

OVERPIPE®

Protection plates for underground pipelines

The inventor

Yannick Joubaux, an engineer who graduated from the INSA Lyon, manages a public works firm near Aix-en-Provence that is specialized in pipeline sites, in particular for gas.

Within this framework, he developed excavation by suction in the Southeast of France. This process makes it possible to avoid mechanical excavation, which is long and dangerous in numerous delicate situations.

In 2005, he began thinking about new processes to provide mechanical protection for underground pipelines.

The publication on August 4, 2006 of a decree entitled «New Security Regulations» governing transport by pipeline defined the framework for continuation of his research.

The problem

Studies in numerous countries have shown that the first cause of pipeline accidents - with consequences that can be dramatic - comes from «indiscriminate work», meaning a worksite near an existing pipeline that has not been sufficiently identified or that is poorly protected.

» **The government has created regulations to prevent these two risks :**

On one hand, by requiring contractors to submit a «DICT» (Declaration of the intention to begin work), which is supposed to provide sufficient information about the presence of all underground pipelines.

On the other hand, by imposing a reinforcement of protection for pipeline structures according to their geographical location (urban, suburban, or rural zone), as well as an increase in pipeline inspections.

The deadlines for compliance with these regulations range from 3 to 12 years.

The current solution : a concrete slab

The traditional solution - and the only solution available up to now - to ensure the mechanical protection of pipelines consists in placing a concrete slab, prefabricated or poured on site, over the pipeline.

» **This solution, which presents obvious advantages (availability, rigidity, etc.), also has numerous drawbacks :**

Its weight.

Installation difficulties (workers, machines), risk factors for workers.

Its colour, which in no way reveals the nature of the fluid being transported.

The difficulties of subsequent handling.

DC Detection.



Concrete slab work site

The innovation : OVERPIPE

Yannick Joubaux found a solution to replace the concrete slab (except in certain cases where loads must be distributed over a surface) with mechanical protection made of... plastic.

» **Its advantages answer to the drawbacks of concrete point by point :**

A weight divided by 15 for the same surface.

Transport that is economical in fuel.

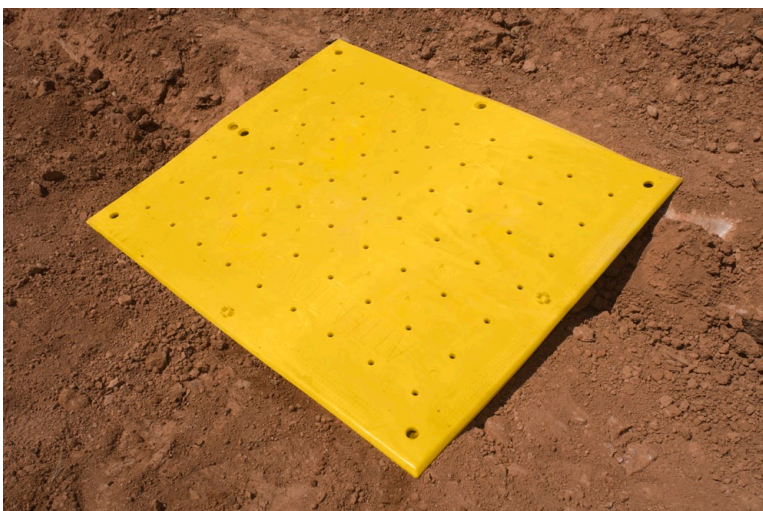
Easy storage (palettes with 35 to 50 units).

Installation, without the use of heavy machines, by two workers under optimal security conditions.

Clear marking thanks to the colour in the plate's mass.

No perturbation in cathodic detection.

However, Yannick Joubaux also thought of including new functionalities in his innovation, based on his experience as a contractor.



OVERPIPE plate

From an idea to mass production...

The framework was clear : this plastic plate had to provide mechanical protection that was at least equivalent to that of a concrete slab.

The norm chosen left no doubt about this subject : the OVERPIPE plate had to resist standard trials : the dropping of an excavator bucket of mechanical shovel weighing 32 tons from a height of 1 meter!

