITY	TYPE	REEVE	CHAIN
MEDIUM FRAME ULTRA COMPACT	D8+	198kg	DC	1	5x15mm
		250kg			
	D8	198kg			
		250kg			
MEDIUM FRAME COMPACT	D8+	250kg	DC / LVC	1	5X15mm
		350kg			
	D8	198kg			
MEDIUM FRAME	D8+	198kg	DC / LVC	1	6x18mm
		250kg			
		500kg			
		250kg	SP		
		500kg			
LARGE FRAME	D8+	1000kg	DC / LVC	1	8x24mm
		2000kg		2	
EXTRA LARGE FRAME COMPACT	D8+	1600kg	DC / LVC	1	10x28mm
		3200kg		2	
EXTRA LARGE FRAME	D8+	2000kg	DC / LVC	1	11.3x31mm
		4000kg		2	
	D8	2500kg		1	
EXTRA EXTRA LARGE FRAME	D8+	2500kg	DC / LVC	1	13x36mm
		5000kg		2	

The D8 and D8 + prefixes relate to the intended use of the machine as specified in paragraph 1.5.3 of this operation and maintenance manual.

The DC and LVC suffixes indicate the type of electrical system on board the machine and are necessary to identify the relevant control system to be integrated.

The SP suffix indicates that the machine model is powered by single-phase current. All other models are powered by three-phase current.

Revisions to this operation and maintenance manual are listed in following table. The owner of the machine can check the latest revision by contacting EXE TECHNOLOGY personnel.

Rev. No.	Capitoli modificati	Amendments description	Date of issue
01	Entire manual	First issue	25/11/2019
02	Entire manual	Extra Large Frame integration	07/08/2020
03	Entire manual	Content Update	14/12/2020
04	Entire manual	Integrazione Medium Frame Compact	19/07/2022
05	Entire manual	Medium Frame Ultra Compact medium integration Small Frame removed	15/03/2024

## 1.2 Small Frame Delete

The operating and maintenance instructions have been compiled and provided by A4I ITALIA as the authorised representative of the manufacturer (RWM).



### **CAUTION**

**Please read this operation and maintenance manual before installing the machine**

The owner and the machine operator must read and understand these instructions before operating the machine. If you need clarifications about the instructions, please contact A4I ITALIA or RWM using the contact details in Section 1.3.



### **CAUTION**

**The operating instructions must always be available at the installation site and must be consulted before operating the machine.**

## 1.3 CONTACT DETAILS OF THE MANUFACTURER AND AUTHORISED REPRESENTATIVE

### **Manufacturer**

**RWM S.r.l.**

Via Bartolomeo Colleoni, 80/7  
36034 Malo (Vi) - Italy

Tel: +39 0445 637002

Email: [rwm@rwmitalia.com](mailto:rwm@rwmitalia.com)

### **Authorised representative**

**Area Four Industries Italia S.R.L.**

Via Martin Luther King, 70  
31032 Casale sul Sile (TV) - Italy

Tel: +39 0422 997300

Email: [info@exetechnology.com](mailto:info@exetechnology.com)

## 1.4 TERMINOLOGY

### **Secondary safety devices**

A secondary safety device is an additional, independent item of equipment capable of preventing the fall of the load.

### **Rated capacity (WLL - Working Load Limit)**

Maximum net load that the equipment is designed to lift, in a given configuration and in a defined load position, during its normal operation.

### **D8**

Electric chain hoist whose requirements are in accordance with the German regulation DGUV-54 (BGV-D8) concerning electric chain hoists for lifting loads in the construction and entertainment industry.

### **D8+ (D8 Plus)**

Electric chain hoist, whose requirements are in accordance with German Regulation DGUV-54 (BGV-D8) concerning electric chain hoists for lifting loads in the construction and entertainment industry, which can support static loads suspended above persons without secondary safety devices. The conditions of use of this type of hoists are contained in the SQ-P2 German Code of Practice, available on the website [www.igvw.org](http://www.igvw.org).

### **Motor controller**

Chain hoist control system which also serves as a power supply switchboard.

### **Operator**

Person who operates (manoeuvres) the controls of the lifting equipment.

### EXE TECHNOLOGY authorised person

An EXE TECHNOLOGY authorised person is a competent person who is formally authorised by RWM to perform extraordinary inspection and maintenance operations on EXE RISE machines.

### Authorised person

A competent person is a person with adequate theoretical and practical knowledge and experience to carry out their duties and supervise work activities, who is aware of the limits of their own skills and knowledge.

### Rigger

The rigger is a competent person specialized in the assembly and placement of suspension systems for the installation of machines for the operation of stage equipment.

## 1.5 INTENDED USE

EXE RISE electric chain hoists are machines for lifting and suspension of loads intended for the performing arts and entertainment sector.

In this sector, the lifting and suspension of loads mainly concern the assembly of structures and operation of installations.

EXE RISE electric chain hoists are machines designed for professional use and must only be used by competent personnel.

The areas of installation of such machines are not limited to theatres but include multi-purpose halls, exhibition halls, film, television and radio studios, concert halls, sports halls, schools, bars, nightclubs, outdoor stages and other places for shows and events.



### CAUTION

The hoist can be installed and used outdoors provided that it is suitably protected from the weather.

### 1.5.1 METHOD OF IMPLEMENTATION

EXE RISE electric chain hoists can be installed in two modes:

- Standard Mode (Body Up), that is with the body hook connected to the anchoring point and the Chain hook connected to the load to be handled, as shown in figure 1.1;
- Self Climbing Mode, that is with the chain hook connected to the anchoring point and the Body hook connected to the load to be handled, as shown in figure 1.1;



figure 1.1 – “Standard Mode and Self Climbing Mode”

## 1.5.2 SINGLE OR MULTIPLE LIFTING

EXE RISE electric chain hoists can be used individually or configured as a group for multiple lifts. A multiple lift must be carried out by means of EXE RISE electric chain hoists of the same model and capacity.



### **WARNING**

**Multiple lifting operations must be carried out only with sets of EXE RISE electric chain hoists.**

A multiple lift with electric chain hoists other than EXE RISE ones may cause unforeseen hazards not covered by the risk analysis of the machine.

Residual risks due to multiple lifting shall be assessed and minimised by additional protection measures including, but not limited to:

- calculation of suspended loads;
- using load cells;
- use of appropriate control systems;
- specific risk analysis and assessment.

## 1.5.3 D8 AND D8+ PREFIXES

Static suspension of loads with the presence of people in the danger zone may be carried out under the following conditions.

- With EXE RISE D8 series electric chain hoists, secondary safety devices are required to create an additional static load suspension system.
- With EXE RISE D8+ series electric chain hoists, secondary safety devices are not required, as specified in the reference procedure code IGVW SQP2:2018 and technical document EN 17206:2018 for UC1 and UC2 classes.

Any other use not included in the intended uses shall be prohibited, unless the machines - as a group, constituting an additional set of machines - are supplemented with sufficient safety devices or additional protections to permit a change of use.

In the case of a change in use, the manufacturer of the set of machines shall declare the compliance of the new machine.

In case of any doubts or queries please check with the manufacturer and/or authorised representative whether a particular use complies with the intended ones.



### **DANGER**

**The intended use of EXE RISE D8 and D8+ electric chain hoists does not include the movement of loads with the presence of people in the danger zone, for example, movements above people.**



### **WARNING**

**EXE RISE D8 and D8+ electric chain hoists cannot be used to move people.**



### **WARNING**

**A multiple lifting system with D8+ hoists shall be equipped with an automatic load detection device and an automatic stop of all moving machinery in the event of overload.**

## 1.6 MECHANICAL CLASSIFICATION

Based on the mechanical classification (which is reported on the plate data), the electric chain hoists can be used for the times and methods established by the aforementioned standards. The maximum number of hours worked allowed in 10 years is also imposed by them.

In the following figure, all the features and operating modes are detailed.

### VERTICAL MOVEMENTS

ISO 4301	FEM 9.511	DUTY FACTOR OF MOTOR	MINUTES PER HOUR		STARTS PER HOUR	HOUR PER DAY	HOUR / 10 YEARS Bearing Time
				<i>Uniformly Distributed Work Period</i>			
M1	1Dm	15%		9	90	≤ 0,25	400
M2	1Cm	20%		12	120	≤ 0,5	800
M3	1Bm	25%		15	150	≤ 1	1600
M4	1Am	30%		18	180	≤ 2	3200
M5 (*)	2m	40%		24	240	≤ 4	6300
M6 (**)	3m	50%		30	300	≤ 8	12500

(\*) SMALL MEDIUM AND LARGE FRAME

(\*\*) EXTRA LARGE FRAME

RATE OF LOADING	Average time of supposed daily operation $T_m$ (hour)	ISO FEM	to 0.25	from 0.25 to 0.5	from 0.5 to 1	from 1 to 2	from 2 to 4	from 4 to 8	from 8 to 16
			to 400	to 800	to 1600	to 3200	to 6300	to 12500	to 25000
<b>LIGHT</b>	<i>When normally working with approx. 1/3 of W.L.L. and rarely with W.L.L.</i>		--	M1 1Dm	M2 1Cm	M3 1Bm	M4 1Am	M5 2m	M6 3m
<b>MEDIUM</b>	<i>When normally working with approx. 1/3 to 2/3 of W.L.L. and sometime W.L.L.</i>		M1 1Dm	M2 1Cm	M3 1Bm	M4 1Am	M5 2m	M6 3m	M7 4m
<b>HEAVY</b>	<i>When normally working with approx. to 2/3 of W.L.L. and often with W.L.L.</i>		M2 1Cm	M3 1Bm	M4 1Am	M5 2m	M6 3m	M7 4m	M8 5m
<b>VERY HEAVY</b>	<i>When normally working with W.L.L. or near W.L.L.</i>		M3 1Bm	M4 1Am	M5 2m	M6 3m	M7 4m	M8 5m	--

## 1.7 WARRANTY

The performance of EXE RISE electric chain hoist is checked and verified by A4I ITALIA /RWM before shipping. The manufacturer or their authorised representative shall ensure that the machine is free from defects in material and workmanship at the time of dispatch.



### **WARNING**

**Upon receipt of the goods, it is necessary to carry out quantitative and qualitative checks. In the presence of missing or damaged items in the shipment, this must be reported in writing to A4I ITALIA and on the shipping documents upon arrival.**

A4I ITALIA/RWM shall repair and replace under warranty of the EXE RISE electric chain hoists that prove to be defective upon inspection by its personnel.

The warranty lasts 12 months from the date of delivery stated on the documentation certifying the purchase of new machines.

Warranty repairs do not renew or extend the warranty period.

Warranty replacements and repairs are carried out only on EXE RISE electric chain hoists used as intended and subjected to proper inspection and maintenance as specified in this manual.

Warranty replacements and repairs do not affect the consumables of the machine, such as:

- |                   |               |              |                  |
|-------------------|---------------|--------------|------------------|
| - Electric Cables | - Clutch Disc | - Load chain | - Chain Stop     |
| - Guide Plate     | - Chain Guide | - Chain hook | - Brake Assembly |
| Outer Chain       | Inner         | Body Hook    |                  |

In addition, warranty replacements and repairs do not include:

- transport damage;
- negligent handling;
- connection to voltages other than those recommended in this manual;
- chemical or abrasive actions;
- overload, eccentric or lateral load;
- excessive heat and outdoor use without appropriate measures;
- malfunction or defect due to the use of non-original parts;
- exceeding FEM class operating times.

A4I ITALIA /RWM competent technician reserves the right to assess replacements and warranty repairs concerning electrical parts.

The warranty does not include the cost of transporting the goods and/or travel expenses for A4I ITALIA /RWM authorized personnel to perform on-site repairs, barring different commercial agreements entered into at the time of purchase.

## 2 SAFETY INFORMATION

### 2.1 SYMBOLOGY

This operation and maintenance manual contains the following symbols to highlight safety information on residual risks:



#### CAUTION

Used with the safety warning symbol, it indicates a potentially dangerous situation which, if not avoided, may cause minor or moderate injury.



#### WARNING

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



#### DANGER

Indicates a situation of imminent danger that, if not avoided, will cause serious injury or death.

### 2.2 SAFETY SIGNS

The following safety signs (pictograms) are applied to the EXE Rise electric chain hoist:



#### Title / Meaning / Referent:

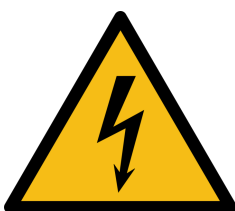
Do not use this lift for people

#### Description of the function:

To prohibit the use of the lift for the transportation of people

#### Image content:

Human figure (front view) in a rectangle, short arrows above and underneath the rectangle



#### Title / Meaning / Referent:

Warning; Electricity

#### Description of the function:

To warn of electricity

#### Image content:

Lightning bolt

### 2.3 SAFETY INSTRUCTIONS FOR INSTALLATION

- Before installing the machine, perform the pre-use checks as defined in section 6.3; if these checks fail, do not use the hoist.
- Ensure that there is no unauthorized personnel in the installation area, and allow access to it only to persons who are informed about exposure to the risks arising from the installation and handling of suspended loads.
- Before installation, check that the lifting and set up operations for the suspended loads have been properly designed and planned.
- Before installation, check that the anchoring points and/or their suspension points have been properly dimensioned in relation to the rated capacity of the machine and/or the actual suspended loads in use.
- During installation always wear the following PPE in addition to those required for any interference with other activities: safety shoes, gloves, helmet and high visibility clothing.
- Install hoists that have been subject to regular inspection and maintenance as defined in these instructions.



**WARNING**

The operating instructions must always be available at the installation site and must be consulted before operating the machine.



**WARNING**

The control system must be installed by competent personnel.

## 2.4 OPERATING SAFETY INSTRUCTIONS



**CAUTION**

Always make sure that there is good communication between operator, installers and rigger.

- Before connecting the control system, make sure that it is compatible with EXE RISE electric chain hoists. See chapter 5 for more details.
- EXE RISE electric chain hoists are compatible with the following control systems:
- - The use of EXE RISE electric chain hoists with control systems other than those indicated above could compromise the outcome of the manufacturer's or authorised representative's risk analysis.
  - EXE DHx
  - EXE XDDBx
  - EXE XDDCx
  - EXE XDDLx
  - EXE XNDLxS
  - EXE XDDWx



**WARNING**

The use of EXE RISE electric chain hoists with control systems other than those indicated above could compromise the outcome of the manufacturer's or authorised representative's risk analysis.

- EXE RISE electric chain hoists may be integrated with control systems other than those specified above provided that a further risk analysis is completed to cover and analyse the additional risks arising from the integration of EXE RISE electric chain hoists with other control systems.  
Following further risk analysis, additional protection measures must be implemented.



**WARNING**

The control system must be installed by competent personnel.

- Disconnect the power and control plug before carrying out any inspection, maintenance or repair operations.
- When replacing the chain bag and its carabiners or quick links, a competent person shall assess their compatibility with the hoist and with the characteristics set out in these instructions.

## 2.5 SAFETY INSTRUCTIONS FOR USE



### DANGER

**Always check that the necessary safety conditions are met before carrying out the lifting operations.**

- Protect the hoist and its components from corrosive chemicals, inclement weather, heat sources and open flames (e.g. fireworks).
- Attach the suspended load to the Chain hook of the hoist by means of lifting accessories and/or suspension points integrated into the load itself.
- Before lifting the suspended load, make sure that it is firmly placed in the saddle of the hoist hook.
- In case of use of hoists with double chain fall (multiple chain lengths) check that the chain is not twisted; if applicable, rotate the pulley-hook block until the twist is completely removed.
- Before moving the load, notify the personnel in the area of installation and set up of suspended loads.
- Limit "bumping" operations, i.e. repeatedly starting and stopping the machine to adjust the position of the EXE RISE hoist.
- The lifting operation must be planned and analysed before moving the load; lifting operations can generate additional hazards during the installation phases.
- To operate EXE RISE electric chain hoists in multiple lifting mode, the additional hazards listed in table below shall be considered and appropriately reduced.

Type	Consequence	Origin
Mechanical	Crushing	Failure of lifting accessories
Mechanical	Entanglement	Entanglement with suspended load
Electric	Electrocution	Electrocution by equipment
Involuntary	Shock	Starting the machine without the presence of the operator
Involuntary	Crushing	Failure to control speed and position
Involuntary	Crushing	Malfunction of control software
Involuntary	Crushing	Security measures ignored or bypassed
Misuse	Shock	Use of the system by an unauthorized person

The additional protection measures to be implemented must:

- Be of solid construction.
- Be safely installed.
- Not be the source of further hazards.
- Not be easy to ignore, bypass or render ineffective.
- Be located at an appropriate distance from the danger zone.
- Not impede the operator's view.
- Allow the normal installation and operating procedures of EXE RISE electric chain hoists, ideally without having to remove such protections.



### WARNING

**The list of hazards is not exhaustive, and includes only the minimum hazards to be considered.**

- Once the suspended load reaches the operating position it is necessary to install secondary safety devices if required by the intended use of the hoist and/or by local regulations.
- When the whole chain is collected in the bag, at the last one quarter of it must be empty so as to prevent the chain from accidentally falling out.
- Ensure that the chain stop does not come into contact with the machine frame; in case of accidental contact, operate the hoist by reversing the direction of travel so as to remove the stop from the body.
- Remove secondary safety devices before lowering suspended loads.

## 2.6 PROHIBITIONS

- DO NOT move the hoist by handling it from the power and/or control cable.
- DO NOT operate the hoist if the power and/or control cable and relative cable glands are damaged.
- DO NOT install and use the hoist in explosive atmospheres.
- Do not install and use the chain hoist outside if not protected by the weather.
- DO NOT install and operate the hoist in environments with a temperature below -10°C or above 40°C.
- DO NOT move and/or use suspended loads greater than the rated capacity of the hoist; in case of doubt have the actual load in use checked by a competent person.
- DO NOT pull the suspended load diagonally or drag it across surfaces.
- DO NOT move the suspended load if the chain is twisted.
- DO NOT alter and/or install accessories to the hoist if these are not provided for by the manufacturer or authorised representative.
- DO NOT operate the hoist if the operator does not have a clear view of the machine and the loads to be moved.
- DO NOT move persons with EXE RISE D8 and D8+ electric chain hoists as it is forbidden by the manufacturer/authorised representative.
- DO NOT install lifting accessories in the hook saddle whose dimensions are not sufficient to fit on the axis of the chain.
- DO NOT connect the hoist plug directly to a power outlet but use a control system that meets the minimum requirements as specified in these instructions.
- DO NOT install the hoist in a position where the chain, hoist frame and chain bag can come into contact with external bodies.
- DO NOT use the hoist chain to harness the suspended load or to perform operations other than vertical lifting.
- DO NOT approach the moving chain so as not to be exposed to the risk of entanglement and/or dragging.

### 3 MACHINE DESCRIPTION

#### 3.1 GENERAL OVERVIEW

EXE RISE chain hoists models differ according to:

1. intended use of the machine;
2. rated lifting capacity in kg;
3. electrical equipment;
4. configuration of safety components and accessories.

The various models are codified following the format:

**LT XRH + A + B + CCC + DDD + EE + F**

- LT** Prefix indicating the company of the authorised representative A4I ITALIA (ex LITEC)
- XRH** Prefix indicating the "EXE RISE electric chain hoist"
- A** The version of the model - increasing number: 1 – 2 – 3 – 4 .....etc
- B** Type of electrical equipment and possible limit switches

BODY FRAME	PREFIX	CONTROL TYPE	LIMIT SWITCH
MEDIUM ULTRA COMPACT	D	Direct	NA
	E		RWM 30m
MEDIUM COMPACT	D	Direct	RWM 30m
	E		NA
	K	Low Voltage	RWM 30m
	L		NA
MEDIUM	D	Direct	RWM 30m
	E		NA
	K	Low Voltage	RWM 30m
	L		NA
	F		Single phase
LARGE	D	Direct	NA
	E		RWM 60m
	L	Low Voltage	TER 50m
	M		TER 30m
	N		RWM 60m
	O		RWM 40m
EXTRA LARGE FRAME	E	Diretto	RWM 90m
	G		STR 60m
	L	Low Voltage	RWM 90m

<b>CCC</b>	Nominal lifting capacity	<b>020</b> =198kg	<b>035</b> =350kg	<b>075</b> =750kg	<b>160</b> =1600kg	<b>250</b> =2500kg	<b>400</b> =4000kg
		<b>025</b> =250kg	<b>050</b> =500kg	<b>100</b> =1000kg	<b>200</b> =2000kg	<b>320</b> =3200kg	<b>500</b> =5000kg
<b>DDD</b>	Chain hoist series	<b>DB-</b> D8 with SF 5:1		<b>XB-</b> D8 with SF 5:1 - 2 brakes			
		<b>S8-</b> D8 with SF 8:1 - 2 brakes		<b>X8+</b> D8+ with SF 8:1			
		<b>D8+</b> D8+ with SF 8:1					
<b>EE</b>	Meters of loading chain in meters						
<b>F</b>	Size of the chain bag:	<b>XS</b> Extra Small		<b>M</b> Medium	<b>XL</b> Extra Large		
		<b>S</b> Small		<b>L</b> Large	<b>XXL</b> Extra Extra Large		



**WARNING**

Perform changes and/or install accessories to the chain hoist only if these are provided by the manufacturer or its agent. Use only original spare parts.

EXE RISE electric chain hoists are marked and identified by the unique serial number printed on the frame and on the machine identification plate. In addition to the serial number, the marking includes also month and year of construction in the MM/YY format, as shown in figure 3.1.

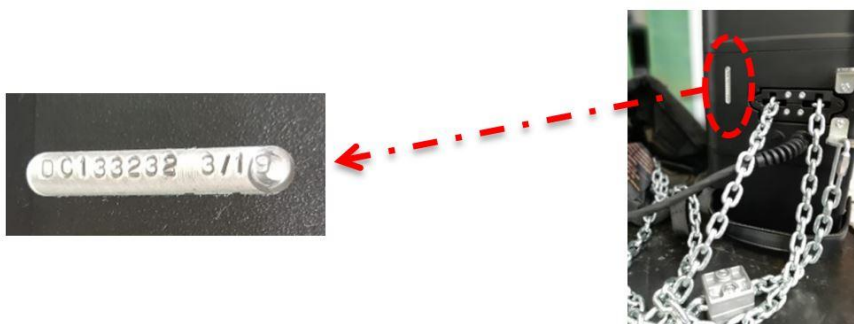


figure 3.1 – "Serial number and year of construction"

The identification plaque of the machine is a legible and indelible aluminum plate (Figure 3.2) which reports in English (translations in other languages below) the following information:

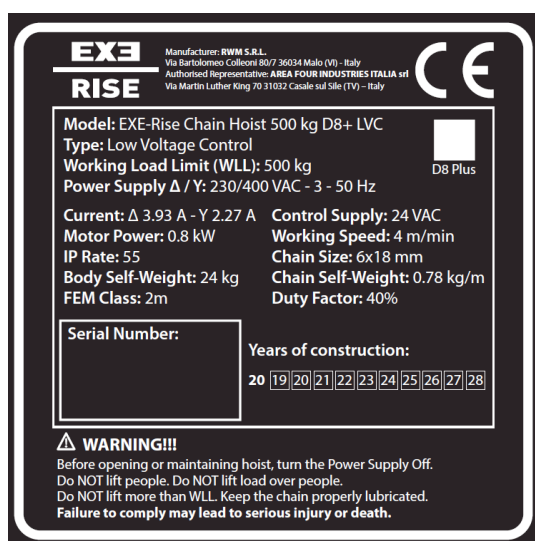


figure 3.2 – "Machine identification plate"

- Name and address of the manufacturer and his authorized representative.
- Model, series and type name of the EXE Rise chain hoist
- Load capacity, voltage and current.
- Motor power and rated speed.
- Classe FEM, IP RATE e Duty Factor.
- Size of the chain and its weight per meter.
- Body weight.
- Serial number and year of construction.
- CE marking.

### 3.2 DESCRIPTION OF THE COMPONENTS

EXE RISE electric chain hoists consist of several components detailed in figure 3.3 and described.

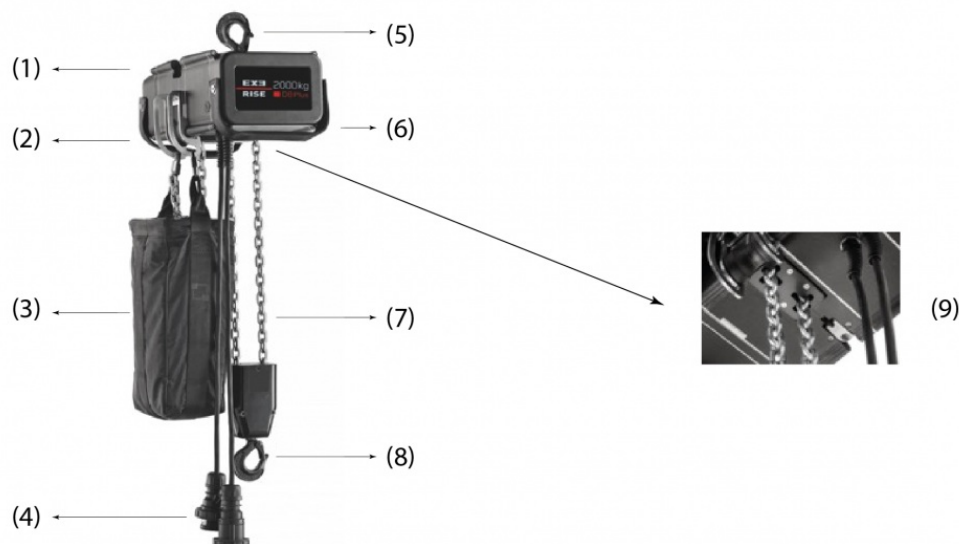


figure 3.3 – "Components of an EXE RISE electric chain hoist"

Num	Component name	Component description
(1)	Body	The body (frame) is made of aluminium alloy. The finish is non-reflective matte black. Excellent corrosion resistance.
(2)	Chain Bracket	The bracket is made of steel and has grooves for positioning the chain bracket in both modes of use.
(3)	Chain bag	Sacca catena in cloruro di polivinile (65% PVC – 35% poliammine), tessuto con classe di reazione al fuoco E.
(4)	Plug and socket	Black plugs and sockets with IP RATE 66/67.
(5)	Body Hook	Alloy steel swivel hook with spring-loaded safety latch locked with a nut welded onto a plate.
(6)	Handles	Handles usable in both modes.
(7)	Load Chain	The chain is in grade 80 steel, DAT type and RTS quality and complies with the harmonized EN DIN 818-7 standard.
(8)	Chain Hook	Alloy steel swivel hook with spring-loaded safety latch, locked with a roll pin in a metal block.
(9)	External Chain Guide Plate	PVC plate for all models but the small and extralarge frame, which are made in aluminium.

