



WORLDWIDE EPC SOLUTIONS FOR OIL & GAS SINCE 1962



# Novel Construction Fall Session

- Munich, 25 October 2023 -

## Bending Safe Hook Support

Guido Soffiantini – Health and Safety Manager

Vincenzo Petrone - Carpentry coordinator & Equipment Engineer



# Bending Safe Hook Support

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Business Profile - Who is Sicim ?



## Mission

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OUR EPC MODEL FOR  
SUSTAINABLE GROWTH

**SICIM is a Global EPC operator** with a clear, innovative objective: **to provide our clients with the best possible service in the engineering, supply and construction of Pipelines and Plants in the Energy sector.**

Founded in 1962 by the Riccardi family, SICIM is a world leader in engineering, procurement and construction in the Oil&Gas sector. **Efficiency, punctuality and competitiveness** are the **keys to success** that have been handed down through the generations.

For 61 years, SICIM has been burying the company's roots in its **people**, in their **ideals** and **principles**, battling on the front line for the social and economic development of the Countries in which it operates in.



# Bending Safe Hook Support

Business Profile - Who is Sicim ?

## Busseto Headquarter

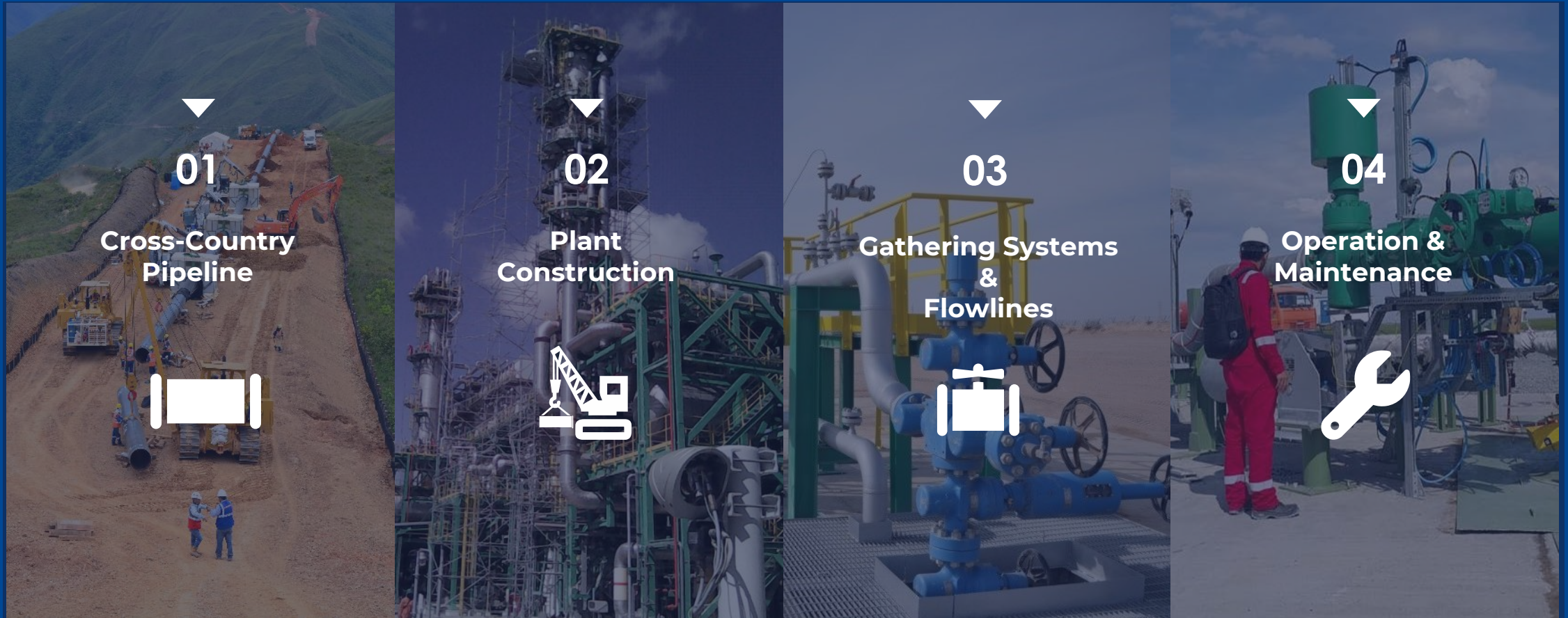
108.000 m<sup>2</sup> in the land of Giuseppe Verdi





# Bending Safe Hook Support

Business Profile - Who is Sicim ?



# Bending Safe Hook Support

Business Profile - Who is Sicim ?



Workers  
13.500



Equipment  
5.750



Kilometres of pipe laid  
15.000



Countries Sicim has worked in  
23

Current international presence



Efficiency, punctuality and competitiveness to tackle **extreme challenges**



# Bending Safe Hook Support

## FINDINGS

Falling from height is one of the most common causes of death in the construction industry worldwide.