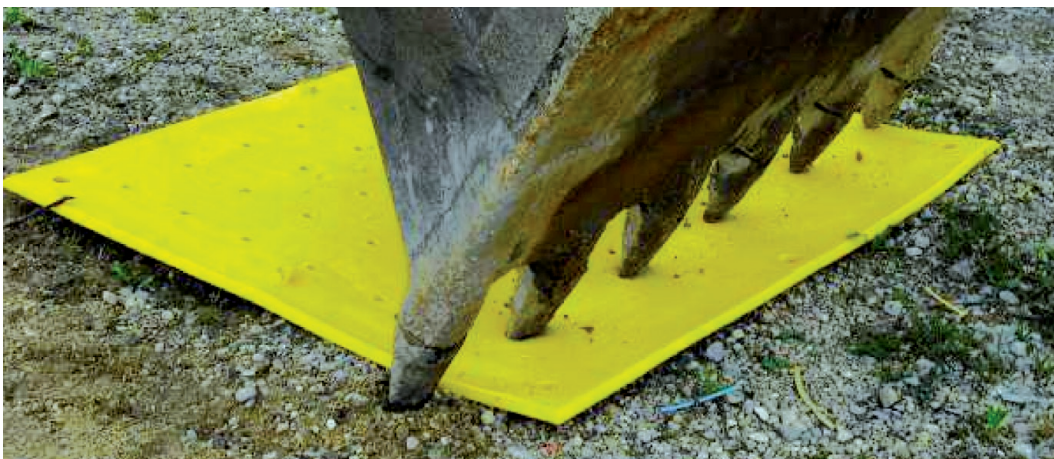
The first work by Yannick Jouveaux and his manufacturing partner - an effort that took two years - was therefore to finalize the formula for the raw materials used and the production process.

The choice was made for high-density injected polyethelene (HDPE). The manufacturing partner equipped himself with a 2,500-ton press to carry out the project.

After theoretical studies, trials : the 01/07/2009, the OVERPIPE plate passed all of the resistance tests and obtained mechanical validation by GDF SUEZ.

The OVERPIPE plate is now available for mechanical protection of pipelines transporting gas or any other fluid (hydrocarbons, chemical products...).

Yannick Jouveaux is already considering its development for the protection of underground networks of all types : fiber, cables, etc.



Trials

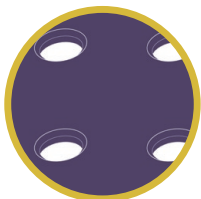
The vocation of OVERPIPE : Security

The OVERPIPE plate has a unique vocation – security :

- » **Security for underground pipelines :** positioned 30 cm above the pipeline with a width that is 1 meter more than the diameter of the pipeline.



Marking (in relief)



Draining holes



Bevelled edges

The plate is entirely yellow in order to provide instant recognition in case of an incident and is sheltered from possible damage caused by UV or the natural environment.

The specifications of its raw materials correspond to exact requirements and norms. Its surface can have an indelible warning message or identification cut during manufacture.

Its conception makes it possible to avoid any error in cathodic measurement.

Finally, crash tests have demonstrated its incredible resistance to shocks (the dropping of a 32-ton shovel excavator bucket from a height of 1 meter).

It perfectly corresponds to the regulations decreed in 2006 for the protection of underground pipelines.

- » **Work site security :** the OPPBTP and the CRAM (both French regulatory organisms), and all contracting authorities are rightly placing increasing importance on work site security.

The OVERPIPE plate, thanks to its lightness (just a little over 25 kilos for a plate that measures 1.25m x 1.50m), easy transport, handling and installation (no need for heavy machines or specific tools), considerably reduces professional risks.

OVERPIPE exclusivity : the fruit of experience

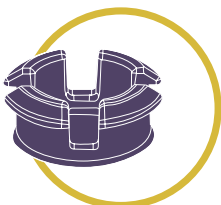
- » While security is its raison d'être, **the OVERPIPE plate has many other exclusive advantages** which are the fruit of Yannick Joubaux's experience in the field.
In particular, one should note:

The coupling system by clip in order to connect the plates to one another. There are clips on both sides to enable use of the plate in its two dimensions and facilitate curved installation.

The presence of numerous holes (designed in the production mould) that exist for three reasons: optimise cathodic detection, avoid the accumulation of pockets of gas and enable natural draining off of water to respect the environment and conserve the ground's characteristics.

The presence of pins: to facilitate adherence to the soil and avoid any risk of displacement or slipping, even in slopes.

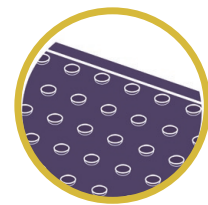
The plates are also equipped on both sides with anti-slipping surfaces to facilitate gripping and handling and further improve worker security.



Assembly clips



Fixation pins



Handling grips

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More informations ?

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