### 3.3 LOAD CHAIN

The chain installed on EXE RISE chain electrical paranchi is in galvanized grade 80 tied steel, DAT type and RTS quality type and complies with the harmonized standard EN DIN 818-7.

Depending on the EXE RISE electric chain hoist model, different size of chain are used:

The same EXE RISE electric chain hoist model can be equipped with different chain lengths.

All the size and technical specifications of the chains are listed below as referred in figure 3.4.

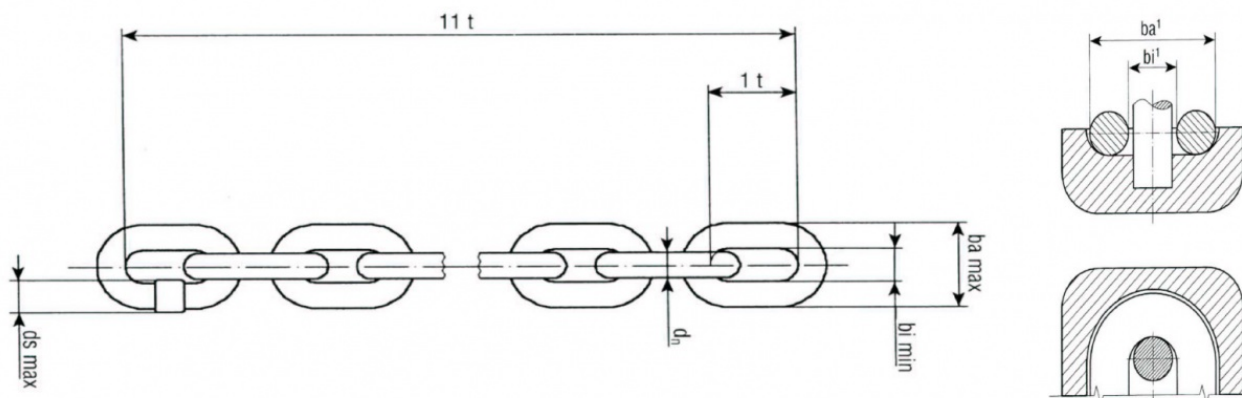


figure 3.4 – "Chain diagram"

Each chain length is identified by an indelible and +E400:E414legible mark at regular intervals on the chain's links, which includes (see figure 3.5):

- Manufacturer's name;
- Batch number;
- Fabrication number;
- Type of execution;
- Quality designation;
- Regulatory company test stamp.

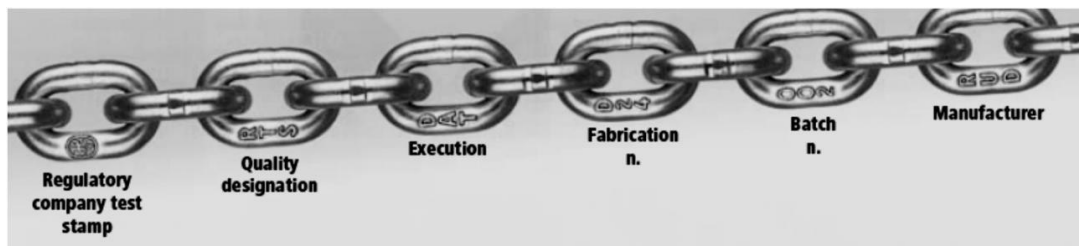


figure 3.5 – "Chain markings"

The free end of the chain is attached to the chain bag bracket through a dedicated bracket, allowing it to position correctly according to the hoists mode of use (standard or self-climbing).

The last link of the chain is attached to the chain bag bracket by means of carabiners complying with DIN 56927 or DIN 5299 standards or equivalent. These carabiners report the working load limit (WLL). The size and technical characteristics are given in figure 3.6.

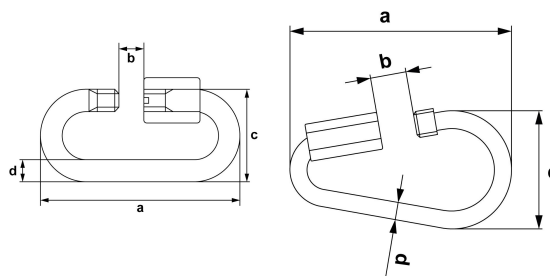


figura 3.6 – "End chain-chain bag bracket carabiners"

Code	Chain size	WLL	d	c	Weight
LT CHB042	5x15mm	90kg	4.0mm	5.5mm	12g
LT CHB037	6x18mm 8x24mm	140kg	5.0mm	10mm	25g
LT CHB004	10x28mm 11.3x31mm 13x36mm	250kg	6.0mm	13mm	47g



**DANGER**

The carabiner must be positioned and oriented in such a way that the closure is carried out by screwing the nut downwards.

### 3.4 HOOKS AND DELTA PLATE

The hoist hooks are made of alloy steel and are categorised as body hook and chain hook.

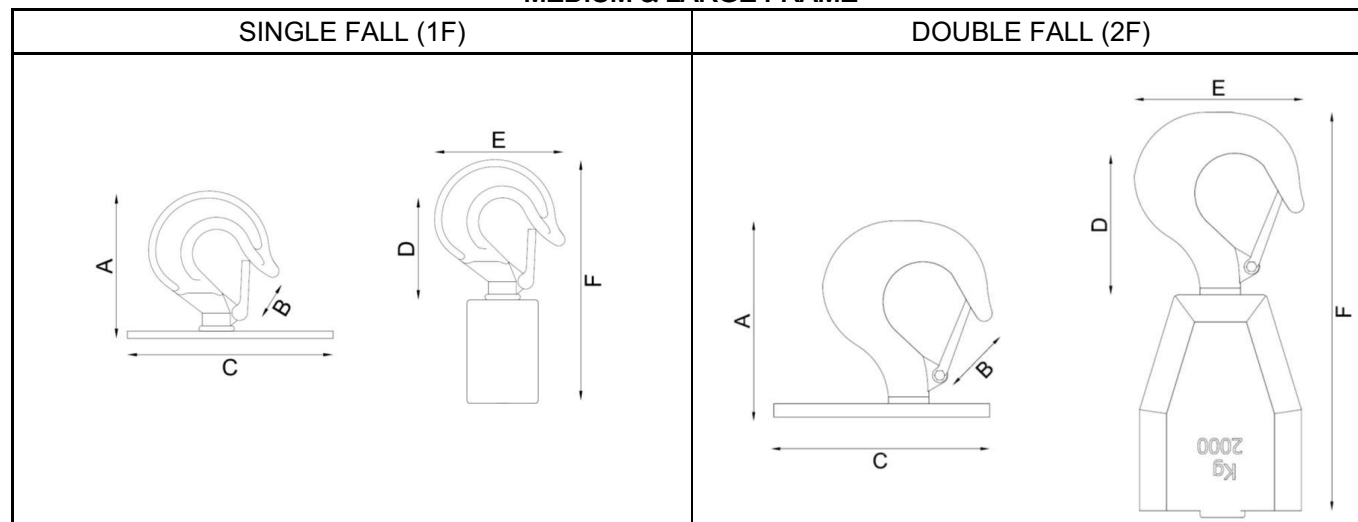
Both types of hooks are swivel, and are equipped with an automatic closing latch that prevents the load from disconnecting accidentally.

Delta Plate are used by default on all extra large frames models as an alternative to swivel bodyso hooks. They are made in high resistance steel.

The types of Chain hook and body hook, and therefore their sizes, differ depending on the hoist model.

Listed below, the dimensions and technical specifications of both chain and body hook for each EXE RISE chain hoist model, referring to figure 3.7. The corresponding product codes are listed in Chapter 11 of this operation and maintenance manual .

#### MEDIUM & LARGE FRAME



**EXTRA LARGE FRAME**

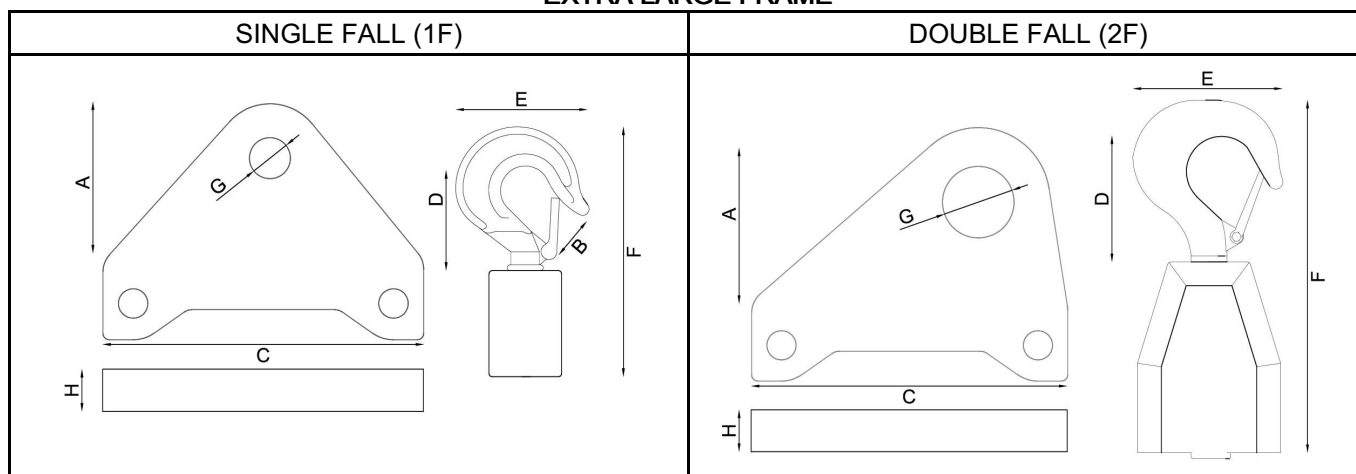


figure 3.7 – "Body/chain hook diagram"



**DANGER**

Each hook type CANNOT be used as a mechanical limit switch.



**WARNING**

The working load limit (WLL) is not the one embossed on the hook, but is shown on the chain hook bottom block as shown in figure 3.8.



Listed below, the dimensions and technical specifications of both chain and body hook for each EXE RISE chain hoist model, referring to figure 3.7. The corresponding product codes are listed in Chapter 11 of this operation and maintenance manual .

Frame	[kg]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]
Medium	1250 (SF 4)	95	18	143	64	73	153	-	-
Large (1F)	2500 (SF 4)	112	24	143	72	92	177	-	-
Large (2F)	5400 (SF 4)	154	33	143	97	122	296	-	-
Extra Large (1F) 10x28mm	5400 (SF 4)	131	33	265	97	122	233	34	25
Extra Large (1F) 11.3x31mm	5400 (SF 4)	131	33	265	97	122	233	34	35
Extra Large (1F) 13x36mm	5400 (SF 4)	131	33	265	97	122	233	34	35
Extra Large (2F) 10x28mm	8000 (SF 4)	131	41	265	?	155	?	34	35
Extra Large (2F) 11.3x31mm	8000 (SF 4)	131	?	265	?	155	?	34	35
Extra Large (2F) 13x36mm	11500 (SF 4)	131	?	265	?	192	?	34	35

The Body/Chain hook codes are given in Chapter 11 of this operation and maintenance manual.

### 3.5 CHAIN BLOCK

The chain block, represented in figure 3.9, is built with a shockproof material. It is inserted at the end of the chain, to prevent the chain from accidentally running out of the chain hoist.

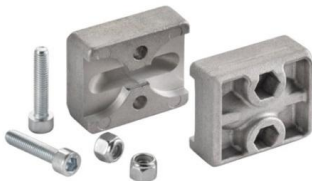


figure 3.9 – "Chain stop"

The chain stop shall be installed at a distance of 11 links from the end of the chain so as to have a sufficient length of chain to check for wear and deformation during inspection and maintenance operations.

The Body/Chain hook codes are given in Chapter 11 of this operation and maintenance manual.



#### CAUTION

The chain stop is a mechanical device to prevent the load chain from falling out from the hoist body, but should not be used as a mechanical limit switch.

### 3.6 EXTERNAL CHAIN GUIDE

The external chain guide plate is located at the point where the chain enters / exits out to protect both the chain itself and the inner chain guide, and is secured to the frame by means of screws.

The EXE RISE Extra Large Frame chain hoist are equipped with an aluminum plate, while Medium and Large Frame chain hoist are equipped with a special PVC plate to prevent wear and jams of the chain, as depicted in figure 3.10.

#### MEDIUM FRAME



#### LARGE FRAME



#### EXTRA LARGE FRAME



figure 3.10 – External chain guide plate

The Body/Chain hook codes are given in Chapter 11 of this operation and maintenance manual.

### 3.7 CHAIN BAG

The EXE RISE electric chain hoist are equipped with Nylon 840 - PVC coated chain bag. The chain bag is available in 8 different dimensions (S-, S, M, L+, XL, XXL and XXXL) depending on the size and length of the chain of which the chain hoist is equipped.



#### WARNING

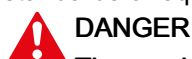
When the whole chain is collected in the bag, at the last one quarter of it must be empty so as to prevent the chain from accidentally falling out.

Following the dimensional and technical specifications of the chain bags, as well as the maximum meters of chain allowed in order not to exceed the 75% or 65% capacity of the chain bag.

Code	Size	Weight [kg]	A [mm]	B [mm]	C [mm]	Meters of chain
LT CHB059	S-	≈0.75	20	17	17	Ø5-6/12m @75%
LT CHB024	S	≈1.00	20	17	34	Ø5-6/25m @75% - Ø8/12m @75%
LT CHB025	M	≈1.00	20	17	42	Ø5-6/40m @75% - Ø8/25m @75%
LT CHB026	L	≈1.00	20	17	58	Ø5-6/65m @75% - Ø8/40m @75%
LT CHB051	L+	≈1.00	27	21	55	Ø8/50m @75% - Ø10-11.3/20m @65%
LT CHB028	XL	≈1.00	27	21	65	Ø8/70m @75% - Ø10-11.3/30m @65%
LT CHB056	XXL	≈1.50	20/20	25/40	80	Ø10-11.3/50m @65% - Ø13/40m @65%
LT CHB058	XXXL	≈10.00	20/20	20/40	125	Ø10-11.3/80m @75% - Ø13/60m @75%

The chain bag is attached to the frame of the hoist (body) through a special bracket. Positions the bag correctly depending on the hoists orientation (body up or body down).

The bag is attached to the bracket by means of 2 quick link carabiners compliant with DIN 56927 or DIN 5299 standards or equivalent. These carabiners report the working load limit (WLL).



**DANGER**

The carabiner must be positioned and oriented in such a way that the closure is carried out by screwing the nut downwards.

The size and technical characteristics are given, referring to figure 3.11.

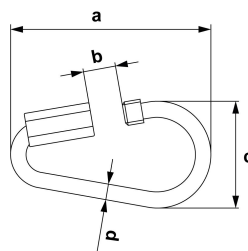


figure 3.11 – "Pear-shaped chain link"

Code	WLL [kg]	SF	a [mm]	b [mm]	c [mm]	d [mm]	Weight [g]	Frame
LT CHB004	250	5	77.3	41	13	6	47	Medium Large
LT CHB055	250	10	77.5	43	14	7	89	Extra Large



**WARNING**

When replacing the chain bag and its carabiners or quick links, a competent person shall assess their compatibility with the hoist and with the characteristics set out in these instructions.

### 3.8 External power and control cables with plugs or socket

The external power cables are:

- 4 x 1.5 mm<sup>2</sup> with EEC 16A 6h 400VAC 3PH+E plug for Small and Medium Frame
- 4 x 2.5 mm<sup>2</sup> with EEC 16A 6h 400VAC 3PH+E plug for Large and Extra Large Frame

For LVC type models with low voltage control system the additional external cables are:

- 4 x 1.5 mm<sup>2</sup> with EEC 16A 4h 24VAC 3PH+E socket for Small and Medium Frame
- 4 x 2.5 mm<sup>2</sup> with EEC 16A 4h 24VAC 3PH+E socket for Large and Extra Large Frame

The power and control sockets are made of Polyamide 6 and/or PC / ABS material with IP66/67 protection rating. They're both black as shown in figure 3.12.



figure 3.12 – "Plugs and sockets"

The wiring of the plug (direct control and low voltage) and the socket (low voltage only) is made according to the following standard sequence:

PLUG (DC/LV)				SOCKET (LVC)			
L1	R	U	Brown	L1	Brown	Up	
L2	S	V	Black	L2	Grey	Down	
L3	T	W	Grey	L3	Black	Common 24 VAC	
PE			Yellow - Green	PE	Yellow - Green	Earth	



**DANGER**

When using extension cables EEC 16A 6h 400VAC - 3PH + E (power cable) and/or EEC 16A 4h 24VAC 3PH+E (control cable) is it necessary to ensure the electrical connections have been realized properly and respecting for each pole of plug and socket a pin-to-pin connection (L1-L1, L2-L2, L3-L3, PE-PE). If the wiring has not been done correctly, the electric chain hoist will not work as intended.

### 3.9 LIMIT SWITCHES

The EXE RISE models of the LVC type with low voltage control system are equipped by default with 2 or 2+2 positions limit switches as shown in Figure 3.13.

The Exe Rise Models of the DC type with direct control can be equipped with 2 or 2+2 positions limit switch as shown in figure 3.13. Extra Large Frame models are equipped with limit switch by default.

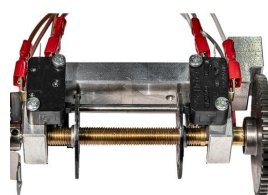


figure 3.13 – "2 position limit switches"

These devices are set when the hoist is assembled in the factory with a tolerance of 3-5 cm, depending of the length of the chain. The factory setting is detailed in figure 3.14.

**STANDARD UP**  
(Brown cable)  
Between the 9th and 10th ring  
from the chain hook



**ULTIMATE/EXTRA UP**  
Only 2+2 positions  
(Brown cable)  
Between the 3rd and 4th ring  
from the chain hook

**STANDARD DOWN**  
(Gray cable)  
At the 21st ring  
from the end of the chain

**ULTIMATE/EXTRA DOWN**  
Only 2+2 positions  
(Gray cable)  
At the 16th ring  
from the end of the chain

*figure 3.14 – “Settings for 2 and 2+2 position limit switches”*



**WARNING**

The limit switch on the EXE Rise chain hoist on low voltage control, can be re-adjusted only by EXE Technology authorized personnel.



**DANGER**

The limit switches on EXE Rise Direct Control hoists can subsequently be adjusted only by EXE TECHNOLOGY authorized personnel

## 4 TECHNICAL INFORMATION

### 4.1 TECHNICAL DATA EXE RISE SF8 AND 1 FALL

	Ultra Med Compact	Medium Compact	Medium	Large	Extra Large Compact	Extra Large	Extra Extra Large
Serie	D8 o D8+	D8 o D8+	D8+	D8+	D8+	D8+	D8+
Tipo	DC o LVC						
WLL [kg]	198 / 250	198 / 250	500	1000	1600	2000	2500
Frequenza	50Hz / 60Hz						
Velocità	4m/min / 4.8m/min						
Potenza	0.5 kW	0.5 kW	0.8 kW	1.0 kW	2.0 kW	2.0 kW	2.5 kW
3ph Tensione Δ/Y	230/400VAC						
3ph Corrente Δ/Y	2.70A / 1.56A	2.94A / 1.70A	3.93A / 2.27A	4.62A / 2.67A	9.9A / 5.7A	9.9A / 5.7A	12A / 7A
Giri al minuto	1400	1400	1400	1400	1400	1400	1400
Δ -Alimentazione(*)	CEE 16A 9h 230VAC – 3 + G						
Δ -Alimentazione(*)	CEE 16A 6h 400VAC – 3PH + G						
Numero di freni	1 o 2	1 o 2	2	2	2	2	2
Taglio del Freno DC	6	6	6	8	10	12	12
Potenza Freno DC	20 W	20 W	20 W	25 W	30 W	40 W	40 W
Tensione Freno DC	103 VDC	103 VDC	103 VDC	103 VDC	103 VDC	103 VDC	103 VDC
Coppia nominale DC	4 Nm	4 Nm	4 Nm	8 N	16 Nm	32 N	32 Nm
Rid. coppia nom. (velocità x %)	87% (1500 r/min)	87% (1500 r/min)	87% (1500 r/min)	85% (1500 r/min)	83% (1500 r/min)	81% (1500 r/min)	81% (1500 r/min)
Interfero freno DC	0.2 mm	0.2 mm	0.2 mm	0.2 mm	0.2 mm	0.3 mm	0.3 mm
Peso proprio	17 kg	23.5/23 kg	24 kg	43 kg	110 kg	123 kg	123 kg
Alim. Controllo (LVC)	CEE 16A 4h 24VAC – 3PH + G						
Finecorsa	2 o 2+2 position						
Classe Fem	2m	2m	2m	2m	3m	3m	2m
Fattore Duty	40%	40%	40%	40%	50%	50%	40%
Start per Ora	240	240	240	240	300	300	240
Tempo di vita/10 years	6300 h	6300 h	6300 h	6300 h	12500 h	12500 h	6300 h
Tipo di Catena	Acciaio zincato grado 80						
Taglia Catena	4x12 mm	5x15 mm	6x18 mm	8x24 mm	10x28 mm	11.3x31 mm	11.3x31 mm
Peso proprio Catena	0.35 kg/m	0.54 kg/m	0.78 kg/m	1.39 kg/m	2.24 kg/m	2.85 kg/m	2.85 kg/m
Max metri Catena	32 m	65 m	65 m	50m standard 70m speciale	70 m	70 m	50 m
IP Rate	55						
Classe isolamento	F						
Noce di carico	5 sacche						
Livello del rumore	67.5 dB						

## 4.2 TECHNICAL DATA EXE RISE SF8 AND 2 FALL

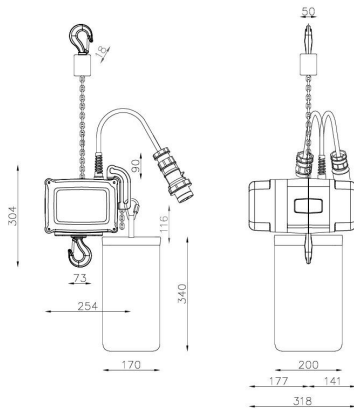
	Large Frame	Extra Large Compact	Extra Large	Extra Extra Large
Serie	D8+	D8+	D8+	D8+
Tipo	DC o LVC			
WLL [kg]	2000	3200	4000	5000
Frequenza	50Hz / 60Hz			
Velocità	4m/min / 4.8m/min	2m/min / 2.4m/min		
Potenza	1.6 kW	2.0 kW	2.0 kW	2.5 kW
3ph Tensione Δ/Y				
3ph Corrente Δ/Y	Δ 8.37 A – Y 4.83 A	9.9A / 5.7A	9.9A / 5.7A	12A / 7A
Giri al minuto	1400	1400	1400	1400
Δ -Alimentazione(*)	CEE 16A 9h 230VAC – 3 + G			
Δ -Alimentazione(*)	CEE 16A 6h 400VAC – 3PH + G			
Numero di freni	2	2	2	2
Taglio del Freno DC	10	10	12	12
Potenza Freno DC	30 W	30 W	40 W	40 W
Tensione Freno DC	103 VDC	103 VDC	103 VDC	103 VDC
Coppia nominale DC	16 Nm	16 Nm	32 N	32 Nm
Rid. coppia nom. (velocità x %)	83% (1500 r/min)	83% (1500 r/min)	81% (1500 r/min)	81% (1500 r/min)
Interferro freno DC	0.2 mm	0.2 mm	0.3 mm	0.3 mm
Peso proprio	45 kg	110 kg	123 kg	123 kg
Alim. Controllo (LVC)	CEE 16A 4h 24VAC – 3PH + G			
Finecorsa	2 o 2+2 position			
Classe Fem	2m	3m	3m	2m
Fattore Duty	40%	50%	50%	50%
Start per Ora	240	300	300	300
Tempo di vita/10 years	6300 h	12500 h	12500 h	12500 h
Tipo di Catena	Acciaio zincato grado 80			
Taglia Catena	8x24 mm	10x28 mm	11.3x31 mm	11.3x31 mm
Peso proprio Catena	1.39 kg/m	2.24 kg/m	2.85 kg/m	2.85 kg/m
Max metri Catena	50 m staffa standard 70 m staffa speciale	70 m	70 m	50 m
IP Rate	55			
Classe isolamento	F			
Noce di carico	5 sacche			
Livello del rumore	67.5 dB			

## 4.3 DRAWINGS AND DIMENSIONS

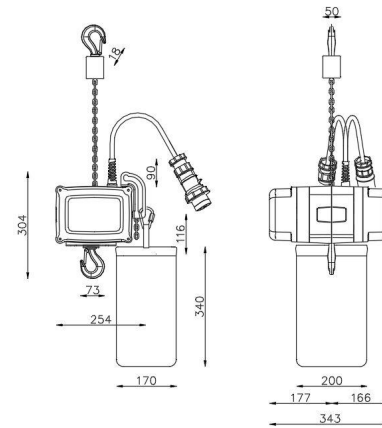
Below are the drawings of all the models of the EXE RISE electric chain hoists showing the main prices, in order to understand their size. The measurements are all expressed in millimeters [mm].

