

Gas Cylinder Lifting Device



IPLOCA Health & Safety Award 2019



BUSINESS PROFILE:

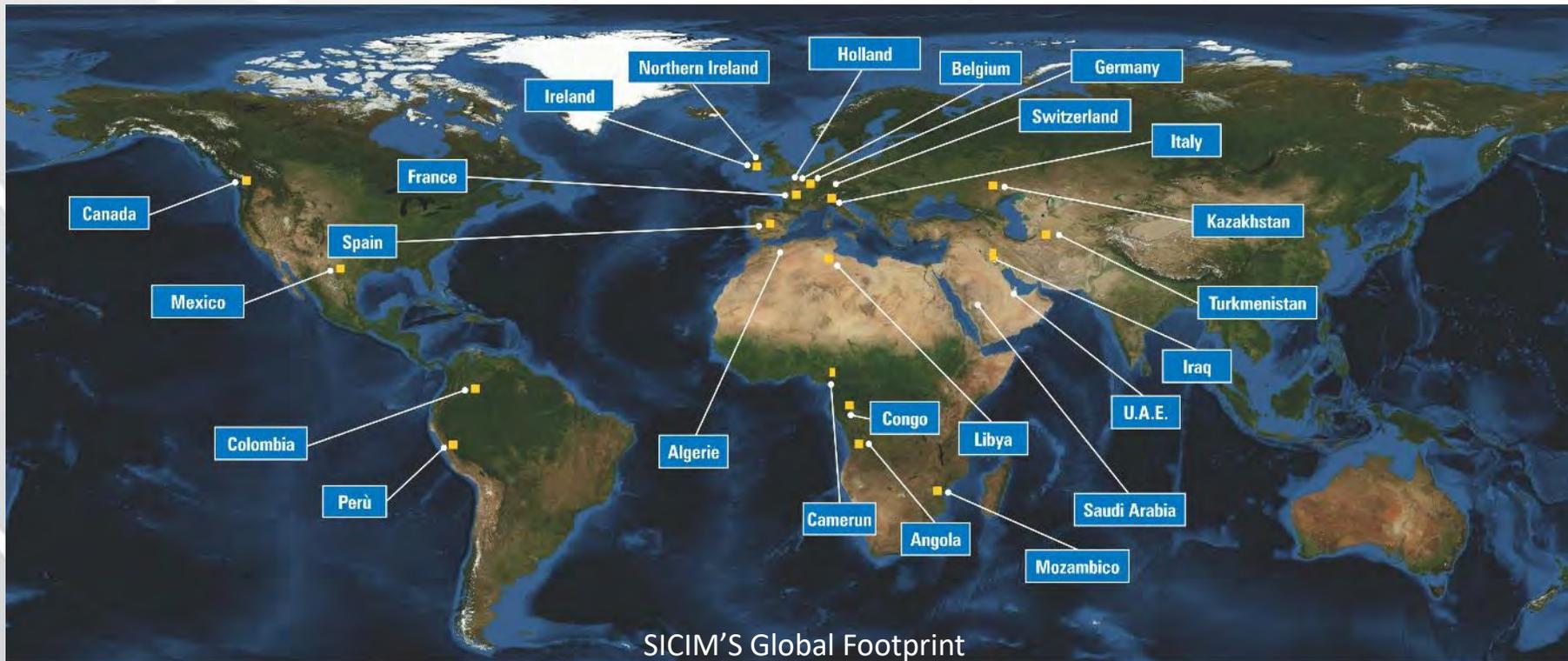


HEAD OFFICE

⇒ BUSSETO (PARMA) – ITALY

DATE OF ESTABLISHMENT

⇒ 22nd January 1962



⇒ 19 Branches/Subsidiaries

■ SICIM offices



BUSINESS PROFILE:

57 years of experience

SICIM is a Construction Company established in 1962 and offering all types of services related to the installation of pipelines and relevant ancillary facilities for the transmission and distribution of oil and gas on international basis.

Our past, including the installation of over than **15'000 km** of pipelines and **25'000 tons** of steel in facilities world-wide, is a guarantee of success.

