



FICHE TECHNIQUE AIRPORT \

STRAIGHT CONVEYOR UNITS AND RIGHT-ANGLE TRANSFER

In general, conveyor units injecting luggage on downstream conveyor units, positioned at 90°, operate in two ways:

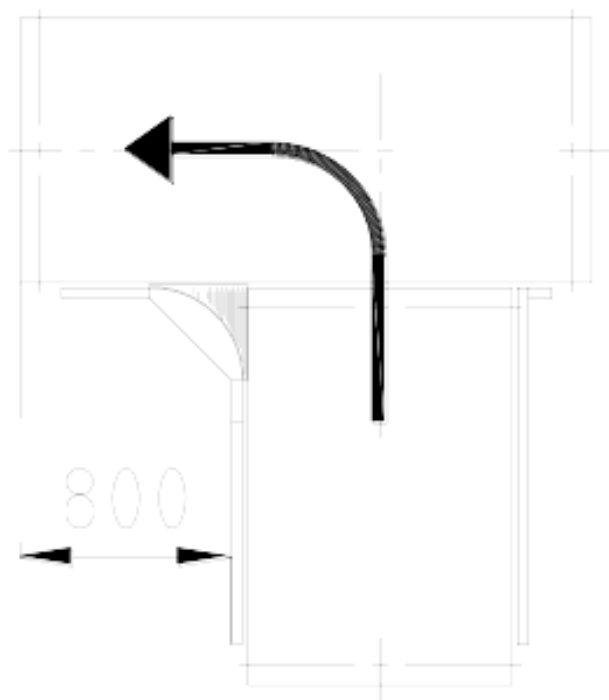
- ◆ Automatic direction
- ◆ Two directions, for flow separation and maintenance for release of luggage

All sliding plates of the conveyor units are designed to take into account falling luggage, perpendicular to luggage transfers. The undersides, across the length of the conveyor units, are also designed to absorb the noise caused by falling luggage. Each linkage of edges between two perpendicular conveyor belts is equipped with a transfer curve edge or a removable attachment (ferrule) which is attached to both the upstream and downstream edges. These components are not welded.

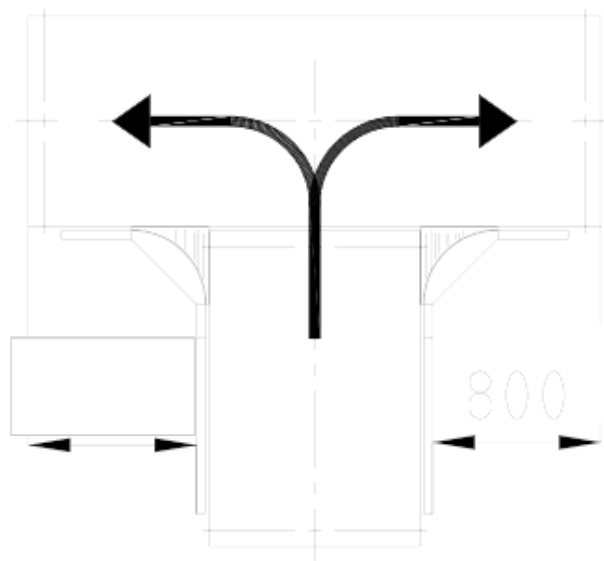
The curve of the ferrule will perfectly bring together upstream and downstream edges with a continuous flow, without any gaps which could cause straps and labels etc. to jam. The height of the ferrule will seamlessly follow the height of the upstream and downstream edges.

The ferrules are components which are examined and manufactured in the factory and are not manufactured or adapted on site. Managing the luggage transfer will stop luggage from getting stuck to the edge of the downstream conveyor belt (receiving conveyor belt).

