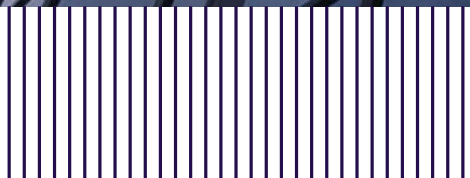


You can't stop
evolution



SALA

®



horizontal **lifeline**



To evolve is to innovate,
Always faster, higher,
farther.

evolution on the move



In a world that is constantly changing,
addressing safety challenges today
and anticipating those of tomorrow
is the vocation of the new **evolution**
lifeline by Sala.

Whatever the working configurations
or the ambient environment,
evolution ensures the safety of the teams
in action without ever reducing their mobility
and complying totally with the aesthetics of
the buildings in which it is integrated
because nothing stops **evolution**
and because **evolution** is not only a theory
but it is a part of everyday life .



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- P 3-4 || Permanent evolution: the concept
- P 5-6 || evolution in detail: shuttles and intermediate brackets
- P 7-8 || evolution in detail: absorbers and posts
- P 9-10 || evolution in detail: curves and anchors

As specialists in fixed systems, Sala specialises uniquely in the domain of fall arrest, innovating constantly, as it has done for more than 25 years in this area. Sala supplies complete and tailor-made solutions to ensure safe access and work at a height.

Manpower safety all the way down the line



The heart of the profession may concern manpower safety but Sala has also opted for the development of the design quality of its permanent systems. This approach, in addition to guaranteeing optimum safety, makes it possible to have the systems disappear entirely into the environment. This is particularly the case with the new **evolution** lifeline, capable of entering architectural designs that are particularly daring and innovating without ever putting the safety of the men connected to the lifeline in second place. When anchored to the building, the **evolution** lifeline offers great freedom of movement to personnel requiring to work at a height to accomplish their jobs. Sala has designed

evolution in an innovative frame of mind, it is ideal for every structure, favours movements along the line, protect men efficiently from falls from a height and is discreet, blending into the building without ever compromising its aesthetics.

In addition to its feeling for "sustainable architecture", Sala confirms its major requirement come from design to manufacturing, all the components of the **evolution** lifeline are manufactured under the quality control system ISO 9001 and undergo stringent inspection.

In addition, the line has been designed into compliance with

International safety standards

(EN795 classe C - AISI Z359.1 - CSA Z259.16 - AS/NZ S1891.4 part 2 & 4).



Evolution : new generation horizontal lifeline



permanent evolution[®]



For work on roofs or overhead cranes, operations in aircraft hangars, bridge maintenance or loading docks. All activities calling for many professionals to work at a height. To maintain the greatest possible manoeuvring freedom, it is essential for them to have access to a lifeline attached to the structure. This enables them to remain connected constantly so that they can carry out their work without ever needing to disconnect.

With **evolution**, as fall arrest system expert, Sala is inaugurating a new generation of fixed horizontal lifelines and is breaking away from the market standards.

Easily installed, **evolution** is a particularly flexible system for companies seeking the protection of their workplaces without any damage to the buildings or the structures into which the lifeline has to be incorporated.



Backwardly compatibility with the former systems by Protecta, Sala, ideal to ensure the development of the existing systems.



Exclusively comprising materials resisting corrosion for **outstanding longevity.**

A resolutely innovative design with perfect integration into the environment. Particularly compact components.

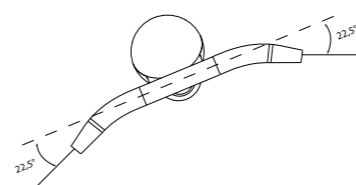
At the summit of evolution

- **Easy and precise installation** on any type of structure: walls, floors, ceilings, outdoors and indoors. An extended range of absorbing or tip over posts adjusted to structures offering less resistance such as trapezoidal roof panels or standing seam roofs. In such cases, the posts reduce the forces and contribute to preserving the building.
- **An upstream simulation system:** As a warrant of the perfection obtained, design software has been developed specifically for evolution. By simulating the necessary clearances and possible heights of fall, this design software validates the compatibility of the structures with the lifelines no matter how complex. It verifies that the overall system is dimensioned according to the number of users and that the forces at the ends can be supported by the structure. Sala believe, it is up to the lifeline to adjust to the building and not the other way around.
- **Total adaptability.** For evolution Sala has developed a varied and extended range of curves, intermediate and end brackets, enabling the

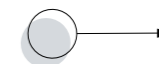
lifeline to follow very accurately the lines of the buildings while addressing safety demands to the fullest. A high capacity absorber makes it possible to use evolution on large single spans; this is an ideal solution in hangars or on unloading docks. The evolution lifeline can also be used simultaneously with a retractable fall arrest devices.

