PLASweld™ Celsit721

Cobalt-based alloy for plasma-transferred-arc (PTA) and laser welding

Classification

EN 14700

P Z Co1

Field of use

The cobalt-based metallic powder with spherical shape PLASweld™ Celsit721 is designed for plasma-transferred-arc (PTA) welding processes as well as for laser cladding.

It is especially suited for hardsurfacing of parts subject to a combination of corrosion, pressure, impact and abrasion and high temperatures up to 900 °C, oxidation in corrosive environments at high temperature. Tight surface of fittings, gliding surfaces metal-to-metal, hot-working tools with changing thermal loads, sealing faces on gas, water, steam and acid fittings.

Typical analysis in wt%

C	Cr	Mo	Ni	Co	Si	Fe	Others
0.3	28.0	5.0	3.0	Balance	1.5	1.5	< 1.0

Caracteristics

Excellent gliding characteristics, good polishability, high toughness, nonmagnetic. Machinable with cutting tools.

Melting temperature:	1360 – 1405 °C
Density:	8.3 g/cm³
Dilatation coefficient between 20 and 800 °C:	15.6 x 10^{-6} m/m°C

Reference values for the hardness of the pure weld deposit

At 20 °C:	approx. 32 HRC in the second layer welded by PTA process
At 600 °C:	approx. 260 HB in the second layer welded by PTA process

Welding instruction

Preheating and interpass temperature should be adjusted to the base metal. To obtain the best weld metal properties, it is necessary to optimize the main and pilot arc, plasma gas, welding speed and distance, weave width and powder flow.

Preheating and interpass temperature (if necessary) have to be adjusted to the base metal to minimize cracking. To obtain the desired metal properties, it is necessary to optimize laser output, flow rate control of powder and powder gas, type and quantity of shielding gases, welding strategy, welding speed and weld distance.

Availability

-150 + 50 µm in 5 kg powder containers

-200 + 63 µm in 5 kg powder containers

Further packaging and grain sizes on demand.