The right-angle receiving conveyor units must exceed by at least 100 mm the obstruction in the injector conveyor belt, depending on the travel direction; see the 2 diagrams below:



Single-direction right-angle transfer



Two-directional right-angle transfer

The alternator of the upstream conveyor unit end drum will overlap the downstream conveyor unit up to the vertical section of the edge of the belt in the latter:



Length

- ✦ Minimum length with tracking : 1,5 m.
- ✦ Maximum length for project : 22 m.

Ramp

- ✦ Max. with tracking : 10°
- ✦ Max. without tracking : 15°

Cells

All conveyor units are equipped with output cells known as “stop cells” located at least 30 cm from the end of the conveyor unit.

Long conveyor units with tracking are equipped with input cells positioned, except in special cases, 1.5 m from the conveyor belt entrance.

Drums

The conveyor belts are driven by a drive unit, deflection drums, head drums and turning drums, a drive drum and tensioning drums. It is always the taut strand that serves as a transport surface.

The drums are easily removed from the chassis.

Drive drums

The drive drums are the same design as the head drums and turning drums. They are supported by ball bearings on the chassis of the conveyor units.

They are coated with a special coating to improve adhesion with the conveyor belt. The drum coating is designed to limit the risks of heating and aging.

End sections

Each of these sections connects the head drums and turning drums to the chassis through greased bearings for the equipment's lifetime.

The turning drum bearings are mounted on free plates so that the belt tensioning can be adjusted. These plates are removable.

Deflection drums

The deflection drums are the same design as the head drums and turning drums. They are supported by lifetime lubricated ball bearings attached to the chassis of the conveyor units

Tensioning drums and device

The tensioning drums are the same design as the head drums and turning drums. They are supported by ball bearings fixed on guiding devices which are themselves mounted on the chassis of the conveyor units.

Tensioning devices attached to the chassis act on the drums and enable adjustment to the tensioning of the conveyor belt.

The tensioning setting of the belt is offset from the drum and its internal angle. The maintenance operator thus performs the operation outside the danger zone.

The tensioning adjustment of the belt will be effected from a single point by a combined movement which moves the tensioning drum in parallel and does not cause the centre distances between the head drum and the turning drum to vary.

The adjustment will be possible on either side of the conveyor unit and generate the same type of movement of the tensioning drum. The sliding plate of the drop-off conveyor belts for the conveyance, arrival and connection lines is reinforced.

Mechanical linkages between components

No width narrowing between edges is envisaged on the individual conveyor units.

The different types of linkages are as follows:

- ✦ Flat conveyor belt / flat conveyor belt
- ✦ Flat conveyor belt / perpendicular flat conveyor belt
- ✦ Flat conveyor belt / flat and helical curve
- ✦ Lowering device-Raising device / receiving conveyor belt

Perpendicular to each conveyor unit linkage, a cover on the upstream and downstream edges allows these edges to be disassembled for work on the head or tail drums.

These removable linkages are between 200 and 400 mm long.

The downstream edges are outside the upstream edges.

The linkage edges connecting one conveyor unit to another will not under any circumstances be assembled by rivets but instead connected by screws. These fastenings will not create any obstructions which may cause baggage hazards.

Flat conveyor belt linkage on flat conveyor belt

To avoid the risk of rolling on the conveyor units and the risk of straps (and other flexible parts) engaging, the minimum clearance between the two drum alternators is at least 20 mm.

Since it is built on ALFYMA conveyor units, the plate is reinforced to absorb the shock of items of luggage on the conveyor unit and comes with a noise-reduction device

Undersides of the conveyor units

The undersides of the conveyor units are equipped with:

- ✦ Guards suitable for protecting deflection rollers
- ✦ The guards are fitted across the length of the conveyor belt and are limited in weight and size (can be manipulated by one operator). In addition, they are screwed on by screw nuts fixed to the chassis and enables straightforward disassembly and reassembly.
- ✦ Perpendicular to the deflection rollers, these guards can be disconnected from the undersides of the conveyor unit and has the same characteristics and dimensions necessary for maintenance work on these rollers.
- ✦ The guards are made of perforated sheet metal that can be easily dismantled using tools, with captive fasteners.