***It only takes a really short time to fall from a height!!***



Working at height – W@H - can have serious consequence if it is not mitigated properly.

Awareness of correlated risks is paramount for workers when W@H. When it is deemed necessary to perform W@H, all control measures must be put in place!



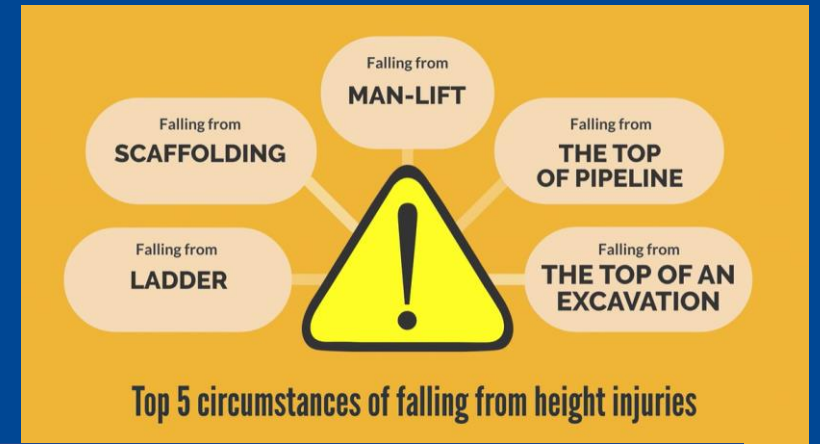
# Bending Safe Hook Support

## FINDINGS

Sicim is monitoring closely the High Potential incidents and Near Misses related to W@H activities.

Focus is given to occurred accidents and NM both internal as well as those related to subcontractors or competitors.

Trends are decreasing but still, a lot of accidents are happening every year involving workers.



# Bending Safe Hook Support

## FINDINGS

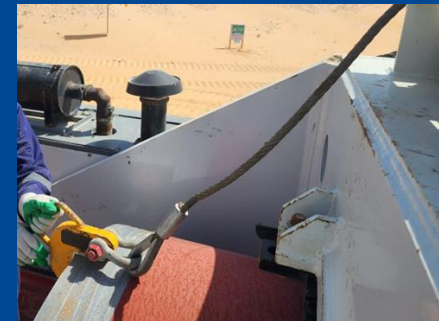
### Wake-up call for W@H related to bending activities



In 2021 Sicim recorded 2 LTIs in bending activities, hence a special focus was addressed to this area to find out solutions to mitigate W@H risk in such activities.

When bending a pipe, W@H is required:

1. when **fixing and lashing the hook** that has to be connected to the end bevel of the pipe to allow the pipe to slide through the bending saddles during the operation;
2. while measuring the **bending angle** being implemented.





# Bending Safe Hook Support

## FINDINGS

We have evaluated the amount of bending and the anticipated number of hook fixing and lashing operations in a medium / large pipeline:

- Approx 50 KM in length;
- Approx 15 bends to be performed per KM ;
- 2 risky activities to be performed per each bend (1 when attaching the hook & 1 when detaching the hook)
- = **~1500** risky activities for a medium pipeline project (50 KM)