The models of EXE RISE electric chain hoists represented in the drawings are low voltage control. Direct control models have only one cable (instead of 2).

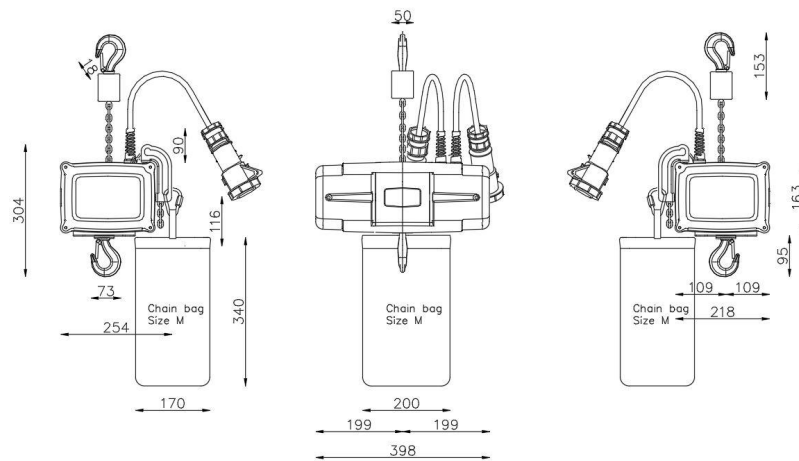
**MEDIUM FRAME ULTRA COMPACT**



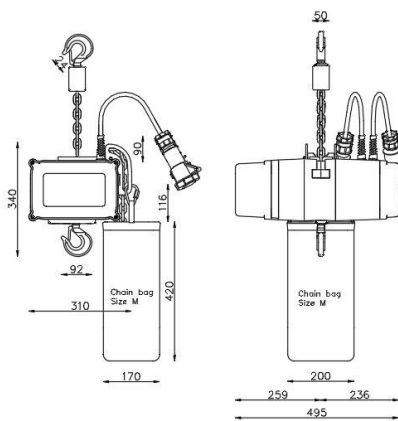
**MEDIUM FRAME COMPACT**



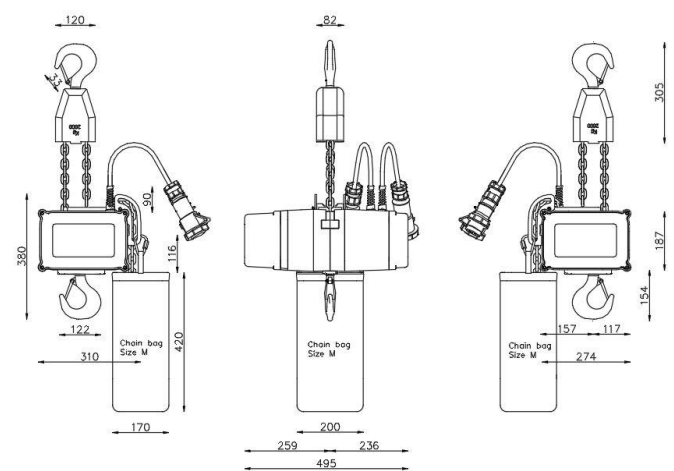
**MEDIUM FRAME**



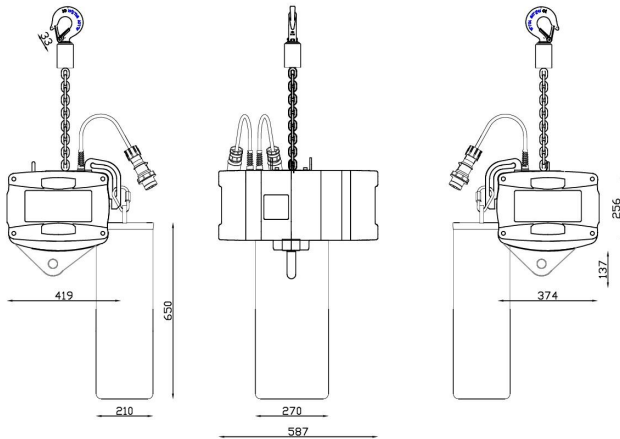
**LARGE FRAME 1F**



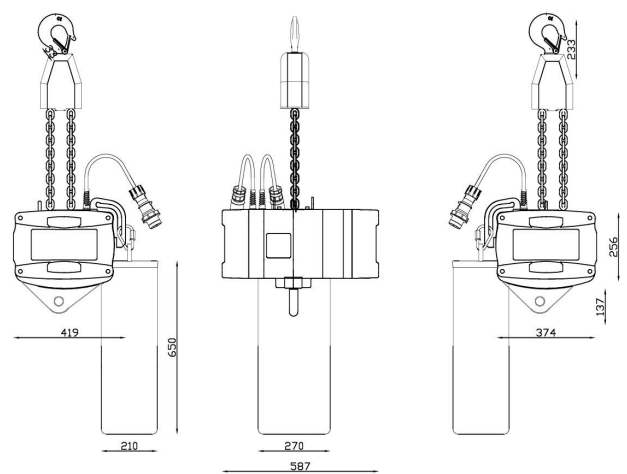
**LARGE FRAME 2F**



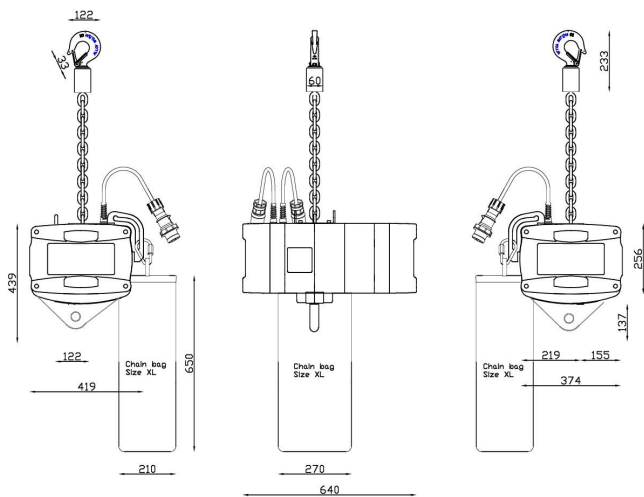
**EXTRA LARGE FRAME COMPACT 1F**



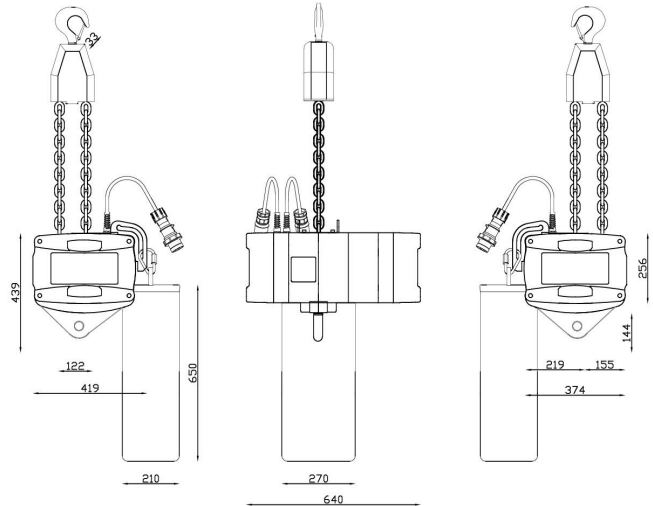
**EXTRA LARGE FRAME COMPACT 2F**



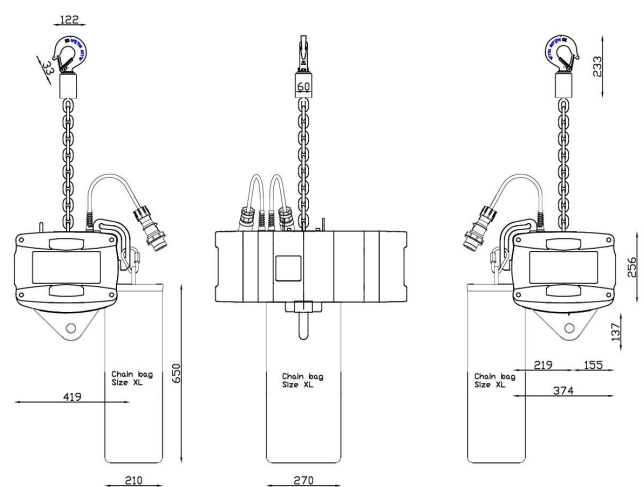
**EXTRA LARGE FRAME COMPACT 1F**



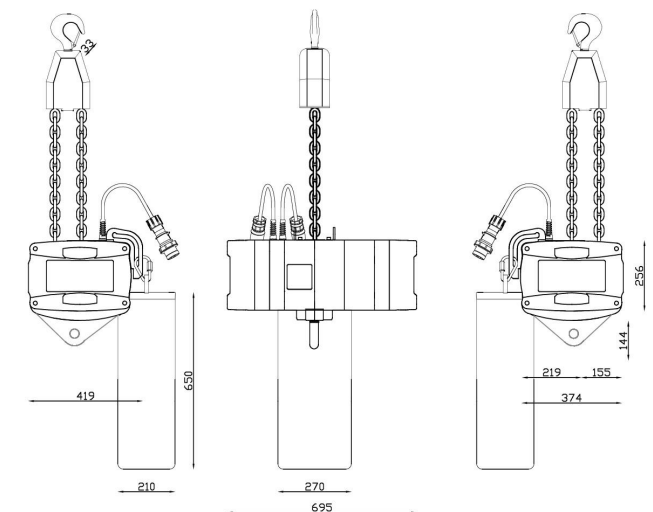
**EXTRA LARGE FRAME 2F**



**EXTRA EXTRA LARGE FRAME 1F**



**EXTRA EXTRA LARGE FRAME 2F**



## 5 CONTROLLER

### 5.1 INTRODUCTION AND COMPATIBILITY

To power and move the EXE Rise electric chain hoist is recommended to use the EXE DRIVE or EXE SENSE Motor Controller. These control systems are designed to manage, depending on the model, groups up to 4/8/16/24 EXE Rise Electric Chain hoist.

The number of hoists that can be simultaneously operated with the control system defines the maximum number of machines that can handle a multiple lift.



**DANGER**

Do not connect the hoist plug directly to a power outlet but use a control system that meets the minimum requirements as specified in these instructions.



**WARNING**

The control system must be installed by competent personnel.

Before powering EXE Rise Electric Chain hoist, the compatibility with the EXE DRIVE or EXE SENSE Motor Controller system must be verified, as summarized in the following table.

MOTOR CONTROLLER EXE DRIVE	MEDIUM ULTRA COMPACT	MEDIUM	LARGE 1F	LARGE 2F	EXTRA LARGE EXTRA LARGE COMPACT	EXTRA EXTRA LARGE
DH1	✓	✓	✓	✓	✓	✓
DH2	✓	✓	✓	✓	✗	✗
XDDL4 XDDL4-LV	✓	✓	✓	✓	✓	✓
XDDL8 XDDL8-LV	✓	✓	✓	✗	✗	✗
XDDL8H XDDL8H-LV	✓	✓	✓	✓	✓	✓
XDDL16 XDDL16-LV	✓	✓	✓	✗	✗	✗
XDDL24 XDDL24-LV	✓	✓	✓	✗	✗	✗
XDDB4 XDDB4-LV	✓	✓	✓	✗	✗	✗
XDDB8 XDDB8-LV	✓	✓	✓	✗	✗	✗
XDDC4 XDDC8	✓	✓	✓	✗	✗	✗
XDL8S 8U XDL8S 6U	✓	✓	✓	✗	✗	✗

The EXE Rise electric chain hoists have been designed to be used with the EXE DRIVE or EXE SENSE Motor Controller, however they are compatible with other control systems that have all the following minimum requirements:

- compliance with LVD Low Voltage Directive;
- compliance with EMC Electromagnetic Compatibility Directive;
- compliance with EN 60204-1 standard;
- compliance with EN 60204-32 standard;
- be equipped with an emergency stop button compliant with EN ISO 13850;
- be equipped with a control system designed to carry out single, not multiple lifting operations;
- be able to start a lifting operation only by using a dead-man switch;
- prevent automatic restart of the hoist after an emergency stop even if the dead-man switch is being pressed;
- prevent the automatic restart of the hoist after an emergency stop even if the "dead man" button is kept pressed;
- be able to remove current to the actuators and bring the machines to a Category 0 STOP if the emergency stop is activated;
- prevent the emergency stop function from being bypassed by other operating modes;
- to be able to manage an automatic shutdown of the machines in use in case of overload in a multiple lifting system.



**CAUTION**

**Before connecting the control system, make sure that it is compatible with EXE RISE electric chain hoists.**

The power and control systems must also be chosen according to the maximum electrical absorption of each individual EXE RISE electric chain hoist and the maximum number of hoists to be simultaneously moved to perform a multiple lift.

EXE RISE electric chain hoists are standard wired for 400V-3ph-50Hz operations. For other voltages the motor must be reconnected internally.

## 5.2 INSTALLATION AND USE OF THE CONTROL SYSTEM



**CAUTION**

**The control system must be installed by competent personnel.**

The control system must be positioned in an area that allows the operator to view all connected machines. In this way, the operator can have the complete view and control of the lifting operation and ensure the absence of people in the area of exposure, to avoid the risks of moving suspended loads above people.

The machine's control panel must be easily accessible by the operator.

In the case of use in low-light environments it is necessary to provide spot lighting near the control devices and in the area where load handling operations take place.

The control system must be connected to the individual hoists so that the operator can easily recognize on the control panel which hoist the individual control corresponds to.



**WARNING**

**Always check that the necessary safety conditions are met before carrying out the lifting operations.**

## 6 INSTALLATION AND USE

EXE RISE electric chain hoists must be installed by competent personnel who are informed about the regulations in force at the installation site regarding health and safety at work.

If the hoists are intended for outdoor use, they must be protected from weather conditions.



**WARNING**

Do not use the hoist chain to harness the suspended load or to perform operations other than vertical lifting.



**WARNING**

During installation always wear the following PPE in addition to those required for any interference with other activities: safety shoes, helmet and high visibility clothing.

### 6.1 PACKING AND TRASPORT

EXE RISE electric chain hoist must be transported in its original packaging or in a dedicated container (e.g. flight case).

Dedicated containers should be fitted with an attachment point for the Chain hook in order to minimise the risk of the chain twisting.

During transport it is recommended to detach the chain bag in order to facilitate the handling of the hoist. The chain inside the dedicated bag must remain lubricated so as to avoid corrosion.

At the time of the first delivery, the customer must carefully check the condition of the packaging and ensure that it is not damaged.

In the event that a dedicated container is not used, the packaging elements, such as plastic bags and polystyrene foam, should be kept aside to pack the hoist once finished using.

Avoid excessive vibration of the hoist during transport.



**WARNING**

Do not move the hoist by handling it from the power and/or control cable.

Once the hoist has been removed from its dedicated packaging or bag, place it on the ground or on another stable surface. If applicable, hang the chain bag using the carabiners or quick links supplied.

In case of long periods of inactivity, the EXE RISE electric chain hoist must be stored in accordance with the following precautions:

- properly ventilate the bag to avoid moisture and/or condensation;
- lubricate the chain;
- store the hoist in an environment not subject to significant temperature variations, where the temperature is between -10°C and 40 °C;
- ensure no corrosive substances come into contact with the packaging or bag and with the hoist.


### 6.2 ELECTRICAL COONECTION

The electrical connection of the EXE RISE electric chain hoists and their power and control system shall be carried out by competent personnel with sufficient theoretical and technical-practical knowledge to analyse the risks arising from electricity.



**WARNING**

The control system must be installed by competent personnel.

 **DANGER**


**Do not operate the hoist if the power and/or control cable and relative cable glands are damaged.**

Before connecting the hoist to electrical power, check that the voltage and power of the power line correspond to those given in this manual and/or on the identification plate, and check the efficiency of the grounding system of the installation site.


Check that the cables powering the hoist are protected against external damage.

Uniquely identify the power and/or control cables of the hoists before connecting them to the motor controller in order to assign them the relevant channels on the control panel.

### 6.3 PRE-USE CONTROL

 **WARNING**

**Before installing the machine, perform the pre-use checks as defined in these instructions; if these checks fail, do not use the hoist!**

 **WARNING**

**Install EXE RISE electric chain hoists that have been subject to regular inspection and maintenance as defined in these instructions!**

Pre-use checks must be carried out before operating the hoist at a new installation site.


These pre-use checks are visual and logging them is not mandatory.

If pre-use checks fail, do not operate the hoist and ensure it is inspected, maintained and repaired, if necessary.

The minimum pre-use checks are given in paragraph 7.


 **WARNING**

**Do not install the electric chain hoist in a position where the chain, hoist frame and bag can come into contact with external bodies!**

 **WARNING**

**Make sure that the chain stop does not come into contact with the frame of the machine! In case of accidental contact of the chain stop with the frame, operate the hoist by reversing the direction of travel so as to remove the stop from the body.**

### 6.4 CONNECTION TO THE ANCHOR POINT

 **WARNING**

**Before installation, check that the lifting and set up operations for the suspended loads have been properly designed and planned!**

 **DANGER**

**Before installation, check that the anchoring points and/or their suspension points have been properly dimensioned in relation to the rated capacity of the machine and/or the actual suspended loads in use!**

Before connecting the EXE RISE electric chain hoist to the anchoring point, check that the latter has been properly designed for actual loads in use and the intended lifting operations.

The hoist must be installed on the anchor point so as to be with the relative chain in a vertical position. The chain must be sufficiently spaced from external bodies so as not to come into contact with them.

## 6.5 CONNECTION TO THE SUSPENDED LOAD

Insert the Chain hook inside the load suspension point. Only use CE-marked lifting accessories to connect the load suspension point to the hoist Chain hook.

 **DANGER**

Do not move and/or use suspended loads greater than the rated capacity of the electric chain hoist! In case of doubt, have a competent person check the actual load in use.

 **DANGER**

Attach the suspended load to the body hook of the hoist by means of lifting accessories and/or suspension points integrated into the load itself!

 **DANGER**

Before lifting the suspended load, make sure that it is firmly placed in the saddle of the Chain hook of the electric chain hoist!

 **WARNING**

Do not install lifting accessories in the hook saddle whose dimensions are not sufficient to fit on the axis of the chain.

## 6.6 USE

The machine operator must be a competent person in optimal psychophysical conditions, i.e. unaffected by factors such as fatigue, distraction, substances such as medications, drugs, etc.

 **WARNING**

Ensure that there is no unauthorized personnel in the installation area, and allow access to it only to persons who are informed about exposure to the risks arising from the installation and handling of suspended loads!

After installation procedures raise the load by a few centimetres and, with the chain in tension, check that the Body/Chain hooks are correctly positioned at the anchoring point and at the point of connection to the suspended load.

In case of use of hoists with double chain fall (multiple chain lengths) check that the chain is not twisted. If necessary, rotate the pulley-hook block until the twist is completely removed.

Move the suspended load steadily, avoiding intermittent operation of the control system.

 **DANGER**

Do not move the suspended load if the chain is twisted!

 **DANGER**

Do not approach the moving chain so as not to be exposed to the risk of entanglement and/or dragging!

 **CAUTION**

Always ensure that there is good communication between operators, installers and riggers and that the operator has a good view of the machine and moving loads.

During the handling of the suspended load with the hoist, the operator must have full view of the hoist and, if necessary, be in contact with other people able to supervise the lifting operations.

The operator must ensure that during handling the suspended load does not collide with obstacles or that no one is present in the areas of exposure to the dangers typical of lifting operations.

It is allowed to lift the hoist when it is still in its packaging or container in order to minimize manual load handling operations.

For D8 series hoists, once the suspended load reaches the working position, secondary safety devices shall be installed in order to have a redundant suspension system from the anchoring point to the load suspension point, as shown in figure 6.1.

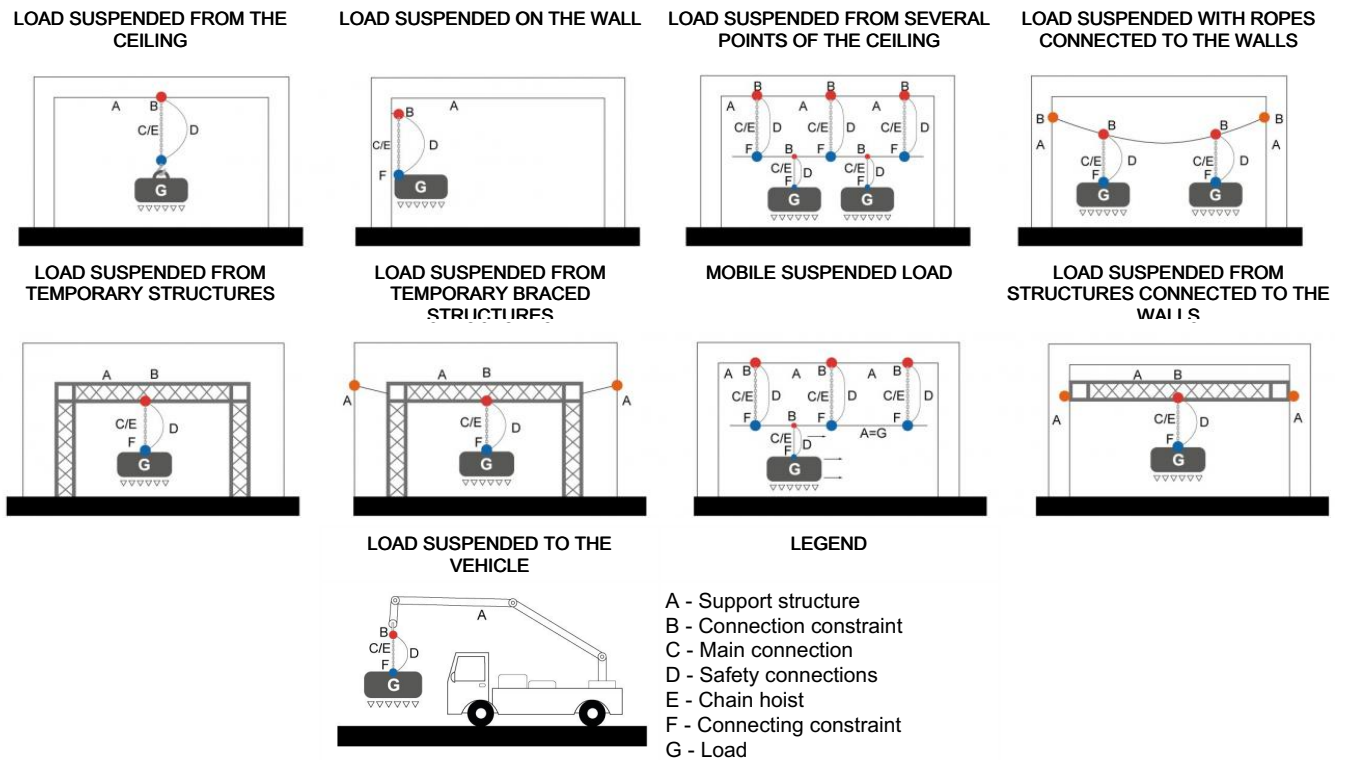


figure 6.1 – "Safety Devices"

In case of multiple lift, ensure that all simultaneously controlled hoists are correctly connected to the control and power supply system by tensioning each chain individually.



**WARNING**

Before moving the load, notify the personnel in the area of installation and set up of suspended loads!



**WARNING**

Do not pull the suspended load diagonally or drag it horizontally across surfaces!



**DANGER**

Once the suspended load reaches the operating position, install secondary safety devices if required by the intended use of the hoist and/or by local regulations!



**DANGER**

Remove secondary safety devices before lowering suspended loads.

## 7 INSPECTION

### 7.1 LIST OF INSPECTION, CLEANING AND LUBRICATION OPERATIONS



#### **DANGER**

**Install hoists that have been subject to regular inspection as defined in these instructions!**

EXE RISE electric chain hoists must undergo the following inspections:

1. Daily / pre-use inspection;
2. Frequent inspection;
3. Periodic inspection;
4. Special inspection;
5. Quarterly chain check.

In addition to the above inspection and maintenance operations as defined by the manufacturer of the machine, check local regulations requirements concerning health and safety at work.

Inspection, cleaning and lubrication operations are preventive measures to preserve the functionality of the hoists over time and ensure safety requirements are maintained.

Failure to inspect the machine can cause damage and reduce the residual life of the hoist itself.

Inspection, cleaning and lubrication operations shall not be carried out on an installed hoist and/or with suspended load in use.

EXE RISE electric chain hoist users are only allowed to perform pre-use and frequent inspection of the hoist, and cleaning and lubrication of the chain.

All other periodic and extraordinary inspection/maintenance operations, involving disassembly of the machine or replacement of parts, can only be performed by EXE TECHNOLOGY authorized personnel.

#### 7.1.1 DAILY / PRE-USE INSPECTION

Inspection carried out by the user and/or other competent person in charge before starting lifting operations. They consist of a visual inspection and/or functional tests.

These checks do not need to be recorded in writing on a logbook if no defects and/or anomalies on the machine have been identified.

The minimum checks to be carried out during a pre-use inspection are given in the table in the next chapter (7.12).

#### 7.1.2 FREQUENT INSPECTION

Inspection carried out by the user and/or other competent person in charge on a monthly, weekly or daily basis depending on equipment operation. They consist of a visual inspection and/or functional tests. These checks must be recorded in writing on a logbook.

The minimum checks to be carried out during a frequent inspection are given in the following table.

The inspection intervals must be determined by the user of the machine according to the specific use of the machine and its operation and are divided into three classes:

1. Ordinary operation  
Involves operation with uniform loads below 65% of the rated capacity for no more than 25% of the time or, in the case of multiple lift, total distributed loads below the total rated capacity for no more than 25% of the time.
2. Heavy operation  
Implies the operation of the hoist within nominal capacity, but under conditions that exceed those of ordinary operation.
3. Severe operation  
Ordinary or heavy operation under conditions other than normal operation, such as:
  - close to extreme ambient temperatures;
  - frequent machine starts and stops.