The conveyor unit undersides are standard components which are an integral part of the conveyor unit and are factory-produced at the same time as the conveyor units. The underside mounting system is designed to withstand vibrations generated by the transport of luggage. The measures taken prevent any underside guards from falling.

The system is capable of detecting luggage which is immobilised at the level of each linkage (e.g. wheeled luggage etc.)

- ✦ In the case of unit conveyor belts, if the $n + 1$ conveyor unit does not receive the baggage, the automation must signal that there is a jam.
- ✦ In the case of long conveyor units, a cell must detect jams at the junction.

Flat conveyor belt linkage on perpendicular flat conveyor belt

The same principle as above applies.

Flat conveyor belt linkage on flat and helical curve

To avoid the risk of engagement in these zones, the clearance will be minimised between the drum alternators facing each other. The drum alternators of the curved conveyor belts must be parallel to those of the upstream and downstream conveyor belts.

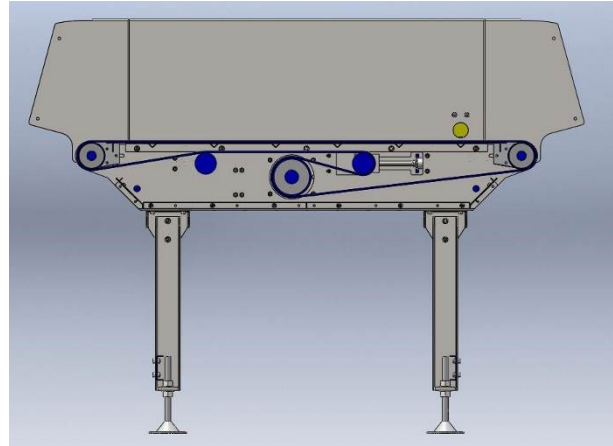
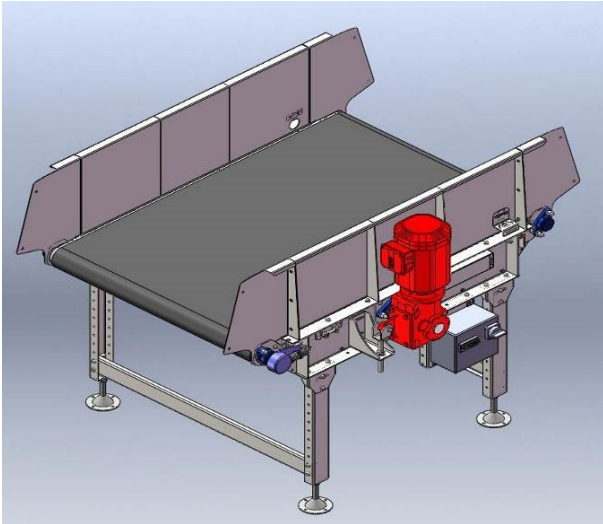
Supports for fixed conveyor units

The support components of the conveyor units constitute trestles with bracing or metal feet depending on the height, the lower part of which contains height-adjustable feet (maximum adjustment of 10 cm). These brackets are equipped with non-slip and anti-vibration pads.

