SBB
Acier Profilé SSB, INC.

EMERGENCY RESTORATION SYSTEM
ABOUT US

SBB is the leading supplier of ERS worldwide. With customers in about 40 countries and over 1,500 ERS towers sold.

Commitment to Quality

With a team of 3 inspectors and a dedicated Manager for continuous improvement, we take quality very seriously and have been certified ISO:9001 since 1984 and CWB 47.1, 47.2 & 178.1 since our first years of operations.

Moreover, all our ERS have been tested at Ecole Polytechnique de Montréal, as well as at the Canadian National Research Center (CNRC) and are thoroughly inspected and tested as per IEC standard & IEEE guide, often in presence of our customers.
VISION:
• We want to manufacture the best ERS in the world.

MISSION:
• Our mission is to design, manufacture & market modular towers which distinguish themselves by their user-friendliness, their technical superiority & their quality.

OUR VALUES:
• We value the quality of all our products & services
• We are passionate about our products and proud of what we manufacture
• We value employees that are reliable, dedicated & trustworthy
• We value respect, harmony & teamwork
GENERAL INFORMATION & APPLICATIONS

Generally, when electrical transmission is interrupted because one or several transmission towers are damaged, there is a high economical cost for the utility company (i.e. penalties for every day of non-transmission). However, there are also high political and social costs to such a situation.

This represents an opportunity for a quick and efficient solution to temporarily replace damaged towers, until the utility company can remove the damaged tower, build a new foundation, transport the new tower to the site and install it. This process can take as little as 1 or 2 weeks (tower in stock, 24h shifts, efficient teams) or as long as 5 or 6 weeks.

By using SBB ERS, the transmission towers can be replaced in just a few hours by creating a by-pass and power transmission can be resumed much faster than with the traditional methods.

When the new transmission tower is installed, the SBB towers can be removed as quickly as they were installed and put back in a container until the next use.

Our towers are so versatile that they can be used for various applications such as:

- Restoring power following a disaster (flood, hurricane, war, etc...)
- Conducting scheduled maintenance work on existing towers without major interruptions
- Building temporary line extensions in a fast & efficient way (no civil engineering work required)
- Temporarily linking villages or remote locations (mining sites) to the main grid
- Serving as wind measurement masts in wind energy projects in challenging sites
- Serving a Crane (4.5T capacity) to help construction of new towers in remote locations which traditional cranes cannot access.
**Foundation plate (92 kgs; 1.2 m x 1.2 m):**
The foundation plate’s role is to support the tower by distributing its weight evenly to the ground. It is placed directly on the ground, without the need for a concrete foundation. It can be installed on a leveled ground or up to a 30 degrees angle and can also be complemented by a larger foundation plate especially designed for very soft soils with minimal bearing capacity.
TOWER COMPONENTS

Articulated base (133 kgs; 84 cm x 74 cm)
It consists of a fixed cone and pivoting aluminium plate connecting the tower to the foundation plate. It allows the tower to move under various loads in order to avoid bending. The design allows a rotation of 360 degrees in all directions, which also means that the tower can be erected by tilting it up using a ball joint ginpole.

Mast section (135 kgs; 412 mm x 412 mm x 2.9 m)
Each lightweight section is made of high strength aluminium alloy 6061-T6 and includes 9 openings on each side to allow attachment of a wide range of accessories (swivel guy plates, insulator brackets, platforms, etc). Sections can be also include an integrated rail system on each corner, which allows the sliding ginpole and the fall arrest device to slide from bottom to top of the tower without interruption or disassembly, even with guy wires installed.

Swivel guy plate (11 kgs; 423 mm x 362 mm x 221 mm)
The aluminium guy plate is used to attach guy wires and guy strain insulators to the tower. It is designed to be installed anywhere on the tower, in less than 30 seconds. The swivel allows vertical movement to allow a certain degree of freedom for the guy wires.
TOWER COMPONENTS

Fall arrest device (1.6 kgs)
The fall arrest device is the equivalent of a lifeline for the linemen. It is designed to be attached on the side rails of the tower and slide from bottom to top, without interruption. It allows free movement when climbing up on the tower but will lock in position when pulled suddenly in the opposite direction (lineman falling). Because of its full integration in the tower design, the fall arrest device is a very efficient safety measure for linemen.

Anchors
Depending on the prevailing soil conditions (soft, hard, normal), different anchoring arrangements could be required. Some examples of anchors are included below:
**ADDITIONAL TOOLS AND EQUIPMENT**

*Sliding Ginpole (84 kgs)*

The sliding ginpole attaches to the rails of the tower and is used to raise and lower the mast sections and all the other components up and down the tower.

By using the ginpole, customers no longer need to have a crane available on site. The ginpole can be operated manually or using the small portable winch supplied with each ERS tool kit.

*Ball-joint ginpole (22 or 44 kgs)*

This device, measuring 3m or 6 m in length, can be used to tilt-up 7 mast sections from a horizontal to a vertical position, without using a crane. It can be used in conjunction with either the portable winch or a 4x4 vehicle on-site that will provide the pulling power.

