

## **Asel-Tech Pipeline Anchor System reduces the pipeline anchoring cost in 50 %**

Asel-tech, with your constant agreement of innovation, has participated in one of the stages of construction of the biggest gas pipeline in Brazil, the GASDUC III. The responsible building company decided to substitute concrete to Pipeline Anchor System developed by ASEL-TECH, the decision was stimulated by cost reduction in transport, storage and installation and, also the reduced price.

The Gasduc III is the gas pipeline with biggest capacity in Brazil. With 38 inches of diameter, the duct will be able to transport up to 40 million of m<sup>3</sup>/day, 8 millions of m<sup>3</sup>/day more than Gasbol, and will interconnect the unity of receiving and gas treatment from Cabiúnas (Macaé-RJ) to Reduc refinery, in Duque de Caxias (Rio de Janeiro), in a total of 183 km.

In several sections the gas pipeline crossed regions where flooding may occur during certain periods of the year. These flooding make the superficial layer of land where the gas pipeline is buried turn into clay, causing the duct to present negative buoyancy. To avoid that the duct floats, being able to cause damages to the environment and enormous damages, anchor systems developed by Asel-Tech were installed.

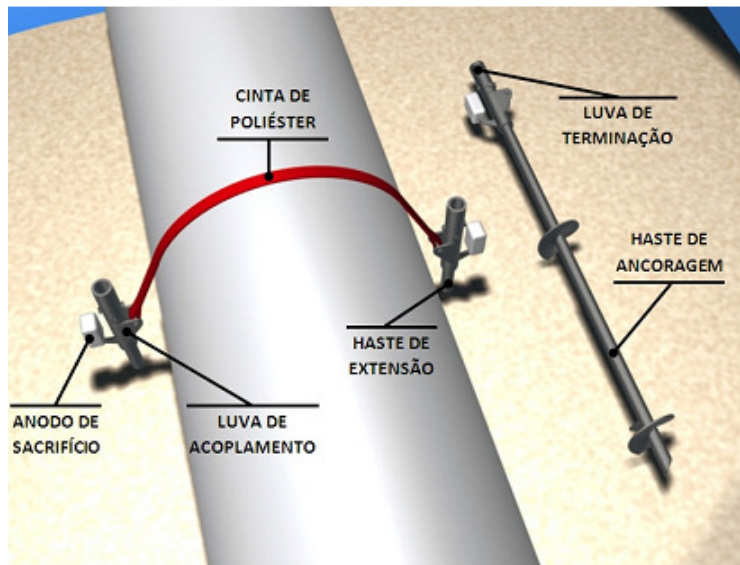
More than 180 points of anchoring were installed, where they may assure the fluctuation of more than 7 KM of ducts, up to the end of the useful life of the GASDUC III.

The Pipeline Anchor System technology, despite being spread out and used more than 30 years abroad, it is not used in Brazil due to the lack of national manufacturers, costs of import and necessity of qualified labor.

Asel-Tech has developed the technology, methodology and specialized labor to anchor system application. The anchor system is easy to handling and transportation and does not need a lot of physical space to storage, causing less impact in the schedule of the work.

### **The System**

The Anchor system is a patented product, developed by the Asel-Tech, being manufactured by materials specially developed for this application. Each one of its components is projected to resist several times the strength that they will be subjected during his useful life, providing security and tranquility after its installation.



Despite being a novelty in Brazil, the anchor systems are used more than 30 years abroad, with great efficiency, preventing duct fluctuation in flooded regions, temporary or permanent, and also in subsea installations. This system substitutes conventional techniques with the same efficiency and reduced cost.

*Pipeline Anchor System and their components.*



*Installed Anchor System*

### **Advantages**

The advantages in use this system is countless. Each kilometer of concreted duct is necessary more than 80 trucks of concrete, whereas only a truck of anchor is sufficient to anchor more than 7 kilometers of duct.

The necessary material to anchor 7 kilometers of duct can be stored in some square meters, whereas for concreted tubes are necessary more than 1000 square meters for storage, moreover, the anchor system can be applied immediately, which does not occur with the concrete since this one needs a time for drying.



*Anchor System Storage*



*Concreted duct storage*

Moreover, when compared with concrete, the anchor system presents prices lower than 50%.

Another advantage is the easiness of installation of the anchor system. The necessary equipment is restricted to a digger where there is a hydraulic chuck coupled and a differential manometer. The necessary labor for installation is also reduced, three workers are sufficient to carry out the installation.



*Anchor System installation using a hydraulic chuck*

An important point to be considered is the risk of accidents. The concreted tubes can weigh more than 16 tons, being an imminent risk, whereas the components of the developed system weigh only 30 kg, which makes the handling easy. Moreover, only in the beginning of the installation a worker is necessary to position the anchor, the remaining process can be accompanied by distance, eliminating the risk of accidents.



*Worker monitoring at distance*

There is also the advantage that the installation can be done in a safe way in sections of ducts already tested, since the anchor system fastens the duct through a polyester belt.

To the end of the installation sacrificial anodes are coupled, working as a cathode protection, avoiding the corrosion of ferrous material that is present in the alloy of the system components.



*Sacrificial anode and polyester belt details*

The polyester belt and sacrificial anode are the great differentials of the product. The belt avoids the electrical contact between the duct and anchor, in ducts that does not have PVC layer. Moreover, the belt distributes equally the strength of fluctuation between the two anchor points that fasten the duct, avoiding overloads in the duct and anchoring.