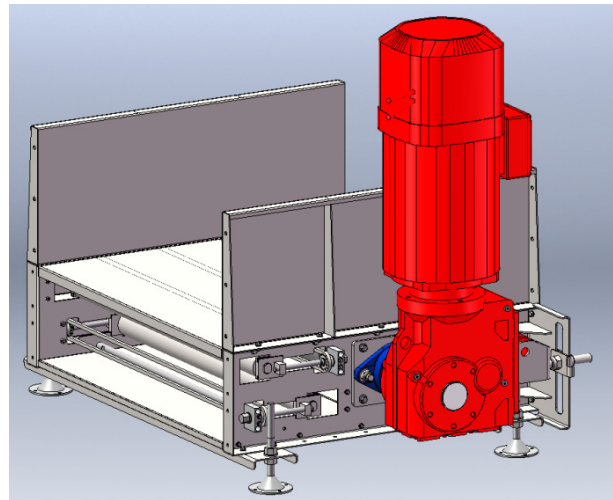
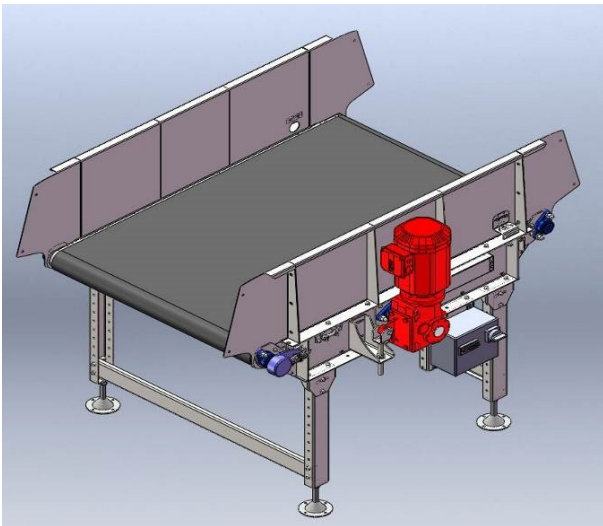
Description of principle

The conveyor units are made up as follows:

The conveyor units 1,500 to 3,000 mm long comprise two side rails, a sliding plate and two sides.



The conveyor units longer than 3,000 mm comprise a drive unit, one or more central units and a head unit.



Drive unit

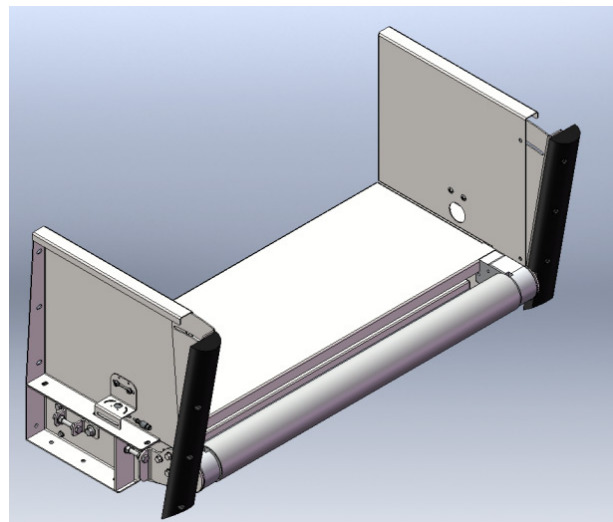
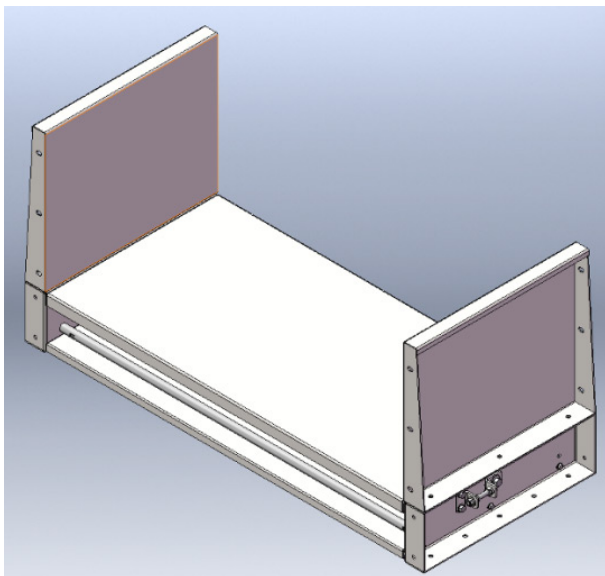
To determine the most suitable drive unit, we rely on the following components:

- Nature of each usage specific to each conveyor unit (injection conveyor, collector etc.)
- Required speed specific to each conveyor unit.
- Operating hours per year.