- **For a budget price lifeline.** Its technical properties make it possible to lengthen the distance between the intermediate brackets (centre distances) thus cutting installation costs without making any sacrifice to safety. Direct installation of a lifeline on a metal panel roof without drilling into or making any other arrangement to the metal structure.
- **A high performance level** thanks to a unique energy absorption method LEAP and the range of absorbers that can be adjusted to every lifeline configuration.
- **Professionalism for every situation.** evolution is installed on site by Sala trained and approved installers offering overall service from initial layout study, to periodic verification of the line, and even including user training.

Anchorage ring in incorporated into shuttle: **intervention on both sides of lifeline** without disconnection.



Fluid circulation
Smooth movements on a straight line or on curves.



LEAP



New generation absorption system

Sala has focused particularly on absorption in developing for **evolution** the **LEAP** system. Designed to offer a constant level of energy dissipation, **LEAP** enables the absorber to reduce the forces linearly and smoothly. The calibration can be adjusted differently (to order), as per the specific configuration and the use of the lifeline so as to absorb the amount of energy required to preserve the safety of men and structure alike. In addition, and this is an innovation, this absorber is capable of tolerating several successive falls.

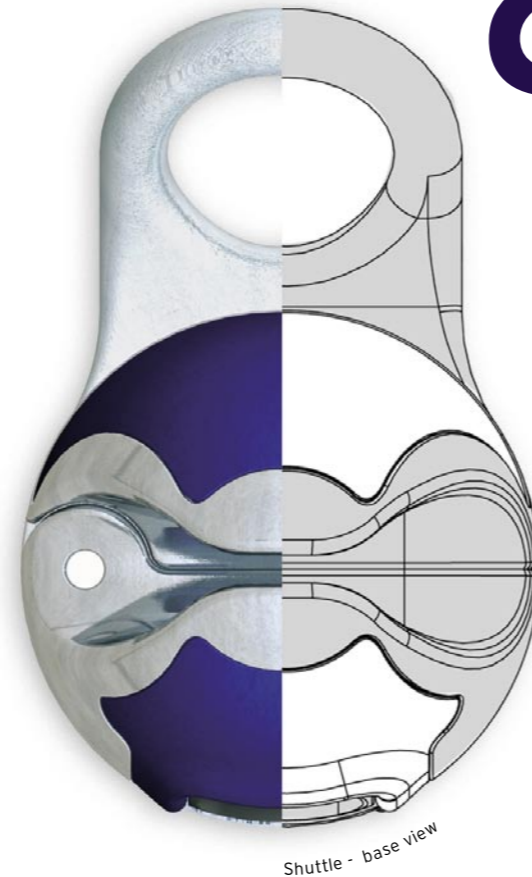
Shuttle



As the central part of the EVOLUTION lifeline, **the shuttle** accompanies the user along the lifeline, smoothly passing the intermediate brackets. With its unique spherical shape, the specific design of the openings, and the incorporation of two pairs of rollers it has exceptional ability to slide along the line to the point that the passage of intermediate brackets and curves is imperceptible (even when used with a retractable fall arrester device).



The automatic locking system of **the shuttle** eliminates any possibility of incorrect manipulation during connection to the cable. Its spherical shape means that it is easy to grip and can be opened one-handed (double safety lock) while also providing it with excellent resistance to shock.