50 x

15 x

2 =

1500

# Bending Safe Hook Support

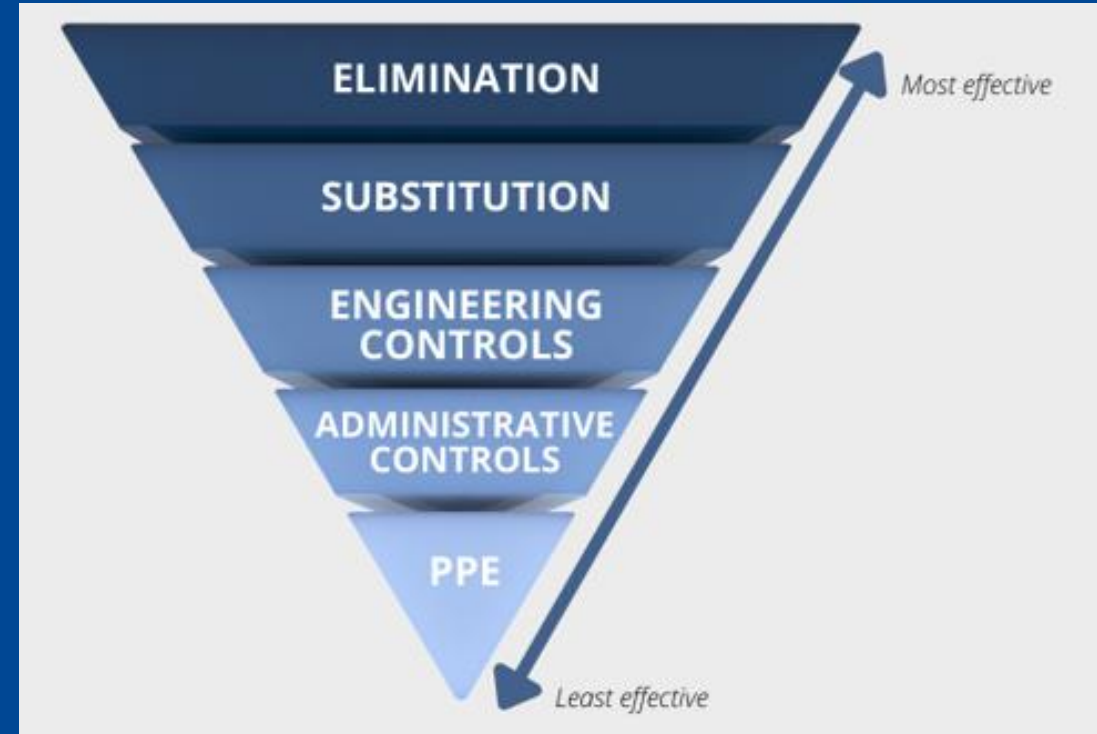
## SOLUTION

### What can we do?

Let's think about the Hierarchy of Control which is the way of determining which actions will best control the exposures.

### What is our target?

Let's look at the most effective one!!