For conveyor units shorter than 10 m, the drive unit is equipped with a control drum and a tensioning system. For conveyors longer than 10 m, the drive unit has a control drum and two tensioning systems. Depending on the configuration, the control drum is covered with a rubber lining to optimise the belt adhesion. The belt is tensioned via a system of "take up pulley" conveyor units (tensioning system with chain feeding for belt tensioning on one side only).

Head unit

If the conveyor units are arranged at right angles, the conveyor unit can be equipped with a head unit. The head unit is equipped with a deflection roller 89 mm wide allowing optimum superimposition on the following conveyor. It has a system of adjustable edges equipped with deflectors to inject the luggage as centrally as possible on the next conveyor belt. The belt can be adjusted independently of the conveyor unit head or base.

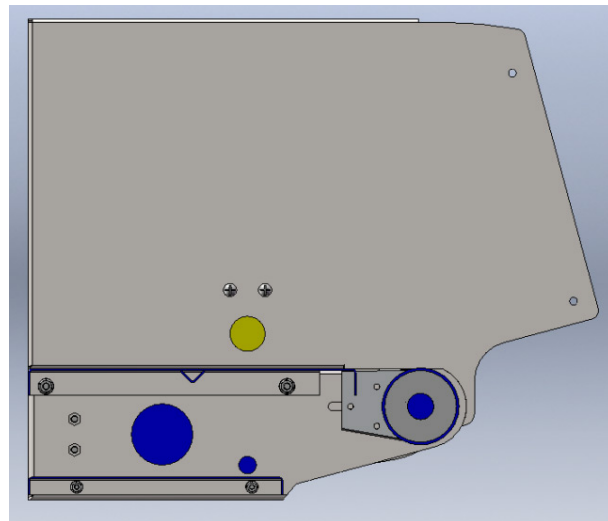
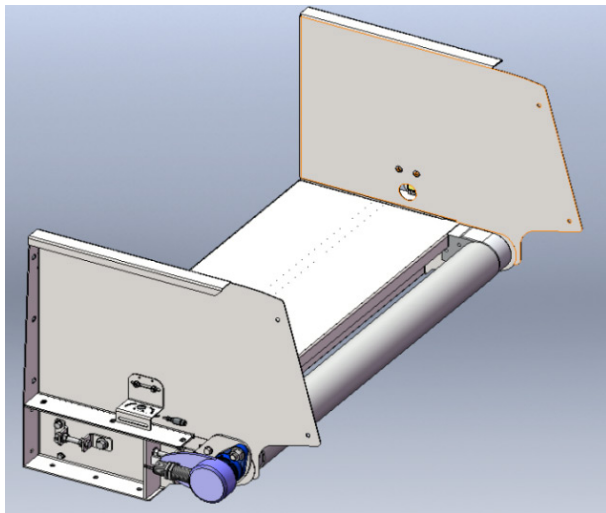


Structures

The side rails are made of steel sheets 3 mm wide which are designed to withstand the loads imposed by the conveyor unit and facilitate handling. The sliding plate is made of a 2 mm-wide steel sheet and reinforced by stiffeners applied to the lower section. The units are secured to each other and each conveyor unit is connected to the next one by means of special adapters. If the conveyor units are arranged at right angles, the conveyor unit can be equipped with a head unit.

