

# LAURINI OFFICINE MECCANICHE



2018 IPLOCA Health & Safety Award sponsored by CHEVRON

“APOLLO”  
a safe evolution of sidebooms





1. COMPANY PROFILE	3
2. FINDINGS	4
3. SOLUTIONS	6
4. IMPLEMENTATION	8
5. ACHIEVEMENTS	9
6. LONG TERM PLANNING	10

## 1. COMPANY PROFILE

Laurini Officine Meccaniche is an innovative Italian company with a strong international position thanks to its enthusiastic approach towards the efficient and effective use of “intelligent strength”. LOM brings more than 60 years’ experience in the design and construction of earth moving machinery and equipment for pipelines of national and international projects.

Our products are all internally designed, built and patented in most cases. Crushing Padding machines, Screening Padding machines, Pipeline Vehicles and Pipeline Equipment is what we are known for in the five continents.

Continuous investment in research and development is another factor that accounts for the outstanding technical standard LOM is able to offer to pipeline installation companies worldwide.

Laurini Officine Meccaniche employs 50 employees and the average age is 35 years.

Laurini Officine Meccaniche is in possession of ISO 9001 TUV certification - Quality Management recognized worldwide. This certification guarantees the effective system of quality management. The company also obtained CE certification for all its machines, which comply with EU regulations, thus ensuring that the products conform with the requisites detailed in the applicable directives.

## 2. FINDINGS

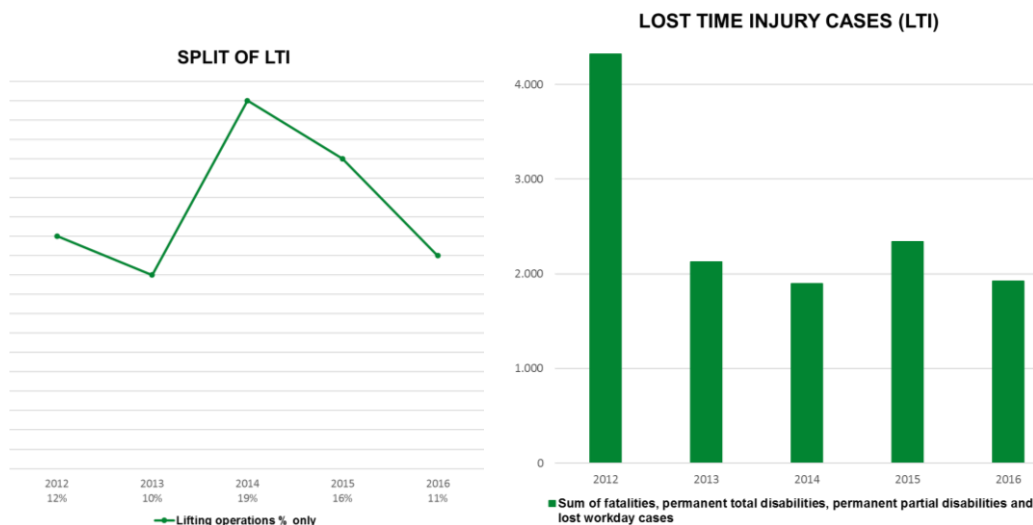
Pipelines are still built in the same way as they always have been, ever since pipes were laid some 80 years ago. Existing tried and trusted methods have served the industry well over the years but nowadays, more than ever, there is a clear market driven demand for a technological advancement and for a redefinition of the pipes lying process. In this respect, there are three critical issues advocated by the customers:

### 1. HIGH SAFETY STANDARDS

2. *PRODUCTIVITY IMPROVEMENTS*  
(in terms of both installation costs and time)

3. *ENVIRONMENTAL SUSTAINABILITY*

According to the IPLOCA Health, Safety & Environmental Statistics Reports of the past five years, created with the support of all the Regular Members, injury cases are slightly decreasing. Nevertheless the 2020 target is still far and that is the reason why everyone should commit himself to contribute to the job safety of our industry. Reports data show that splitting the Lost Time Injury cases (sum of fatalities, permanent total disabilities, permanent partial disabilities and lost workday cases) a significant percentage happens during lifting operations.

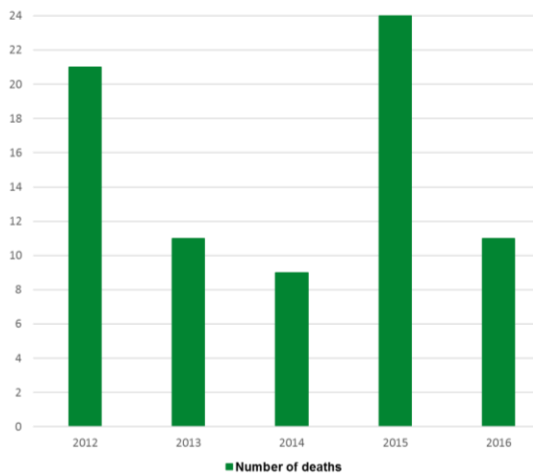


## 2. FINDINGS

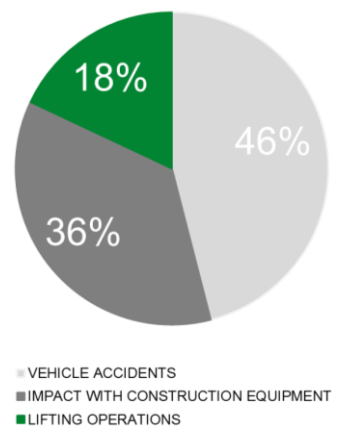
Between the 11 unacceptable deaths in 2016 resulting from a work injury or occupational illness, 2 of them have been the result of the use of a lifting machine including but not limited to falling objects, collision with obstacles, breaking of the machinery, wire rope ruptures, etc.



