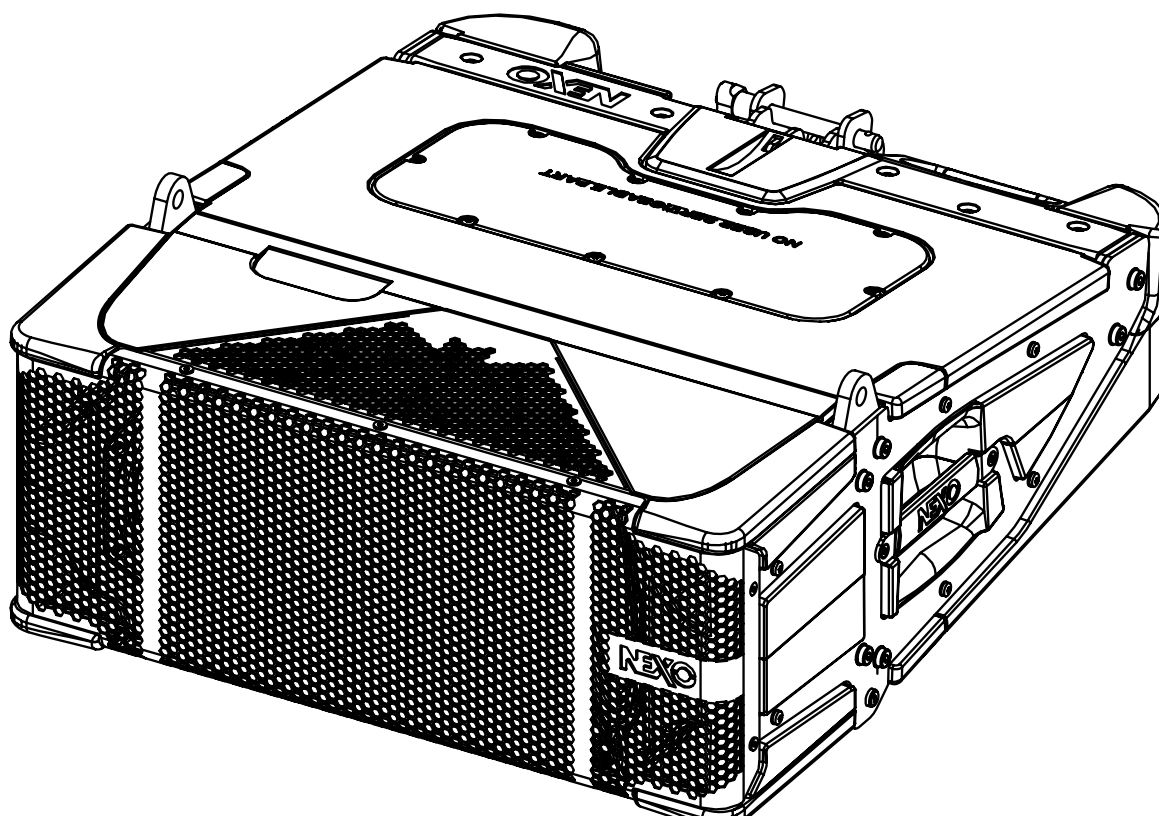


M28 / M28-I



User manual

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EU Conformity declaration

We, **NEXO SA**
ZA DU PRE DE LA DAME JEANNE
60128 PLAILLY – France

Declare under our sole responsibility that the product **Loudspeaker**


Type **M28 / M28-I**

Serial number **On the product**

Is in conformity with the provisions of the following directive **2014/35/UE (Low Voltage Directive)**
including all applicable amendments:

Applied rules and standards: **EN 12100, EN 13155, EN 62368**

Plailly, June, 2014 **Joseph CARCOPINO, R&D Director**



WARNINGS

PRECAUTIONS

Do not open the speaker, do not try to disassemble it neither to modify it in any way. The system doesn't include any user-repairable part.

If the system seems to be malfunctioning or damaged, stop using it at once and have it repaired by a NEXO qualified technician.

Do not expose the system directly to the sun or to the rain, do not immerse it into fluids, do not place objects filled with liquid on the system. If a liquid gets into the system, please have it inspected by a NEXO qualified technician.

When flying outdoor systems ensure that the system is not exposed to excessive wind or snow loads and is protected from rainfall.

In case of wind greater than 8 on Beaufort scale (72km/h – 45mph), a touring system has to be landed or an additional securing has to be implanted.

For fixed installations, wind loading has to be taken into account in accordance to the national standards

The connection should be performed by qualified technician, by ensuring that power is off.

Operating temperature with temperate climate: 0°C to +40°C (+32°F to +104°); -20°C à +60°C (-4°F to +140°F) for storage.

SAFETY INFORMATION

Read this manual before using the speaker.

Keep this manual available for further reference.

Observe all warnings and cautions.

Please check the NEXO Web site nexo-sa.com to get the most up-to-date version of this manual.

Ensure you are aware of the safety rules applying to rigging, stacking or installing on tripod or speaker stand. Failure to observe these rules may expose persons to potential wounds or even death.

Only use the system with accessories specified by NEXO.

Please always consult a NEXO-accredited technician if the installation needs architectural works and observe following precautions:

Mounting Precautions:

- Please select screws and mounting location supporting 4 times the system weight.
- Do not expose the system to excessive dust, vibrations, to extreme cold or hot temperatures, to reduce the risk of damaging components.
- Do not place the system in an unstable position: it could fall accidentally.
- If the system is used on a tripod, please ensure the tripod's specifications are adapted and that its height does not exceed 1.40m/55". Do not move the tripod with the system in position.

Connection and Powering Precautions:

- Unplug connected cables before moving the system.
- Power off the system before connecting the system.
- When switching on the installation, the amplifier must be powered last; when switching the installation off, shut off the amplifier first.
- If you work by cold temperatures, progressively raise the level to nominal value during the first minutes of use, to allow the system components to stabilize.

Please check regularly the system condition.

HIGH SOUND PRESSURE LEVELS

Exposure to very high sound pressure levels may cause permanent hearing losses. Degrees of hearing losses may be different from one person to another, but almost everybody will be affected if exposed to high sound pressure levels during a long period of time. The OSHA (Occupational Safety and Health Administration) American Agency specified the following maximal exposures:

Number of Hours	Sound Pressure Level (dBA), Slow Response
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ or less	115

WASTE OF ELECTRIC OR ELECTRONIC EQUIPMENT

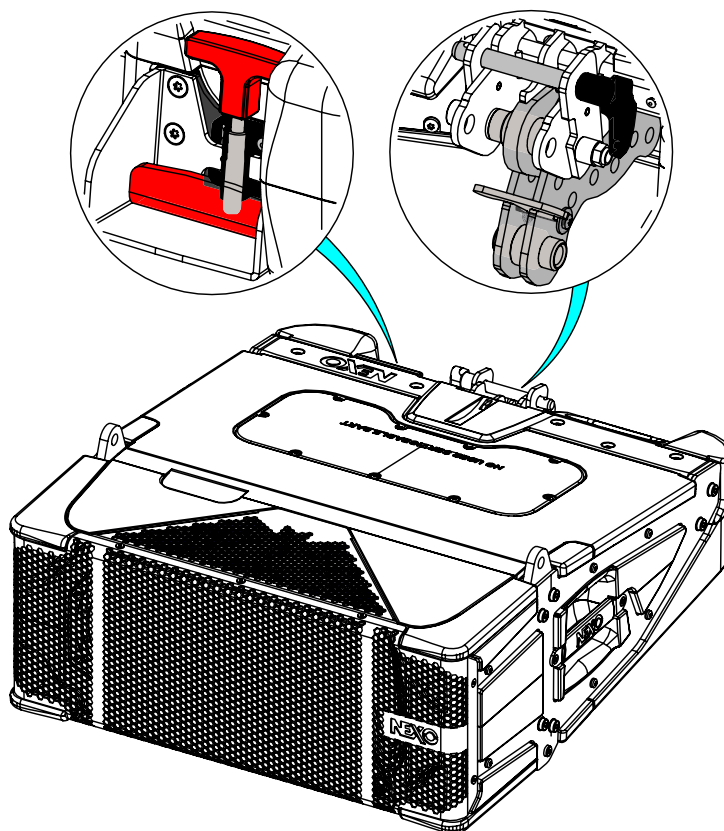


This symbol on the product or its packaging indicates that this product must not be treated as household waste. Instead, it is your responsibility to hand it over to a designated collection point for the recycling of waste electrical and electronic equipment. By ensuring your waste equipment is recycled, you will help prevent potential negative consequences for the environment and human health, which could appear if this product was not recycled. Recycling helps spare natural resources. For more information about the recycling of this product, please contact your local city office, your household waste disposal service or your reseller.

EQUIPMENT**M28**

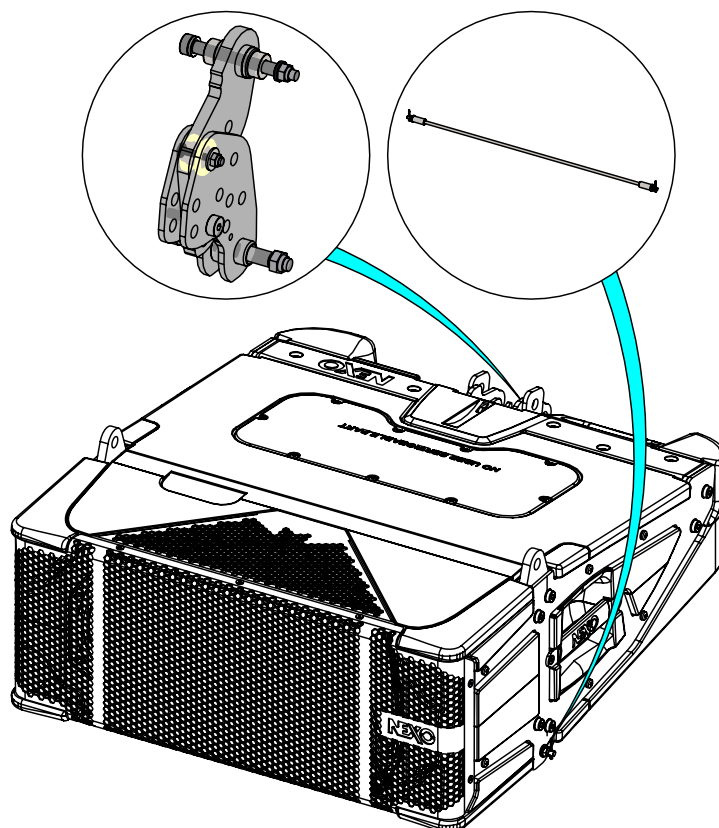
REDLock™ handle locks front rigging points from rear of cabinet.