Pre-use inspection checks are part of frequent inspections but their schedule differs based on individual installations.

Subject of the check	Mode	Notes
Documentation	Check for the presence of the operation and maintenance manual of the hoist and its circuit diagram	
Hoist as a whole	Check for the presence and integrity of the "CE" marking and identification plate	
Hoist as a whole	Check for the presence and integrity of pictograms	Electrical hazard Do not lift people
Hoist as a whole	Check the integrity of the frame and components	Absence of dents, cracks, sharp edges. Integrity of the coating.
Hoist as a whole	Check that the fixing screws are secured and not loose	
Chain bag	Check the correct attachment and positioning of the chain bag	Proper closure of the carabiners
Chain bag	Ensure that the bag is not in contact with external bodies that can affect its position	
Chain bag	Check that no foreign objects are contained in the chain bag	Ensure that the chain is free to run into the bag
Load chain	Check that the chain is not damaged	Absence of dents, cracks, sharp edges. See section 7.2.2.
Load chain	Check that the chain is properly lubricated	See section 7.2.3.
Load chain	Check that the chain is not twisted and that it can move properly inside the hoist and into the bag	Perform this check more carefully in the case of chain with reeving system
Outer chain guide plate	Check the integrity of the outer chain guide plate.	Absence of deformations and cracks. Paragraph 7.2.4
Chain hook	Check the suitability of the load/Body hook closure	paragraph 7.2.1
Chain hook	Check that the safety latch of the load/Body hook works correctly	paragraph 7.2.1
Electrical equipment	Check the integrity of the plug/socket, power cables and their cable glands	
Electrical equipment	Check that it is connected to a compatible control system	See section 5.1
Hoist as a whole	Perform a functional check of pushbutton-operated movements, speed and direction of travel (up-down/ slow-fast)	Functional check
Hoist as a whole	Perform a functional check on brakes (braking distance and times) (up-down / slow-fast)	Functional check
Hoist as a whole	Check for abnormal noise (up-down / slow-fast)	Functional check

### 7.1.3 PERIODIC INSPECTION

Inspection carried out exclusively by EXE TECHNOLOGY authorised personnel according to a schedule based on the hoist's operation, but at least every 12 months (except for periods of inactivity). As a result of these inspection and maintenance operations a report is issued certifying the operations carried out on the machine. The results must be recorded in a logbook, kept and presented during surveillance checks.

The minimum checks to be carried out by authorised EXE TECHNOLOGY personnel during a periodic inspection are listed in the following table.

Subject of the check	Mode	Notes
Subject of the check	Check the presence of all accessories (chain, hooks, handles, chain bag, flight case, control panel). Integrity and cleanliness check. Bolted joint check. Check for cracks, deformations, wear and/or ruptures, oxidation. Check for the presence and integrity of the "CE" marking and identification plate	
Electrical equipment	Check integrity of the power (and main circuit, if applicable) cable. Check integrity and cleanliness of the power plug (and of the socket, if necessary)	
Documentation	Check for the presence, correspondence, integrity and readability of: - Identification plate and CE mark - Declaration of conformity of the electric chain hoist - Declaration of conformity of the hooks and chain - Circuit diagram (power diagram if applicable) - Operation and maintenance manual	
Control devices	Check for the presence, integrity and cleanliness of a control device. Checking the functionality of the control device.	
Chain hook	Check for signs of wear, deformation, cracks and other surface defects. Check for efficiency and degree of wear	See 7.2.1
Load chain	Check for the absence of appreciable deformations. Check degree of wear Check lubrication status	See 7.2.2 e 7.2.3
Outer chain guide plate	Check for the absence of appreciable deformations. Check degree of wear	See 7.2.4
Bottom block	Check for the absence of appreciable deformations. Check degree of wear	
Chain stop	Check for the absence of appreciable deformations. Check degree of wear	
Carabiners	Check the presence and integrity of the chain bag carabiners. Check the presence and integrity of the chain stop carabiner.	
Lifting motors	General check for functionality and absence of abnormal noise. Check that the temperature of the frame is not excessive	Load test
Electrical equipment	Check the functionality of the electronic components in the different modes of use.	Load test
Brake(s)	General functionality check Check for efficiency and degree of wear	
Gearbox	Check for noise and the degree of lubrication and greasing. Checking for excessive play, misalignment, worn parts and the condition of the bearings.	Load test
Load wheel and chain guide	Check the integrity of the pockets. Check for noise and functionality	Load test
Limit switch (where available)	Check for up/down efficiency (working and extra)	
Clutch	Check clutch calibration.	

## LOAD TESTS

To test the functionality and settings of the brake and clutch it is necessary to carry out static and dynamic load tests as defined below:

- Static load test: apply a suspended load equal to 125% of the rated capacity to the non-powered hoist. The test is deemed successful if the height of the suspended load does not change.
- Dynamic load test: Apply a suspended load equal to 125% of the rated capacity to the hoist. Move the suspended load for a short stretch. The test is deemed successful if the overload clutch does not activate, and the brake is able of stopping the suspended load without slippage.

For both load tests, the anchoring point should be appropriately sized taking into account the actual loads in use.



### WARNING

Any interventions on the brake and overload clutch are prohibited. Only authorised EXE RISE personnel may perform maintenance and replacement operations to the brake and overload clutch.

## 7.1.4 STRAORDINARY INSPECTION

Inspection conducted exclusively by EXE TECHNOLOGY authorised personnel to ensure the maintenance of appropriate safety conditions whenever exceptional events occur which may have detrimental consequences for the safety of work equipment, such as repairs, modifications, accidents, natural phenomena or extended periods of inactivity. The procedure for this inspection is analogous to that for "periodic inspections" in paragraph 7.1.3. The results of the checks must be recorded in a logbook, kept and presented during surveillance checks.

## 7.1.5 QUARTERLY CHECK CHAIN

Checks to highlight possible wear, kinks, deformations, cuts, corrosion, chemical damage, section shrinkage, lengthening, with particular attention to the contact area between links, the contact areas with wheels and pinions, as well as the attachment points to the chain ends fitted with pins. A useful reference for chain checks is UNI EN 818-7 standard. The results of the checks must be recorded in a logbook. The procedures for the checks are set out in paragraph 7.2.2.

## 7.2 PERFORMANCE OF INSPECTION OPERATIONS

### 7.2.1 HOOK INSPECTION

Chain hooks must not present cracks, permanent deformations or be damaged by corrosion and/or chemical agents; otherwise they must be replaced (see section 8.1)

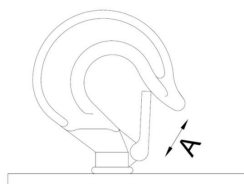


figure 7.1 – "Hook opening"

The maximum acceptable permanent deformation of the hook opening (A) as showed in figure 8.1 must be less or equal to 5% of the normal value. The maximum permanent deformation due to torsion must be less than 10° in relation to the plane of symmetry of the hook.

Any hook with deformations that exceed the above limits indicates overload and must be replaced.

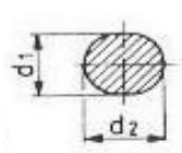
The safety latch must open without excessive play, and snap back to the tip to its position when released. The safety latch and its rotation pin must not be bent or damaged.

Inspect the other supporting parts, hook block screws and load pin for damage.

### 7.2.2 LOAD CHAIN INSPECTION

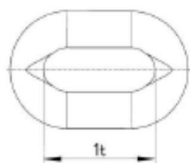
The chain must not be crushed, cracked, permanently deformed or damaged by corrosion and/or chemical agents, otherwise it must be replaced. The chain may be replaced only by authorised EXE TECHNOLOGY personnel.

On a quarterly basis, inspect the chain at the points of contact between the links to check that wear is regular and within tolerance limits as defined below:

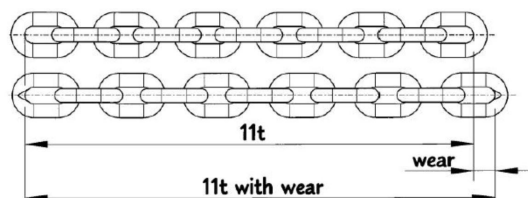


$d_m$  = diametro medio  
 $d_1/d_2$  = dimensioni reali  
 $d$  = diametro nominale

10% maximum shrinkage of the link's mean diameter  $d_m$  due to friction, calculated in the two positions rotated by  $90^\circ$  according to the formula:  
 $d_m = (d_1 + d_2) : 2 \leq 0.9d$



5% increase in the single link pitch  $1t$  (inner length measured on the major axis) calculated by comparing with a chain link located after the chain stop



2% increase in the length of 11 links  $11t$ , calculated by comparing the 11 chain links located after the chain stop

If the chain is not sufficiently lubricated and/or noisy or tends to jam, clean with neutral solvent and lubrication with lubricant for high pressure applications.

The chain should be able to slide smoothly into and out of the chain guide of the hoist, or hook block in the case of the double chain hoist.

### 7.2.3 CHAIN LOAD LUBRIFICATION

Before lubricating the chain, secure the hoist. To ensure long service life and best performance, lubricate the chain with the following lubricant or a compatible one:

STABYLAN 2001: a green semi-synthetic, medium viscosity lubricant, used for lubrication of all types of chains, even at higher temperatures ( $-15 / + 150^\circ\text{C}$ ).

The consistent application of even small amounts of lubricant greatly increases the lifespan of the load chain.



#### **DANGER**

**Do not allow the chain to dry.**

It is essential to keep the chain clean and lubricate it regularly with chain oil. Normally, weekly lubrication and cleaning of the chain is sufficient, but in hot and dirty conditions, it may be necessary to clean the chain at least once a day and lubricate it several times between cleaning operations.

When lubricating the chain, apply sufficient lubricant to achieve normal movement and full coverage, especially at the points of contact between links.



#### **CAUTION**

**Do not use used motor oil as a chain lubricant.**

### 7.2.4 EXTERNAL CHAIN GUIDE PLATE INSPECTION

Check that there are no cracks or damage that could compromise its operation. In case of damage or cracks, proceed with the replacement of the outer chain guide plate following the instructions in paragraph 8.2.

Check the tightening of the connection screws to the frame and that the external chain guide plate is correctly installed in its seat.

### 7.2.5 CHAIN BAG INSPECTION

The chain bag should be inspected for excessive wear and tear in the fabric and fastening eyelets.

Also check the fastening and functionality of the carabiners or quick links that connect the eyelets to the hoist frame brackets.

## 8 REPAIR AND REPLACEMENT

### 8.1 HOOK REPLACEMENT

If the body and/or chain hooks show permanent deformations during the inspection referred to in paragraph 7.2.1, they must be replaced.



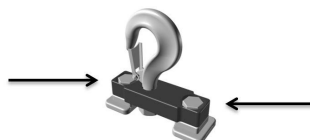
#### CAUTION

Before replacing the body or chain hooks, the EXE RISE electric chain hoist must be disconnected from the power supply!

#### 8.1.1 BODY HOOK REPLACEMENT

##### MEDIUM - LARGE FRAME

1. Place the EXE RISE electric chain hoist upright on a working surface
2. Loosen and remove the two M16 bolts with an M24 socket wrench.



3. Make a note of the position of the hook's centre of gravity on the plate because the hole in which is inserted the shank of the hook is not in the centre of the plate, but varies according to the model.
4. Remove the Body hook kit and replace it with the new one, paying attention to the position of the centre of gravity.



#### DANGER

If the Body hook is installed with its centre of gravity in a position other than the default one means that it will no longer be in line with the load.

5. Tighten bolts M16 (steel 8.8 – friction coefficient 0.15) with a torque wrench. The tightening torque is 198 Nm.

##### EXTRA LARGE FRAME



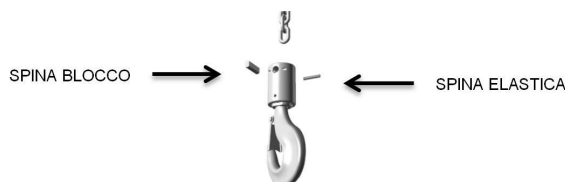
#### WARNING

The body hook and the Delta Plate of the Extra Large Frame model cannot be replaced except by the EXE TECHNOLOGY authorized personnel.

#### 8.1.2 CHAIN HOOK REPLACEMENT

##### 1 FALL OF CHAIN

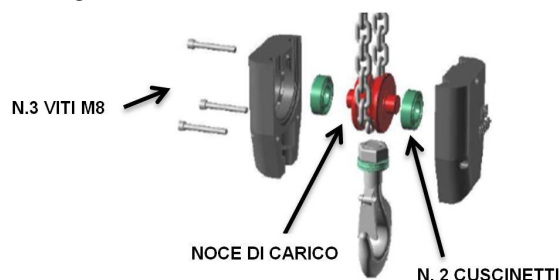
1. Place the EXE RISE electric chain hoist upright on a working surface.
2. Place the Chain hook on the working surface.



3. Remove the roll pin using a roll pin punch (mechanical punch).
5. Remove the Chain hook (bottom block + hook) from the chain and replace it with the new one.
6. First insert the locking part and then the new elastic pin.

## 2 FALLS OF CHAIN

1. Place the EXE RISE electric chain hoist upright on a working surface.
2. Place the Chain hook on the working surface so that the side of the bottom block with the screws is at the front.



3. Remove the 3 M8 screws (steel 8.8 - friction coefficient 0.15) with an M6 Allen key.
4. Gently pull out the front block of the pulley, taking care not to compromise the position and mechanism of the bearings, load wheel, Chain hook and the other block of the pulley.
5. Remove the hook from the block and replace it with the new one.
6. Gently close the front block of the pulley, taking care not to compromise the position and mechanism of the bearings, load wheel, Chain hook and the other block of the pulley.
7. Secure and tighten the 3 M8 screws with a torque wrench. The tightening torque is 23 Nm.

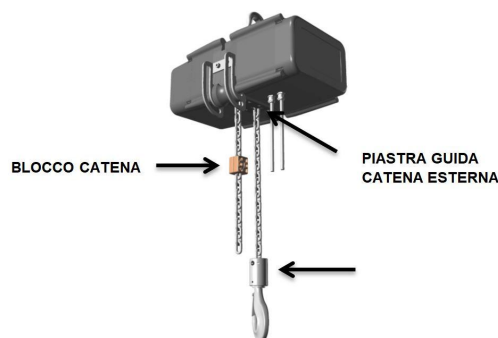
## 8.2 EXTERNAL CHAIN GUIDE PLATE REPLACEMENT

### MEDIUM - LARGE - EXTRA LARGE FRAME

#### CHAIN GUIDE PLATE DIVIDED INTO TWO PARTS

*Note: In the following figures, the Large Frame model is shown as an example.*

1. Place the EXE RISE electric chain hoist in standard (fixed) mode.



2. Loosen and remove the screws of the outer plate which is divided into two parts with an Allen key. In the case of the medium frame there are 4 screws and a 4mm Allen key is required. In the case of the extra large frame, there are 8 screws and a 5mm Allen key is required.

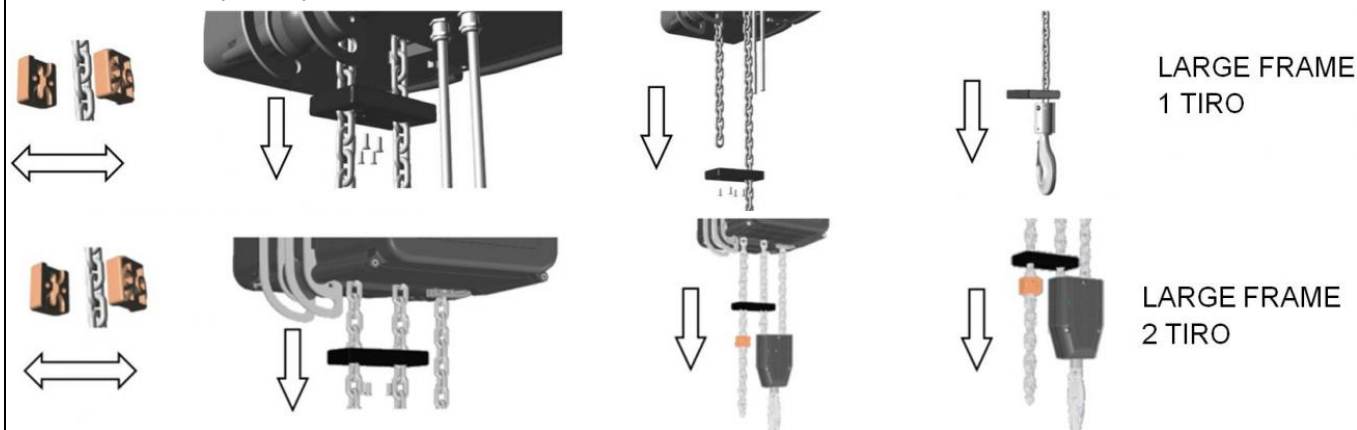


3. Remove the two parts of the outer plate and insert the new one (also divided into two parts).
4. Secure and tighten the screws with an Allen key.

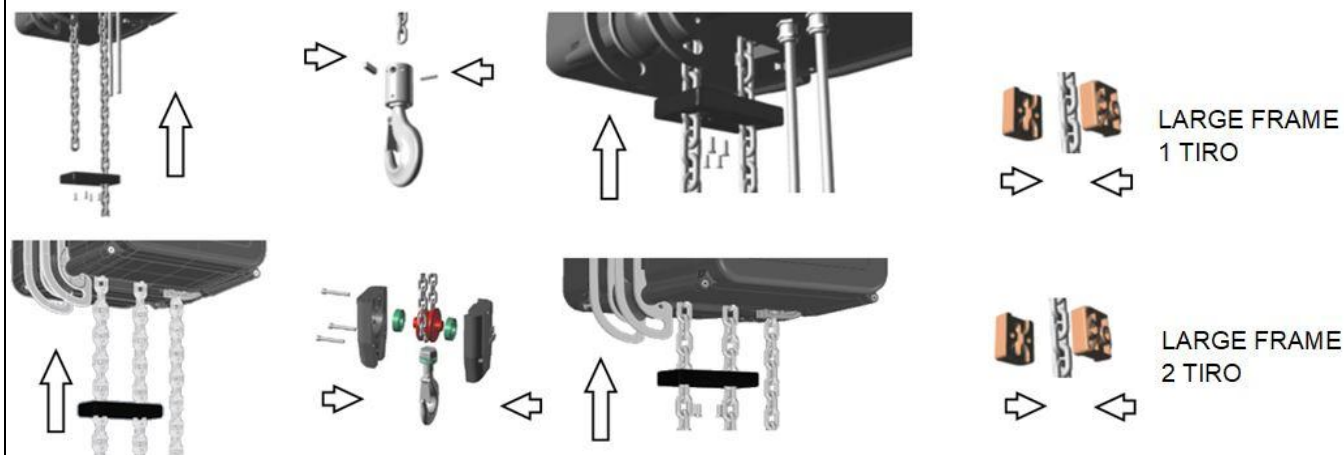
**LARGE FRAME**

**PLACE GUIDE CHAIN CHAIN SINGLE PIECE**

1. Place the EXE RISE electric chain hoist in standard (fixed) mode.
2. Connect the EXE RISE electric chain hoist to an electrically compatible motor controller (see Chapter 5) and run the chain up to the 16th-22nd link from its end (chain stop side). At the end, disconnect the hoist from the motor controller.
3. Remove the chain stop with a 5mm Allen key.
4. Loosen and remove the screws of the outer plate with a 3mm Allen key.
5. Slide the outer plate up to the Chain hook block.



6. Remove the Chain hook.
7. Insert the new chain guide outer plate, making sure that the chain is perfectly tensioned.



8. Insert the Chain hook as detailed in paragraph 8.1.2 for a single fall, and in paragraph 8.1.3 for double fall. The roll pin must be replaced with a new one.
9. Slide the new plate to its site, making sure the chain is always in tension.



**DANGER**

If the chain is not perfectly tensioned, it will twist and the plate will not be able to be secured.



10. Secure and tighten the 4 screws with a 3mm Allen key.
11. Secure the chain stop with a 5mm Allen key.

### 8.3 FUSE REPLACEMENT

The EXE RISE LVC electric chain hoist with low voltage control system is equipped with 300 mA (0.3 A) delay fuse on the primary winding and 1 A quick fuse (1.25 A delay fuse) on the secondary winding.

To replace the fuse, disconnect the external power supply, remove the fixing screws, remove the cover and replace the fuse with another having the same characteristics.



**DANGER**

Before replacing a fuse, the EXE RISE electric chain hoist must be disconnected from the power supply!



**WARNING**

Be careful with handling hot parts if EXE RISE electric chain hoist has been powered and used before replacing the fuse!

### 8.4 OTHER REPAIRS AND REPLACEMENTS



**WARNING**

Any repair and replacement operation other than those listed in this chapter IS PROHIBITED. Only authorised EXE TECHNOLOGY personnel can carry out such interventions!

Repairs and/or replacements not included in the following sections of this chapter may only be carried out by authorised EXE TECHNOLOGY personnel, including:

1. **LOAD CHAIN AND INNER CHAIN GUIDE REPAIR/REPLACEMENT**
2. **CLUTCH AND BRAKE REPAIR/REPLACEMENT**
3. **LOAD WHEEL AND LIMIT SWITCH REPAIR/REPLACEMENT**
4. **ROTOR, STATOR AND GEAR BOX REPAIR/REPLACEMENT**

All repairs / replacements not shown in the aforementioned list must be communicated to EXE TECHNOLOGY personnel, who avail themselves of the right not to authorize such interventions.

## 9 TROUBLESHOOTING

PROBLEM	Possible CAUSE	CHECKS and SOLUTIONS
1. The electric chain hoist is connected to the control system but does not work	a. The upstream circuit breaker has tripped.	Reset the tripped circuit breaker.
	b. The command line fuse is broken or blown	Replace the fuse according to the instructions in paragraph 8.3.
	c. Failure of a mains phase. Damaged power cord. Interrupted stator winding.	Check electrical continuity and identify the defective part. If the repair does not fall within the authorised ones (see Ch. 8), contact EXE TECHNOLOGY personnel.
	d. The power supply or control circuit are open.	Supply the hoist with voltage and frequency as indicated on the hoist identification plate.
	e. Interrupted transformer or reversing starter coil winding.	Reduce the load according to the limits indicated on the hoist identification plate.
	f. Up/down limit switch failure.	
	g. Loose or interrupted connection within the circuit.	
	h. Mechanical jamming of the reversing starter.	
	i. The brake does not open; the brake coil is open, short-circuited or interrupted; blown trip unit.	
	j. Wrong supply voltage or frequency	
	k. Excessive load	
2. The hoist moves in the opposite direction	a. Inversion of the three-phase sequence supply.	Operate on the plug's mechanical inverter for a direct 3-phase sequence supply.
3. The hoist moves only down and not up	a. The clutch slips with excessive loads.	Reduce the load according to the limits indicated on the hoist identification plate.
	a. Open control circuit. b. Down reversing starter coil winding open, interrupted or short-circuited. c. Up limit switch failure. d. Loose or interrupted connection within the circuit.	Check electrical continuity and identify the defective part. If the repair does not fall within the authorised ones (see Ch. 8), contact EXE TECHNOLOGY personnel.
	a. Open control circuit. b. Down reversing starter coil winding open, interrupted or short-circuited. c. Speed selection relay coil winding open, interrupted or short-circuited. d. Down limit switch failure. e. Loose or interrupted connection within the circuit.	Check electrical continuity and identify the defective part. If the repair does not fall within the authorised ones (see Ch. 8), contact EXE TECHNOLOGY personnel.
	a. The brake slips. b. Excessive load.	Check brake adjustment. If the repair does not fall within the authorised ones (see Ch. 8), contact EXE TECHNOLOGY personnel.
4. The hoist moves only up and not down	a. Open control circuit. b. Down reversing starter coil winding open, interrupted or short-circuited. c. Speed selection relay coil winding open, interrupted or short-circuited. d. Down limit switch failure. e. Loose or interrupted connection within the circuit.	Check electrical continuity and identify the defective part. If the repair does not fall within the authorised ones (see Ch. 8), contact EXE TECHNOLOGY personnel.
5. The hoist does not stop immediately	a. The brake slips.	Check brake adjustment. If the repair does not fall within the authorised ones (see Ch. 8), contact EXE TECHNOLOGY personnel.
	b. Excessive load.	Reduce the load according to the limits indicated on the hoist identification plate.

PROBLEM	Possible CAUSE	CHECKS and SOLUTIONS
6. The hoist moves at a very low speed	a. Excessive load.	Reduce the load according to the limits indicated on the hoist identification plate.
	b. Phase failure or unbalanced current in phases.	Check electrical continuity and identify the defective part. If the repair does not fall within the authorised ones (see Ch. 8), contact EXE TECHNOLOGY personnel.
	c. The brake has not been adjusted correctly.	Check brake adjustment. If the repair does not fall within the authorised ones (see Ch. 8), contact EXE TECHNOLOGY personnel.
7. The motor overheats.	a. Excessive load.	Reduce the load according to the limits indicated on the hoist identification plate.
	b. Frequent starts and stops.	Comply with the conditions of use described in the FEM class (section 4.1)
	c. Phase failure or unbalanced current in phases.	Check electrical continuity and identify the defective part. If the repair does not fall within the authorised ones (see Ch. 8), contact EXE TECHNOLOGY personnel.
	d. Extreme outside temperature.	Use hoist at a temperature range -10°C / + 40°C
8. The hoist does not stop at the limit switch (in one or both directions).	a. Limit switches do not open the circuits because they are glued.	Check mechanical operation, connections and limit switch adjustment. If the repair does not fall within the authorised ones (see Ch. 8), contact EXE TECHNOLOGY personnel.
9. The hoist stops at different points	b. Limit switches are not adjusted properly.	
	a. Limit switches keep slipping after adjusting.	
	b. Limit switch malfunction.	

## 10 DISPOSAL

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At the end of its life, dispose of the EXE RISE electric chain hoist by separating the various parts so that they are properly disposed of.

Metal parts must be separated by type of metal and/or alloy and sent to the relevant recycling services.

