NX rental display

Installation manual

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Barco provides a guarantee relating to perfect manufacturing as part of the legally stipulated terms of guarantee. On receipt, the purchaser must immediately inspect all delivered goods for damage incurred during transport, as well as for material and manufacturing faults Barco must be informed immediately in writing of any complaints.

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The crossed-out wheeled bin symbol invites you to use those systems. If you need more information on the collection, reuse and recycling systems, please contact your local or regional waste administrator. You can also contact us for more information on the environmental performances of our products.

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1. SAFETY

About this chapter

Read this chapter attentively. It contains important information to prevent personal injury while installing your NX rental display. Furthermore, it includes several cautions to prevent damage to the NX tile. Ensure that you understand and follow all safety guidelines, safety instructions and warnings mentioned in this chapter before installing the NX rental display. After this chapter, additional "warnings" and "cautions" are given depending on the installation procedure. Read and follow these "warnings" and "cautions" as well.

Overview

- Safety guidelines
- Important safety instructions
- Important warnings
- Proper usage
- Important warnings concerning flight cases

1.1 Safety guidelines

Personal protection

	WARNING: Ensure you understand and follow all the safety guidelines, safety instructions, warnings and cautions mentioned in this manual.

	WARNING: Be aware of suspended loads.

	WARNING: Wear a hard hat to reduce the risk of personal injury.

	WARNING: Be careful while working with heavy loads.

	WARNING: Mind your fingers while working with heavy loads.

Installation personnel

This installation must be performed by authorized and qualified technical personnel only.

Accredited safety officers must ensure the safety of the site, construction, assembly, connection, use, dismantling, transport etc. of such safety critical systems.

Caution

Installation should be performed only after you are thoroughly familiar with all of the proper safety checks and installation instructions. To do otherwise increases the risk of hazards and injury to the user.

Assembly parts are designed for intended use only in conjunction with NX LED displays.

Do not modify and/or replicate any component. Barco uses specific materials and manufacturing processes in order to achieve part strength. Consult Barco for assistance with custom applications.

Always follow Barco installation instructions. Contact Barco if you should have any question regarding the safety of an application.

The manufacturer assumes no liability for incorrect, inadequate, irresponsible or unsafe assembly of systems.

Product care

Structural & mounting components should be kept dry, clean, lubricated (only if recommended), coated properly, and otherwise maintained in a manner consistent with part design. Barco products must be used in a manner consistent with their design and inspected on a routine basis for security, wear, deformation, corrosion and any other circumstances that may affect the load handling capability of the part.

Barco recommends inspections at regular intervals for all installations and increasing in frequency for more critical installations. If a part is found to have damage, which may cause a decrease in load capability, the part must be removed for service or replaced immediately.

Under no circumstances are Barco parts repairable by anyone other than Barco.

1.2   Important safety instructions

Instructions:

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Clean only with materials or chemicals that are inert, nonabrasive, noncorrosive and non-marking. Consult the manufacturer for further advice should any doubts exist regarding any cleaning procedure.
- Do not block ventilation openings. Install in accordance with the manufacturers instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding type plugs/sockets. If the provided sockets/plugs are damaged then replacement of the defective parts must be undertaken immediately.
- Protect the power/data cords from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus. Replace damaged power/data cords immediately.
- Only use attachments/accessories specified by the manufacturer.
- Disconnect the power to this apparatus during lightning storms or provide suitable additional lightning protection. Unplug this apparatus when unused for long period of time.
- Refer all servicing to qualified service technicians/personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, the apparatus does not operate normally, or has been dropped.
- Use only with systems or peripherals specified by the manufacturer, or sold with the apparatus. Use caution during lifting/moving or transporting to avoid damage by possible tipping.

1.3 Important warnings

Important warnings:

Risk of electric shock:

Do not open. To reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.

Maximum and minimum ambient temperature:

The maximum ambient temperature for the LED wall is 40 °C, the minimum temperature is 0 °C.

High leakage current:

The combination of multiple tiles in an installation results in increased levels of leakage current. In order to avoid risk of electric shock due to high leakage current, proper grounding of the installation is required.

Flammable materials:

Keep flammable materials away from the installation (such as curtains). A lot of energy is transferred into heat. The installation should be such that the amount of air flow required for safe operation of the equipment is not compromised. Proper ventilation must be provided.

ESD and LED's:

LED components used in NX displays are ESD (Electro-Static Discharge) sensitive. To prevent the possibility of destroying LED components do not touch either in operation or while switched off.

Risk of electric shock / Risk of fire:

To protect against risk of fire caused by overloading of power cables, MAXIMUM 8 NX tiles (control boxes) may be connected in parallel. Each power source cable supplying maximum 8 NX tiles (control boxes) should be protected by a circuit breaker or fuses rated 16 A / 250 VAC (15 A / 250 VAC in the USA and Canada). Note that one NX tile requires 200-240 VAC, 50-60 Hz, 1.45 amps at 230 VAC.

NX control box mounting restriction

Do not mount the NX control box upside down.

Disconnect device:

When the appliance inlets of the individual tiles are not accessible, the socket outlets supplying the rack shall be installed near the equipment and be easily accessible, or a readily accessible general disconnect device shall be incorporated in the fixed wiring.

This equipment MUST be earthed:

In order to protect against risk of electric shock, the installation should be properly grounded. Defeating the purpose of the grounding type plug will expose you to the risk of electric shock.

Power system:

It is recommended to use a TN-S power distribution system (a power distribution system with a separate neutral and grounding conductor) in order to avoid large ground current loops due to voltage differences in the neutral conductor. The total electrical installation should be protected by an appropriately rated disconnect switch, circuit breakers, over voltage protector and Ground Fault Current Interrupters. The installation shall be done according to the local electrical installation codes. In Europe special attention should be given to EN 60364, the standard for electrical installation of buildings. In Germany VDE 0100 should be adhered to. In America, special attention should be given to the National Electrical Code, ANSI/NFPA 70.

Mains cords:

The power cords delivered with this system have special properties for safety. They are not user serviceable. If the power cords are damaged, replace them only with new ones. Never try to repair a power cord.

LED's soft lens:

The LED's used on the NX modules are equipped with a soft lens. Never push with a hard or sharp object onto the soft lens of the LED as this may cause damage to the LED. The maximum allowed load upon the soft lens of the LED is 300 gram/LED. Be careful when installing a shader upon the NX module. Use your bare fingers (not nails) to press the shader over the LED's. Use your finger nails to press upon the framework of the shader between the LED's (not upon the LED's) to push the shader in its final position.

1.4   Proper usage

Proper usage of NX tiles

- No part of the NX tile can come in contact with any type of moisture.
- No part of the NX tile can come in contact with any type of abrasive.
- No part of the NX tile can come in contact with any type of dust.
- No part of the NX tile can come in contact with any type of corrosive substance.
- NX tiles are to be used in environments meeting the operating specifications.
- NX tiles are not to be used in environments that are subject to airborne contaminants such as that produced by smoke machines (cracked oil) or similar (these deposit a thin layer of greasy residue upon the LEDs optics, degrading performance).
- NX tiles are not to be exposed to extreme localized heat or cold exceeding the temperature specifications.
- NX tiles are not to be exposed to any element or situation that will cause any part of the display to heat beyond what occurs during normal operation. Such situations include but are not limited to lasers, ultrasonic vibration, or any type of substance that prevents proper ventilation and heat radiation of the NX tiles.
- NX tiles are not to be exposed to circumstances where moisture can condense or collect on any components.
- Power connected to the NX tiles must meet the specifications outlined in the installation manual.
- Avoid any accidental bumping of the tile corners while installing or removing the NX tiles. Since LED's of the NX tiles are mounted near by the edges of the LED boards, which is unavoidable in the design of a high resolution LED-wall, the corners of the NX tiles become sensitive for mechanical damage. Because of that it is required to handle the NX tiles with care at all times.
- Never place an NX tile or an NX module upon a surface with the LED's facing downwards. This to prevent damage to the LED's and the soft lens of the LED's.
- NX tiles which are not installed and which are not securely stored in an NX flight case, may only be placed vertically upon flat surfaces free of clutter. Make sure that the NX tile does not rest upon the bottom row of LED's but upon the provide studs at the bottom of the rental frame.
- While removing or installing an NX module always keep the LED side of the NX module parallel with the LED side of the remaining neighboring NX modules. This to avoid any mechanical stress upon the corners of the NX module.
- No force can be applied to the LED's. Any LED's damaged due to mechanical stress are not covered by the warranty.
- Safety and functional features of the display cannot be defeated.
- It is not allowed to climb or hang any additional equipment on the back of an NX wall. Nothing is to be allowed to hang from the cables of an NX tile.
- Any failures must be immediately and appropriately dealt with (equipment returned to Barco?). Failing equipment cannot be left to run in a wall.
- No additional tools (hammers, pry-bars, etc.) are to be used to force handles or locks into place. All moving parts should be managed by hand.
- Only Barco cables specified to be used with the NX display are to be used to connect components in an NX wall. Further, care must be taken to connect signal only according to the installation manual.
- NX tiles are not to be used in the vicinity of any equipment that is not CE and UL/ETL certified.
- NX tiles are not to be transported for any distance in containers other than Barco flight cases or Barco single unit packaging. Further, even the use of Barco flight cases or packaging material does not guarantee the NX tiles against damage due to excessive force of impacts. NX packing material can be ordered at Barco. All warranty claims regarding damaged NX-Modules due to incorrect packing will be rendered invalid.
- NX tiles are not to be connected to any non-Barco equipment (the NX tiles are NOT HDMI compatible devices, despite the use of HDMI-style connectors).
- When stacking NX tiles, only Barco NX feet can be used, and they must be leveled according to the manual before installing NX tiles. Improper leveling can result in excessive forces on the structural components of the NX tiles.
- When hanging NX tiles, only Barco NX trusses can be used and they must be installed and connected according to the manual. Improper hanging of NX tiles can result in excessive forces on the structural components of theNX tiles.
- When stacking or hanging NX tiles, the guidelines outlined in the installation manual must be followed to prevent movement of the display (including tipping). Further, NX tiles are only to be installed vertically. Any tipping of a display will cause undue stress on the structural components of the NX tiles, and could even allow the NX wall to fall.
- When stacking NX tiles, NX tiles can be stacked up to 5 high before a Barco NX stacker must be used.
- When reconnecting components in an NX tile, care must be taken to ensure that cables are carefully routed according to the installation manual to prevent damage to the cables or other parts of the NX tile.
- LED modules can only be removed by either gently pushing by hand from the back of the module, or by using the approved front access tools and method described in the installation manual.
- LED module shaders can only be removed using the approved shader removal tool and the method described in the installation manual.
- NX tiles can be cleaned only in accordance to the procedures defined in the installation manual.
- The NX display is an indoor product. Use the NX tiles only in a dry area away from direct sunlight, dust and moisture. Never install and use the NX tiles in an outdoor environment.

1.5   Important warnings concerning flight cases

Important warnings concerning stack and transport NX rental flight cases

- Maximum stack two (2) NX rental flight cases high. Never higher.
- Surface on which flight case is standing must be level to ensure that the total load is evenly spread out among the four wheels. The surface must also be able to support the load safely.
- Before stacking or transporting flight cases, check the wheels and their fixation screws for wear or defects.
- Before stacking or transporting flight cases, check the two lock handles on each flight case are in good working order and locked securely.
- When stacked, make sure the wheels of the upper flight case are precisely positioned in the stacking dishes of the flight case below.
- Stacked flight cases may not be moved. Before stacking, the lower flight case must already be in its final resting position before placing the second upon it.
- Never stack loaded flight cases in a truck or other transport medium, unless each flight case is rigidly strapped tight.
- In the event of a wheel breaking, flight cases must be rigidly strapped tight to prevent a stack collapsing.
- Use an appropriate forklift to raise flight cases and take the necessary precautions to avoid personnel injury.

2. INSTALLATION REQUIREMENTS

About this chapter

This chapter enumerates the mechanical requirements for the NX display, the electrical requirements to power up the NX display and the system requirements to run the control software efficiently.

> ⚠️ **WARNING: The NX display is an indoor product. Use the NX tiles only in a dry area away from direct sunlight, dust and moisture. Never install and use the NX tiles in an outdoor environment.**

Overview

- Mechanical requirements for the NX rental display
- Electrical requirements for the NX display
- System requirements for the Director toolset

2.1 Mechanical requirements for the NX rental display

Weight

Do not underestimate the weight of a complete NX rental display. Be sure that the floor or truss installation on which the NX rental display has to be installed is capable of handling five (5) times the complete load of the display. Note that one NX rental tile weighs approximately 13 kg (or 58 kg per square meter display). Do not forget to take into account the weight of the ballast required in case of a base stand NX rental display.

Levelled surface

The surface on which an NX rental display has to be installed must be levelled. Never install an NX rental display on an inclined surface.

Ballast

Depending on the height of the display and the position of the LED-wall upon the foot beams (somewhere between front and middle) additional weight (ballast) will be required. Consult chapter "Ballast values" or use the "Ballast calculator" tool available on Barco's secured web site to calculate the minimum ballast you require for safe installation of your NX rental display.

2.2 Electrical requirements for the NX display

Power requirements

One NX control box requires 200-240 VAC, 50-60 Hz, 1.4 amps at 230 VAC. Note that one NX tile correspond with a display surface of 0.226 m². Each NX tile has a control box. Power split cables are used to link the power from NX control box to NX control box. However, MAXIMUM 8 NX tiles (control boxes) may be connected in parallel. So, one power source cable has to be provided per 8 NX tiles (control boxes) . Every power source cable should be protected by a circuit breaker or fuses rated 16 A / 250 VAC (15 A / 250 VAC in the USA and Canada).

> **Barco provides a range of power boxes, which meet the requirements of your NX display. Contact Barco for more information about power boxes and power requirements for your NX display.**

Power system:

It is recommended to use a TN-S power distribution system (a power distribution system with a separate neutral and grounding conductor) in order to avoid large ground current loops due to voltage differences in the neutral conductor. The total electrical installation should be protected by an appropriately rated disconnect switch, circuit breakers, over voltage protector and Ground Fault Current Interrupters. The installation shall be done according to the local electrical installation codes. In Europe special attention should be given to EN 60364, the standard for electrical installation of buildings. In Germany VDE 0100 should be adhered to. In America, special attention should be given to the National Electrical Code, ANSI/NFPA 70.

Disconnect device:

When the appliance inlets of the individual tiles are not accessible, the socket outlets supplying the rack shall be installed near the equipment and be easily accessible, or a readily accessible general disconnect device shall be incorporated in the fixed wiring.

This equipment MUST be earthed:

In order to protect against risk of electric shock, the installation should be properly grounded. Defeating the purpose of the grounding type plug will expose you to the risk of electric shock.

2.3 System requirements for the Director toolset

Before you begin

It is assumed you are familiar with the Windows operating system at your site.

The CD-ROM in your package contains a Windows-based installation program. You can install the software from the CD-ROM.

System requirements

Minimum specifications :

- Hardware
    - PC Pentium III or equivalent, 2 GHz
    - 512 Mb RAM
    - Free hard disk space: 300 Mb
    - XGA resolution (1024 x 768)
    - Serial communication port
    - Ethernet connection
- Software
    - Windows 2000[1], Windows XP Home or Windows XP Professional

Recommended specifications :

- Hardware
    - PC Pentium IV or equivalent, 2.4 GHz
    - 1 Gb RAM
    - 300 Mb hard disk free space
    - SXGA resolution (1280 x 1024) with 32 Mb video memory
    - Serial communication port
    - Ethernet connection
- Software
    - Windows XP Professional or Windows Vista

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1. It runs on Windows 2000 but when problems are discovered, Barco does not deliver any support

3. SYSTEM OVERVIEW

About this chapter

This chapter enumerates the fundamental elements of the NX rental display.

Overview

- Introduction

3.1 Introduction

The fundamental elements of an NX rental display system are:

- NX modules.
- NX rental structure.
- NX rental foot, foot beams and stacker or NX rental truss beams.
- Rental power box.
- DX-700 digitizer.
- Control software "Director toolset".

Block diagram NX display system:
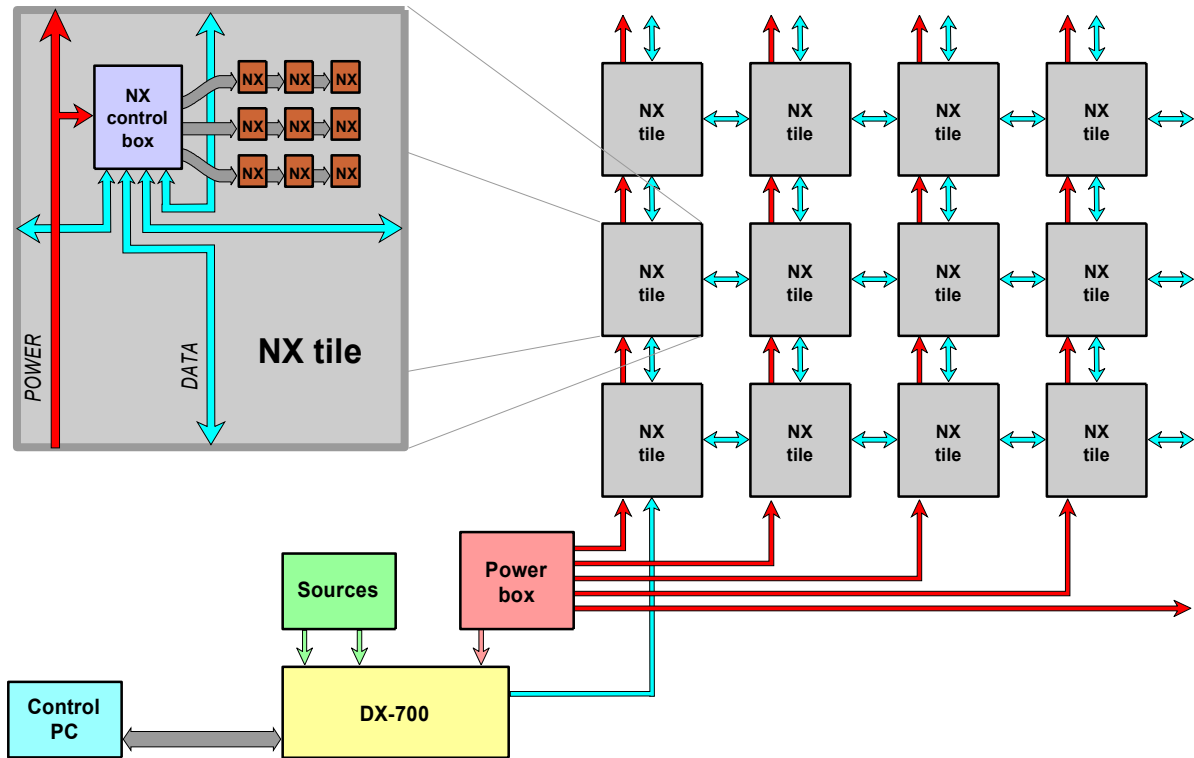
Image 3-1
Block diagram NX display system.

4. COMPONENTS OF AN NX RENTAL TILE

General introduction

The NX rental tile consist in a carbon framework on which nine NX modules fit. On the rear side of the framework fits the NX control box, which is electrical connected with these nine NX modules. Each side of the framework is equipped with a locking mechanism for mechanical strength and an additional locking mechanism for electrical interconnection of power and data between the NX tiles.

Image 4-1

The following chapters describe and illustrate the three main components (A: NX module; B: NX rental frame and C: NX control box) more in detail.
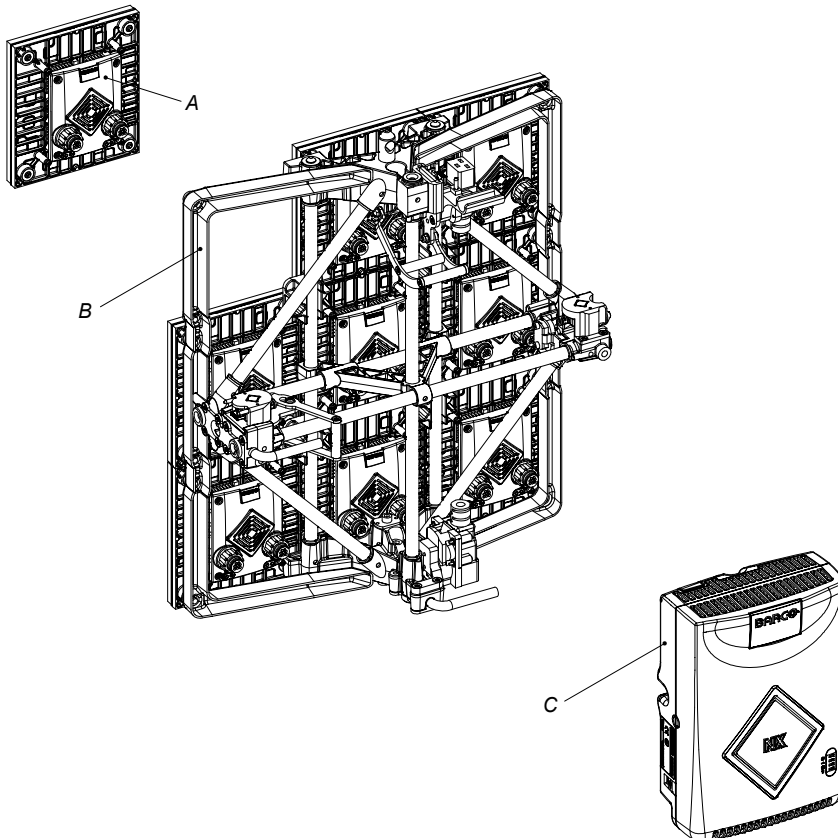
Image 4-2

Overview

- • NX rental frame
- • NX module
- • NX control box
- • NX tile inner cabling

4.1   NX rental frame

Introduction NX rental frame

The NX rental frame is made out of carbon pipes and stainless steel to reduce weight without losing strength. This strong frame allows you to build NX LED-walls up to 12 tiles high stacked or 15 tiles high trussed. The front of the NX rental frame has a grid where NX modules fit in.

All sides of the NX rental frame are provided with small positioning cones to ensure a precise positioning between the tiles. It's important to keep those cones clean, otherwise seams will be visible after installation of the rental frame into the LED-wall.

The bottom and left side of the NX rental frame, seen from the rear, are equipped with a solid locking mechanism operated with a fixed rugged handle. The top and right side of the NX rental frame, seen from the rear, are provided with a locking pin. These locking mechanisms and pins ensure a fast and secure attachment between the tiles, no tools required.

The left and top side of the NX rental frame, seen from the rear, contains a second locking mechanism for electrical interconnection of power and data between the NX tiles. So, there are no additional cables and tools required to setup a screen.

Parts location of the NX rental frame
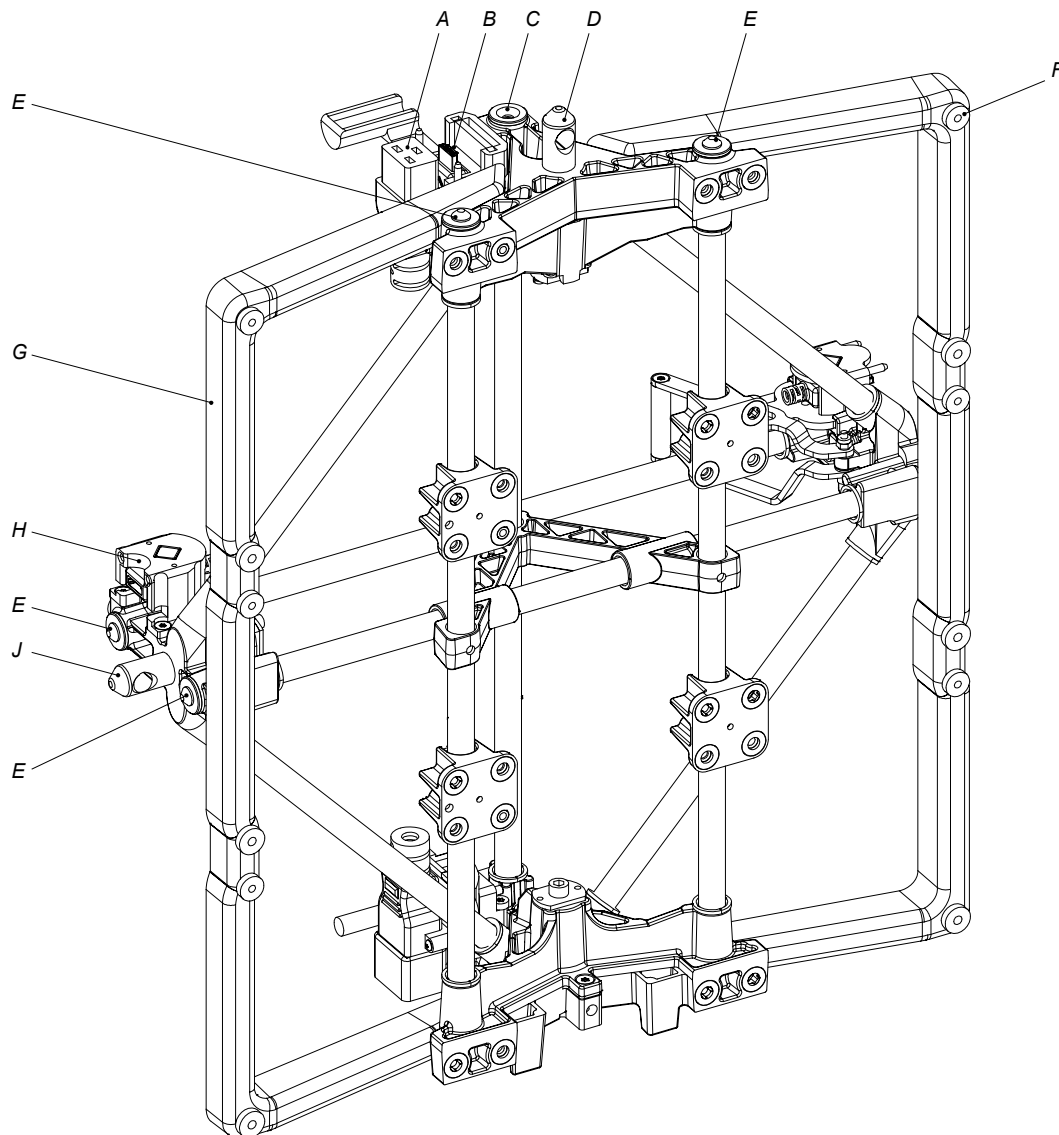
Image 4-3
A   Power output plug (to upper rental frame).
B   Male HDMI connector to upper rental tile.
C   Rental frame positioning hole.
D   Vertical locking pin.
E   Rental frame positioning cone.
F   NX module positioning hole (x36).
G   Carbon frame.
H   Female HDMI connector to neighboring tile.
J   Retractable side locking pin.
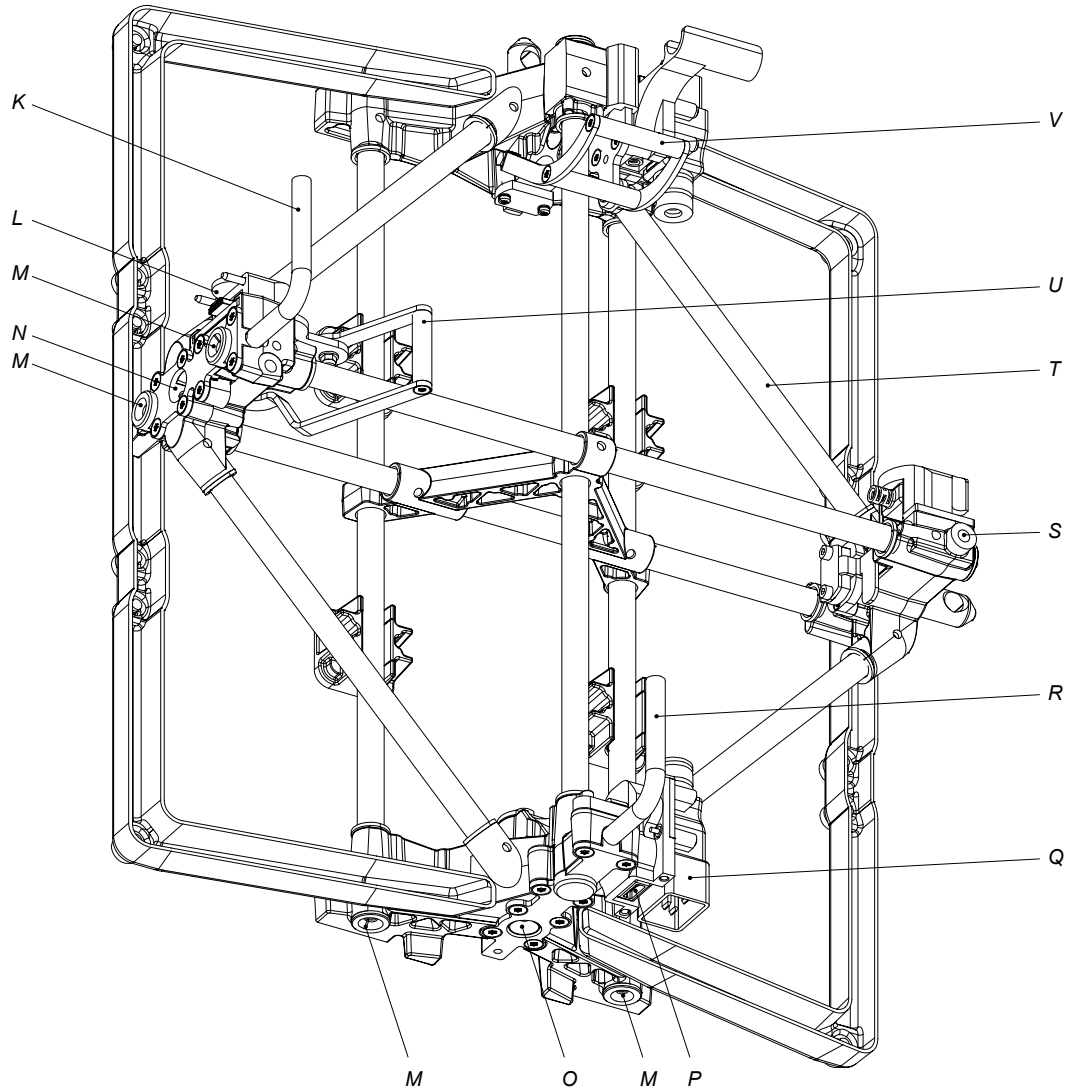
Image 4-4
K   Rugged handle for operating side locking mechanism.
L   Male HDMI connector to neighboring tile.
M   Rental frame positioning hole.
N   Receiver for retractable side locking pin (J).
O   Receiver for vertical locking pin (D).
P   Female HDMI connector to lower tile.
Q   Power input plug (from lower rental frame).
R   Rugged handle for operating top-bottom locking mechanism.
S   Hole with screw thread to insert "Mushroom pin" of stacker system.
T   Carbon pipes.
U   Lever for operating locking mechanism to realize horizontal electrical connection.
V   Lever for operating locking mechanism to realize vertical electrical connection.

Integrated power and data cables

The power and data cables to connect the NX rental tiles electrically with each other are integrated in the rental frame. One power split cable is used for power loop through from the bottom of the tile to the top of the tile. Four different HDMI cables are used to connect the data socket on each side of the rental tile with the control box.

Image 4-5
Power split cable for NX tile.

Image 4-6
Female/male HDMI cable of 24 cm.

Image 4-7
Female/male HDMI cable of 51 cm.

Image 4-8
Male/male HDMI cable of 51 cm.

Image 4-9
Male/male HDMI cable of 49 cm.

Barco provides long HDMI cables of 1 meter, 5 meter and 10 meter with latching plug to connect the first NX tile withe DX-700 digitizer or when using the NX control box creative. See images below.

Image 4-10
Male/male HDMI cable of 5 meter with latch (**R9854790**).

Image 4-11
Male/male HDMI cable of 10 meter with latch (**R9854860**).

4.2   NX module

Introduction NX module

An NX module consist in a milling finished aluminum base plate with at the front side a matrix of Barco's black LED's which are enclosed by replaceable shaders. The Barco's black LED's are full color SMD LED's which are extremely dark due to diffuser and the black silicone resin. The use of these black LED's improves the contrast ratio significantly. The rear of the NX module is equipped with four high precision positioning pins with neodymium magnets. These magnets ensure that the NX module is automatically fixed in a right position. Futhermore, these magnets make it possible to replace the NX module via front access using an adapted tool. All sides of the NX module have a seam hider to ensure a seamless display. Each NX module has its own temperature controlled fan and four diagnostic LED's (Link, Power, Fan, Temp). The NX module has two circular connectors, one for power/data input and one for power/data loop through.

Just like the NX rental tile the NX module has an 8:9 aspect ratio. One rental tile covers 3 x 3 NX modules and one NX-4 module has an LED grid of 32 pixels wide by 36 pixels high. So, an NX-4 display of 10 rental tiles high and 20 rental tiles wide has a native HD resolution of 1920 pixels x 1080 pixels. Note that the NX-6 module has an LED grid of 24 pixels wide by 27 pixels high.

Parts location of the NX module
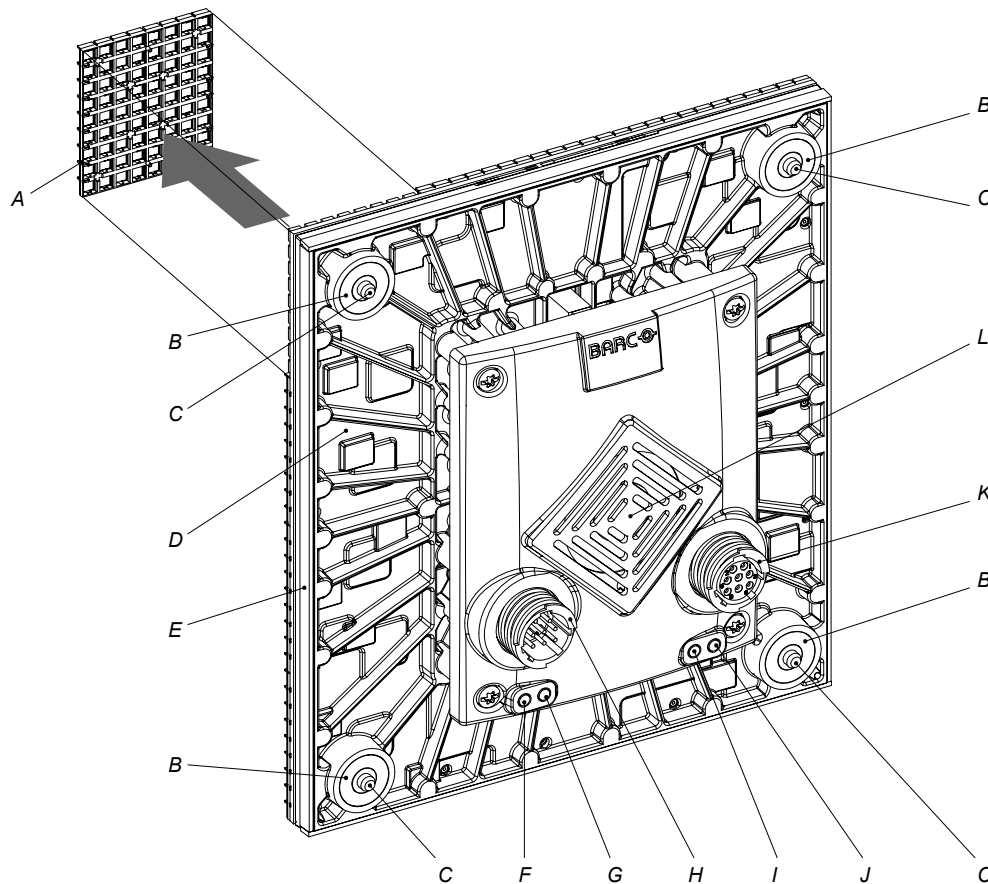
Image 4-12
A   Replaceable shader.
B   Neodymium magnet.
C   High precision positioning pin.
D   Aluminium base plate.
E   Soft seam hider.
F   Status LED for power (green).
G   Status LED for software (orange).
H   Power/Data input port.
I   Status LED for communication (yellow).
J   Status LED for temperature (red).
K   Power/Data active loop through.
L   Fan & fan cover.

> ⚠ **CAUTION: NX modules are fragile! Returned NX modules for repair must be packed in original NX packing material which can be ordered at Barco. (Box for 4 NX modules ordering code: R9801003). All warranty claims regarding damaged NX modules due to incorrect packing will be rendered invalid.**

Cables used with the NX module

The following two cables are used to connect the NX modules, which fit in a rental frame, with each other (shortest cable) and with the NX control box (longest cable). Note that both cables also can be used to connect the NX modules in a creative setup.

Image 4-13
NX control box - module interconnection cable.

Image 4-14
NX module - module interconnection cable.

Barco provides also module interconnection cables of 0,4 meter, 1 meter, and 5 meter length for creative purposes of the NX modules. See images below.

Image 4-15
Module interconnection cable (LVDS) of 0,4 meter (**R9854870**).

Image 4-16
Module interconnection cable (LVDS) of 1 meter (**R9854880**).

Image 4-17
Module interconnection cable (LVDS) of 5 meter (**R9854890**).

4.3 NX control box

Introduction NX control box

The small design and its synthetic housing make of the NX control box a lightweight device. The NX control box contains a power supply unit and a controller/re-sync unit. Thanks to the integrated latching mechanism the NX control box can easily be attached to the rear framework of the NX rental frame. So, no tools are required to install the NX control box. The rear side of the housing contains, next to this integrated latching mechanism, four mounting holes with screw threat M4 (maximum depth of 5 mm). These mounting holes allow you to mount the control box upon other surfaces in case of using the control box in a creative way.

The rear side of the control box has a power input socket (type C14) on which the required input voltage of 200-240 VAC, 50-60 Hz, 1.4 amps at 230 VAC is applied to. Next to the power socket the rear side of the control box has a column of three circular output ports. These three output ports are labeled from 1 to 3 starting at the top. These output ports are connected with the NX modules. Note that maximum three NX-4 modules may be connected in cascade per output port.

The bottom of the NX control box has two pairs of female HDMI sockets which are used for data communication between the NX control boxes or digitizer. These four bidirectional ports are labeled from A to D and each port has its own color as well, respectively red, green, blue and yellow.

The NX control box can only be used with the new generation of DX digitizers like the DX-700 digitizer. The re-sync unit detects on which of the four HDMI sockets the data stream is applied to. The controller extract its required data from the incoming data stream. The extracted content is further processed (16 bit) and sent via the three output ports to the NX modules. Furthermore, the re-sync unit reinforces the incoming data stream and redirects the stream to the other HDMI sockets.

The standard HDMI cables used between the control boxes are of the straight type (not crossed). Because of this the HDMI sockets A and B are designed as "slave" ports and C and D as "master" ports. The differences between the "slave" and "master" ports is that the receiving and transmitting pins are switched. A data connection between two control boxes must always be made between a "master" port and a "slave" port. Nevertheless, the data stream is bidirectional. It is also important to know that the digitizer output is of the "master" type. So, the HDMI cable coming from the digitizer must be plugged into a "slave" port of a control box.

Other features of the NX control box are the diagnostic LED's on the cover (power, communication, fan and temperature) and the slave USB port for servicing purposes (future expansion).

HDMI

The High-Definition Multimedia Interface (HDMI) is an all-digital audio/video interface capable of transmitting uncompressed streams. HDMI is compatible with High-bandwidth Digital Content Protection (HDCP) Digital Rights Management technology.
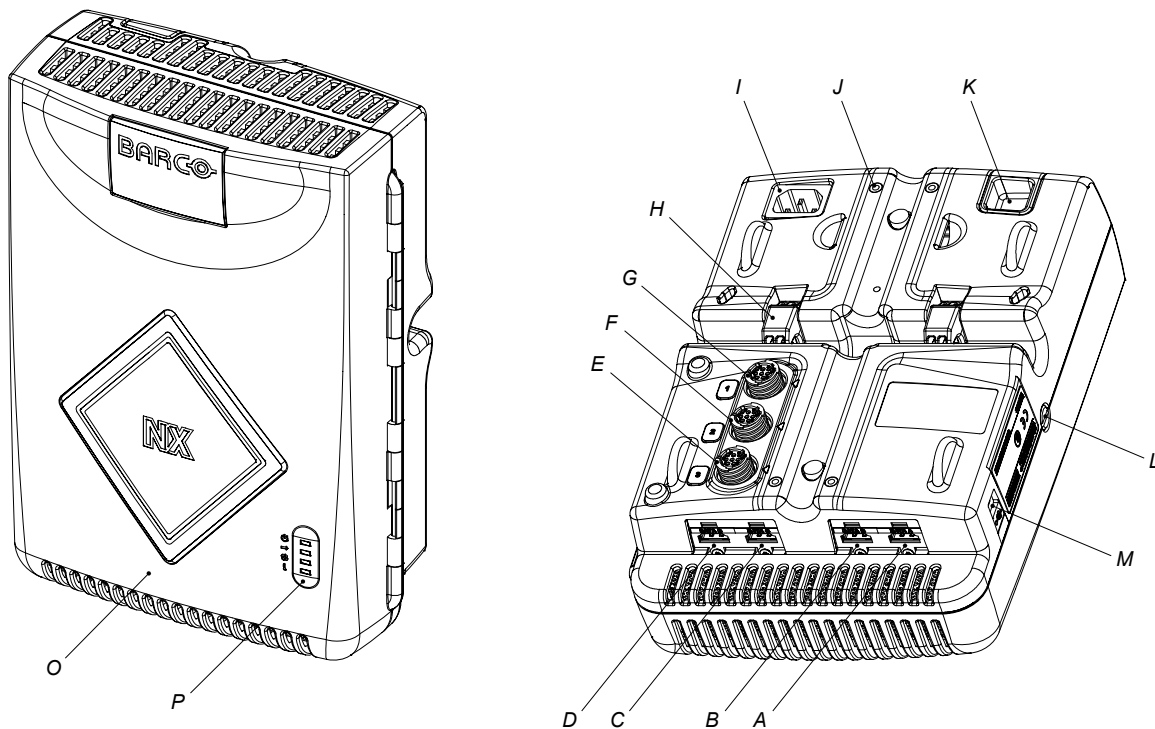

Parts location of the NX control box

Image 4-18
A   Bidirectional data port A (slave).
B   Bidirectional data port B (slave).
C   Bidirectional data port C (master).
D   Bidirectional data port D (master).
E   Power/Data output port 3.
F   Power/Data output port 2.
G   Power/Data output port 1.

H   Latching mechanism.
I   Power input socket (C14).
J   Mounting holes with screw thread M4 (for creative purposes).
K   Latch handle.