CompassRig™ allows pre-setting of inter-cabinet angle value between M28 modules, from 0.2° to 15°.

**M28-I**

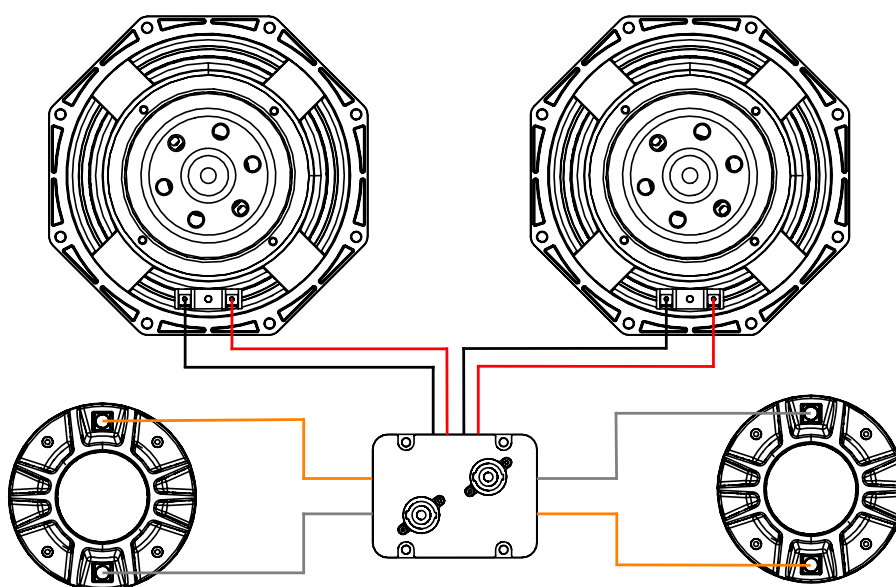
RIGAV Fix, front rigging points

CompassRig™ Fix (STI-M28CMP) allows pre-setting of inter-cabinet angle value between M28 modules, from 0.2° to 15°.



DESCRIPTION

- The M28 is a compact full-range 2 ways speaker.
- M28 can be used alone or with STM-M46, STM-B112, STM-S118, MSUB18
- Versions:
 - STM-M28-120: Touring application, 120° horizontal coverage
 - STM-M28-90: Touring application, 90° horizontal coverage
 - STM-M28-120-I: Fix installation, 120° horizontal coverage
 - STM-M28-90-I: Fix installation, 90° horizontal coverage
- The speaker is equipped with two Speakon NL4 connectors, with parallel-wired pins.
 - LF (1+/1-) Red/Black
 - HF (2+/2-) Orange/Grey



- IP54 with STI-IPCOV28.
- Amplification
 - The M28 speakers must be used with a NEXO processor to handle EQ, phase alignment, crossover and excursion/thermal protection for the system loudspeaker.
 - The following table shows the number of M28 speakers and S118 or MSB18 subwoofers usable with each solution.

	NXAMP4x1mk2 (bridged)	NXAMP4x2mk2	NXAMP4x4mk2
M28			3 in parallel on 2 channels
S118			3 in parallel on 2 channels
MSUB18	1 per channel	1 per channel	Up to 2 per channel
			Recommended

Please consult nexo-sa.com for NEXO TD Controllers firmware information.

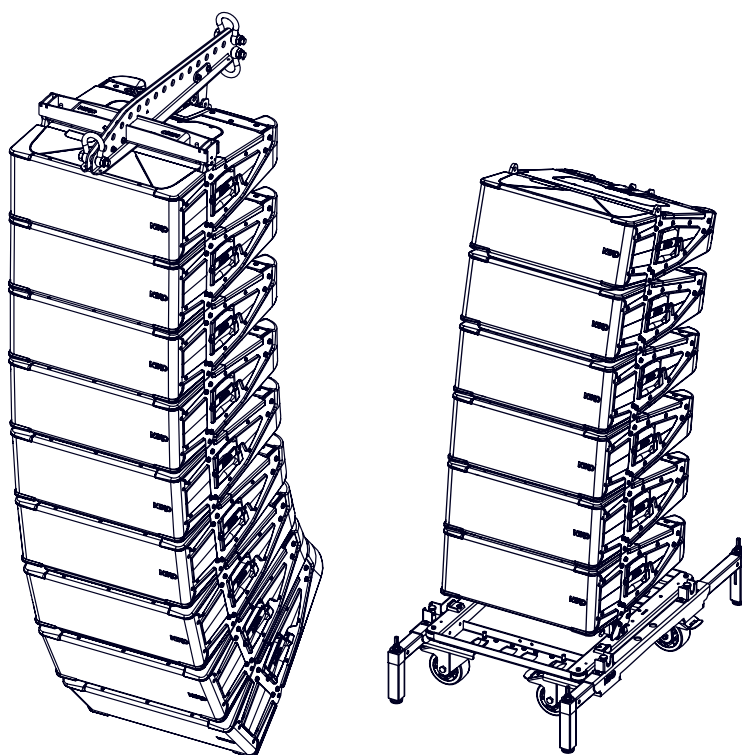
For M28, the following setups are available:

- Preset HF Main for 1x M28, 900 Hz – 20 kHz.
- Preset HF Main for 2 or 3 M28, 900 Hz – 20 kHz.
- Preset HF Main for 4 to 6 M28, 900 Hz – 20 kHz.
- Preset HF Main for more than 6 M28, 900 Hz – 20 kHz.

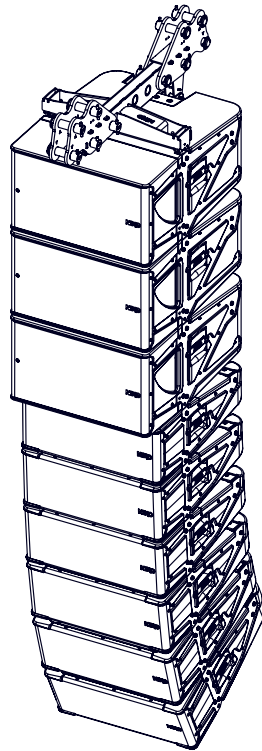
- Preset LF Main, 60 Hz – 900 Hz.
- Preset LF Main, 85 Hz – 900 Hz.
- Preset LF Main, 120 Hz – 900 Hz.
- Preset LF Main, 180 Hz – 900 Hz.

- Preset HF Downfil, 900 Hz – 20 kHz.
- Preset LF Downfil, 120 Hz – 900 Hz.
- Preset LF Downfil, 180 Hz – 900 Hz.

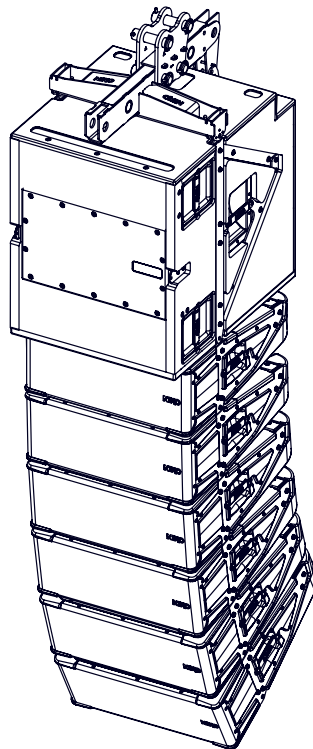
M28

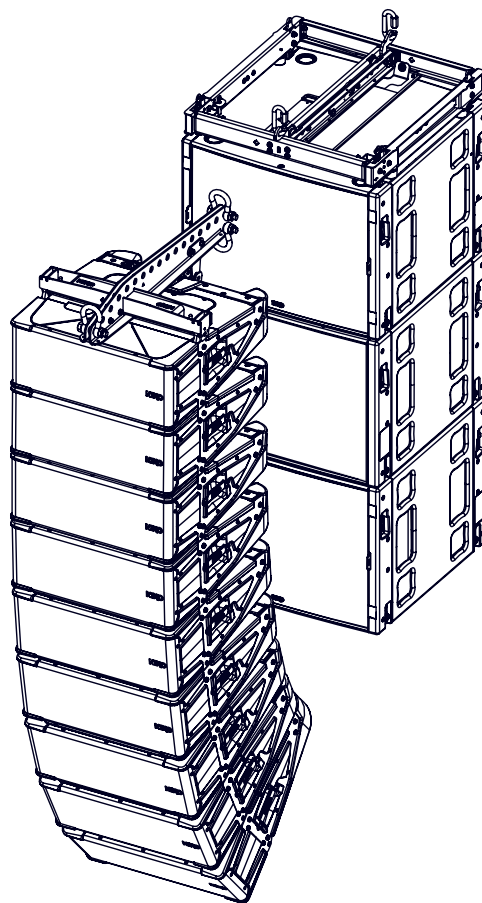


M28 + B112



M28 + S118



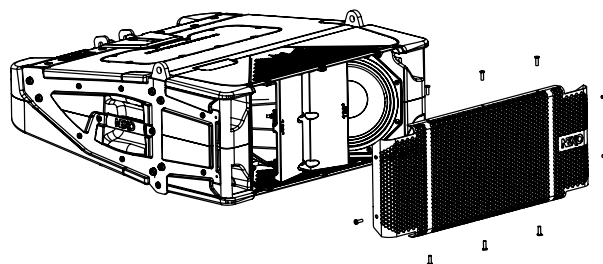


HF DIRECTIVITY

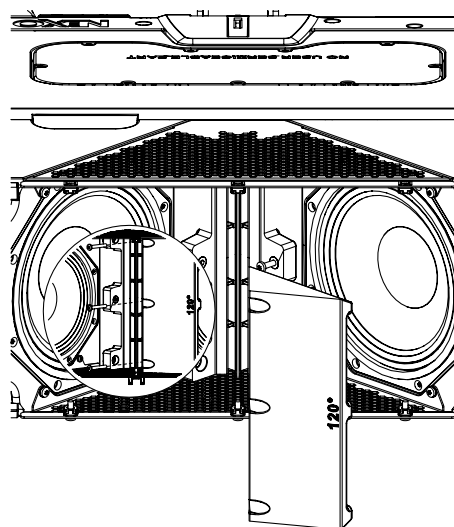
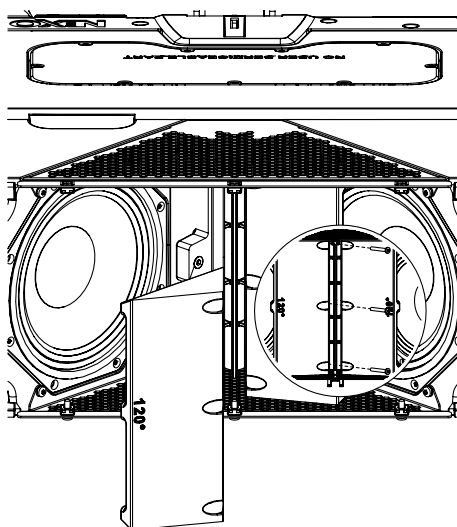
It is possible to change the horizontal HF directivity of M28