Using this method, teams can build up to 7 sections on the ground, raise them to a vertical position, secure them with anchors and guy wires, then continue building a higher tower by using the sliding ginpole.
ADDITIONAL TOOLS AND EQUIPMENT

*Working platform (119 kgs)*
This platform is used to help linemen reach insulators when working on the tower (for stringing operations for example). It is designed to be lightweight, yet easy to operate by one person only, which is critical, especially when working several meters off the ground.

The platform is made to different lengths in order to adapt to voltages up to 765kV: 2.5m, 4.5m and 6.5m.

*Resting platform (3.3 kgs)*
This platform helps linemen to stand with both feet flat while working on the tower (bolting or unbolting sections for example).

It is made light enough to be transported on the linemen’s tool belts.

*Alignment tool*
This is a practical tool to hold 2 sections together while they are being bolted and ensure perfect alignment. This also helps ensure that accessories that use the rails can slide flawlessly.
ADDITIONAL TOOLS AND EQUIPMENT

*Portable winch (16 kgs)*

This is a gas powered winch that is used to raise tower components and accessories up to tower by providing pulling power in order to avoid using cranes or other heavy equipment.

It is specifically designed to be used with SBB ERS and with a weight of just 16Kgs and a capacity of about 500Kgs, it is truly portable and extremely user-friendly.

*Insulator brackets and assemblies*

We typically supply modular assemblies of polymer insulators to simplify the work in the field. Modular assemblies allow the use of the same insulator for different line voltages. For example, by using a 2 x 220kV insulator assembly on a 400kV line, customers can avoid storing 400kV insulators in addition to the 220kV insulators and linemen can appreciate the fact that it is easier to manipulate 220kV insulators rather 400kV insulators (length, weight).

*Pionjar (27 kgs)*

This gas-powered tool is used to drive steel rods in the ground by acting as a jackhammer but also to drill holes in the ground for some types of anchors (rock anchors for example).
SOFTWARE ANALYSIS PROGRAM

PLS-CADD LITE
This is the main program in which the impact of outside conditions on the tower is analyzed. These conditions are: weather and wind loads, the type of conductors and OHGW, the tension on the conductors, the number of conductors per phase, the line angles, the spans, clearance, etc. It is a streamlined version of PLS-CADD and is very useful to quickly model a few spans.

PLS-POLE/LW+MAST
This is a module to define the capacity of tower components, the number of guy wires, the mechanical capacities of the insulators, the geometrical characteristics of the elements, etc. Both modules are from the world-renowned PLS suite, used by about 80% of utility companies worldwide, and were developed specifically for ERS use.
ADVANTAGES OF SBB ERS TOWERS

**IEC and IEEE tested**
Our ERS can be easily made compliant with any national standard. In some cases, they have been designed to sustain winds of over 240km/h and have resisted such conditions in the field.

All our ERS are rigorously tested according to IEC standard as well as IEEE guide, often in the presence of customers who come to our factory for inspection and Factory Acceptance Tests (FAT).

**Easy to store and transport**
- All sections have the same length and the same width so they are easy to store on top of one another and fit perfectly in a 20ft container.
- The sections are made in aluminum alloy, which means they will not rust if scratched, stored in a humid place or exposed to salty water.
- A section only weights about 135 kgs so it is easy to carry by 2 people on short distances or 4 people on longer distances.
- An optional Container Storage System (CSS) is available to allow neat organization of all the ERS components in the shipping containers. An overhead crane/railing system is also available to facilitate loading and unloading of heavy items from the containers.

**Easy to erect and dismantle**
- SBB created the sliding ginpole, a device that accelerates erection of the tower and allows a team as small as 6 people to build a 30m tower in about 60 minutes.
- No heavy equipment is required to build or dismantle a tower. SBB supplies all the tools and the training necessary.
ADVANTAGES OF SBB ERS TOWERS

Safe and comfortable to work on

• Linesmen are always attached to the tower thanks to the SBB fall arrest device that slides along the rails on the side of the tower. They don’t need to unbuckle to go over box sections since we also eliminated the box sections.
• We have created several accessories to help linesmen be comfortable while maintaining productivity: working platform (to help installation of insulators), resting platform (to rest while off the ground), lifting hook, lifting arm, etc...

Stronger than other towers

• Because of their advanced design, our towers are about 10 times more resistant in compression tests than other towers.
• They can resist winds of over 240km/h or 150km/h combined with heavy ice as well as any harsh conditions (high heat or high humidity)

Special foundation for soft soils

• In some cases, such as in South or South East Asia, soil conditions can get very challenging, with soils becoming very soft and marshy.
• To allow installation of our ERS towers in such conditions, we have created a special foundation plate to better spread the vertical loads.

Special anchor plates for soft soils

• In the same cases as described above, it is also necessary to provide special anchor plates for very soft soils. SBB has developed such anchor plates that offer a much higher resistance even in marshy soils.