WARNING: Barco uses HDMI connectors and cables, which allows a higher bandwidth for data communication between the NX control boxes and DX-700 digitizer. Nevertheless, Barco does not use the standard HDMI protocol but their own communication protocol NNI (New Netebuk Interface). As a result the pin configuration of the HDMI connector is different as well. Because of this never connect a device, having standard HDMI input or output ports such as an LCD display or a DVD player, with an NX control box or a DX-700 digitizer. Such a connection could be harmful for both Barco devices as for the standard HDMI devices.

WARNING: The NX control box may be mounted in all kind of directions except upside down.

Using the NX control box as stand alone re-sync unit

The NX control box acts like a stand alone re-sync unit in case no power is applied to the power input socket of the NX control box. Maximum one stand alone re-sync unit can be placed between the digitizer and first active control box. Maximum connect two stand alone re-sync units in series between two active control boxes. The cable length between two NX control boxes may not exceed 5 meter.

The NX control box can only be used with the new generation of DX digitizers like the DX-700 digitizer.

4.4 NX tile inner cabling

NX tile inner HDMI cabling

While configuring the NX display with the Director toolset, the DX-700 digitizer will scan all connected tiles of the installed LED-wall and automatically assign a logical address number to each tile. The address number is independable of the location of the NX tile in the LED-wall. This way each NX tile knows its exact location in the LED-wall, so each NX control box knows which part of the active area (canvas) it has to cover. For that it is important that the control box knows which port is connected to which side. So, for each NX tile the integrated HDMI cables must be equally connected with the NX control box. Seen from the rear of the NX tile the inner cabling has to done as follows:

- HDMI port **A** of the NX control box has to lead to the **bottom** side of the NX tile.

- HDMI port **B** of the NX control box has to lead to the **right** side of the NX tile.

- HDMI port **C** of the NX control box has to lead to the **left** side of the NX tile.

- HDMI port **D** of the NX control box has to lead to the **top** side of the NX tile.
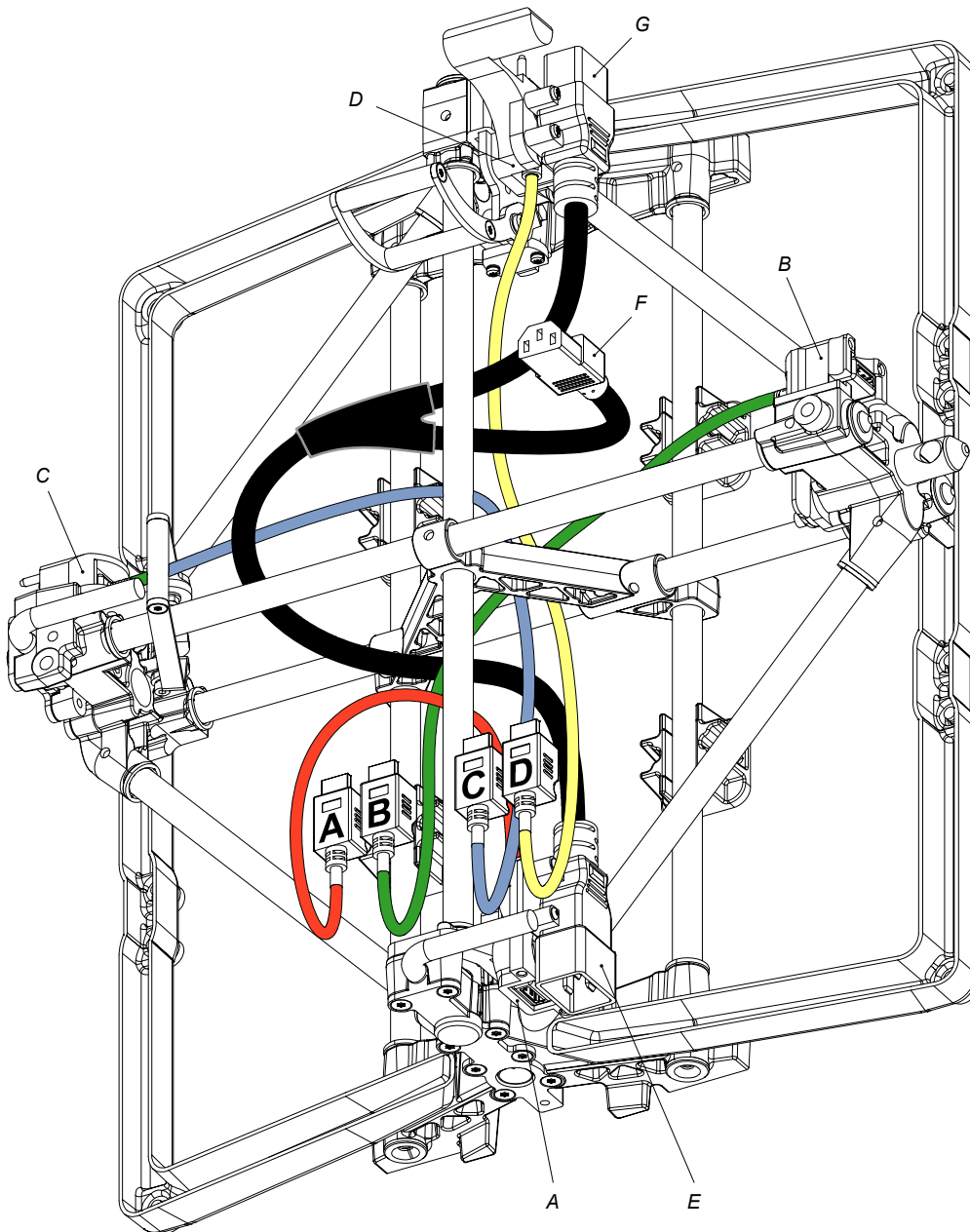
Image 4-19
A   Integrated female HDMI connector leading to data port A of the NX control box (The cable has been marked with red).
B   Integrated female HDMI connector leading to data port B of the NX control box (The cable has been marked with green).
C   Integrated male HDMI connector leading to data port C of the NX control box (The cable has been marked with blue).
D   Integrated male HDMI connector leading to data port D of the NX control box (The cable has been marked with yellow).
E   Integrated male plug of the power split cable.
F   Female power plug which fits in the power socket of the control box.
G   Integrated female plug of the power split cable.

NX tile inner power cabling

Just like the HDMI cables, the power split cable is integrated in the NX tile. The male socket (power entrance, ref E image 4-19) of the split cable fits with a magnet into its position at the bottom locking mechanism. This male socket can easily be removed from the locking mechanism, without tools, to interrupt the vertical power circuit. This way a new power source cable can be connected with the detached male socket of the power split cable. The female socket (power loop through, ref G image 4-19) of the power split cable is fixed in the top locking mechanism. A handle can moves the female socket up and down to respectively connect or disconnect the power circuit with the circuit of the tile above. The C13 power plug (ref F image 4-19) of the power split cable is inserted in the power socket of the control box.

WARNING: Risk of electric shock / Risk of fire:

To protect against risk of fire caused by overloading of power cables, MAXIMUM 8 NX tiles (control boxes) may be connected in parallel. Each power source cable supplying maximum 8 NX tiles (control boxes) should be protected by a circuit breaker or fuses rated 16 A / 250 VAC (15 A / 250 VAC in the USA and Canada). Note that one NX tile requires 200-240 VAC, 50-60 Hz, 1.45 amps at 230 VAC.

NX module cabling in tile configuration

Nine NX-4 modules can be attached with the NX rental frame in a 3 by 3 configuration. The NX module cabling is realized in three rows as illustrated below. The NX modules of each row are connected with each other in a daisy chain manner from left to right seen from the rear. The active loop through port of the last module in the row remains unconnected. The upper row is the first row and has to be connected with output port **"1"** (upper connector) of the NX control box. The center row with port **"2"** and the bottom row with port **"3"**. A short interconnection cable of 14 cm length is used between the NX modules. Between the control box and NX module a interconnection cable of 40 cm is used.
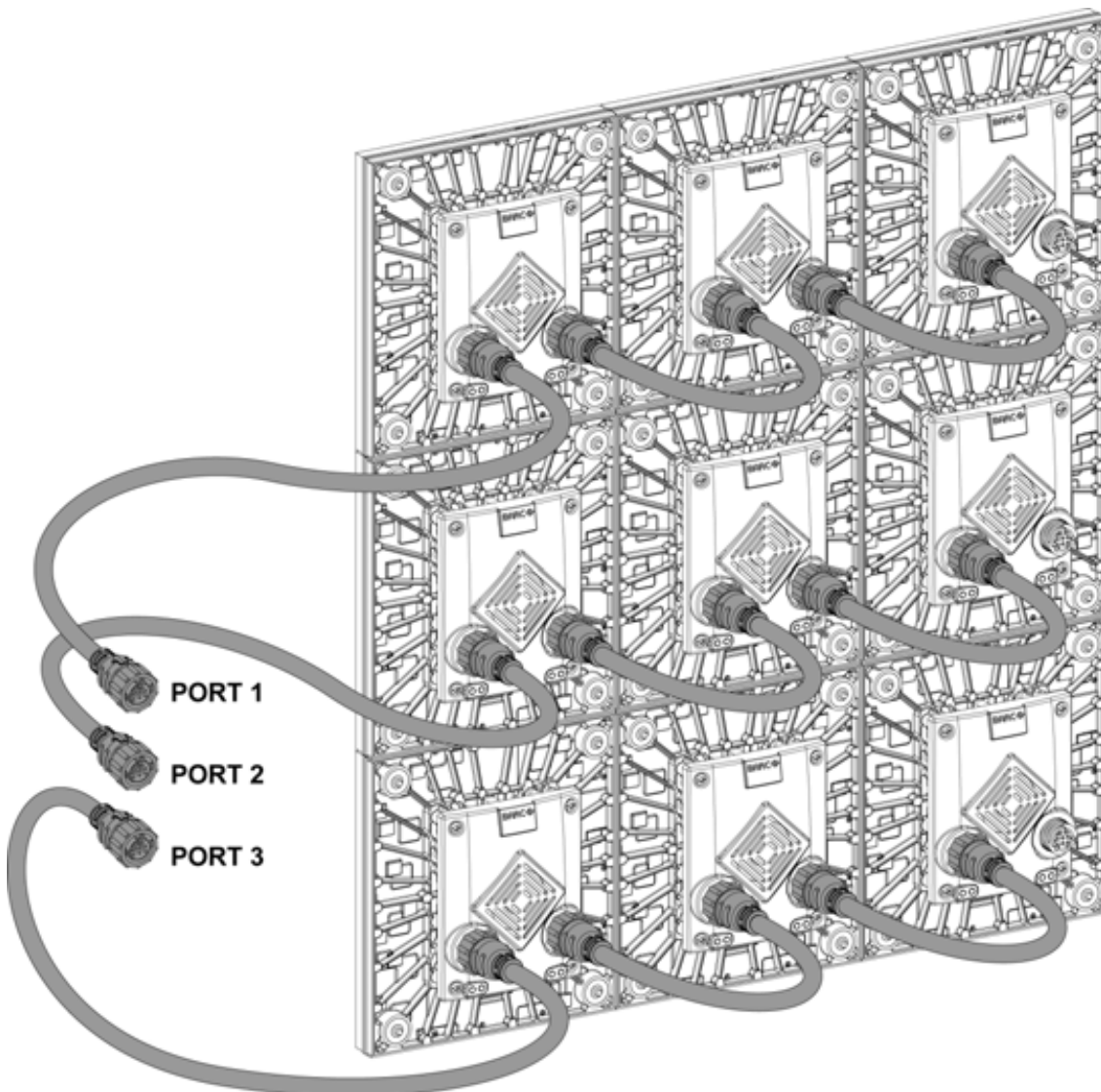
Image 4-20

5. NX RENTAL PERIPHERALS AND ACCESSORIES

About this chapter

This chapter describes, or refer to another manual, all the peripherals and accessories, which can be used in the setup of an NX rental display.

Overview

- NX rental base stand setup accessories
- NX rental truss setup accessories
- NX rental flight cases
- DX-700 digitizer
- Power boxes
- Control software

5.1 NX rental base stand setup accessories

Base stand setup accessories

To set up an NX rental display in a base stand configuration additional mounting accessories are required as there are the foot beams, the NX rental foot and the NX rental stacker. These accessories are easy to install with a minimum of tools. NX rental tiles are built upon NX rental feet or upon other solid foundation. Foot beams are most common in the rental industry. Depending on the height of the NX display longer foot beams must be used. One stacker profile captures a height of three NX rental tiles. The maximum height of a base stand NX rental display is 12 tiles high.

Two sizes of NX rental feet are available. Namely the "NX dual rental foot" and the "NX triple rental foot". The dual rental foot covers a width of two NX tiles and the triple rental foot covers three tiles. The NX rental foot has the same locking mechanism as the NX rental frames.
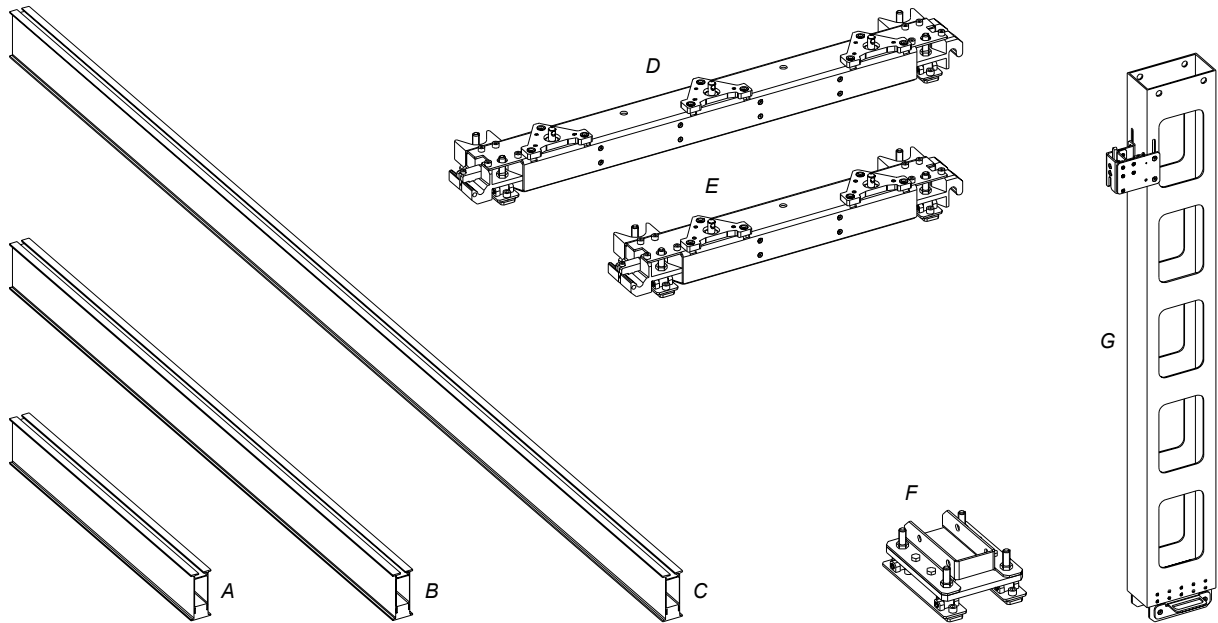
Image 5-1
A   Foot beam of 1,2 meters.
B   Foot beam of 2,4 meters.
C   Foot beam of 4 meters.
D   NX triple rental foot.
E   NX dual rental foot.
F   NX stacker foot.
G   NX stacker profile.

5.2 NX rental truss setup accessories

Truss setup accessories

NX truss beams are required to set up an NX rental display in a hanging configuration. Barco offers two sizes of NX truss beams, namely the "NX dual truss beam" and the "NX triple truss beam". The dual truss beam covers a width of two NX tiles and the triple truss beam covers three tiles. Each truss beam is equipped with one big hoist rod, used to lift up the display.
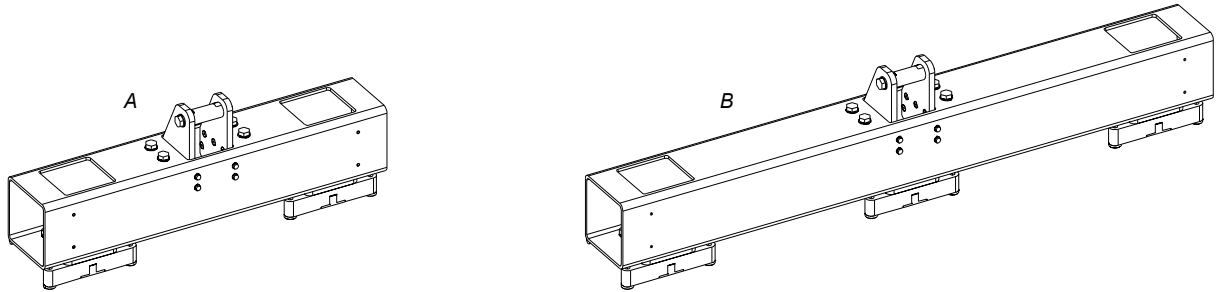
Image 5-2
A   NX dual truss beam.
B   NX triple truss beam.

> ⚠ **WARNING:** Maximum weight limit of the dual truss beam is 400 kg, the triple truss beam can maximum lift 600 kg. This weight corresponds with a maximum display height of 15 NX rental tiles. Do not put any additional weight on the truss beam and use the truss beams only in conjunction with Barco's NX rental tiles.

> ⚠ **WARNING:** Always secure all truss beams of a hanging NXrental display with the truss installation. The safety cable has to be placed through the inner frame of the truss. Secure each truss with an independent safety cable.

5.3 NX rental flight cases

NX rental flight case for 6 NX rental tiles

The NX rental flight case holds up to 6 NX rental tiles. The flight case is vertically split up in two compartments. Each compartment contains three drawers. One NX rental tile can be stored per drawer. The NX rental tile is placed into the drawer with the LED's upwards and the pin towards you. To make the flight case easy to handle it is provided with castor wheels, handles and stacking dishes.
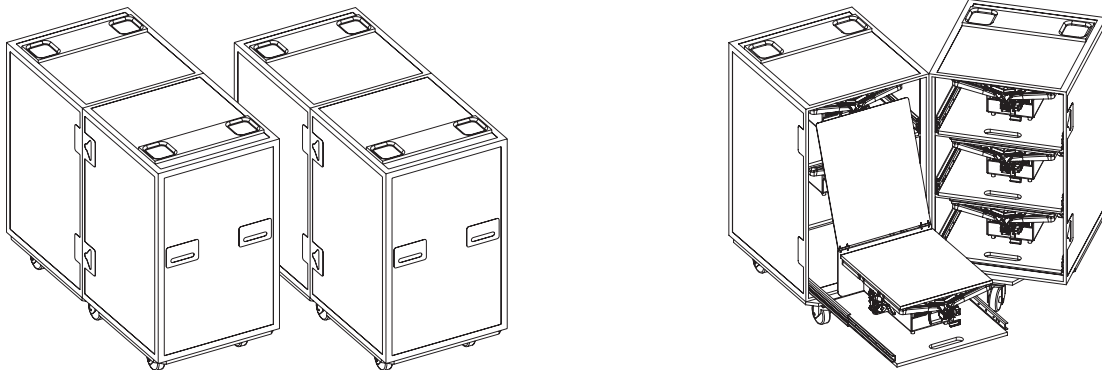
Image 5-3

> ⚠ **WARNING: Never tear out more then one drawer at the same time.**

> ⚠ **WARNING: Maximum stack two (2) NX rental flight cases high. Never higher.**

NX rental flight case for NX accessories

• NX rental flight case for NX rental feet: Two triple or two dual rental feet, or a mix of both, can be placed in one NX rental flight case for NX rental feet.

• NX rental flight case for NX rental truss beams: Two triple or two dual rental truss beams, or a mix of both, can be placed in one NX rental flight case for NX rental truss beams.

• NX rental flight case for NX stacker system: For NX stacker profiles and two stacker feet can be place in one NX rental flight case for NX stacker system.

Image 5-4
Flight case for NX rental feet (**R9854780**).

Image 5-5
Flight case for NX stacker system (**R9854840**).

5.4 DX-700 digitizer

General

The DX-700 is a multi-window video processor designed for use as a versatile front-end to all Barco LED products. The digitizer processes (image processing, conversion and conditioning) all source signals for digital distribution to every tile.

- Existing (legacy) LED products such as MiPIX, DLite, ILite and OLite are supported via the 32-bit DVI link on the system's DVI Output Module.
- Next generation LED products such as the NX-4 tiles are supported via the NNI interface on the system's NNI Output Module.

Image processing and LED wall configuration and control functions are adjusted from Barco's Director toolset, or via controls on the DX-700 digitizer front panel itself. The Director toolset software is designed as a user interface to be used in conjunction with the digitizer and display. It can be used on a PC that's connected to the digitizer through a serial RS232 connection.
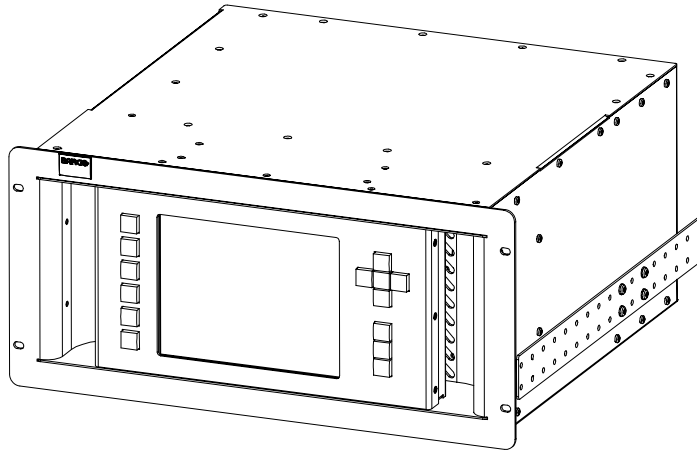
Image 5-6

CAUTION: **Refer to the manual(s) of the used digitizer for more information about installation and usage guidelines.**

5.5 Power boxes

General

To ensure safe and reliable operation of the NX display a suitable system for AC power distribution must be used. Though 3rd. party solutions may be used, several sizes and types of power distributions are available from Barco. For smaller system the "Mono Phase Power Box" can be used, medium sized system may use on of several custom power box solutions. We also offer power distribution systems in a flight case for rental and touring applications.

Image 5-7
Mono phase power box.

Image 5-8
Custom power box.

Image 5-9
Rental power box.

CAUTION: Refer to the manual(s) of the used power box for more information about installation and usage guidelines.

5.6   Control software

General

The control software is designed as a graphic user interface (GUI) and can be used to control and configure the digitizer as well as the Barco LED wall via a PC (e.g. Director toolset).

Minimum required software version: 2.0

Image 5-10
Control software "Director toolset".

> **CAUTION: Refer to the manual(s) of the used control software for more information about installation and usage guidelines.**

6. SETUP PROCESS OF AN NX RENTAL DISPLAY

About this chapter

This chapter roughly describes the installation process of the NX rental display for a base stand (floor mount) or truss (hanging) configuration. Several process stages refer to one or more of the detailed "Basic procedures", page 41.

Floor mount or hanging NX rental display

The NX rental tiles can be used in a floor mount or in a hanging rental configuration. These configurations are limited in height, maximum 12 tiles high for a floor mount and maximum 15 tiles high for a hanging configuration. Furthermore, a floor mount (base stand) configuration, which is higher then five tiles, requires a stacker system to ensure the stability of the display.

WARNING: Safety first. Fence off the installation area before starting to install your NX rental display. Ensure you read, understand and follow all safety instructions mentioned in the chapter "Safety", page 3, of this installation manual. Furthermore, make sure that all installation requirements for your NX rental display are fulfilled, see chapter "Installation requirements", page 9.

CAUTION: Cover up the LED-wall on-site, to protect from dust and dirt, until the start of the event.

Overview

* Set up a floor mount NX rental display
* Set up a hanging NX rental display

6.1 Set up a floor mount NX rental display

> ⚠ **WARNING:** The maximum height of a base stand NX rental display is 12 tiles high.

> 📋 **For some applications it is not allowed that the foot beams stick out in front of the LED-wall. The illustrations below shows the possibility to built up the NX rental display at the front of the foot beams. Note that such a configuration always requires extra ballast upon the other end of the foot beams to ensure the stability of the whole LED-wall. Nevertheless, lot of applications allow to build up the LED-wall in the middle of the foot beams. This configuration requires less or no ballast upon the foot beams. Consult the "Ballast calculator" on the secured Barco web site or see chapter "Ballast values for a base stand NX display", page 119.**

Setup process

1. The first stage in the process is the assembling of a solid and level foot construction, which has to support the hole display. Such a construction consist of foot beams, adjustable feet (optional), and rental feet. Finally, ballast has to be placed upon the foot beams to prevent the wall from possible tipping. The assembling of the foot construction has to be done in following sequence:

   a) Installation of the adjustable feet on the foot beams. Note that this is optional. See procedure "Installing an adjustable foot", page 42 for detailed installation instructions.

   b) Installation of the rental feet upon the foot beams. See procedures "Installing the first NX rental foot", page 43 and "Installing the next NX rental feet", page 48.

   c) Attach the foot beams to the ground with fixings and/or place the necessary ballast upon the foot beams. Ensure that the foot beams are supported every 50 centimeters. This to prevent that the beam bends. Note that the ballast has to be placed between the end and the last 30 cm of the foot beam. See chapter "Ballast values for a base stand NX display", page 119, or consult the "Ballast calculator" on the Barco web site.
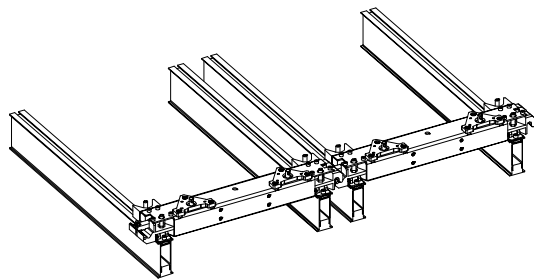
Image 6-1
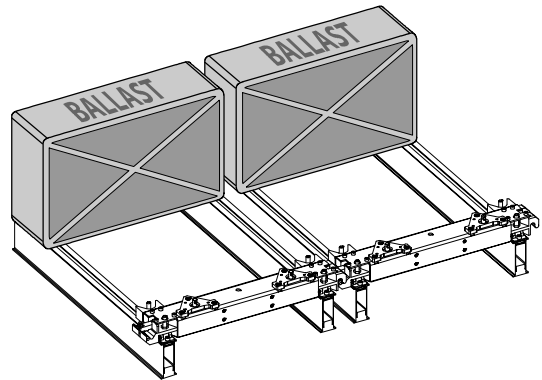
2. The second stage in the process is the installation of the first three rows of NX rental tiles upon the rental feet. See detailed procedure "Installing the first two rows of NX rental tiles upon the NX rental feet", page 54, detailed procedure "Installing the NX rental tile upon each other", page 57.

   Note: *The bottom row of NX rental tiles has to be secured with the NX rental feet after installation of the second row of NX rental tiles.*
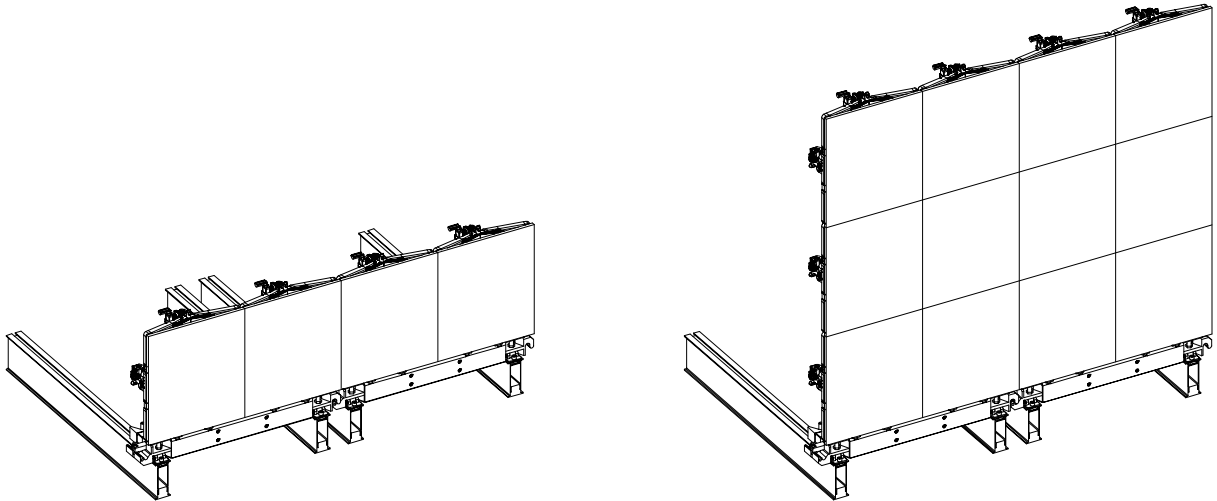
Image 6-2

3. The next stage is the installation of stacker system in case the NX display will be higher than 5 tiles. Otherwise, you can skip this stage. See procedure "Installing the NX stacker system", page 59.
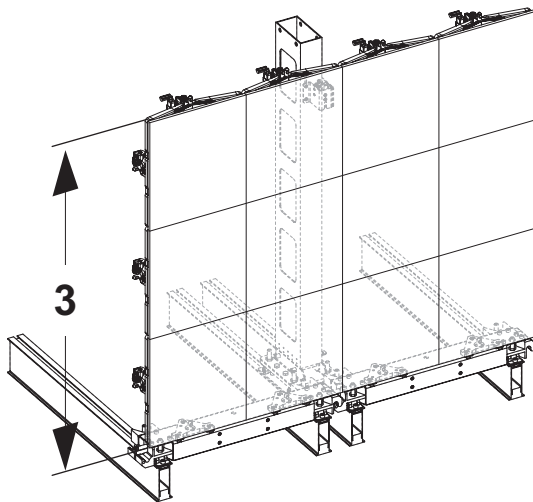
Image 6-3

4. Repeat stage 2 and 3 until all rows of the NX display are installed.
   Warning: *The maximum height of a base stand NX rental display is 12 tiles high.*

   Note: *The previous installed stacker profiles will act as stacker feet for the next stacker profiles.*

5. The next stage is the power and data cabling of the NX rental display. See chapter xxxx.
   Warning: Risk of electric shock / Risk of fire:

   To protect against risk of fire caused by overloading of power cables, MAXIMUM 8 NX tiles (control boxes) may be connected in parallel. Each power source cable supplying maximum 8 NX tiles (control boxes) should be protected by a circuit breaker or fuses rated 16 A / 250 VAC (15 A / 250 VAC in the USA and Canada). Note that one NX tile requires 200-240 VAC, 50-60 Hz, 1.45 amps at 230 VAC.
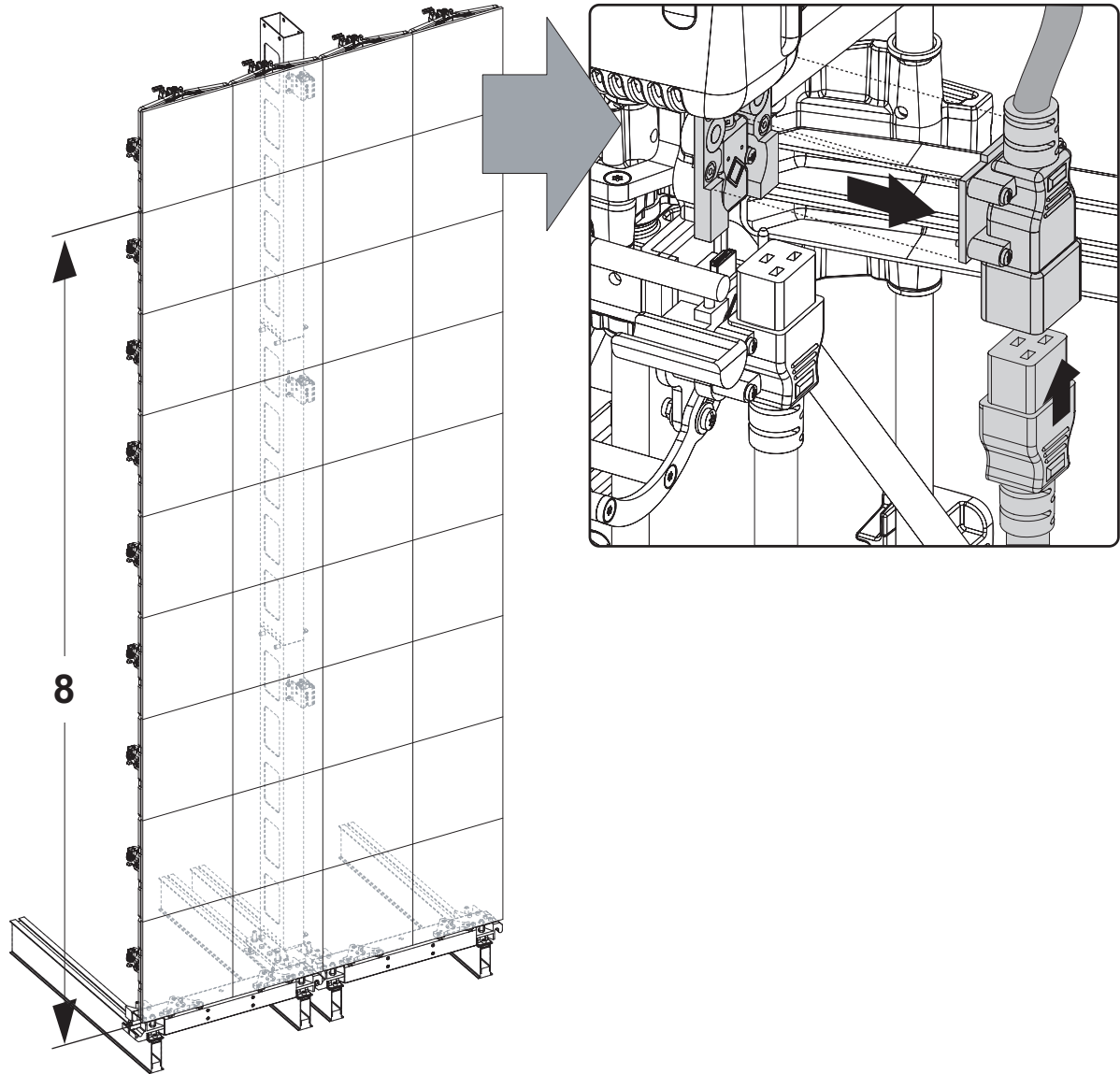
Image 6-4

6. Installation of the digitizer(s). Note that the NX rental tiles require the new DX-700 digitizer. Follow the installation guidelines in the manuals of these products.

7. Installation of the control software for the NX rental display. See installation procedure described in the manual of the Director toolset.

8. Apply power to the NX rental display and start up the control software. For more information about showing content on the NX display see manual of the Director toolset.

12 MAX
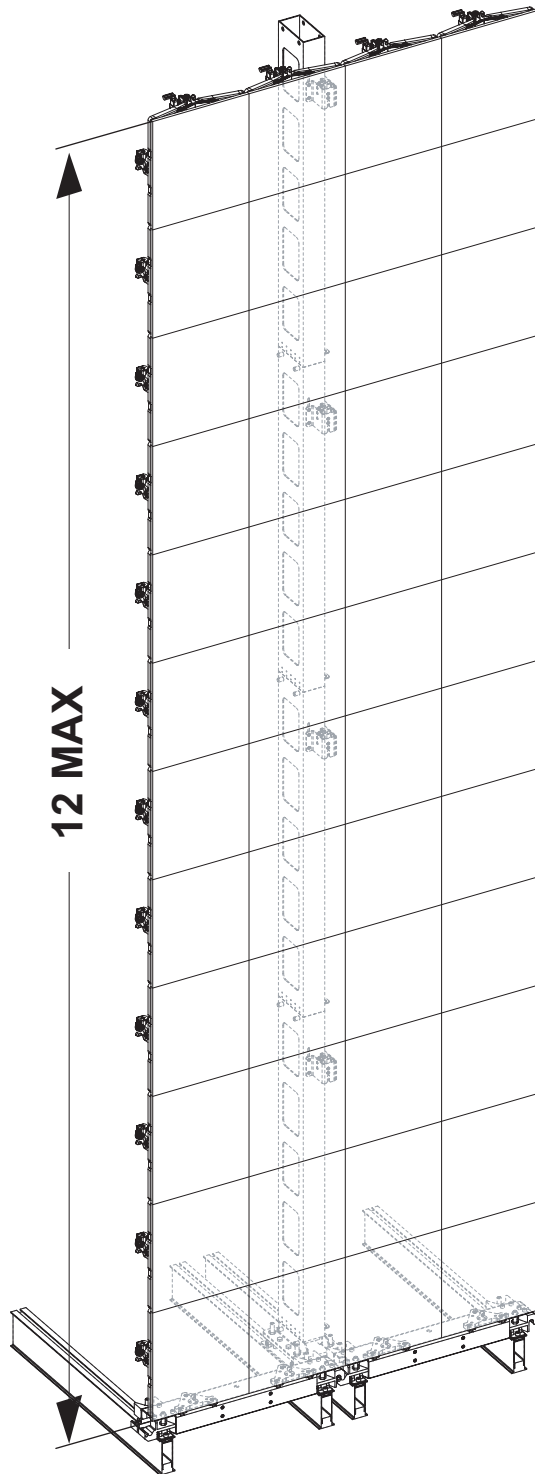
Image 6-5

⚠️ **WARNING:** **The maximum height of a base stand NX rental display is 12 tiles high.**

6.2   Set up a hanging NX rental display

⚠️ **WARNING: Make sure that the truss installation, on which you want to hang the NX rental display, complies with the local regulations regarding such installations and that the truss installation will be able to support the complete load of the NX rental display.**

⚠️ **WARNING: The maximum height of a hanging NX rental display is 15 tiles high.**

Setup process

1. The first stage in the process is the installation of the truss beams upon NX rental tiles. See detailed procedure "Installing the NX truss beam upon NX rental tiles", page 64.
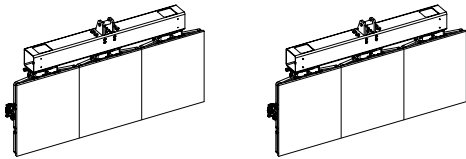
Image 6-6

2. The second stage in the process is attaching a second row of NX rental tiles. See procedure "Installing the NX rental tile upon each other", page 57.
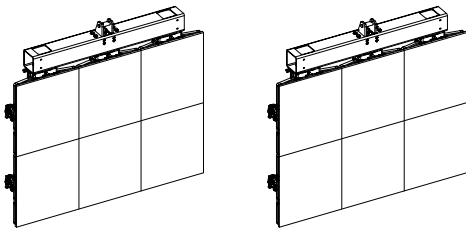
Image 6-7

3. The third stage in the process is joining several truss beams, each containing two rows of rental tiles, together.
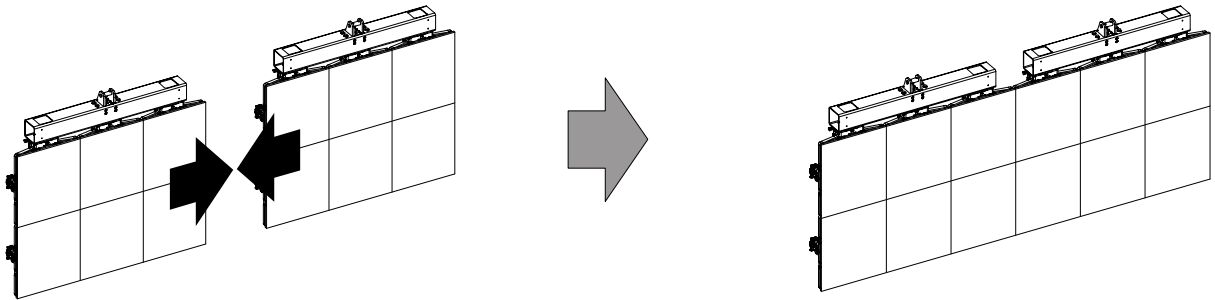
Image 6-8

4. The next stage is the installation of the remaining NX rental tiles row by row. See procedure "Installing the NX rental tile upon each other", page 57.
    Warning: The maximum height of a hanging NX rental display is 15 tiles high.

5. The next stage is the power and data cabling of the NX rental display. See chapter xxxx.
   Warning: **Risk of electric shock / Risk of fire:**

   To protect against risk of fire caused by overloading of power cables, MAXIMUM 8 NX tiles (control boxes) may be connected in parallel. Each power source cable supplying maximum 8 NX tiles (control boxes) should be protected by a circuit breaker or fuses rated 16 A / 250 VAC (15 A / 250 VAC in the USA and Canada). Note that one NX tile requires 200-240 VAC, 50-60 Hz, 1.45 amps at 230 VAC.
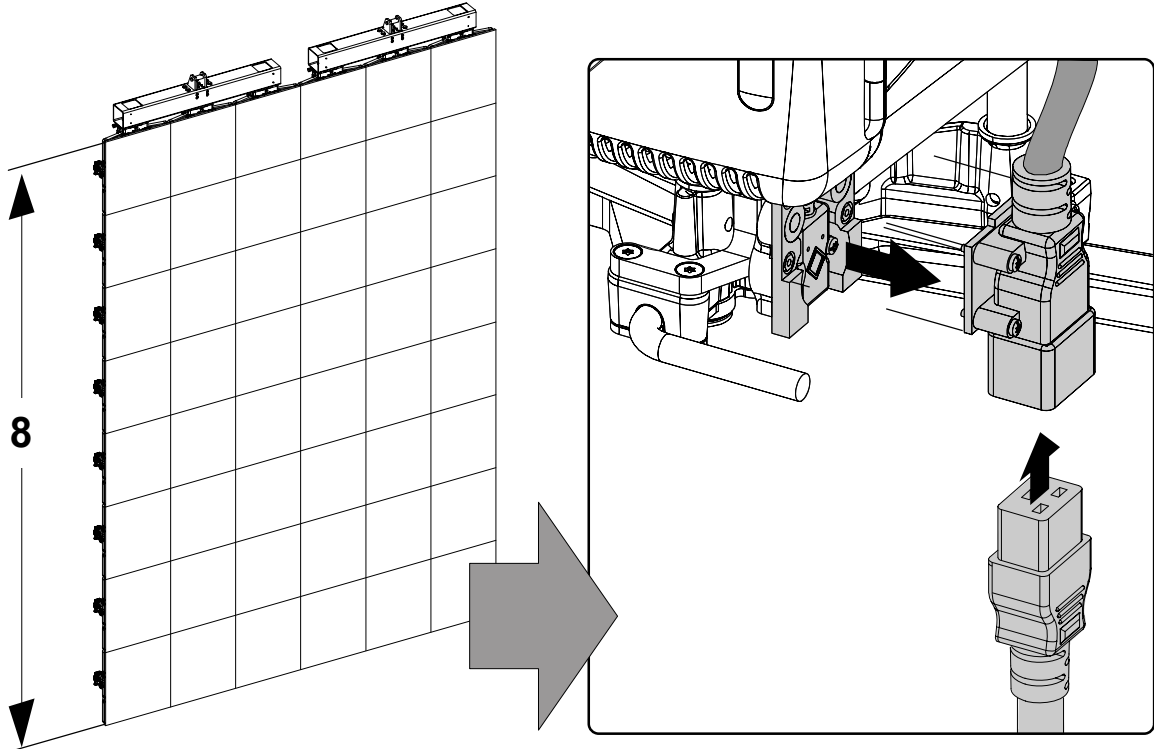
Image 6-9

6. Installation of the digitizer(s). Note that the NX rental tiles require the new DX-700 digitizer. Follow the installation guidelines in the manuals of these products.

