



Building Sports

In order to constantly improve the quality of our products, Euronix reserves the right to modify any of the technical characteristics.

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- **DESCRIPTION.**

The **automatic pick-up dividing curtains** developed by **EURONIX S.L.** are created, designed, and manufactured with the objective of divide locals or rooms with great dimensions (sports halls courts, multiuse rooms...) in different places or zones in a quick, simple, and effective way in function of the needs.

On this way, it is allowed to do one or more independent activities without interferences simultaneously in a same enclosure

Moreover, the product is fit to the user, so there are the advantages of a low cost with a minimum maintenance and a quick and easy handling.

- **DESIGN.**

Because of it is a product very solicited and so used in installations (sportive mainly), its design has been developed according four initial guide points that **EURONIX S.L** **ALWAYS TAKE INTO ACCOUNT** when any product is developed, and are:

- Architectural integration in the construction causing the least possible visual impact.
- Fast, simple, and efficient operation and operation
- Minimal maintenance and the lowest cost possible.
- Users safety.

Broadly speaking, these dividing curtains are composed of:

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- **Load-Bearing structure.**

It is specifically designed for each installation. Manufactured with **S-272-JR** and **S-235-JR** rolled profiles and steel plates depending on the function they done, fulfilling the **CTE-DB-SE-A** for the unions.

It is fastened to the building structure in the best possible form depending on the position and the situation which the curtain is going to be installed respect to it.

Over this structure, there will be positioned the different mechanism and elements (bearing, engine, fixation bar...) that compose the dividing curtain.

- **Engine assembly.**

It will be fastened to the load-bearing structure and is the element that produces the necessary rotatory movement to rise or lower the curtain according to the direction of rotation.

It is horizontal positioned in the middle of the curtain because of it is the most favorable transmission point and adequate for the symmetrical distribution of the loads and efforts.

It has the necessary external elements and mechanisms (engine limit switch, detectors...) to regulate the height of the curtain and also some safety additional systems.

- **Drive shaft.**

It will be as long as the curtain.

Manufactured in a 60 mm diameter, and 3 mm thickness hollow profile.

It is the element joined to the engine with an edge system with side keyways at both sides that winds or unrolls the binding tape that rises or lowers the curtain.

- **Curtain.**

It is the dividing element itself.

It could be **Tarpaulin (PVC)**, **Net (Nylon) with (100x100) mm mesh** or a **mixed combination**. It has a hidden bar located on the bottom part that acts as a counterweight and gives it the necessary rigidity and avoids from producing wrinkles. It also acts as a fixation point for the drive shaft ribbons for producing the movement of the curtain.

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- **OPERATION.**

- a) **The person in charge of the installation**, from the control panel or by the remote control will operate the device that orders the start of the gearmotor (that produces the rise or the lower of the curtain).
- b) **The gearmotor** located in the center of the curtain will be set in motion directly transmitting the rotation to the drive shaft connected to the engine on both sides.

The drive shaft is divided in sections that will not be longer than 3 meters to facilitate the assembly and achieve a uniform distribution of the loads and the efforts that are transmitted to the own building structure. The ends of each section rest on a radial ball bearing SELF-TUBE type that facilitates the rotation of the whole group, avoiding non desired frictions. Each section of the drive shaft is joined to the next by a connection type shaft and bore with keyway, which results in a synchronized turning of all of them.

- c) **Ribbons** that shall be fixed on one side to a series of guide reels arranged along the drive shaft and on the other to the inferior bar of the curtain and will make possible the movement depending on the rotation direction of the drive shaft.

These vertical ribbons are passed from a side to the other of the curtain through a PVC holes or eyelets existing in the tarpaulin that coincide with the vertical line of the ribbons, separated meter by meter for obtain 0,5 meters folds. On this way, a two-sided fold is obtained, and the folds are formed centered with respect to the vertical axis of collection distributed symmetrically on both sides of it. Once the tarpaulin is folded, it must not prevent the free 7 meters height that the court requires.

- d) The folds are facilitated due to the disposition of some metallic rods with sufficient length on the side edges of the tarpaulin, embedded or hidden in the tarpaulin itself and vertically distributed to the estimated folding distance (0,5 m).

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- **ADDITIONAL INFORMATION.**

- **Gearmotor.**

It is mounted inside a gray cast iron housing finished in blue epoxy-polyester paint.

It consists of a constantly lubricated bronze helical gear, thus achieving high mechanical performance and a low noise level in which the angle of the propeller is so large that for the crown make a complete turn, the cemented and tempered steel screw must revolve a lot.

