The electronically controlled Wocafix Appliance for any production enterprise

The advantages of the wocafix-coating are:

suitable for all types of steel - surface hardness of 78-82 Rc - coating thickness infinitely adjustable from 2 to 40 my - highly heat resistant - wear resistant - no material disortion - exact coating thickness - can be relapped - resists any strain

Wocafix Appliance

Description

With the aid of the Wocafix Appliance thin, true-to-size coatings of hard metal (tungsten carbide) can be applied to any types of steel. The thickness of the coating is adjustable between 2 and 40 my mm.

Methods

Nowadays very exacting demands are made on the toughness, hardness and surface wear resistance of tools, equipment and machine parts. Through the normal hardening method only toughness or hardness can definitely be achieved; in practice therefore, a middle course is selected.

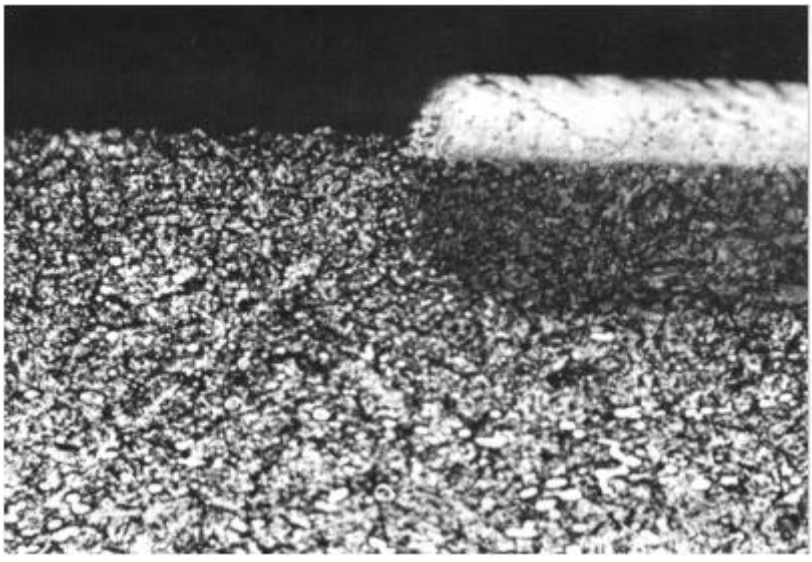
In the search for a tough material with a more wear-resistant coating the following possibilities presented themselves:

1. Galvanic coating with hard coats
2. The plasma gun spraying method
3. Electro-erosive wocafix coating

The adhesive strength of the coatings in methods 1 and 2 is unsatisfactory in the case of heavy stresses since the coatings are likely to scale off. With the third method however, it is possible to apply tungsten carbide to a very wear-resistant surface on the heavily stressed points of a workpiece.

Micro-Section magnified 250 times

Uncoated **coated**



coating up to 82 Rockwell

rehardened 75 Rockwell

base material (steel)unaltered

Properties of the hard metal coating

The coating applied joins perfectly with the steel and adheres in such a way that it withstands any mechanical stress. No blows, bending, stretching or compressive strains will even partially remove the coating. This can be done only by grinding or special sand blasting; it can however, be relapped with diamond or silicon carbide. The steel beneath is not softened by the coating but increased in hardness in the upper zone. In the case of certain steel alloys the tungsten carbide coating penetrates the base material. The coating produces a hardness of up to 82 Rc (Rockwell), without the workpiece undergoing any change or distortion since the depositing process is practically cold. The coating is highly heat resistant and thanks to the high degree of temper the wear resistance is considerably increased.
The surface is smooth and shows no directional texture; good saturation will ensure a medium roughness of from 2 to 9 my.

Materials and their pretreatment

Suitable as material for coating with Wocafix is any soft, heat-treated or hardened steel as well as all types of steel including the highest alloyed ones. The surface must be clean and metallically pure. Scale and oxide coatings must be removed without fail. Ground, polished or brightly tooled parts must be degreased. If the Wocafix coating is applied to an unclean surface no satisfactory adhesive strength can be obtained and the coating will become irregular and show inclusions.

