

# P-D-T - Personnel Detection Tool



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# IPLOCA Health and Safety Award 2022

## HEAD OFFICE

➤ BUSSETO (PARMA) – ITALY

## DATE OF ESTABLISHMENT

➤ 22nd January 1962



SICIM'S Global Footprint  
24 Branches/Subsidiaries

## 60 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.**



The collage shows three Intertek certificates of registration for SICIM S.P.A. The first certificate is for ISO 9001:2015, the second for ISO 45001:2018, and the third for ISO 14001:2015. Each certificate is highlighted with a red circle around the standard number. The certificates also mention the company's main site in Busseto, Italy, and the scope of the management systems, which includes design, procurement, construction, and installation of pipelines and associated plants for gas, oil, and water.

|           | 2017       | 2018       | 2019       | 2020       | 2021       |
|-----------|------------|------------|------------|------------|------------|
| Manpower  | 7.234      | 4.827      | 5.549      | 4.425      | 7.203      |
| Man-Hours | 25.803.142 | 15.783.534 | 18.789.095 | 14.032.471 | 19.382.309 |

Construction is the industry that provides the world with the required infrastructures.

Construction workers spend a large number of hours on the job site, interacting with powerful and dangerous equipment.

Injuries caused by the impact of heavy equipment and machinery happen frequently in the construction industry because of their massive use.



Impact with construction equipment is one of the most common causes of serious injuries in the construction industry worldwide.

*It only takes a really short time to enter the line of fire and have an impact with a piece of construction equipment!!*

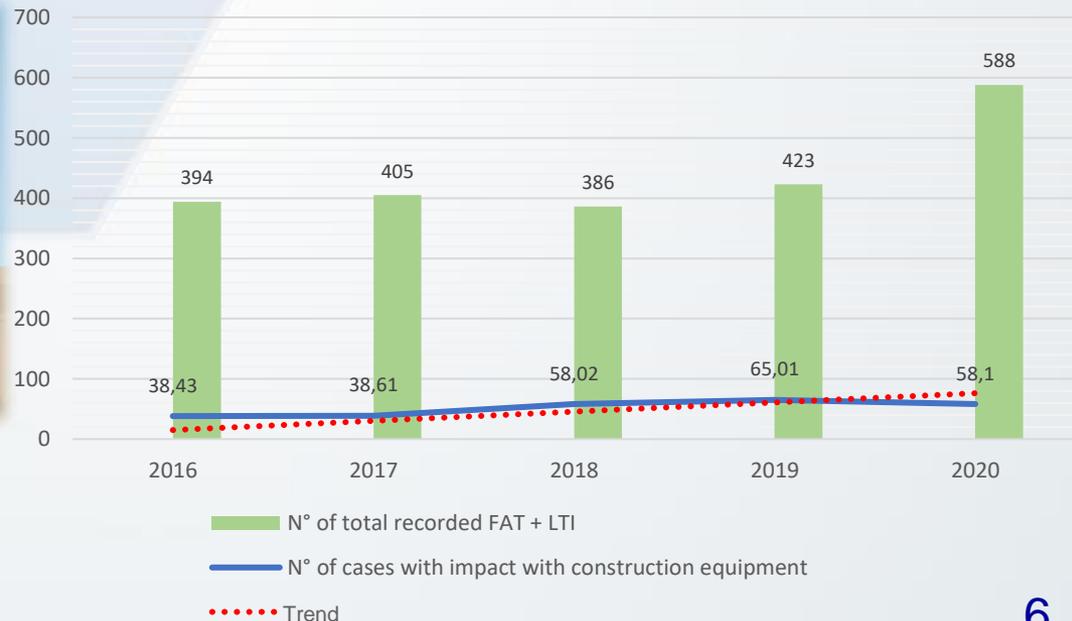
Such an impact can have serious consequences, which can lead to serious injuries if not mitigated properly.



Recorded LTI and Fatalities with impact with construction equipment have a considerable effect on IPLOCA statistics about annual performances.  
The **trend** of these incidents during last the 5 years has been always **increasing**.



IPLOCA Stats



Sicim is monitoring closely the High Potential incidents and Near Misses related to impacts with construction equipment.