The gear is three-phase **3x230/400, 50 Hz**, with a minimum protection rating of **IP-45** and power of **0,75 Kw**.

The set has a **reduction ratio of 100**, and a shaft output speed of **14 revolutions per minute**.

The following table shows the characteristics of the engine:

| Concept | Value |
|-----------------------|-----------|
| Power | 0,75 KW |
| Output speed | 14 r.p.m. |
| Torque | 307Nw m |
| Service factor (f.s.) | 0,90 |
| Redution ratio | 100 |
| Load | 7306 Nw |
| General dimensions: | |
| Lenght | 562,2 mm |
| Height | 302,5 mm |
| Width | 200 mm |

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- **Electrobrake (when necessary).**

To ensure the irreversibility of the engine, it will be disposed on the gearmotor an electrobrake, with a strong construction, able to resist the solicitations and efforts on the braking, in other words, the curtain weight.

It is based on a disc electromagnetic brake powered with three-phase electric current. It has the possibility of separate the power supply of the brake and the engine with the simple direct connection to a line disposed for that purpose. The high braking moment suffered, can be regulated by acting on the tension springs.

- **Bearings.**

They are characterized by supporting large radial loads in addition to being watertight and pre-greased.

- **Guide Reel.**

Made of turned Steel and arranged along the drive shaft. Solidarity to this in the rotation movement and there will be placed as many as ribbons exist.

The maximum separation between them is 2 meters.

Each of them disposes of lateral lips of sufficient diameter, that facilitates the rolling of the ribbons around it to avoid mismatches, grips... However, an additional tilting guidance system complements de guidance, leading every moment the ribbon on its vertical path.

The ribbon is fixed to this guide reel through a screw introduced in a buttonhole made on one of the edges of the ribbon.

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- **Ribbon.**

Are like the seat belts used in the automotive industry, **manufactured in polyester fiber (PES)**, characterized for keep their properties in whatever environment and circumstance, ensuring a great longevity, friction resistance, heat, sunlight... Also is a soft and brilliant material.

| CHARACTERISTICS OF THE RIBBON | |
|---------------------------------------|---------------------|
| Concept | Value |
| Union | Sarga 2/2 |
| Plotted | 6pass/cm $\pm 0,5$ |
| Wide | 24mm $\pm 0,1$ |
| Thickness | 1,2mm $\pm 0,1$ |
| Weight | 28,3gr/ml $\pm 5\%$ |
| Breaking strength | 1200 kgf |
| Finish | Tinted. |
| CHARACTERISTICS OF THE FIBER (RIBBON) | |
| Concept | Value |
| Warp | 100% Polyester |
| Plotted | 100% Polyester |
| Retention | 100% Polyester |

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- **Tarpaulin.**

It will be supplied by a certified company according to the **UNE EN ISO 9001:2008**.

Manufactured in a polyester textile (**PES**) coated with a PVC film on both sides.

In addition to the mentioned, counts with great resistance to the action of acids, alkalis and oxidizing or reducing agents.

As it is made by thermoplastic polyester, the dimensions are set in the finishing operations (heat-setting) such that the reached temperature to be inferior to **220°C**.

Finally note that it is a poor conductor of electricity and has low moisture absorbency.

CHARACTERISTICS OF THE TEXTILE (CURTAIN)

| Concept | Value | Regulation |
|--------------|---------------------------------|-------------------|
| Weight | 620g/m2 | UNE-EN ISO 2286-2 |
| Adhesiveness | 4,9 daN/3 cm | UNE-EN ISO 2411 |
| Tear/UT | 25/20 daN/5 cm | UNE-EN ISO 4674 |
| Rupture/UT | 254/243 daN/5 cm | UNE-EN ISO 1421 |
| Fireproofing | M2 | UNE 23727 |
| Treatment | Low Capillarity (System Lowick) | ----- |
| Lacquered | Both sides/Finition Clangard. | ----- |

The unions of the different elements that make up the tarpaulin such as: sizes, pods, reinforcements...) are made by high frequency welds (**HF=60KW**), laser-guided with siliconized electrodes for a perfect finish.

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The non-toxic PVC film that covers the tarpaulin both-sides provides a series of additional characteristics to the product that complements the above described:

- Resistant to fungus, bacteria, insects, and fungi rodents.
- Resistant to most chemical reagents.
- Good thermal, electrical and acoustic insulation.
- Solid and resistant to impacts and shocks.
- Waterproof to gases and liquids.
- Weatherproof (sun, rain, wind, and sea air).
- Durable; with a useful life in constructions, it is more than 50 years.
- It does not spread flames: it is self-extinguishing.
- Versatile and environmentally correct.
- Recyclable and recycled.
- Manufactured with low energy consumption.