**ELIMINATION:** REMOVE THE HAZARD AT THE SOURCE!!

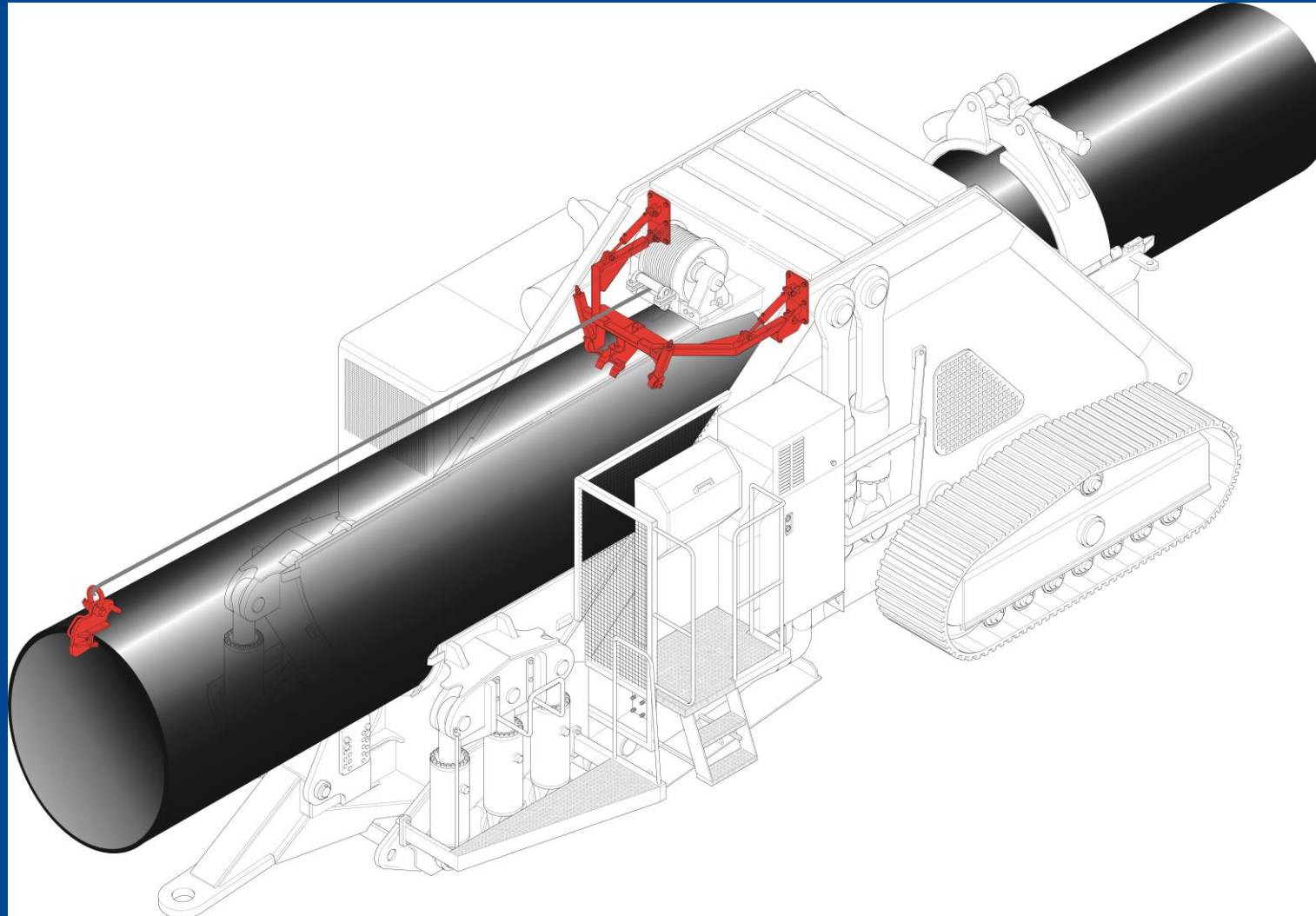


# Bending Safe Hook Support

SOLUTION

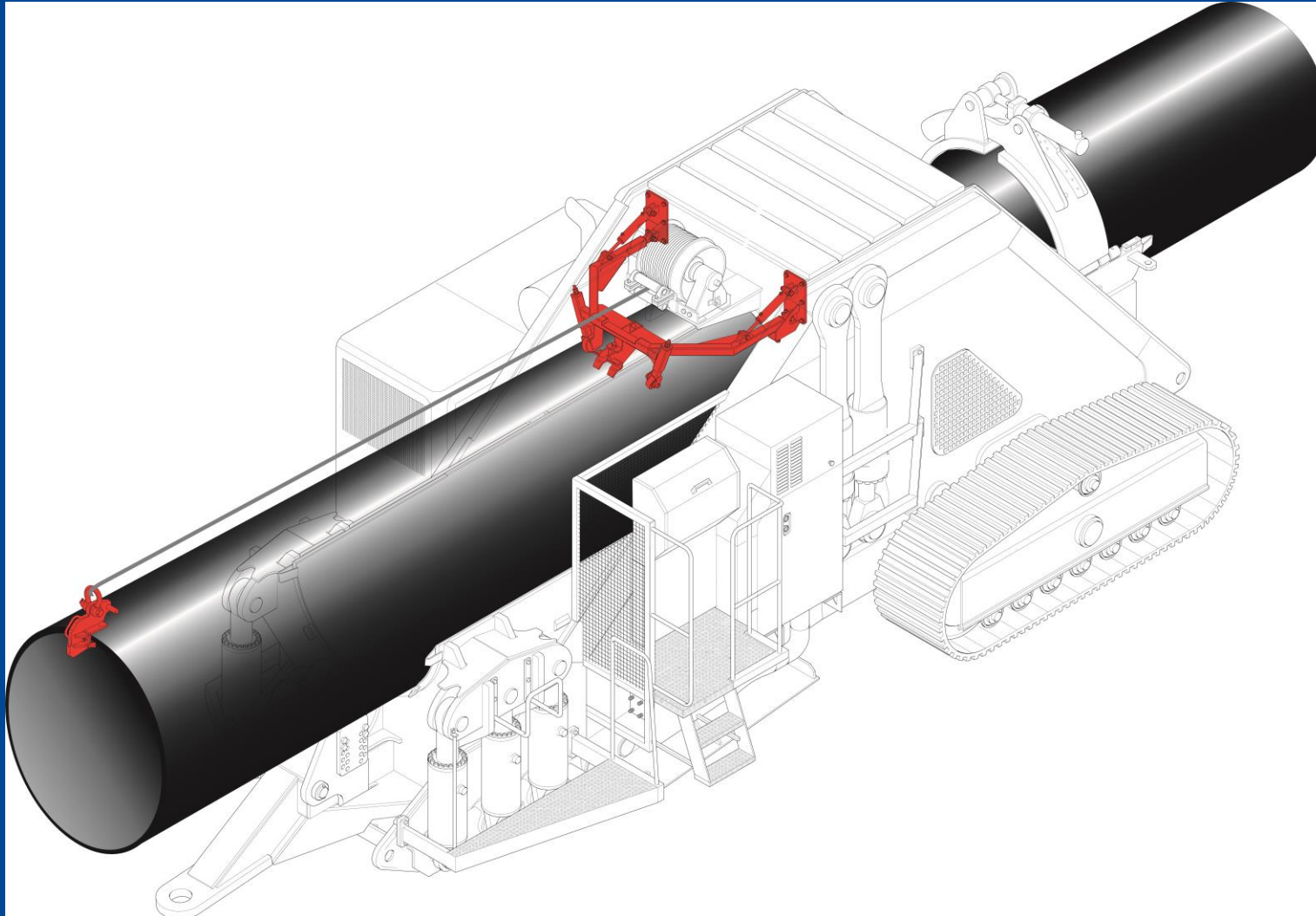
A simple solution with great effectiveness.

## THE BENDING SAFE HOOK SUPPORT



# Bending Safe Hook Support

## SOLUTION



The pipe bending machine has been equipped with an hydraulic safe hook support.

This new tool allows self-coupling of the hook and the pipe bevel during the pipe sliding on the stiff-back.