7. Installation of the control software for the NX rental display. See installation procedure described in the manual of the Director toolset.

8. Apply power to the NX rental display and start up the control software. For more information about showing content on the NX display see manual of the Director toolset.
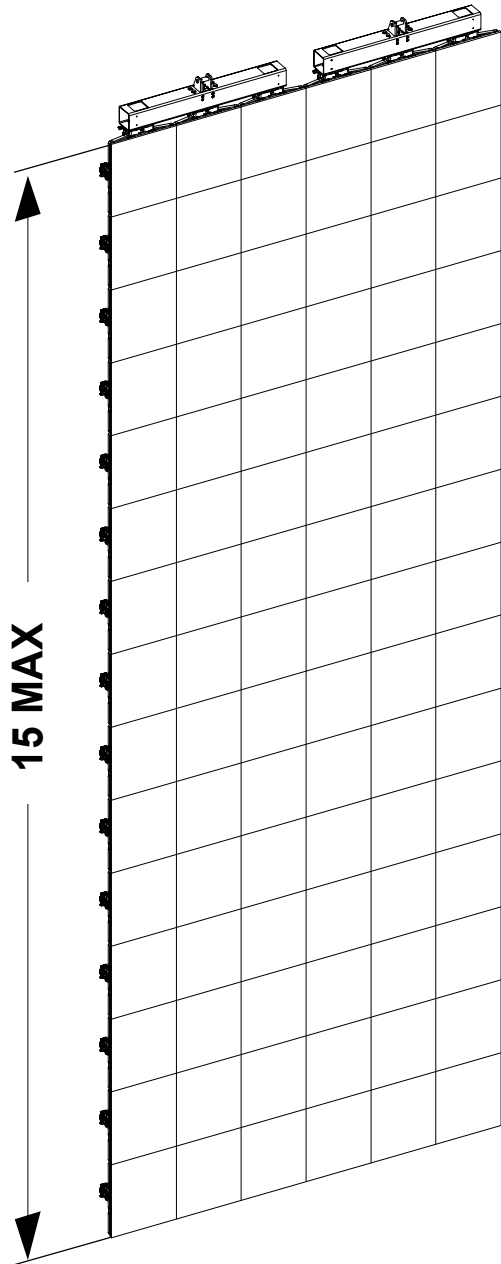
Image 6-10

⚠️ **WARNING: The maximum height of a hanging NX rental display is 15 tiles high.**

7. BASIC PROCEDURES

About this chapter

This chapter contains all installation procedures necessary to handle the NX tiles, to set up an NX rental display and to remove the NX tiles from an NX rental display. These procedures describe, with detailed step by step actions and illustrations, how to install an NX rental display in a floor mount or hanging configuration. Some of the procedures are redundant either for a floor mount or for a hanging configuration. See chapter "Setup process of an NX rental display", page 33, to follow the correct order of procedures required to set up your NX rental display in the configuration of your choice.

Grip points of the NX tile

Always hold fast the NX tile by the grip points (A, B, C, D & E) indicated on the image below. This to prevent damage to the NX tile while setting up or disassembling the NX rental display.
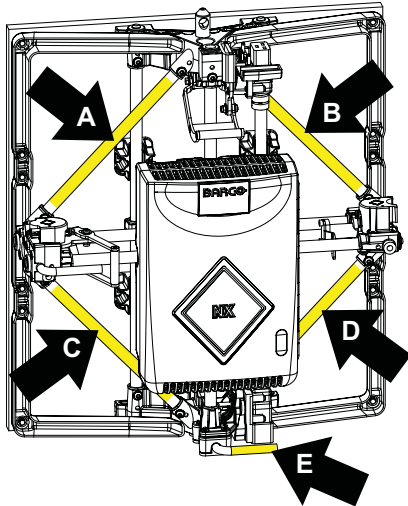
Image 7-1

> **CAUTION: Never touch the LED side of the NX tile. Avoid any accidental bumping of the NX tile corners. Since LED's of the NX tiles are mounted near by the edges of the LED boards, which is unavoidable in the design of a high resolution LED-wall, the corners of the NX tiles become sensitive for mechanical damage. Because of that it is required to handle the NX tiles with care at all times.**

Overview

- Installing an adjustable foot
- Installing the first NX rental foot
- Installing the next NX rental feet
- Preparing the NX rental tile for installation
- Installing the first two rows of NX rental tiles upon the NX rental feet
- Installing the NX rental tile upon each other
- Installing the NX stacker system
- Installing the NX truss beam upon NX rental tiles
- Securing a hanging NX rental display
- Removing an NX tile from the NX display

7.1 Installing an adjustable foot

Necessary tools

• Allen wrench size 4 mm
• Hexagon socket size 10 mm

How to install an adjustable foot ?

1. Ensure there are no obstacles to smooth placement of the adjustable foot.

2. Slide an adjustable foot into the cross beam.
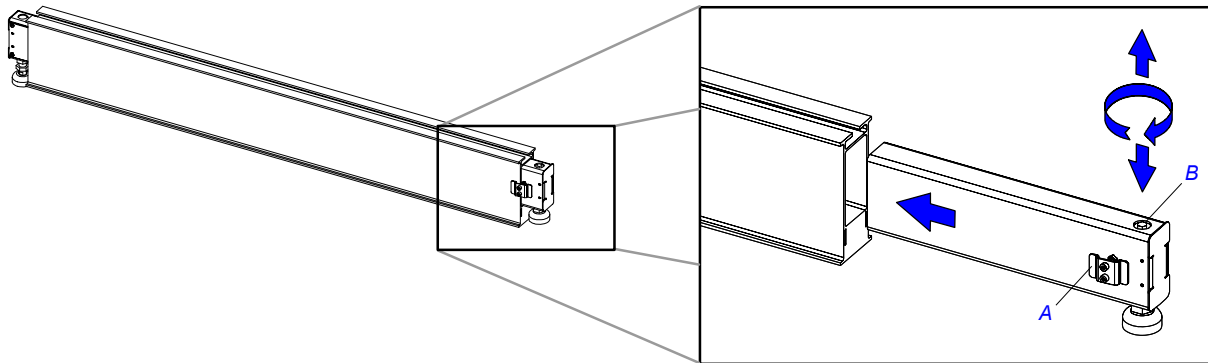
Image 7-2
A   Attachment with foot beam.
B   Height adjustment.

3. Attach the adjustable foot to the foot beam using an Allen wrench of 4 mm.

4. Slide an adjustable foot into the other end of the foot beam.

5. Attach this adjustable foot also to the foot beam using an Allen wrench of 4 mm

6. Adjust the height of the adjustable feet to level out the foot beam.

7. Place supporting blocks underneath the foot beam every 50 centimeters. This to prevent that the foot beam bends.
   Caution: *Never let the complete weight of the rental display rest on the adjustable foot.*

7.2   Installing the first NX rental foot

Why align and level the NX rental feet?

It's of great importance that the NX rental feet are perfectly aligned and leveled to avoid seams between the NX rental tiles. The NX rental feet are the foundation of the NX display. So, before continue with installing the NX rental tiles ensure that the NX rental feet are perfectly aligned and leveled.

The procedure below is illustrated with a dual NX rental foot. Nevertheless, the same procedure is applicable for the triple NX rental foot.

Necessary tools

- 10 mm Allen key.
- 24 mm wrench.
- Spirit level of 120 cm minimum.
- Spirit level 30 cm.

How to install the first NX rental foot?

1. Place the two foot beams for the first rental foot on their final position. Make sure that the foot beams are leveled (maximum 1 cm tolerance is allowed). Use shims to achieve 1 cm tolerance.
   *Note: Note that rental feet of a base stand NX display have to be installed from right to left seen from the front of the display. The distance between the two foot beams, measured from center to center, is **741 mm** for a **dual rental foot** and **1189 mm** for a **triple rental foot**.*

   Caution: Ensure that the foot beams are supported every 50 centimeters. This to prevent that the beam bends.

   Tip: Install an optional adjustable foot at each end of the foot beam. The adjustable feet will make it easier to level out the foot beams. See procedure "Installing an adjustable foot", page 42.

2. Remove both adapters (A) from the NX rental foot as illustrated. Use a 24 mm wrench to remove the nuts N from the adapter.
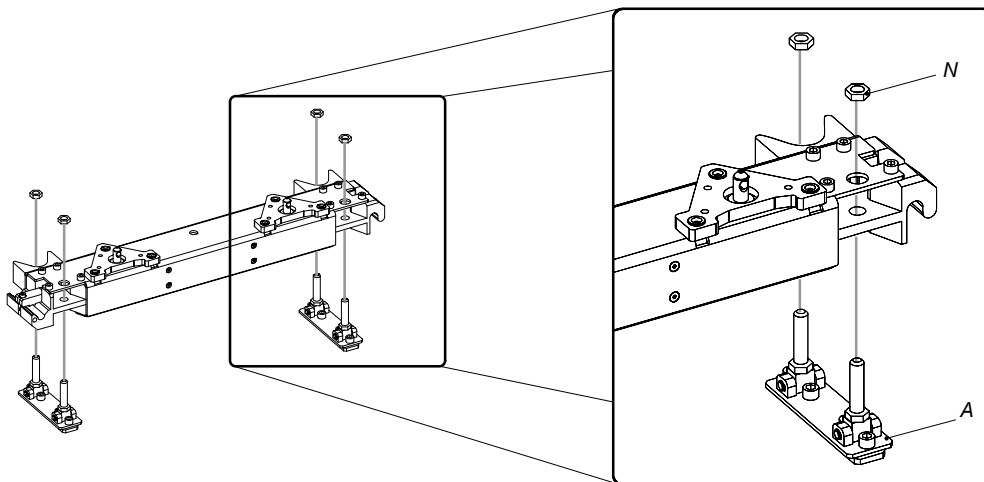
Image 7-3

3. Install each adapter upon a foot beam (B) as illustrated. Use a 10 mm Allen key to release the four hexagon screws (H) from the adapter rail plate (R).
   Note: The location of the adapter on the foot beam depends on the height of the display, the length of the foot beams, and the ballast which has to be placed upon the foot beams. See chapter "Ballast values for a base stand NX display", page 119 for more information. This procedure assumes that the display has to be installed at the front of 1,2 meter foot beams. Nevertheless, the same procedure is applicable for all possible positions of the display upon the foot beam. Just ensure that all adapters are installed in the same manner.
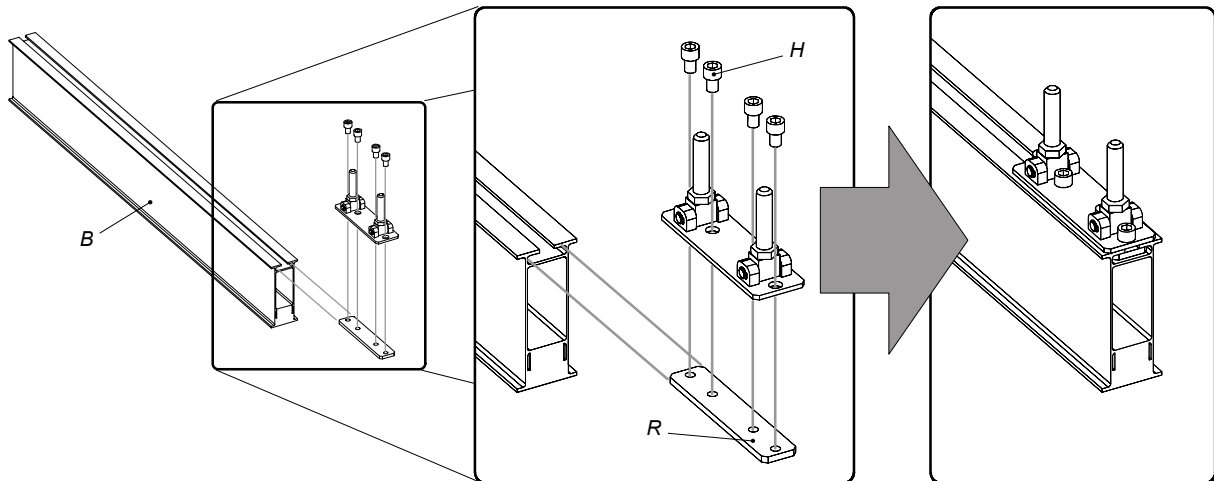
Image 7-4

> **Note:** *The adapters can also be installed upon a solid base instead of upon foot beams. Four M12 bolts per adapter are required to secure the adapter. Each bold must be able to resist a force of 7,5 kN/mm² in case of a dual rental foot and 11 kN/mm² in case of a triple rental foot.*

4. Place the NX rental foot upon the installed adapters as illustrated. Make sure that the rods of both adapters are provided with a nut (M) before installing the rental foot. Provide each rod with a second nut (N) once the rental foot is placed. Do not fasten the upper nut (N) yet, just place the nut with a few turns on the top of the rod.
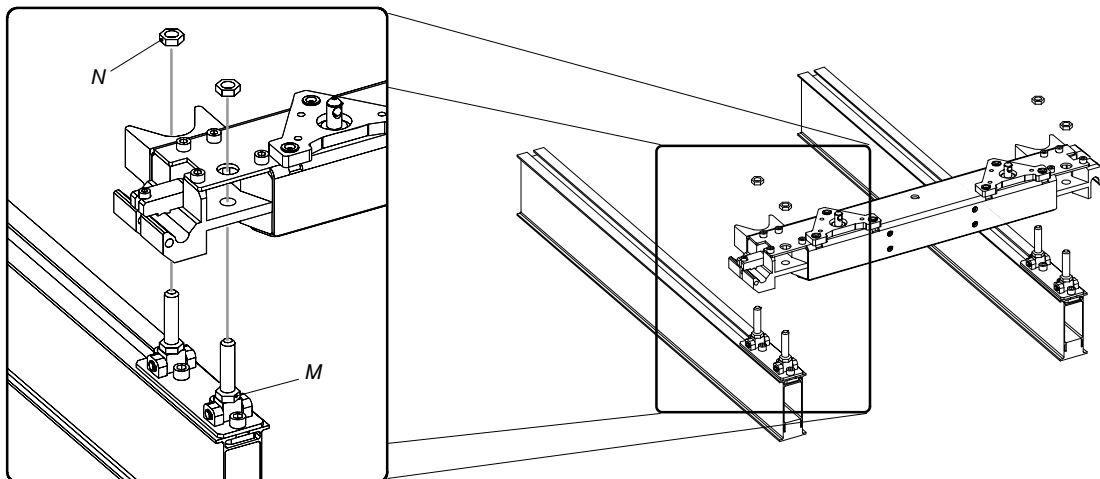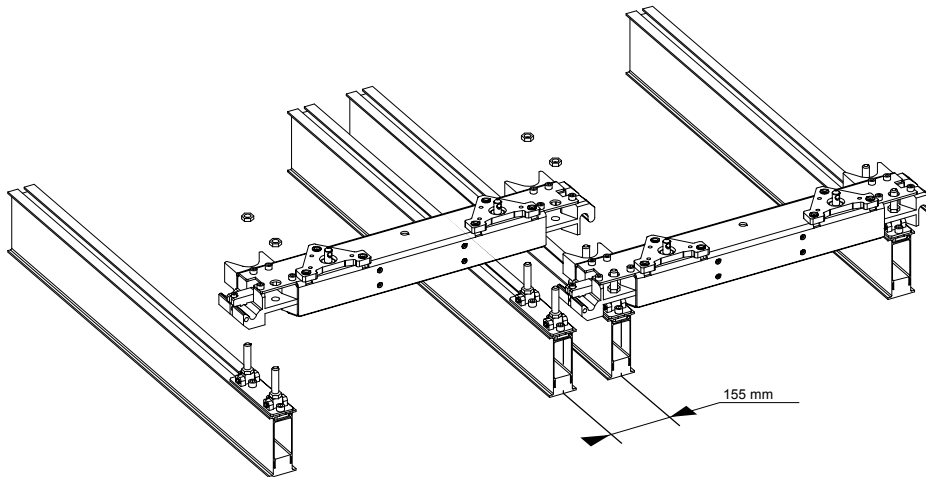

Image 7-5

5. Turn the nut M1 at the right front side of the rental foot halfway upwards, see image 7-6. This way the adjustment range to level the rental foot is equally spread.

6. Level out the first rental foot from left to right by turning the nut M2 at the left front side of the rental foot upwards or downwards. Use a 24 mm wrench and a spirit level which capture the total width of the rental foot. Place the spirit level upon the tile positioning pins at the top of the rental foot.
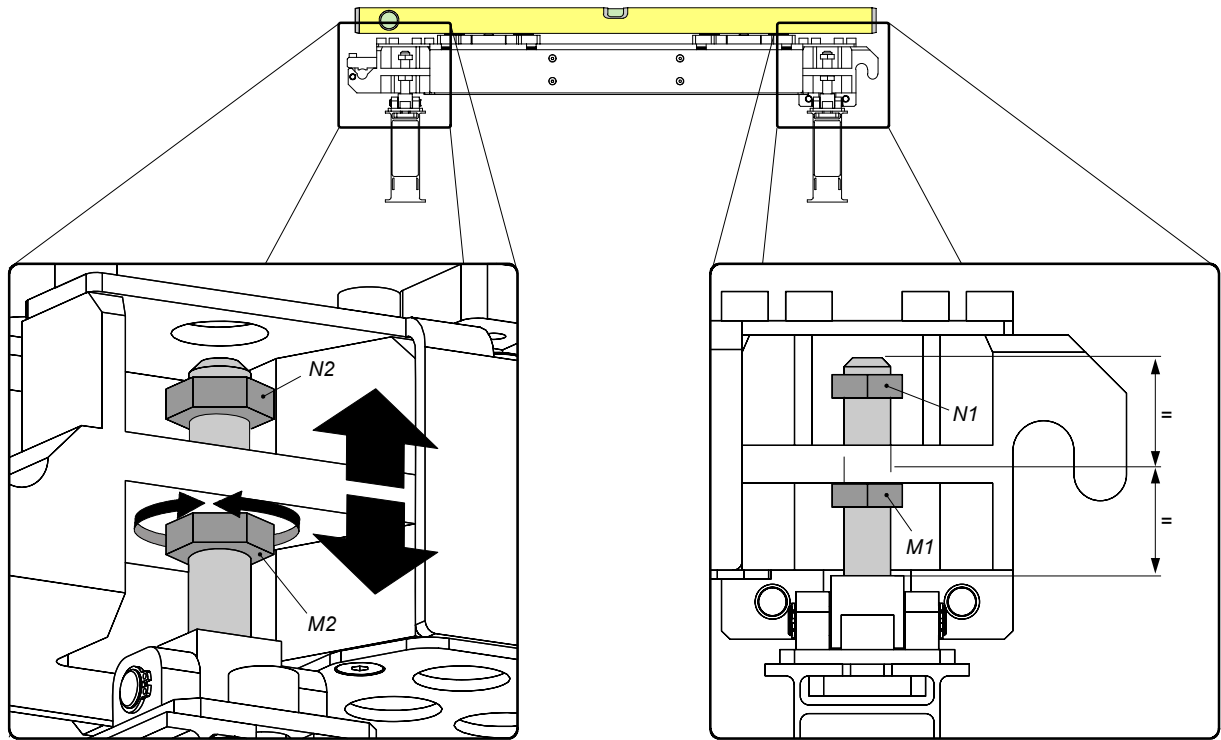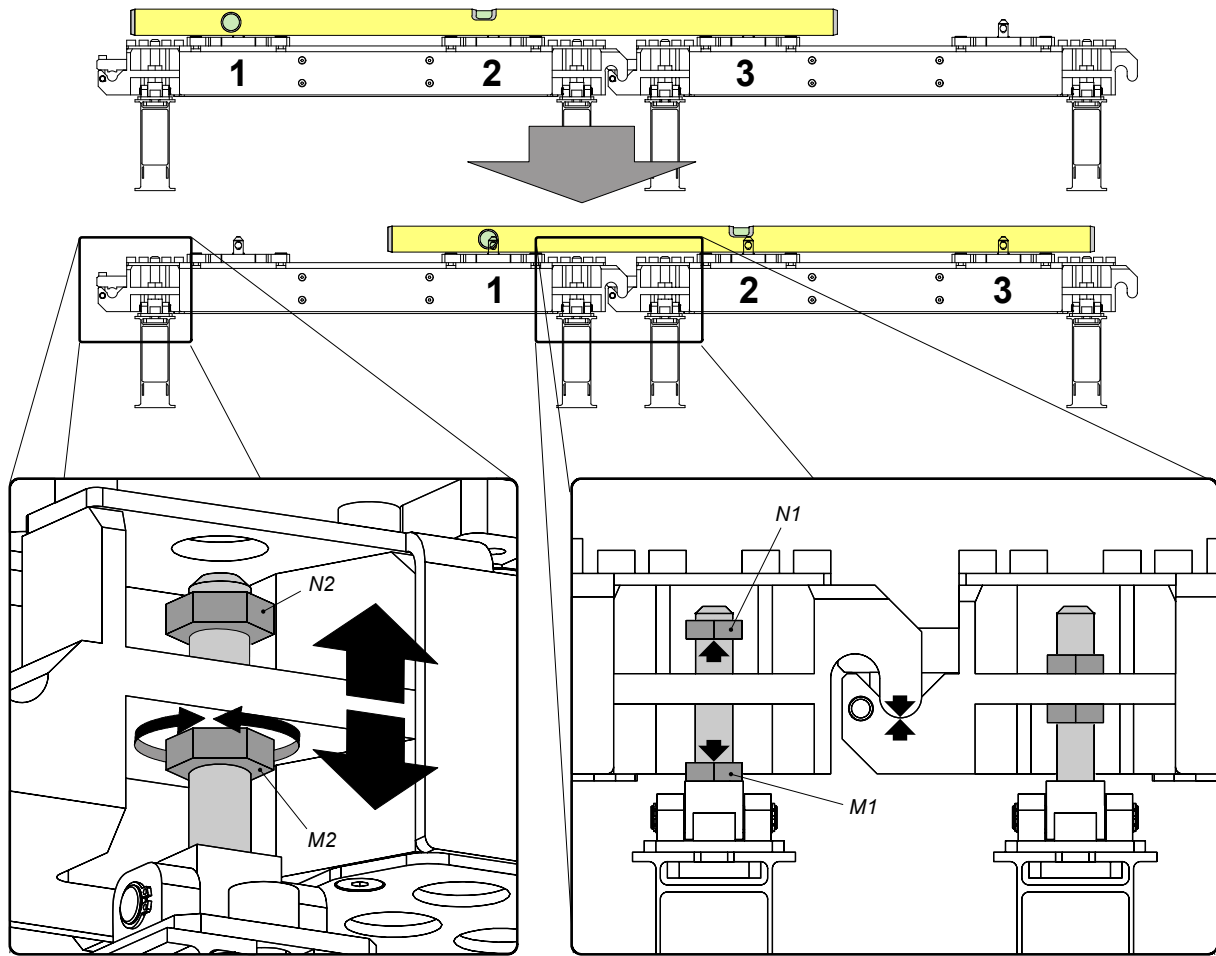
Image 7-6

7. Level out the first rental foot front to back by turning the nuts M3 & M4 at the rear side of the rental foot upwards or downwards as illustrated. Use a 24 mm wrench and a spirit level of 30 cm length. Place the spirit level as illustrated upon the tile socket on top of the rental foot.
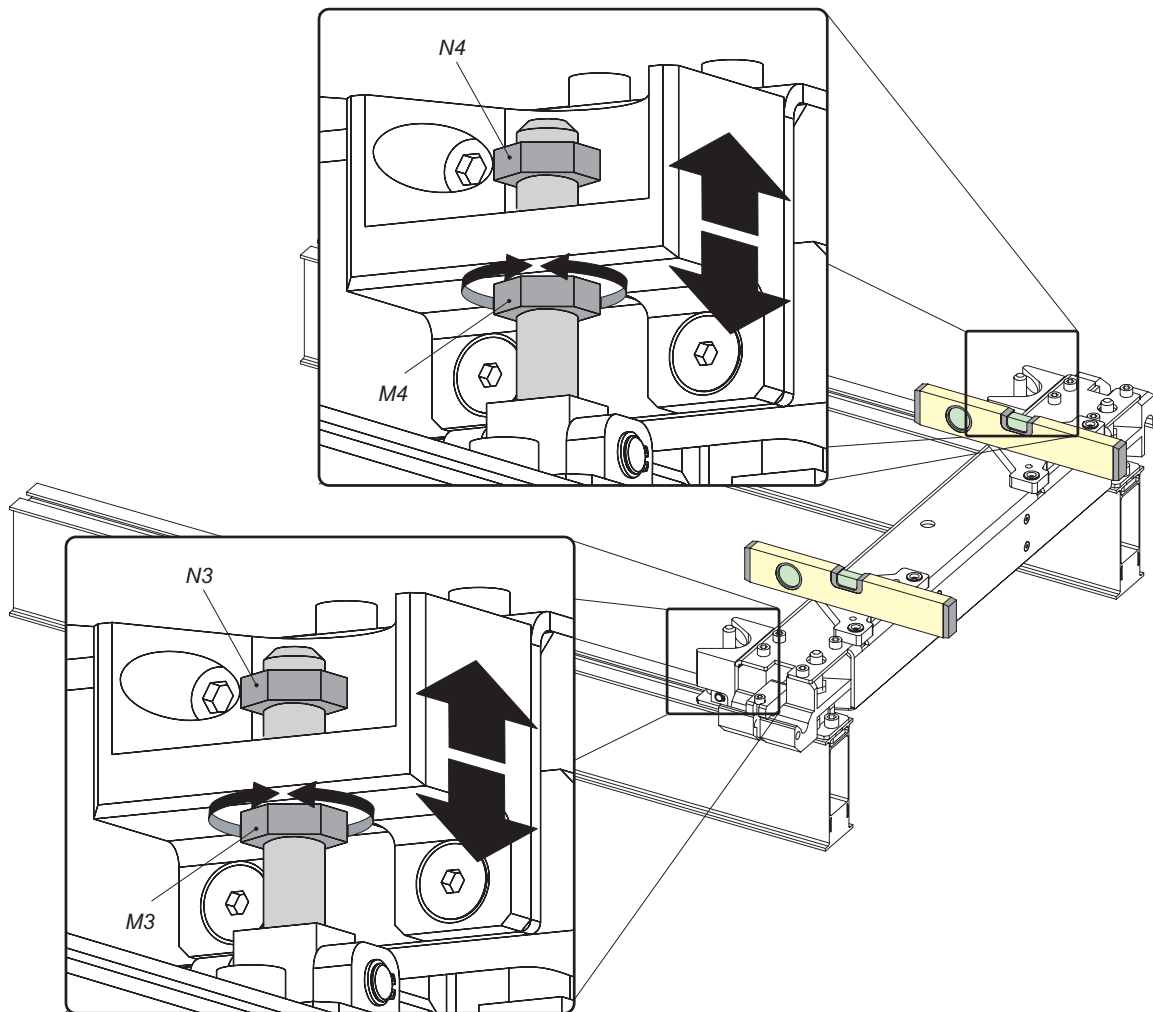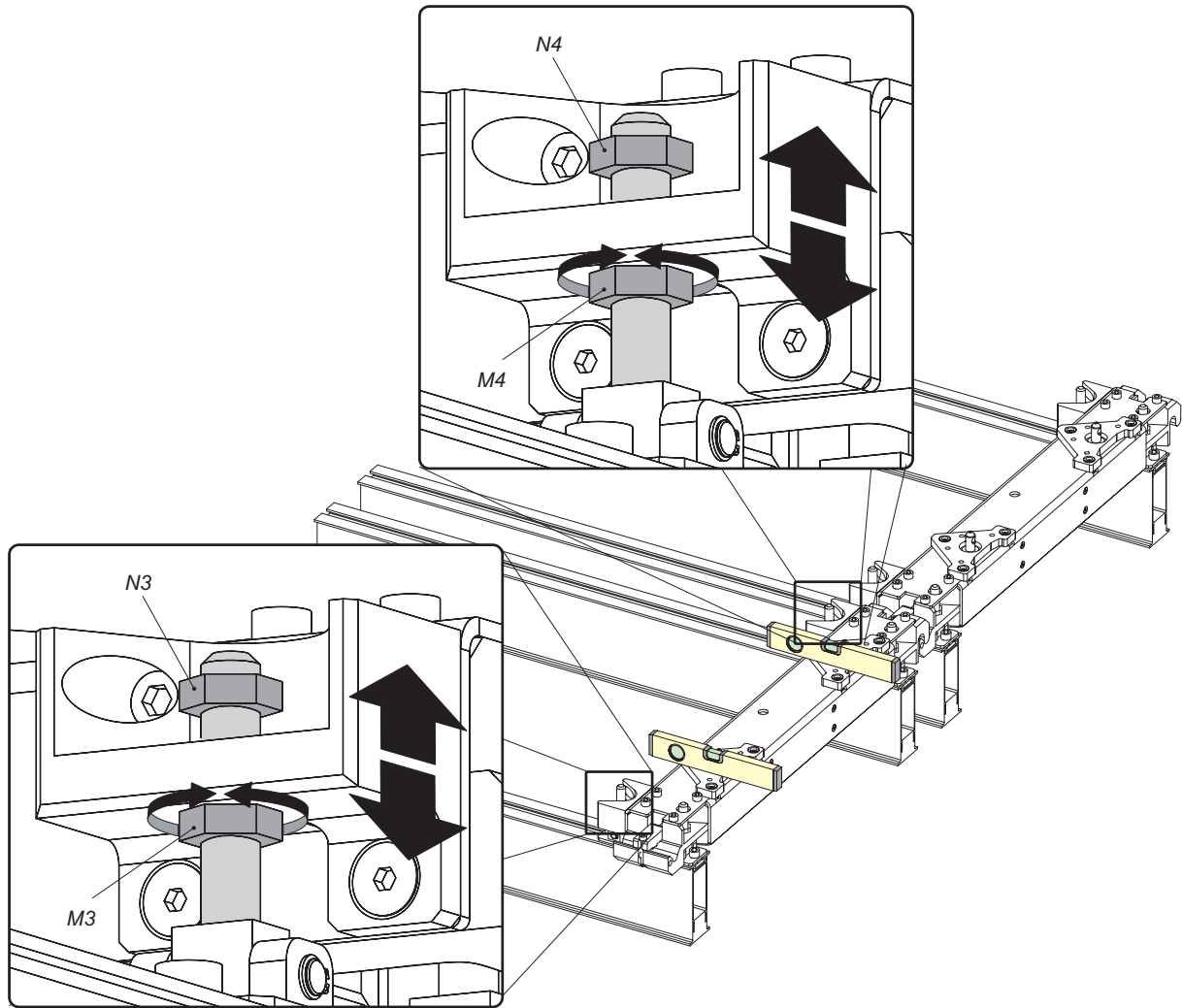
Image 7-7

8. Repeat step 6 and 7 until the first rental foot is perfectly leveled. Make sure that all nuts M are turned upwards against the rental foot assembly.

9. Fasten all nuts N to secure the position of the first rental foot.
   ***Caution:*** *Make sure that the rental foot remains perfectly leveled while fastening the nuts N.*
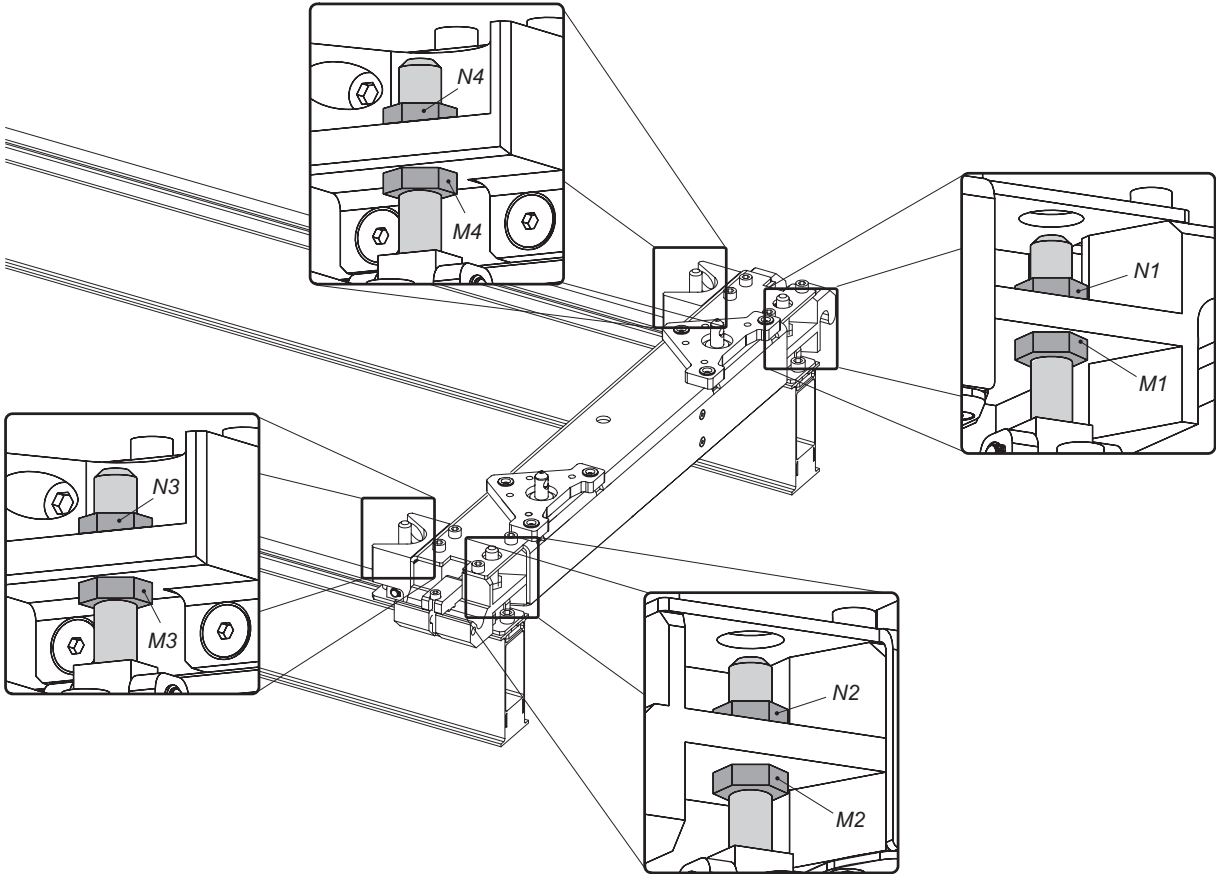
Image 7-8

7.3 Installing the next NX rental feet

The procedure below describes how to install the next dual NX rental feet upon foot beams. The same procedure is applicable for the triple NX rental feet.

Necessary tools

- 6 mm Allen key.
- 10 mm Allen key.
- 24 mm wrench.
- Spirit level of 120 cm minimum.
- Feeler gauge of 0,1 mm.
- Spirit level 30 cm.
- Laser level.

How to install the next NX rental feet?

1. Install the adapters of the next rental foot on two foot beams and place the two foot beams on their final position at the left side of the previous installed rental foot. Make sure that the foot beams are leveled (maximum 1 cm tolerance is allowed), the adapters are aligned with the previous installed adapters, and that each rod of both adapters is provided with a nut M.

   Note: *Note that rental feet of a base stand NX display have to be installed from right to left seen from the front of the display. The distance between the two foot beams of the same rental foot, measured from center to center, is 741 mm for a dual rental foot and 1189 mm for a triple rental foot. The distance between the foot beams of neighboring rental feet, measured from center to center, is 155 mm.*

   Caution: *Ensure that the foot beams are supported every 50 centimeters. This to prevent that the beam bends.*

   Tip: *Install an optional adjustable foot at each end of the foot beam. The adjustable feet will make it easier to level out the foot beams.*
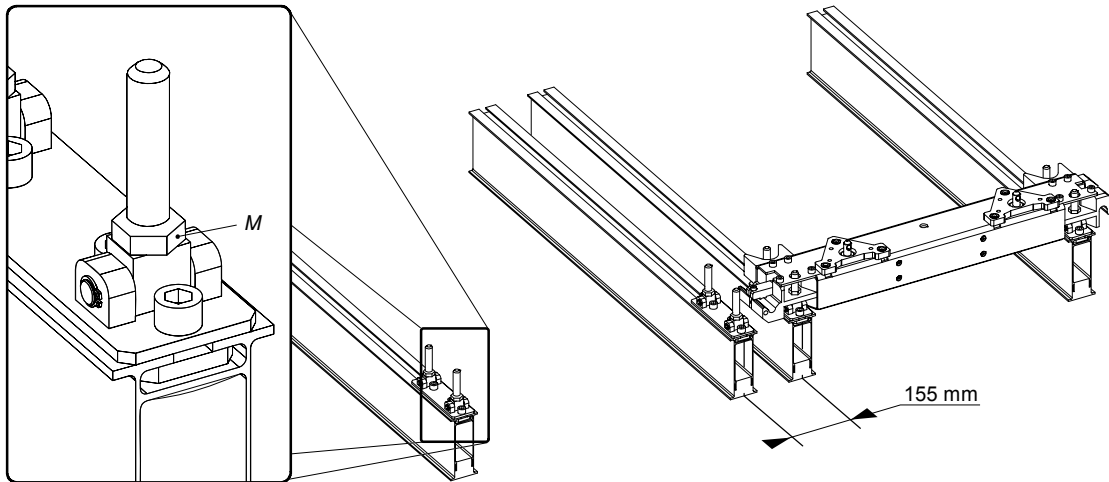
Image 7-9

2. Open the lid (L) of the side lock of the previous installed rental foot. Use a 6 mm Allen key.
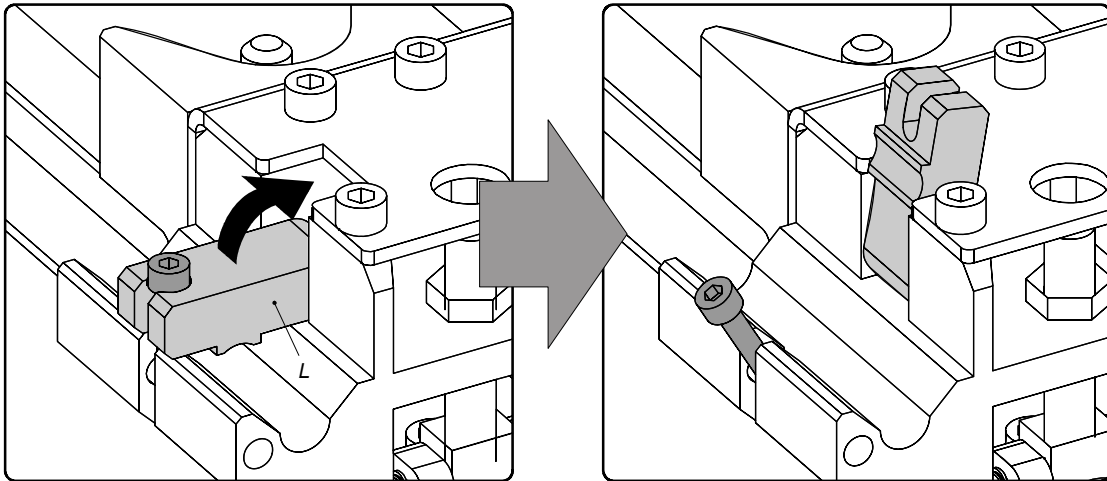
Image 7-10

3. Place the NX rental foot upon the adapters as illustrated. Note that the right side of the of the rental foot hooks into the left side of the previous installed rental foot. The front side of the rental foot must be aligned with the front side of the previous installed rental foot. Make sure that the rods of both adapters are provided with a nut (M) before installing the rental foot. Provide each rod with a second nut (N) once the rental foot is placed. Do not fasten the upper nut (N) yet, just place the nut with a few turns on the top of the rod.

155 mm

Image 7-11

4. Close and fasten the lid of the side lock. Use a 6 mm Allen key.
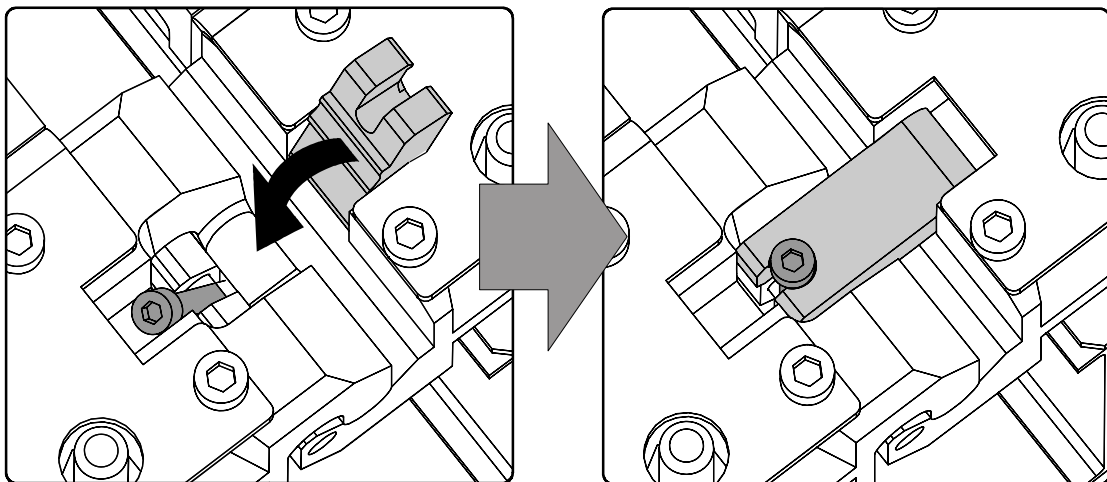
Image 7-12

5. Align the top of the positioning pins of the NX rental foot with the top of the positioning pins of the previous leveled NX rental foot. Do this by turning the nut M2 at the left front side of the rental foot upwards or downwards. Do not modify the height of the previous leveled NX rental foot. Use a 24 mm wrench and a spirit level (or ruler) which captures at least 6 positioning pins (3 tiles wide) as illustrated. The maximum allowed space between spirit level and the top of the positioning pins is 0,1 mm. Use a feeler gauge to check.

