

GUIDE FOR PIPELINE OPERATIONS

Transport, unloading and handling

The means of transport used for pipe bundles must allow loading and unloading from the top (Open Top) or from the sides. Pipe bundles should always travel covered with a tarpaulin or in a closed container with a tarpaulin top or removable cover, on a flat surface and securely strapped with the original Tubasys packaging.

The unloading of the pipe bundles should be carried out with extreme caution and care, handling the bundles one at a time and never by dragging the bundles, but by lifting procedures for each individual bundle.

Preferably, this will be done by crane from the top of the truck or container box and with nylon slings with a sufficient width so as not to mark the pipe and with a distance between support points (always at least 2) of at least 1 metre between them (Fig. 1).



Figure 1

In packages longer than 6.00 metres, it is advisable to use an outrigger for unloading and positioning of the material by lifting means, made of sufficiently resistant material and which must have sufficient anchorage points, with a maximum separation of 4.00 metres between them.

In the case of handling with a forklift truck and unloading from the side of the box or container, it will be important to ensure that, due to the length of the package, it does not sag excessively and could cause damage to the package itself or to the piping it contains. Forklift trucks suitable for this use shall be used, with sufficient length and opening of the shovels to handle the package correctly (minimum 1 metre), with sufficiently long and wide shovels and rounded edges (Fig. 2).



Figure 2

For all handling of packages, operators shall be duly equipped with the corresponding PPE in perfect condition, in accordance with the applicable regulations in force. In addition, they may use slings or similar, provided that they do not damage the packages or the piping.

To unpack the material, tools or tools that cannot scratch, mark or affect the pipe totally or partially shall be used. Pipes shall be extracted individually for assembly without dragging one over the other and transporting them in a horizontal position.

Storage

It is recommended that both the packages and the pipes that may have been removed from them are stored in a covered, ventilated and dry place. If this is not possible, they should be protected with tarpaulins or plastic sheeting, ensuring proper ventilation.

The packages shall never rest on the ground in such a way as to damage them or the pipe they contain. Likewise, the pipe that has been extracted from the packages shall never rest directly on the ground and shall be deposited on sufficiently wide and long supports so as not to damage the material.

Both the packages and the pipe shall be stored on a flat and stable surface.

No more than three bundle heights may ever be stacked, avoiding prolonged storage of stacked bundles as far as possible. It is recommended that the pipe supplied be installed in the shortest possible time.

Maintenance

For a correct conservation of the pipe it is necessary to carry out:

- A cleaning of the pipe prior to its installation, making sure that there is no element inside it. If necessary, the external face of the pipe should be washed with a solution of neutral detergent + water. Do not use brushes that could damage the pipe.
- Ocular revision at least every year of the installed material (pipe, couplings, accessories and support), in order to locate corrosion points and carry out the appropriate paint retouches, or points affected by the passage of time or external agents.
- Depending on where the pipe is installed, it is advisable to wash it with a neutral detergent + water in the conflictive areas to avoid accumulations or concentrations of corrosive elements that together with other coadjuvant factors accelerate the reactions that can damage the surface of the pipe. It is recommended every three months in aggressive marine or industrial environments and every 12 months in normal environments. Never use brushes that could damage the pipe.
- If some "pitting" with signs of corrosion (grade Ri1 - Ri3, EN ISO 4628 Assessment of coating degradation) is detected at any point, an immediate treatment of rust cleaning plus liquid primer and air-drying liquid finish should be carried out.
- In case of larger mechanical damage, it is advisable to de-rust the affected areas by hand sanding according to ISO 8501-1 and apply the products indicated in the previous section.
- Any fastening or tightening found to have a loss of tension must be retightened or replaced immediately.
- The specifications of the current regulations applicable to the installation must be followed with regard to maintenance tasks in those cases where the aforementioned regulations establish more restrictive or specific maintenance tasks than those indicated in this document.
- All tasks must be carried out by qualified technical personnel with knowledge of the installation.

In the event of any anomaly arising in the installed products, whether due to human action or natural causes, immediate action must be taken and if there is a risk of further deterioration or safety for people, the entire affected area must be dismantled and correctly stored in a safe place until it can be repaired or replaced.