NO HELPER ACTION REQUIRED

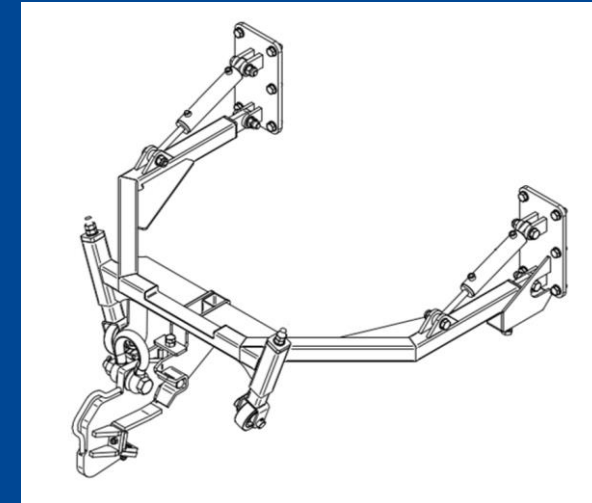
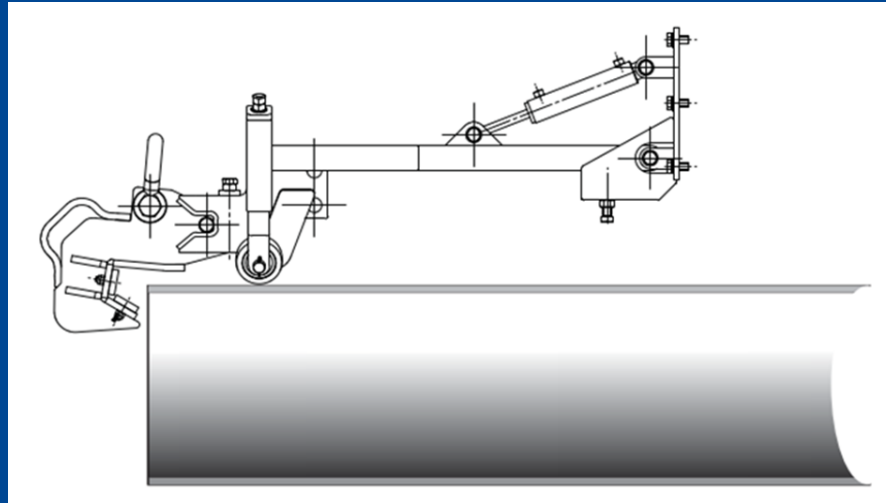
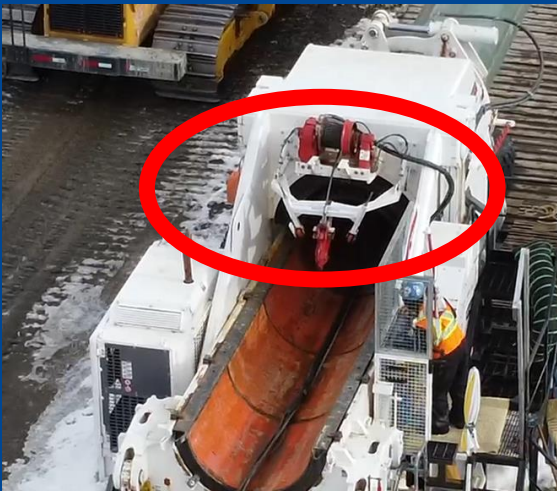


# Bending Safe Hook Support

## SOLUTION

This device can be easily installed on all kind of pipe bending machine, and it consists in:

1. A new engineered frame
2. An additional cylinder positioned on the winch
3. A soft update of the hydraulic system



# Bending Safe Hook Support

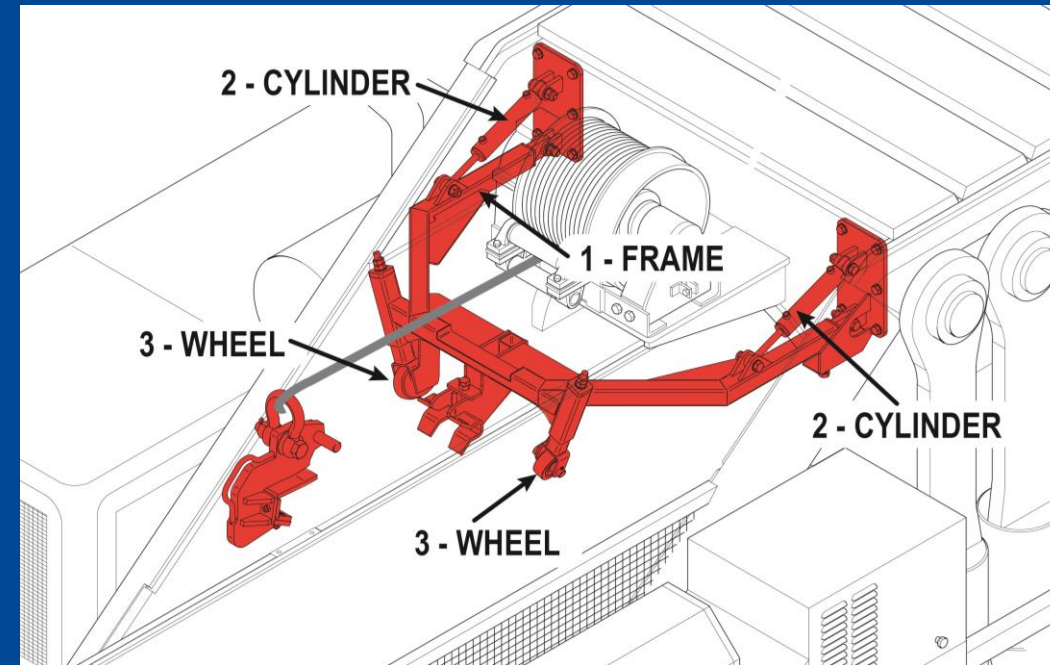
## SOLUTION

### 1. A new engineered frame

These are the components of the Bending Safe Hook Support system:

- 1) The frame, hinged on the upper side of the pipe bending machine, just ahead the die position;
- 2) Two cylinders for the frame adjustments;
- 3) Two wheels, with polyurethane lining, to guide the pipe while sliding between the saddles.

The polyurethane lining on the wheels is to prevent any damage of the pipe coating.





# Bending Safe Hook Support

## SOLUTION

### 2. An additional control cylinder positioned on the winch



The control of the Bending Safe Hook Support system has been enhanced by the installation of an additional cylinder connected to the winch that can lock/unlock the winch operation from the control panel of the operator.

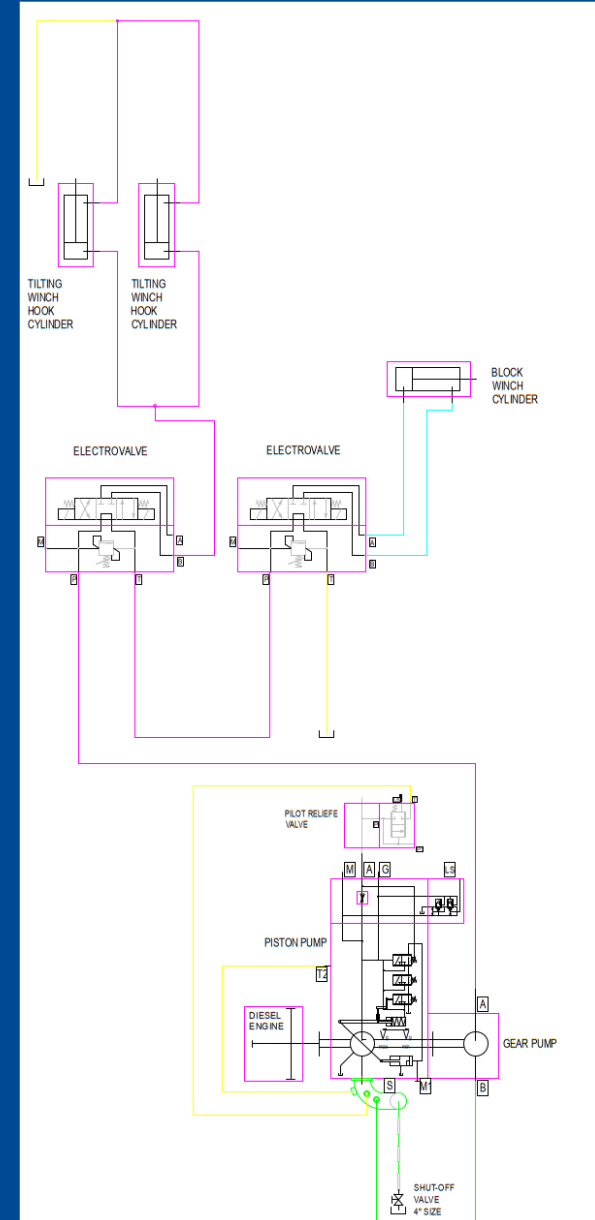
# Bending Safe Hook Support

## SOLUTION

### 3. A soft update on hydraulic system

The installation of the Bending Safe Hook Support requires just a soft update of the hydraulic system which consists of adding 2 electrovalves for the operation of all additional cylinders.