Image 7-13

6. Level out the rental foot from front to back by turning the nuts M3 & M4 at the rear side of the rental foot upwards or downwards. Use a 24 mm wrench and a spirit level of 30 cm length. Place the spirit level as illustrated upon the tile socket on the top of the rental foot.

Image 7-14

7. Repeat step 5 and 6 until the rental foot is perfectly aligned. Make sure that all nuts M are turned upwards against the rental foot assembly.

8. Fasten all nuts N to secure the position of the rental foot.
   Caution: *Make sure that the rental foot remains perfectly leveled while fastening the nuts N.*
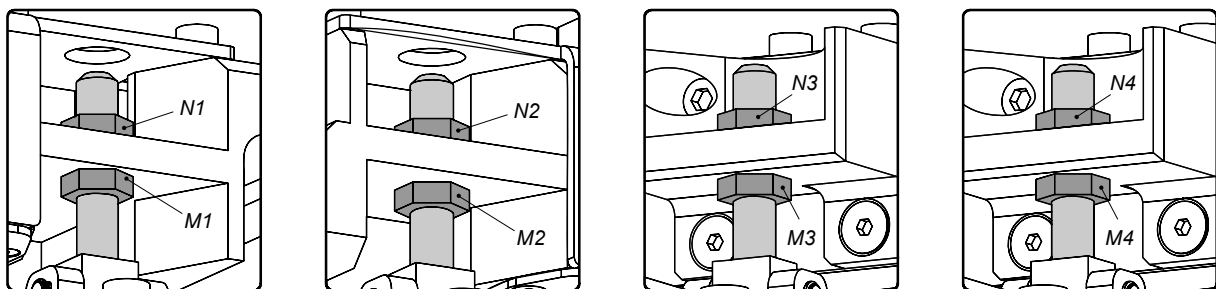
Image 7-15

9. Repeat from step 1 until all rental feet are installed and aligned.
   Tip: *Place a laser level upon the first installed rental foot as illustrated. Check if the height is equal between the laser beam and each tile socket of all installed rental feet. If required, readjust the last installed rental foot before installing the next rental foot. This additional verification is recommended for NX displays wider than 6 tiles. This will help to eliminate cumulative measuring faults that are introduced by using a spirit level and only being able to measure two adjacent rental feet at a time.*
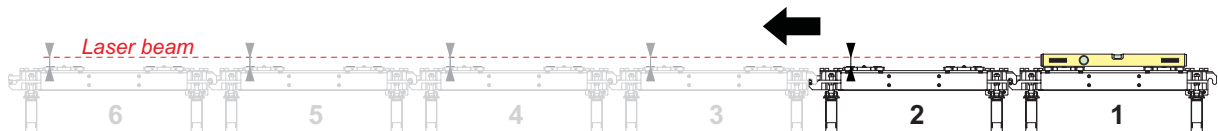
Image 7-16

7.4 Preparing the NX rental tile for installation

How to prepare the NX rental tile for installation?

1. Retract the electrical socket for data transmission in horizontal direction. Do this by pulling the lever at the side of the NX rental tile to the right seen from the rear of the tile.
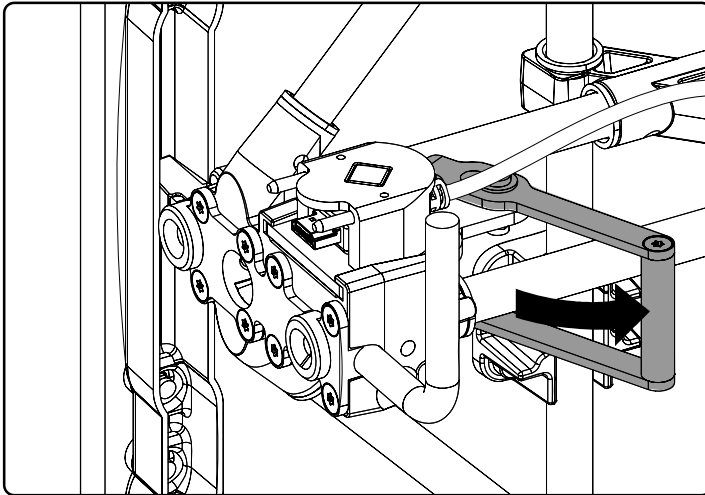
Image 7-17

2. Retract the electrical sockets for power and data transmission in vertical direction. Do this by pulling the lever at the top of the NX rental tile downwards.
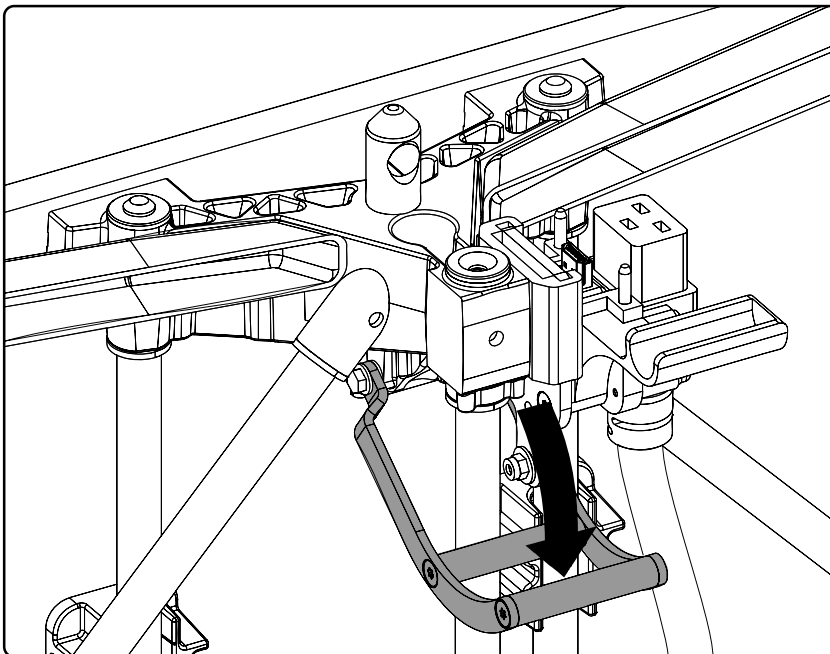
Image 7-18

3. Place the side locking mechanism in unlocked position. Do this by first turning the handle at the side of the NX rental tile to its vertical position and then pull the handle out.
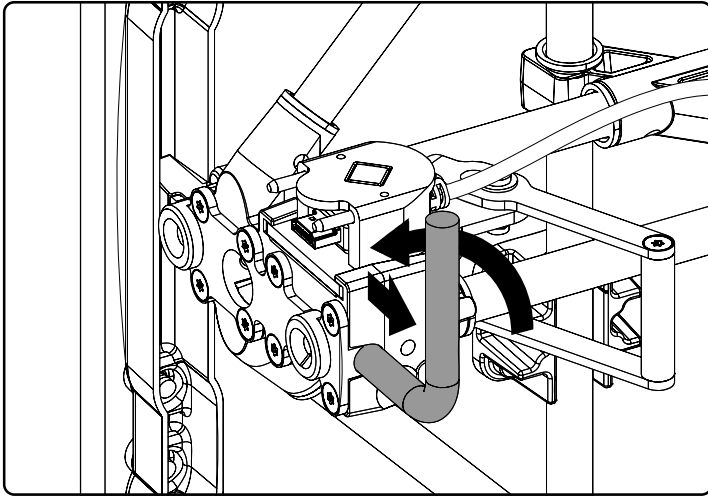
Image 7-19

4. Place the vertical locking mechanism in unlocked position. Do this by first turning the handle at the bottom of the NX rental tile to its vertical position and then pull the handle out.
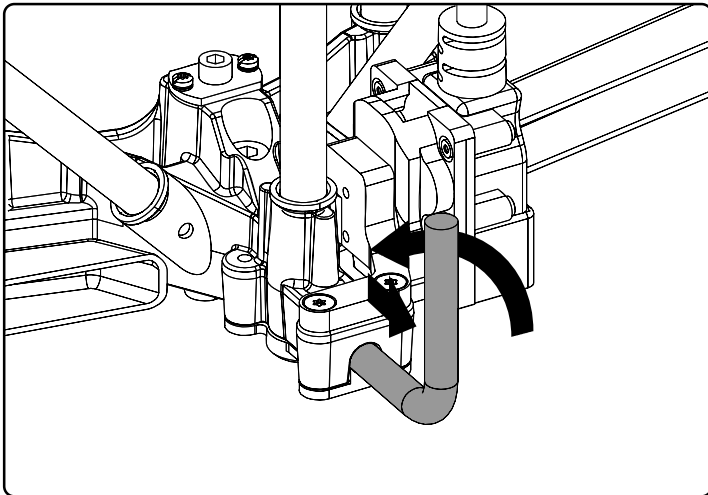
Image 7-20

5. Retract the side locking pin. Do this by pushing the pin inside the rental frame.
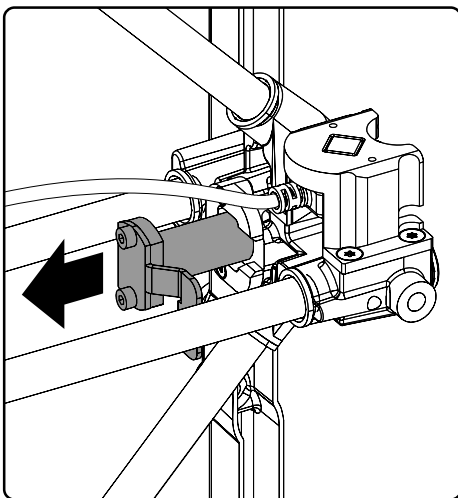
Image 7-21

7.5 Installing the first two rows of NX rental tiles upon the NX rental feet

All NX rental feet has to be installed and aligned before installing the NX rental tiles upon the NX rental feet.

How to installing the first two rows of NX rental tiles upon the NX rental feet?

1. Prepare the NX rental tile for installation. See procedure "Preparing the NX rental tile for installation", page 52.

2. Place the first row of NX rental tiles upon the NX rental feet.
   Note: Do not lock the tile and the foot together yet.
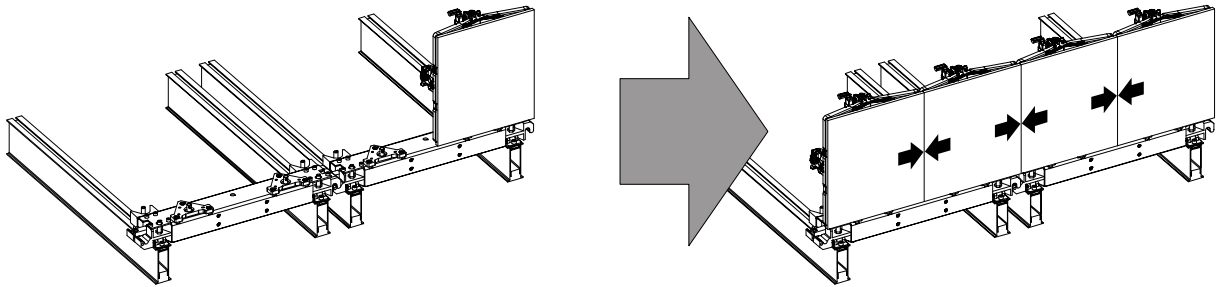
Image 7-22

3. Lock the tiles sideways with each other as follows:

   a) Slide the side locking pin into the side locking mechanism.

   b) Push in the side locking handle and then turn the handle 90° clockwise. Both tiles are now mechanically locked with each other.

   c) Connect the NX rental tiles electrically together by moving the side lever from right to left, seen from the rear of the NX rental tile.

   Caution: No force is required to turn the handle. Just make sure the handle is completely pushed in prior to turn the handle 90°. Neglecting this may cause damage to the mechanism.
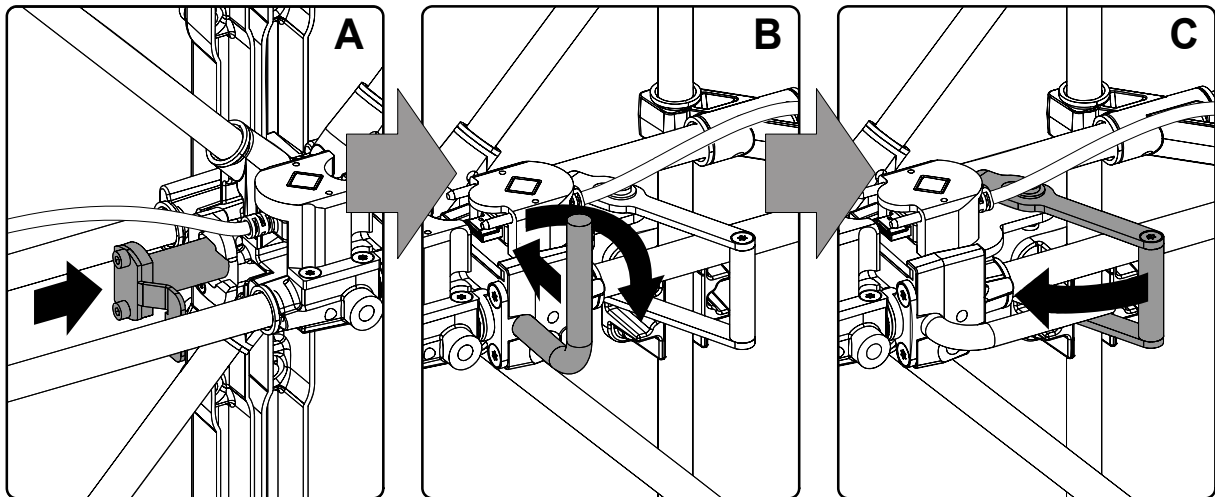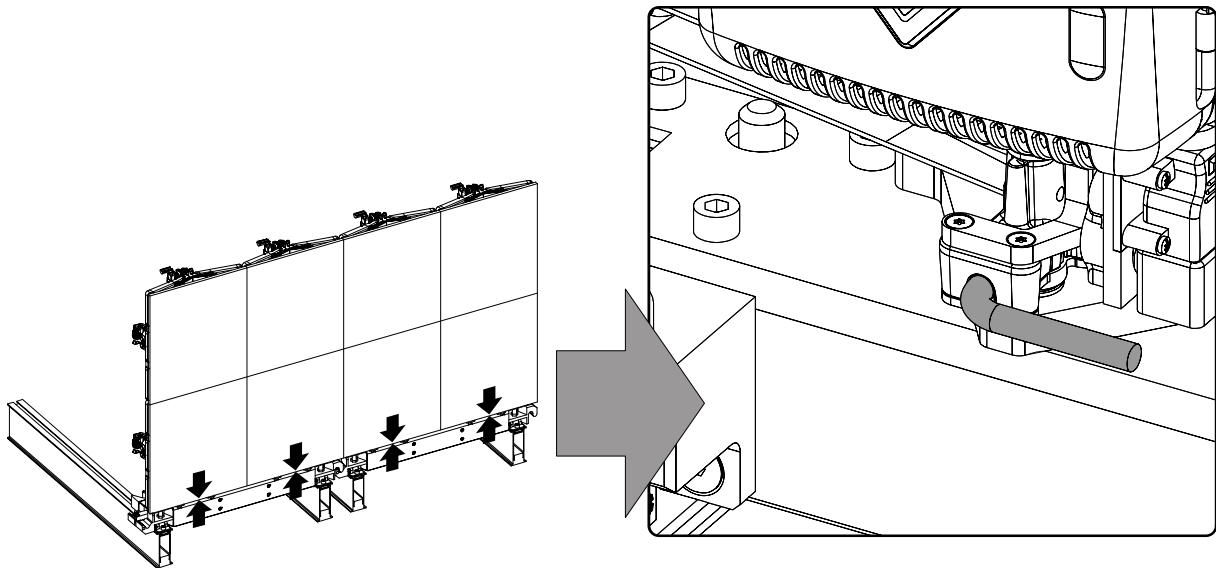

Image 7-23

4. Place the second row of NX rental tiles upon the first row.
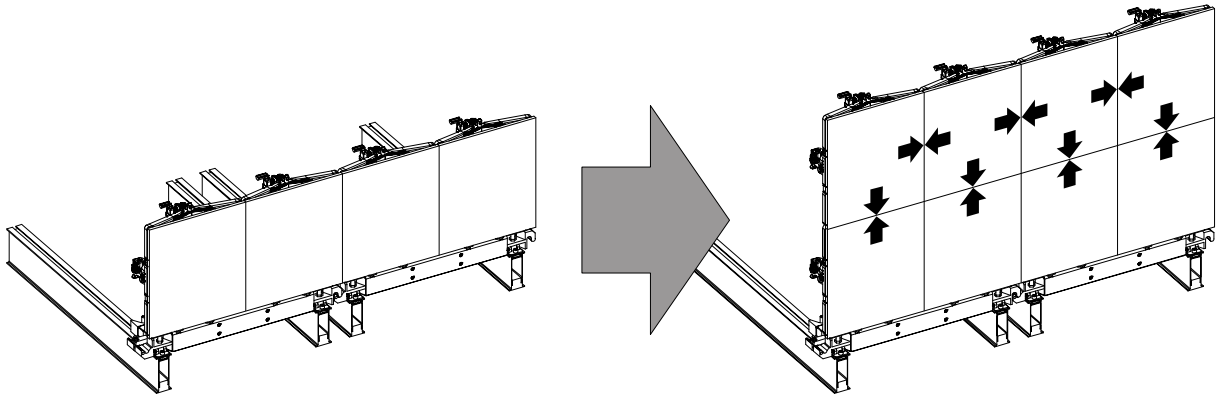
Image 7-24

5. Lock the tiles together with the tiles below as follows:

   a) Turn the handle of the vertical locking mechanism of the upper tile 90° clockwise, seen from the rear of the NX rental tile.

   b) Connect the NX rental tiles electrically together by moving the top lever of the lower tile upwards.
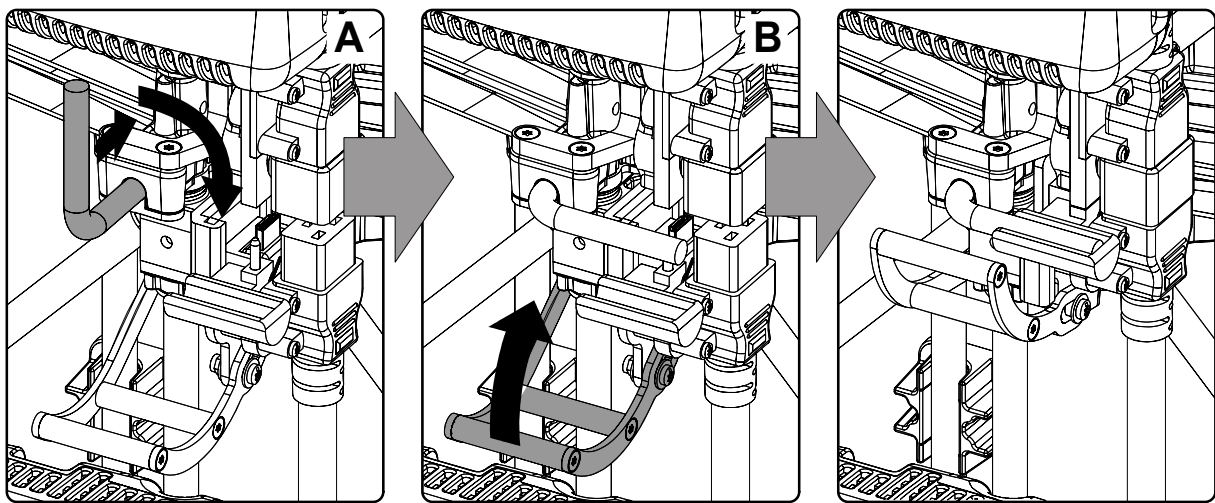
Image 7-25

6. Lock the tiles sideways with each other as follows:

   a) Slide the side locking pin into the side locking mechanism.

   b) Push in the side locking handle and then turn the handle 90° clockwise. Both tiles are now mechanically locked with each other.

   c) Connect the NX rental tiles electrically together by moving the side lever from right to left, seen from the rear of the NX rental tile.

   Caution: *No force is required to turn the handle. Just make sure the handle is completely pushed in prior to turn the handle 90°. Neglecting this may cause damage to the mechanism.*
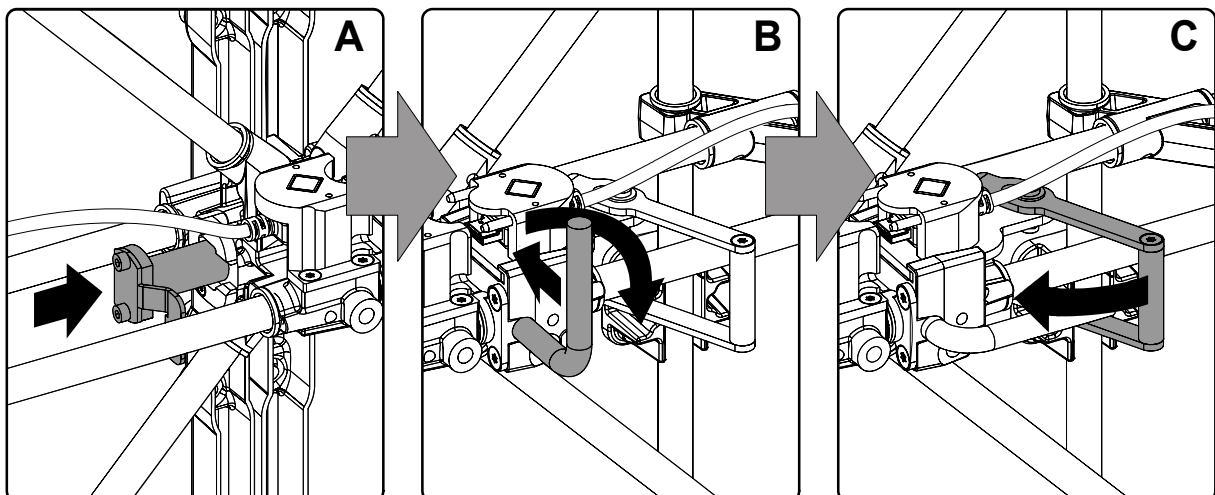
Image 7-26

7. Lock the bottom row of NX rental tiles with the NX rental feet. Do this by turning the handle of the vertical locking mechanism of the bottom tile 90° clockwise, seen from the rear of the NX rental tile.

Caution: *No force is required to turn the handle. Just make sure the handle is completely pushed in prior to turn the handle 90°. Neglecting this may cause damage to the mechanism.*
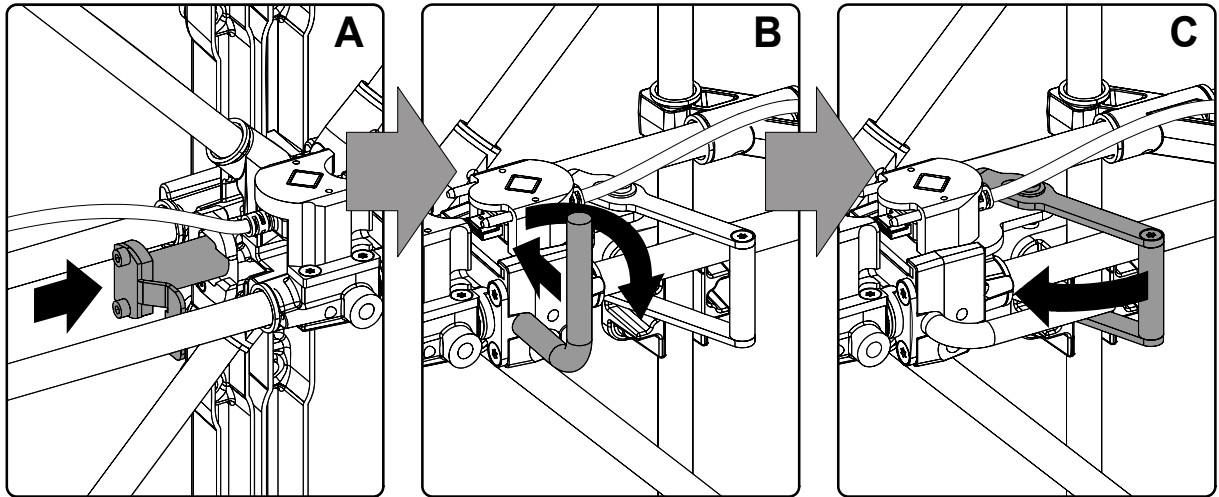
Image 7-27

7.6   Installing the NX rental tile upon each other

How to install the NX rental tile upon each other?

1. Prepare the NX rental tiles for installation. See procedure page 52.

2. Bring the NX rentals together as illustrated. As a result, the handle of the vertical locking mechanism will jumps inwards once the NX rental tiles close up.

    Note: *NX rental tiles are installed one by one. When building a floor mount NX display the next rental tile is installed on top of the previous installed rental tile. When building a hanging NX display the next rental tile is installed underneath the previous installed rental tile.*
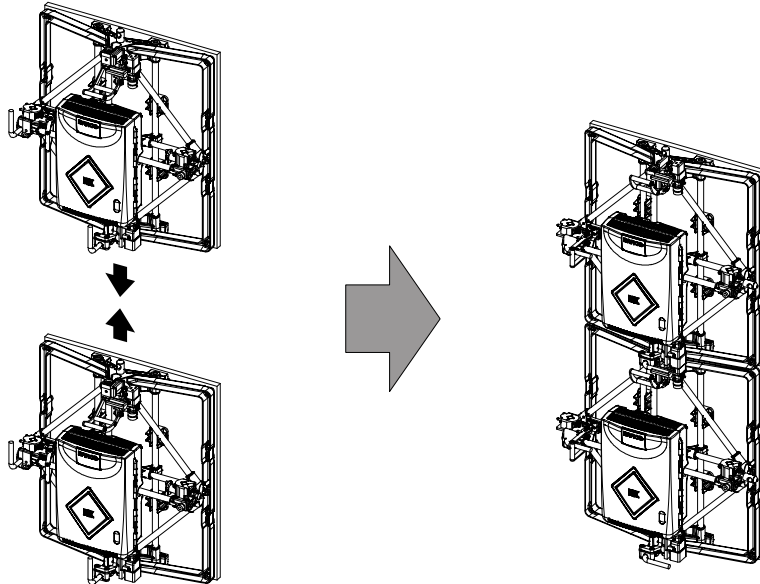
Image 7-28

3. Lock the NX rental tiles together as follows:

    a) Turn the handle of the vertical locking mechanism of the upper tile 90° clockwise, seen from the rear of the NX rental tile.

    b) Connect the NX rental tiles electrically together by moving the top lever of the lower tile upwards.

    Caution: *No force is required to turn the handle. Just make sure the handle is completely pushed in prior to turn the handle 90°. Neglecting this may cause damage to the mechanism.*
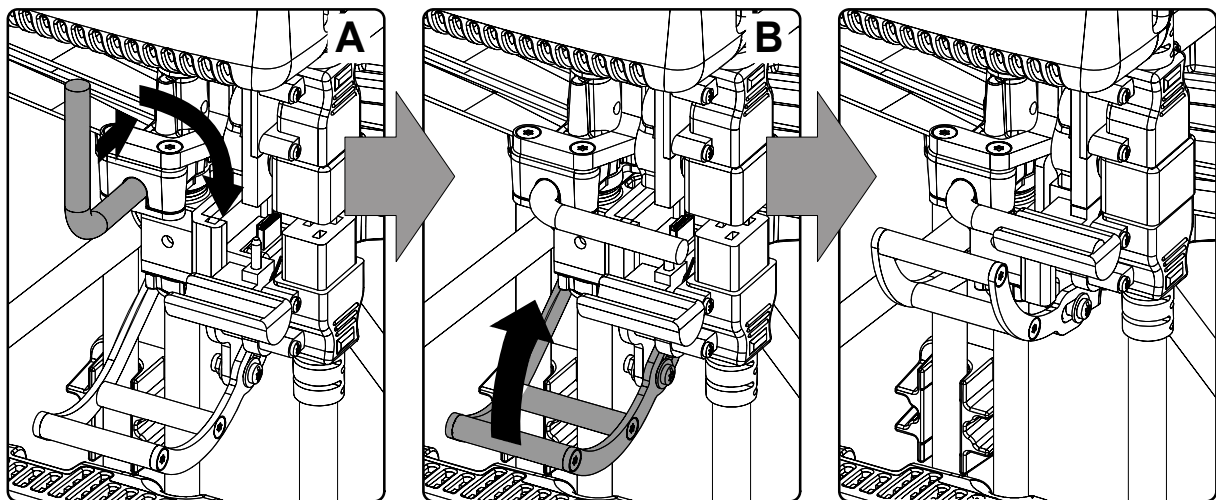
Image 7-29

4. Is this NX rental tile placed next to a previous installed NX rental tile?
    If yes, lock the rental tile and the neighboring rental tile together as follows:

    a) Slide the side locking pin into the side locking mechanism.

    b) Push in the side locking handle and then turn the handle 90° clockwise. Both tiles are now mechanically locked with each other.

    c) Connect the NX rental tiles electrically together by moving the side lever from right to left, seen from the rear of the NX rental tile.

    Caution: *No force is required to turn the handle. Just make sure the handle is completely pushed in prior to turn the handle 90°. Neglecting this may cause damage to the mechanism.*

Image 7-30

Note: *When having difficulties to place the rental tile next to an installed rental tile, you can unlock the installed rental tile to have more play.*

7.7 Installing the NX stacker system

NX stacker

An NX stacker is installed opposite every adjoining edge of two NX rental columns and is required for NX displays higher than five NX rental tiles. The NX stacker consist in a stacker foot, a stacker profile and a stacker connection pin. The stacker profile captures a height of 3 rental tiles and fits in the stacker foot. The stacker connection pin joins the stacker profile with the rear of the rental tile.

Necessary tools

*   10 mm Allen wrench.
*   24 mm wrench.
*   17 mm wrench.

How to install the NX stacker foot?

1. Release both adapters (A) from the stacker foot (F) by removing the four nuts N. Make sure that the nuts M remain on the rods of the adapter.
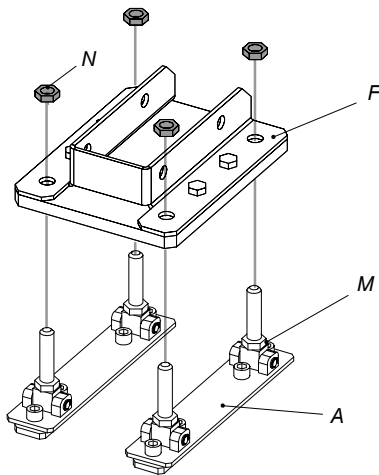
Image 7-31

2. Install each stacker foot adapter (A) upon a foot beam (B) against the rear of the rental foot adapter as illustrated. Use for that a 10 mm Allen key to release the four hexagon screws (H) from the adapter rail plate (R).
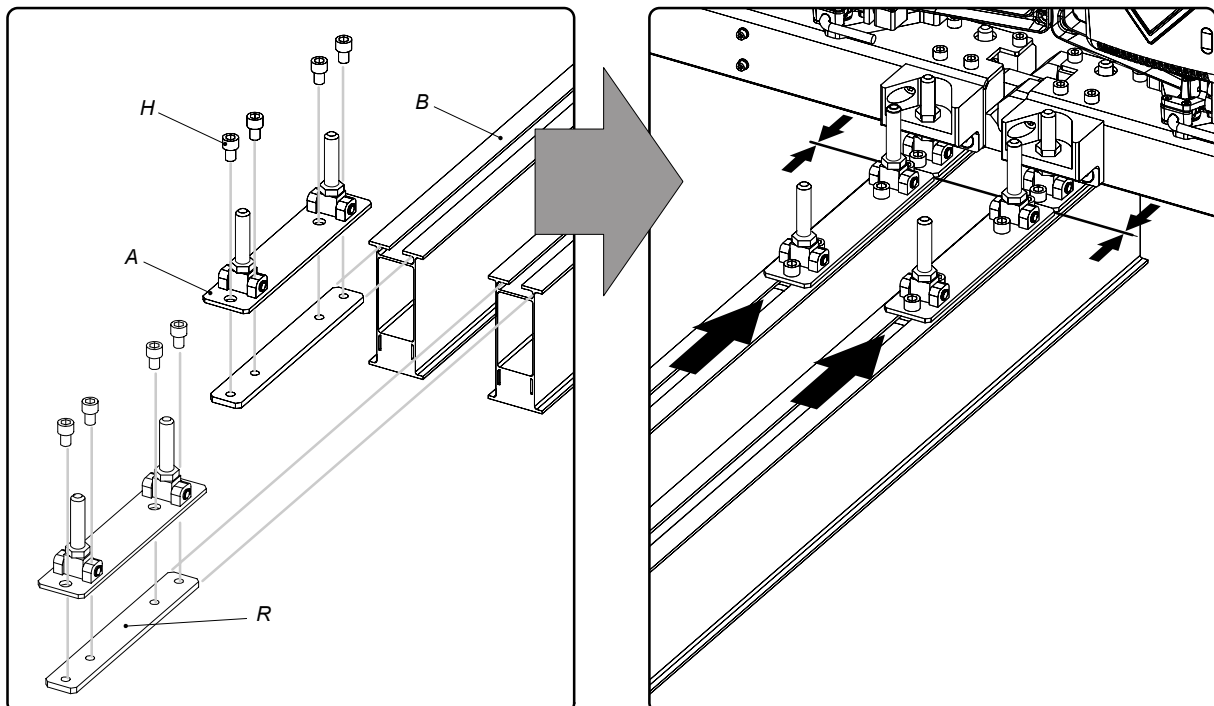
Image 7-32

3. Place the stacker foot upon the adapters. Make sure that the rods of both adapters are provided with a nut (M) before installing the stacker foot. Provide each rod with a second nut (N) once the stacker foot is placed. Do not fasten the upper nut (N) yet, just place the nut with a few turns on the top of the rod.
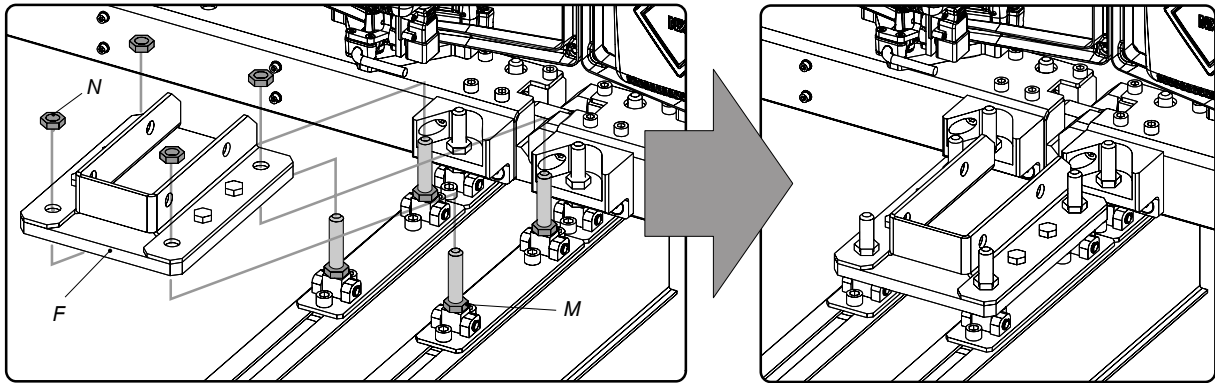
Image 7-33

How to install the NX stacker profile upon the stacker foot?

1. Insert a stacker connection pin into the right side of the rental tile of the third row. Fasten the stacker connection pin using a 17 mm wrench.
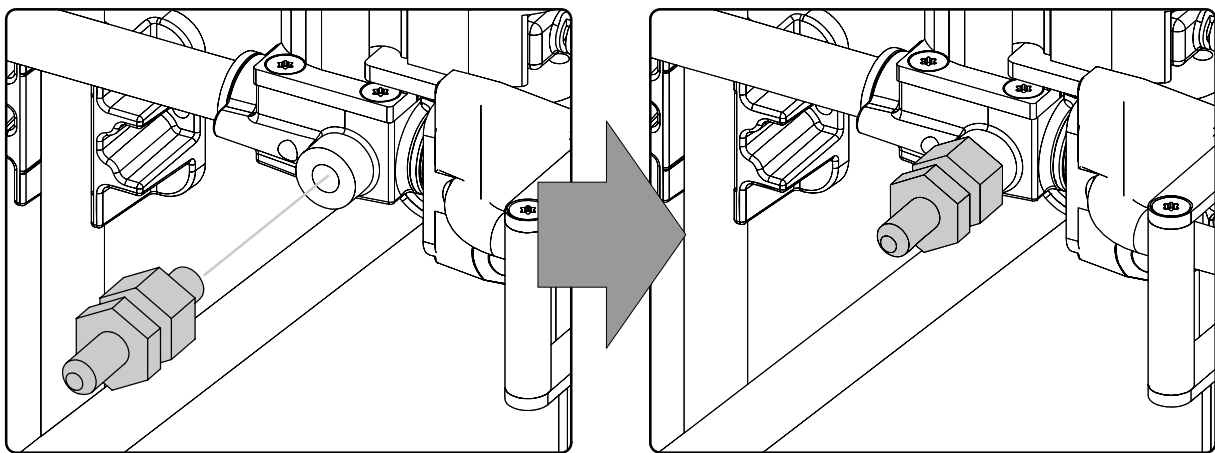
Image 7-34

2. Place the connection hook of the stacker profile in upper position.
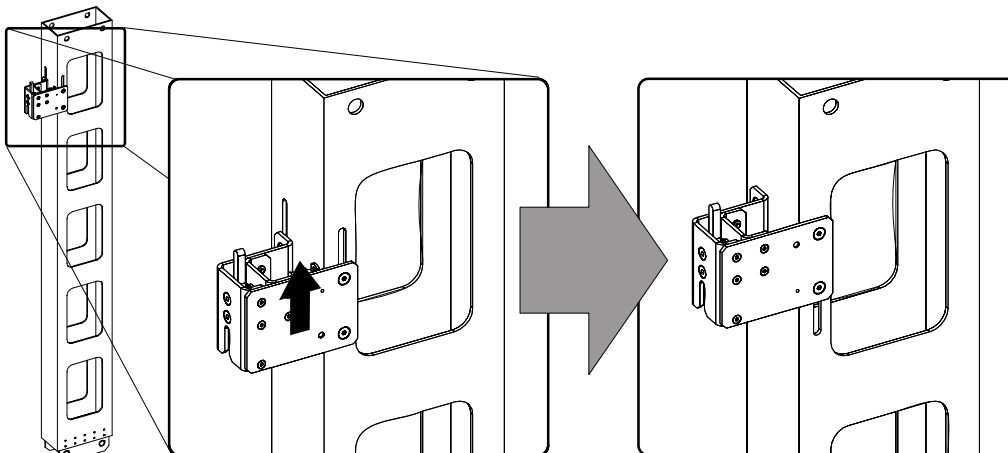
Image 7-35