120° to 90° with STT-FLG28090

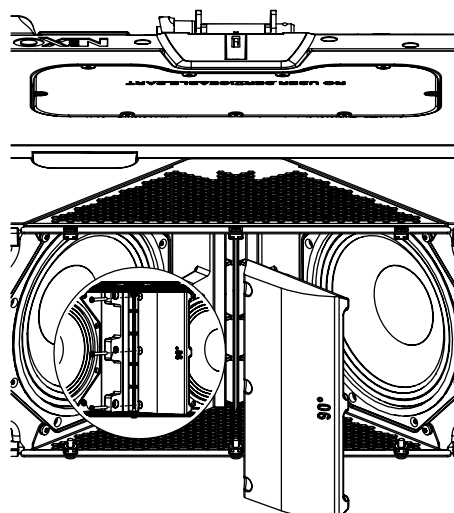
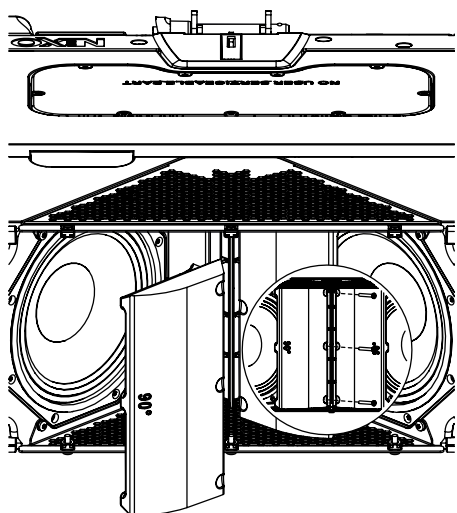
Remove the 8 screws and the front grid



Unscrew the 3 screws and remove the first FLG28120, unscrew 3 screws and remove the second.



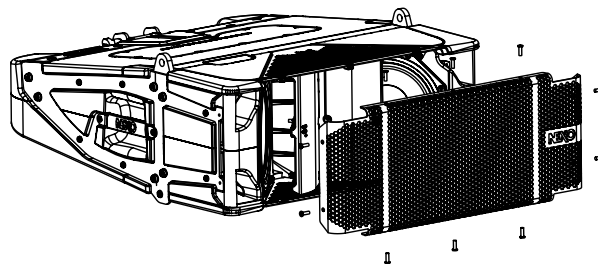
Position the first FLG28090 with 3 screws, position the second with 3 screws. (Use provided screws)



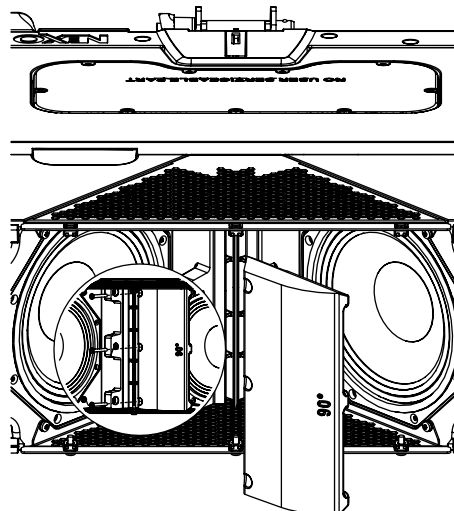
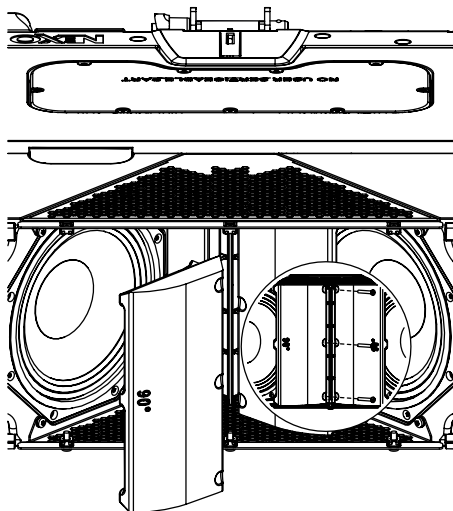
CROSSOVER FREQUENCY

90° to 120° with STT-FLG28120

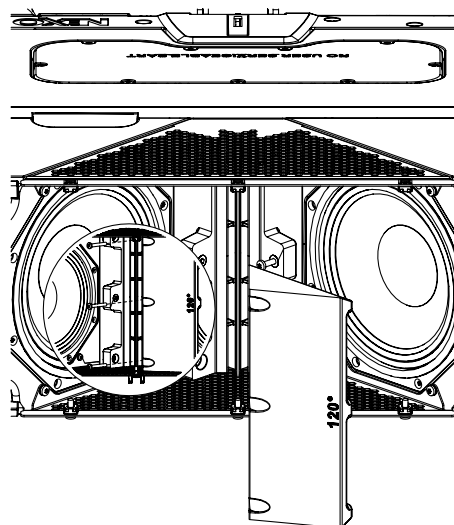
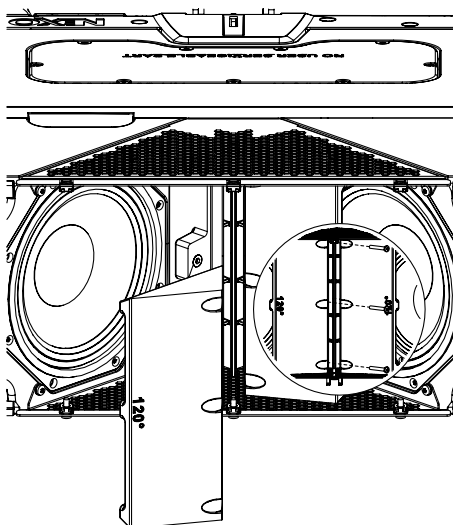
Remove the 8 screws and the front grid



Unscrew the 3 screws and remove the first FLG28090, unscrew 3 screws and remove the second.



Position the first FLG28120 with 3 screws, position the second with 3 screws. (Use provided screws)



CROSSOVER FREQUENCY

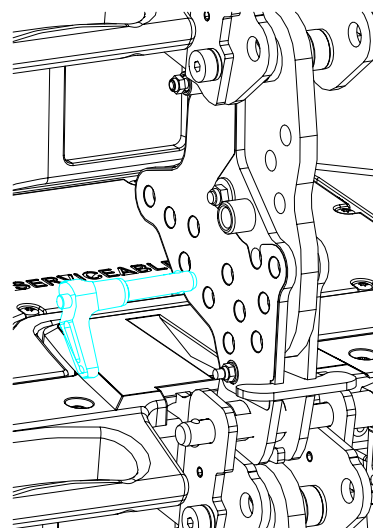
- 60 Hz: Full range application.
- 85, 120, 180 Hz: Use with MSUB18 / S118.

RIGGING ASSEMBLY

M28 TOURING

Angle pre-setting

Set speaker angles as specified from NS-1 Software by inserting pin in CompassRig in appropriate hole

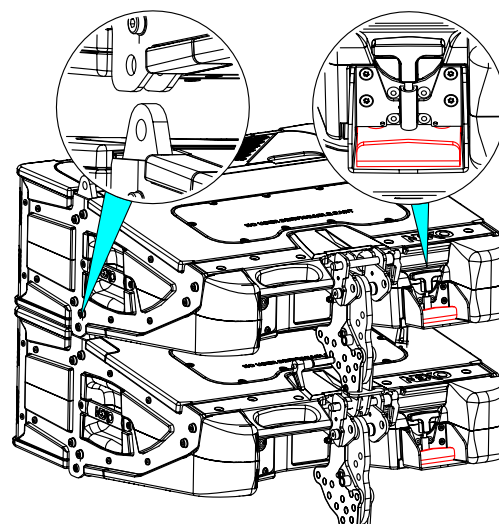


Front locking

Lower upper assembly into position, Align side rigging slots on both sides of the cabinets.

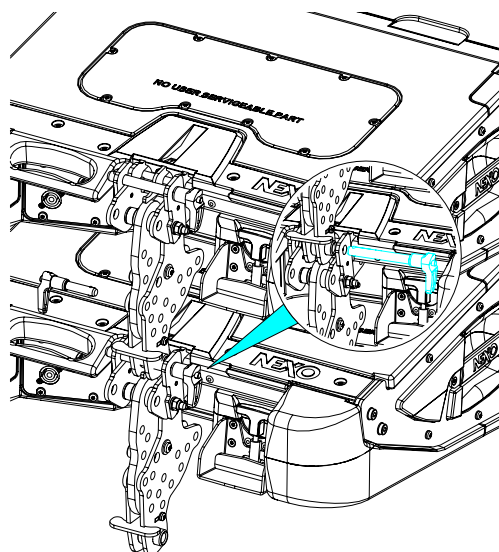
Connect upper M28 to the second M28 by pushing REDLock™ into 'LOCK' position.

Ensure REDLock™ safety pin is locked into handle hole.



Rear locking

Lock CompassRig™ to the lower M28 by inserting the quick release pins.



IMPORTANT

Side locking pins must be flush to rigging plates on both sides of the cabinet.

If locking pins appear to be going inwards in relation to rigging plates, cabinets must not be flown.

Ensure all REDLock™ safety pins are locked into handle holes.

Check rear quick release pins are fully engaged and locked.