Evolution shuttle - MAIN PRINCIPLES



- Optimum sliding along the cable, automatic passage of intermediate brackets and curves.
- Capability of working on both sides of the lifeline without disconnecting thanks to rotation through 360° of the anchorage ring (large enough to allow the connection of almost any type of connector).
- Possibility of connection/disconnection of the shuttle at point of the lifeline.
- Compact shape (light and strong) and good ergonomics (easy manipulation).
- Permanent connection of the link element (lanyard, fall arrest system) to prevent loss or falling of the shuttle during manipulation.
- Possible to use with retractable fall arresters (see list of compatible devices).
- Automatic locking on closure.
- Double safety opening activated by two distinct actions on the shuttle.
- Tested individually (manufactured under ISO 9001 quality control).

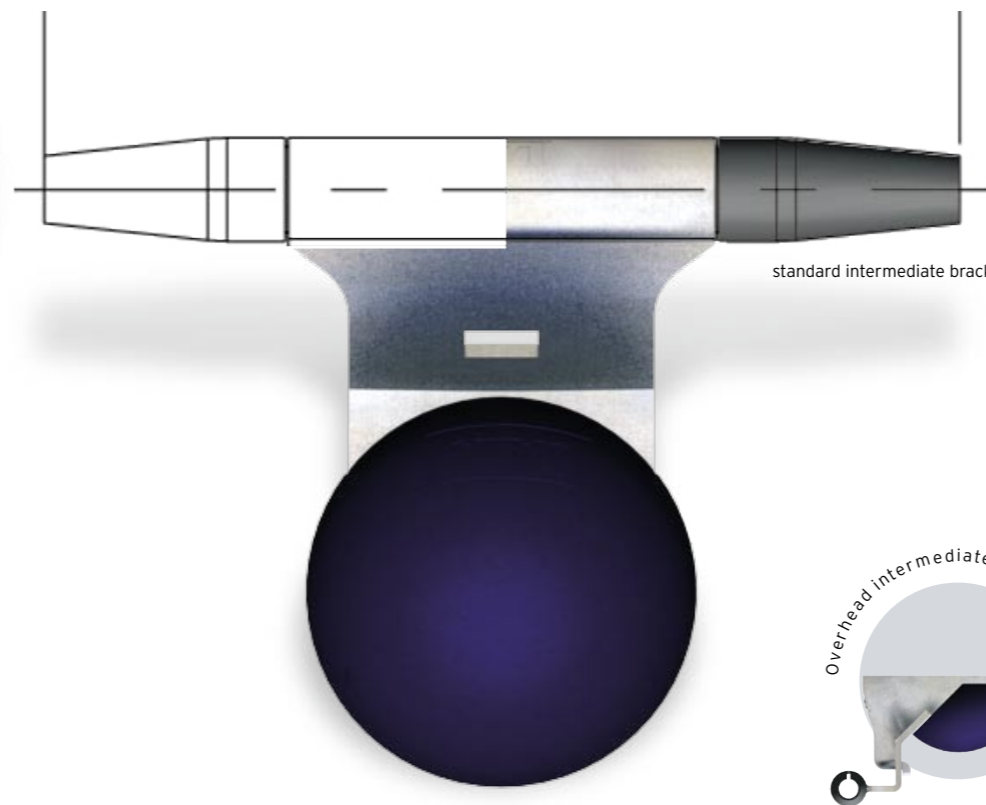
NOTE:

the evolution shuttle is also compatible with the Ariana and Sayfglida systems (8 mm and 12 mm) for better integration in a multi-system environment.

Forming an intermediate support, the **intermediate bracket** positions the lifeline cable. It can be installed in many different configurations (on the ground, at various heights on the wall, etc.) and at regular intervals, to ensure the optimum distribution of forces along the lifeline. It is shaped specifically so as to allow the automatic passage of the shuttle without the user ever having to disconnect from the lifeline. It also makes it easier to incorporate the lifeline into

the building thanks to a new original element: a protection cover guaranteeing that the anchorage points are tamper-proof while improving the overall aesthetics of the system.

In the eventuality of a fall occurring, the EVOLUTION intermediate bracket deforms under the force and acts as an energy dissipater and a fall indicator. This helps reduce the fall impact force and the risks of incorrect use. The chosen materials (stainless steel, anti-UV polymer) guarantee the longlife and durability of the-- shuttle and the intermediate bracket.



