Molib-tech™

Nowadays, a new concept of **quality** is driving firms to expand their offerings of products and services in order to meet **specific needs** and build solid **partnerships** with their customers.

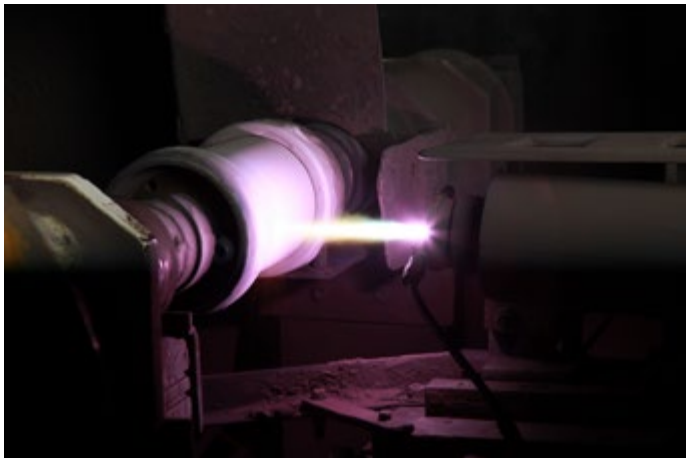
Through a complex research project, Zenit has developed Molib-Tech™ a **new material** to:

- increase components' strength
- improve reliability
- keep performance constant over time
- even in extreme duty conditions.

Molib-tech™ is an alternative to the conventional ceramic coating process and involves the **application of an additional thick layer of a very hard material** on the cast iron, to improve products' **mechanical and performance characteristics.**

The technique is defined as *"cold" coating*, with no high temperatures to cause deformation or stresses in the piece.

The metallic **molybdenum carbide** coating used by Zenit is particularly **suitable for preventing serious wear due to erosion or cavitation on pump impellers, suction flanges and bodies.**



The coating forms a mechanical bond to the substrate thanks to the high particle impact speed and the fact that the substrate surface is well prepared through sand-blasting.

Unlike the conventional ceramic coating, the **uniform layer** of metal coating does not cause any change in clearance or loss of performance.

The molybdenum carbide coating gives the treated component a **surface hardness** considerably higher than cast iron (1000/1100 HV), making it suitable for heavy-duty applications and use with abrasive liquids.

Advantages

Strength: Better resistance to abrasion, erosion and fretting wear than other processes. Tougher in relation to impacts and scratching than ceramic coating.

Repeatability: Automatic application rules out human error and provides repeatable, constant protective coating characteristics unachievable by hand.

Balancing: The uniform coating thickness implies better impeller balancing, meaning a longer lifetime for rotating parts (mechanical seals, drive shaft and bearings).

Performance: Unlike conventional surface treatments, with cold coating there is no peeling; what's more, the application of a uniform layer across the entire exposed surface maintains the original hydraulic performances for longer, also reducing wear of mating surfaces.

Chemical composition

Mo ..... min 99.97%
Al ..... max 10 µg/g
Fe ..... max 50 µg/g
Si ..... max 20 µg/g
H ..... max 10 µg/g
Cd ..... max 5 µg/g
Cr ..... max 40 µg/g
K ..... max 20 µg/g
W ..... max 300 µg/g
N ..... max 10 µg/g
Hg ..... max 1 µg/g
Cu ..... max 20 µg/g
Ni ..... max 50 µg/g
C ..... max 50 µg/g
O ..... max 40 µg/g
Pb ..... max 5 µg/g

The requirements of directives 2011/65/EU, 2000/53/EU and 2006/122/EU with regard to the restrictions on the use of hazardous substances (RoHS) are complied with.

Mechanical characteristics

Tensile strength EN ISO 6892-1/B ..... > 700 MPa
Percentage total elongation after fracture EN ISO 6892-1/B ..... > 5.0%
Density EN ISO 3369 ..... 10.2 g/cm3
Surface hardness ..... 1,000 ÷ 1,100 HV (69-70 HRC)*

* Ref.: ASTM table A370-03a