3. Place the stacker profile in the stacker foot as illustrated and secure the stacker profile at the bottom with the stacker lock key and two spring cotters.
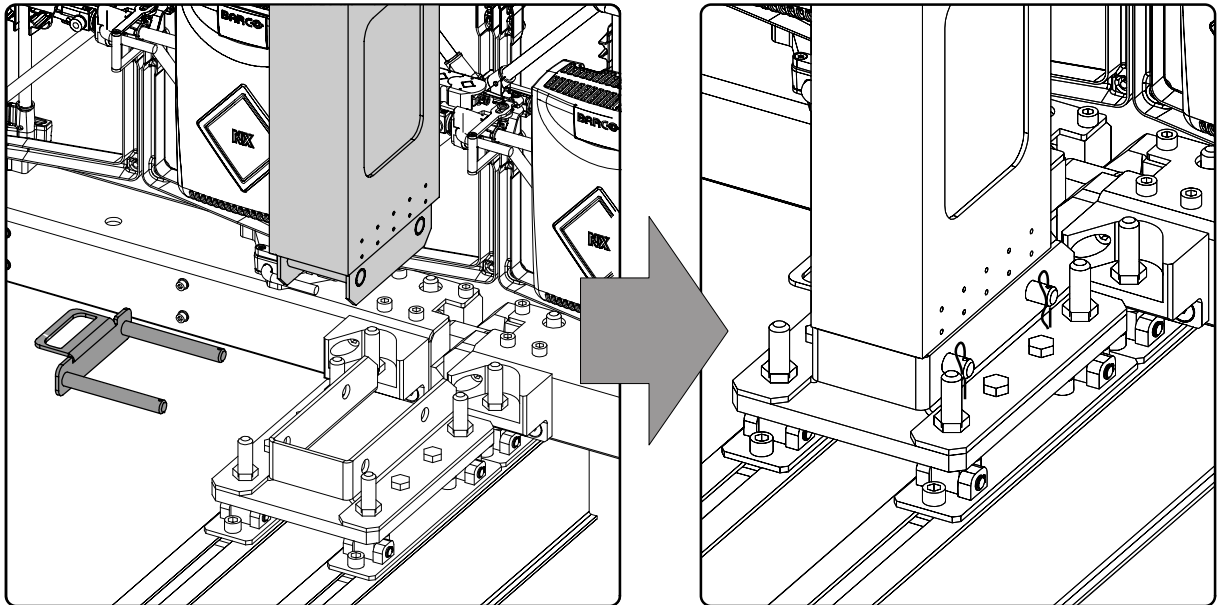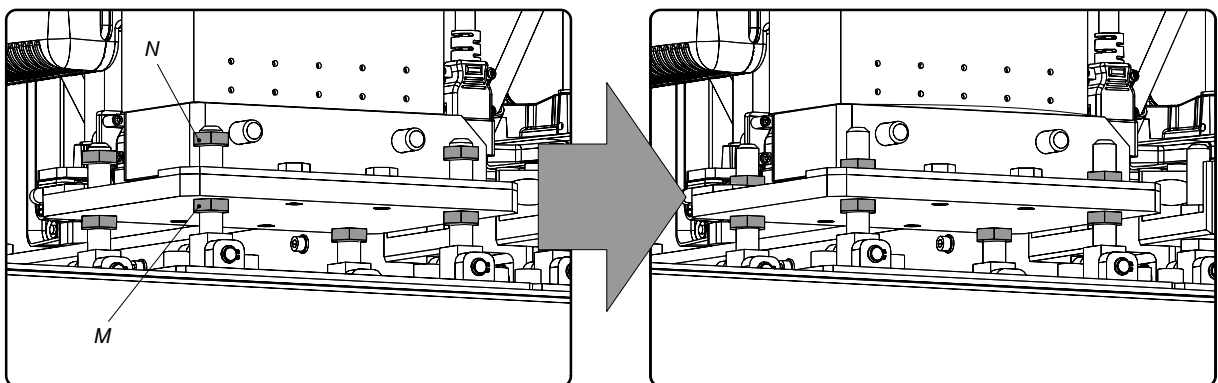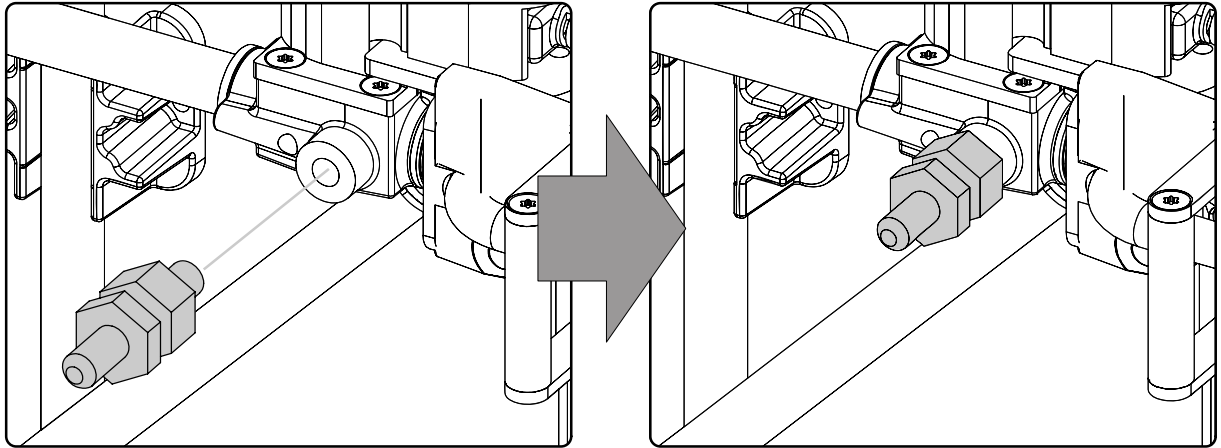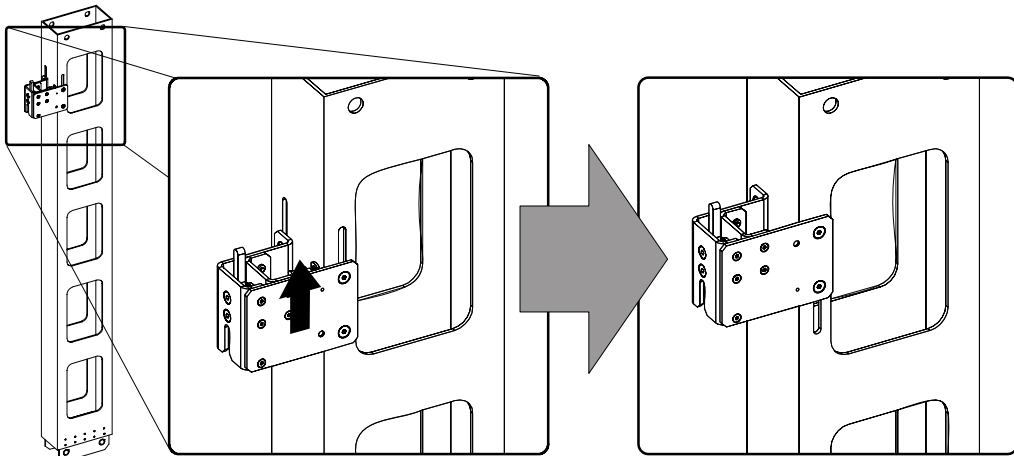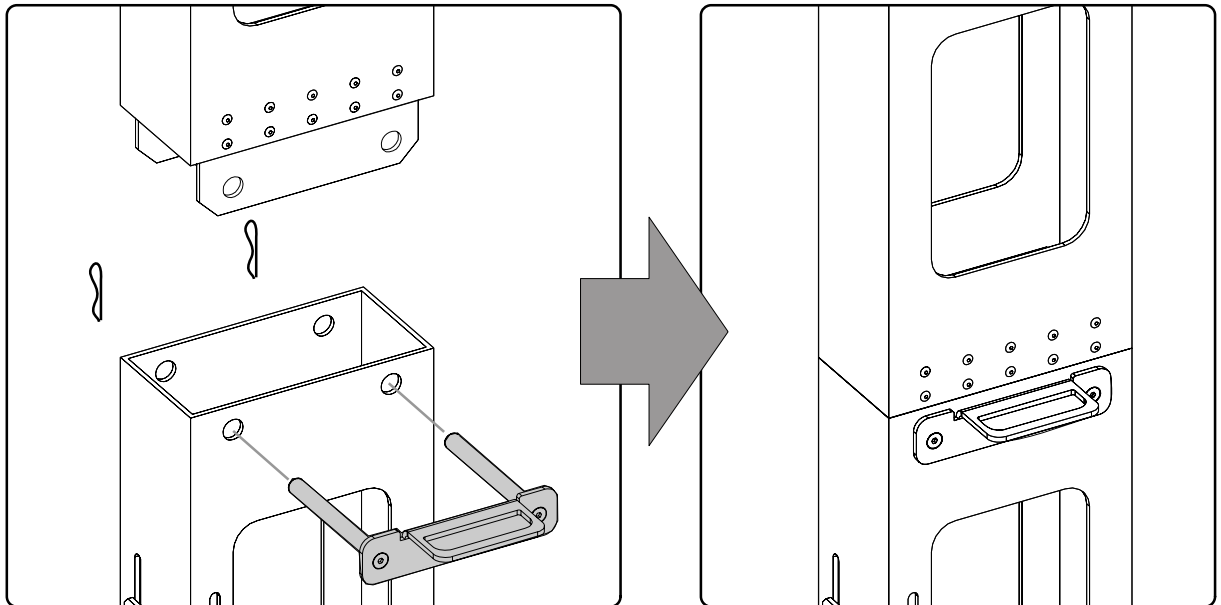
Image 7-36

Caution: *Make sure that the hook of the stacker profile is captured by the stacker connection pin, which you mounted in step 1.*
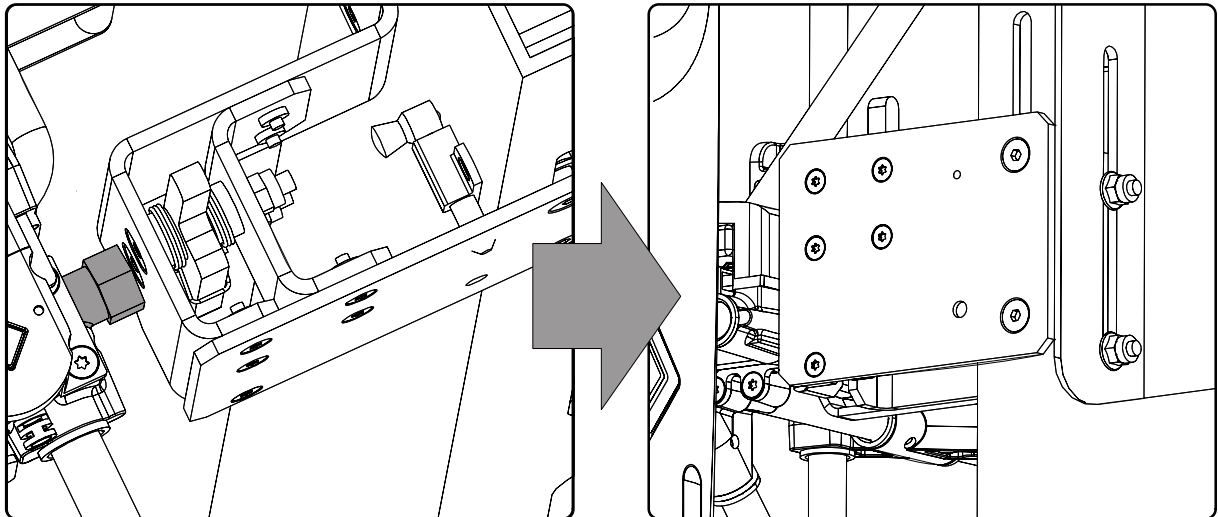
Image 7-37

4. Turn the lower nuts M up against the bottom of the stacker foot and then fasten the nuts N to secure the stacker foot.

Image 7-38

How to install the NX stacker profile upon a previous installed stacker profile?

1. Insert a stacker connection pin into the right side of the rental tile of the third row. Fasten the stacker connection pin using a 17 mm wrench.

Image 7-39

2. Place the connection hook of the stacker profile in upper position.

Image 7-40

3. Place the stacker profile in the previous installed stacker profile and secure the stacker profile at the bottom with the stacker lock key and two spring cotters.

Image 7-41

4. Lower the connection hook as illustrated. Ensure that the stacker connection pin is latched ("click") by the connection hook .
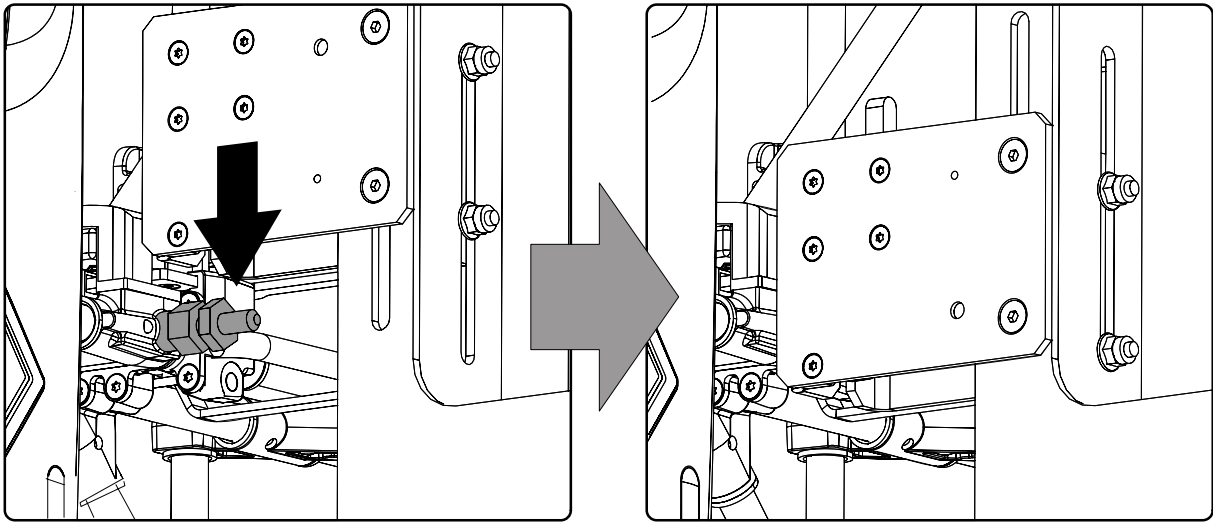
Image 7-42

7.8   Installing the NX truss beam upon NX rental tiles

> **The procedure below is illustrated with an NX triple truss beam. Nevertheless, the same procedure is applicable for an NX dual truss beam.**

Necessary tools

- Hoisting equipment.
- NX rental truss beams.

How to install the NX truss beam upon the NX rental tiles?

1. Connect the hoist bar of the truss beam with the crane of the truss installation.
   Warning: Ensure that the truss installation is able to support the complete load of the NX rental display, which you want to set up.

2. Prepare and place three rental tiles, in case of using a triple truss beam, or two rental tiles, in case of using a dual truss beam, next to each other underneath the truss installation. See procedure "Preparing the NX rental tile for installation", page 52
   Caution: Ensure that the surface where on the rental tiles will be placed is flat and clean.
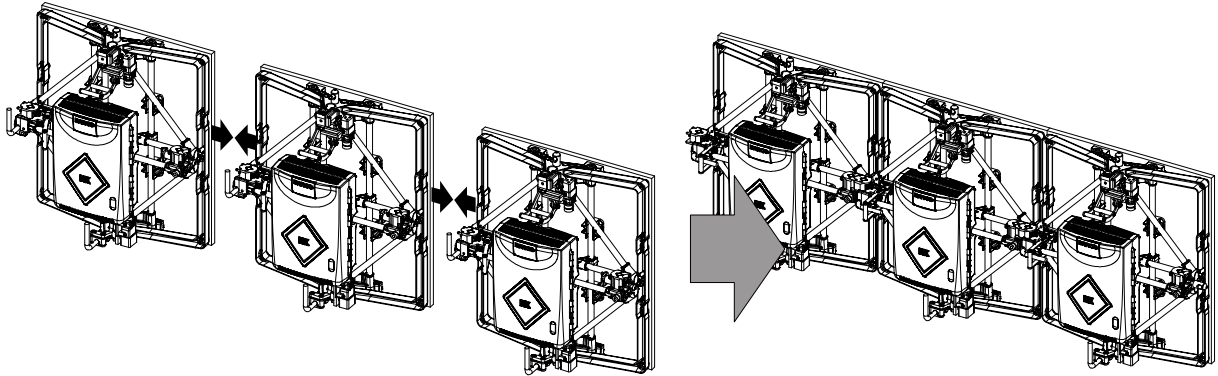
Image 7-43

3. Lock the rental tiles sideways with each other as follows:
   a) Slide the side locking pin into the side locking mechanism.
   b) Push in the side locking handle and then turn the handle 90° clockwise. Both tiles are now mechanically locked with each other.
   c) Connect the NX rental tiles electrically together by moving the side lever from right to left, seen from the rear of the NX rental tile.
   Caution: No force is required to turn the handle. Just make sure the handle is completely pushed in prior to turn the handle 90°. Neglecting this may cause damage to the mechanism.
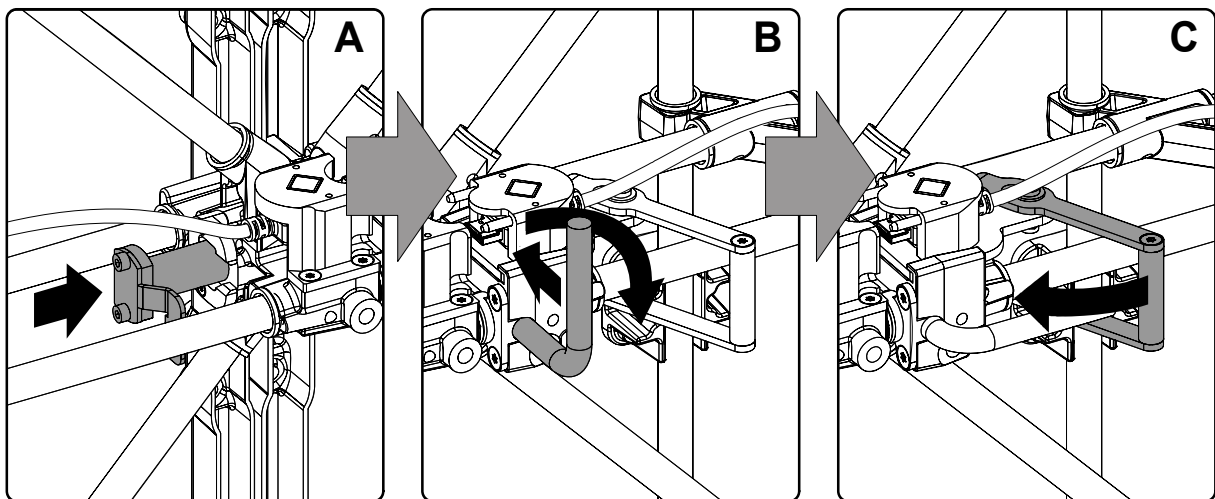
Image 7-44

4. Place all vertical lock handles of the truss beam in unlock position. Do this by first turning the handles of the truss beam in vertical position and then pull the handle out.
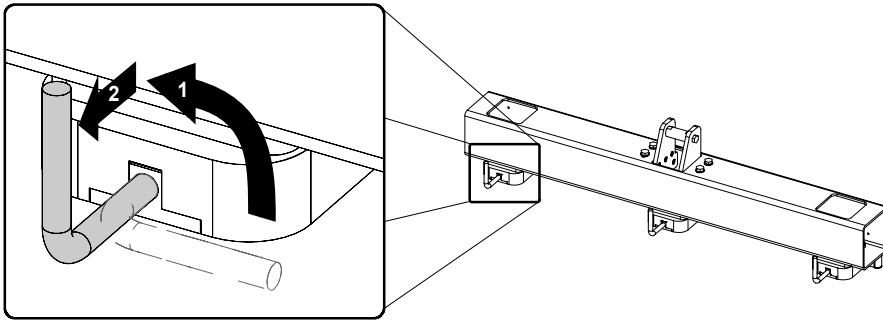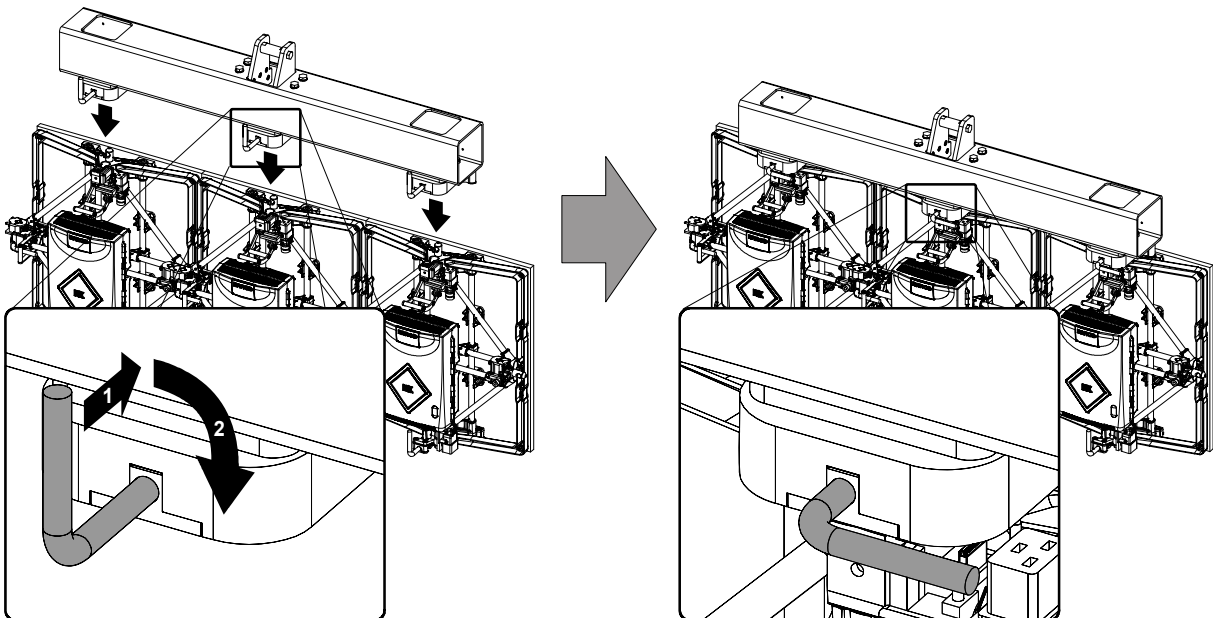
Image 7-45

5. Place the truss beam upon the joined rental tiles. The positioning pins at the top of the rental tile must fit into the positioning holes at the bottom of the truss beam.
   Caution: *Ensure that the front of the truss beam has the same orientation as the front of the rental tiles.*

   Caution: *Be careful not to damage the rental tiles.*

6. Lock the rental tiles and the truss beam together by turning the handles of the truss beam 90° clockwise, seen from the rear of the NX rental tile.
   Caution: *No force is required to turn the handle. Just make sure the handle is completely pushed in prior to turn the handle 90°. Neglecting this may cause damage to the mechanism.*

Image 7-46

7. Lift the truss beam and attached rental tiles to shoulder height.

> **First attach a second row of NX rental tiles before joining the truss beams together.**

7.9   Securing a hanging NX rental display

Necessary tools

Safety steel cable or chains.

How to secure a hanging NX rental display?

1. Lift up the NX rental display to the desired height.

2. Place a safety steel cable or chain (B) around the truss installation above the NX display and through the housing of the truss beam as illustrated. Use two safety steel cables or chains per truss beam.
   Warning: The angle between the rental truss beam and the safety cable or chain must be at least 45°.

   Note: The illustration below shows a hanging NX rental display with two truss beams, each secured with two safety cables.
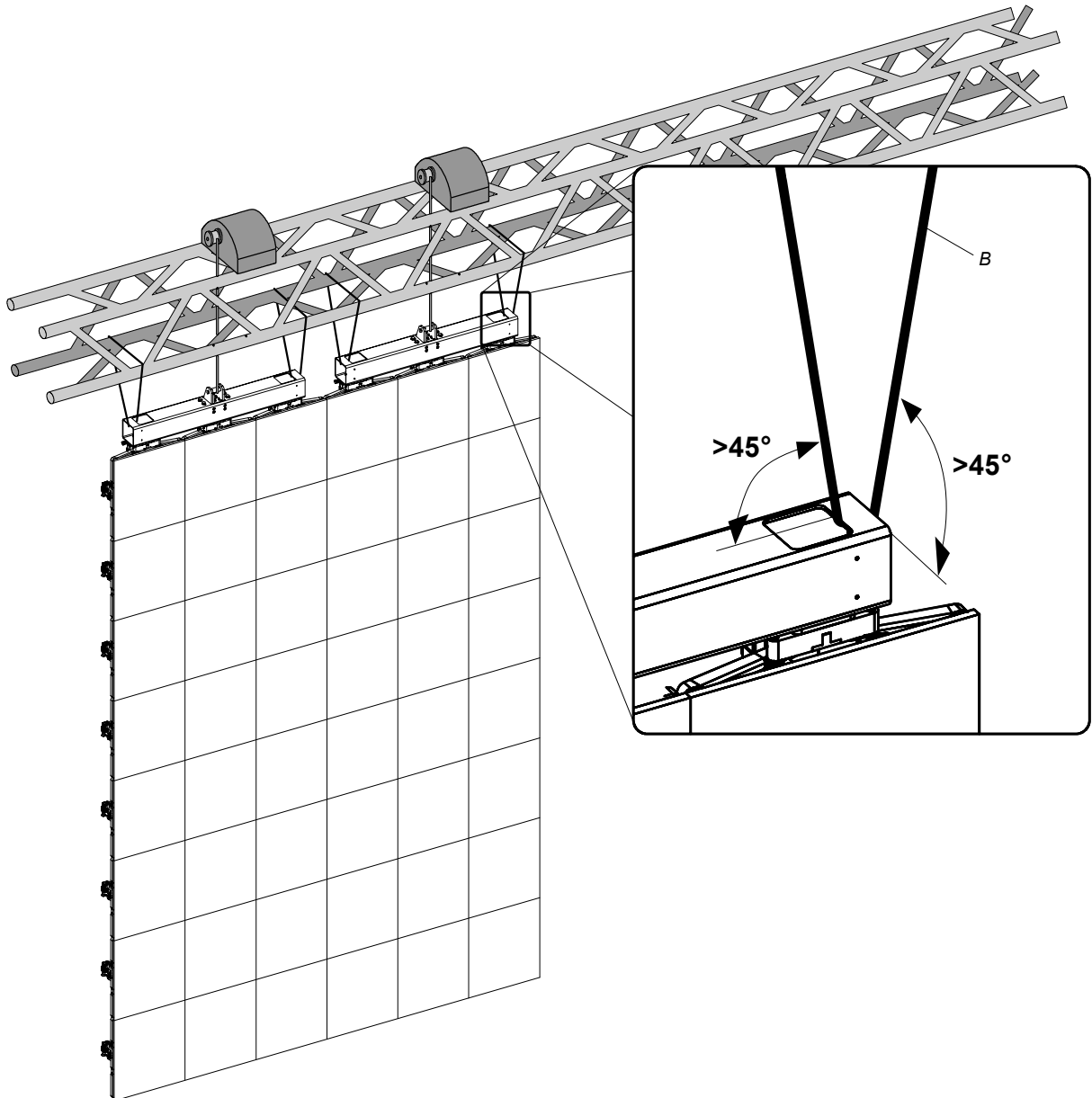
Image 7-47

7.10 Removing an NX tile from the NX display

> ⚠️ CAUTION: **Both levers (horizontal and vertical) of the electrical connection must be in open position before opening one of the two mechanical locking handles. This to avoid any mechanical stress upon the electrical sockets.**

> 📄 **NX rental tiles can be removed from the display if at least one horizontal side and one vertical side of the NX rental tile is free.**

> 👉 **Place the empty NX rental flight cases as close as possible behind the NX display so you can put away the NX rental tile immediately when disassembling the NX display. This to minimize the risk of damaging the NX rental tile while handling/carrying. Open the NX rental flight case and pull out one of the bottom drawers.**

How to remove an NX tile from the NX display?

1. Unlatch the vertical power/data connection by pulling the vertical lever down as illustrated.
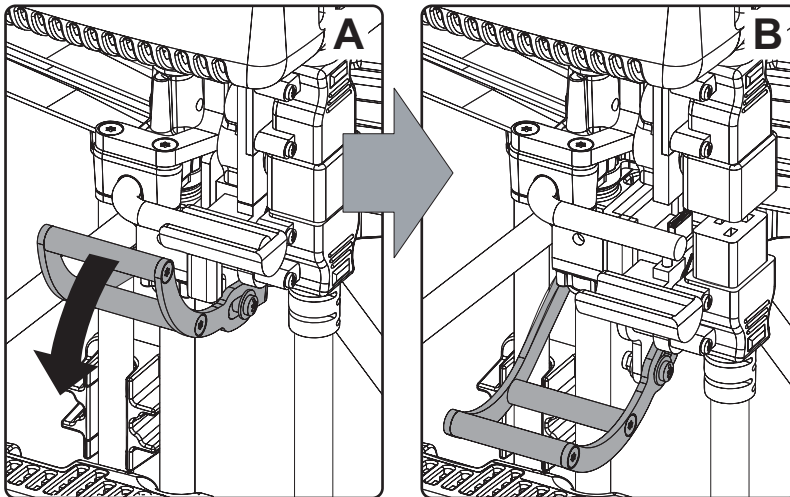
Image 7-48

2. Unlatch the side data connection by pulling the horizontal lever toward the right as illustrated.
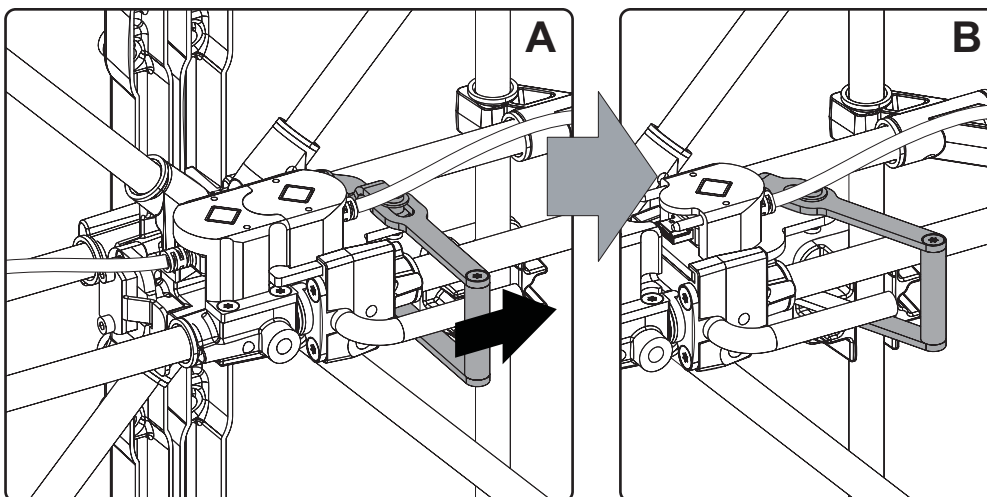

Image 7-49

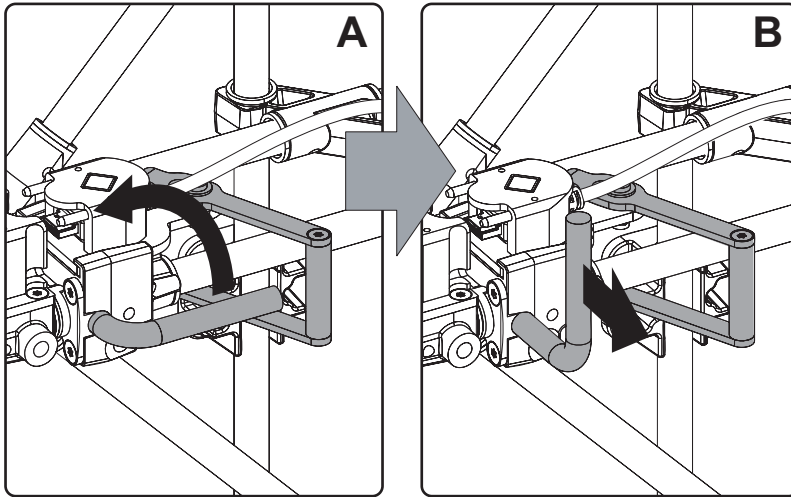3. Turn first the side latch handle upright and then pull out as illustrated.

Image 7-50

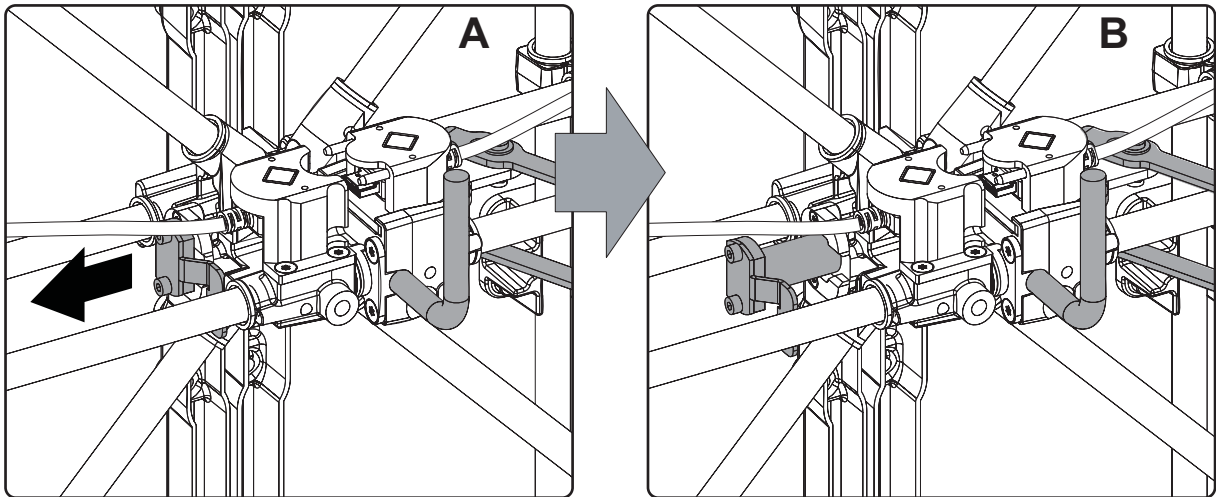4. Pull out the side locking pin from the locking mechanism as illustrated.

Image 7-51

5. Grasp the disconnected NX rental tile by one of its upper diagonal carbon pipes (A or B) with one hand, and with the other hold the vertical locking handle (E) which secure the NX rental tile.

   Note: *In case of a hanging NX rental display the vertical locking handle which secure the rental tile is the one from the tile above.*
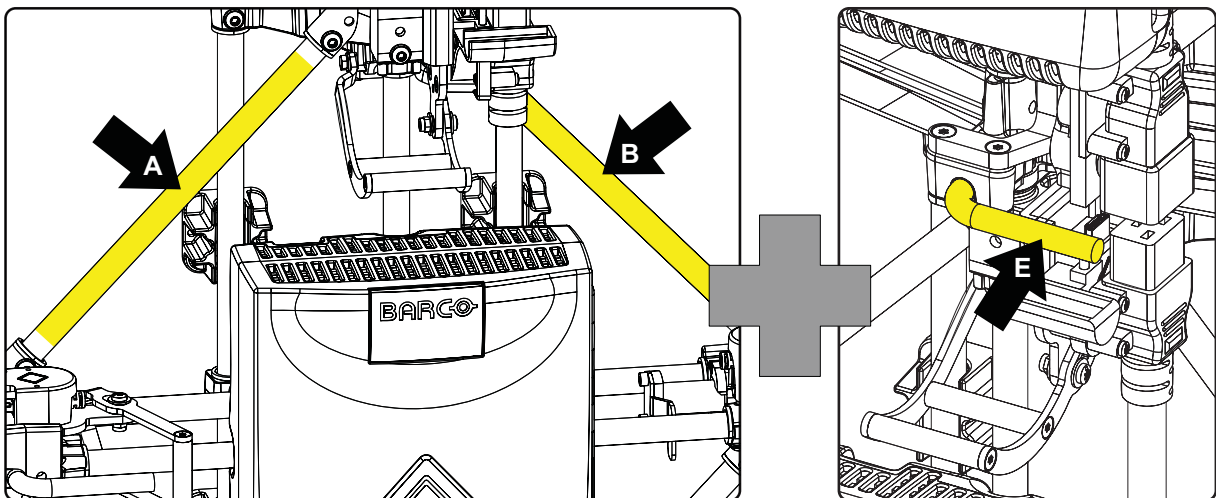

Image 7-52

6. Pull out the vertical locking handle to release the NX rental tile completely. Once the NX rental tile is free from lock, move the NX rental tile away from the other tiles. Note that the vertical locking handle must remain pulled out while removing the NX rental

tile. For floor mounted NX rental tiles you have to **pull up** and away but for hanging NX rental tiles you have to **pull down** and away from the other tiles.

Caution: *If the NX rental tiles are hanging, you actually have to release the vertical lock from the NX rental tile above and therefore only have one hand on the NX rental tile that will fall away from the LED wall. So, make sure that you firmly hold the NX rental tile by its carbon frame while pulling out the handle.*
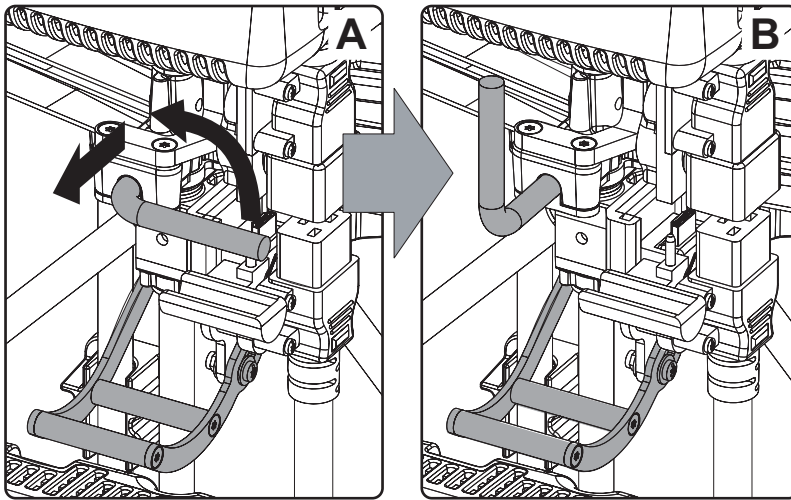

Image 7-53

7. Once free, carry the NX rental tile by its carbon frame with the LED side away from your body.
   Caution: *LED side of the NX rental tile is fragile.*

8. Place the NX rental tile in the drawer of the NX rental flight case with the LED side (L) facing up and the top side (contains locking pin P) towards your body.
   Caution: *Never touch the LED side of the NX tile. Avoid any accidental bumping of the NX tile corners. Since LED's of the NX tiles are mounted near by the edges of the LED boards, which is unavoidable in the design of a high resolution LED-wall, the corners of the NX tiles become sensitive for mechanical damage. Because of that it is required to handle the NX tiles with care at all times.*
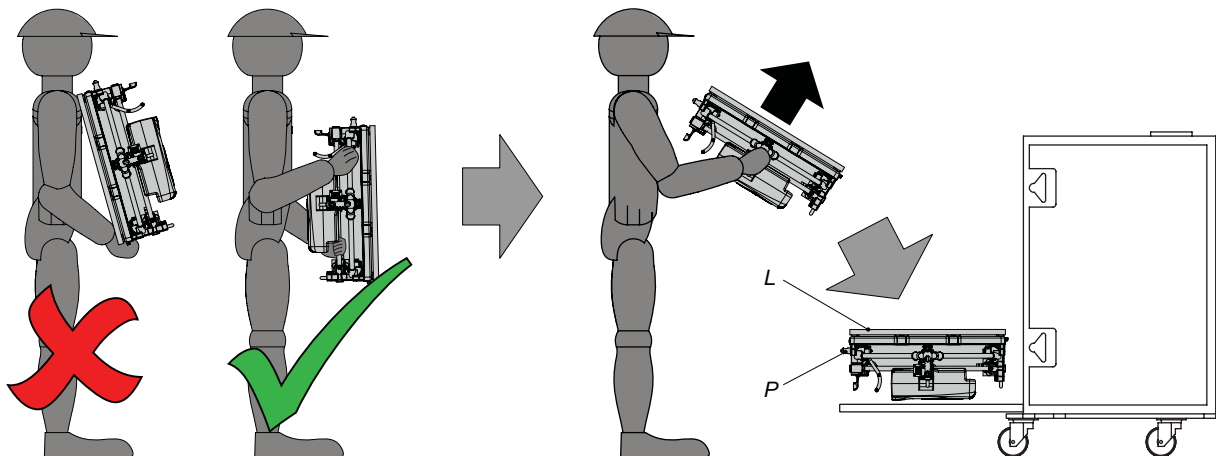

Image 7-54

Caution: *Always fill the NX rental flight case from bottom to top. Never open more than one drawer at a time.*

8. CABLING OF AN NX DISPLAY

Overview

- Power cabling of an NX display
- Data cabling of an NX display

8.1 Power cabling of an NX display

Power cabling

The power cabling of an NX display is realized simultaneously while building up the NX display thanks to the integration of the power cable in the NX rental frame. The NX rental tile lets through power from the bottom to the top of the NX rental tile. So, the NX rental tiles are powered in vertical columns. The power source can only be applied to the lowest tile in the column. Maximum 8 NX tiles (control boxes) are allowed per power circuit. So, in case the NX display is higher then 8 NX tiles (control boxes), the power connection between the eight and ninth NX rental tile, counted from bottom to top, has to be interrupted and a new power source has to be applied to the bottom of the ninth rental tile. Each power circuit should be protected by a circuit breaker or fuses rated 16 A / 250 VAC (15 A / 250 VAC in the USA and Canada). Note that one NX tile requires 200-240 VAC, 50-60 Hz, 1.4 amps at 230 VAC.

How to interrupt the power cabling of an NX display?

1. Electrically disconnect the NX rental tiles from each other by lowering the top lever of the lower tile.
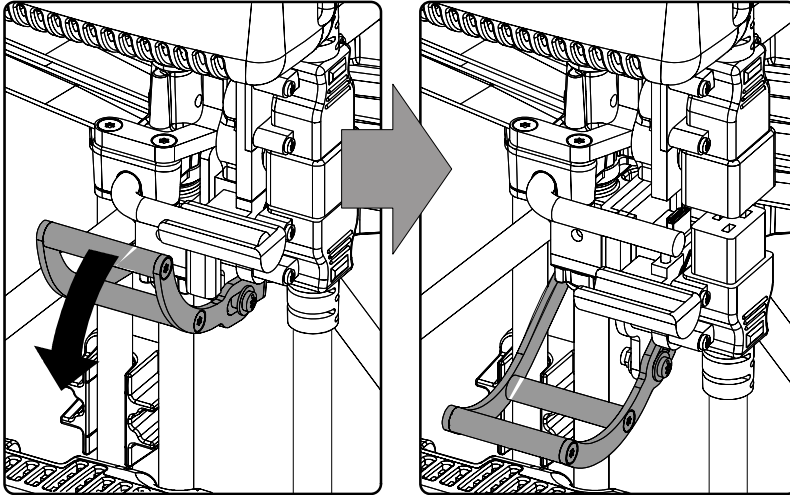

Image 8-1

2. Detach the female power plug from the rental frame at the bottom of the upper tile. No tools required. The female power plug is attached with a magnet.

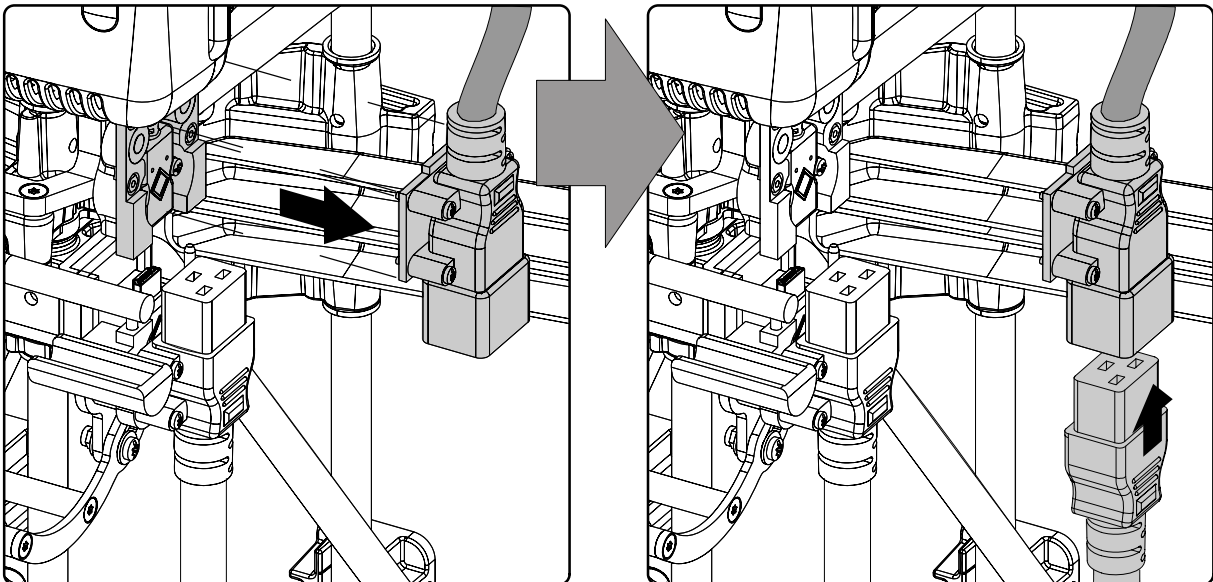3. Connect a new power source cable with the detached female power plug.

