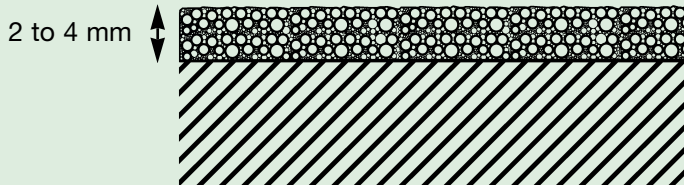


HIGH PERFORMANCE TUNGSTEN-CARBIDE BASED HARDFACING



Hardness of carbides 3000/4000HV

TECHNOSPHERE® GF

Flexible length on reels for Oxy-acetylene welding
2 to 4 mm thick coatings

Main Application

Extruder screws in the food processing industry.

For optimum efficiency extrusion plants require reliable protection for the mouths of their barrel extruders, which are subjected to severe stress. TECHNOSPHERE®GF is a very good answer to these problems.

Exceptional resistance to abrasion, resistance to impacts, ease of repair, freedom from cracking.

Description

TECHNOSPHERE®GF is a flexible length made of a small diameter nickel core wire with a thick coating.

The coating contains SPHEROTENE®, a specially formulated matrix of molten tungsten-carbide spheroids, blended with a high nickel content alloy.

SPHEROTENE® is manufactured by Technogénia by a patented process : its hardness is greater than that of all other molten tungsten-carbides.

Measured hardness : between 3,000 and 4,000 Vickers.

Characteristics and Properties

1° Tungsten-carbides :

The hardfacing coatings are made with a mixture of tungsten-carbide spheroids of different sizes.

With TECHNOSPHERE®GF, the sizes of the majority of the spheroids lie between 0.2 and 0.4 mm, with a proportion of secondary spheroids graded to obtain a compound that is as compact as possible.

The high impact resistance of TECHNOSPHERE®GF coatings is due to the use of tungsten-carbide spheroids. Angular particles will break more easily under impact, producing a "wedge" effect that leads to the coating's rapid destruction.

The coating's work hardness characteristics are also improved.

This is an effect well known with iron, where the incorporation of spheroidal graphite considerably improves toughness and work hardening characteristics.

TECHNOGENIA



WEAR PROTECTIONS

HIGH PERFORMANCE TUNGSTEN-CARBIDE BASED HARDFACING



2° Bonding Alloy :

Nickel alloy
Hardness : 40-44 HRC

3° Average Expansion Co-efficient :

6 to 7 10⁻⁶ cm/cm/°C (estimated)

4° Coating Density :

13,6 g/cm³

5° Tungsten-carbide Concentration

The tungsten-carbide concentration depends upon the space left free by the arrangement of tungsten-carbide spheroids. It is possible to reduce this space by an appropriate grading of tungsten-carbide. In the course of welding the spheroids are deposited in a relatively compact arrangement. The excess brazing alloy used to prevent oxidisation during welding rises to the surface of the coating, giving it a smooth finish that is evidence of proper welding and of optimum spheroid arrangement.

TECHNOSPHERE®GF provides an optimised concentration of approximately :

$$\frac{\text{Carbide weight}}{\text{Carbide weight} + \text{Alloy}} \times 100 = 68$$

the spherical form improving the arrangement of the tungsten-carbide.

6° Chemical Resistance :

No corrosion has been recorded, even at high temperatures.

Other Typical Applications

- Mixer blades
(ceramic and chemical industries, concrete, etc.)
- Brick or roof tile manufacture
- Paper industry - hydropulpers
- Paper industry - reject sorter blades

Application

TECHNOSPHERE®GF is applied with an oxyacetylene torch. We recommend the use of the Techno 2000 torch, which is simple to use and easy to maintain.

For volume applications, the FD 2000 automatic device increases the hourly coating rate by 20% to 30%, with a corresponding reduction in consumption of welding gas.

It is recommended to spray MB 40 powder over the work surface prior to applying TECHNOSPHERE®GF (using the Techno 2000 torch).

The surface to be coated should be ground before hardfacing.

Successive layers of TECHNOSPHERE®GF can easily be welded upon each other.

20 kg coils

Diameters : 4 and 6 mm

TECHNOGENIA



Z.A. des Marais - BP 51

74410 SAINT-JORIOZ - FRANCE

Tel : +33 (0)4 50 68 56 60

Fax : +33 (0)4 50 68 62 77

E-mail : [technogenia @ wcube.fr](mailto:technogenia@wcube.fr)

Web site : [http : //www.wcube.fr/technogenia](http://www.wcube.fr/technogenia)