Intermediate bracket - MAIN CHARACTERISTICS

- Installation by single attachment facilitating lifeline assembly (reduction of installation time)
- Monobloc intermediate bracket guaranteeing greater strength in case of fall.
- Automatic shuttle passage on both sides of the lifeline without any need to disconnect.
- Integration of a polymer cable guide to reduce friction to the minimum (shuttle passage, installation and tensioning of lifeline made much easier).

NOTE
intermediate bracket for the Sala post or overhead installation are also available



Evolution incorporates an energy absorption system of a resolutely new design. It is equipped with the LEAP (Linear Energy Absorption Product) system allowing the precise and linear adjustment of the absorber triggering value and absorption threshold.

The considerable energy dissipating capacity of the **evolution** high capacity absorber means that it is capable of handling several falls simultaneously while maintaining the forces on the building below a threshold of 10 kN (2250 lb/ft).

Its compact design also includes a window displaying the tension on the cable as well as an end clevis compatible with all the **evolution** anchorage points. Swaged definitively to the cable the absorber is installed at the beginning or end of the line, or if necessary at both ends, depending on the results obtained with the **evolution** calculation software.

Protecting the structure, taking up the forces at the anchorage points and guaranteeing the safety of the workers are the goals for the development of this new type of energy absorber. In case of a fall, the LEAP system guarantees constant absorption of forces in a predefined range. The maximum value of the forces permissible along the lifeline is calculated by means of software dedicated to **evolution**. Depending on the constraints represented by the buildings, the activation value and the absorption threshold can be optimised during the production process.

24

Rigid anchorage

12

6

0

LEAP system adjusting range

Classic absorber

Standard LEAP absorber



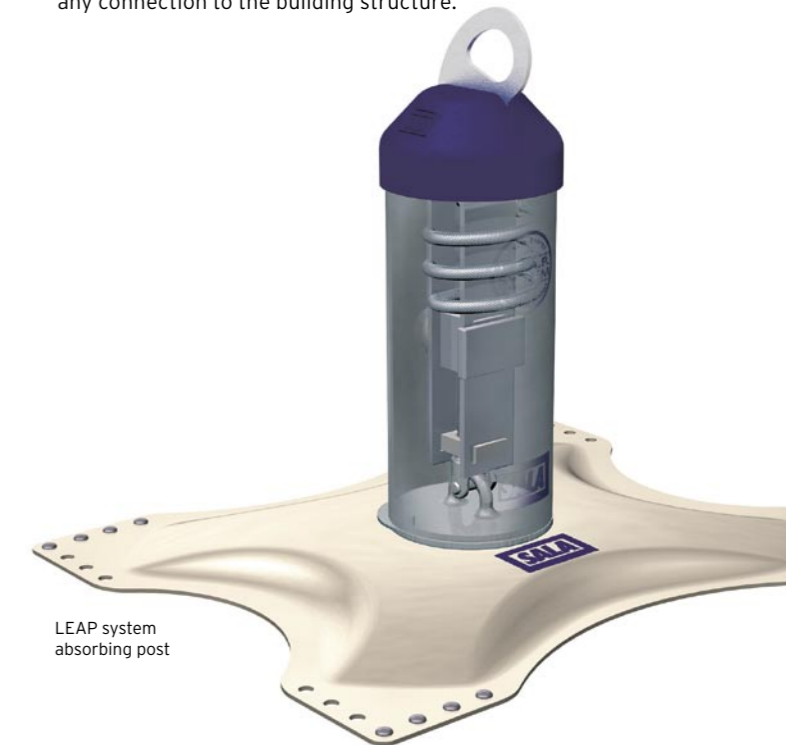
Evolution offers solutions that are ideally adapted to the installation of lifelines on all kinds of industrial roofs (trapezoidal panels, standing seam, membrane etc.) thanks to a combination of **post** and bases that are easily installed on every type of roof without affecting the integrity of their structure in any way.

Integrating LEAP (Linear Energy Absorption Product) guarantees constant absorption of forces through a predefined range. The main objective is to reduce the forces at the anchorage points so as to protect the structure.

Because of their high energy dissipating capability, it is advisable to install LEAP system absorbing posts in the lifeline at the ends and on the curves. However, use at intermediate points is also possible when the installation calls for a major reduction of the forces. Simulation using the **Evolution** calculation software is indispensable for controlling strength levels and clearances.