Image 8-2

4. Move the lever of the lower tile upwards again to reconnect the data path between the two tiles.
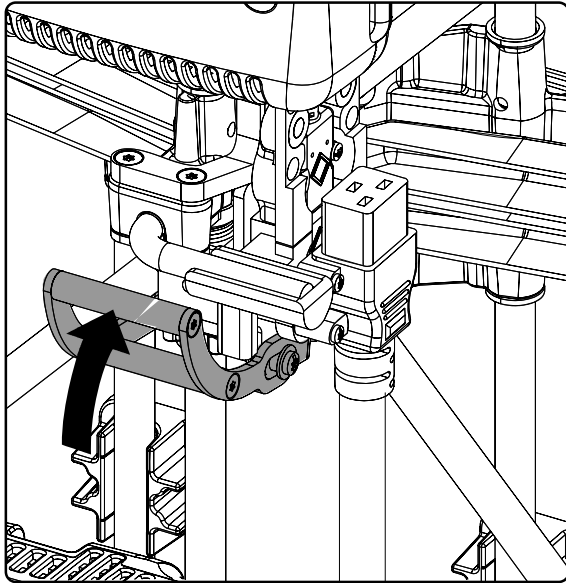
Image 8-3

8.2 Data cabling of an NX display

Data cabling

Thanks to the integration of the four HDMI data cables in the NX rental frame the data cabling of an NX display is realized simultaneously while building up the NX display. To complete the data path the DX-700 digitizer has to be connected with one of the NX control boxes in the NX display. It doesn't matter which NX control box is used to apply the data signal from the DX-700 digitizer. But, only the data input ports A or B (slave ports) of the NX control box are suitable to receive data from the DX-700 digitizer. So, either the red or the green integrated HDMI cable has to be disconnected from the data input ports of the NX control box on which the data from the DX-700 digitizer will be applied to. Note that he maximum HDMI cable length between DX-700 digitizer and NX control box is **10 meter**.

The easiest places to connect to the LED-wall are on any of the bottom tiles at the ports A (red) or any of the right side tiles (back view) at the ports B (green). This way, none of the inter-tile connections are disrupted, allowing the auto-routing to happen in a more logical manner.

9. MAINTENANCE

Overview

- Cleaning NX tiles

9.1   Cleaning NX tiles

WARNING: ISOPROPANOL ALCOHOL (200–661–7).

Hazardous product. Irritating to eyes and skin. Always use in a well ventilated area. Vapors may cause drowsiness and dizziness. Avoid contact with skin and eyes. In case of contact with the eyes, rinse immediately with plenty of water and seek medical advise.

CAUTION: ISOPROPANOL ALCOHOL (200–661–7).

Hazardous product. Lightly flammable. Always use in a well ventilated area. Keep away from sources of ignitions. Do not smoke while working with isopropanol. Exclusive keep in original container tightly closed at a cool, well ventilated and fireproof storage space.

CAUTION: LED components used in NX display are ESD (Electro-Static Discharge) sensitive. Take the necessary precautions to prevent damage to the LED's.

Necessary tools
- Compressed air.
- Isopropanol alcohol.
- Damp antistatic cloth.
- Vacuum cleaner.
- Mild detergent solution.

How to clean the outside of the NX tile?

1. Switch of the NX display.

2. Blow away the dust from the display side (LEDs) with compressed air. Keep a safe distance of 10 cm between the nozzle of the compressor and the LEDs.

3. Was step two insufficient?
   If yes, clean the display side (LEDs) with a damp antistatic cloth. Use isopropanol alcohol as a solvent for cleaning the LEDs.
   Warning: Ensure that the area is well ventilated. No smoking is allowed while working with isopropanol alcohol.

   Caution: Do not use a brush to clean the LEDs, this to avoid scratches.

   Caution: LED components used in NX display are ESD (Electro-Static Discharge) sensitive. Take the necessary precautions to prevent damage to the LED's.

   Caution: Never push with a hard or sharp object onto the soft lens of the LED as this may cause damage to the LED. The maximum allowed load upon the soft lens of the LED is 300 gram/LED.

4. Vacuum the ventilation grid of the NX modules and of the NX control box.
   Tip: Use a soft brush nozzle to avoid scratches.

   Caution: Do not use the vacuum cleaner to clean the display side (LED's), because of ESD reason.

5. Clean the NX rental frame and the housing of the NX control box with a damp cloth. Stubborn stains may be removed with a cloth lightly dampened with mild detergent solution.

Always clean all tiles of the LED-wall to avoid brightness differences between cleaned and uncleaned tiles.

It's recommended to vacuum the ventilation grid the NX modules and of the NX control box at regular intervals. For that, use a vacuum cleaner with a soft brush nozzle.

10. SERVICING

Overview

- Safety instructions
- NX control box diagnostic
- NX module diagnostic
- Removing the NX control box
- Installing the NX control box
- Removing an NX module via front access
- Installing an NX module via front access
- Removing an NX module via back access
- Installing an NX module via back access
- Removing shaders from an NX module
- Installing the shaders on an NX module

10.1 Safety instructions

Personal protection

	WARNING: Ensure you understand and follow all the safety guidelines, safety instructions, warnings and cautions mentioned in this manual.

	WARNING: Be aware of suspended loads.

	WARNING: Wear a hard hat to reduce the risk of personal injury.

	WARNING: Be careful while working with heavy loads.

	WARNING: Mind your fingers while working with heavy loads.

Safety precautions

- Fence off a restricted area of at least 3 meters around the LED-wall using an eye-catching fence and "KEEP OUT" signs. This is to prevent unauthorized persons from coming near the LED-wall during servicing.
- Inspect the complete LED-wall for security, wear, deformation, corrosion, and any other circumstances that may affect the load handling capability of the part.
- Do not modify and/or replicate any component. Barco uses specific materials and manufacturing processes in order to achieve part strength. No other parts than Barco parts are allowed.
- Both hands must be free for servicing NX tiles in an LED-wall. Therefore the use of a ladder to access a tile is forbidden. Only the use of a scaffold or a Z-lift is allowed.

10.2 NX control box diagnostic

Status LED's of the NX control box

The NX control box is provided with four status LED's. One green, one orange, one yellow and one red. The four status LED's are located at the front of the NX control box. The green LED indicates the status of the power. The orange LED indicates the communication status of the NX module. The yellow LED indicates the status of the internal fan and the status of the software and microprocessor. The red LED lights up in case of an ERROR.
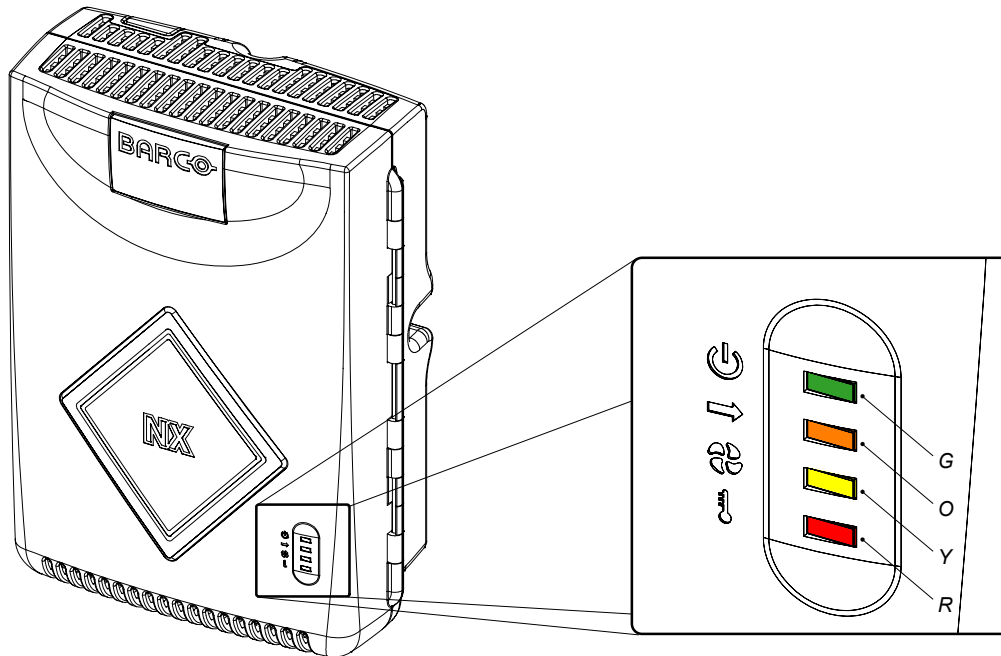
Image 10-1
G   Green LED: Power.
O   Orange LED: Communication.
Y   Yellow LED: Fan & Software.
R   Red LED: Error status.

Diagnostic

Status LED	Situation	Diagnostic	Action
Green LED	ON	Power supply unit of the control box is operating.	-
	OFF	Power supply unit of the NX control box is not operating. No mains power but the NX control box receives power from the previous NX control box. The NX control box operates fully but there is no image on the NX modules connected with the NX control box because these modules remain powerless. **Note**: Maximum 1 NX control box can be bridged like that. In case the next NX control box has also no mains power the communication will be lost to this NX control box and to the following NX control boxes.	• Check if the power cord is well inserted. • In case the control box is used in a rental tile check if the handle for the power connection is closed. If closed, check the previous tiles in the power circuit. • In case of creative use of the power box check if the other side of the power cord is connected to a power source. • Check if the power source is energized. • Replace the NX control box.

Status LED	Situation	Diagnostic	Action
Orange LED	ON	Communication (content and commands) with neighboring control box(es) or digitizer is OK (matches configuration).	-
	Flashing	Neighboring communication does not match configuration. Expected communication is not established.	• Check the cabling with the neighboring control boxes or digitizer. • Check if the digitizer is operating normally. • Try to reroute the LED-wall using the Director toolset. • Replace the NX control box.
Yellow LED	Flashing very fast (10 times/second)	Control box runs in BOOT mode	Replace the NX control box.
	Flashing 3 times + pause	Control box runs with backup software and backup firmware.	• Try to reload the latest version of the software and firmware. For that use the Director toolset. • Replace the NX control box.
	Flashing 2 times + pause	Control box runs with backup software and user firmware.	• Try to reload the latest version of the software. For that use the Director toolset. • Replace the NX control box.
	Flashing once + pause	Control box runs with user software and backup firmware.	• Try to reload the latest version of the firmware. For that use the Director toolset. • Replace the NX control box.
	Flashing slow (50% – 0.7s)	Normal operation (user software + user firmware)	-
	ON (continuous)	The fans of the power unit of the NX control box are not operating. The red LED is ON as well.	Replace the NX control box.
Red LED	OFF	(Future expansion)	-
	ON	(Future expansion)	-

10.3 NX module diagnostic

Status LED's of the NX module

The NX module is provided with four status LED's. One green, one orange, one yellow and one red. The four status LED's are located as two pairs below the input and output ports of the NX module. The green LED indicates the status of the power. The orange LED indicates the status of the software and microprocessor. The yellow LED indicates the communication status of the NX module. The red LED lights up in case of an ERROR.
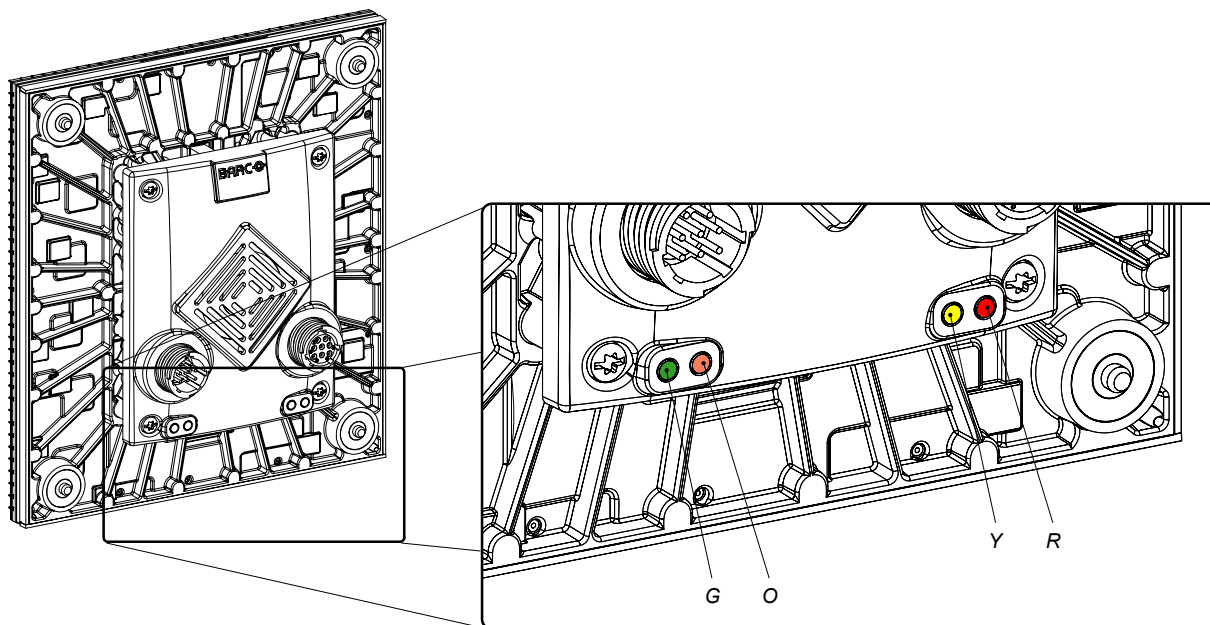

Image 10-2
G   Green LED: Power.
O   Orange LED: Communication.
Y   Yellow LED: Software.
R   Red LED: Error status.

Diagnostic

Status LED	Situation	Diagnostic	Action
Green LED	ON	Module power OK	-
	OFF	Module has no power	• Check if the cable plug on the input port is well inserted. • Check if the cable is well connected with the control box. • Check if the control box is operating normally. • Replace the NX module.
Orange LED	ON	Communication of commands and content between NX module and control box is OK.	-
	Flashing	No communication between NX module and control box.	• Check if the control box is operating normally. • Check the cabling between control box and NX module. • Replace the NX module.

Status LED	Situation	Diagnostic	Action
Yellow LED	Flashing fast	NX module runs in BOOT mode	Replace the NX module.
	Flashing 3 times + pause	NX module runs with backup software and backup firmware.	• Try to reload the latest version of the software and firmware. For that use the Director toolset. • Replace the NX module.
	Flashing 2 times + pause	NX module runs with backup software and user firmware.	• Try to reload the latest version of the software. For that use the Director toolset. • Replace the NX module.
	Flashing once + pause	NX modulex runs with user software and backup firmware.	• Try to reload the latest version of the firmware. For that use the Director toolset. • Replace the NX module.
	Flashing slow (50% – 1s)	Normal operation (user software + user firmware)	-
	ON (continuous)	The fan of the NX module is not operating. The red LED is ON as well.	Replace the NX module.
Red LED	OFF	No errors detected.	-
	ON	Error detected (E.g. Internal temperature of the module box is too high)	• Ensure that the ambient temperature of the module is below 40° C. • Replace the NX module.

10.4 Removing the NX control box

How to remove the NX control box from the NX rental frame?

1. Unplug the power cord from the NX control box.
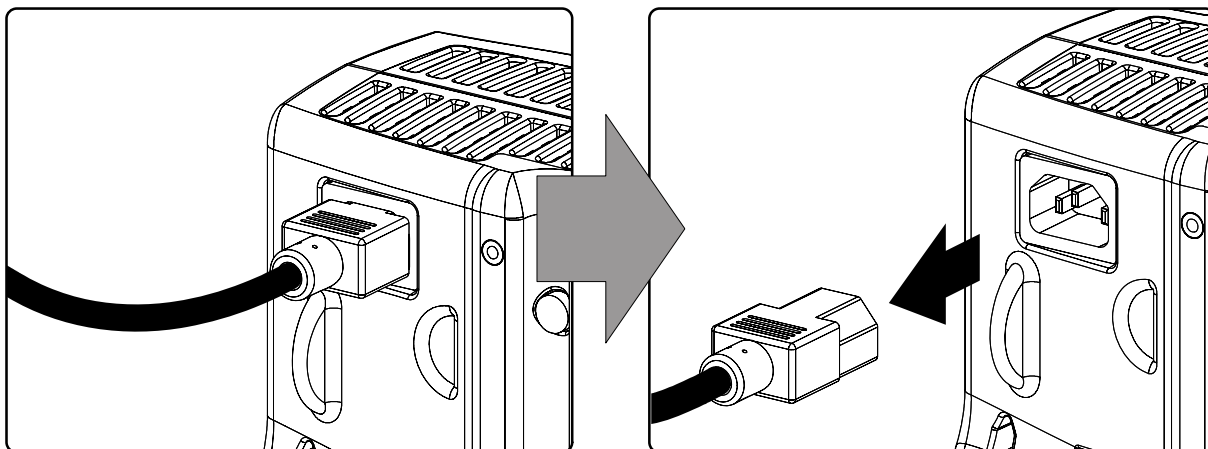
Image 10-3

2. Disconnected all HDMI plugs from the data input/output sockets at the bottom side of the NX control box.
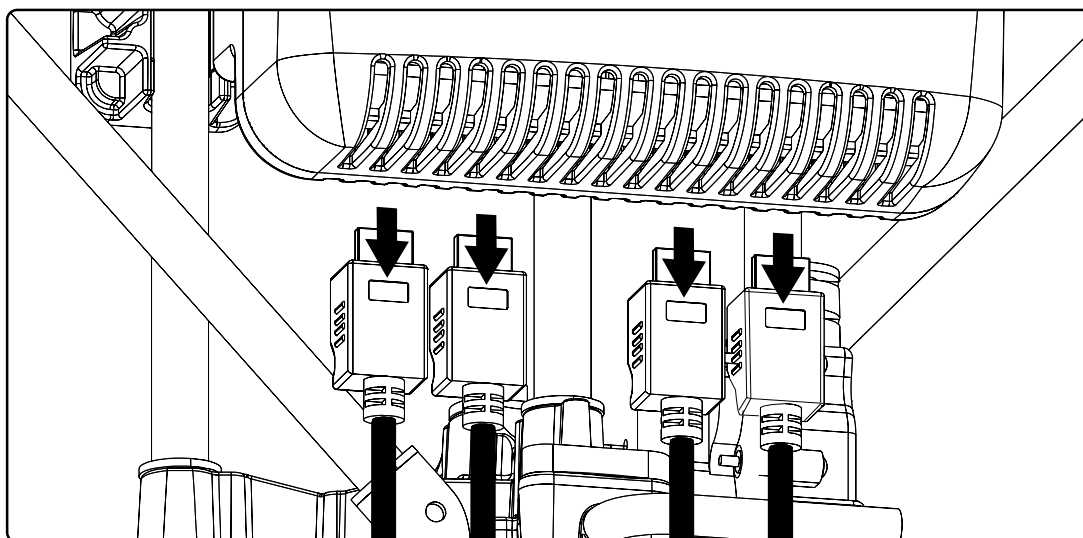
Image 10-4

3. Securely hold the NX control box and pull out the latch handle at the top of the NX control box to release the NX control box from the NX rental frame.
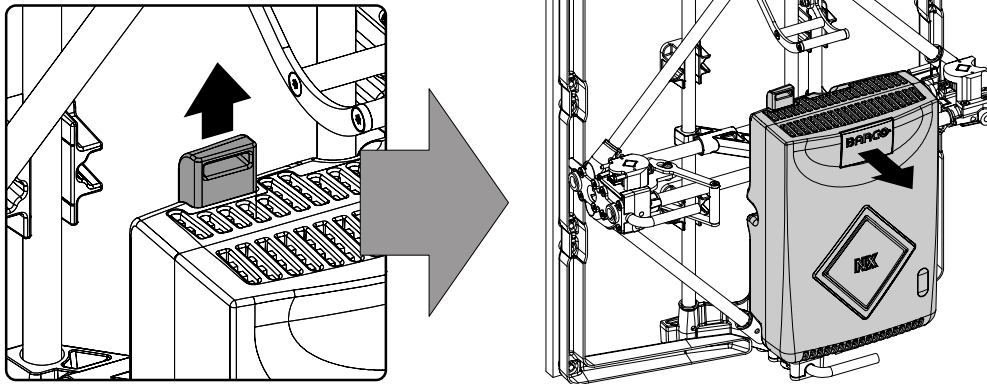
Image 10-5

4. Disconnect the safety cable from the NX rental frame.
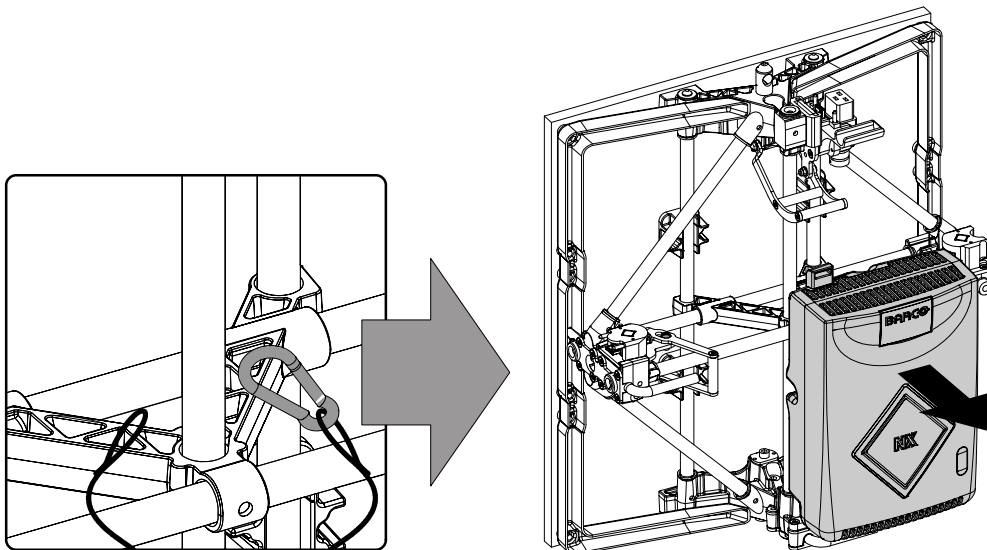
Image 10-6

5. Unplug all NX module link cables from the output ports on the back side of the NX control box.
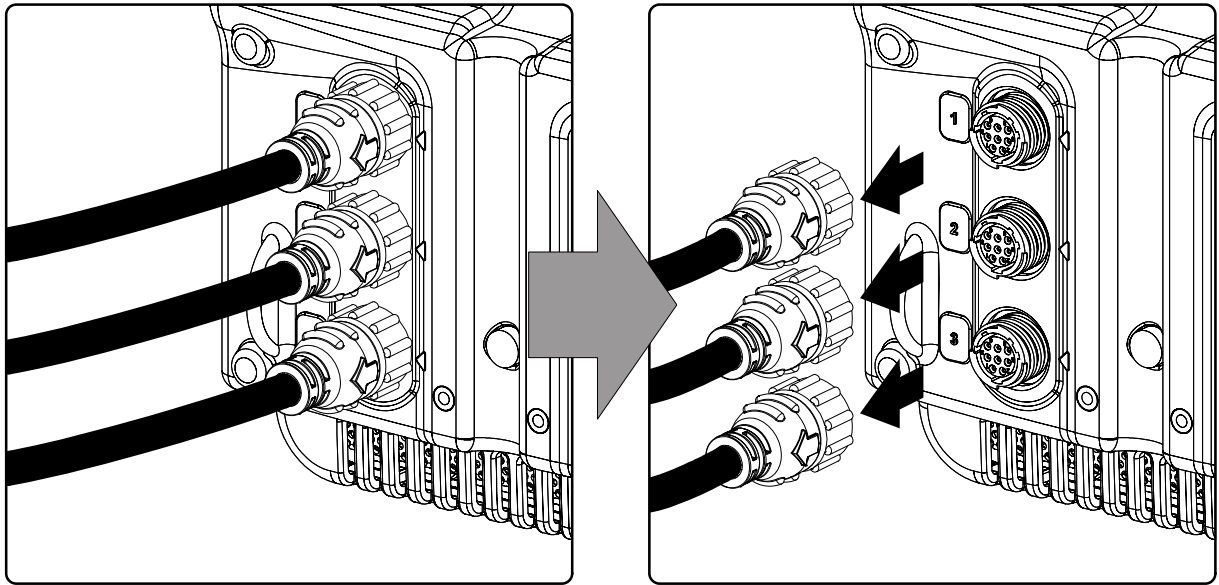
Image 10-7

10.5 Installing the NX control box

Automatic restore setting NX control box

The NX has a feature for restoring automatically all settings when the control box has been replaced. This is a very useful feature, because no time consuming and no re-detection and downloading of all settings is required from the Director toolset after a replacement. The NX tile will for 100% sure play like it did before, if you follow the right procedure.

To successfully automatic restore the settings of the NX control box take into account the following:

1. The software version of the NX control box must be 2.0.0 or later.
2. The software version of the NX modules must be 2.2.0 or later.
3. At least 3 NX modules must be connected with the NX control box to restore the correct settings. But, to ensure that all modules are calibrated correctly, all modules should be connected.
4. The NX control box is switched on **AFTER** the NX modules and the mains power are connected with the NX control box. There are two possibilities:
   a) connect last the HDMI connectors.
   b) switch off the NX display via the DX-700 digitizer (Director toolset) before replacing the NX control box and switch on again if all connections are made.

The NX tile detects that it has been swapped and restores automatically its settings. The OSD message "CTRL SWAP GET DATA" appears on the screen for a short period. Image and address become OK immediately. The color calibration starts in the background (not visible on the screen). When calibration is finished (approximately 20 seconds later), the screen will change to a perfect calibrated one.

How to install the NX control box?

1. Plug the three module link cables into the output port at the back side of the NX control box as follows:
   - module link cable from the top row with the output port 1 (upper socket).
   - module link cable from the middle row with the output port 2 (middle socket).
   - module link cable from the bottom row with the output port 3 (lower socket).
   Caution: *Make sure that the arrow (A) on the plug is aligned with the arrow (B) on the control box while inserting the plug.*
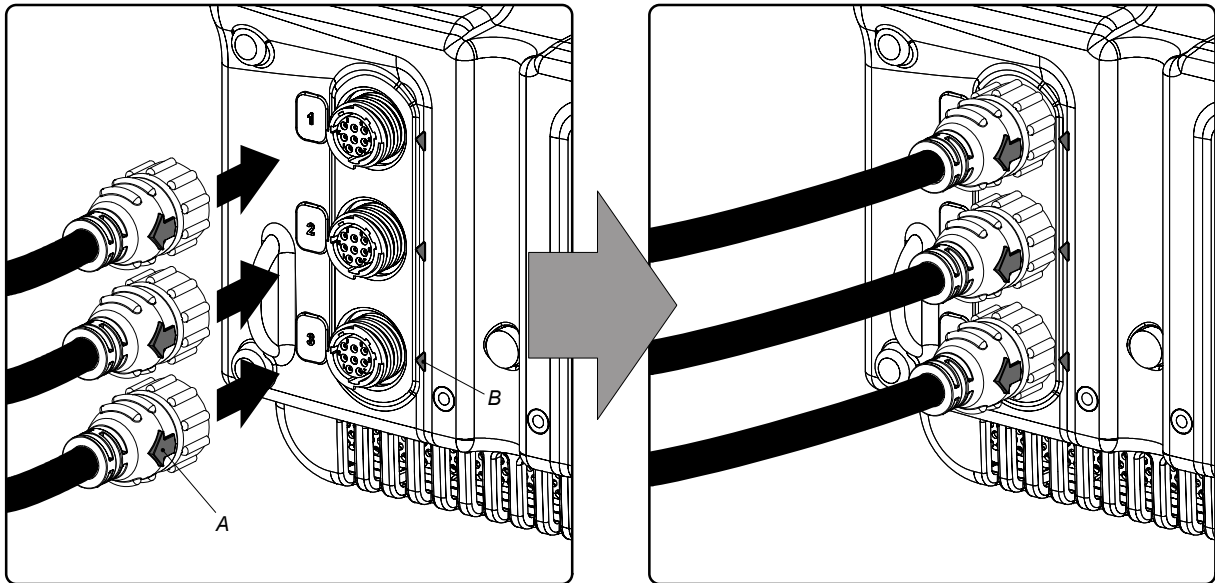

Image 10-8

2. Wrap the safety cable around the frame work of the NX rental frame and clasp both ends of the safety cable together.
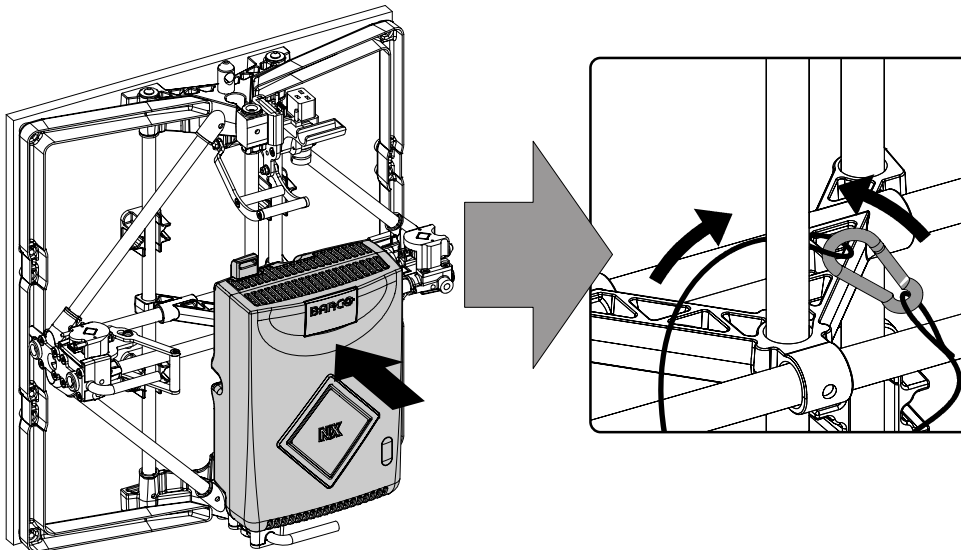
Image 10-9
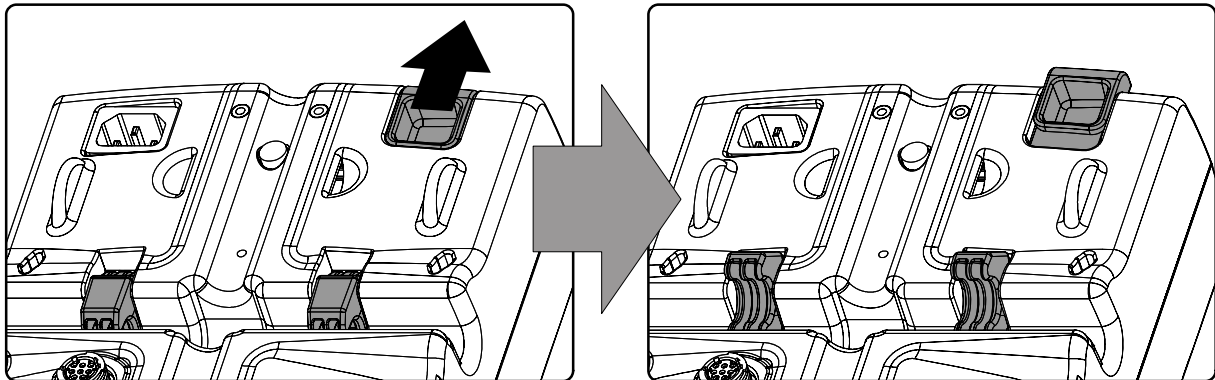
3. Open the latch mechanism of the control box.

Image 10-10

4. Latch the NX control box upon the frame work of the NX rental tile as illustrated. Aligning the crossed channels in the control box with the cross bars of the NX rental frame and pushing the control box onto the frame. Make sure that the latch handle is pulled out before latching the NX control box upon the frame work. The latch handle automatically retracts when the NX control box is properly attached to the frame work.
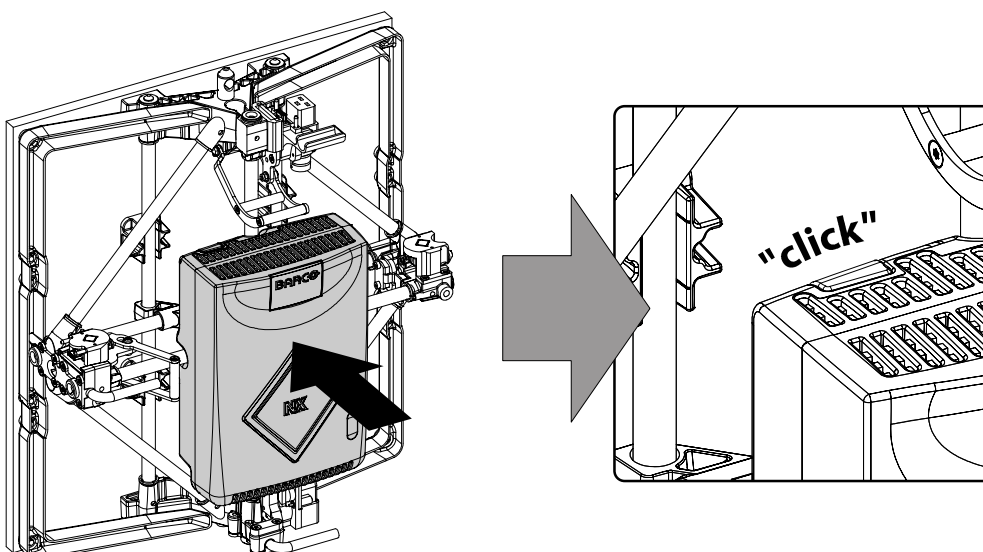
Image 10-11

5. Plug the power cord into the power socket at the rear of the NX control box.

Caution: *Make sure that the NX control box is energized before connecting the HDMI cables (next step) otherwise, restoring automatically all settings of the NX control box will fail. The NX control box is energized when the green status LED of the NX control box lights up when connecting the HDMI cables.*

Note: *Switching off the NX display via the DX-700 digitizer before starting the replacement of the NX control box, and switching on again after the replacement, will also result in automatic detection of the "swap", resulting in a restore of all settings.*
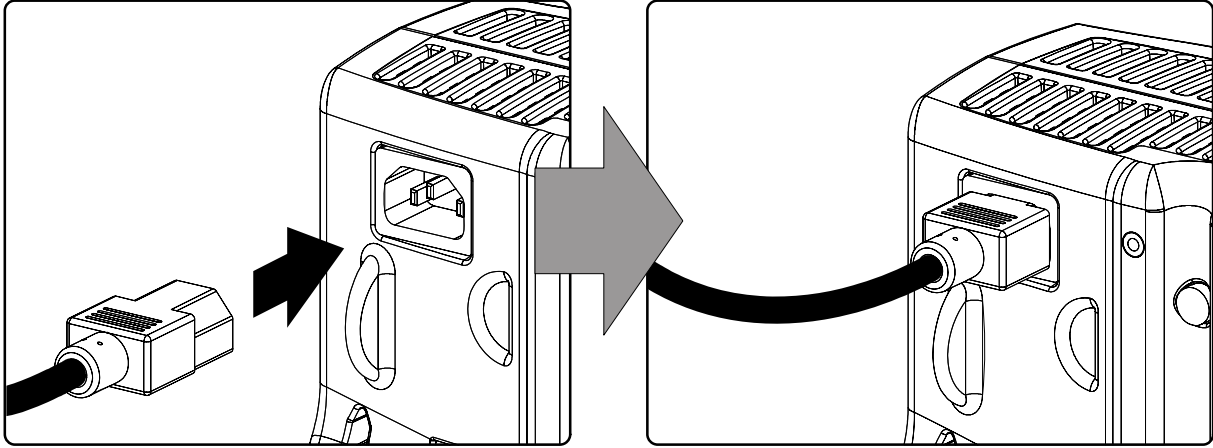
Image 10-12

6. Plug all HDMI cables into their sockets at the bottom of the NX control box. Seen from the rear of the NX rental tile the HDMI cables must be connected from left to right as follows: red, green, blue and yellow.
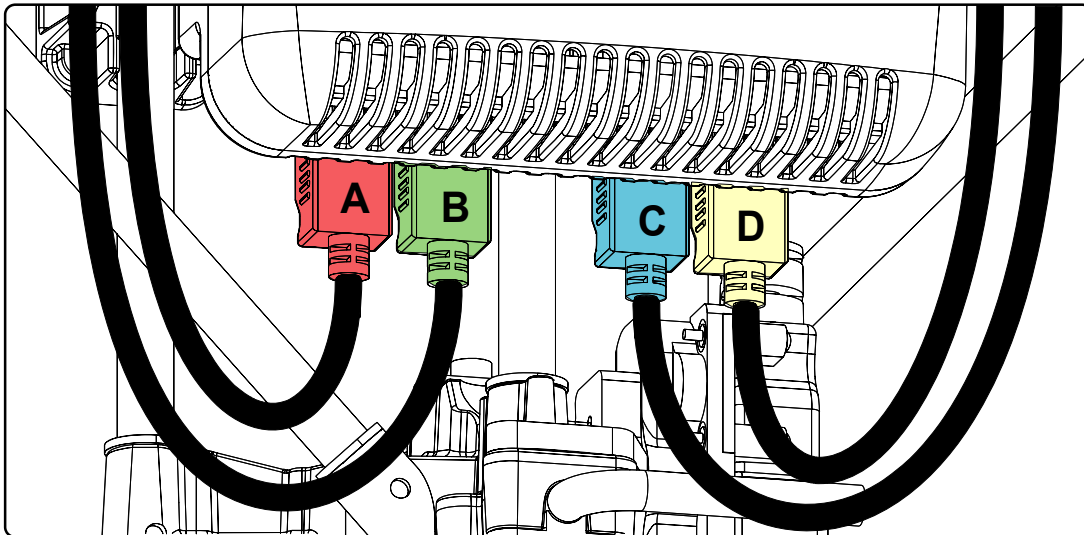
Image 10-13

10.6 Removing an NX module via front access

This procedure describes how to remove a single NX module from a built up NX display via the front side of the NX display.

CAUTION: The following procedure must be performed by authorized and qualified technical personnel only, which are thoroughly familiar with the product and all of the proper safety checks of this product. To do otherwise increases the risk of hazard and injury to the user.

WARNING: Both hands must be free for accessing a tile in a LED-wall. Therefore the use of a ladder to access a tile is forbidden. Only a solid scaffold or a Z-lift is allowed.

Necessary tools

- Two NX module removal tools.
- Two plastic sheets.

How to remove an NX module via front access?

1. Display the test pattern "Central marker". See user guide of the Director Toolset for detailed instructions.
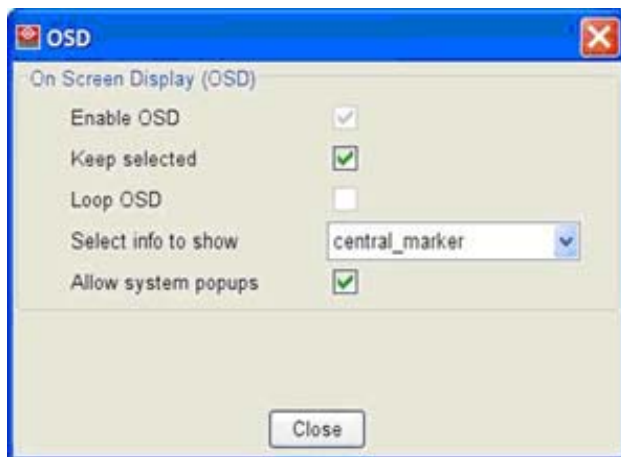
Image 10-14

2. Mark the edges of the NX module which you want to replace. Use paper tape.

3. Switch off the NX display.

4. Insert one plastic sheet above and one plastic sheet below the NX module, which you want to remove, as illustrated.
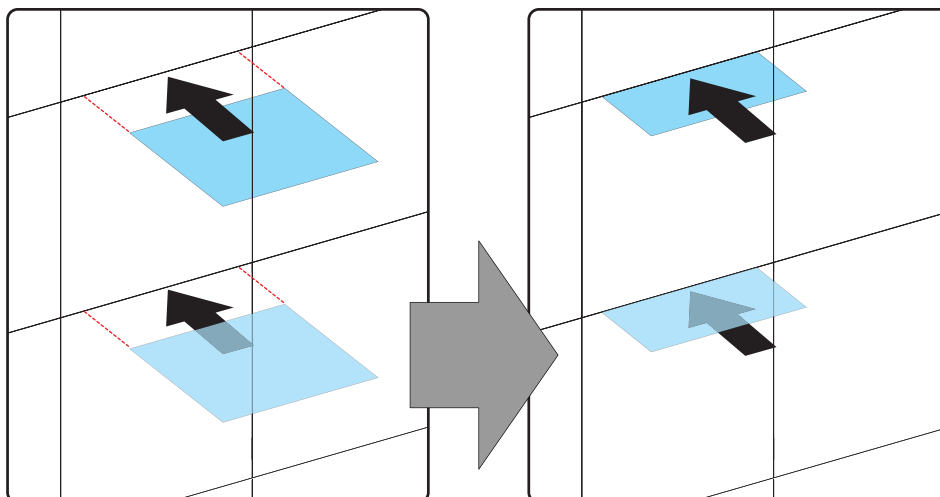
Image 10-15

5. Insert one NX module removal tool above and one NX module removal tool below the NX module, which you want to remove, as illustrated. Make sure that the tabs of the removal tool are facing the NX module which you want to remove. The plastic sheet must be located between the removal tool and the NX module which you want to remove.

