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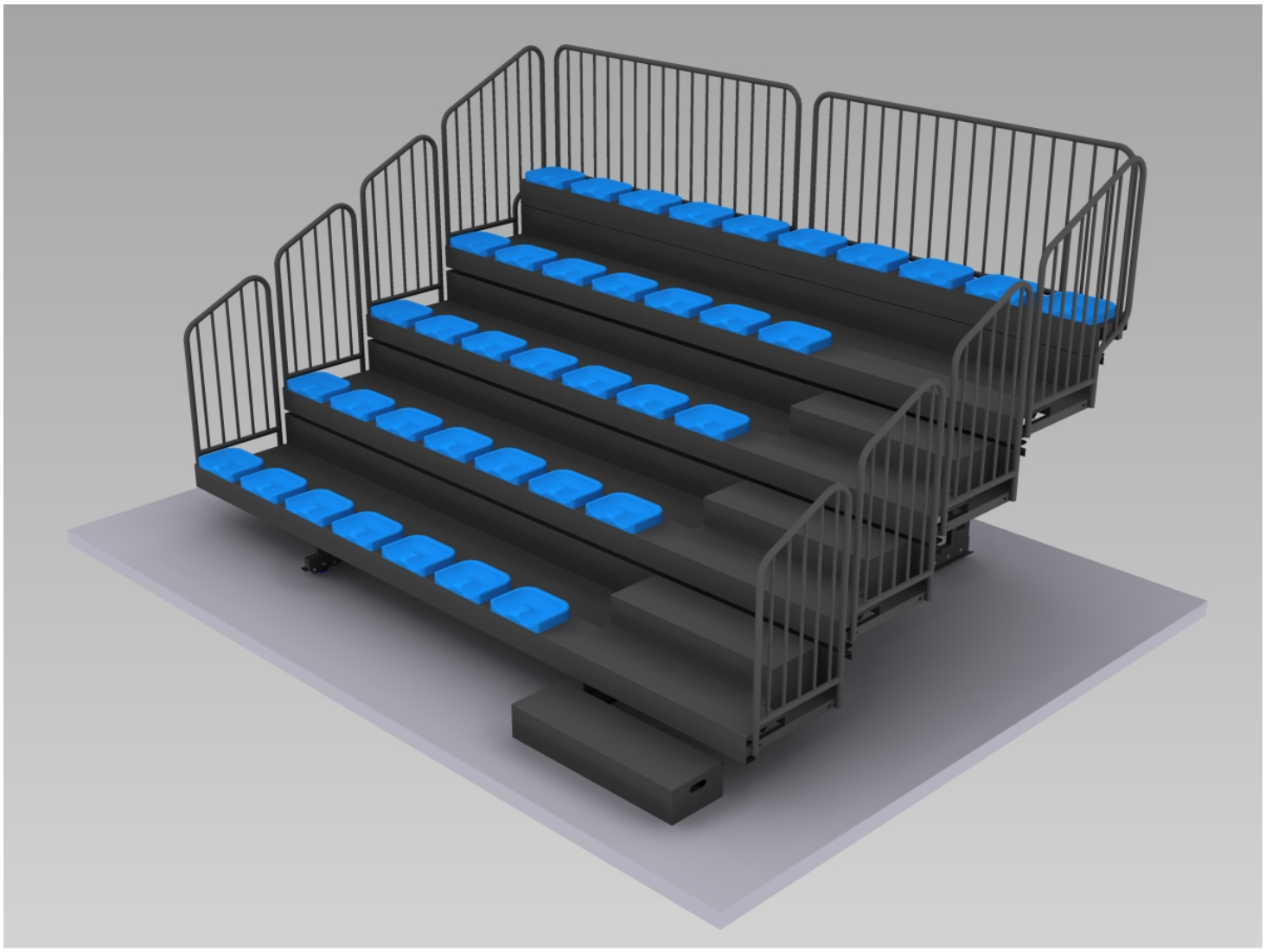
MONDO SPORT&FLOORING.

MONDO INDOOR TELESCOPIC TRIBUNES



DESCRIPTION

MONDO INDOOR TELESCOPIC TRIBUNES are designed and manufactured in accordance with the following regulations:

- EUROCODE 1: “Actions in structures”.
- EUROCODE 2: “Steel structures projects”.
- UNE-EN 13200, parts 1,3 & 6. “Spectators facilities. Requirements”.
- UNE EN 13200, part 5. “Spectators facilities. Telescopic tribunes”.
- Spanish (C.T.E.): “Technical building code”
- European Directive Machinery 2006/42/CE.
- European Directive Low Voltage 2006/95/CE.

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This product is mainly used in facilities to increase the seating capacity by placing a series of telescopic tribune modules in the place or space desired. When the tribune is not being used it can be folded and then it occupies very little room.