The **evolution** post consists of two parts : a post (with LEAP energy absorption or of the tilting type) and a base attached to most modern roofs. As necessary, the post can be equipped with an anchorage point, an intermediate bracket or a curve.

Posts are installed directly to the metal panel roofs quickly, easily and without any drilling into the roof (thus avoiding any problems of waterproofing and thermal bridging). It does not require any connection to the building structure.



LEAP system absorbing post

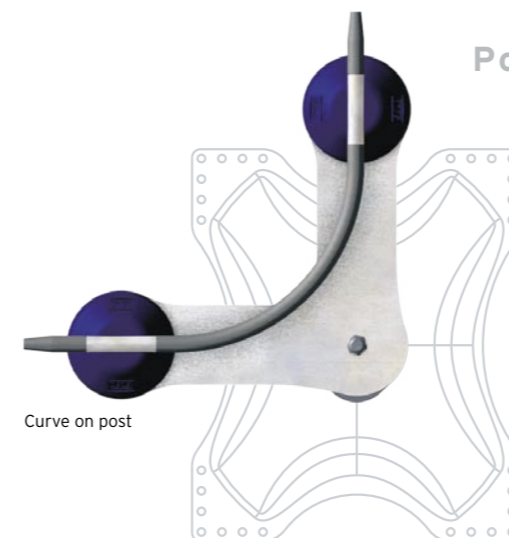
Absorber - MAIN CHARACTERISTICS



High capacity absorber

- Integrated LEAP absorber : guarantees the smoothing out of forces to a predetermined value.
- Triggering and absorption level adjustable (in the factory) for specific applications.
- High absorption capacity of more than +60% compared to traditional absorbers.
- Cable tension display window.
- Wide cable tension adjustment range.
- Monobloc, protection housing and force indicator.
- Choice of materials to ensure longlife and durability (stainless steel, anti-UV polymer).
- Supports several falls without any loss of performance.
- Through swaging: guarantees complete swaging for optimum safety.

Posts - MAIN CHARACTERISTICS



Curve on post

- Integrate the LEAP system guaranteeing smoothing out of forces at a pre-selected value .
- Compatible with most industrial roofs (trapezoidal panels, standing seam, membrane).
- Triggering level adjustable (in the factory) for specific applications.
- Easy installation without any anchorage to the frame and thus preserving waterproofing.
- Reduction of forces in case of fall preserving the integrity of the roof.
- Conforms to international standards: EN795 class A - AISI Z359.1 - CSA Z259.16 - AS/NZ S1891.4 part 2 & 4

Curves



To fulfil to the utmost the installation and safety needs of each site, **evolution** comes with a **range of curve parts** enabling every possible curve to be formed to follow as closely as possible the movements of the users. There are curve solutions for every type of installation (wall, post, or overhead).

With its patented flexible cable guide, it is now particularly easy to use the same curve part to form a curve ranging from 15° to 45° for a short curve or from 45° to 90° for a long curve. The anti-rotation system (also patented) makes it possible to keep the curve totally horizontal in line with the cable to guarantee optimum passage of the shuttle.

The specific shape of the **evolution** short curve is based on the same concepts as the intermediate brackets, allowing the shuttle to pass automatically around the curves without the user ever needing to disconnect from the lifeline.



90° overhead curve

To handle the stresses that a possible fall would generate, **evolution** incorporates a reinforcing part to guarantee better resistance to falls. The flexible cable guide ensures that the cable runs smoothly around the curves in order to balance out the forces over the entire lifeline and thus reduce the stresses at the curves.