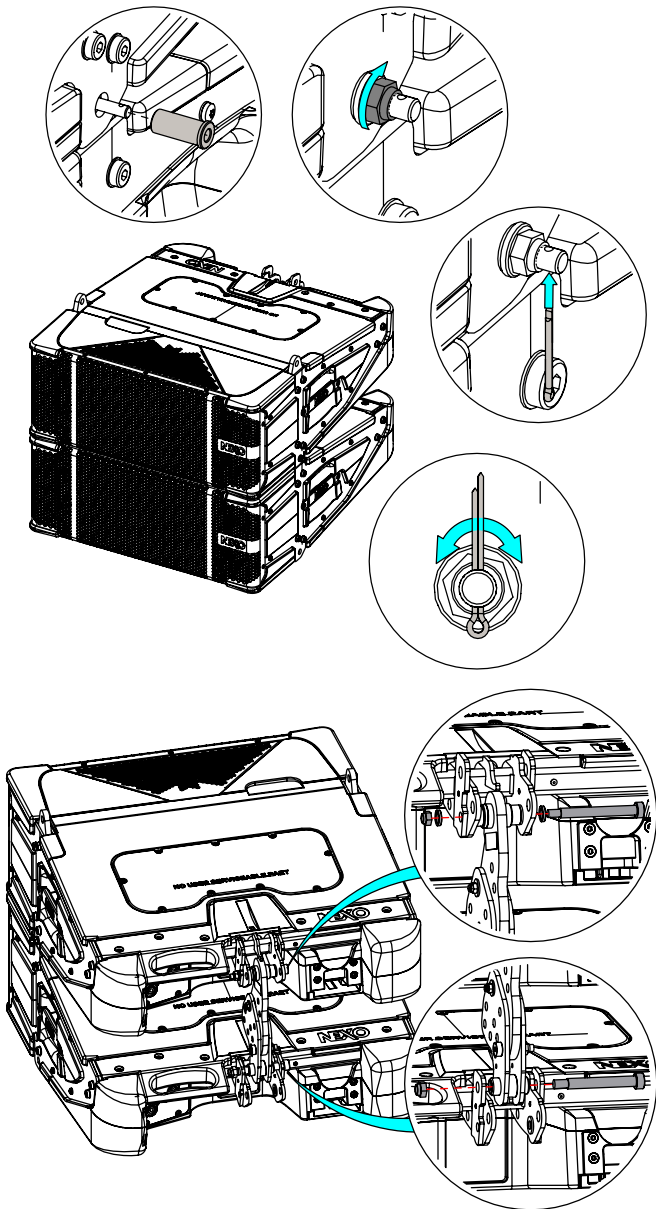
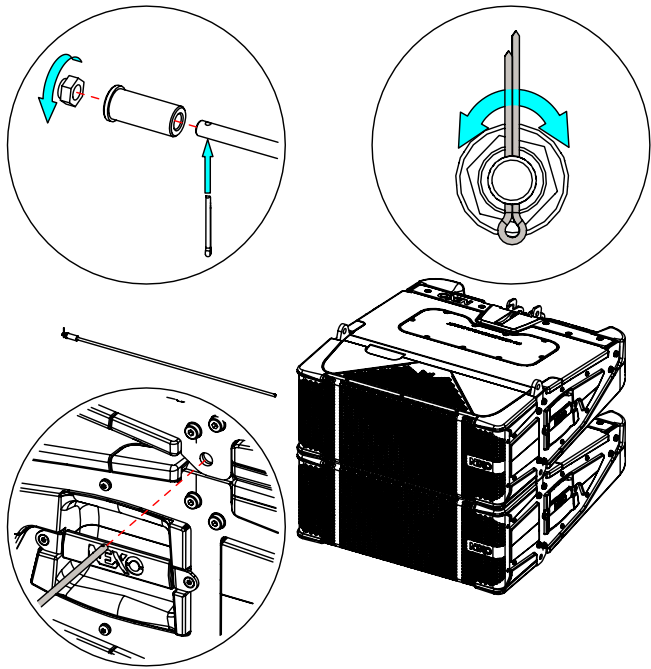
RIGGING ASSEMBLY

M28-I

To assemble the front rigging points, use the parts supplied with the M28-I

Assemble the parts on one side of the link bar.
Connect both cabinets by inserting the link bar through the front holes.

Place the sleeve, tighten the nut.
Place the safety pin by bending it legs



Place the Compass on the upper M28-I using the D10x80 screw, the spacer and lock with the M8 nut.
Attach the Compass to the bottom M28-I, using the D12x80 screw and secure with the M10 nut.

Adjust the appropriate angle by using D10x25, secure with nut M8							
0.2°	0.8°	2°	4°	8°	10°	12.5°	15°

ACCESSORIES

WARNINGS

All accessories are specifically rated in agreement with structural computations.

Never use other accessories when assembling M28 cabinets than the ones provided by NEXO: NEXO will decline responsibility if any component is purchased from different supplier.

PROHIBITED: M28 below M28 without dedicated accessory

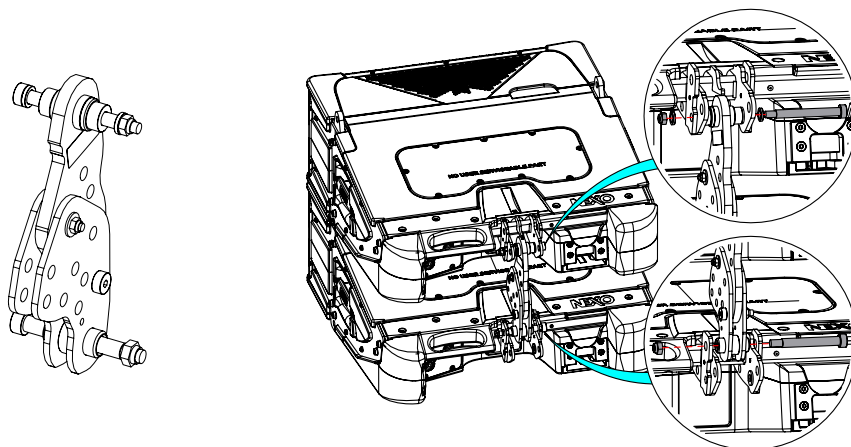
FLYING HARDWARE

STI-M28CMP

M28-I Rigging Compass.

Place the Compass on the upper M28-I using the D10x80 screw, the spacer and lock with the M8 nut. Then attach the Compass to the bottom M28-I, using the D12x80 screw and secure with the M10 nut.

Refer to the Product Data Sheet



STT-LBUMPM28

(9x M28 max)

Single bumper M28.

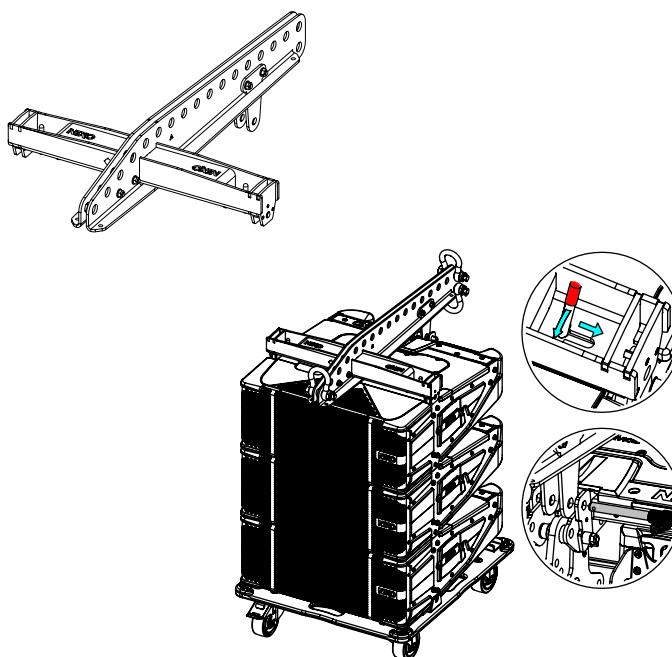
Insert LBUMPM28 into the 3 fixing points : 2 on the sides and one at the back of M28.

Lock the lateral springs pins inside the LBUMPM28.

Insert the quick release pin at the back.

Lift the assembly.

Refer to the Product Data Sheet



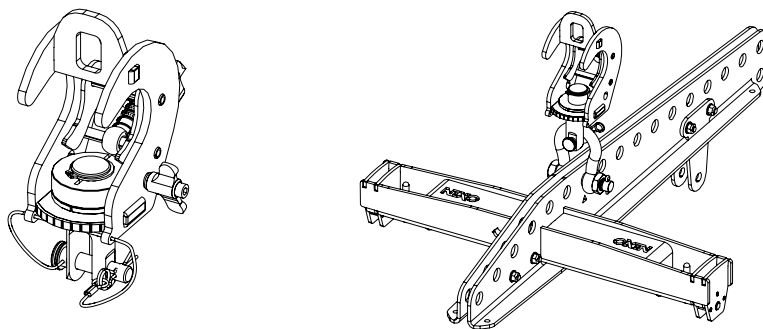
ACCESSORIES

VNT-TCBRK3551

With STT-LBUMPM28 (500kg max)

Rotary Truss Clamp.

Refer to the Product Data Sheet



STT-XBOW

(max 1700kg)

Limited to 18x M28

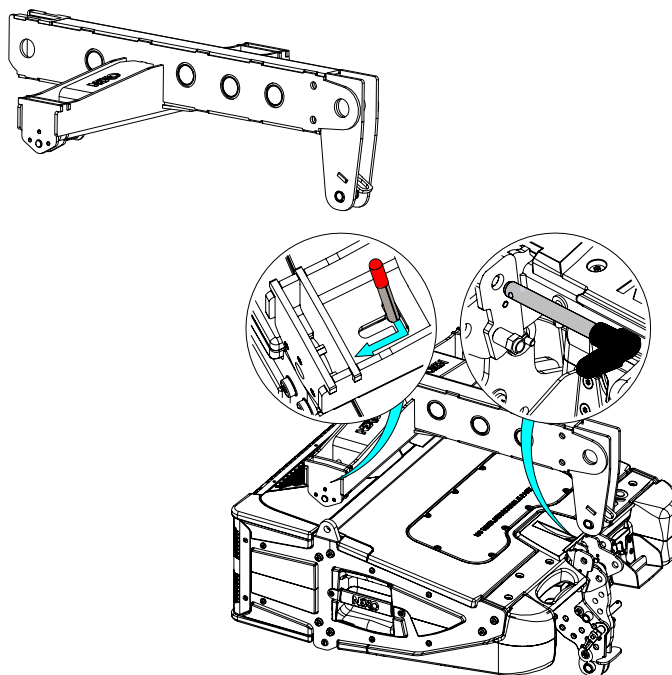
Single column top rigging.

Insert XBOW into the 3 fixing points: 2 on the sides and one at the back of the M28.

Lock the lateral spring pins located inside the XBOW to the front lateral holes of the M28.

Insert the quick release pin at the back, in the hole located at the back of the M28. (D10x80 + nut for M28-I).