The MONDO indoor TELESCOPIC tribune is comprised of several modules, whose dimensions and finishes are in agreement with the needs, requirements and features of the place where it is going to be used and of the customer, always seeking the user's comfort and safety.

MONDO indoor TELESCOPIC tribune design is adapted to the dimensions available in the indoor hall, carrying out a graphic setting out where all the determining parameters are defined (fastening systems, step distribution, stand access areas, side and front handrails, access and seating spaces, etc.).

Each stretch of Telescopic Tribune, manufactured mainly in steel, is comprised of several modules, each one being comprised of telescopic independent metal structures or frames, which determine the different heights of the tribune. This system means that all the rows can be folded and removed quite easily, thanks to the existing guide system.

Each metal frame or structure is comprised of an independent platform placed on a support structure, which form each one of its heights or rows. Each frame slides onto the lower one, and so on, until the last one is reached, which is guided by a fixed rail and which acts as a stop for the unit, so its opening and closing processes are delimited.

There are a series of dismountable handrails, manufactured in circular section steel profile, which can be quickly fitted where necessary, and which protect spectators from possible falls and accidents.

Each module is comprised of the following major elements:

SUPPORT STRUCTURES

The support structure of each height is comprised of metal steel frames, St–37 (st = 2350Kg/cm2), manufactured in cold-formed plate by folding, providing the part with the necessary geometry to support the stress that it is going to have to support. It is also reinforced with resistant elements that prevent the possible dents, sagging and bulging effects of the part. This structure in turns acts as support for the passageway and for the seats. Structural steel profiles, St–37 (st = 2350 Kg/cm2), which act as support for the platforms and bracings thus making it indeformable faced with possible side avalanches of spectators, out of plane bulging of the pillars and other stresses produced by the load state.

PLATFORMS

Platform manufactured in cold-formed plate by folding St–37 (st = 2350 Kg / cm2). Each platform rests upon four rigidised vertical pillars (two belonging to its row and the other two to the row immediately below it), thus avoiding bulging effects in any direction. These are the elements that transmit the stress to the track through the 4 wheels that each pillar possesses. The platforms are screwed to the pillars

HANDRAILS

The tribune has a series of dismountable handrails at the ends and at the front, whenever necessary (if there is a front passageway), which are manufactured in circular section (40 mm. diameter) curved steel profile, reinforced with cross members that also limit the free spaces.
The handrails are 1 m. high for each passageway and they are designed without any sharp edges that might cause harm to the user due to knocks or in any other way.
The resistance of both the handrails and the supports that sustain these, has been analysed to satisfy regulatory requirements.

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GUIDE SYSTEMS

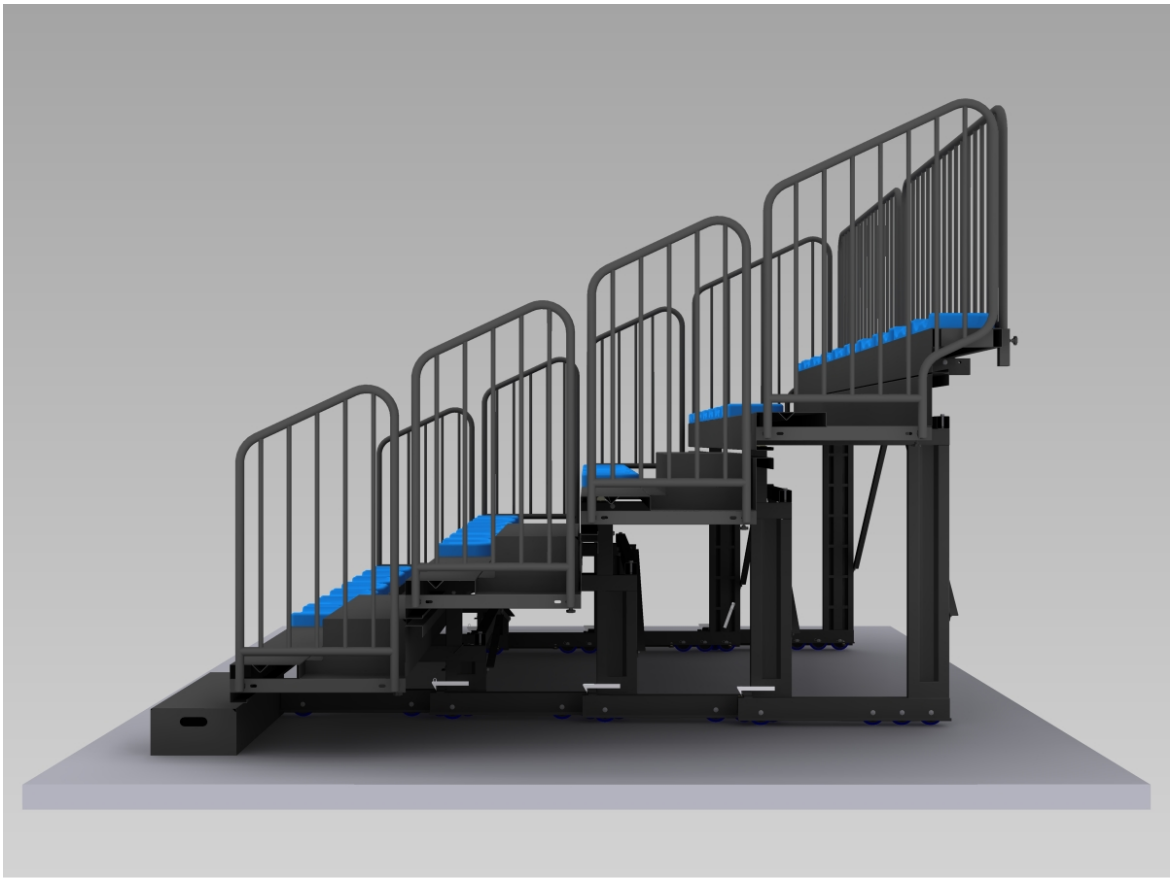
The support pillars of the frames have four bearings at the base, housed in a guide in the rail belonging to the next pillar. They are placed in such a way that one of them is always registered when the next one moves, thus maintaining at least two contact points. In order to favour this guide system even more, there is a fluted nylon wheel on the top of the pillars that registers in a profile fitted for this purpose in the passageway immediately above it. The whole perimeter of the lower bearings is covered with a P.V.C. layer, preventing the direct contact of metal surfaces, reducing friction and making it easier for them to slide.