- **Counterweight bar.**

Apart of the mentioned in the previous sections, highlight that due the position where the curtain is when it is lowered (on the ground), it is covered with a self-extinguishing **non-cross-linked polyethylene shell (PNR)** with **35kg/m³** density, that prevents injuries, when possible, contacts or direct impacts of the user with said bar occur.

- **Micro automaton.**

The stop command in the process of rising and lowering is done by a control unit based on a programable pulse counting Micro automaton equipped with a display for setting up and regulation of the equipment in the installation itself. in essence, it counts or discounts according to the rise or fall of the curtain.

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- **Net.**

Manufactured according to the European regulations **EN** in 3 millimeters diameter braided nylon thread (**Polyamide, PA**) on a grid or mesh (100x100) disposition with knots.

The entire perimeter is covered by a sling or a 8mm diameter cord, mechanically sewn to the net using 3 polyester wires (PES) of the highest quality and resistant to abrasion and friction.

In manufacturing, the pucker of the net is also considered by introducing the assembly coefficient, since, if it is not considered, it produces unwanted deformations and stretches.

All the thread that configures the net (nylon thread and polyester perimeter cord) is dyed in GRAY, to avoid the glare of large nets in white.

As a summary of the material: Nylon fiber is synthetic, recommended when maximum strength is required with the minimum diameter. Recyclable, it is not affected by acids or alkalis, it is very elastic and soft and flexible touch. It has good abrasion resistance and low water absorption (0.05%, is one of the lowest factors of all fibers).

| CHARACTERISTICS OF THE NET | |
|----------------------------|-------------------------|
| Concept | Value |
| Nylon specific weight | 1,14gr/cm3 |
| Elasticity | 48% |
| Fireproof | M3 (self-extinguishing) |
| Structural stability | |
| Bottom limit | -80°C |
| Upper limit | +250°C |
| Braided thread | |
| 2,3mm diameter | 138Kgf |
| 3,0mm diameter | 220Kgf |

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- **Control box.**

It will be facilitated, and it is the element through the rising and lowering operations are controlled. Is in the installation itself, where the properly place is determined for its collocation in accordance with the property.

Is a cupboard, usually metallic painted in RAL 7032 with epoxy-polyester paint and with a level of protection IP-66, equipped with key lock, and, where inside are arranged all the mechanisms and elements of magnetothermal and differential protection (modular switchgear) of the gearmotors of the dividing curtain, as well as the micro.

Depending on the number of motors in the installation, the number of necessary elements will be placed inside, and this will determine the envelope (size and characteristics of the frame) most appropriate in each case.

On the outside of this panel are the luminous buttons or drives that command the rising, lowering and stopping operations of each curtain. There is a fault signaling pilot mounted on the front of the box.

The emergency stop, quick to operate, is made by a "mushroom" button with interlocking.

- **Safety limit switch.**

In case of exist any fail or malfunction of the dividing curtain stop system in the rising process, it is disposed a safety limit switch or position switch with angular movement head that orders the gear motor electric supply cut off in case of the curtain exceeds the maximum collection height, avoiding the deformations and efforts in the equipment that would occur and that would harm the installation.

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- **FINISHES / MATERIAL PROPERTIES.**

- **Surface finish of metal elements.**

The load-bearing structure, the drive shaft, the supports, and other metallic pieces part of the dividing curtain are subjected to a coating with epoxy-polyester paint, in thermosetting powder formulated with polyester resins. This finish gives these elements a food resistance against corrosion and ultraviolet rays, besides being very resistant to mechanical impacts.

Before applying this coating, all the elements are subjected to degreasing, to eliminate impurities and minerals (grease, dust, oxide, etc.) that may exist on its surface.

This treatment ensures the adhesion and duration of the paint.

Once the powder coating is electrostatically applied to the surface of the material, the pieces are heated to an oven where they are heated to a temperature of 180°C-200°C, in which polymerization takes place.