Refer to the Product Data Sheet



STT-KBEAM

(max 1700kg)

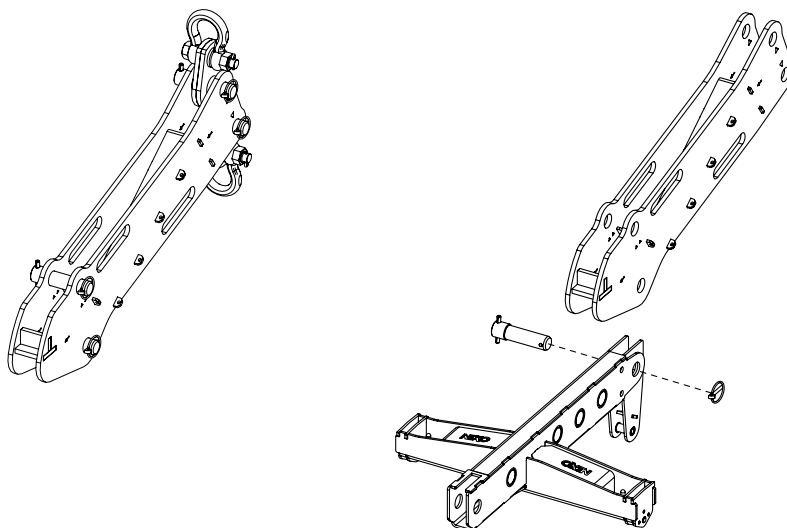
Limited to 18x M28

Kelping Beam

Place KBEAM on XBOW.

Insert the steel pin and insert the safety pin, rotate its ring to lock safety.

Refer to the Product Data Sheet



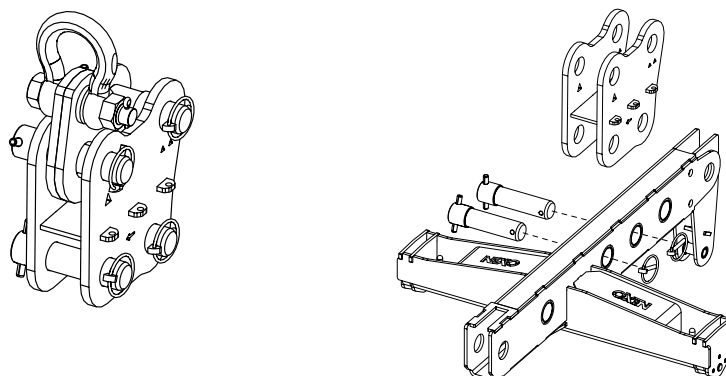
STT-MLINK**(max 1700kg)****Limited to 18x M28**

Center motor rig point

Place MLINK on XBOW.

Insert the steel pin and insert the safety pin, rotate its ring to lock safety.

Refer to the Product Data Sheet

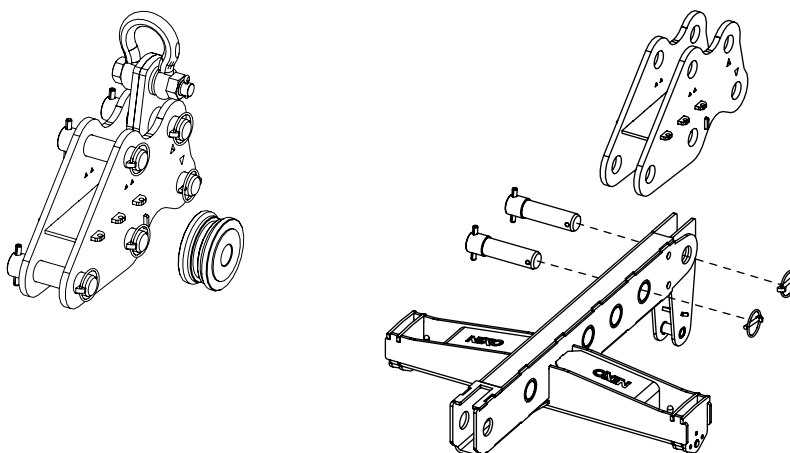
**STT-PTILT****(max 1700kg)****Limited to 18x M28**

Front/Rear motor rig point

Place PTILT on XBOW.

Insert the steel pin and insert the safety pin, rotate its ring to lock safety.

Refer to the Product Data Sheet

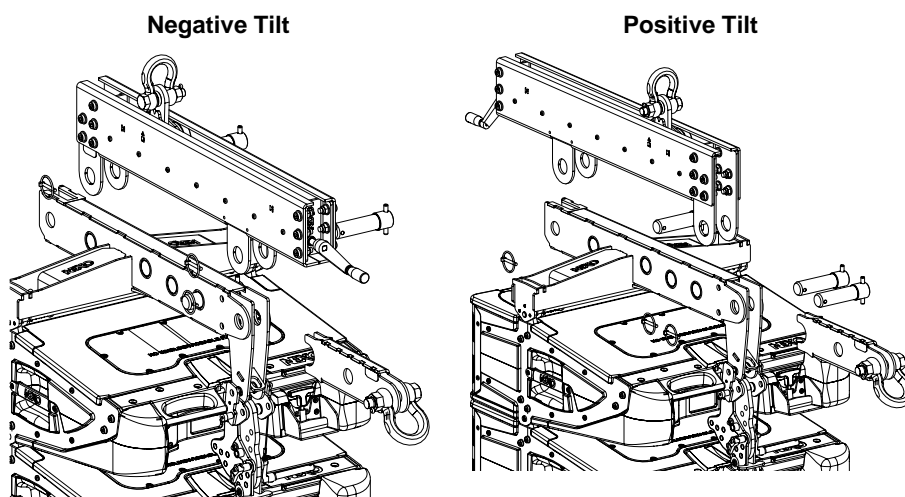
**STT-VBUMP****(12x M28 max)**

Tilt beam 1 rigging point

Place VBUMP on XBOW

Insert the steel pin and insert the safety pin, rotate its ring to lock safety.

Refer to the Product Data Sheet

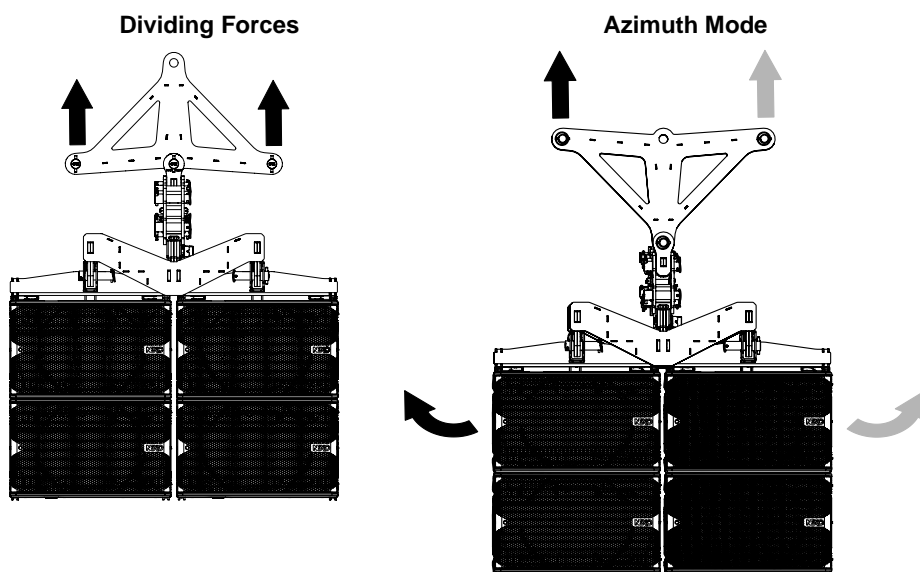


ACCESSORIES

STT-DPLATE

Delta plate for horizontal aiming

Refer to the Product Data Sheet



STT-BTBUMPER

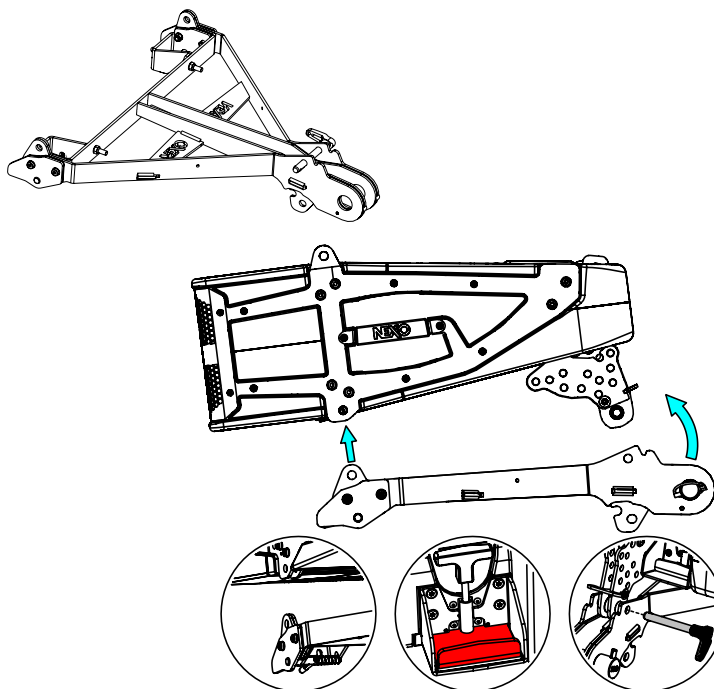
Single column bottom rigging

Align BTBUMPER to bottom cabinet side rigging slots and lock the BTBUMPER to bottom cabinet by pushing RedLock™. (use RIGAVFIX for M28-I)

M28:

Lock CompassRig™ to BTBUMPER connection point and insert the quick release pin.

Lift BTBUMPER so that it is adjacent to bottom cabinet and lock them with the quick release pin into BTBUMP hole.



Refer to the Product Data Sheet

GTT-BCCH / STT-BCCH3

Compression chain 2 Tons

Compression chain 3 Tons

Refer to the Product Data Sheet



VXT-BRIDLE23

2 Legs Chain Bridle, 3 Tons.

Refer to the Product Data Sheet

**VXT-LEVA750 / VXT-LEVA1500**

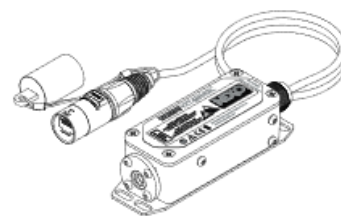
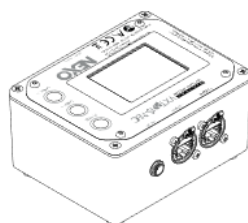
Chain Lever Hoist 750 kg

Chain Lever Hoist 1.5 Ton

Refer to the Product Data Sheet

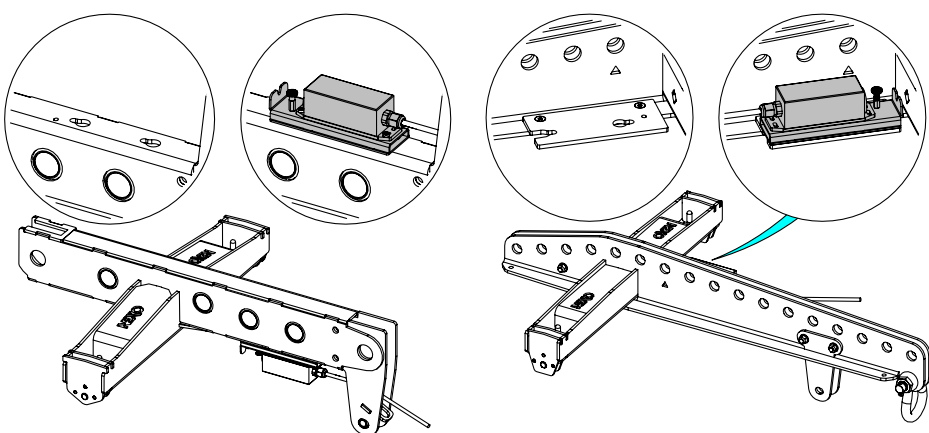
**VXT-LIS-REC**

Laser Inclinometer Set.