Plastic parts must be separated from any electrical components and sent to the relevant recycling centres.

Oils must be disposed of in accordance with manufacturer instructions.

## 11 SPARE LIST

The user of the EXE RISE chain hoist is only permitted to carry out pre-use and frequent inspections of the hoist, cleaning and lubrication of the chain.

All other periodic and extraordinary inspection/maintenance interventions, which involve the disassembly of the machine or the replacement of parts, are permitted exclusively by authorized EXE TECHNOLOGY technician.



### **WARNING**

**Any other repair and replacement work other than that indicated in chapter 8 is FORBIDDEN. Only EXE TECHNOLOGY authorized technician can carry out such work.**

Any repair and replacement operation other than those listed in this chapter IS PROHIBITED. Only authorised EXE TECHNOLOGY personnel can carry out such interventions!

1. REPAIR/REPLACEMENT OF THE LOAD CHAIN AND INTERNAL CHAIN GUIDE
2. CLUTCH AND BRAKE REPAIR/ADJUSTMENT
3. REPAIR/REPLACEMENT OF THE LOAD WHEEL AND LIMIT SWITCH
4. REPAIR/REPLACEMENT OF THE ROTOR, STATOR AND GEARS

All repair/replacement interventions not listed in the aforementioned list must be communicated to EXE TECHNOLOGY personnel, who exercise the right not to authorize such interventions.



### **WARNING**

**All products whose codes are marked with an asterisk (\*) can only be used by authorized EXE TECHNOLOGY technician. Contact our offices for further information.**



### **WARNING**

**It is necessary to contact the EXE offices to check feasibility and availability.**

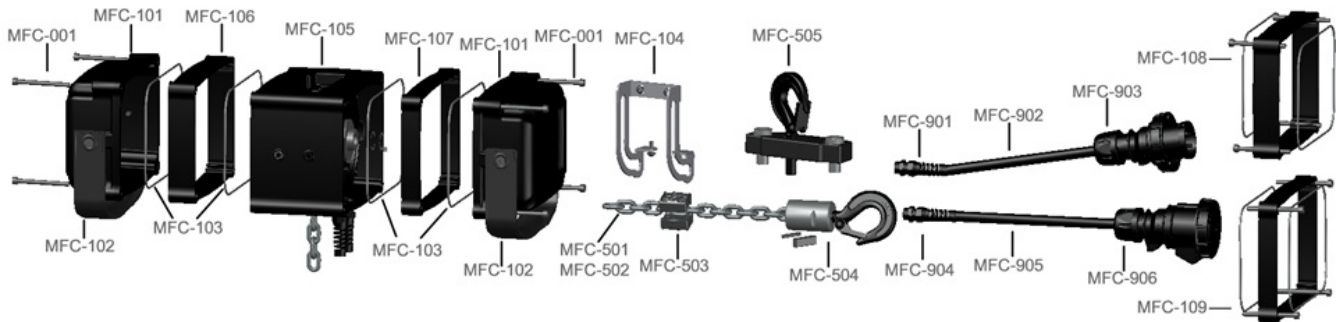


### **DANGER**

**The product codes shown in this chapter are subject to change without notice.**

## 11.1 SPARE LIST MEDIUM FRAME COMPACT & ULTRA COMPACT

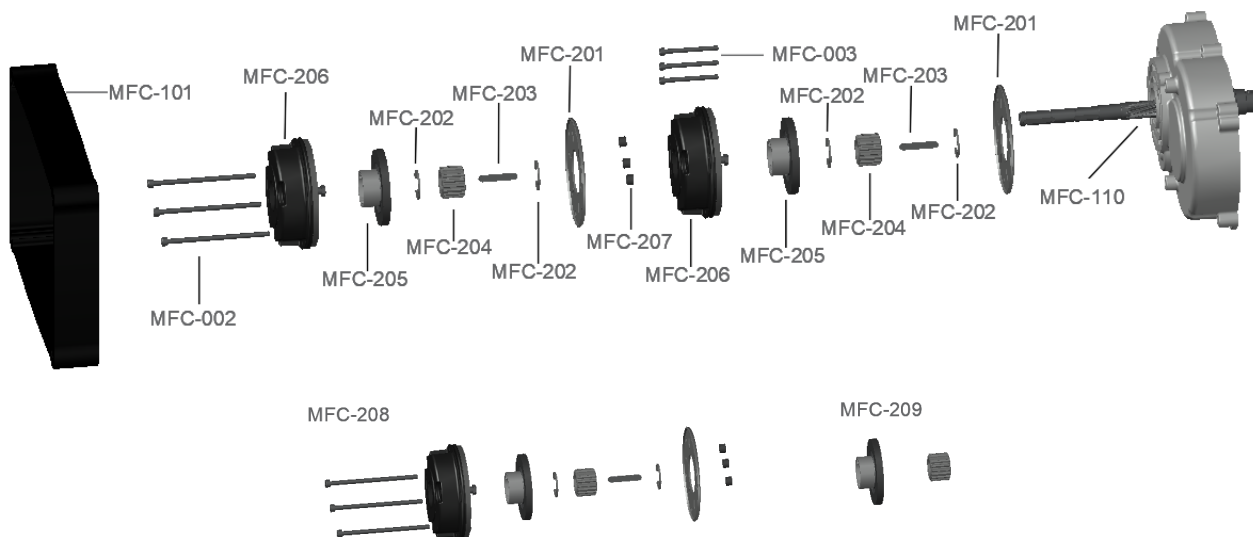
### MFC - 01 CHASSIS



KEY NUMBER	DESCRIPTION	A4I ITA CODE / NOTE
MFC-001	Screws UNI 5931 6x75mm TCEI 8.8 ZB (n.4 x cover)	3.7915
MFC-101	Medium Frame Compact Black Cover with Handle 215x160x77mm (without screws)	LT XRS-0204
MFC-102	Medium Frame Compact KIT Cover Handle 42x430mm – Ø11.75 with: n.2 Screw TSPEI M6x25 10.9 ZB, n.2 Self-locking Nut M6, n.2 Bush Øe18 - Øi6 - L=11mm	LT XRS-0136
MFC-103	Medium Frame Compact Gasket 214x160mm S=1mm (n.2 x Frame – n.4 x hoist)	LT XRS-0191
MFC-104	Medium Frame Compact Chain Bag Steel Bracket with: n.4 Screw UNI 7380 6x16mm TBEI 10.9 ZB	LT XRS-0080
MFC-105	Medium Frame Load Wheel Housing	LT XRS-0205 (*)
MFC-106	Medium Frame Compact Frame Brake Side 215x160x35mm	LT XRS-9999
MFC-107	Medium Frame Compact Frame Motor Side 215x160x25mm	LT XRS-9999
MFC-901	(for DC/LVC Hoist) Black Spiral Cable Gland PG13.5 for Cable 4G1,5mmq	LT XRS-0038
MFC-902	(for DC/LVC Hoist) Power Cable 4G1.5mmq	LT AXCAVNE4G1.5 (*)
MFC-903	(for DC/LVC Hoist) Shark Plug CEE 400VAC 16A 6h 3P+T IP67	LT XRS-0263
MFC-904	(for DC Hoist) Closed hole with plug Black Stop Plug PG13.5. Cable not provided.	LT AXCEM1052013N
	(for LVC Hoist) Black Spiral Cable Gland PG13.5 for Cable 4G1,5mmq	LT XRS-0038
MFC-905	(for DC Hoist) Control Cable not provided	Not provided
	(for LVC Hoist) Control Cable 4G1.5mmq	LT AXCAVNE4G1.5 (*)
MFC-906	(for DC Hoist) Control Cable not provided	Not provided
	(for LVC Hoist) Shark Socket CEE 230VAC 16A 9h 3P+T IP67	LT XRS-0264
MFC-501	Galvanized Steel Chain 5x15mm RTS DAT (1m)	LT XRC062-01M
MFC-502	Phosphated Black Steel Chain 5x15mm RTS DAT (1m)	LT XRC062K-01M
MFC-503	Medium Frame Compact Chain End Stop Block 5x15mm	LT XRSFC515
MFC-504	Medium Frame Compact KIT Swivel Chain Hook (Bush M14 + Hex Socket) with: n.1 Chain Hook 1.25t-SF 4:1 (Bush M14 + Hex Socket) – (LT XRS-0183) + n.1 Chain Hook Block 1 reeve + n.1 Lock Pin + n.1 Elastic Pin – (LT XRS-0097)	LT XRSGGCW1250G
MFC-505	Medium Frame Compact KIT Swivel Body Hook (Bush M14 + Hex Socket) with: n.1 Body Hook 1.25t (Bush M14 + Hex Socket) + plate n.2 Screw M16x30 8.8 ZB	LT XRSGGW1250E
MFC-108	Medium Frame Compact KIT Frame Brake Side 215x160x35mm (MFC-106) with: n.4 Screw UNI 5931 6x75mm (MFC-001) + n.2 Gasket S=1mm (MFC-103)	LT XRS-0189
MFC-109	Medium Frame Compact KIT Frame Motor Side 215x160x25mm (MFC-107) with: n.4 Screw UNI 5931 6x75mm (MFC-001) n.2 Gasket S=1mm (MFC-103)	LT XRS-0190

(\*) component not available as spare

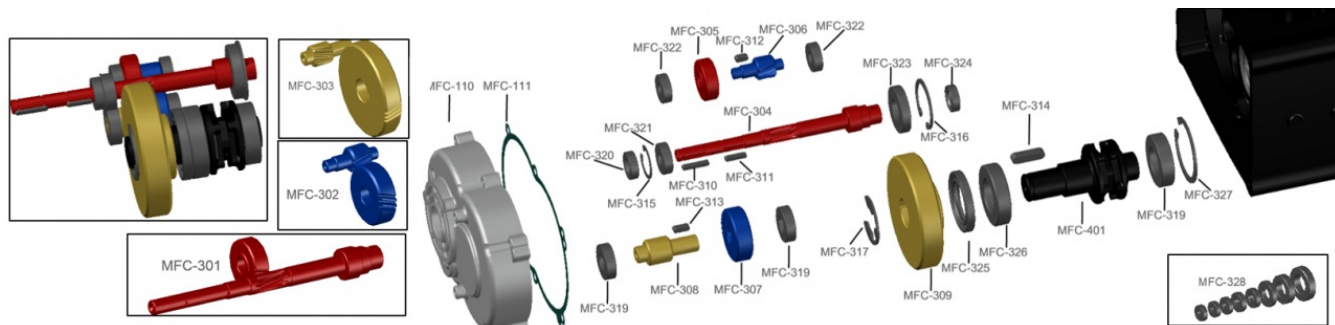
## MFC - 02 BRAKES



KEY NUMBER	DESCRIPTION	A4I ITA CODE / NOTE
MFC-101	Medium Frame Compact Black Cover with Handle 215x160x77mm (without screws)	LT XRS-0204
MFC-110	Medium Frame Compact Gear Box alum. housing + n.6 screws UNI 5931 6x35mm TCEI 8.8 ZB (3.0800)	LT XRS-0207 (*)
MFC-201	Steel brake disk $\varnothing e$ 84mm - $\varnothing i$ 31.9mm – S=1.5mm (n.1 x brake)	LT XRS-0137
MFC-202	KIT n.4 Seeger-Ret. Shaft Locking Washer Set $\varnothing$ 10mm (n.2 x brake)	LT XRS-0159
MFC-203	Metal key 4x4x20mm (n.1 x brake)	3.7932 Not available separately (MFC-208)
MFC-204	Hub gear (n.1 x brake)	LT XRS-0210 Not available separately (MFC-208-209)
MFC-205	Rotor brake (n.1 x brake)	LT XRS-0209 Not available separately (MFC-208-209)
MFC-206	KIT Stator brake L06 103VDC (n.1 x brake)	LT XRS-0208 Not available separately (MF-208)
MFC-207	(Only double brake) Spacers (n.3 x pair of brake)	LT XRS-0211 Not available separately (MFC-208)
MFC-002	(Only double brake) n.3 Screws UNI 5931 4x80mm TCEI 8.8 ZB (n.1 kit x pair of brake)	LT XRS-0153
MFC-003	(Only single brake) n.3 Screws UNI 5931 4x40mm TCEI 8.8 ZB (n.1 kit x brake)	LT XRS-0212
MFC-208	KIT 1st or 2nd brake MF-201 + n.2 MF-202 + MF-203 + MF-204 + MF-205+ MF-206 + n.3 MF-207 + n.3 TCEI-M4x80 + n.3 TCEI-M4x40	LT XRKB06
MFC-209	KIT Rotor brake + Hub Gear MF-204 + MF-205	LT XRS-0091

(\*) component not available as spare

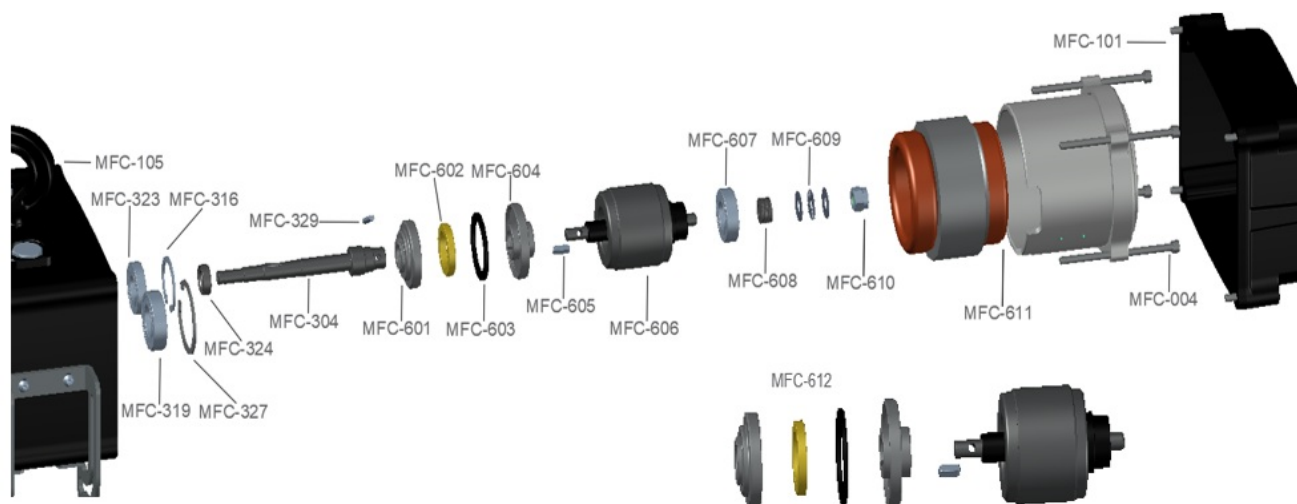
## MFC - 03 GEAR BOX



KEY NUMBER	DESCRIPTION	A4I CODE / NOTE
MFC-110	Medium Frame Compact Gear Box alum. housing + n.6 screws UNI 5931 6x35mm TCEI 8.8 ZB (3.0800)	LT XRS-0207 (*)
MFC-111	Reduction Gear Box Housing Gasket	LT XRS-0120
MFC-301	KIT 1st Gear stage (shaft + pinion + crown) - MF-307 + MF-308	LT XRS-9999 (*)
MFC-302	KIT 2nd Gear stage (shaft + pinion + crown) - MF-309 + MF-310	LT XRS-9999 (*)
MFC-303	KIT 3rd Gear stage (shaft + pinion + crown) - MF-311 + MF-312	LT XRS-9999 (*)
MFC-304	1st Gear stage - shaft + pinion	LT XRS-9999 (*)
MFC-305	1st Gear stage - Crown	LT XRS-9999 (*)
MFC-306	2nd Gear stage - shaft + pinion	LT XRS-9999 (*)
MFC-307	2nd Gear stage - Crown	LT XRS-9999 (*)
MFC-308	3rd Gear stage - shaft + pinion	LT XRS-9999 (*)
MFC-309	3rd Gear stage - Crown	LT XRS-9999 (*)
MFC-310	Metal key 6604-A 4x4x25mm C45	LT XRS-9999 (*)
MFC-311	Metal key 6604-A 4x4x20mm C45	LT XRS-9999 (*)
MFC-312	Metal key 6604-A 5x5x12mm C45	LT XRS-9999 (*)
MFC-313	Metal key 6604-A 5x5x14mm C45	LT XRS-9999 (*)
MFC-314	Metal key 6604-A 8x7x32mm C45	LT XRS-9999 (*)
MFC-315	Retaining Ring above 25, DIN, 28x1.2	LT XRS-9999 (*)
MFC-316	Retaining Ring above 25, DIN, 42x1.75	LT XRS-9999 (*)
MFC-317	Retaining Ring UNI, 24	LT XRS-9999 (*)
MFC-318	Retaining Ring above 25, DIN, 55x2	LT XRS-9999 (*)
MFC-319	Ball Bearing 6002-2RS	LT XRS-9999 (*)
MFC-320	Rotary Shaft Lip Seal, Type A, DIN, 12x25x7	LT XRS-9999 (*)
MFC-321	Ball Bearing 12-28-8 6001-2RS	LT XRS-9999 (*)
MFC-322	Ball Bearing 6000-2RS	LT XRS-9999 (*)
MFC-323	Ball Bearing 20-42-8 16004	LT XRS-9999 (*)
MFC-324	Rotary Shaft Lip Seal, Type AS, DIN, 14x24x7	LT XRS-9999 (*)
MFC-325	Rotary Shaft Lip Seal, Type AS, DIN, 35x55x7	LT XRS-9999 (*)
MFC-326	Ball Bearing 30-55-13 6006-2Z	LT XRS-9999 (*)
MFC-327	Ball Bearing 25-47-12 6005-2RS	LT XRS-9999 (*)
MFC-328	Medium Frame Compact KIT Bearing n.2 6000-2RS (MFC-322), n.1 6001-2RS (MFC-321), n.1 16004 (MFC-323), n.2 6002-2RS (MFC-319), n.1 6006-2Z (MFC-326), n.1 6005-2RS (MFC-327)	LT XRS-9999 (*)
MFC-401	Medium Frame Compact Load Wheel 5 pocket for 5x15mm chain	LT XRS-9999 (*)

(\*) component not available as spare

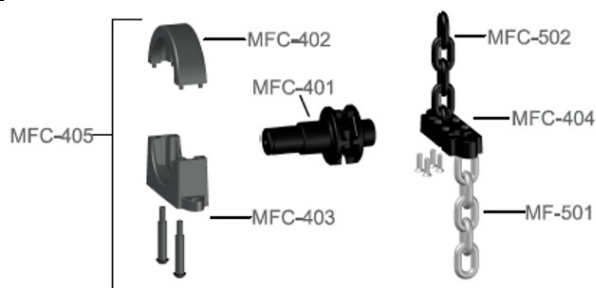
## MFC - 06 MOTOR-CLUTCH



KEY NUMBER	DESCRIPTION	A4I CODE / NOTE
MFC-105	Medium Frame Compact Load Wheel Housing	LT XRS-0205 (*)
MFC-304	1st Gear stage - shaft + pinion	LT XRS-9999 (*)
MFC-319	Ball Bearing 6002-2RS	Not available separately (LF-328)
MFC-323	Ball Bearing 20-42-8 16004	Not available separately (LF-328)
MFC-324	Rotary Shaft Lip Seal, Type AS, DIN, 14x24x7	LT XRS-9999 (*)
MFC-327	Ball Bearing 25-47-12 6005-2RS	Not available separately (LF-328)
MFC-316	Retaining Ring above 25, DIN,42x1.75	LT XRS-9999 (*)
MFC-329	Metal Pin M6 DIN 6325 5x30mm	LT XRS-9999 (*)
MFC-601	Clutch inferior support	LT XRS-9999 Not available separately (LF-612)
MFC-602	Brass Clutch Disk	LT XRS-9999 Not available separately (LF-612)
MFC-603	Ferrite Clutch Disk	LT XRS-0108
MFC-604	Clutch superior support	LT XRS-9999 Not available separately (LF-612)
MFC-605	Flat key 5x5x15mm DIN 6885-A	LT XRS-9999 Not available separately (LF-612)
MFC-606	Rotor 230/400VAC-3-50Hz 0.36kW (ULTRA COMPACT)	Not available separately (LF-612)
	Rotor 230/400VAC-3-50Hz 0.50kW(COMPACT)	Not available separately (LF-612)
MFC-607	Ball Bearing 6005-2RS	Not available separately (LF-328)
MFC-608	Cup spring DIN 2093 A-B-C- ACC. D.20X10.2X0.5 (n°8 pcs.)	LT XRS-9999 (*)
MFC-609	Thrust Bearingt 51100 for rotor shaf	LT XRS-0169
MFC-610	Hex lock nut DIN 982 M10	LT XRS-9999
MFC-611	Stator 230/400VAC-3-50Hz 0.36kW + Aluminium Housing n.4 Screws UNI 5931 6x120mm TCEI 8.8 ZB	LT XRS-9999
	Stator 230/400VAC-3-50Hz 0.50kW + Aluminium Housing n.4 Screws UNI 5931 6x120mm TCEI 8.8 ZB	LT XRS-9999
MFC-004	n.4 Screws UNI 5931 6x120mm TCEI 8.8 ZB	LT XRS-9999
MFC-101	Medium Frame Black Cover with Handle 215x160x139mm	LT XRS-0204
MFC-612	KIT Clutch - Rotor:MFC-601 + MFC-602 + MFC-603 + MFC-604 + MFC-605 + MFC-606	LT XRS-9999

(\*) component not available as spare

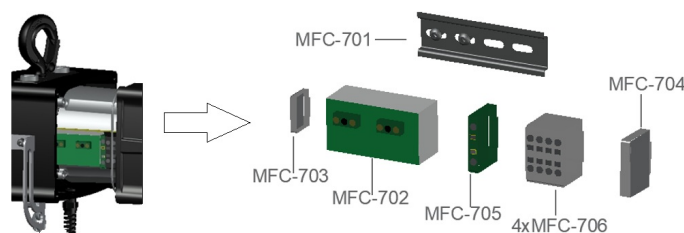
## MFC - 04 LOAD WHEEL



KEY NUMBER	DESCRIPTION	A4I CODE / NOTE
MFC-401	Medium Frame Load Wheel 5 pocket for 5x15mm chain	LT XRS-9999 (*)
MFC-402	Medium Frame Internal Chain Guide for 5x15mm chain	LT XRS-0272 (*)
MFC-403	Medium Frame Compact External Chain Guide for 5x15mm chain with n.2 screws UNI 5931 6x35mm TCEI verificare dal disegno	LT XRS-0273
MFC-404	Medium Frame PVC External Chain Guide Plate (2 parts) for 6x18mm chain with n.4 screws 5x25mm TCEI	LT XRS-0272
MFC-501	Galvanized Steel Chain 5x15mm RTS DAT (1m)	LT XRC062-01M
MFC-502	Phosphated Black Steel Chain 5x15mm RTS DAT (1m)	LT XRC062K-01M
MFC-405	Medium Frame Compact KIT Chain Guide for 5x15mm chain (Internal + External + screws) = MFC-402 + MFC-403	LT XRS-9999 (*)

(\*) component not available as spare

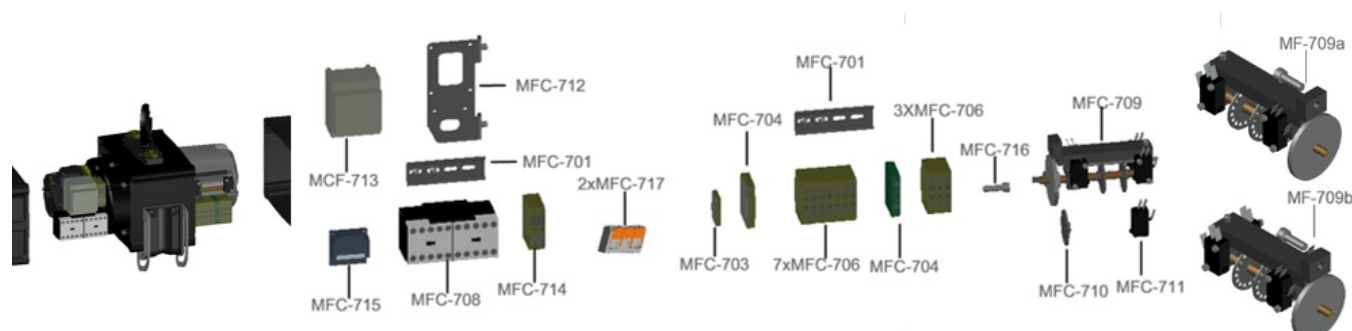
## MFC - 07 DC ELECTRICAL COMPONENT



KEY NUMBER	DESCRIPTION	A4I CODE / NOTE
MFC-701	DIN rail with screws	LT XRS-0174
MFC-702	Rectifier & Circuit Breaker 120Vac/105Vdc (for Brake 105Vdc)	LT XRS-0008
MFC-703	Terminal block of screw terminal and DIN rail	LT AXWEI792034
MFC-704	End plate of screw terminal	LT AXWEI170475
MFC-705	Yellow-green PE screw terminal	LT AXWEI171281
MFC-706	n.1 Single terminal screw	LT AXWEI171275