Range of services

- ⇒ Project Management;
- ⇒ Engineering and Procurement for EPC works (approx. 200.000 hrs/year);
- ⇒ Pipelines and Flowlines for oil, gas, petroleum and other industry's products, water, etc., including rehabilitations of existing pipelines;
- ⇒ Oil/gas plants & facilities.



	2014	2015	2016	2017	2018
Manpower	5.531	5.077	7.022	7.234	4.827
Man-Hours	17.640.503	16.789.011	23.413.125	25.803.142	15.783.534



FINDINGS:

During pipeline construction activities, a consistent number of gas cylinder are handled.

Once the supplier sends gas cylinder to the main camp, they are stored in a gas storage depot. Afterwards gas cylinders are sent by truck to various construction site locations. Gas cylinder are properly transported firmly closed in transportation racks.

A big number of gas cylinder handling is therefore performed on site (RoW or Plant), both manually and mechanically.

On the workplace gas cylinders are often moved one by one from transportation rack to pay welder's rack.

A number of incidents – both accidents and near misses – have been recorded during cylinder handling on site with following consequences / potential:

- **shoulder ligament ruptures (2);**
- **musculoskeletal disorders;**
- **improper lifting operations;**
- **slips and fall risks;**
- **lack of efficiency – increased risk of shortcutting while handling cylinders.**

Risks raise when handling is performed on site even in adverse weather conditions, thus mechanical lifting is preferred.



FINDINGS:

HSE Stats before implementation

Incidents and Accidents due to improper handling of gas cylinders





SOLUTIONS:

With the aim of reducing incident and accident due to gas cylinder handling, Sicim started to use lifting devices available on the market (scissor lift with slings for gas cylinders).

After testing such lifting devices pro and cons were identified:

- + Very simple, immediate and quick to hook;
- + Excellent lifting capacity in dry conditions.





SOLUTIONS:

Safety concerns arisen during testing on site –
Right of Way:

- ❌ No Free fail to safe system: in case of rain or frost, it could lose lifting capacity, causing the cylinder to fall
- ❌ Not suitable for uneven ground transportation: oscillations could lead to the falling of the cylinder
- ❌ The lifting device does not enter between two cylinders inside the paywelder gas cage





IMPLEMENTATION:

SICIM decided to implement a specific lifting device to guarantee safe handling of gas cylinders during all activities.

The r&d process started with the support of a specialized producer/supplier in order to guarantee the correct feasibility and the certification.

The development process went through a number of prototypes in order to analyze the device features and obtain the best performances:

sling with ratchet





IMPLEMENTATION:



WORLDWIDE EPC SOLUTIONS FOR OIL & GAS SINCE 1962

EVOLUTION TO THE BEST SOLUTION



WORK IN PROGRESS



WORK IN PROGRESS



- + Easy to fit on;
- + Good behavior in optimal condition.

✖ No safe to fail system in case of cylinder dropping.

- + Introduction of safe to fail system - a sling passing under the cylinder.

✖ Improper fitting of the sling under the cylinder (belt buckle).

- + 2 slings rounding the cylinder + 1 ratchet lock for higher level of safety;

- + Fix bearing load safe to fail sling under the cylinder.

⚠ Slightly longer installation time but "safety came first!"



IMPLEMENTATION:

RESULTS OF TESTING

- a) Excellent lifting capacity in all conditions;
- b) The sling rounding the cylinder with ratchet straps has the capacity to lift the cylinder;
- c) The sling passing under the cylinder is a proper fail to safe;





IMPLEMENTATION:

RESULTS OF TESTING

- d) Suitable for long transportation in the RoW: also in uneven ground, the sling passing under the cylinder eliminates the risk of cylinder dropping;
- e) Flexible to be used with different size cylinders (different diameter / height)
- f) Proper size: it allows the cylinder lifting in and out the paywelder gas cage.





IMPLEMENTATION:

With an average time of installation well below 60", the system offers a high level of safety.

It has proven to be the more suitable handling cylinders method for outdoor works because reliable also in adverse weather conditions and in poor ground conditions.





ACHIEVEMENTS:

The Gas cylinder lifting device has been certified by the manufacturer. A Safety Manual for the correct use – application has also been developed.