This type of finish based on epoxy-polyester paint ensures the following minimum values:

| CHARACTERISTICS OF THE EPOXI-POLYESTER FINISH | | |
|---|-----------------------------|-------------|
| Concept | Value | Regulation |
| Adherence | GT0 | ISO 2409 |
| Pencil hardness | 2H-3H | ASTM D 3363 |
| Forming process Erichsen | 7mms (brillantes y semina.) | ISO 1520 |
| Conical mandrel | Correct | ISO 1519 |
| Presoz hardness | 280 seconds | ISO 1522 |
| Direct impact | 700 mms | ISO 6272 |
| Chemical reistance | excelent | ----- |
| Saline fog | 500 hours | |
| Water immersion | 500 hours | |
| Humidity chamber | 1000 hours | |

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- **Hot zinc.**

All the fasteners (screws, washers, nuts, pins...) necessary for the assembly of the dividing curtain in the installation itself are subjected to a hot zinc treatment.

This is a type of coating that provides a ± 2 micro thick zinc film on the surface of the material on which a layer of basic carbonate will subsequently be formed, which, when subjected to normal environmental conditions, serves as protection against corrosion.

This process is carried out in accordance with the Spanish Regulations U.N.E.

- **Plastic caps.**

All the tubes (no matter if they are circular, square or rectangular) regardless of its thickness that are part of the curtain and have any free end, will be protected with an inner adjusting plastic cap. They are fluted and have fins on their surface that adjust in the inner contour of the tube preventing them from coming out.

- **PVC Eyelets.**

There are the hollows where the ribbon passes, on this way as there are no sharp edges, the durability is considerably increased due to the non-existing friction with metallic pieces, and it needs lower maintenance.

The type of welding (high frequency) with which they are fixed is only applied to polar type plastic materials (PU, PVC, PET, EVA, ABS, TPO...). It consists of subjecting the plastic materials to be joined to a high frequency field, producing the heating of the bonding zone to the melting temperature, and pressing at the same time. Plastics melt inside, but remain cold on the outside, so it is recommended to keep the pressure for a few moments.

This allows us to apply a high-power density to the welds, achieving very short welding times of between 1 and 5 seconds.

With this system, hermetic (gas, liquid, paste) and flexible (no loss of plasticizers) welds are achieved, with excellent appearance.

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○ **Structural profiles and elements.**

The profiles used (round, square, rectangular tubes) in the construction of downspouts, supports, drive shafts... is made of different qualities rolled steel depending on their function.

- S-235-JR for the different comercial profiles, which don't present any difficult to be welded.
- S-275-JR for all cold conformed sheet metal elements.

The plates such as used as mounting plates, brackets, etc... in steel S-275-JR.

Turned elements like bushings, shafts, transmissions, etc... in F-111 and F-114, depending on whether the element will be welded to another piece later or not.

Fixation elements mainly screwed joints), screws and nuts of minimum quality 8.8 shall be provided. All the nuts used are self-locking (DIN 985) protecting each of the bolted joints with their corresponding washers.

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- **SUMMARY AND IMPROVEMENTS WITH ANOTHER DIVIDING CURTAINS OF THE MARKET.**
- Fully automatic operation of the display by means of an **intelligent micro-automat** controller
 - Capable of learning automatic operation and will indicate any kind of problem, pointing it out on your LCD screen.
- **Lifting bands** made of polyester with a **width of 40 mm.**
 - Increased tensile strength and durability.
- **Holes in the canvas** adhered to the canvas by means of a high frequency welding. They are **not metallic.**
 - Decreases friction with the drive belt, upgrading the service life.
- **Non-cross-linked polyethylene foam coating** on the underside of the screens.
 - Dampers possible accidental hits by people in the vicinity of the screen.
- **Signaling the movement of the curtains**, by means of an acoustic-luminous signal
 - Warns when the curtain up or down in the installation
- **Emergency limit switch.**
 - Cut motor power to prevent the curtain from rising to a dangerous height
- **Driveshafts** distributed in sections not exceeding 3 m.
 - Composed of 60 mm diameter steel tube. and thickness 3 mm.
 - Assembled through F-111 turned steel bushes
 - Vertical plates attached to the structure that prevent the axes from falling to the ground.
- Quality zinc plated screws, self-locking nuts or brake nuts **8.8 quality.**
- **CE marking** in all our divisions, internally self-assessed according to current legislation.
 - We endow all of them with a declaration of conformity and technical file kept during a period of not less than 10 years, in our facilities.

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- **DOCUMENTS FOR THE USER.**

1. Certificate of guarantee and receipt of the installation.

2. Instruction manual:

- Mechanical installation and assembly of the dividing curtain
- Installation and electrical assembly of the dividing curtain.
- Start-up.
- Maintenance.
- Electric diagram.
- Connection manual.
- Technical certificates of the materials used.



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