(\*) component not available as spare

## MFC - 07 LVC ELECTRICAL COMPONENT

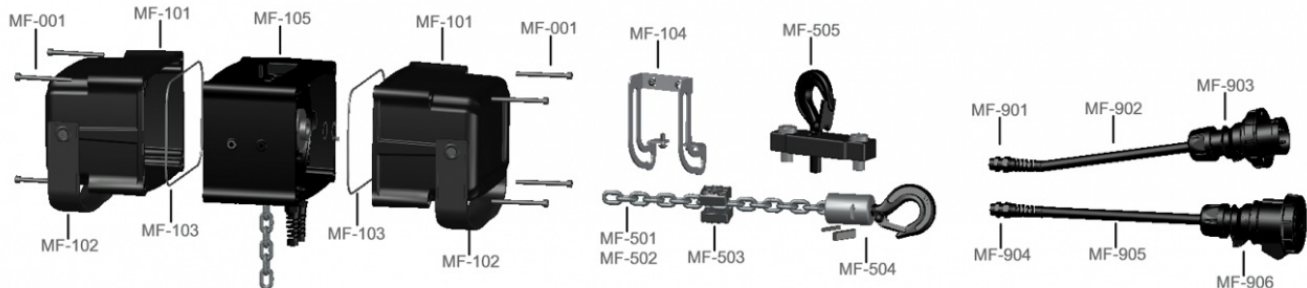


KEY NUMBER	DESCRIPTION	A4I CODE / NOTE
MFC-701	DIN Rail with screws	LT XRS-0174
MFC-703	Terminal block of screw terminal and DIN Rail	LT AXWEI792034
MFC-704	End plate of screw terminal	LT AXWEI170475
MFC-706	n.1 Single terminal screw	LT AXWEI171275
MFC-708	Micro Reversing Contactor 3pin+2cont. 2.2kW 400Vac coil 24Vac 50Hz	LT XRS-0245
MFC-709a	Medium Frame 2p Limit Switch RWM (30m) with extended shaft for Encoder Lika CK41	LT XRS-0186
MFC-709b	"Giovenzana" Microswitch (rigid spring) - Faston connection 0.8x6.3 + n.2 screws UNI 7687 TCBI+ M3x14 – Extra UP/DOWN	LT XRS-0115
MFC-710	n.1 Wheel for Limit Switch RWM	LT XRS-0188
MFC-711a	"Zippy" Microswitch (intermediate spring) - Faston connection 0.8x6.3 + n.2 screws UNI 7687 TCBI+ M3x16 – Standard UP/DOWN	LT XRS-0166
MFC-711b	"Giovenzana" Microswitch (rigid spring) - Faston connection 0.8x6.3 + n.2 screws UNI 7687 TCBI+ M3x14 – Extra UP/DOWN	LT XRS-0112
MFC-712	Aluminium support + n.2 screws	LT XRS-9999
MFC-713	Transformer Meth Type T4 25VA 400/24vac	LT XRS-0066
MFC-714b	Conta-Clip art. 1078.2 STK 2 BG Fuse holder pz. 2	LT AXCON1078-2
MFC-715	Rectifier PMESF 400S	LT XRS-0016
MFC-716	Medium Frame KIT Pinion for limit switch with: Pinion Z13 and Screw TSPEI M6x22	LT XRS-0259
MFC-717	Compact Splicing Connector, 3 conductor WAGO 221-413	LT AXWAG221413

(\*) component not available as spare

## 11.2 SPARE LIST MEDIUM FRAME

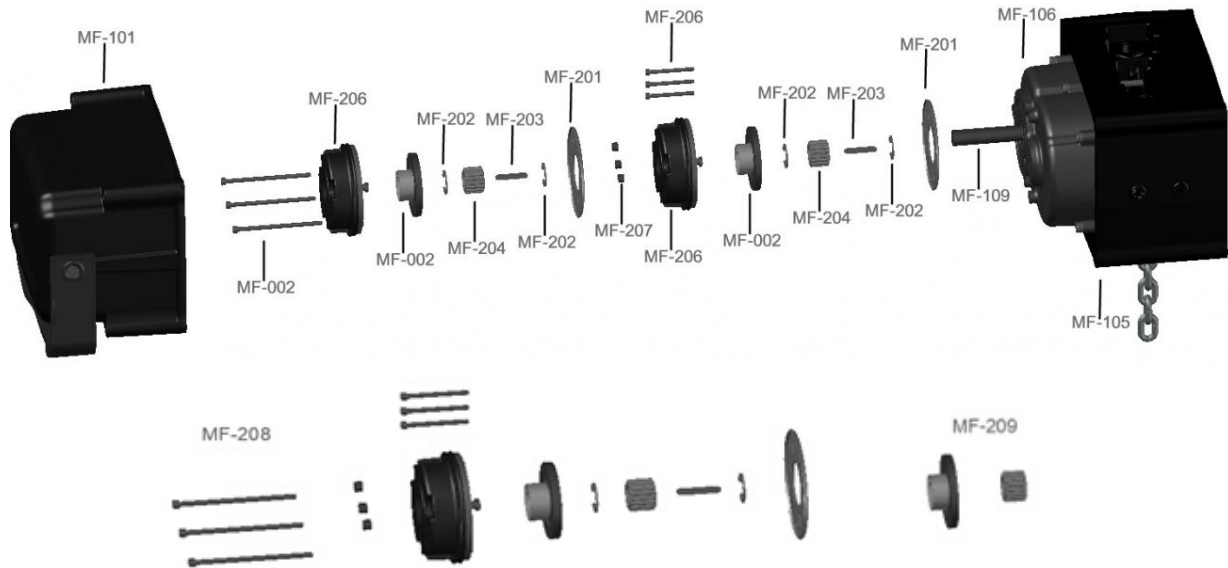
### MF - I level Exploded Drawing Chassis – Chain – Hook – Cables – Plug/Socket



KEY NUMBER	DESCRIPTION	A4I ITA CODE / NOTE
MF-001	Screws UNI 5931 6x40mm TCEI 8.8 ZB (n.4 x cover)	3.0740
MF-101	Medium Frame Black Cover with Handle 215x160x139mm (without screws)	LT XRS-0079
MF-102	Medium Frame KIT Cover Handle 42x430mm – Ø11.75 with: n.2 Screw TSPEI M6x25 10.9 ZB n.2 Self-locking Nut High M6 n.2 Bush Øe18 - Øi6 - L=11mm	LT XRS-0136
MF-103	Medium Frame Cover Gasket Ø3mm – L=650mm (n.1 x Cover)	LT XRS-0138
MF-104	Medium Frame Chain Bag Steel Bracket with: n.4 Screw UNI 7380 6x16mm TBEI 10.9 ZB	LT XRS-0080
MF-105	Medium Frame Load Wheel Housing	LT XRS-0205 (*)
MF-901	(for DC/LVC Hoist) Black Spiral Cable Gland PG13.5 for Cable 4G1,5mmq	LT XRS-0038
MF-902	(for DC/LVC Hoist) Power Cable 4G1.5mmq	LT AXCAVNE4G1.5 (*)
MF-903	(for DC/LVC Hoist) Shark Plug CEE 400VAC 16A 6h 3P+T IP67	LT XRS-0263
MF-904	(for DC Hoist) Closed hole with plug Black Stop Plug PG 13.5. Control Cable not provided.	LT AXCEM1052013N
	(for LVC Hoist) Black Spiral Cable Gland PG13.5 for Cable 4G1,5mmq	LT XRS-0038
MF-905	(for DC Hoist) Control Cable not provided	Not provided
	(for LVC Hoist) Control Cable 4G1.5mmq	LT AXCAVNE4G1.5 (*)
MF-906	(for DC Hoist) Control Cable not provided	Not provided
	(for LVC Hoist) Shark Socket CEE 230VAC 16A 9h 3P+T IP67	LT XRS-0264
MF-501	Galvanized Steel Chain 6x18mm RTS DAT (1m)	LT XRC0618-01M
MF-502	Phosphated Black Steel Chain 6x18mm RTS DAT (1m)	LT XRC0618K-01M
MF-503	Medium Frame Chain End Stop Block 6x18mm	LT XRSFC618
MF-504	Medium Frame KIT Swivel Chain Hook (Bush M14 + Hex Socket) with: n.1 Chain Hook 1.25t-SF 4:1 (Bush M14 + Hex Socket) – (LT XRS-0183) n.1 Chain Hook Block 1 reeve n.1 Lock Pin n.1 Elastic Pin – (LT XRS-0097)	LT XRSGGCW1250E
MF-505	Medium Frame KIT Swivel Body Hook (Bush M14 + Hex Socket) with: n.1 Body Hook 1.25t-SF 4:1(Bush M14 + Hex Socket) + plate n.2 Screw UNI 5739 M16x30 TE 8.8 ZB	LT XRSGGW1250D

(\*) component not available as spare

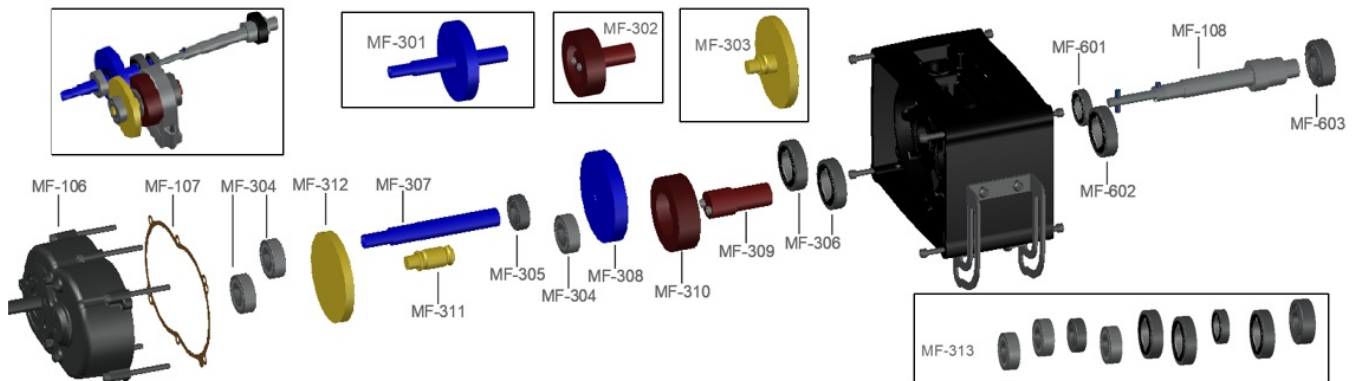
**MF - 02 BRAKES**



KEY NUMBER	DESCRIPTION	A4I ITA CODE / NOTE
MF-101	Medium Frame Black Cover with Handle 215x160x139mm (without screws)	LT XRS-0079
MF-106	Gear Box alum. housing + n.6 screws UNI 5931 6x35mm TCEI 8.8 ZB	LT XRS-9999
MF-109	Medium Frame Brake shaft	LT XRS-0201
MF-201	Steel brake disk $\varnothing_e$ 84mm - $\varnothing_i$ 31.9mm – S=1.5mm (n.1 x brake)	LT XRS-0137
MF-202	KIT n.4 Seeger-Ret. Shaft Locking Washer Set $\varnothing$ 10mm (n.2 x brake)	LT XRS-0159
MF-203	Metal key 4x4x20mm (n.1 x brake)	3.7932 Not available separately (MF-208)
MF-204	Hub gear (n.1 x brake)	LT XRS-0210 Not available separately (MF-208-209)
MF-205	Rotor brake (n.1 x brake)	LT XRS-0209 Not available separately (MF-208-209)
MF-206	KIT Stator brake L06 103VDC (n.1 x brake)	LT XRS-0208 Not available separately (MF-208)
MF-207	(Only double brake) Spacers (n.3 x pair of brake)	LT XRS-0211 Not available separately (MF-208)
MF-002	(Only double brake) n.3 Screws UNI 5931 4x80mm TCEI 8.8 ZB (n.1 kit x pair of brake)	LT XRS-0153
MF-003	(Only single brake) n.3 Screws UNI 5931 4x40mm TCEI 8.8 ZB (n.1 kit x brake)	LT XRS-0212
MF-208	KIT 1st or 2nd brake MF-201 + n.2 MF-202 + MF-203 + MF-204 + MF-205+ MF-206 + n.3 MF-207 + n.3 TCEI-M4x80 + n.3 TCEI-M4x40	LT XRKB06
MF-209	KIT Rotor brake + Hub Gear MF-204 + MF-205	LT XRS-0091

(\* ) component not available as spare

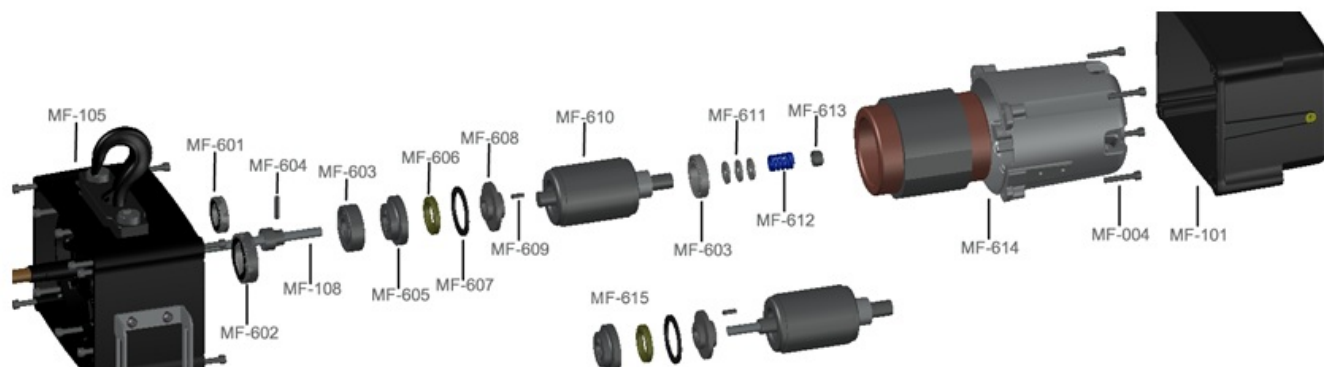
**MF - 03 GEAR BOX**



KEY NUMBER	DESCRIPTION	A4I CODE / NOTE
MF-106	Medium Frame Compact Gear Box alum. housing + n.6 screws UNI 5931 6x35mm TCEI 8.8 ZB (3.0800)	LT XRS-9999 (*)
MF-107	Reduction Gear Box Housing Gasket	LT XRS-0120
MF-301	KIT 1st Gear stage (shaft + pinion + crown) - MF-307 + MF-308	LT XRS-9999 (*)
MF-302	KIT 2nd Gear stage (shaft + pinion + crown) - MF-309 + MF-310	LT XRS-9999 (*)
MF-303	KIT 3rd Gear stage (shaft + pinion + crown) - MF-311 + MF-312	LT XRS-9999 (*)
MF-304	Ball Bearing 6202-RS	Not available separately (MF-313)
MF-305	1st Gear stage - Crown	LT XRS-9999 (*)
MF-306	Ball Bearing 6006-RS	LT XRS-9999 (*)
MF-307	1st Gear stage - shaft + pinion	LT XRS-9999 (*)
MF-308	3rd Gear stage - shaft + pinion	LT XRS-9999 (*)
MF-309	3rd Gear stage - Crown	LT XRS-9999 (*)
MF-310	Metal key 6604-A 4x4x25mm C45	LT XRS-9999 (*)
MF-311	Metal key 6604-A 4x4x20mm C45	LT XRS-9999 (*)
MF-312	Metal key 6604-A 5x5x12mm C45	LT XRS-9999 (*)
MF-108	Metal key 6604-A 5x5x14mm C45	LT XRS-9999 (*)
MF-601	Metal key 6604-A 8x7x32mm C45	LT XRS-9999 (*)
MF-602	Retaining Ring above 25, DIN,28x1.2	LT XRS-9999 (*)
MF-603	Retaining Ring above 25, DIN,42x1.75	Not available separately (MF-313)
MF-313	Retaining Ring UNI,24	LT XRS-0107 (*)

**(\*) component not available as spare**

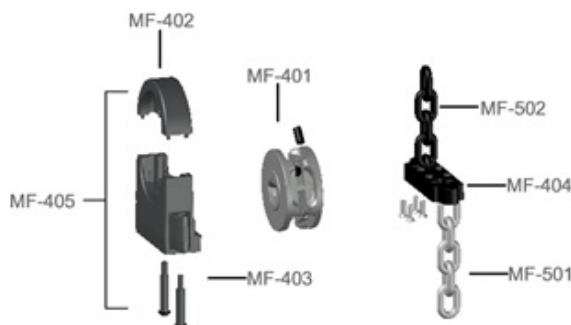
## MF - 06 MOTOR-CLUTCH



KEY NUMBER	DESCRIPTION	A4I CODE / NOTE
MF-105	Medium Frame Load Wheel Housing	LT XRS-0205 (*)
MF-108	Clutch and Rotor 0.8kW Shaft	Not available separately (MF-615)
MF-601	Ball Bearing 6203-RS	Not available separately (MF-313)
MF-602	Ball Bearing 25-47-12 6005-RS	Not available separately (MF-313)
MF-603	Ball Bearing 6906-RS	Not available separately (MF-313)
MF-604	Metal Pin 6x26mm	LT XRS-9999 (*)
MF-605	Clutch inferior support	Not available separately (MF-615)
MF-606	Brass Clutch Disk	Not available separately (MF-615)
MF-607	Ferrite Clutch Disk	LT XRS-0108
MF-608	Clutch superior support	Not available separately (MF-615)
MF-609	Flat key 5x3x16mm UNI7510A	LT XRS-9999 (*)
MF-610	Rotor 230/400VAC-3-50Hz 0.80kW	Not available separately (MF-615)
MF-611	Thrust Bearing for rotor shaft	LT XRS-0169
MF-612	Blue Spring Clutch	LT XRS-9999
MF-613	M10 Nut DIN985	LT XRS-9999
MF-614	Stator 230/400VAC-3-50Hz 0.8Kw + Aluminium Housing	LT XRS-0095
MF-004	n.4 Screws UNI 5931 6x35mm TCEI 8.8 ZB	3.0800
MF-101	Medium Frame Black Cover with Handle 215x160x139mm	LT XRS-0079
MF-615	KIT Clutch - Rotor: MF-108 + MF-605 + MF-606 + MF-607 + MF-608 + MF-609 + MF-610	LT XRS-0118

(\*) component not available as spare

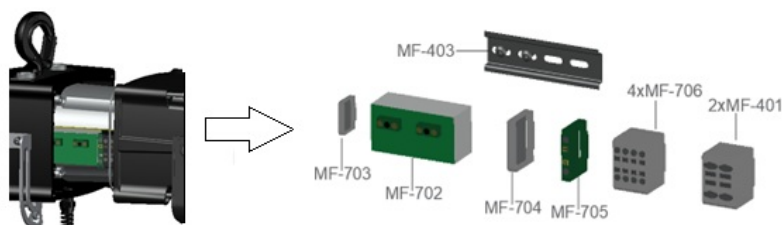
## MF - 04 LOAD WHEEL



KEY NUMBER	DESCRIPTION	A4I CODE / NOTE
MF-401	Medium Frame Load Wheel 5 pocket for 6x18mm chain + Hex Socket	LT XRS-0126 (*)
MF-402	Medium Frame Internal Chain Guide for 6x18mm chain	LT XRS-0134 (*)
MF-403	Medium Frame External Chain Guide for 6x18mm chain with n.2 screws UNI 5931 6x35mm TCEI	LT XRS-0158
MF-404	Medium Frame PVC External Chain Guide Plate (2 parts) for 6x18mm chain with n.4 screws 5x25mm TCEI	LT XRS-0074
MF-501	Galvanized Steel Chain 6x18mm RTS DAT (1m)	LT XRC0618-01M
MF-502	Phosphated Black Steel Chain 6x18mm RTS DAT (1m)	LT XRC0618K-01M
MF-405	Medium Frame KIT Chain Guide for 6x18mm chain (Internal + External + screws): MF-402 + MF-403	LT XRS-0146 (*)

(\*) component not available as spare

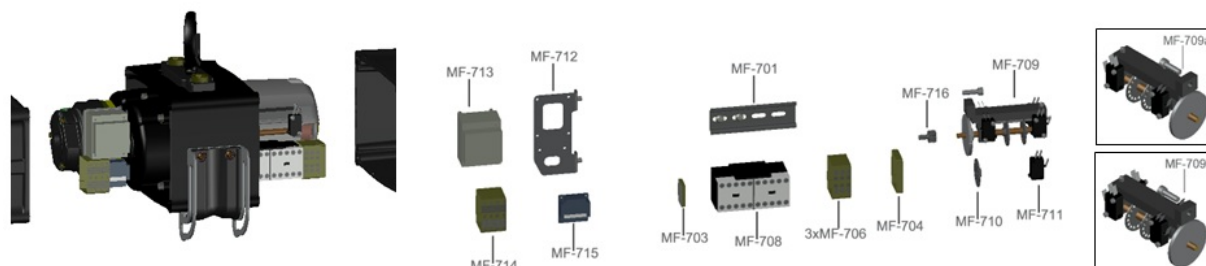
## MF - 07 DC ELECTRICAL COMPONENT



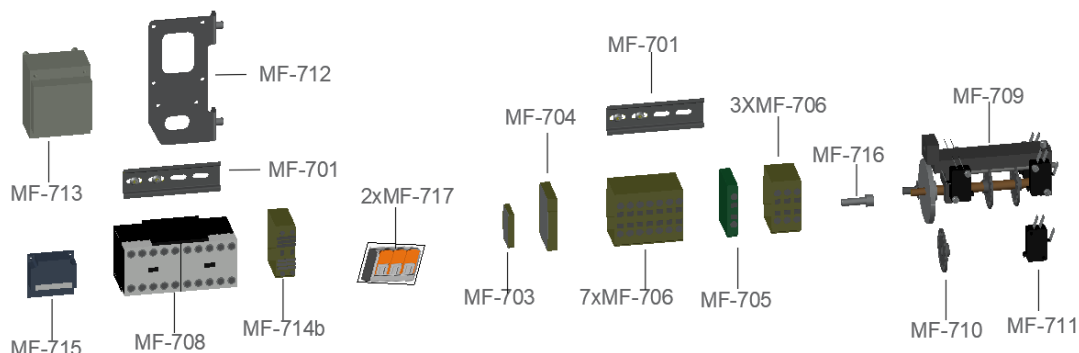
KEY NUMBER	DESCRIPTION	A4I CODE / NOTE
MF-701	DIN Rail with screws	LT XRS-0174
MF-702	Rectifier & Circuit Breaker 120Vac/105Vdc (for Brake 105Vdc)	LT XRS-0008
MF-703	Terminal block of screw terminal and DIN Rail	LT AXWEI792034
MF-704	End plate of screw terminal	LT AXWEI170475
MF-705	Yellow-green PE screw terminal	LT AXWEI171281
MF-706	n.1 Single terminal screw	LT AXWEI171275
MF-707	n.1 Double terminal screw	LT AXWEI171278

(\*) component not available as spare

**MF - 07 LVC ELECTRICAL COMPONENT**  
**V. XRH2L-XRH3L**



**V. XRH4L**

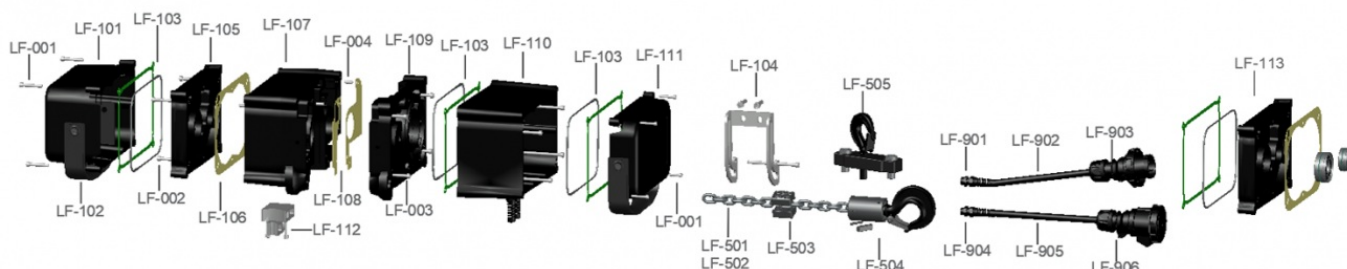


KEY NUMBER	DESCRIPTION	A4I CODE / NOTE
MF-701	DIN Rail with screws	LT XRS-0174
MF-703	Terminal block of screw terminal and DIN Rail	LT AXWEI792034
MF-704	End plate of screw terminal	LT AXWEI170475
MF-705	Yellow-green PE screw terminal	LT AXWEI171281
MF-706	n.1 Single terminal screw	LT AXWEI171275
MF-708	Micro Reversing Contactor 3pin+2cont. 2.2kW 400Vac coil 24Vac 50Hz	LT XRS-0245
MF-709a	Medium Frame 2p Limit Switch RWM (30m) with extended shaft for Encoder Lika CK41	LT XRS-0186
MF-709b	"Giovenzana" Microswitch (rigid spring) - Faston connection 0.8x6.3 + n.2 screws UNI 7687 TCBI+ M3x14 – Extra UP/DOWN	LT XRS-0115
MF-710	n.1 Wheel for Limit Switch RWM	LT XRS-0188
MF-711a	"Zippy" Microswitch (intermediate spring) - Faston connection 0.8x6.3 + n.2 screws UNI 7687 TCBI+ M3x16 – Standard UP/DOWN	LT XRS-0166
MF-711b	"Giovenzana" Microswitch (rigid spring) - Faston connection 0.8x6.3 + n.2 screws UNI 7687 TCBI+ M3x14 – Extra UP/DOWN	LT XRS-0112
MF-712	Aluminium support + n.2 screws	LT XRS-9999
MF-713	Transformer Meth Type T4 25VA 400/24vac	LT XRS-0066
MF-714	Fuse holder	LT XRS-9999
MF-714b	Conta-Clip art. 1078.2 STK 2 BG Fuse holder pz. 2	LT AXCON1078-2
MF-715	Rectifier PMESF 400S	LT XRS-0016
MF-716	Medium Frame KIT Pinion for limit switch with: Pinion Z13 and Screw TSPEI M6x22	LT XRS-0259
MF-717	Compact Splicing Connector, 3 conductor WAGO 221-413	LT AXWAG221413

