



A Tsurumi Pump Company

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.





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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%	K max 20 µg/g	O max 40 µg/g
Al max 10 µg/g	W max 300 µg/g	Pb max 5 µg/g
Fe max 50 µg/g	N max 10 µg/g	
Si max 20 µg/g	Hg max 1 µg/g	
H max 10 µg/g	Cu max 20 µg/g	
Cd max 5 µg/g	Ni max 50 µg/g	
Cr max 40 µg/g	C max 50 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/cm ³
Surface hardness	1,000 ÷ 1,100 HV (69-70 HRC)*

* Ref.: ASTM table A370-03a