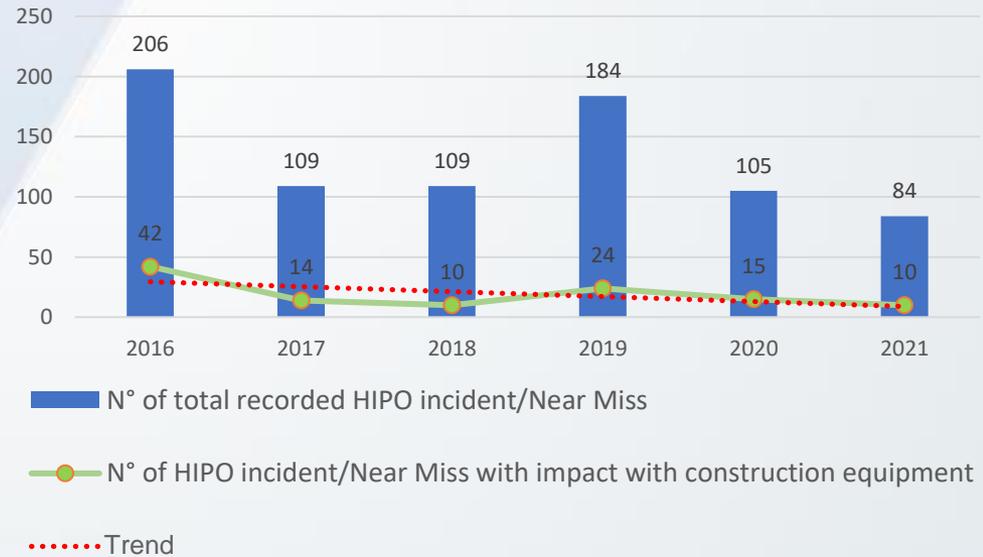
Sicim trend is decreasing but still, a lot of High Potential incident and Near Misses are occurring every year involving our personnel...

....it is still around 10% of HiPo recorded incidents!!!

*...This is a wake-up call that needs to be considered!!!*



SICIM HiPo Stats



Diminished **visibility** also plays a significant role in originating many Oil&Gas construction site incidents.

The size and continuous movements of heavy equipment leaves **little room for human error**.

**Blind spots** can be quite large for the operator.

Additionally, dust, dirt, and debris originating from earthworks and/or adverse weather conditions can have a **side effect** on 360° visibility around pieces of machinery.



# FINDINGS

1

Can you see me?



Yes I can, I have a rear camera and mirrors. And you?

2

Yes I can. Can you also perceive my presence here?



No I can't, and you?

Sure, you are really noisy and make a lot of dust

3



It would be great to perceive your presence also from my side

4



That's true. Great idea!!



## STEPS TO THE BEST SOLUTION

*Ground worker safety is vital to keep worksites safe.*

Sicim decided to equip its heavy pieces of machinery with a proximity detection warning and alert system to reduce the risk of impact with pedestrian workers when working in close proximity.

Desired requirement for the system:

- ✓ Pedestrian worker proximity detection
- ✓ Approaching vehicle/machine detection
- ✓ 360° degree detection
- ✓ Proximity detection through walls or other obstacles
- ✓ Eliminate operator blind spots
- ✓ Fit any heavy machine



## STEPS TO THE BEST SOLUTION

1

Sicim thoroughly investigated the **market** with the objective of reducing to ZERO the risk of impact between workers and heavy pieces of machinery



2

The task for the Suppliers was to design a system that would fit **compatibility** with all safety devices already installed on Sicim's heavy equipment



## STEPS TO THE BEST SOLUTION

3

Selection of the system & **Installation** on Sicim heavy equipment



4

**Training** of operators & workers – operators using the system should undergo a specific internal training section and pass the test



5

**Trial** Period on a selected pipeline project



The selected Proximity Warning System that Sicim called

## *Personnel Detection Tool – PDT -*

is designed for personnel and objects detection.



Frequency Modulated Continuous Wave (FMCW) radar **detects** moving and stationary objects and provides the operators with **suitable time frame** to be able to respond to hazard calls and avoid collisions.

The sensors provide an active object detection in heavy equipment **blind spots**.

Unaffected by wind, rain, humidity, fog, and all kind of adverse **weather conditions**. The adjustable sensing area minimizes false alerts.



Objects entering the sensing area alter the time response of the return signal, triggering an **alarm & indicator lights** alerting the operator of an obstruction in the work zone.

On-board camera and LCD monitor for additional safety and operator quick view of blind spots.

*PDT allows the operator to visually and audibly detect any obstruction and check for it in a **short period**.*



# FINDINGS

Hi colleague... I'm approaching your equipment!!!

1



Yes I know, my PDT already alerted me

Wow!!!!  
Are you sure that you can perceive my presence now?

2



Yes, I'm detecting you with my PDT

PDT is working...  
Have a safe & sound day!!

3



That's good news! Let me know if I'm not in the safe zone...



**Zero incidents** recorded since the beginning of the implementation of the PDT.

**ZERO**



*& additionally*

PDT helps operators to minimize the risk of incidents and injury generating considerable **cost reductions** and efficiency improvements.



## CONTINUOUS IMPROVEMENT

a) Continuous monitoring of the **effectiveness** of the PDT

b) Installation of the PDT on all Sicim fleet of heavy equipment

d) Always keep watching the market for new systems that can be utilized to **improve** workers' **H&S** conditions

c) Verify the availability of specific suppliers in the area of operation to ensure the optimal maintenance and **operability** of the PDT on all work sites worldwide



Scan the QR code to select and watch the Golden Rule's video that best fit preventing man – machine impacts



<https://www.sicim.eu/en/qhse/golden-rules/>



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