PLASweld™ Celsit712

Cobalt-base alloy for plasma-transferred-arc (PTA) welding

Classification

EN 14700

P Z Co3

Characteristics and field of use

The cobalt-base metallic powder with spherical shape PLASweld™ Celsit712 is designed for plasma-transferred-arc (PTA) welding process.

It is especially suited for hardsurfacing of parts subject to a combination of erosion, corrosion, cavitation, pressure, impact and abrasion and high temperatures up to 900 °C, such as sealing surface of fittings, valve seats and cones for combustion engines, gliding surfaces metal to metal, highly-stressed hot working tools without thermal shock, cutting edges of knives, plastic extruder screws, paper and chemical industries, milling, mixing and drilling tools.

Properties of the weld metal

Excellent gliding and abrasion characteristics, very good polishability, normalized in hardness, slight-magnetic. Machinable by grinding and tungsten carbide tools.

Melting temperature	1220 – 1310 °C
Density	8.4 g/cm³
Dilatation coefficient between 20 and 1000 °C	15.8 x 10^{-6} m/m°C
Thermal conductivity at 20 °C	15 W/mK
Hardness of the weld deposit (approx.)	approx. 48 HRC in the second layer welded by PTA process
Hot hardness at 500 °C (approx.)	approx. 40 HRC in the second layer welded by PTA process

Typical analysis in %

C	Si	Cr	Fe	Ni	W	Co	Others
1.5	1.5	30.0	1.5	1.5	9.0	Balance	< 1.0

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.

Availability

-150 + 50 µm in 5 kg powder containers

Further packaging and grain sizes on demand.