Specific training to workers on site for the correct use of the lifting device

Initial period of use under strict HSE control for reliability monitoring

Systematic use of the lifting device in construction sites

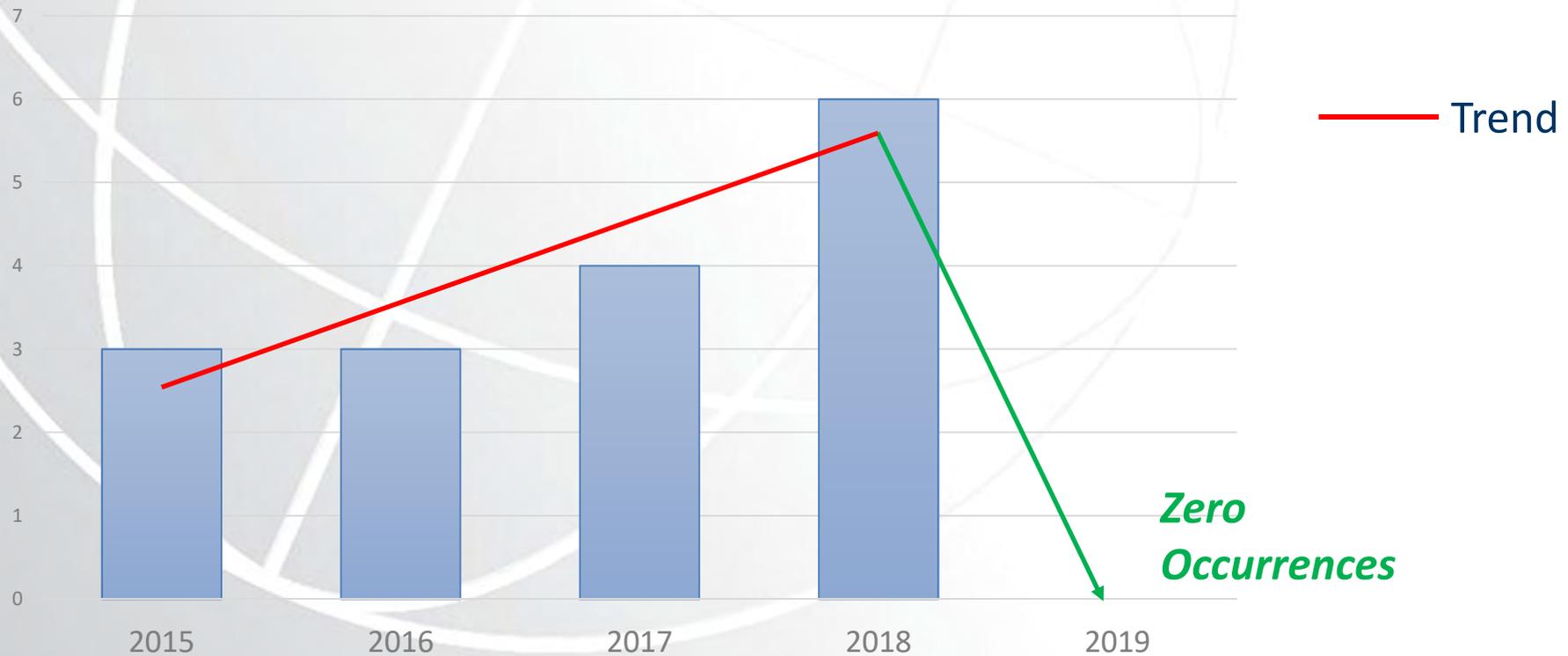




ACHIEVEMENTS:

Zero incidents or accidents occurrences since the beginning of the implementation of the new gas cylinder lifting device.

Incidents and Accidents due to improper handling of gas cylinders





LONG TERM PLANNING:

- Continuous Improvement -

- a) Continuous monitoring of the effectiveness of this specific lifting device;
- b) Implementation of safe cylinders handling device in all Sicim new worldwide projects;
- c) Cooperate with suppliers to develop increasingly specific tools/equipment/devices to be used in oil&gas activities;
- d) Always keep monitored the market for new tools/equipment that can be utilized to improve workers' health and safety conditions.



CONTACTS

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