Insert the assembly, push forward until it locks.

Refer to the Product Data Sheet



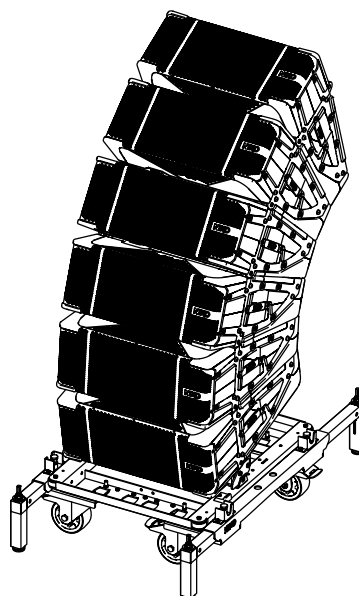
ACCESSORIES

STACKING

STT-GSTK

(9x M28 max)

Stabilizer for STM Dolly.

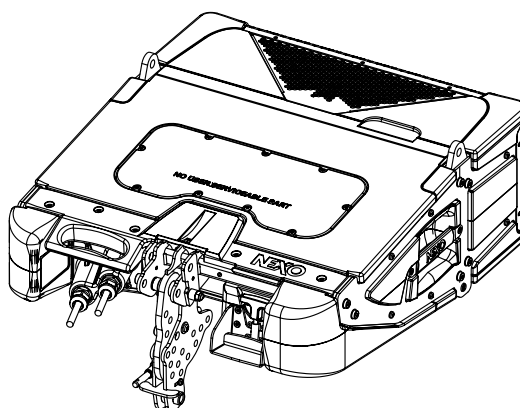


Refer to the Product Data Sheet

ACCESSORIES

STI-IPCOV28

Waterproof Housing for STM-M28.

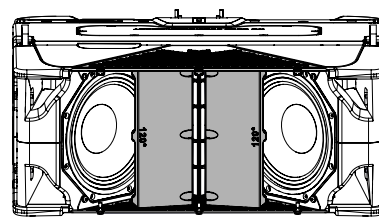
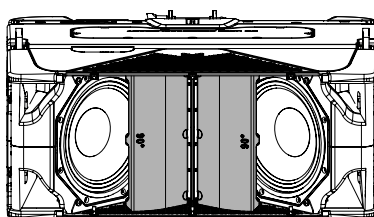


Refer to the Product Data Sheet

STT-FLG28090/28120

Flange 90° M28.

Flange 120° M28.

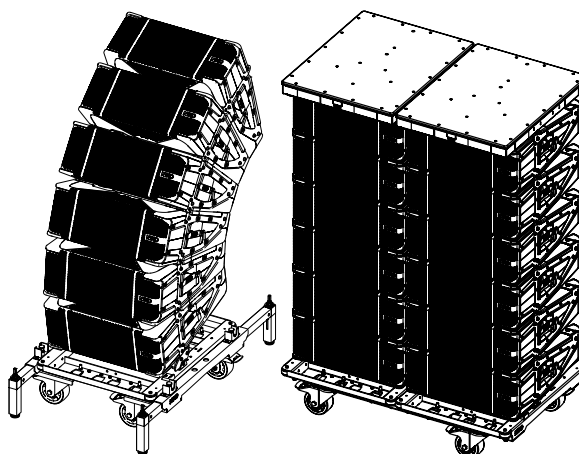


Refer to the Product Data Sheet

TRANSPORT ACCESSORIES**STT-DOLLY01/02**

Single Dolly with STT-GSTK

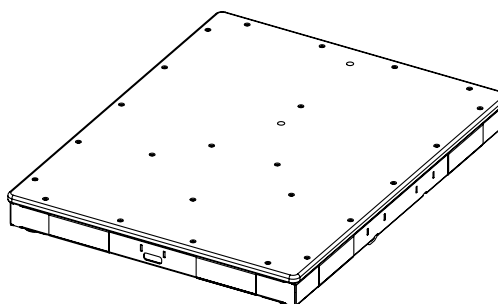
Double Dolly



Refer to the Product Data Sheet

STT-DROOF

Dolly roof



Refer to the Product Data Sheet

STT-DCOVER2812

Cover 2x 6M28 on Dolly02



Refer to the Product Data Sheet

ACCESSORIES

STT-DOLLYKIT28

M28 Adapter – Dolly STM

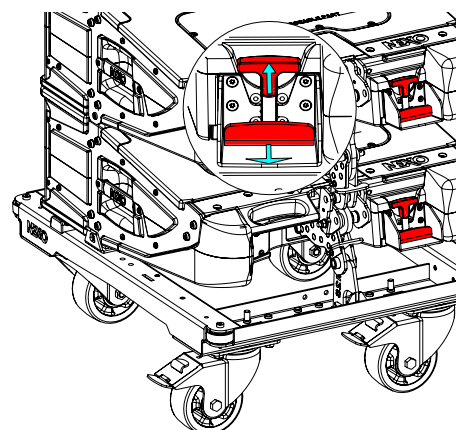
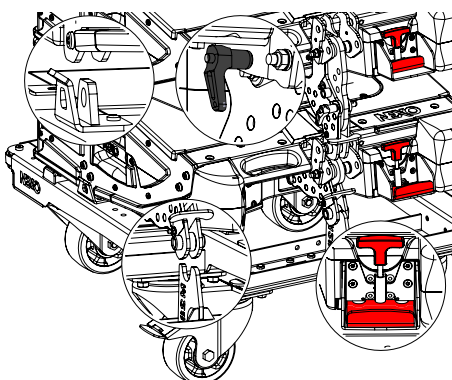
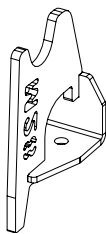
Lock the CompassRig™ before.

Use the back and side guides to position the cabinets .

Lock cabinet on the dolly with RedLock™.

Pull upwards the red latch and at the same time, pull the RedLock™ back to Unlock

Refer to the Product Data Sheet



STT-DOLLY28

Dolly 3x M28

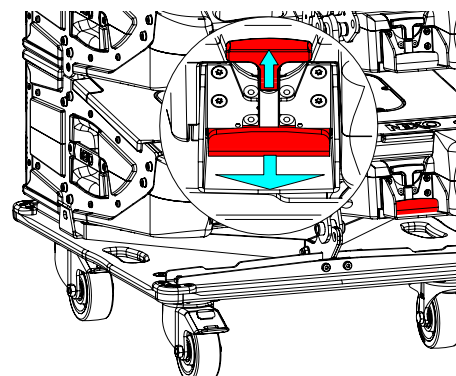
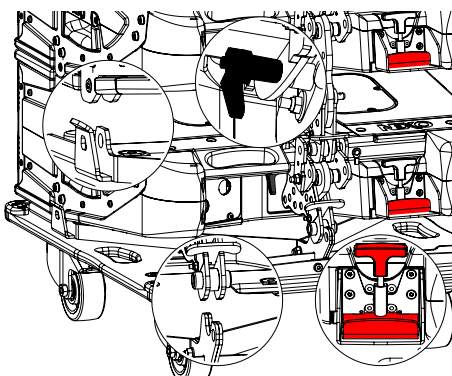
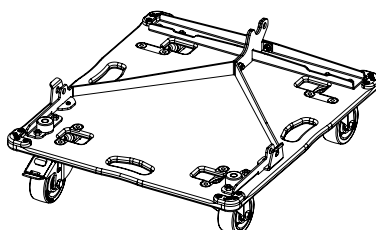
Lock the CompassRig™ before ('DOLLY' hole).

Use the back and side guides to position the cabinets .

Lock cabinet on the dolly with RedLock™.

Pull upwards the red latch and at the same time, pull the RedLock™ back to Unlock