Method of operation

The Wocafix Appliance operates in accordance with the principle of electro-erosion. A tungsten carbide electrode is attached to the positive pole in a D. C. circuit with electric current and voltage regulation to which are connected condensers of varying capacities. The electrode is fitted in a vibrator gun. Through the vibrator oscillations are set up in the electrode and this is brought into contact with the workpiece to be treated. The workpiece is connected to the negative pole. Through the contact of the electrode with the workpiece a ionised field is produced which guarantees an oxide-free smelting of the tungsten carbide with the base material. With the help of the vibrator this field is continually built up, the constant to and fro movement of the electrode producing a compact Wocafix coating. The preselected thickness of the coating cannot be exceeded since when saturation is reached no further absorption of material takes place. The selected coating thickness is so exact that no subsequent treatment is required. In case of need the surface can be polished or relapped.

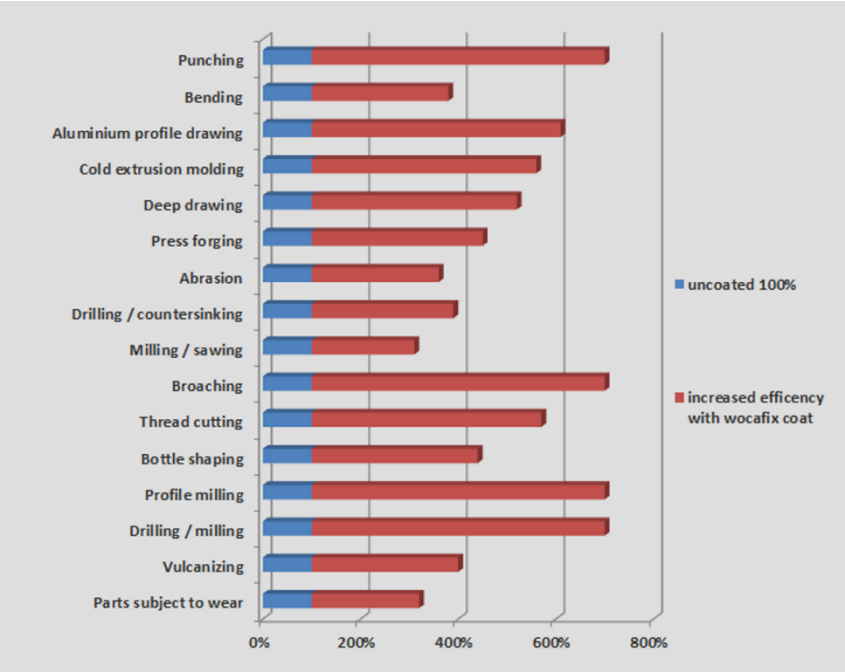
The Wocafix coating process with the appliance 2020 electronic is so simple that it can be carried out by anyone.

Fields of application:

manufacturing parts - parts subject to wear - Punching, bending, drawing and pressing tools - plastic and rubber jet molds - die-cast metal molds - cutting tools for metals, plastics and wood, such as reamers, drills, chamfering drills, milling tools, screw taps, broaches, etc.

Servicelife-Comparisons

increased efficency with wocafix-coating (average values)



The Wocafix appliance 2020 electronic: successful used by the fabrication of following products:

aeroplanes
amunition and weapons
automobiles and accessories
bottles
chrome steel vessels
clocks and chronological appliances
computers and office machines
cutlery, scissors, knives
electrical household appliances
electro-motors, transformers
film and photographic apparatus, projectors
general metal goods for household and industry
lamps, lighting units
meters and measuring instruments
motorcycles and bicycles
ornaments and toys
packagings
porcelain, glass and ceramics
profiles and tubes
radios, record players, tape recorders and televisions
screws, nuts and ironware
sewing and knitting machines
telephonic and remote signalling apparatus
Washing, drying and dish washing machines
wire and cable fabrication
etc.