**(\*) component not available as spare**

### 11.3 SPARE LIST LARGE FRAME 1 FALL

#### LF - 01 CHASSIS



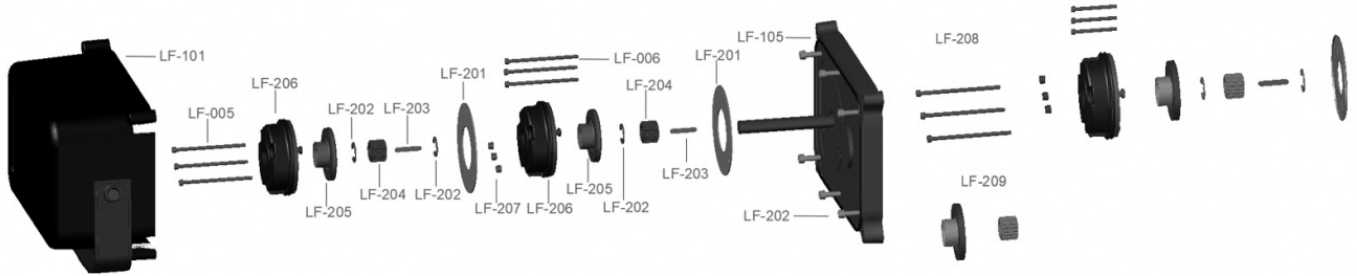
KEY NUMBER	DESCRIPTION	A4I ITA CODE
LF-101	Large Frame High Black Cover with Handle 265x178x110mm (no screws)	LT XRS-0081
LF-001	Screws UNI 5931 5x30mm TCEI 8.8 ZB (n.4 x cover)	3.7909
LF-102	LF-102 Large Frame KIT Cover Handle 42x475mm – Ø11.75 with: n.2 Screw TSPEI M6x25 10.9 ZB, n.2 Self-locking Nut High M6, n.2 Bush Øe18 - Øi6 - L=11mm	LT XRS-0058
LF-103	Large Frame Tubular Gasket Ø2.5mm – L=750mm (n.1 x Cover + n.1 x Motor Housing)	LT XRS-0078 (to DC177158)
	Large Frame Ring Gasket 266x180x1mm (n.1 x Cover + n.1 x Motor Housing)	LT XRS-0257(from DC177159)
LF-104	Large Frame Chain Bag Steel Bracket with: n.2 Screw 5931 8x30mm TCEI 8.8 ZB, n.2 Washers M8, n.1 Screw 5931 6x100mm TCEI 8.8 ZB, n.1 M6 Selflocking Nut	LT XRS-0005 (< 50m)
	Large Frame Reinforced Chain Bag Steel Bracket with n.2 Screw 5931 8x30mm TCEI 8.8 ZB - n.4 Washers M8 n.1 Screw 5931 6x100mm TCEI 8.8 ZB - n.1 M6 Selflocking Nut	LT XRS-0005 (> 50m)
LF-105	Large Frame Brake Frame	Not available separ. (LF-113)
LF-002	Screws UNI 5931 6X40mm TCEI 8.8 ZB (n.4 x frame)	3.0740
LF-106	Large Frame Gearbox Housing Gasket	LT XRS-0075
LF-107	Large Frame Gearbox Housing	LT XRS-0140 (*)
LF-004	Metal Pin 6x16mm (4 per Gearbox Housing – 2 per side)	LT 999
LF-108	Large Frame Loadwheel Housing Gasket	LT XRS-0077
LF-109	Large Frame Loadwheel-Electric Motor Frame	LT XRS-0141
LF-003	Screws UNI 5931 6X30mm TCEI 8.8 ZB	3.7790
	Screws UNI 5931 6X35mm TCEI 8.8 ZB	3.0800
	Screws UNI 5931 6X45mm TCEI 8.8 ZB (n.2 x frame)	3.7784
LF-110	Large Frame Motor Housing with: n.1 PG16 and M16x1.5 cap + n.4 Screws 5931 6X75mm TCEI 8.8 ZB	LT XRS-0067
LF-111	Large Frame Low Black Cover with Handle 265x178x59mm (no screws)	LT XRS-0025
LF-112	Large Frame Aluminium Turnbuckle with n.2 screws	LT XRS-0069
LF-113	Large Frame KIT Brake Frame with: n.1 brake frame + n.2 bearing 6005 / 6205, n.1 tubular gasket (LT XRS-0078), n.1 loadwheel housing gasket (LT XRS-0075)	LT XRS-0110 (to DC177158)
	Large Frame KIT Brake Frame with: n.1 brake frame, n.1 tubular gasket (LT XRS-0078), n.1 gearbox housing gasket (LT XRS-0075), n.1 bearing 6005, n.1 bearing 6205	LT XRS-9999 (from DC177159)

(\*) component not available as spare

KEY NUMBER	DESCRIPTION	A4I ITA CODE
LF-901	(for DC/LVC Hoist) Black Spiral Cable Gland PG16 for Cable 4G2,5mmq	LT XRS-0057
LF-902	(for DC/LVC Hoist) Power Cable 4G2.5mmq	LT AXCAVNE4G2.5 (*)
LF-903	(for DC/LVC Hoist) Shark Plug CEE 400VAC 16A 6h 3P+T IP67	LT XRS-0263
LF-904	(for DC Hoist) Control Cable not provided	LT AXCEM1052016N
	(for LVC Hoist) Shark Socket CEE 230VAC 16A 9h 3P+T IP67	LT XRS-0057
LF-905	(for DC Hoist) Control Cable not provided	Not provided
	(for LVC Hoist) Control Cable 4G2.5mmq	LT AXCAVNE4G2.5 (*)
LF-906	(for DC Hoist) Control Cable not provided	Not provided
	(for LVC Hoist) Shark Socket CEE 230VAC 16A 9h 3P+T IP67	LT XRS-0264
LF-501	Galvanized Black Steel Chain 8x24mm RTS DAT (1m)	LT XRC0824-01M
LF-502	Phosphated Black Steel Chain 8x24mm RTS DAT (1m)	LT XRC0824K-01M
LF-503	Large Frame Chain End Stop Block 8x24mm	LT XRSFC824
LF-504	Large Frame KIT Swivel Chain Hook (Bush M20 + Hex Socket) with: n.1 Chain Hook 2.5t-SF 4:1 (Bush M20 + Hex Socket) – (LT XRS-0195) n.1 Chain Hook Block 1 reeve for chain 8x24mm n.1 Lock Pin + n.1 Elastic Pin – (LT XRS-0097)	LT XRSGGCW2500E
LF-505	Large Frame KIT Swivel Body Hook (Bush M20 + Hex Socket) with: n.1 Body Hook 2.5t-SF 4:1(Bush M20 + Hex Socket) + plate n.2 Screw UNI 5739 M16x35 TE 8.8 ZB	LT XRSGGW2500B

(\*) component not available as spare

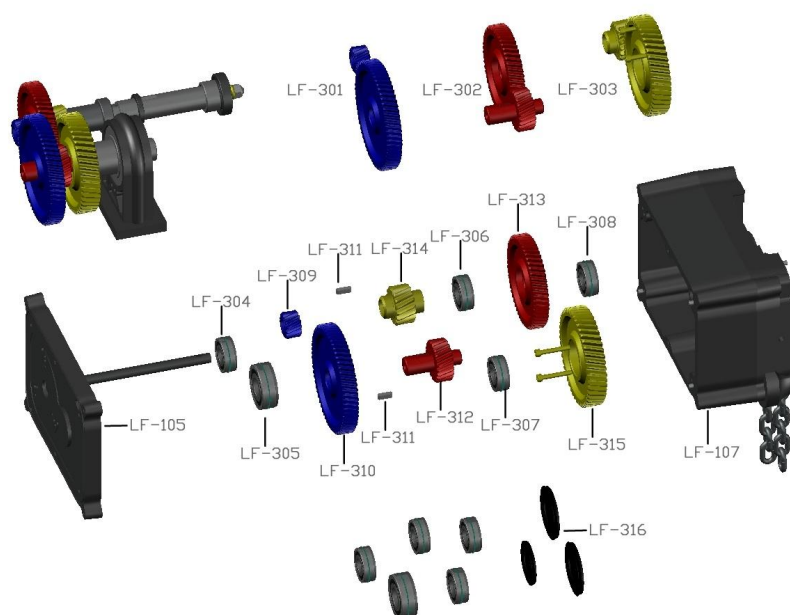
## LF - 02 BRAKES



KEY NUMBER	DESCRIPTION	A4I ITA CODE
LF-002	Screws UNI 5931 6X40mm TCEI 8.8 ZB (n.6 x frame)	3.0740 (*)
LF-105	Large Frame Brake Frame	Not available separately (LF-113)
LF-201	Steel brake disk Øe 100mm - Øi 50mm – S=1.5mm (n.1 per brake)	LT XRS-0128
LF-202	KIT n.4 Seeger-Ret. Shaft Locking Washer Set Ø10mm (n.2 x 2nd brake – n.1 x 1st brake)	LT XRS-0160
LF-203	Metal key 6x28mm (n.1 x brake)	Not available separately (LF-208)
LF-204	Hub gear (n.1 x brake)	Not available separately (LF-208 LF-209)
LF-205	Rotor brake (n.1 x brake)	Not available separately (LF-208 LF-209)
LF-206	KIT Stator brake L08 103VDC (n.1 x brake)	Not available separately (LF-208)
LF-207	(Only double brake) Spacers (n.3 x pair of brake)	Not available separately (LF-208)
LF-005	(Only double brake) n.3 Screws UNI 5931 5x90mm TCEI 8.8 ZB (n.1 kit x pair of brake)	LT XRS-0154
LF-006	(Only single brake) n.3 Screws UNI 5931 5x40mm TCEI 8.8 ZB (n.1 kit x brake)	LT XRS-9999
LF-208	KIT 1st or 2nd brake LF-201 + n.2 LF-202 + LF-203 + LF-204 + LF-205+ LF-206 + n.3 LF-207 + n.3 TCEI-M5x90 + n.3 TCEI-M5x40	LT XRKB08
LF-209	KIT Rotor brake + Hub Gear LF-204 + LF-205	LT XRS-0124

(\*) component not available as spare

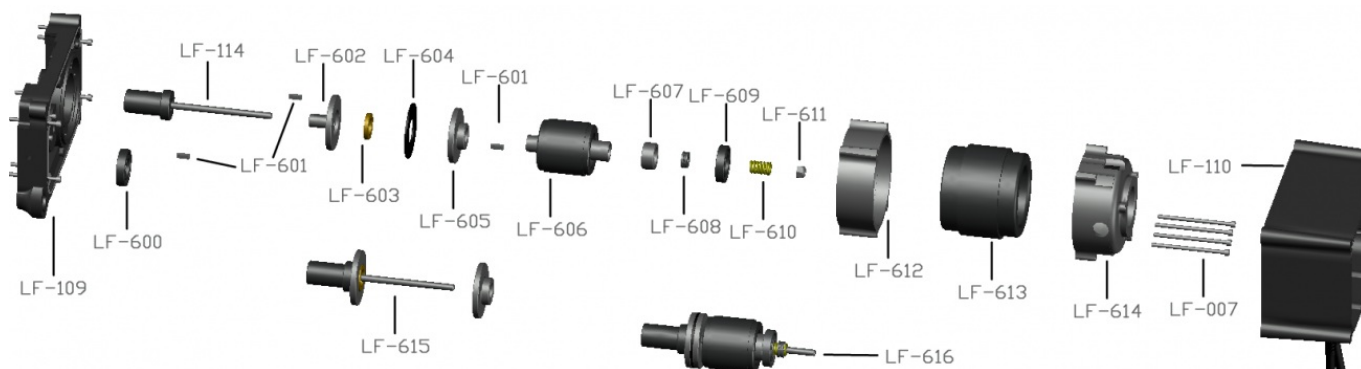
## LF - 03 GEAR BOX



KEY NUMBER	DESCRIPTION	A4I ITA CODE
LF-105	Large Frame Brake Frame (without screws)	Not available separately (LF-113)
LF-107	Large Frame Gearbox Housing	LT XRS-0140 (*)
LF-301	KIT 1st Gear stage (shaft + pinion + crown) - LF-309 + LF-310	LT XRS-9999 (*)
LF-302	KIT 2nd Gear stage (shaft + pinion + crown) - LF-312 + LF-313	LT XRS-9999 (*)
LF-303	KIT 3rd Gear stage (shaft + pinion + crown) - LF-314 + LF-315	Not available separately (LF-312)
LF-304	Ball Bearing 6202-RS ???	Not available separately (LF-316)
LF-305	Ball Bearing 6205-RS ???	Not available separately (LF-316)
LF-306	Ball Bearing 16004 ???	Not available separately (LF-316)
LF-307	Ball Bearing 6204???	Not available separately (LF-316)
LF-308	Ball Bearing 6006 ???	ot available separately (LF-316)
LF-309	1st Gear stage - shaft + pinion	LT XRS-9999 (*)
LF-310	1st Gear stage - Crown	LT XRS-9999 (*)
LF-311	Metal Key	LT XRS-9999 (*)
LF-312	2nd Gear stage - shaft + pinion	LT XRS-9999 (*)
LF-313	2nd Gear stage - Crown	LT XRS-9999 (*)
LF-314	3rd Gear stage - shaft + pinion	LT XRS-9999 (*)
LF-315	3rd Gear stage - Crown	LT XRS-9999 (*)
LF-316	LG FRAME BEARING + OIL SEAL SET (GEAR BOX SIDE) 1pz 6209RS - 1pz 6006RS - 1pz 6205RS - 1pz 6204RS - 1pz 6203RS - 1pz 16004 - 3 oil seal set	LT XRS-0100 (*)

(\*) component not available as spare

## LF - 06 MOTOR-CLUTCH



KEY NUMBER	DESCRIPTION	A4I ITA CODE
LF-109	Large Frame Loadwheel-Electric Motor Frame	LT XRS-0141
LF-114	Clutch and Rotor 1.0kW Shaft	Not available separately (LF-616)
LF-600	Bearing	Not available separately (LF-617)
LF-601	Flat key 6x6x20mm UNI7510A	LT XRS-9999
LF-602	Clutch inferior support	Not available separately (LF-615 LF-616)
LF-603	Brass Clutch Disk	Not available separately (LF-615 LF-616)
LF-604	Ferrite Clutch Disk	LT XRS-0122
LF-605	Clutch superior support	Not available separately (LF-615 LF-616)
LF-606	Rotor 230/400VAC-3-50Hz 1.0kW	LT LT XRS-9999 (*)
LF-607	Stell Ring Spacer $\varnothing e=40\text{mm} - \varnothing i=30\text{mm} - H=17\text{mm}$	LT XRS-0047 (*)
LF-608	Bearing 5100 for H60	Not available separately (LF-617)
LT-609	Bearing 6006RS	Not available separately (LF-617)
LT-610	Yellow Spring Clutch	LT XRS-9999
LT-611	M10 Nut DIN985	LT XRS-9999
LF-612	Aluminium Ring Motor Frame	LT XRS-0048
LF-613	Stator 230/400VAC-3-50Hz 1.0kW + Aluminium Housing	LT XRS-0046
LF-614	Aluminium Cap Motor Frame	LT XRS-0049
LF-007	n.4 Screws UNI 5931 6x120mm TCEI 8.8 ZB	LT XRS-9999
LF-110	Large Frame Motor Housing with: n.1 PG16 and M16x1.5 cap n4 Screws UNI 5931 6X75mm TCEI 8.8 ZB	LT XRS-0067 (*)
LF-615	KIT Clutch with shaft	LT XRS-0094 (*)
LF-616	KIT Rotor-Clutch with shaft	LT XRS-0054 (*)
LF-617	LF FRAME BEARING + OIL SEAL SET (MOTOR SIDE) 1pz 6207 RS -1pz 6206 RS - 1pz 6006 RS	LT XRS-0099 (*)

(\*) component not available as spare

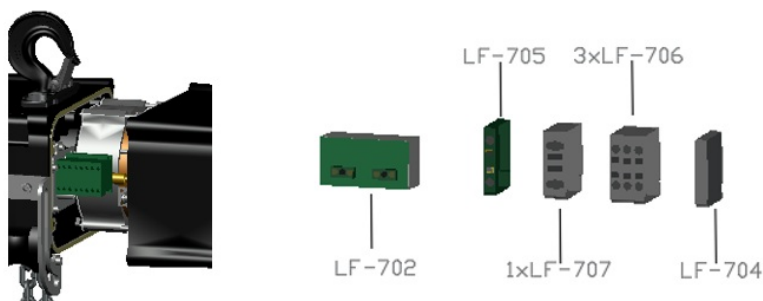
## LF - 04 LOAD WHEEL



KEY NUMBER	DESCRIPTION	A4I ITA CODE
LF-401	Large Frame Load Wheel 5 pocket for 8x24mm chain + shaft & gear	LT XRS-0125 (*)
LF-402	Large Frame KIT Internal Chain Guide for 8x24mm chain (2 pcs) with n.2 cylindrical fixing pins and ½ moon inserter	LT XRS-0147 (*)
LF-403	Large Frame PVC External Chain Guide Plate for 8x24mm chain with n.4 screws (1 part) 5x30mm TSPI+ ZB	LT XRS-0061
	Large Frame PE 300 External Chain Guide Plate for 8x24mm chain (2 parts) without screws	XRS-0167
LF-501	Galvanized Steel Chain 8x24mm RTS DAT (1m)	LT XRC0824-01M
LF-502	Phosphated Black Steel Chain 8x24mm RTS DAT (1m)	LT XRC0824K-01M

(\*) component not available as spare

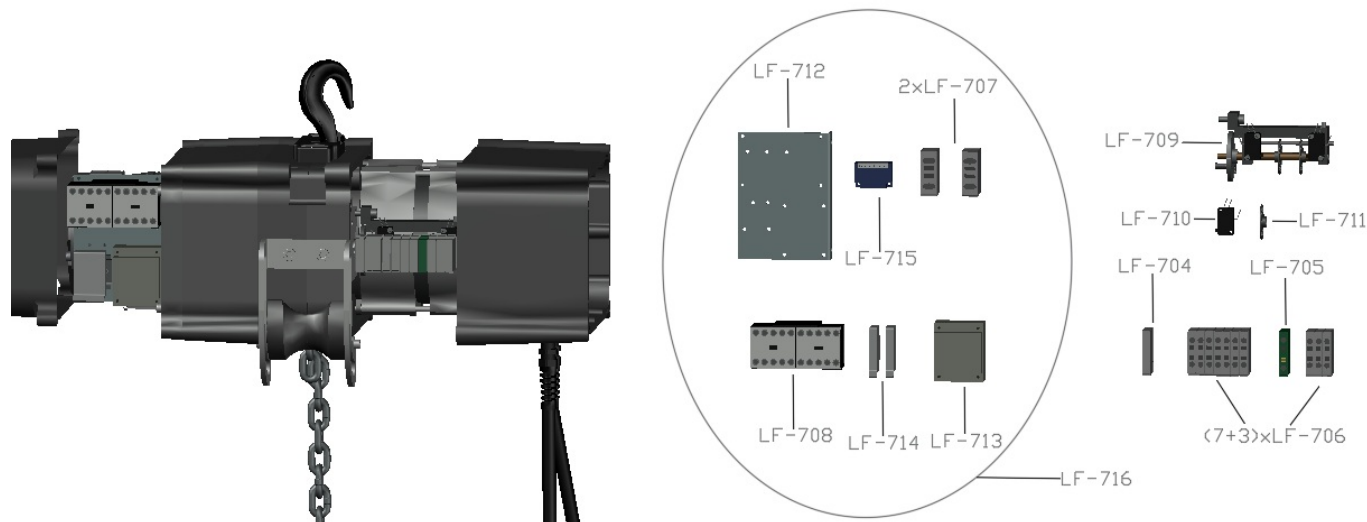
## LF - 07 DC ELECTRICAL COMPONENT



KEY NUMBER	DESCRIPTION	A4I ITA CODE
LF-702	Rectifier & Circuit Breaker 120Vac/105Vdc (for Brake 105Vdc)	LT XRS-0008
LF-704	End plate of screw terminal	LT AXWEI170475
LF-705	Yellow-green PE screw terminal	LT AXWEI171281
LF-706	n.1 Single terminal screw	LT AXWEI171275
LF-707	n.1 Double terminal screw	LT AXWEI171278

(\*) component not available as spare

**LF - 07 LVC ELECTRICAL COMPONENT**

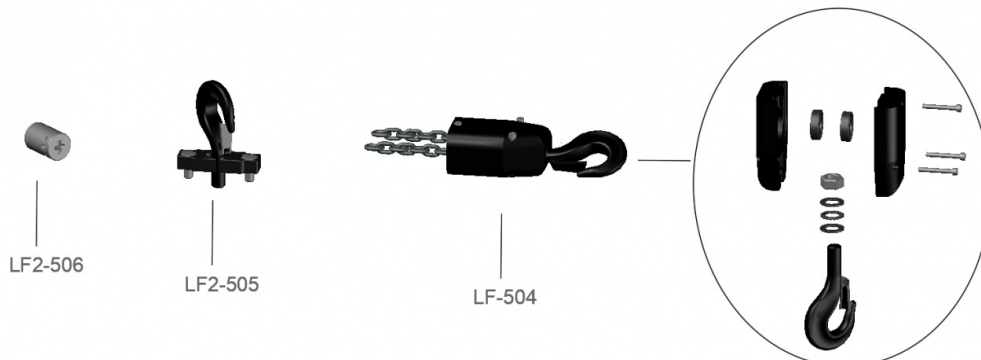


KEY NUMBER	DESCRIPTION	A4I ITA CODE
LF-704	End plate of screw terminal	LT AXWEI170475
LF-705	Yellow-green PE screw terminal	LT AXWEI171281
LF-706	n.1 Single terminal screw	LT AXWEI171275
LF-707	n.1 Double terminal screw	LT AXWEI171278
LF-708	Micro Reversing Contactor LC2 K0910B7 24VAC 50/60 Hz	AXTE2K0910B7
LF-709	Large Frame 2p Limit Switch RWM (60m) with extended shaft for Encoder Lika CK41	LT XRS-0255
	Large Frame 4p Limit Switch RWM (60m) with extended shaft for Encoder Lika CK41	LT XRS-0199
LF-710	"Zippy" Microswitch (intermediate spring) - Faston connection 0.8x6.3 + n.2 screws UNI 7687 TCBI+ M3x16 – Standard UP/DOWN	LT XRS-0166
	"Giovenzana" Microswitch (rigid spring) - Faston connection 0.8x6.3 + n.2 screws UNI 7687 TCBI+ M3x14 – Extra UP/DOWN	LT XRS-0112
LF-711	n.1 Wheel for Limit Switch RWM	LT XRS-0188
LF-712	Aluminium support	LT 999
LF-713	Transformer Meth Type T4 25VA 400/24vac	LT XRS-0066
LF-714	Fuse holder	LT AXCON1078-2
LF-715	Rectifier PMESF 400S	LT XRS-0016
LF-716	Large Frame LVC KIT plate assembly	LT XRS-0064 (*)

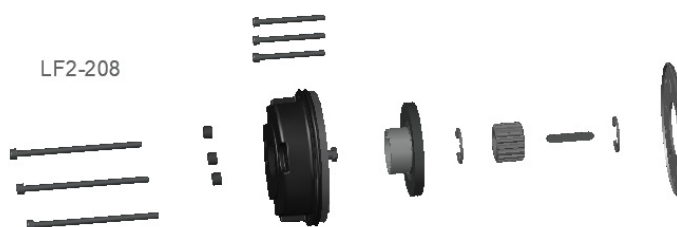
(\*) component not available as spare

## 11.4 SPAR LIST LARGE FRAME 2 REEVES

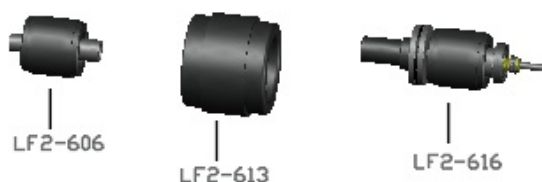
Below are the spare parts for the 2 reeves large frame which differ from those in paragraph 11.3



KEY NUMBER	DESCRIPTION	A4I ITA CODE
LF2-504	Large Frame Double Reeves KIT Swivel Chain Hook (5.4t-SF 4:1)	LT XRSGGCW5400A
LF2-505	Large Frame Double Reeves KIT Swivel Body Hook (5.4t-SF 4:1)	LT XRSGGW5400A
LF2-506	Large Frame Dead and Block 8x24mm	LT XRS-0119



KEY NUMBER	DESCRIPTION	A4I ITA CODE
LF2-208	KIT 1st or 2nd brake	LT XRKB10



KEY NUMBER	DESCRIPTION	A4I ITA CODE
LF2-606	Rotor 230/400VAC-3-50Hz 1.6kW	LT XRS-9999 (*)
LF2-613	Stator 230/400VAC-3-50Hz 1.6kW + Aluminium Housing	LT XRS-0182
LF2-616	KIT Rotor-Clutch with shaft	LT XRS-9999



**CAUTION**

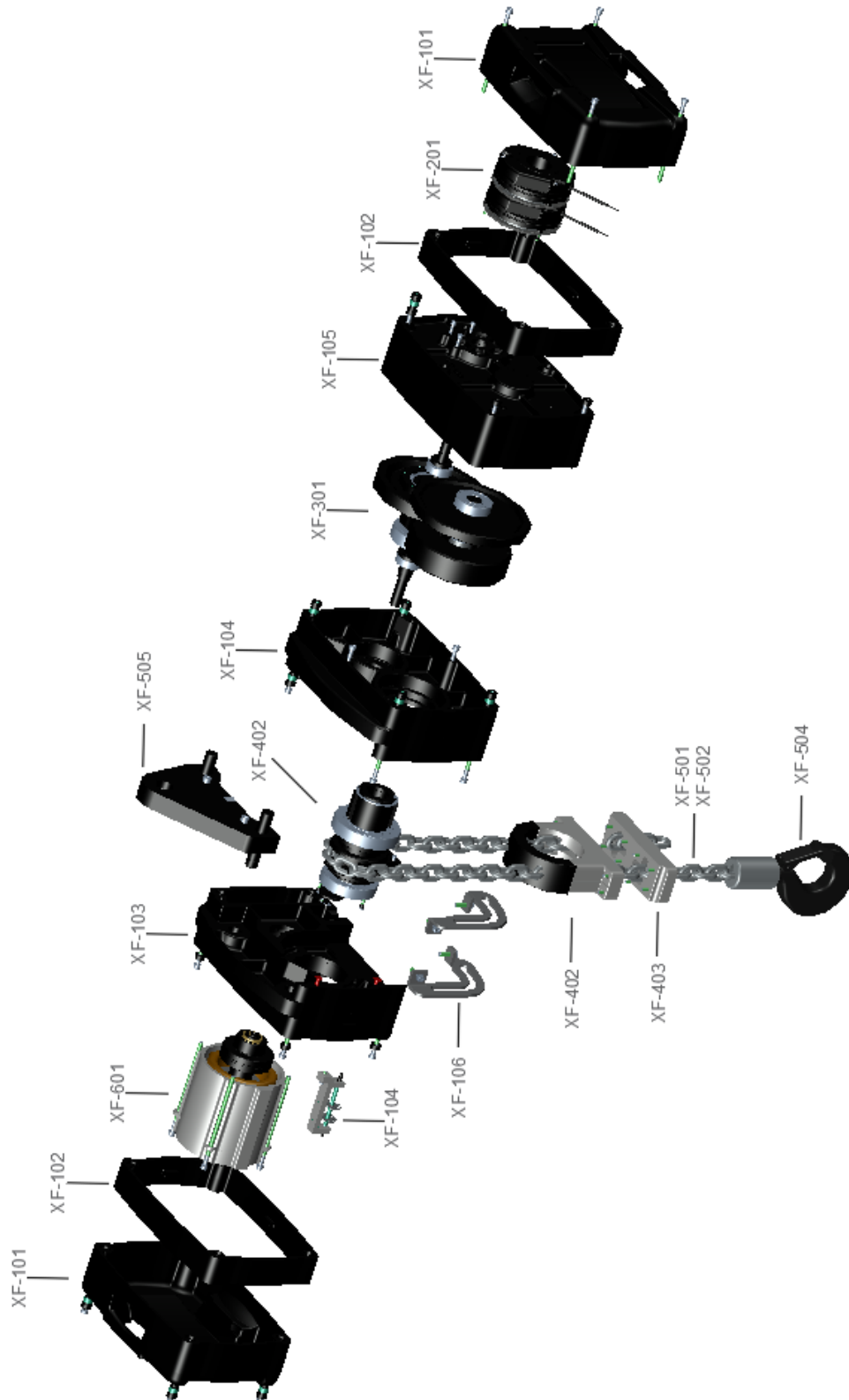
Please contact the EXE Technology office for information on all other replacement parts.