RUNNING WHEELS

Each tribune level slides with the aid of eight 125 mm. Diameter and 45 mm. wide wheels, which evenly transmit the stress to the paving or floor of the place where the tribune is going to be used and make it easier to open.
These wheels are characterised because they are made with a blue-coloured, premium quality elastic (70 Shore A) rubber band, vulcanized on a nylon core, which provides:

- Greater load capacity (160 Kg/wheel) and longer-lasting bands.
- Greater elasticity and smoother movement. Less resistance to movement Greater wear and damage resistance Easier to move on cracked or regular surfaces.

On the other hand, the wheel shaft rests on needle rollers, which reduce friction and make movement easier (static friction coefficient m = 0.003).
These steel rollers are inserted into a nylon cage, reducing resistance to starting and to running, thus increasing the life of the wheels. They do not require continued lubrication.



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MATERIALS USED

- Steel elements

All the elements that make up the telescopic tribune structure are made of steel for structures St-37b. This type of steel is mainly applied in building structures. It presents no difficulty for welding.

- Screwed joints

All the screws and self-locking nuts (DIN 985) are quality 5.6, each of the screwed joints being protected with washers. All the elements are hot zinc-plated to protect against corrosion.

SAFETY SYSTEMS

The telescopic tribune has been equipped with safety devices in order to guarantee the safety of both workers and spectators against possible risks. There are some mechanical safety systems (such as side handrails) but also some electrical safety systems if the operations are motorised.

DESIGN OPTIONS

MONDO telescopic tribune is a customised product, adapted not only to the available space but also to the customer's needs. Therefore, in order for our technical office to study each tribune, drawings and plans of the indoor hall should be provided to MONDO.

In addition, the customer MUST choose from the following design options:

- Type of seat from and colour choice among the different MONDO compatible models: MONDOSEAT 1. MONDOSEAT 2, MONDOSEAT 4, MONDOSEAT 5, AUTOMATIC MODEL, VENELLI MODELS.
- Passageway options: rear and/or front passageway. Depending on the choice there will be be front and/or rear handrails (apart from the lateral ones).
- Access situation for every module (number and dimensions of the stairs).
- Type of non-slip coating for access areas and passageways: Steel painted structure colour choice (among the standard range) or use of any rubber-PVC MONDO floorings.
- Operation options: manual or motorised. If motorised, electrical installation must be carried out.
- Final dimensions of every single module (depending on available space):
    - Number of rows for every module.
    - Number of spectatos in each row.
    - Number or final spectators.
- Lateral canvas and colour of them, to be used only when the tribune is unfolded.
- Front cover and material of it (when first row is elevated).

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- Media and press Area (with tables and connections).
- Special areas such as VIP Area or handiccaped Area.
- Numbering scheme of the seats
- Emergency lights in the stairs.
- Legal requirements to be considered in the final design (this feature depends on the country where it is going to be used. Some regulations are more strict than others).