Refer to the Product Data Sheet



STT-DCOVER283

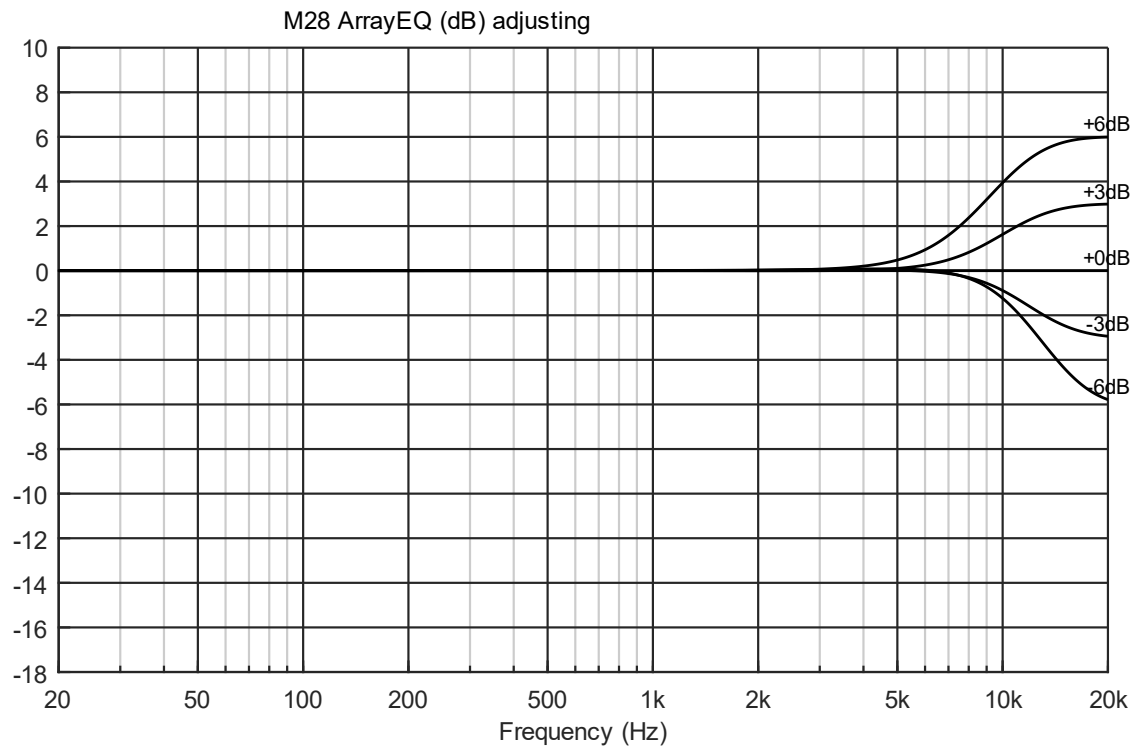
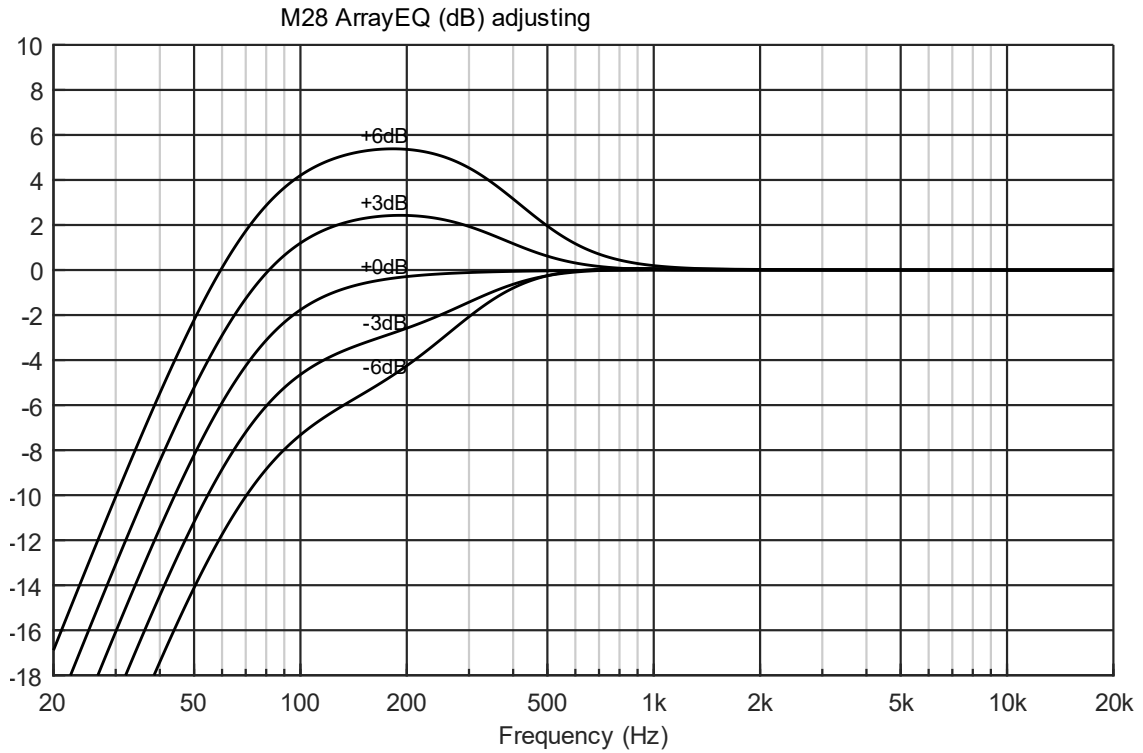
Cover 3x M28 on Dolly28

Refer to the Product Data Sheet



ARRAY EQ

The ArrayEQ allows to adjust the system frequency response in its lower range
(see curves below, with different ArrayEq values):

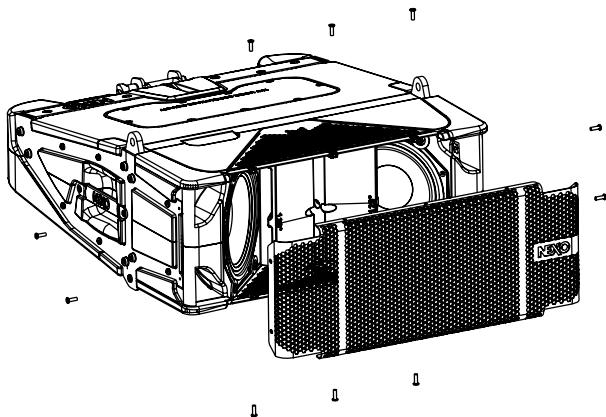


NOTE:

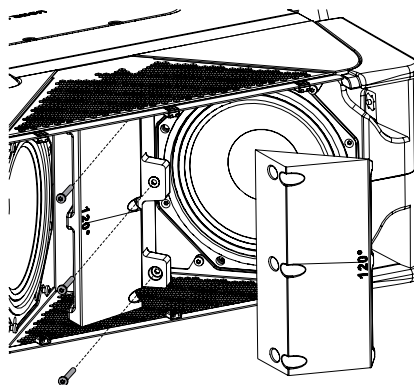
Speakers and Grills can be sent back to NEXO for recycling

Driver 8"access

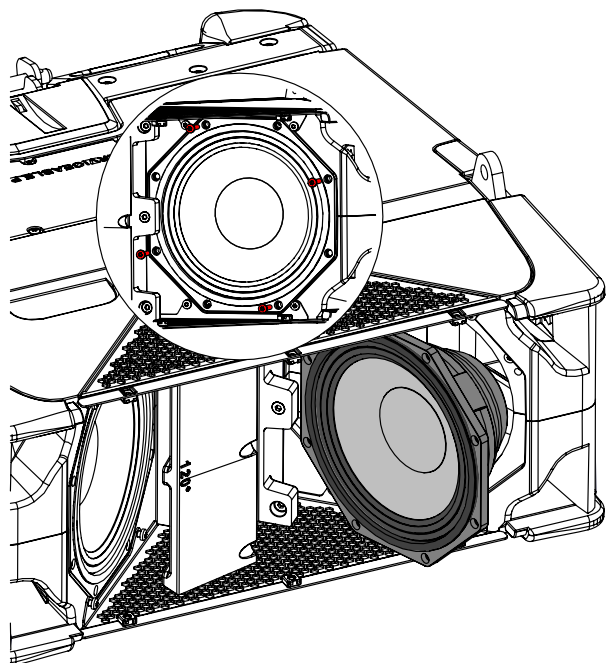
Remove the 10 screws (Torx10) and the front grid.



Unscrew the 3 screws (Torx25) to remove the flange.



Remove 8" driver (Torx25).

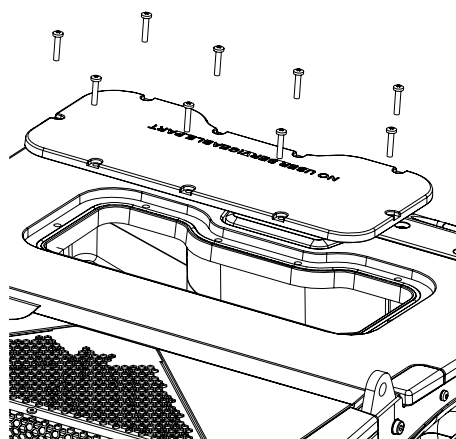


Reassembly.

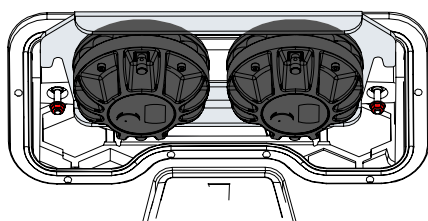
Positioning the 8" connector on the guide side.
Use the screws provided.
Replace the flange and the grid.

Driver HF access

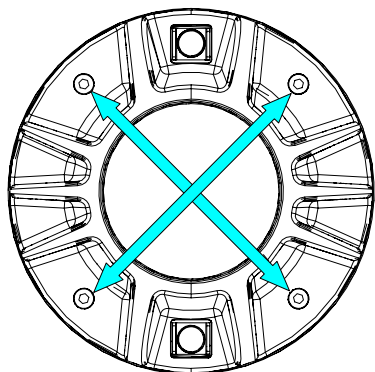
Remove the 9 screws (Torx25) and the cover .



Remove HF Assembly.



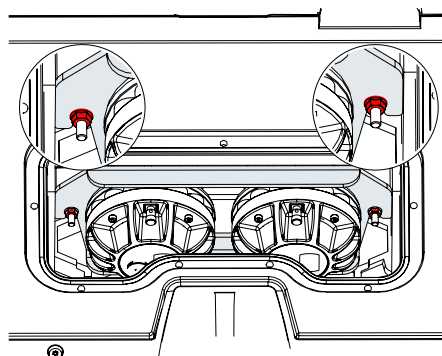
Unscrew 4 screws (Allen3), remove the cover and access to the diaphragm.



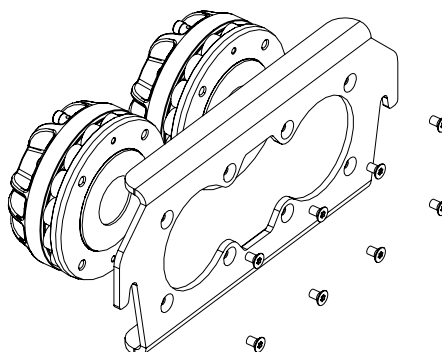
LF: red (+) / black (-)

HF: orange (+) / grey (-)

Unscrew the 2 nuts (don't remove them) and remove the plate.



Remove HF driver (Torx30).



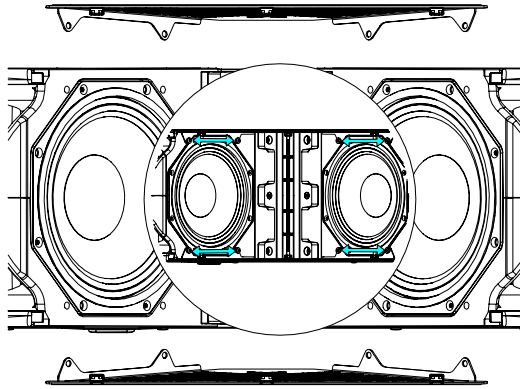
When you remove the diaphragm, pay attention there may be a spacer between the motor and the diaphragm.

Use the screws provided.

