ELECTROLYTIC PICKLING TUNNEL FOR PICKLING OF TUBES AND BARS IN CONTINUOUS

WITH AN ATTENTIVE EYE TO NATURE



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The traditional system for stainless steel tubes and bars pickling has been turned upsidedown by a New plant solution proposed by Condoroil Stainless. With this new pickling system all pickling up to steps, from marking and packaging, are carried out directly on the production line.

No further handling of bundles is required.



The first **electrolytic pickling** tunnel produced in Italy, has been operating at Marcegaglia Forlì for some years already. In the developing process of the Company it represents an important part for the reduction expensive handling of the operations of the bundles.

The plant uses an electrolytic DESCALINOX P23, solution, sulphuric acid based, free of hydrofluoric and nitric acid, classified as corrosive.

It is clear the advantage of managing a pickling bath without handling toxic or very toxic (traditional pickling) solutions. No more hydrofluoric acid gaseous emissions, no more NOx.







The electrolytic tunnel at induced current has been studied for the in line electrolytic pickling and passivating of stainless steel tubes and bars.

ELECTROLYTIC TUNNEL

The material pass inside the treatment tunnel where the surface is subject alternatively to anodic and cathodic currents that carry out the pickling action.

In particular, the anodic section allows to solubilise the depleted chromium layer and to passivate the material while the cathodic makes the oxide section expulsion easier and produces a gas evolution approx. three times higher than the anodic section. The pickling liquid level inside the tunnel is kept constant and is adjusted to the working temperature of 40°C by a cooling system in continuous of the working solution.

The pickled material is washed inside the tunnel through three rinse steps in back current with demineralised water.

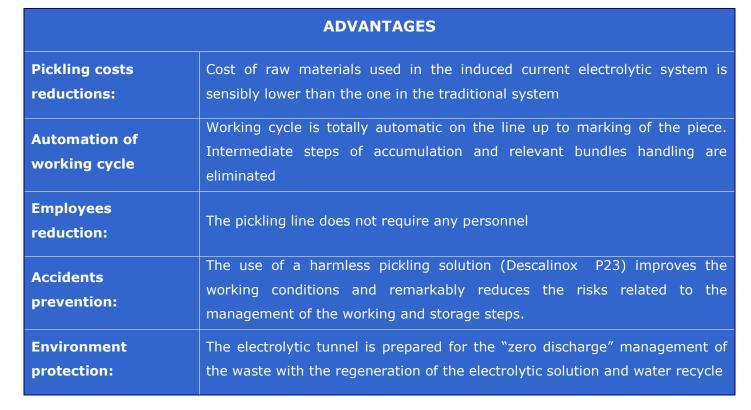
The amount of current for surface unit is kept constant for the kind of treated tubes and speed of the tool.

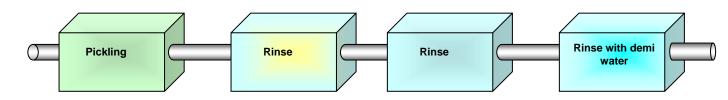
Eventual defects raised in the line (i.g. with the Eddy current system) cause the temporary stop of the machine that will start again only after the defect has passed the drying area. In particular the stop and the restart of the different treatment areas (pickling, rinse, drying) are carried out gradually and in automatic

## WASTES TREATMENT

The tunnel creates two kind of wastes that must be properly the spent pickling treated: product and the rinse water. Both are originated by a process using non toxic solutions and are characterized by the presence of saline pollutants absolutely compatible with traditional chemical physical purification plants.

In any case it is possible to optimize the water treatment







cycle by introducing optional modules for the sulphuric based electrolytic bath regeneration and for the water "zero discharge".



**EMISSIONS TREATMENT** 

The emissions are essentially composed by hydrogen and oxygen with eventual drag outs from the electrolytic solution ( DESCALINOX P23 based). The entire pickling line is equipped by a proper suction hood that guarantees the immediate gas scavenging and by a washing tower for the abatement of eventual traces of acid drag outs. In any case the plant meets the requirements of the legislation, also according to the emissions.