    Caution: *Make sure that the NX display is powerless while using the NX module removal tool. Neglecting this may result in damage of the NX module and or neighboring NX modules.*

    Caution: *Always insert the removal tool in the horizontal adjoining edge of two NX modules. Never insert the tools in the vertical adjoining edge.*
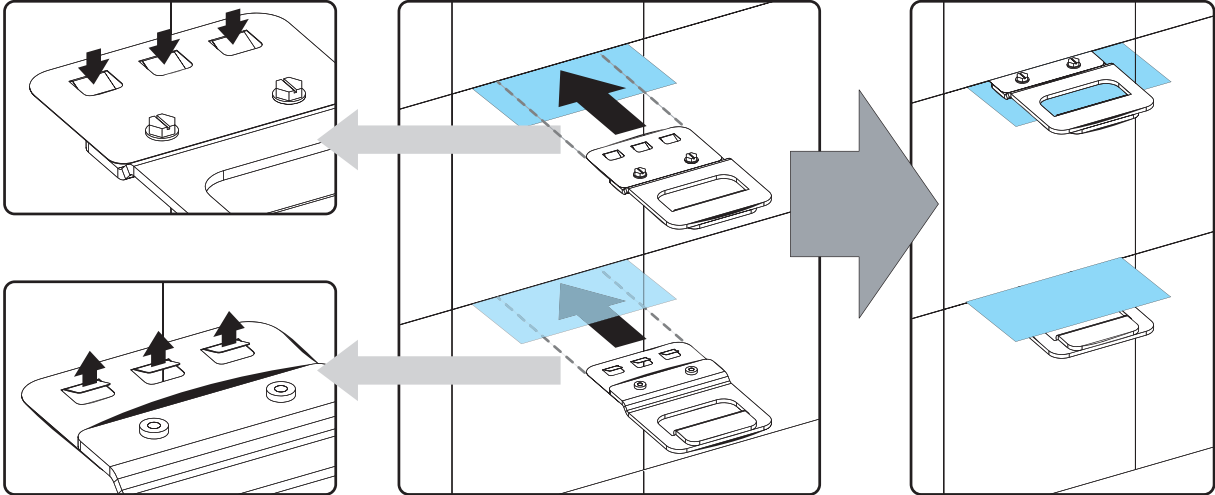
Image 10-16

6. Remove the NX module from the NX display by pulling both removal tools with equal force.
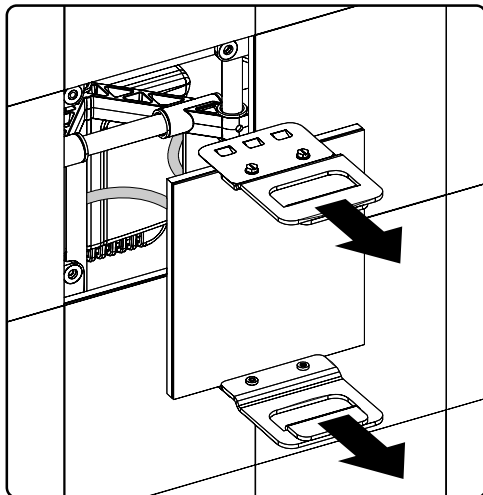
Image 10-17

Caution: *While removing an NX module always keep the LED side of the NX module parallel with the LED side of the remaining neighboring NX modules. This to avoid any mechanical stress upon the corners of the NX module.*
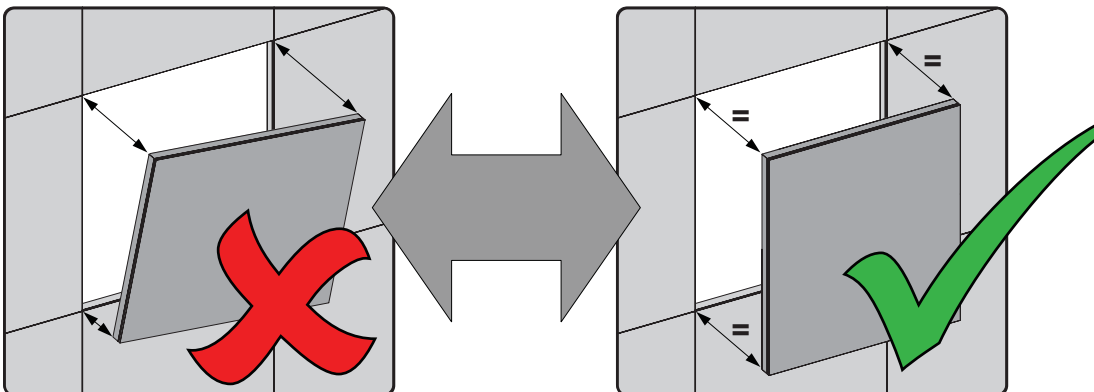

Image 10-18

7. Securely hold the NX module and disconnect the data/power link cable(s) from the back side of the NX module.
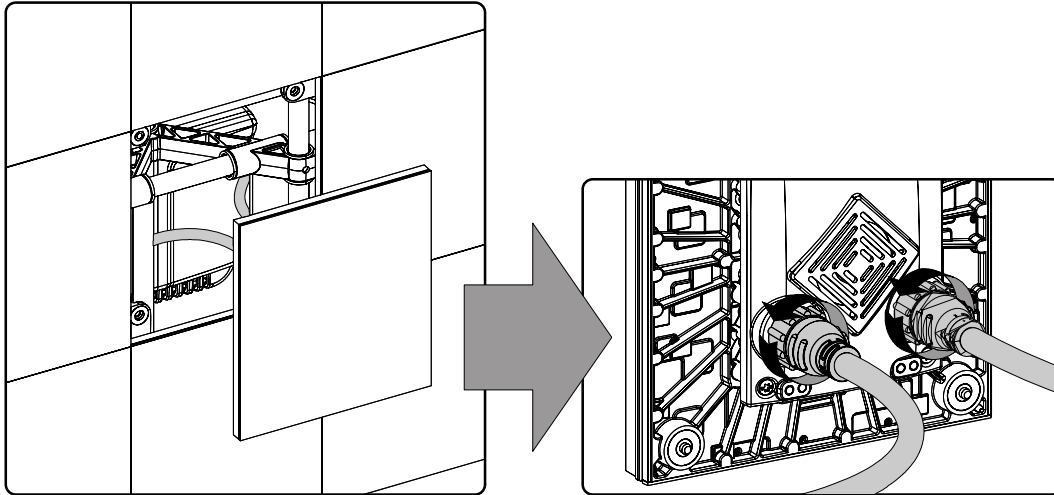
Image 10-19

⚠️ **C**AUTION: NX modules are fragile! Returned NX modules for repair must be packed in original NX packing material which can be ordered at Barco. (Box for 4 NX modules ordering code: R9801003). All warranty claims regarding damaged NX modules due to incorrect packing will be rendered invalid.

10.7 Installing an NX module via front access

> ⚠ **C**AUTION: **The following procedure must be performed by authorized and qualified technical personnel only, which are thoroughly familiar with the product and all of the proper safety checks of this product. To do otherwise increases the risk of hazard and injury to the user.**

> ⚠ **W**ARNING: **Both hands must be free for accessing a tile in a LED-wall. Therefore the use of a ladder to access a tile is forbidden. Only a solid scaffold or a Z-lift is allowed.**

How to install an NX module via front access?

1. Bring the NX module close to its mounting location in the LED-wall and connect the data/power link cable(s) with the back side of the NX module.
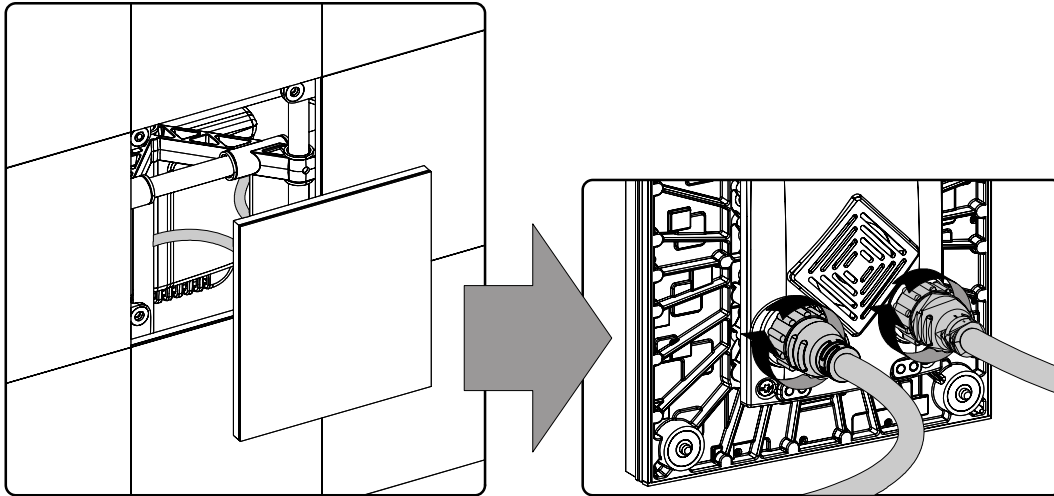
Image 10-20

2. Gently guide the NX module into position. Approach the LED-wall at right angle.
   Caution: *While approaching the rental frame keep the LED side of the NX module parallel with the LED side of the installed NX modules. This to avoid any mechanical stress upon the corners of the NX module.*
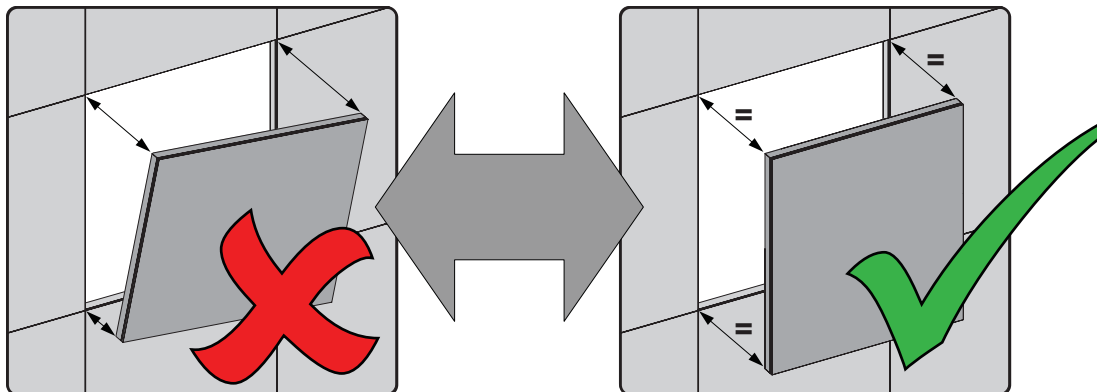

Image 10-21

10.8 Removing an NX module via back access

	This procedure describes how to remove a single NX module from a built up NX display via the rear side of the NX display. All NX modules mounted on the NX rental frame have to be removed via one of the four corners of the NX rental frame when removed via back access. So, first remove the NX module in the corner near by the NX module which you want to replace, to create an opening for the neighboring NX module.

	CAUTION: The following procedure must be performed by authorized and qualified technical personnel only, which are thoroughly familiar with the product and all of the proper safety checks of this product. To do otherwise increases the risk of hazard and injury to the user.

	WARNING: Both hands must be free for accessing a tile in a LED-wall. Therefore the use of a ladder to access a tile is forbidden. Only a solid scaffold or a Z-lift is allowed.

Necessary tools

Module safety cable (R9853390).

How to remove an NX module via back access?

1. Attach a module safety cable with the NX module and the NX rental. The illustration below shows how to connect the module (which fits in the rental frame) with the safety cable.
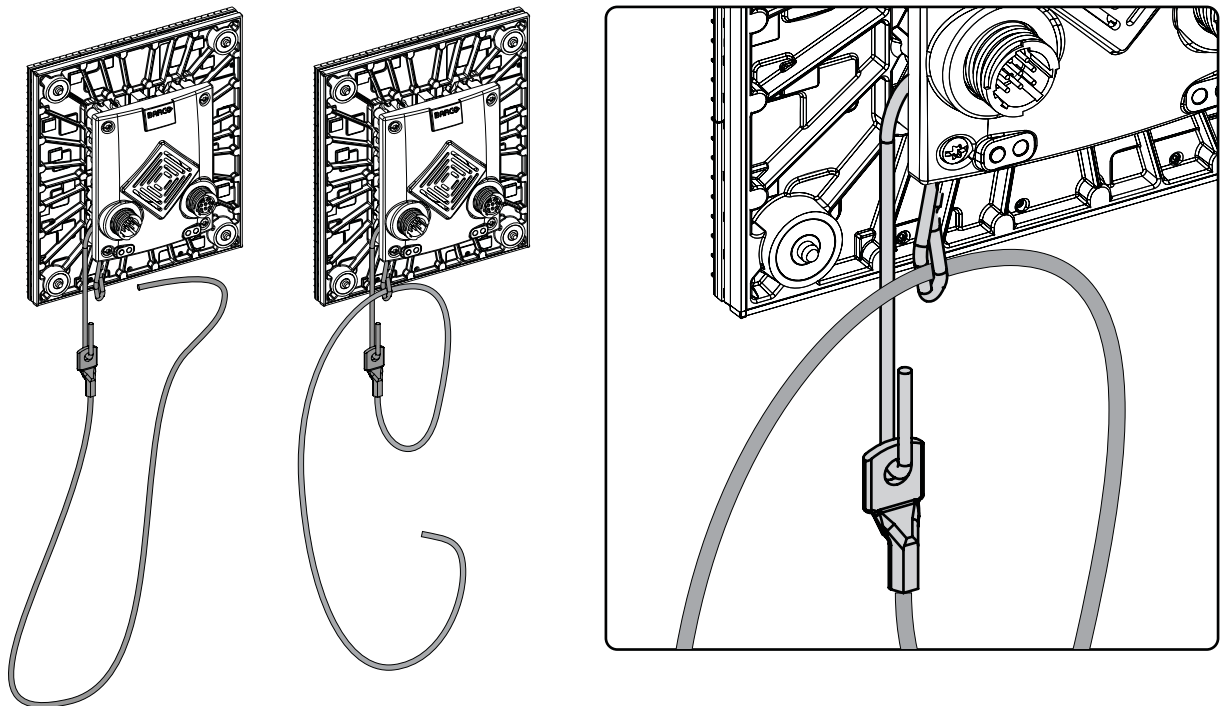

Image 10-22

2. Disconnect the data/power link cable(s) from the back side of the NX module.
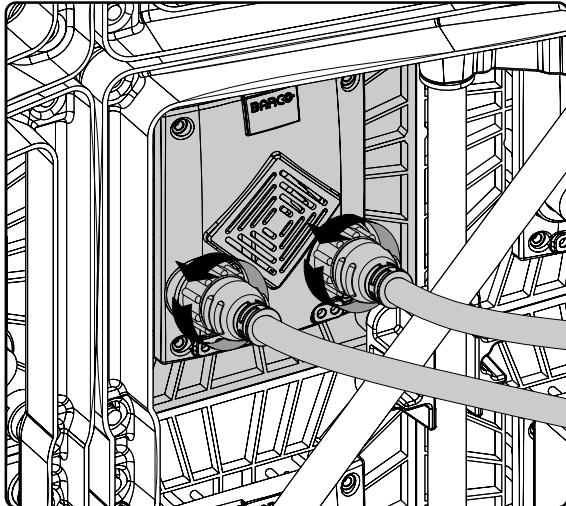
Image 10-23

3. Firmly hold the NX module and push the NX module forward out of the NX tile.
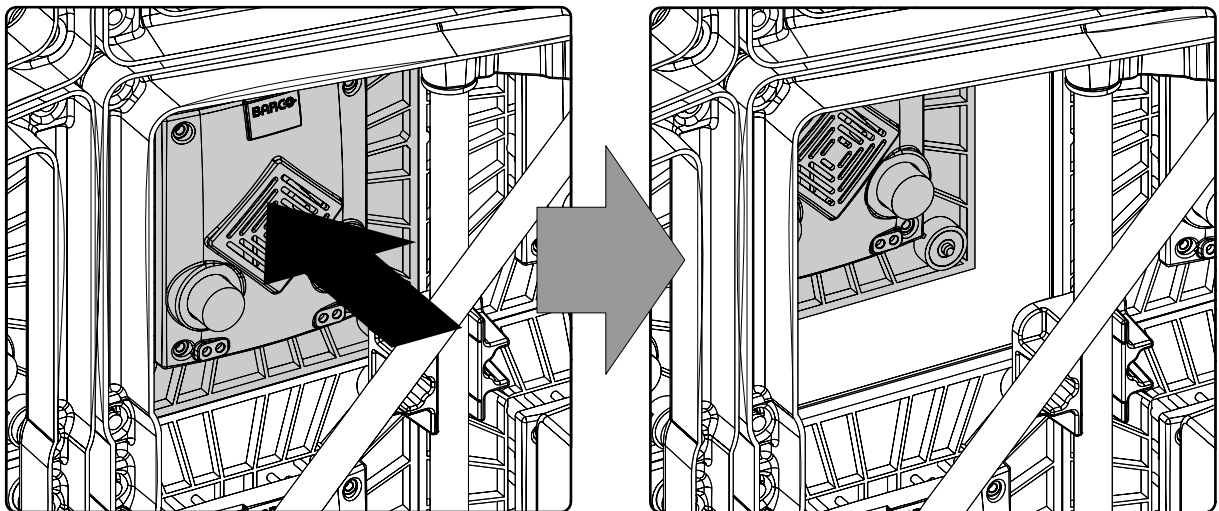

Image 10-24

Caution: *While removing an NX module always keep the LED side of the NX module parallel with the LED side of the remaining neighboring NX modules. This to avoid any mechanical stress upon the corners of the NX module.*
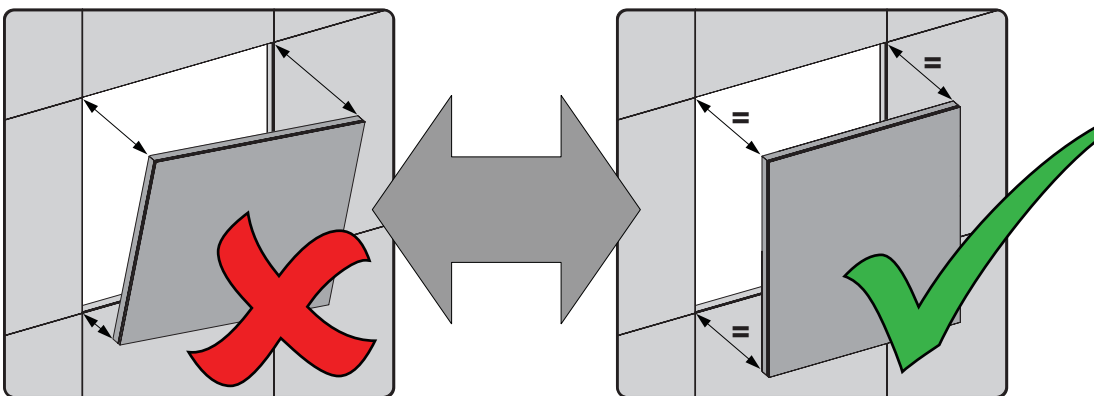

Image 10-25

4. Rotate the NX module 45° and pull the NX module gently diagonally back through the opening.
   Caution: *Be careful not to damage the shaders or LEDs of the NX module while removing the NX module.*
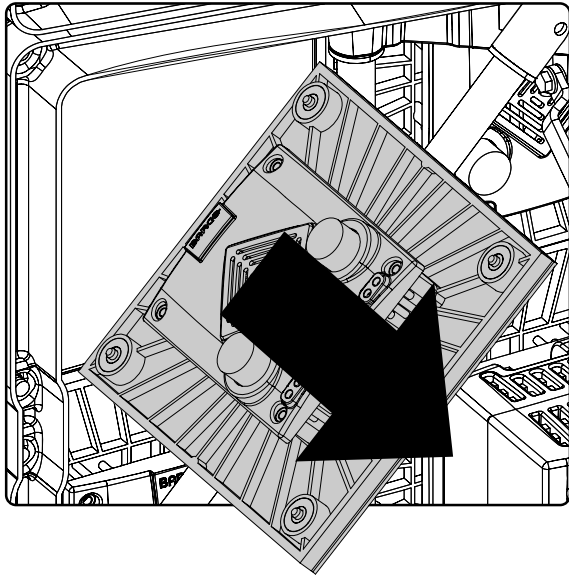
Image 10-26

⚠	**C**AUTION: NX modules are fragile! Returned NX modules for repair must be packed in original NX packing material which can be ordered at Barco. (Box for 4 NX modules ordering code: R9801003). All warranty claims regarding damaged NX modules due to incorrect packing will be rendered invalid.

10.9 Installing an NX module via back access

	This procedure describes how to install a single NX module from a built up NX display via the rear side of the NX display. All NX modules mounted on the NX rental frame have to be replaced via one of the four corners of the NX rental frame when replaced via back access. So, first remove the NX module in the corner near by the NX module which you want to replace, to create an opening for the neighboring NX module.

	CAUTION: The following procedure must be performed by authorized and qualified technical personnel only, which are thoroughly familiar with the product and all of the proper safety checks of this product. To do otherwise increases the risk of hazard and injury to the user.

	WARNING: Both hands must be free for accessing a tile in a LED-wall. Therefore the use of a ladder to access a tile is forbidden. Only a solid scaffold or a Z-lift is allowed.

Necessary tools

Module safety cable (R9853390).

How to install an NX module via back access?

1. Attach a module safety cable with the NX module and the NX rental. The illustration below shows how to connect the module with the safety cable.
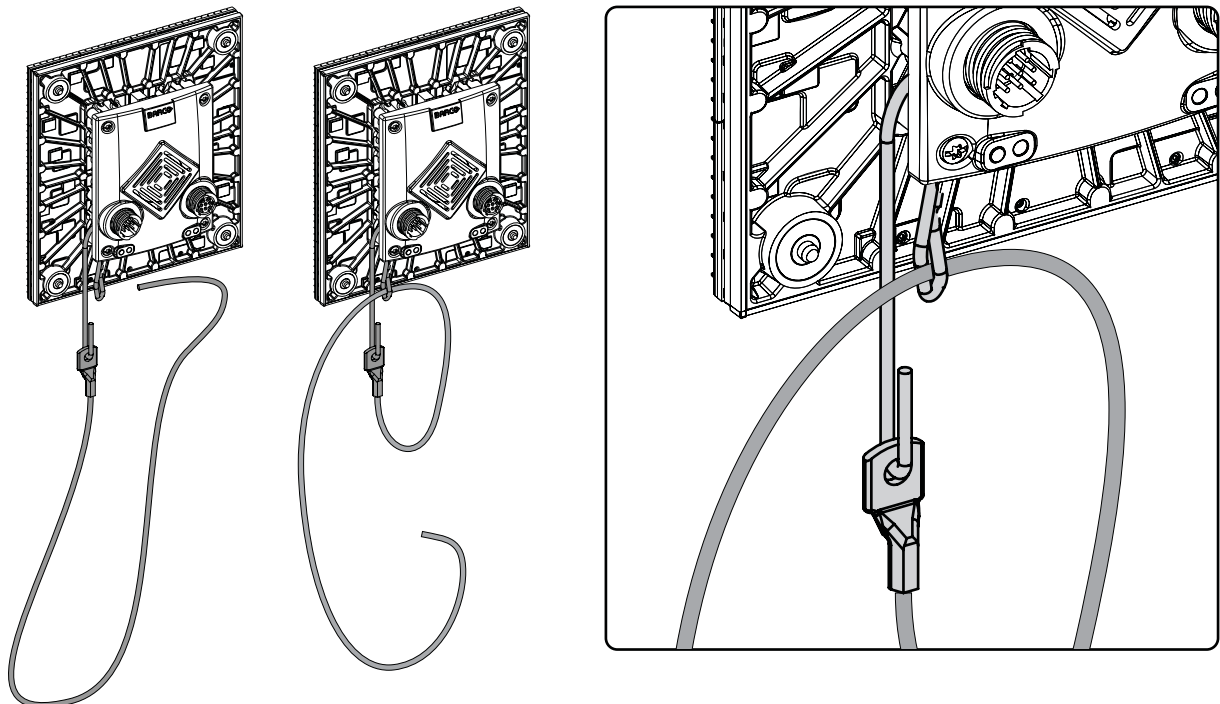

Image 10-27

2. Gently guide the NX module diagonally through the opening.
   Caution: *Be careful not to damage the shaders or LEDs of the NX module while removing the NX module.*
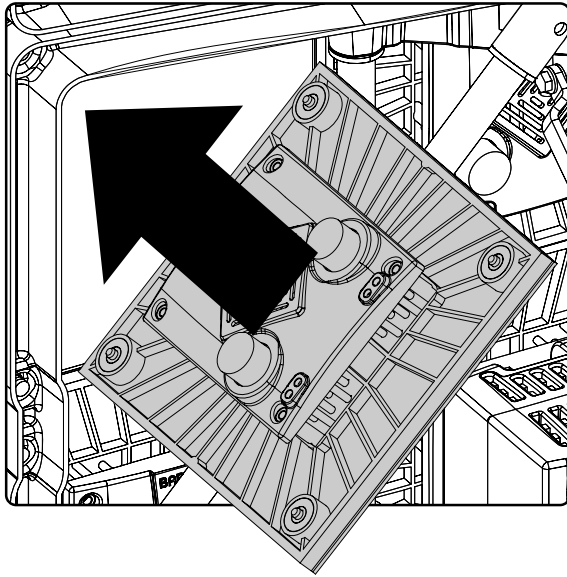
Image 10-28

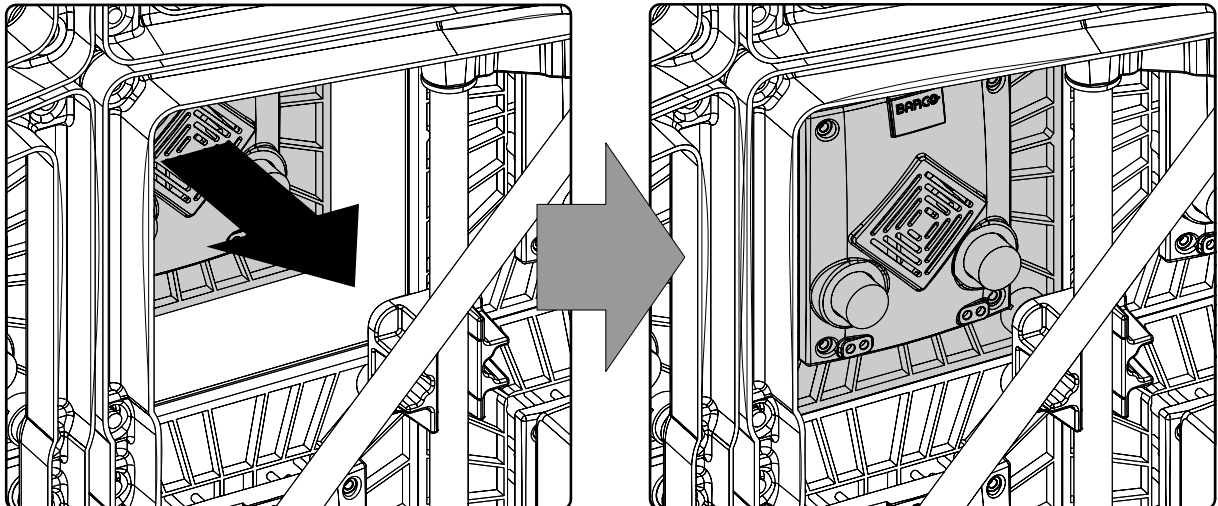3. Rotate and place the NX module into position as illustrated.

Image 10-29

Caution: *While approaching the rental frame keep the LED side of the NX module parallel with the LED side of the installed NX modules. This to avoid any mechanical stress upon the corners of the NX module.*
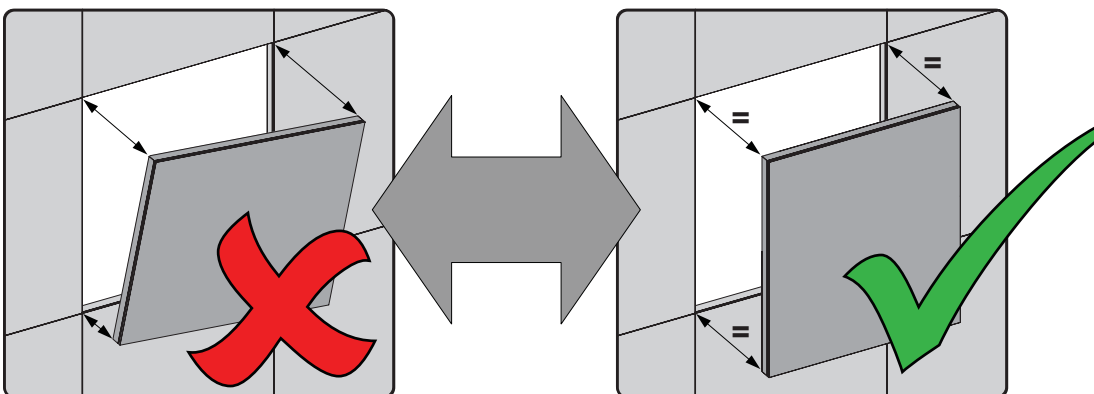

Image 10-30

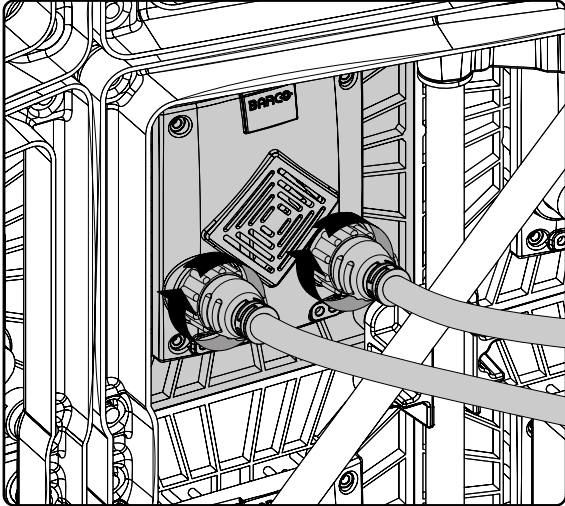4. Connect the data/power link cable(s) with the back side of the NX module.

Image 10-31

10.10 Removing shaders from an NX module

> **The NX-4 module contains a matrix of 4 x 4 shaders. To remove the shaders from the NX module you have to remove the NX module from the tile first.**

Necessary tools

NX shader removal fork.

How to remove shaders from an NX module?

1. Insert the needles of the NX shader removal fork in the small holes between the shader and the LED-board at the left or right side of the NX module.

   Caution: *The NX shader removal fork must always be inserted in at the left or right side of the NX module (horizontally). Never insert the NX shader removal fork between the shaders and the LED-board at the top or bottom of the NX module.*

   Caution: *Do not scratch the Printed Circuit Board (PCB) of the NX module while inserting the NX shader removal fork.*
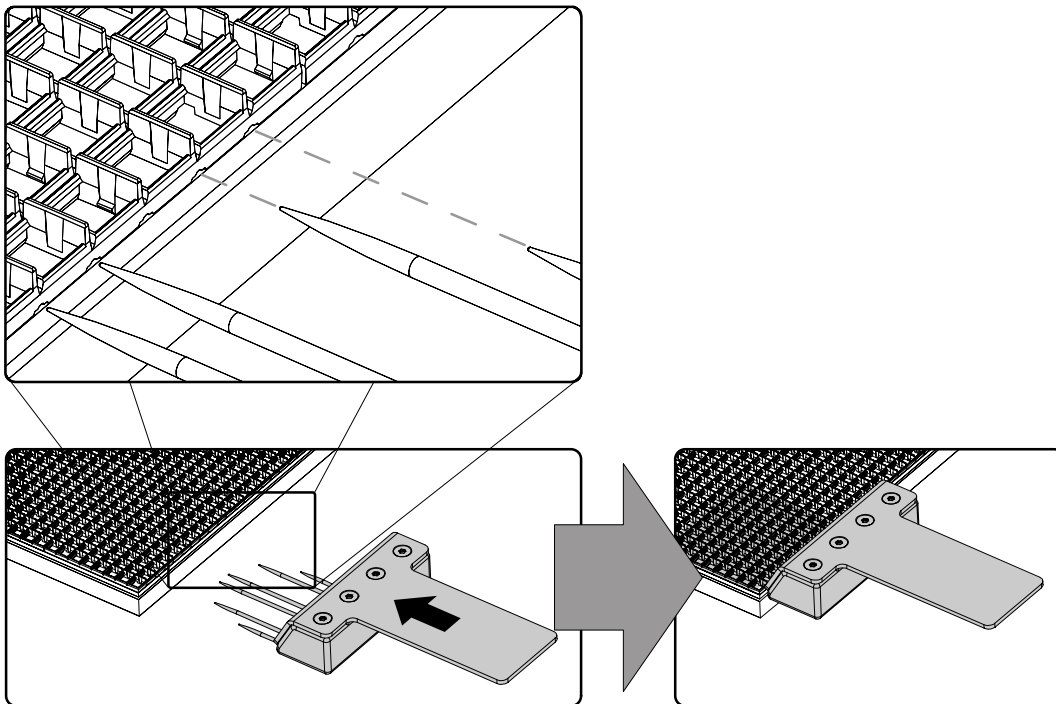

Image 10-32

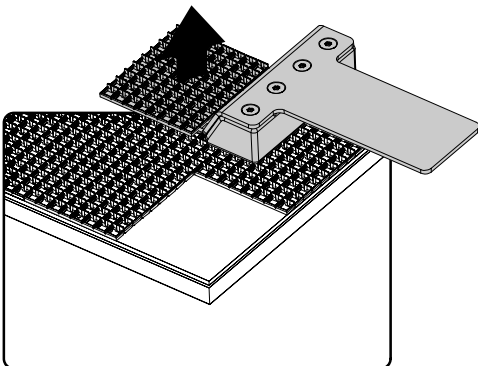2. Peel off the shader by gently lifting up the NX shader removal fork.

Image 10-33

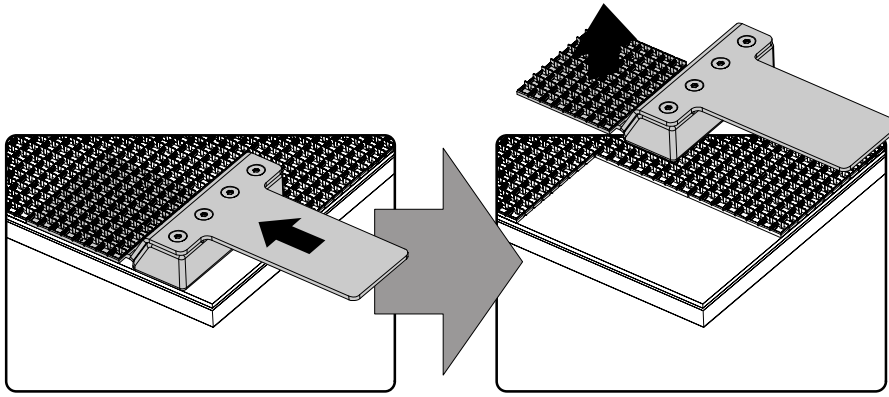3. Repeat step 1 and 2 to remove the next shader.

Image 10-34

⚠ **CAUTION:** Do not reuse removed shaders. Always replace with new shaders.

10.11 Installing the shaders on an NX module

Necessary parts

New shaders.

How to install the shaders on an NX module?

1. Softly press the new shader over the LED's. Use your bare fingers (not nails) to press the shader over the LED's. Make sure that the shaders are correctly oriented.
   Caution: *Never push with a hard or sharp object onto the soft lens of the LED as this may cause damage to the LED. The maximum allowed load upon the soft lens of the LED is 300 gram/LED.*
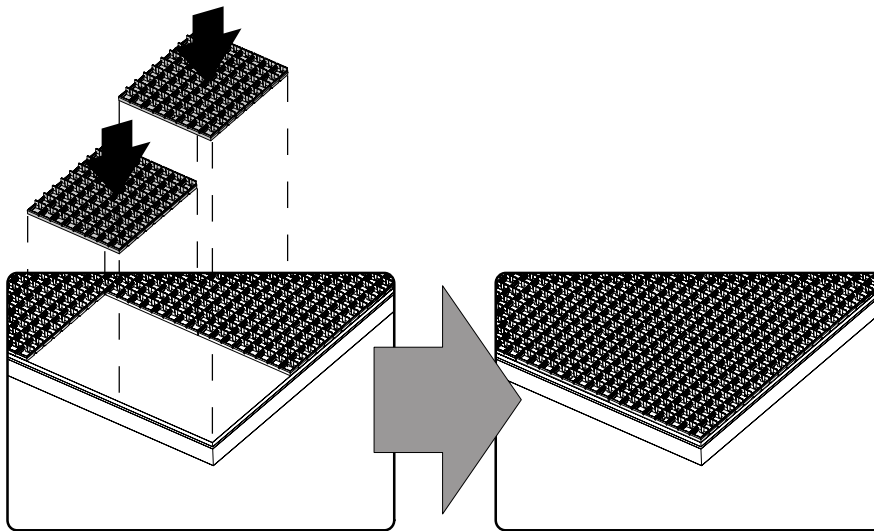

Image 10-35

2. Check each shader for flatness. Use your finger nails to press upon the framework of the shader between the LED's (not upon the LED's) to push the shader in its final position.
   Note: *Pay special attention on the lower edge (reference E of image 10-35) of the shader. Make sure it is properly clicked in.*
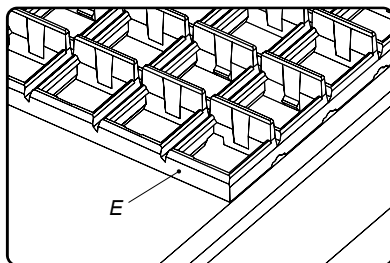

Image 10-36

A. DIMENSIONS

Overview

- Dimensions of the NX rental tile
- Dimensions of the NX-4 module
- Dimensions of the NX-6 module
- Dimensions of the NX control box
- Dimensions of the NX flight cases
- Dimensions of the NX truss beams
- Dimensions of the NX rental feet
- Dimensions of the NX stacker system
- Dimensions of the foot beams

A.1 Dimensions of the NX rental tile

Dimensions NX rental frame
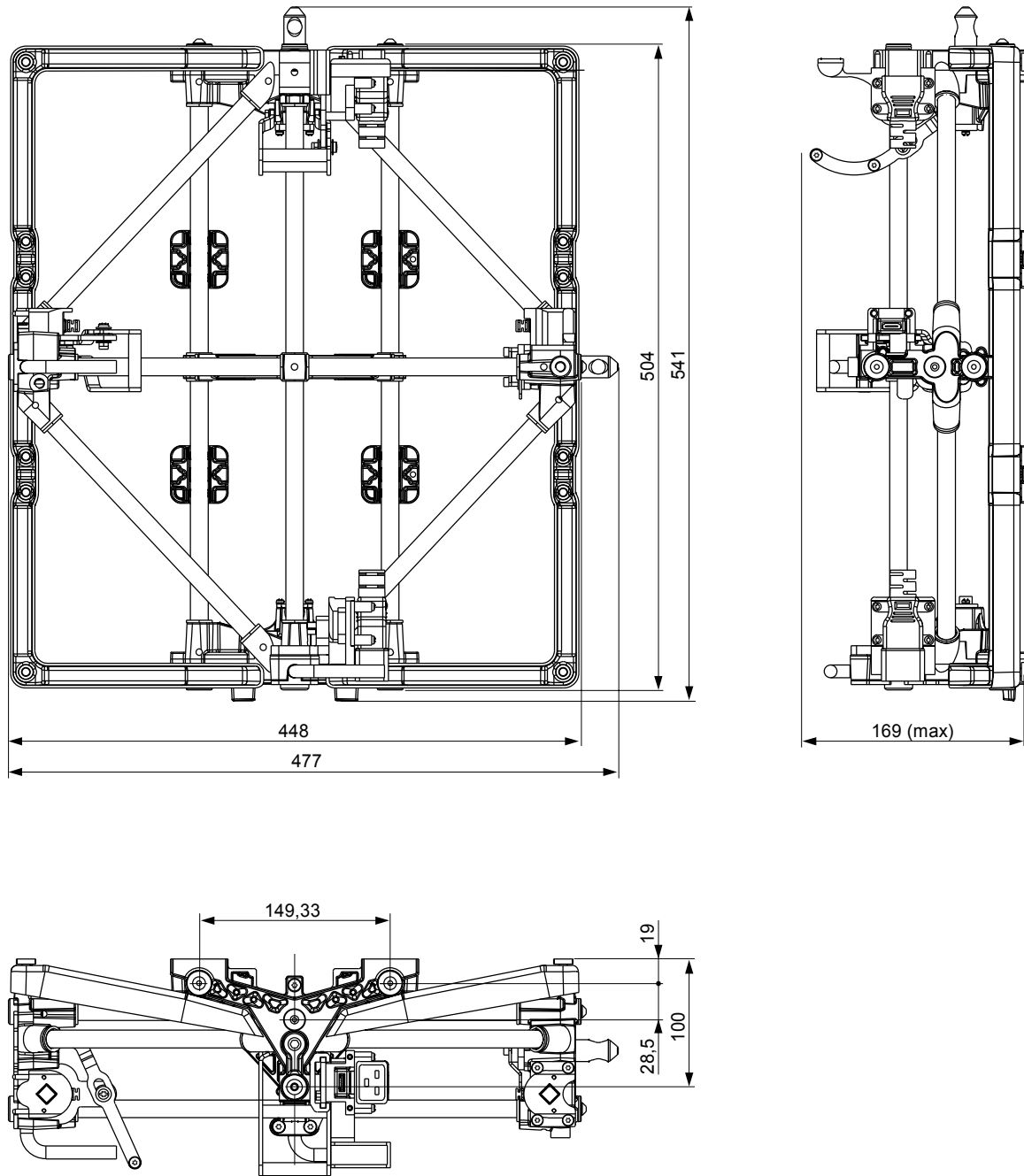
Image A-1

Dimensions NX rental frame with NX-4 modules

504
541

448
477

173,6
210

Image A-2

A.2 Dimensions of the NX-4 module

Dimensions NX-4 module
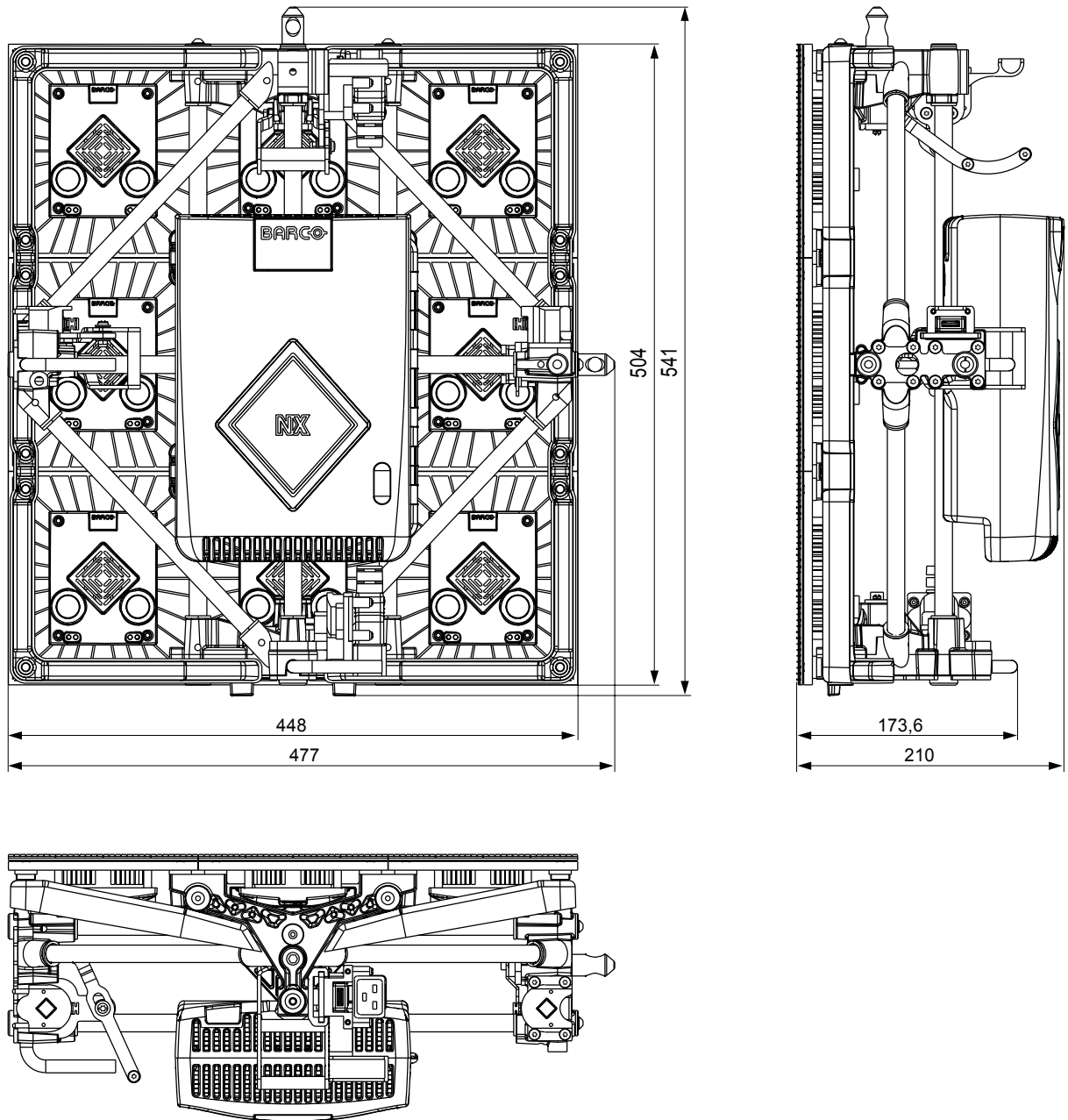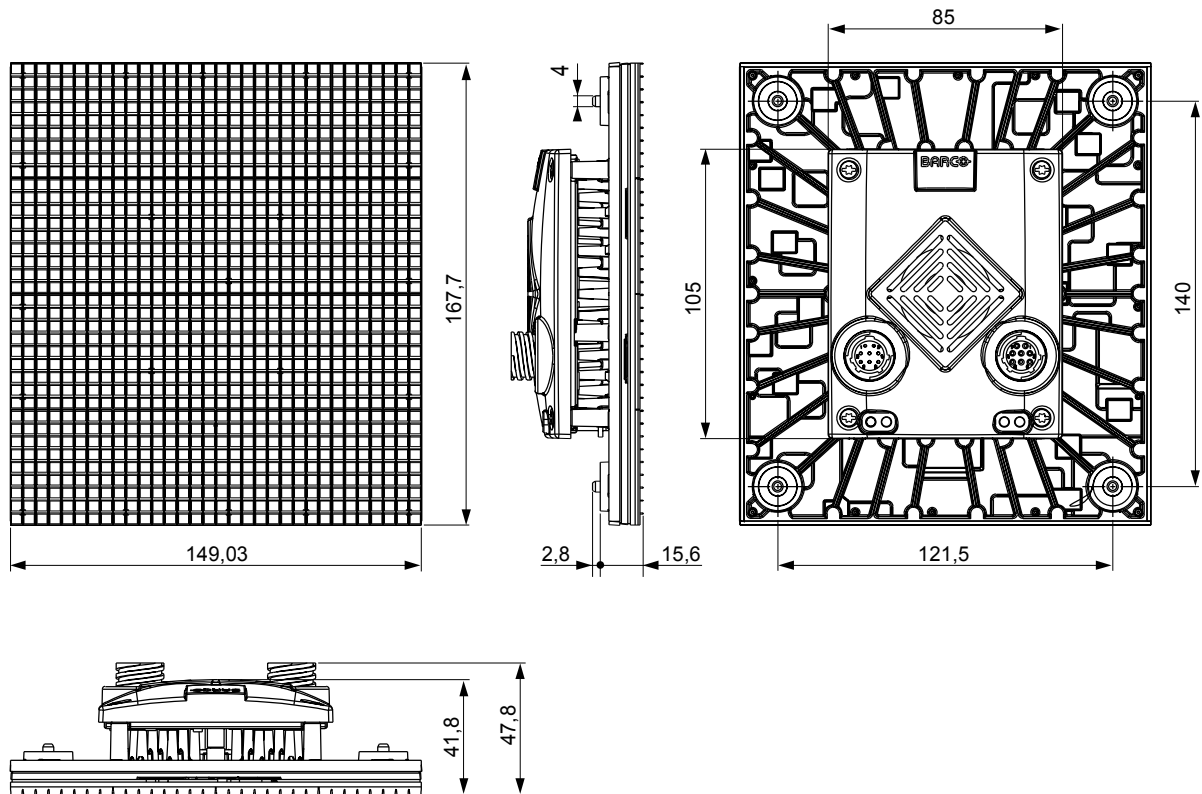

Image A-3
Dimensions given in millimeters.