## 11.5 SPAR LIST EXTRA LARGE FRAME 1 REEVE



### WARNING

Please contact the EXE Technology office for information on spare part numbers and descriptions before proceeding with your official order.



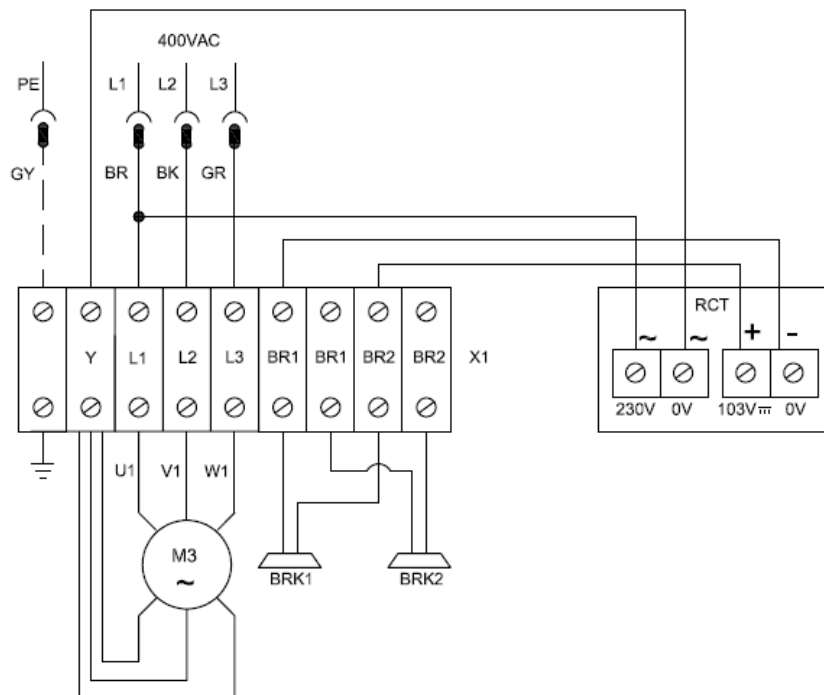
KEY NUMBER	DESCRIPTION	A4I CODE
XF-101	Extra-Large Frame Black Cover with Handle 378x258x100mm (no screws)	LT XRS-0289
XF-102	Aluminium Body Ring 375x260mm H=57mm + n.4 Screws TCEI UNI 5931 8x80mm	LT XRS-161
XF-106	Extra-Large Frame Chain Bag Steel Bracket with: n.4 Screw TCEI 8x30mm and n.4 Washer M8	LT XRS-0258
XF-501	Galvanized Steel Chain 10x28mm RTS DAT (1m)	LT XRC1028-01M
	Galvanized Steel Chain 11.3x31mm RTS DAT (1m)	LT XRC11M331-01M
	Galvanized Steel Chain 13x36mm RTS DAT (1m)	LT XRC1336-01M
XF-502	Phosphated Black Steel Chain 10x28mm RTS DAT (1m)	LT XRC1028K-01M
	Phosphated Black Steel Chain 11.3x31mm RTS DAT (1m)	LT XRC11M331K-01M
	Phosphated Black Steel Chain 13x36mm RTS DAT (1m)	LT XRC1336K-01M

## 12 WIRING DIAGRAM

### 12.1 WIRING DIAGRAM DIRECT CONTROL

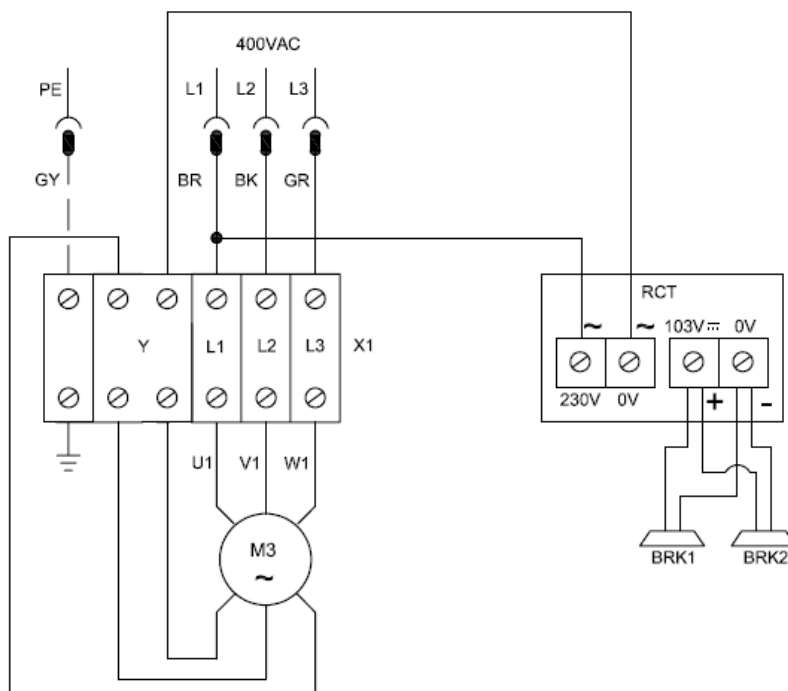
Medium Frame (MFU - MFC - MF)

DC - 400VAC - 0.36-1.00kW



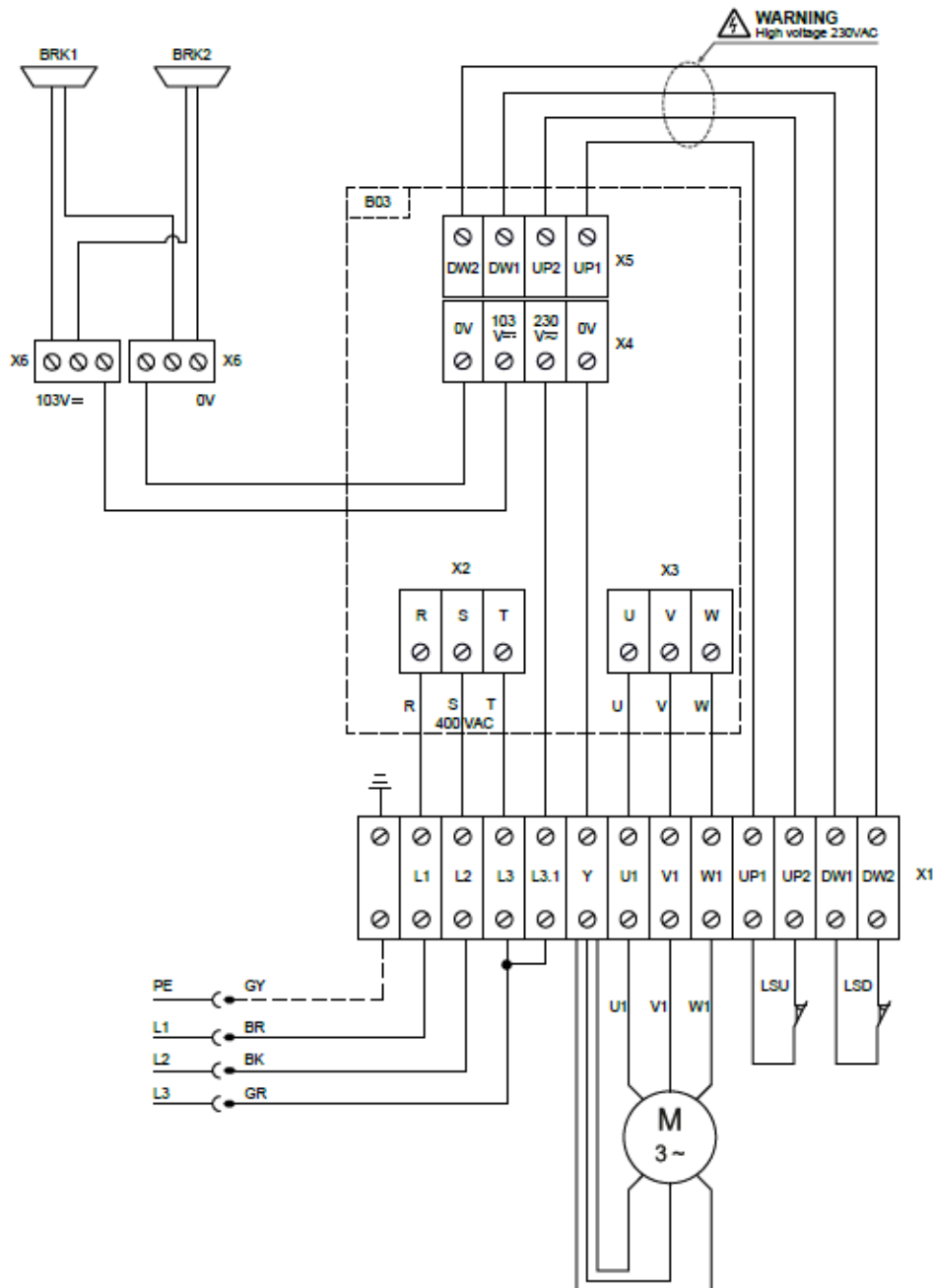
Large Frame (LF)

DC 400VAC - 1.0-1.6kW



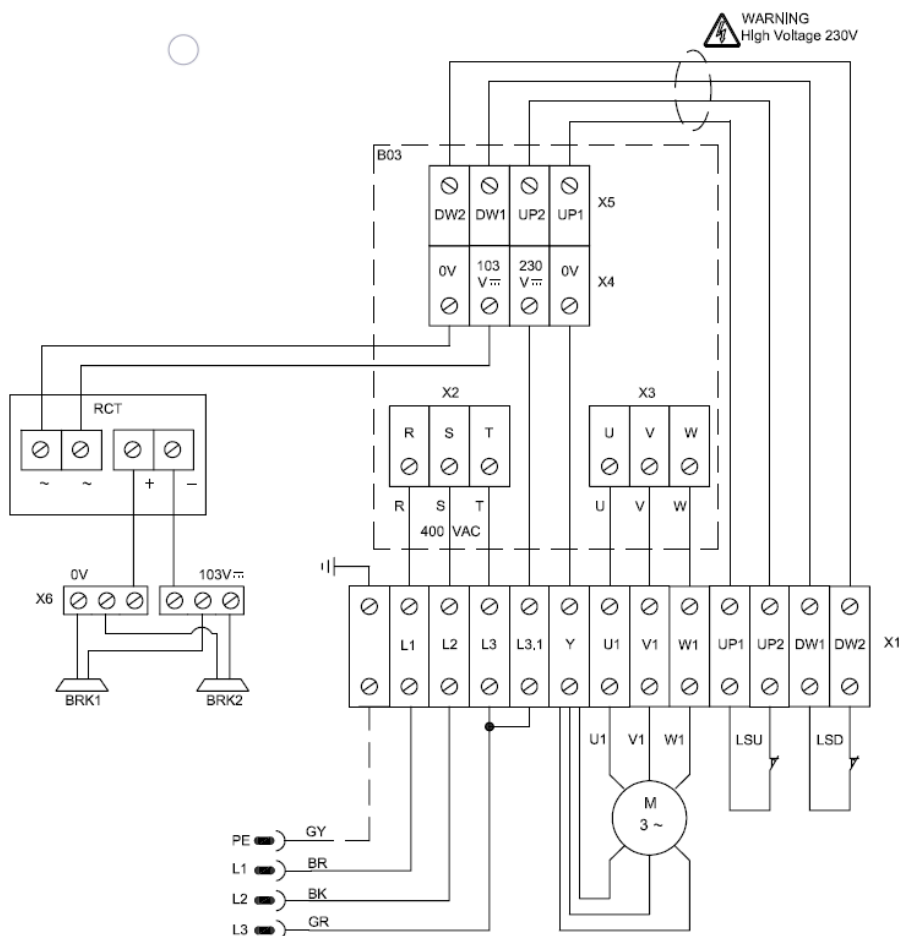
Legend: X1 - Terminal Block / M3 - Electric Motor / RCT - Rectifier / BRK1 - Brake1 / BRK2 - Brake2

**Medium Frame (MFU - MFC - MF) + Limit Switch**  
**Large Frame (LF) + Limit Switch**  
**DC 400VAC - 0.36-1.0kW**



B03 - Control Board / BRK1 - Brake 1 / BRK2 - Brake 2 / LSD - Down Limit Switch / LSU - Up Limit Switch / X1 - Chain hoist terminal box / X2 - control board terminal block IN 400VAC / X3 - control board terminal block OUT 400VAC / X4 - control board terminal block brakes / X5 - control board terminal block limit switch / X6 - Splicing connector

**Large Frame (LF) + Limit Switch**  
**Extra Large Frame (XLF) + Limit Switch**  
**DC 400VAC - 1.0-2.5kW**

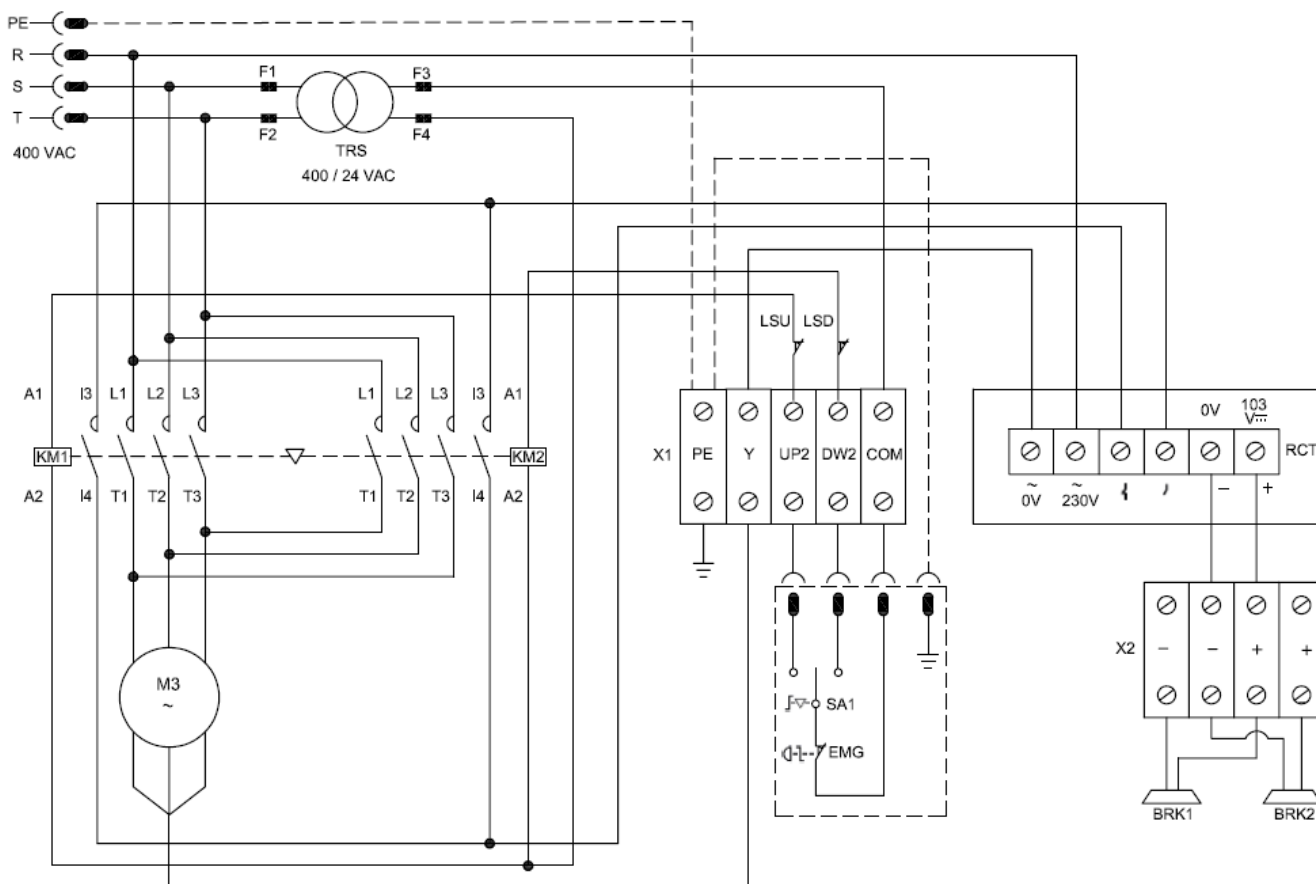


B03 - Control Board / BRK1 - Brake 1 / BRK2 - Brake 2 / LSD - Down Limit Switch / LSU - Up Limit Switch / RCT - Rectifier / X1 - Chain hoist terminal box / X2 - control board terminal block IN 400VAC / X3 - control board terminal block OUT 400VAC / X4 - control board terminal block brakes / X5 - control board terminal block limit switch / X6 - Splicing connector

## 12.2 WIRING DIAGRAM LOW VOLTAGE CONTROL

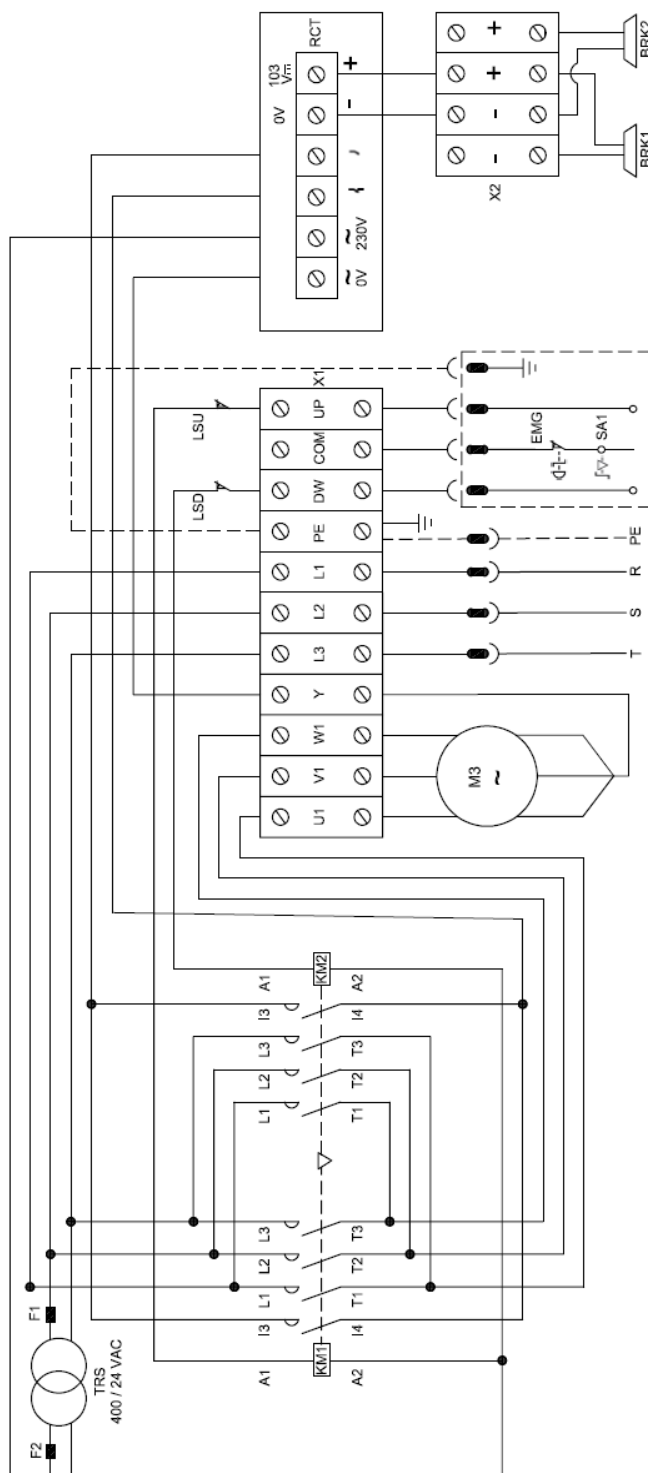
Medium Frame (MFU - MFC - MF)

LVC - 400VAC - 0.36-0.8kW



BRK1 - Brake 1 / BRK2 - Brake 2 / F1, F2 - Fuse 0,3A T / F3, F4 - Fuse 1A F / KM1 - Reversing contactor UP / KM2 - Reversing contactor DW / LSD - DW Limit switch / LSU - UP Limit switch / M3 - Electric motor / RCT - Rectifier / TRS - Transformer / X1 - Spring terminal box (stator side) / X2 - Spring terminal box (brake side)

**Large Frame (LF)**  
**LVC - 400VAC -1.0-1.6kW**



BRK1 - Brake 1 / BRK2 - Brake 2 / F1, F2 - Fuse 0,3A T / F3, F4 - Fuse 1A F / KM1 - Reversing contactor UP / KM2 - Reversing contactor DW / LSD - DW Limit switch / LSU - UP Limit switch / M3 - Electric motor / RCT - Rectifier / TRS - Transformer / X1 - Spring terminal box (stator side) / X2 - Spring terminal box (brake side)

## 13 DECLARATION OF CONFORMITY



### DICHIARAZIONE DI CONFORMITÀ / DECLARATION OF CONFORMITY

ai sensi della Direttiva Macchine 2006/42/CE, allegato II parte 1 sezione A, pubblicata in GUUE n. L 157 il 09/06/2006  
under the Machinery Directive 2006/42/EC, annex II part 1 section A, published in the OJEU on 09/06/2006

Il fabbricante / The Manufacturer:

**RWM S.R.L.** Via Bartolomeo Colleoni 80/7, 36034 Malo (VI) – ITA Tel. +39 0445 637002

dichiara nella persona di Marco Rebeschin che la macchina  
declares in the name of Marco Rebeschin that the machinery:

<u>Descrizione / Description:</u>	Chain Hoist for Entertainment
<u>Modello / Model:</u>	EXE RISE Chain Hoist <u>xxxxkg</u> D8/D8+ DC/LVC
<u>Tipo / Type:</u>	Direct / Low Voltage Control
<u>Portata / Capacity:</u>	<u>xxxx</u> kg
<u>Numero di Serie</u> <u>Serial Number:</u>	<u>DCxxxxxxx</u>
<u>Anno di costruzione</u> <u>Year of construction:</u>	20xx

è conforme alle disposizioni pertinenti alle seguenti Direttive Europee  
complies with the relevant provisions of the following European Directives:

- Direttiva Macchine 2006/42/CE / Machinery Directive 2006/42/EC
- Direttiva Compatibilità Elettromagnetica 2014/30/CE / Electromagnetic Compatibility Directive 2014/30/EC

e che sono state applicate le seguenti norme tecniche armonizzate  
and that the following harmonized technical standards have been applied:

- EN 12100: 2010
- EN 60204-1 2016
- EN 818-7:2008
- UNI EN 14492-2

e che sono state applicate le seguenti norme e specifiche tecniche  
and that the following standards and technical specifications have been applied:

- EN 17206:2020

Il fabbricante dichiara inoltre che il fascicolo tecnico della macchina è costituito e custodito presso RWM S.R.L.  
(responsabile del fascicolo tecnico Vilmino Rebeschin) e custodito presso il mandatario  
The manufacturer also declares that the technical file of the machine is made and kept at RWM S.R.L. (Vilmino  
Rebeschin, responsible for technical file) and kept by the authorized representative:

**AREA FOUR INDUSTRIES ITALIA S.R.L.** Via Martin Luther King 70, 31032 Casale sul Sile (TV) – ITA  
Tel. +39 0422 997300

Legale Rappresentante / Legal Representative  
Marco Vilmino

Malo, xx/xx/20xx

Firma \_\_\_\_\_







Via Martin Luther King, 70

Casale sul Sile (TV) | Italy

[info@exetechnology.com](mailto:info@exetechnology.com) | [www.exetechnology.com](http://www.exetechnology.com)

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