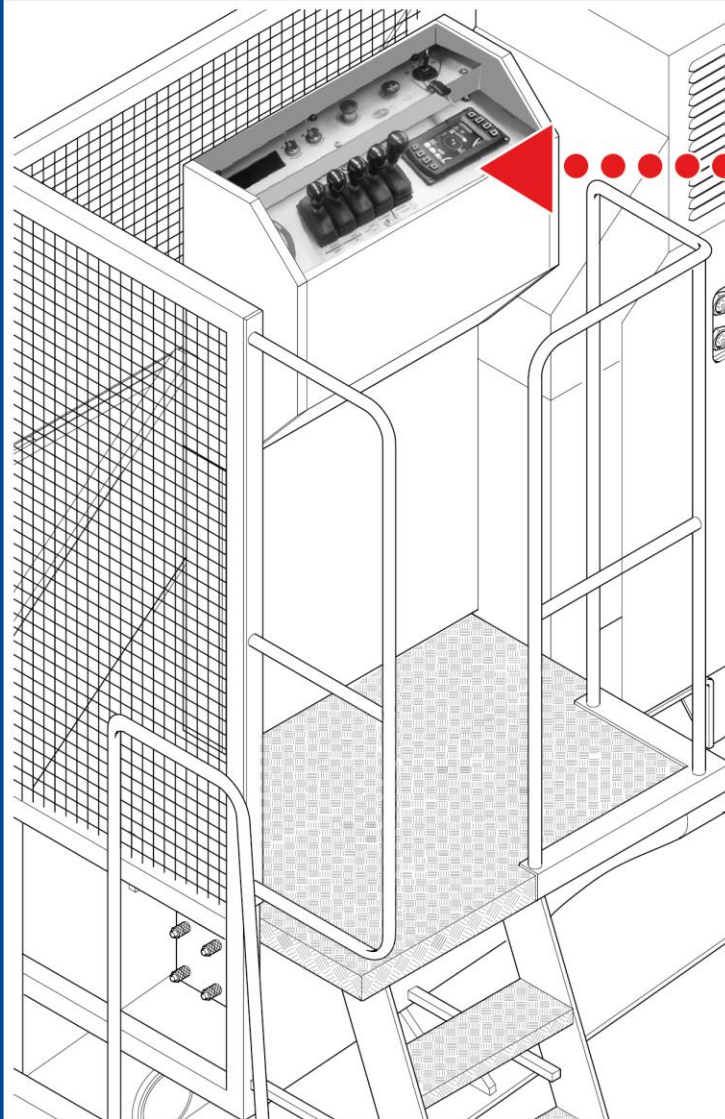
### Additional hydraulic diagram





# Bending Safe Hook Support

## SOLUTION



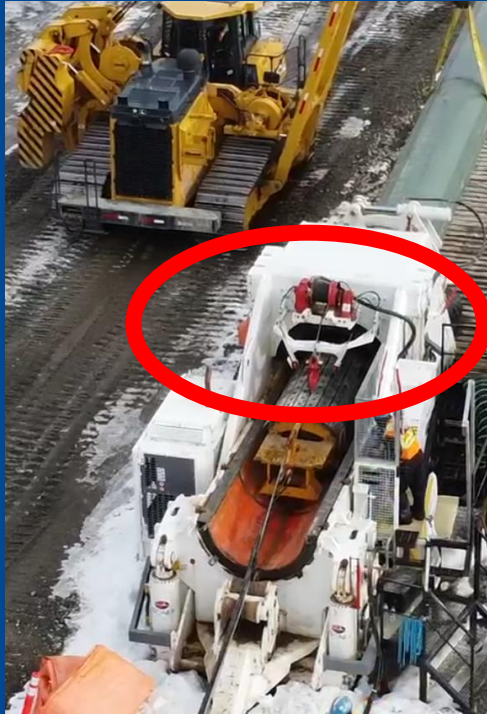
All movements of the Bending Safe Hook Support are controlled by the operator that operates from his assigned safe platform.

All movements are managed by 2 switches (A & B).

# Bending Safe Hook Support

## IMPLEMENTATION

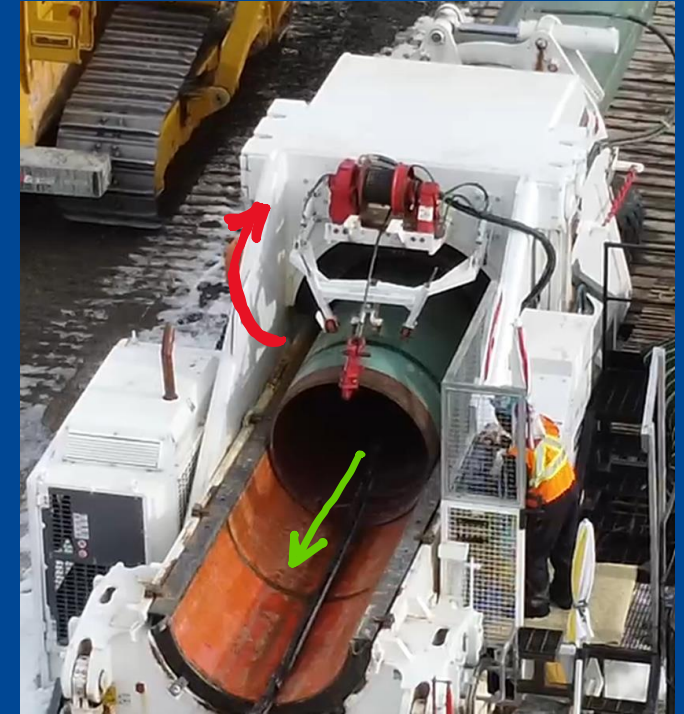
## OPERATION



Bending Safe Hook Support waiting for the pipe



While pipe slides in, the support contacts the pipe, and the hook is positioned at optimal height to be attached to the bevel