Head unit

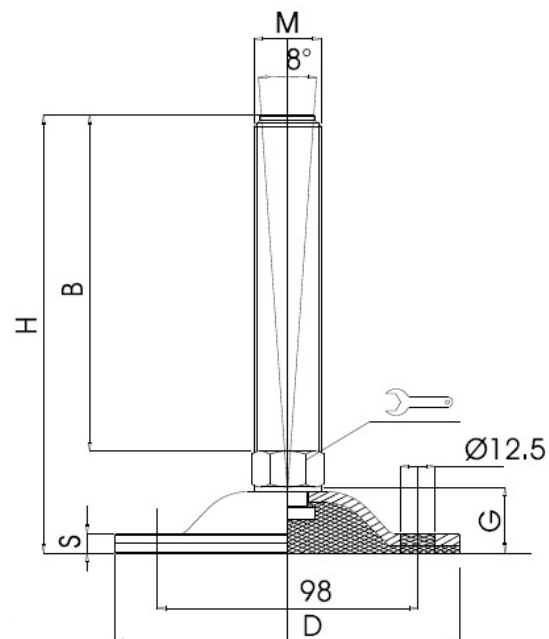
With a standard length of 500 to 3,000 mm in increments of 500 mm, the middle unit consists of two side rails, a sliding plate, several spacers and two edges. It is equipped with one or more lower deflection rollers which support the slack strand of the belt. This type of simplified unit allows for optimal assembly and maintenance. It is expanded according to the length of the conveyor unit so that several standard units can be assembled to form the total length of the conveyor unit; the latter unit is produced with dimensions which are specifically adapted as necessary.

















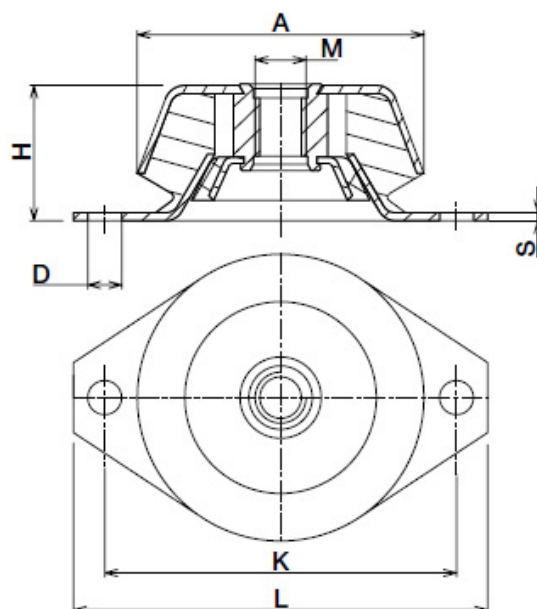
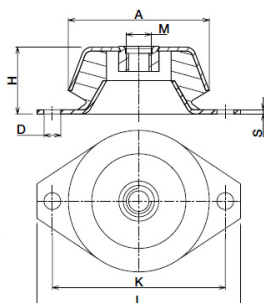
Use of supports for the conveyor units

The support components:

- Where the conveyors are fixed to the ground, they rest on a supporting structure.
- This structure comprises two mounts, a cross beam and two adjustable pads.
- These have a C40 zinc-coated steel base and the base plate pad is made of vulcanised NBR rubber with a hardness of 80 shore.



