

Corrosion resistance of CTS S.p.A. cylinders

CTS S.p.A. Type 4 cylinders are characterised by their high resistance to corrosive agents and corrosion.

The classic problem of oxidation, which sooner or later inevitably occurs in older generation's cylinders (Type 1, Type 2 and Type 3 cylinders), happens when the liner corrodes (because of the humidity of the air) increasing the risk that hazardous rust particulates enter or obstruct the valve.

With Type 4 cylinders, this kind of issue is completely excluded, thanks to the cutting-edge solution of using a plastic liner.

Another significant defence against corrosion is provided by a careful selection of materials that the few, but essential, metallic components of CTS cylinders are manufactured with. In particular, the internal nozzle into which the valve is screwed. CTS cylinders have also an external nozzle that is connected and integrated with the cylinder body via a composite material bonding and an internal nozzle tightly screwed into the external. The internal nozzle is replaceable and this allows to screw the valve in utmost safety, ensuring a perfect gas impermeability, thanks to a special CTS S.p.A. patented design.

Both nozzles are manufactured with a carefully selected aluminium alloy which is then anodized.

The used material and its selected treatment allow these components to achieve excellent results in terms of both mechanical strength and corrosion resistance. Indeed, CTS S.p.A. cylinders and their components have extensively achieved the following objectives:

- Certification for underwater use to Test 7 of the standard UNI EN 12245.
- Certification to salt spray test to 336 hours according to standard ASTM B 117.

Furthermore, the aluminium alloy and selected treatment prevent the generation of harmful galvanic differentials, responsible for electrochemical corrosive phenomena, guaranteeing the compliance of CTS S.p.A. cylinders to the requirements of the standard STANAG 2897, an important military standard regarding residual magnetic fields.

Last but not least, the corrosion resistance of the caps and sleeves that constitute the finished surface of CTS S.p.A. cylinders.

The choice of materials used for the finishing of CTS S.p.A. cylinders has been guided by the following qualities:

- High flame resistance;
- Optimal impact resistance;
- Pleasant aesthetics due to surface finishing;
- Extreme ease of cleaning and sanitisation.

The finishes of CTS S.p.A. cylinders, caps and sleeves, in addition to the above characteristics, can withstand a wide range of corrosive agents, such as sodium chloride, sulphuric acid, nitric acid and sodium hydroxide.

Where applicable, the properties of CTS S.p.A. cylinder finishes have been tested and certified by the supplier in accordance with the regulations and respective testing methods of the standards:

ASTMD 570; BS EN 60695; ISO1817; ISO37; KM M 3406; UL94; UL224; UL746; UL749; UL 2157.