A.3 Dimensions of the NX-6 module

Dimensions NX-6 module
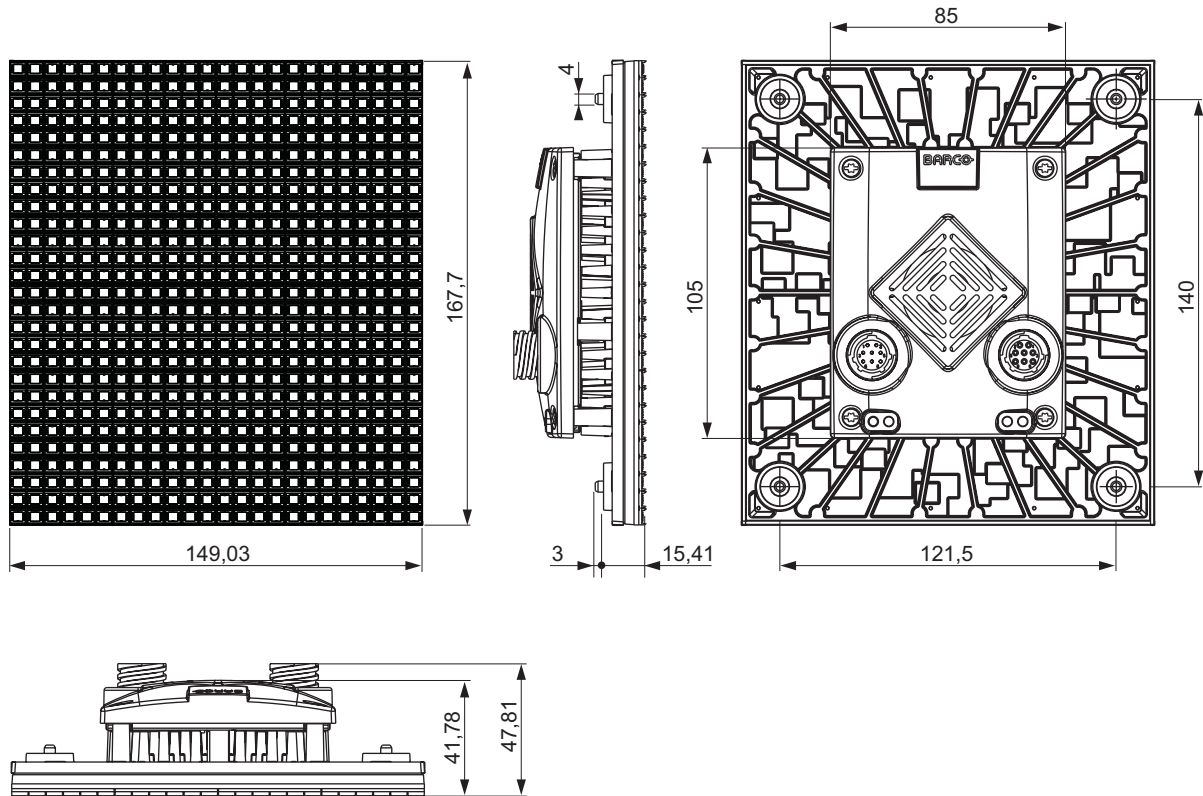
Image A-4
Dimensions given in millimeters.

A.4   Dimensions of the NX control box

Dimensions NX control box
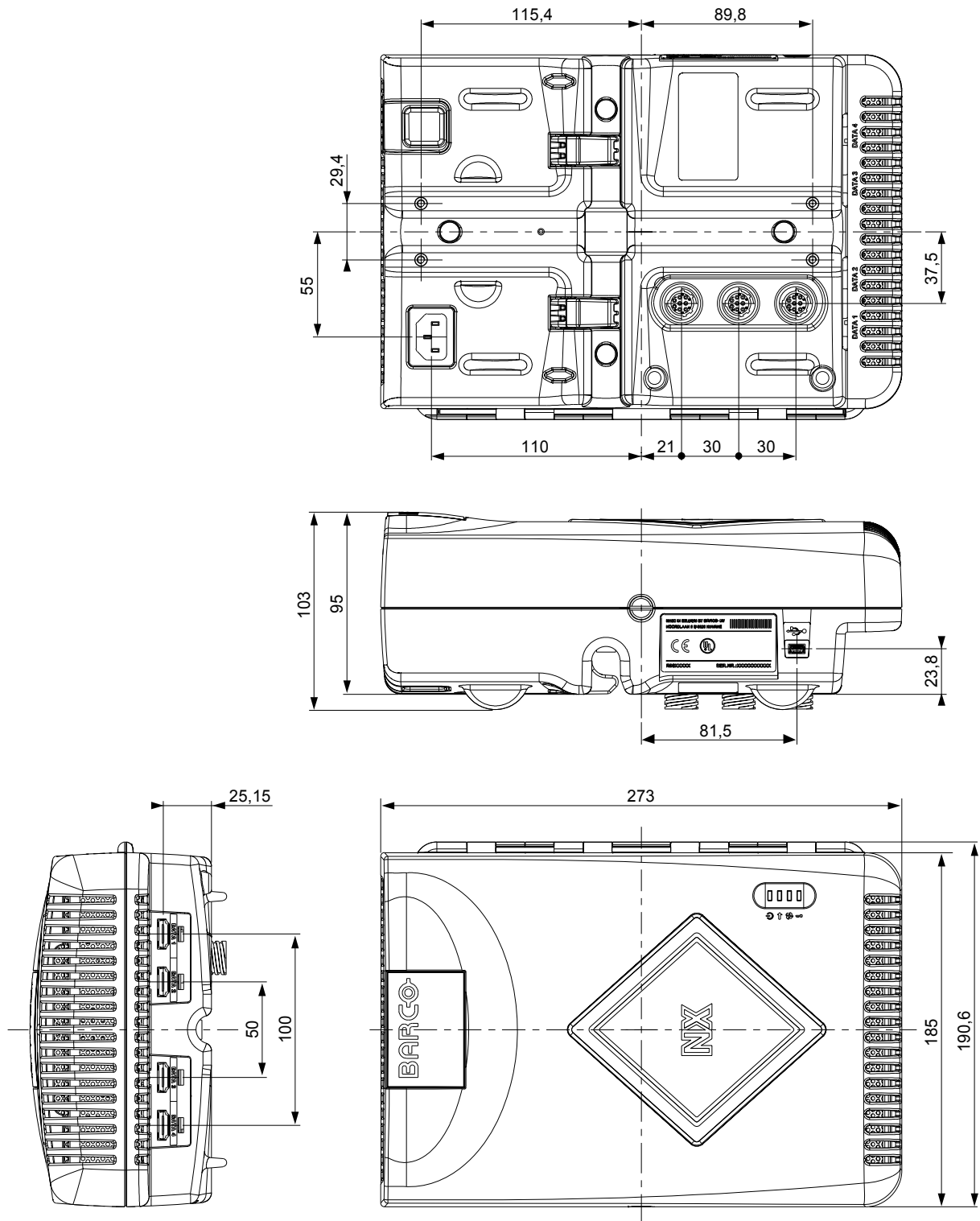
Image A-5
Dimensions given in millimeters.

A.5   Dimensions of the NX flight cases

Dimensions NX flight case for 6 NX rental tiles
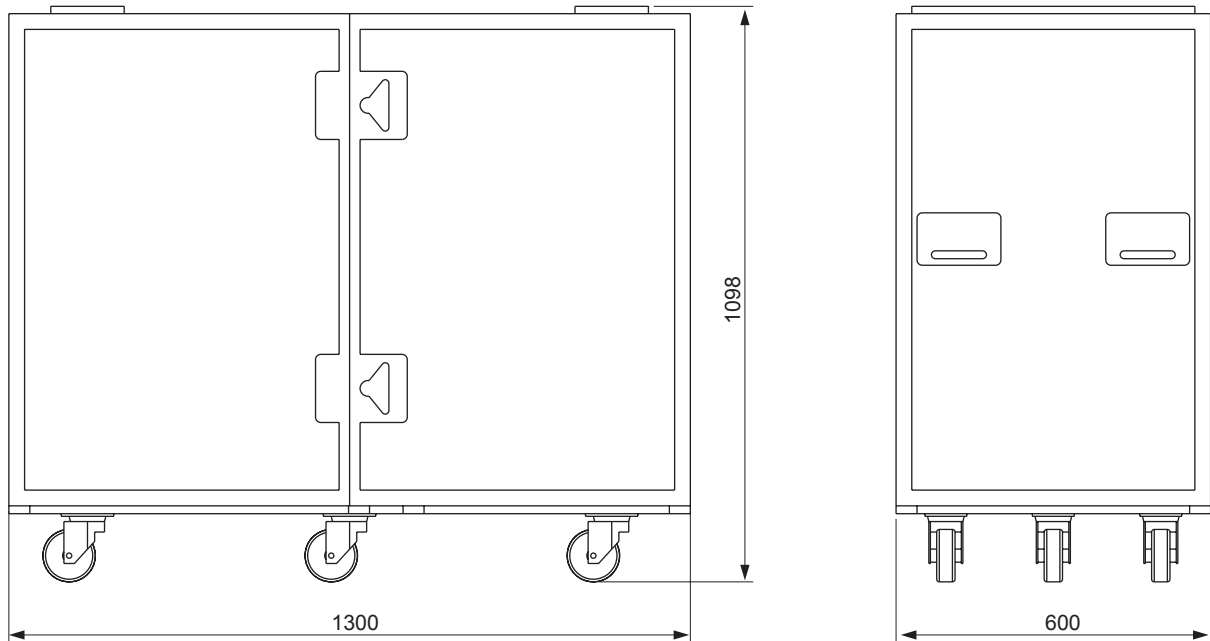
Image A-6
Dimensions given in millimeters.

Dimensions NX flight case for NX truss beams

- Length: 1200 mm.
- Height: 430 mm.
- Depth: 400 mm.

Dimensions NX flight case for NX rental feet

- Length: 1460 mm.
- Height: 410 mm.
- Depth: 400 mm.

Dimensions NX flight case for NX stacker system

- Length: 1460 mm.
- Height: 430 mm.
- Depth: 400 mm.

A.6 Dimensions of the NX truss beams

Dimensions NX dual truss beam

637

245,5

124,5

163
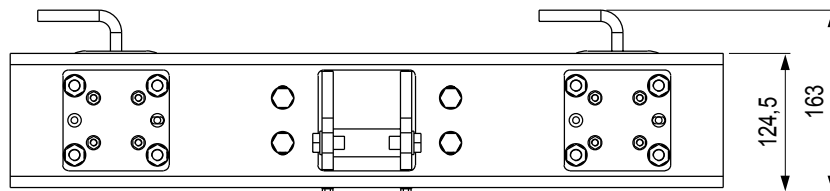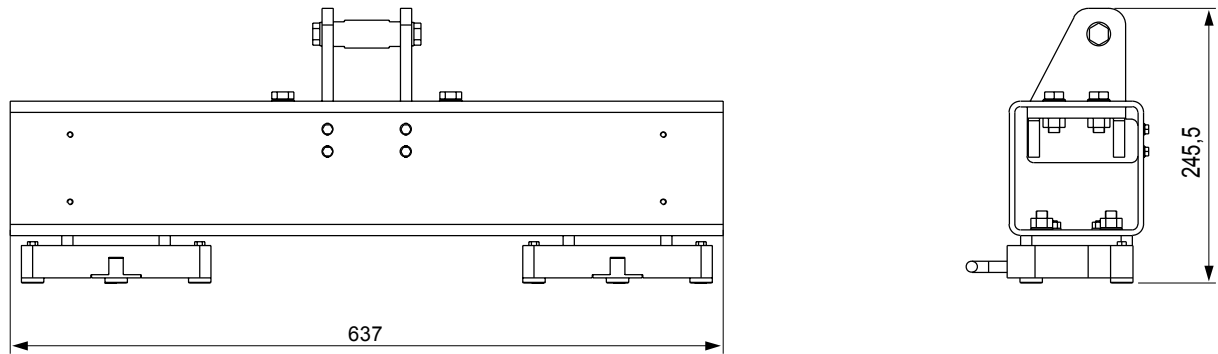
Image A-7
Dimensions given in millimeters.

Dimensions NX triple truss beam

1085

245,5

124,5

163
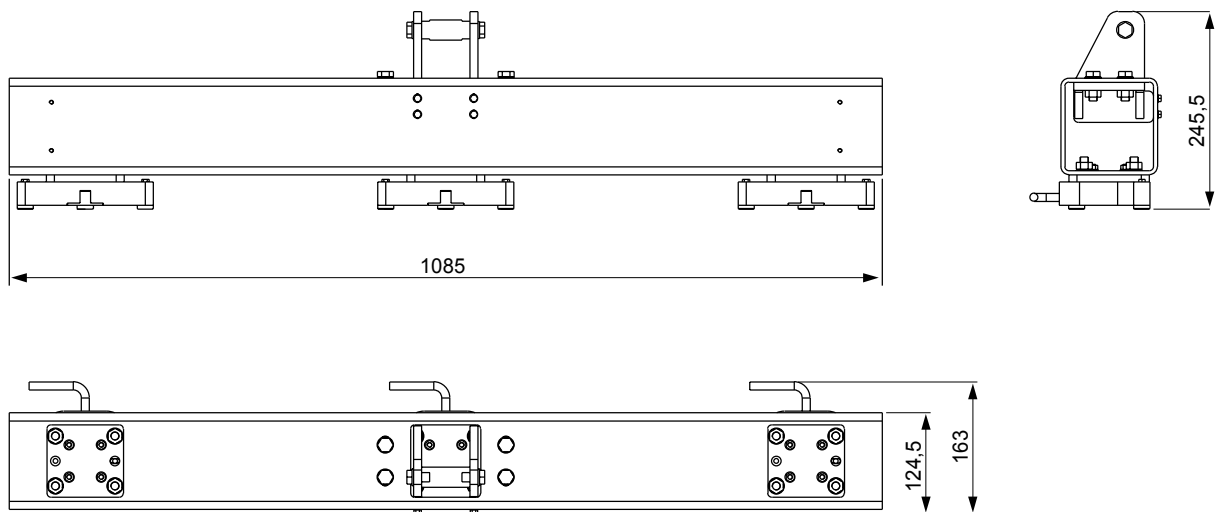
Image A-8
Dimensions given in millimeters.

A.7 Dimensions of the NX rental feet

Dimensions NX dual rental foot
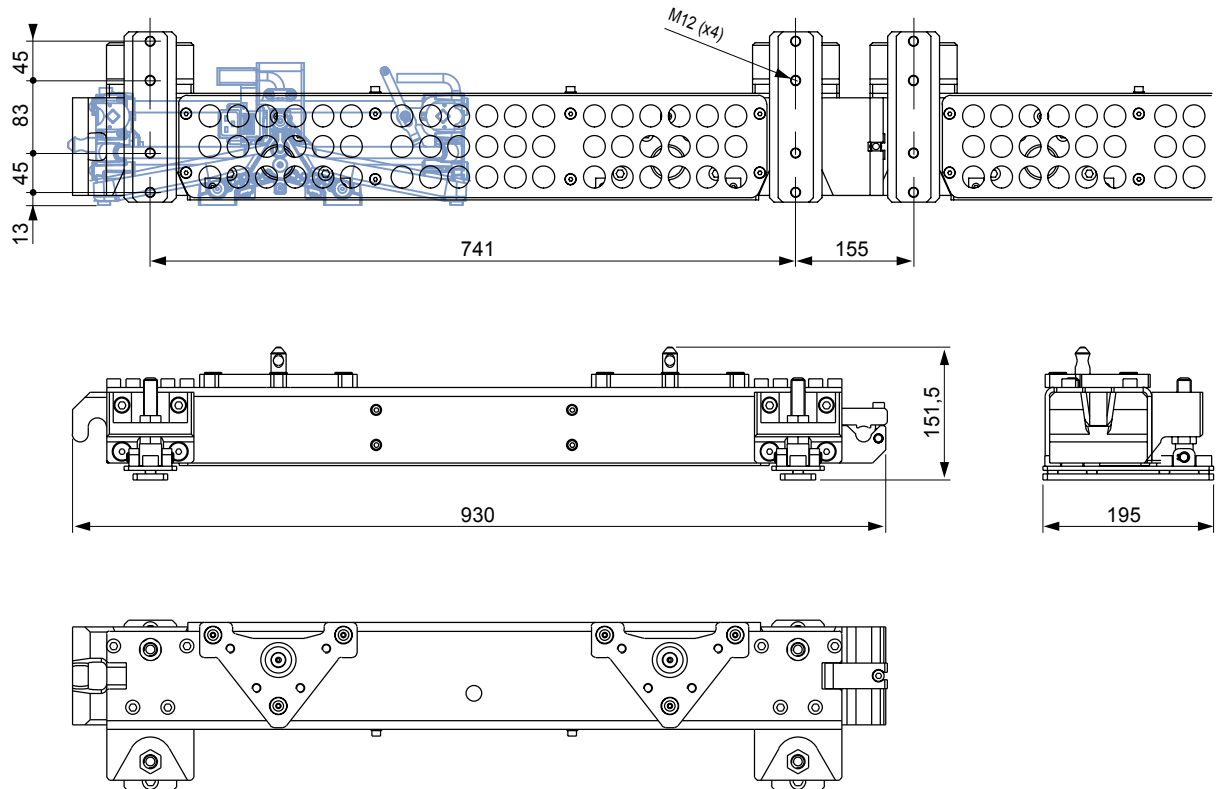
Image A-9
Dimensions given in millimeters.

Dimensions NX triple rental foot
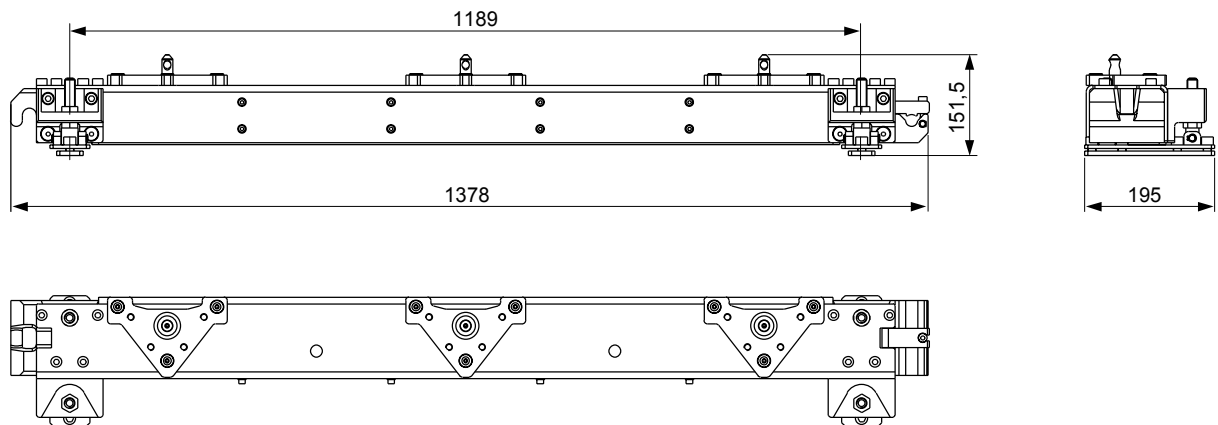
Image A-10
Dimensions given in millimeters.

A.8 Dimensions of the NX stacker system

Dimensions NX stacker profile
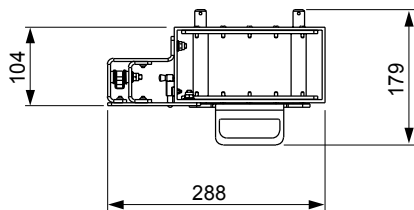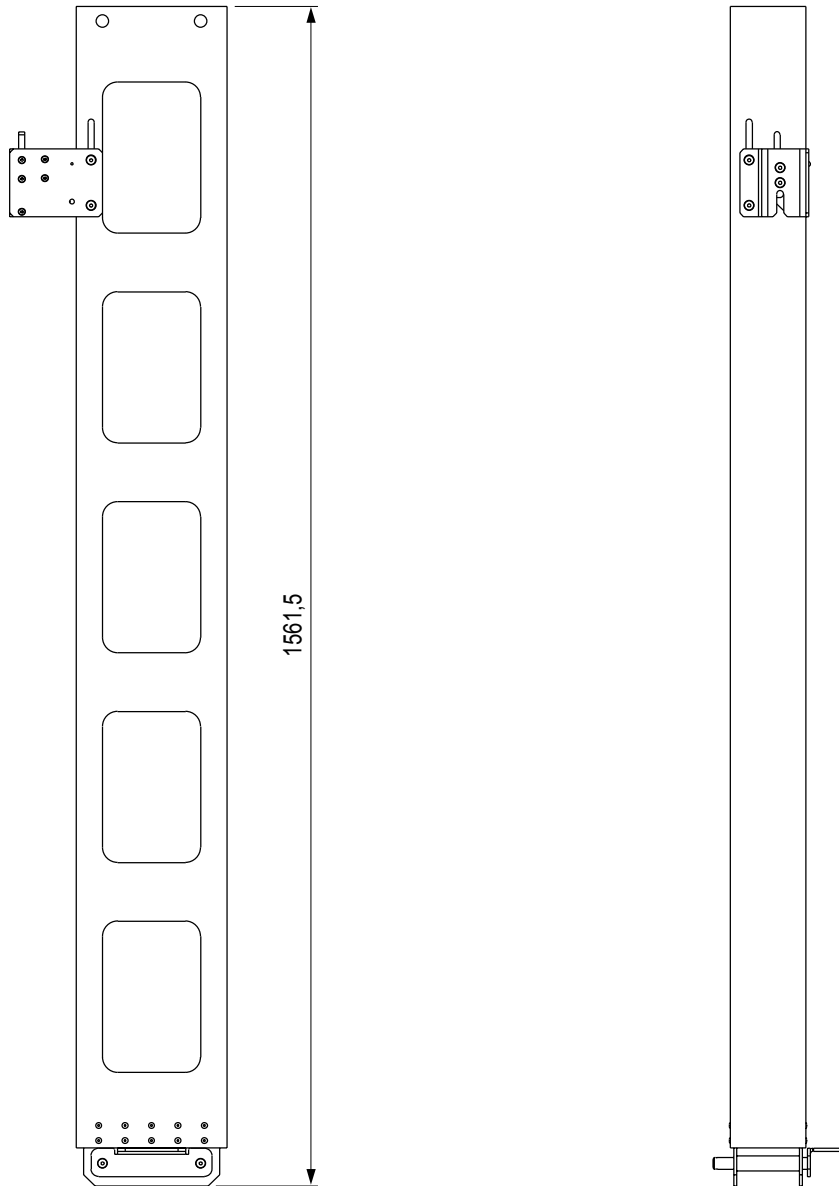
Image A-11
Dimensions given in millimeters.

Dimensions NX stacker foot
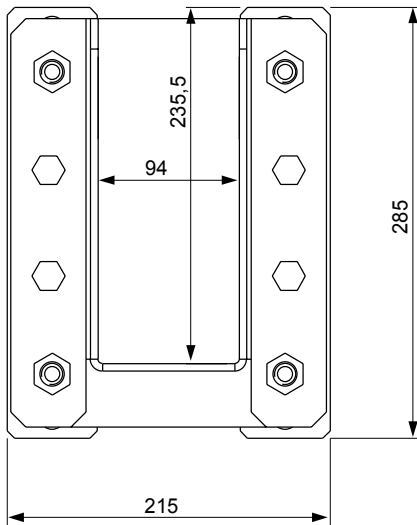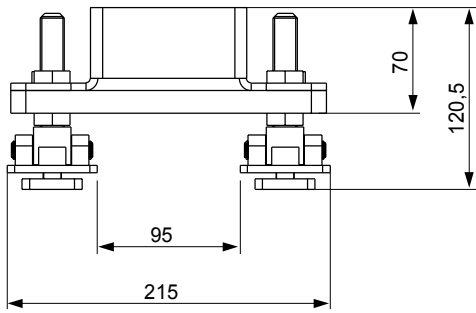
Image A-12
Dimensions given in millimeters.

A.9 Dimensions of the foot beams

Dimensions foot beams
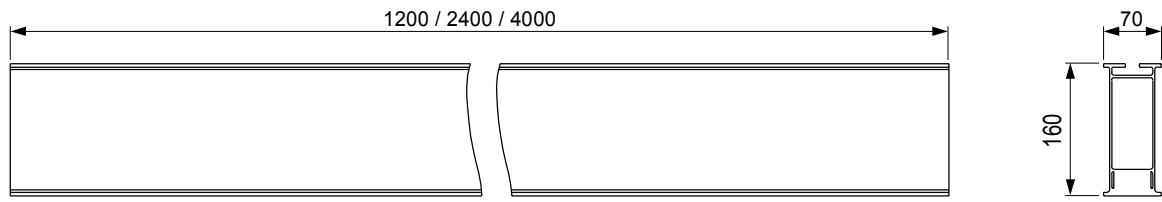
Image A-13
Dimensions given in millimeters.

B. SPECIFICATIONS

Overview

- Specifications of the NX-4 rental tile
- Specifications of the NX-6 rental tile
- Weight of individual parts of an NX rental display
- Ballast values for a base stand NX display
- Ground pressure of a base stand NX display

B.1 Specifications of the NX-4 rental tile

Specifications

Calibrated Brightness	2000 NIT (calibrated at 6500°K)
Certifications	CE class A, TUV, FCC Class A, ETL, Cebec
Colors	281 trillion
Contrast ratio	4000:1 (at 500 lux)
Foot build-up	Max. 12 tiles high
Hor. viewing angle	120° (min 50% brightness)
Humidity	35 - 85 % (operating)
	10 - 90 % (storage)
LED configuration	3-in-1 SMD
Lifetime	60,000 hours to 75% of initial brightness
Module/tile Z-alignment	<= 0.5mm
Pixel density	10,368 LEDs per tile (96x108)
Pixel pitch	4.67 mm
Power consumption	300 W/tile (max)
	100 W/tile (average)
Processing	16 bit/color
Refresh rate	3,200Hz
Source compatibility	CVBS, YC, YUV, RGB, DVI (Single and Dual link , up to 2048x1536)
	SDI. HD-SDI, Dual link HD-SDI
Temperature range	0 - 40° (operating)
	-20 - 60° (storage)
Tile dimensions	Width: 448mm (17.6")
	Height: 504mm (19.8")
	Depth: 210mm (8.27")
Truss build-up	Max. 15 tiles high
Uniformity over time	<= 1% brightness drop after 3000 hours of operation
Vert. viewing angle	+48, -55° (min 50% brightness)
Weight / Tile	12.9 kg

B.2 Specifications of the NX-6 rental tile

Specifications

Calibrated Brightness	2000 NIT (calibrated at 6500°K)
Certifications	CE class A, TUV, FCC Class A, ETL, Cebec
Colors	281 trillion
Contrast ratio	4200:1
Foot build-up	Max. 12 tiles high
Hor. viewing angle	120° (min 50% brightness)
Humidity	35 - 85 % (operating)
	10 - 90 % (storage)
LED configuration	3-in-1 SMD
Lifetime	60,000 hours to 75% of initial brightness
Pixel density	5,832 LEDs per tile (72x81)
Pixel pitch	6.2 mm
Power consumption	335 W/tile (max)
	156 W/tile (average)
Processing	16 bit/color
Refresh rate	3,200Hz
Source compatibility	CVBS, YC, YUV, RGB, DVI (Single and Dual link , up to 2048x1536)
	SDI. HD-SDI, Dual link HD-SDI
Temperature range	0 - 40° (operating)
	-20 - 60° (storage)
Tile dimensions	Width: 448mm (17.6")
	Height: 504mm (19.8")
	Depth: 210mm (8.27")
Truss build-up	Max. 15 tiles high
Vert. viewing angle	120° (min 50% brightness)
Weight / Tile	12.9 kg

B.3 Weight of individual parts of an NX rental display

Weight of individual parts

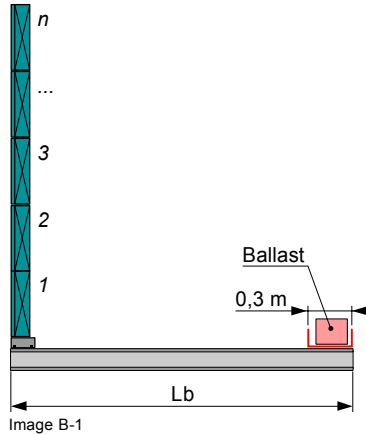|	
NX control box	2,3 kg
NX-4 module (x 9)	0,615 kg (5,53 kg)
NX-6 module (x 9)	0,625 kg (5,63 kg)
NX rental frame (without control box and modules. Cables inclusive)	5,07 kg
Weight of total cabling	1 kg
NX dual truss beam	13 kg
NX triple truss beam	23,3 kg
NX dual rental foot	18,7 kg
NX triple rental foot	24,5 kg
NX stacker foot	9 kg
NX stacker profile	8,5 kg
Foot beam 1,2 meters	4,8 kg
Foot beam 2,4 meters	9,6 kg
Foot beam 4 meters	16 kg
Flight case for 6 NX rental tiles (empty)	99 kg
Flight case for dual and/or triple truss beams (empty)	29,5 kg
Flight case for dual and/or triple rental feet (empty)	32,5 kg
Flight case for stacker system (empty)	49 kg

B.4   Ballast values for a base stand NX display

All calculations are based upon a wind load of 125 N/m² which comply with the TUV regulations for indoor applications. For more information consult the "Ballast calculator" tool, available on Barco's web site.

The ballast values are given per NX rental foot mounted upon two foot beams. Ballast must be placed upon the last 30 cm of the foot beams.

Minimum ballast values for an NX display installed at the front of the foot beams

Image B-1

Dual NX rental foot			
Height	1,2 meter foot beams	2,4 meter foot beams	4 meter foot beams
Tiles	Minimum ballast (kg)	Minimum ballast (kg)	Minimum ballast (kg)
1	23	11	0
2	44	21	12
3	59	27	16
4	75	35	20
5	96	45	26
6	120	56	33
7	149	70	41
8	182	85	50
9	219	102	60
10	260	121	71
11	305	143	83
12	355	166	97

Triple NX rental foot			
Height	1,2 meter foot beams	2,4 meter foot beams	4 meter foot beams
Tiles	Minimum ballast (kg)	Minimum ballast (kg)	Minimum ballast (kg)
1	26	12	0
2	50	23	14
3	71	33	19
4	96	45	26
5	127	59	35
6	164	76	45
7	207	97	56
8	256	120	70
9	312	145	85

Triple NX rental foot			
Height	1,2 meter foot beams	2,4 meter foot beams	4 meter foot beams
Tiles	Minimum ballast (kg)	Minimum ballast (kg)	Minimum ballast (kg)
10	373	174	102
11	441	206	120
12	515	240	141

Position NX display upon foot beams for minimum ballast

Image B-2

Dual NX rental foot			
Height	Used foot beam (Lb)	Beam length in front of display (Lw)	Minimum ballast (kg)
Tiles			
1	2,4 meter	> 0,77 meter (maximum 1,2 meter)	0
2	2,4 meter	> 0,73 meter (maximum 1,2 meter)	0
3	2,4 meter	> 0,65 meter (maximum 1,2 meter)	0
4	2,4 meter	> 0,62 meter (maximum 1,2 meter)	0
5	2,4 meter	> 0,63 meter (maximum 1,2 meter)	0
6	2,4 meter	> 0,66 meter (maximum 1,2 meter)	0
7	2,4 meter	> 0,70 meter (maximum 1,2 meter)	0
8	2,4 meter	> 0,75 meter (maximum 1,2 meter)	0
9	2,4 meter	> 0,80 meter (maximum 1,2 meter)	0
10	2,4 meter	> 0,86 meter (maximum 1,2 meter)	0
11	2,4 meter	> 0,92 meter (maximum 1,2 meter)	0
12	2,4 meter	> 0,98 meter (maximum 1,2 meter)	0

Triple NX rental foot			
Height	Used foot beam	Beam length in front of display	Minimum ballast (kg)
Tiles			
1	1,2 meter	> 0,57 meter (maximum 0,6 meter)	0
2	1,2 meter	> 0,55 meter (maximum 0,6 meter)	0
3	1,2 meter	> 0,52 meter (maximum 0,6 meter)	0
4	1,2 meter	> 0,53 meter (maximum 0,6 meter)	0
5	1,2 meter	> 0,56 meter (maximum 0,6 meter)	0
6	1,2 meter	in the middle of the foot beam	0
7	2,4 meter	> 0,65 meter (maximum 1,2 meter)	0
8	2,4 meter	> 0,70 meter (maximum 1,2 meter)	0

Triple NX rental foot			
Height Tiles	**Used foot beam**	**Beam length in front of display**	**Minimum ballast (kg)**
9	2,4 meter	> 0,76 meter (maximum 1,2 meter)	0
10	2,4 meter	> 0,82 meter (maximum 1,2 meter)	0
11	2,4 meter	> 0,88 meter (maximum 1,2 meter)	0
12	2,4 meter	> 0,95 meter (maximum 1,2 meter)	0

B.5   Ground pressure of a base stand NX display

All calculations are based upon a wind load of 125 N/m² which comply with the TUV regulations for indoor applications. For more information consult the "Ballast calculator" tool, available on Barco's web site.

The ballast values are given per NX rental foot mounted upon two foot beams. Ballast must be placed upon the last 30 cm of the foot beams.

The surface (footprint) of two foot beams is taken into account for the calculations of the ground pressure. Note that in case of using adjustable feet the total load of the LED-wall will press on the adjustable feet. So, always place supporting blocks underneath the foot beam to spread to load.

Ground pressure of an NX display installed at the front of the foot beams

Dual NX rental foot					
1,2 meter foot beams		2,4 meter foot beams		4 meter foot beams	
Height kg/cm²	N/mm²	kg/cm²	N/mm²	kg/cm²	N/mm²
Tiles					
1	0.036	0.0035	0.014	0.00139	0.008	0.00075
2	0.064	0.0062	0.025	0.00244	0.013	0.00131
3	0.088	0.0087	0.035	0.00341	0.019	0.00185
4	0.114	0.01116	0.045	0.00441	0.024	0.00239
5	0.142	0.01391	0.056	0.00546	0.03	0.00295
6	0.172	0.0169	0.067	0.00657	0.036	0.00354
7	0.205	0.02012	0.079	0.00774	0.042	0.00414
8	0.24	0.02359	0.091	0.00896	0.049	0.00476
9	0.278	0.0273	0.104	0.01024	0.055	0.0054
10	0.319	0.03125	0.118	0.01157	0.062	0.00606
11	0.361	0.03544	0.132	0.01296	0.069	0.00674
12	0.406	0.03987	0.147	0.01441	0.076	0.00744

Triple NX rental foot					
1,2 meter foot beams		2,4 meter foot beams		4 meter foot beams	
Height kg/cm²	N/mm²	kg/cm²	N/mm²	kg/cm²	N/mm²
Tiles					
1	0.045	0.00441	0.018	0.0018	0.01	0.00099
2	0.083	0.00816	0.034	0.0033	0.018	0.00181
3	0.119	0.01171	0.048	0.00474	0.027	0.0026
4	0.158	0.01547	0.064	0.00624	0.035	0.00342
5	0.2	0.01959	0.08	0.00782	0.043	0.00426
6	0.245	0.02407	0.097	0.00949	0.052	0.00514
7	0.295	0.02891	0.115	0.01123	0.062	0.00604
8	0.348	0.03411	0.133	0.01307	0.071	0.00697
9	0.404	0.03968	0.153	0.01498	0.081	0.00793
10	0.465	0.0456	0.173	0.01699	0.091	0.00892
11	0.529	0.05188	0.194	0.01907	0.101	0.00994
12	0.597	0.05853	0.217	0.02124	0.112	0.01099

C. ORDER INFO

About this chapter

This chapter contains the order numbers of all available NX spare parts.

Overview

- Spare part order info

C.1 Spare part order info

Order info:

Order info	Description
R9052771B1	NX-4 rental tile (complete).
R9052771F6	NX-4 rental tiles (six pieces) + flight case.
R9854631	NX-4 module (1 piece).
R9854920	NX-4 module (20 pieces).
R724929K	NX-4 shader set (100 pieces) + removal fork
R9052780B1	NX-6 rental tile (complete).
R9052780F6	NX-6 rental tiles (six pieces) + flight case.
R9854900	NX-6 module (1 piece).
R9854930	NX-6 module (20 pieces).
R724964K	NX-6 shader set (100 pieces) + removal fork
R9854650	NX rental frame (Integrated power and HDMI cables included, modules and module cabling excluded).
R9854610	NX control box (no cables included)
R9854660	NX dual truss beam (two pieces) + flight case.
R9854670	NX triple truss beam (two pieces) + flight case.
R9854710	NX dual rental foot (two pieces) + flight case.
R9854720	NX triple rental foot (two pieces) + flight case.
R9854730	NX stacker system (four vertical profiles + 2 stacker feet) + flight case.
R9851915	Two foot beams of 4 meter.
R9850176	Two foot beams of 2,4 meter.
R9850177	Two foot beams of 1,2 meter.
R9851470	Base stand adjustable foot (4 pieces).
R9854700	Flight case (empty) for six NX rental tiles.
R9854770	Flight case (empty) for two NX truss beams.
R9854780	Flight case (empty) for two NX rental feet.
R9854840	Flight case (empty) for NX stacker system (four vertical profiles + 2 stacker feet)
R9854620	NX rental tile cable set.
R9854800	HDMI cable of 1 meter length (5 pieces).
R9854790	HDMI cable of 5 meters length (5 pieces).
R9854860	HDMI cable of 10 meters length (5 pieces).
R9854870	Module interconnection cable (LVDS) of 0,4 meter length (6 pieces).
R9854880	Module interconnection cable (LVDS) of 1 meter length (6 pieces).
R9854890	Module interconnection cable (LVDS) of 5 meter length (6 pieces).
R858150K	NX module front access tool (10 pieces)

Order info	Description
R9801003	NX module packing kit (6 pieces). Must be used to return NX modules for repair to factory.

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