Hook connected to pipe bevel. Bending Safe Hook Support lifted



# Bending Safe Hook Support

## IMPLEMENTATION

## OPERATION



Standard bending operation ongoing



Bending completed and pipe is pulled out



Bending Safe Hook Support is moved down onto the pipe for hook release

# Bending Safe Hook Support

## ACHIEVEMENTS



## Which are the Achievements?

- ✓ The Bending Safe Hook Support system has been successfully implemented and utilized on our Coastal GasLink and Trans Mountain Expansion Pipeline Projects in Canada.
- ✓ Positive feedback from the bending machine operators that recognize the added value provided by the Bending Safe Hook Support;
- ✓ The operator doesn't need the support of any helper ➡ All workers out of the line of fire;
- ✓ The operator can manage the bending activity without abandoning his safe designed position;
- ✓ Reduced number of internal & Client observations/NCR in relation to hazardous conditions and unsafe acts,
- ✓ Number of W@H risky activities decrease from **~1500** (approx.) to **ZERO**

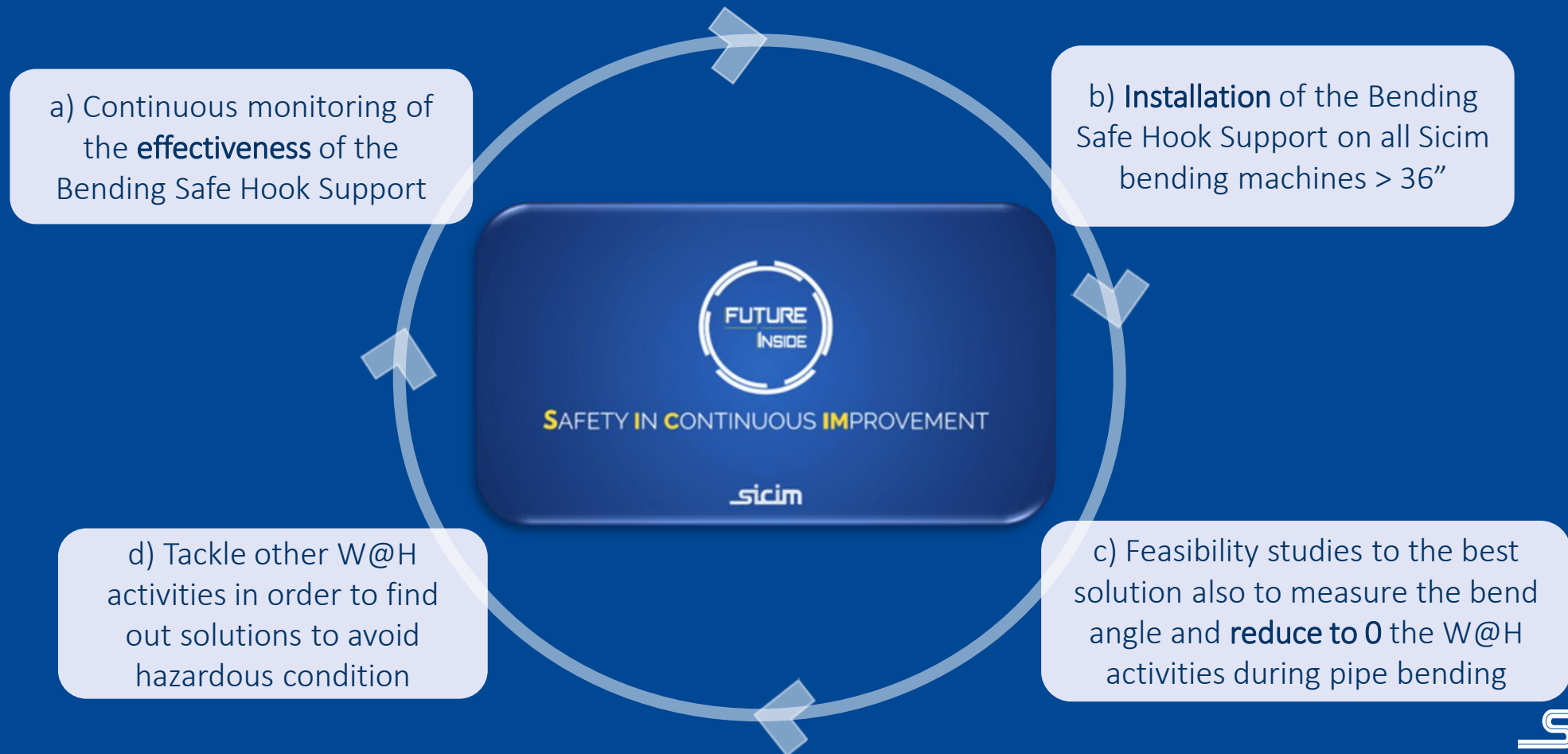


# Bending Safe Hook Support

## LONG TERM PLAN

SICIM's slogan towards Continuous Improvement is:

«...**ALWAYS HAPPY BUT NEVER SATISFIED**...»





# Bending Safe Hook Support







# Thanks

# Questions?

Guido Soffiantini – Health and Safety Manager  
Vincenzo Petrone - Carpentry coordinator & Equipment Engineer