| CODE | DESIGNATION | DIMENSIONS | | | | | | | CHARGE MAXI |
|-------------|-------------|------------|-----|-----|--|-----|------|-----|-------------|
| | | A | B | D |  | M | G | H | Newton |
| MA-15600Z/V | M16x100 | 8 | 100 | 124 | 16  | M16 | 23,5 | 132 | 20000 |
| MA-15604Z/V | M16x150 | 8 | 150 | 124 | 16  | M16 | 23,5 | 182 | 20000 |
| MA-15608Z/V | M16x175 | 8 | 175 | 124 | 16  | M16 | 23,5 | 207 | 20000 |
| MA-15612Z/V | M20x100 | 8 | 100 | 124 | 20  | M20 | 23,5 | 132 | 20000 |
| MA-15616Z/V | M20x150 | 8 | 150 | 124 | 20  | M20 | 23,5 | 182 | 20000 |
| MA-15620Z/V | M20x175 | 8 | 175 | 124 | 20  | M20 | 23,5 | 207 | 20000 |
| MA-15624Z/V | M20x200 | 8 | 200 | 124 | 20  | M20 | 23,5 | 232 | 20000 |
| MA-15628Z/V | M24x100 | 8 | 100 | 124 | 24  | M24 | 23,5 | 132 | 20000 |
| MA-15632Z/V | M24x150 | 8 | 150 | 124 | 24  | M24 | 23,5 | 182 | 20000 |
| MA-15636Z/V | M24x200 | 8 | 200 | 124 | 24  | M24 | 23,5 | 232 | 20000 |
| MA-15640Z/V | M30x150 | 8 | 150 | 124 | 30  | M30 | 23,5 | 183 | 20000 |
| MA-15644Z/V | M30x200 | 8 | 200 | 124 | 30  | M30 | 23,5 | 233 | 20000 |
| MA-15648Z/V | M30x250 | 8 | 250 | 124 | 30  | M30 | 23,5 | 283 | 20000 |



| CODE | DESIGNATION | DIMENSIONS | | | | | | | CHARGE MAXI |
|-------------|-----------------------|------------|------|----|-----|-----|---|-----|-------------|
| Standard | | A | D | H | K | L | S | M | Newton |
| L-102921 | SIRIO 105/CD D62 M10 | 62 | 8,2 | 30 | 85 | 100 | 2 | M10 | 2000 |
| L-102921M12 | SIRIO 105/CD D62 M12 | 62 | 8,2 | 30 | 85 | 100 | 2 | M12 | 2000 |
| L-102923M10 | SIRIO 106/CD D92 M10 | 92 | 10,2 | 42 | 112 | 130 | 3 | M10 | 3500 |
| L-102923M12 | SIRIO 106/CD D92 M12 | 92 | 10,2 | 42 | 112 | 130 | 3 | M12 | 3500 |
| L-102923M14 | SIRIO 106/CD D92 M14 | 92 | 10,2 | 42 | 112 | 130 | 3 | M14 | 3500 |
| L-102923 | SIRIO 106/CD D92 M16 | 92 | 10,2 | 42 | 112 | 130 | 3 | M16 | 3500 |
| L-102925M16 | SIRIO 107/CD D115 M16 | 115 | 16,2 | 48 | 160 | 190 | 4 | M16 | 6000 |
| L-102925M18 | SIRIO 107/CD D115 M18 | 115 | 16,2 | 48 | 160 | 190 | 4 | M18 | 6000 |
| L-102925 | SIRIO 107/CD D115 M24 | 115 | 16,2 | 48 | 160 | 190 | 4 | M24 | 6000 |
| L-102917 | SIRIO 105/T D62 M10 | 62 | 8,2 | 30 | 85 | 100 | 2 | M10 | 2000 |
| L102918M12 | SIRIO 106/T D92 M12 | 92 | 10,2 | 42 | 110 | 130 | 3 | M12 | 3500 |
| L-102918M14 | SIRIO 106/T D92 M14 | 92 | 10,2 | 42 | 110 | 130 | 3 | M14 | 3500 |
| L-102918 | SIRIO 106/T D92 M16 | 92 | 10,2 | 42 | 110 | 130 | 3 | M16 | 3500 |
| L-102919M16 | SIRIO 107/T D115 M16 | 115 | 16,2 | 48 | 160 | 190 | 4 | M16 | 6000 |

Where conveyor units are suspended from the ceiling or a structure, we adopt various mounting methods. Ceiling mounting can involve the use of hangers, a cross beam and anti-vibration studs.

These components are arranged at a maximum distance of 2 m. This is identical to the previous principle, but here a lateral maintenance gangway is attached which can withstand a maximum load of 250 kg per m².

Different methods of bracing the hangers are illustrated here to increase rigidity.