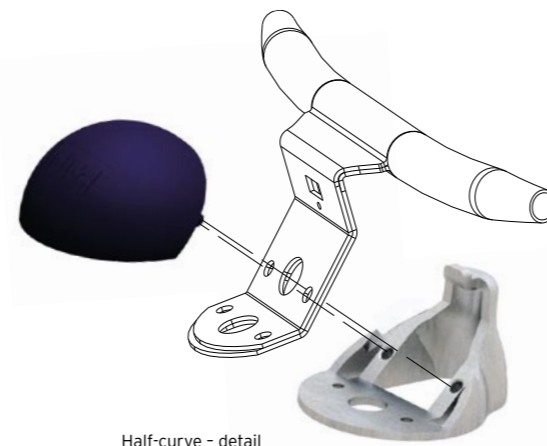


90° standard curve



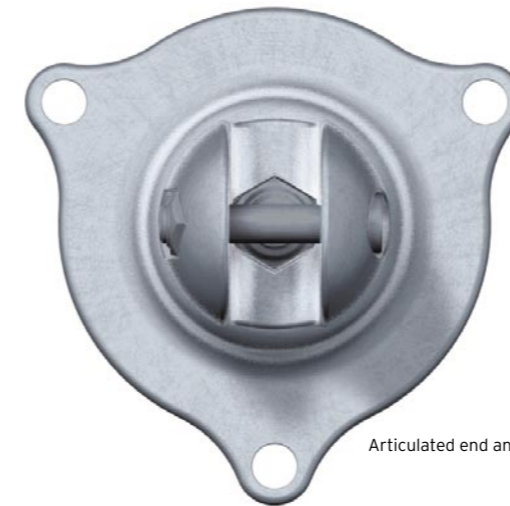
MAIN CHARACTERISTICS

- Installation by single attachment facilitating line assembly (reducing the installation time).
- Monobloc intermediate curve guaranteeing greater strength in case of fall.
- Automatic passage of shuttle either side of lifeline without any need to disconnect.
- Incorporation of polyamide guide-cable reducing friction to the utmost (shuttle passage, installation and tensioning of line made much easier)



Half-curve - detail

Anchorage



Articulated end anchor

MAIN CHARACTERISTICS

- High strength thanks to the ideal distribution of forces at each attaching point.
- The multi-directional articulation gives the end anchorage the same strength whatever the axis of the cable.
- The triple-attachment anchorage is versatile and can be used on the wall or on the floor or overhead.
- The specific shape and mobility of the anchorage allow the automatic alignment of the lifeline cable.
- Modern design incorporated easily into any type of building.
- Compatible with all the Sala end brackets and absorbers.

To ensure the optimum **anchorage** of the **evolution** lifeline, Sala has developed an articulated anchorage with three attaching points, aligning accurately with the cable whatever the direction or angle, to allow consistent distribution of forces at each attaching point.

The end anchorages are required to take up the greatest forces in case of fall which is why their design and construction makes no concessions. The central articulation means that it can be used in any configuration (wall, floor, post, overhead) and the type of solicitation (shearing or pulling away). **Evolution** triple attachment anchorages are compact and discreet fitting in harmoniously with a metal building or structure. Epoxy finish (in a wide range of colours) is also available on request.



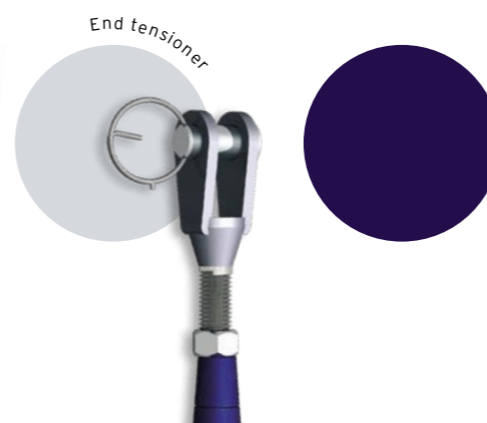
Swaging

To guarantee a faultless link between the cable and the anchorage points, SALA has opted for **swaging** as a technical and safety solution that preserves the full strength of the cable at its connection with the end parts.

Integrated into a tensioner or simply fitted with a clevis, the EVOLUTION end parts are installed by professionals using specially calibrated tools. Swaging guarantees a definitive and unchangeable connection.

MAIN CHARACTERISTICS

- Definitive swaging guaranteeing faultless safety at the link to the cable.
- Easy and fast installation, compatible with all Sala end parts.
- Possibility of adjusting the pretensioning of the lifeline (tensioner).
- No loss of strength at the connection to the cable.
- Choice of materials to ensure long life and durability (stainless steel).



End tensioner

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