FATALITIES



SPLIT OF FATALITIES 2016



Since every life is extremely important we put our effort and know-how in developing something that could reduce this issue, making this operation 100% RISK-FREE.

### 3. SOLUTIONS

LOM has always been focused on the use of "intelligent power" to develop more and more efficient machinery, and succeeded in arousing the interest of the customers with Apollo: a new generation of pipe - laying equipment that overcomes the difficulties encountered up to now with traditional pipe-laying machines, starting from safety on the job.

Apollo is a pipe laying system that does not use cables to carry suspended loads: it is not a lifting device. Each unit is composed by a part which sits on the right of way and by another one which stays inside the trench.



Apollo eliminates the risk of overturning thanks to an unprecedented structure equipped with two separate crawlers: one track sits on the right of way and the other track stays inside the trench to ensure greater stability of the machine, thereby doing away with the mechanical arm and cables to raise projecting suspended loads. It is a safer laying system that will also simplify bureaucratic and safety certification procedures.

Apollo is totally safe for the operator. No matter how much load insists on the machine, Apollo cannot tip over. This danger is completely eliminated: no more casualties in pipe-laying operations.

The load distribution between tracks gives us another substantial advantage: the maximum load on one of Apollo tracks will be about 50% of the maximum load on the left track of a traditional sideboom.

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Other additional benefits:

- **LOGISTICS & TRANSPORTABILITY:** Apollo can be easily transported to the next project in a 40 ft. open top container. Its operating weight is 40 t. (vs. 60) and *it does not have a counterweight, while standard pipelayers require an additional truck for boom and counterweights. Sometimes the assemble/disassemble of side boom counterweights can cause injury;*
- **POWER SYSTEM:** the hood configuration allows to install different types of engine (for tier 3 & tier 4 regulation emissions). Moreover it needs a smaller installed engine with less horsepower;
- **ECONOMICS:** Apollo requires a smaller initial investment compared to the traditional sidebooms and allows to reduce the number of machines employed during the lay of the pipe;
- **BUREAUCRACY:** since it is not a lifting device it does not need special inspections or certifications and that means less paperwork, less bureaucracy and less costs.

#### 4. IMPLEMENTATION

From the birth of the idea the project took four years of work to be completed.

Once the prototype has been finished and once the appropriate changes have been made, we tested it in all its functions in our field where we realized a dig. After that we applied a load equal to the maximum weighing capacity.

The very first trial in a real pipeline site took place on the Cervignano-Mortara 56-inch pipeline jobsite, thanks to the willingness and cooperation of “Snam Rete Gas” and “Max Streicher S.p.A.”,

Streicher was the first contractor that tried our prototype and during the test we could notice that the prototype could work alone between the other pipelayers, while at the beginning the idea was of make a series of Apollo working alone without sidebooms





## 5. ACHIEVEMENTS

During the first trial in the field Apollo proved to be fully able to perform the functions for which it has been built.

The operators, the experts and the jobsite managers could see the efficiency of the machine especially for the reason that it was securing the pipe, eliminating the overturning risk of the standard pipelayers.

The perception of the stability was such that the common thought was to assume the utilization of this machinery in the future in all the big projects for the sole reason that can secure the pipe column and the traditional machine that work together with this system.



Like every innovative prototype there have been “negative” feedback, that we can simply consider precious advice.

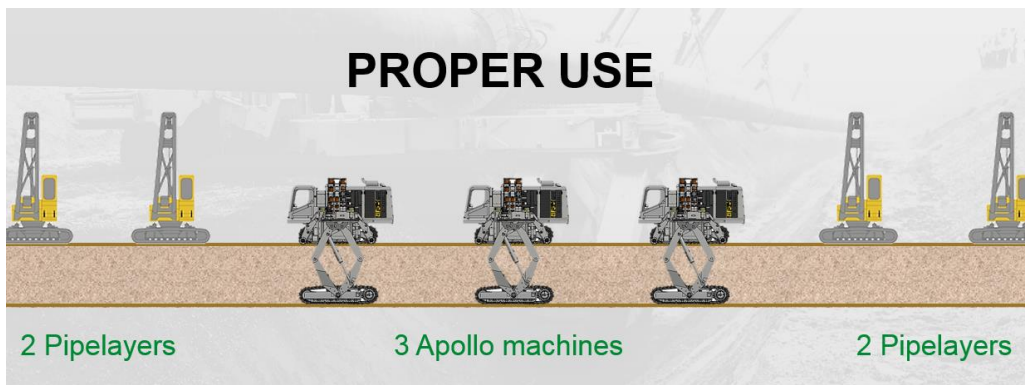
- 1) The machine can only be used for big diameter pipes because the trench dimensions could imply problems in terms of sizing of the track inside the dig. For this reason we chose, for the first trial, a 56-inch pipeline, knowing that the big pipes are the most at risk;
- 2) Moreover the machine has its limits linked to the slope of certain projects: Apollo could not work on slopes above 20 degrees and it is recommended for big projects in lowland areas.

## 6. LONG TERM PLANNING

Apollo will be used for at least 24 months in the EUGAL pipeline project.

During this period the machine will certainly demonstrate its qualities and we believe it will draw the attention from the first months of activity.

Despite of the successful test, we configured a proper use scheme which guarantees the stability of the pipe column and the security of the sidebooms: the configuration is made up of two traditional pipelayers at the beginning, two at the end and two or three Apollo units in the middle.



These circumstances could not be replicated during the first trial for obvious reasons of costs related to complexity of the prototype.