MAINTENANCE

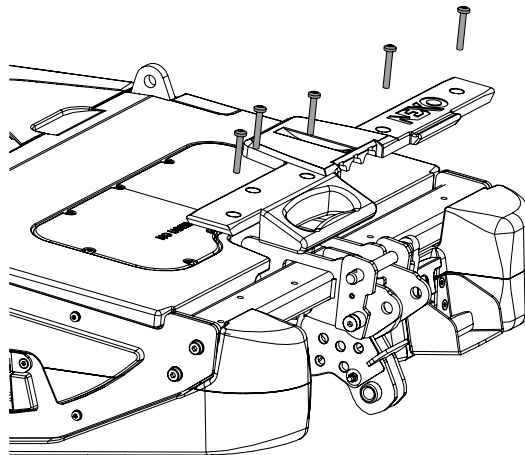
Delta Grid (to remove the front grid, see driver 8" access)

Remove the 4 screws (Torx25) and the delta grid.



Top cover / Handle

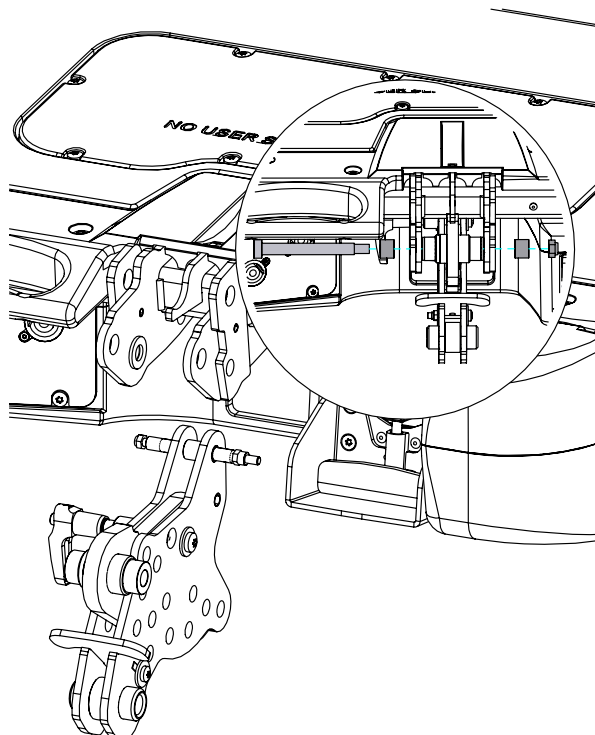
Remove the 5 screws and the cover. (Use the provided screws for the reassembly).



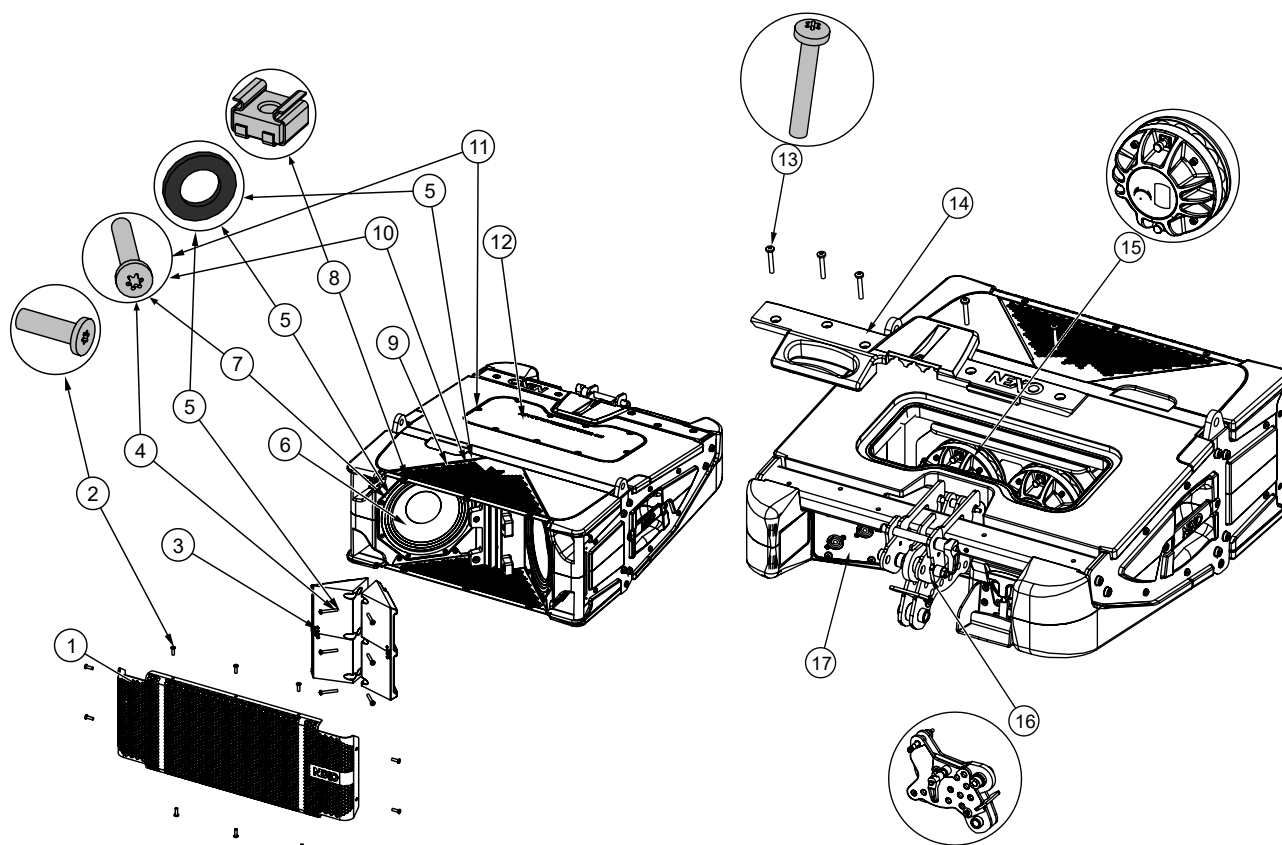
Compass

!! Once a year, clean the parts and blow compressed air.

Remove screw and nut. Dismounting downwards, pay attention with washers and spacers



Spare parts



MARK	QUANTITY	PART REFERENCE	DESIGNATION
1	1	05STM.M28AV-A	M28 FRONT GRILL COMPLETE
2	10	05VXTCPX516N	BLACK TORX SHORT HEAD SCREW 5X16 (x10)
3	1	05PFLANGEM28-120	M28 120 DEGREE FLANGE (x1)
	1	05PFLANGEM28-90	M28 90 DEGREE FLANGE (x1)
4	6	05VXTCBX535N-EL	BLACK TORX BUTTON HEAD SCREW 5X35. LOCTITE LIGHT (x10)
5	6+8+8	05VRA10ZN	BLACK WASHER 5X10 (x10)
6	2	05HPB8ND-HF	BASS DRIVER 8" 16OHM
	2	05N8HF-16R/K	RECON KIT FOR HPB8ND-HF
7	8	05VXTCBX525N-EM	BLACK TORX BUTTON HEAD SCREW 5X25. LOCTITE MEDIUM (x10)
8	6	05VECRCM5	CAGE NUT M5 (x10)
9	2	05STM.M28DLT-A	M28 DELTA GRILL
10	8	05VXTCBX530N-EM	BLACK TORX BUTTON HEAD SCREW 5X30. LOCTITE MEDIUM (x10)
11	9	05VXTCBX525N-EL	BLACK TORX BUTTON HEAD SCREW 5X25. LOCTITE LIGHT (x10)
12	1	05PM28TRAP	M28 COVER
13	5	05VXTCBX640N-EM	BLACK TORX BUTTON HEAD SCREW 6X40. LOCTITE MEDIUM (x10)
14	1	05PM28CATAR	M28 BACK HANDLE
15	2	05HPA14F-16	DRIVER 1.4" 16 OHM
	2	05NH14-F16R/K	HPA14F-16 DIAPHRAGM
16	1	05STM.M28-RGAR	M28 REAR RIGGING COMPLETE
		05STI-M28CMP	
17	1	05STM.M28-FPC	M28 PASSIVE FILTER

TECHNICAL SPECIFICATIONS

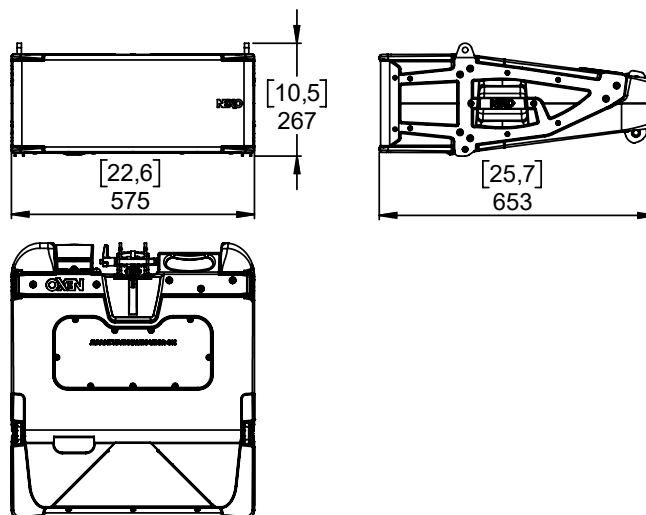
WITH NEXO ELECTRONICS

Model	M28 / M28-I
Frequency range (± 6 dB)	60 Hz – 20 kHz
Sensitivity 1W@1m	106 dB SPL Nominal (120° horizontal coverage) 107 dB SPL Nominal (90° horizontal coverage)
Peak SPL Level (1m)	140 dB Peak (120° horizontal coverage) 141 dB Peak (90° horizontal coverage)
Operating voltage	LF: 60 Vrms / HF: 20 Vrms
Vertical Dispersion	0 – 15°
Horizontal Dispersion:	90° or 120°
Crossover Frequency	60 Hz, 85 Hz, 120 Hz, 180 Hz
Nominal Impedance	LF : 8 Ohms – HF :8 Ohms

SPECIFICATIONS

Model	M28 / M28-I
Components	LF: 2x8" Neodymium high excursion 16 ohms HF Neodymium 2.5" Ketone Polymer diaphragm – 16 Ohms -
Material	PU Composite Low Density
Finish	Polyurethane water based black coating
Front finish	Perforated Dark Grey Metal Grille
Fittings	2x side handles 1x rear handle
Connector	2x NLT4-MDV SpeakON – 4 poles
Weight	37 kg / 82 lb
ID Classification	IP54 with STI-IPCOV28

Dimensions



USER NOTES

NEXO S.A.

Parc d'activité de la Dame Jeanne
F-60128 PLAILLY

Tel: +33 3 44 99 00 70

Fax: +33 3 44 99 00 30

E-mail: info@nexo.fr

nexo-sa.com

