

Elkom is a company that has specialized production of contact materials using methods of sinter metallurgy. Here is basic information regarding our production.

A lot of machines, plants, transportation means, which have contacts made of pure metals don't show satisfying features, in other words these wear out very fast. This kind of contacts is used in devices that have easier work conditions.

For hard work conditions there are metaloceramic contacts, mixture of metal and non-metal powders that are not melting mutually, so these can be produced only by sinter metallurgy procedures.

While choosing mixture components for making contacts, next specific conditions have to be learned and harmonized.

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- one of the components (A) must have good electric and thermal conductivity
 - another component (B) must have necessary mechanical features
 - components that make contacts must not melt while high temperatures during exploitation period
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Chosen powder mixture presents mechanical mixture, which provides that next physical characteristics of contacts (density, hardness, electric and thermal conductivity) are collecting, and that coefficient of linear expansion is between pure components values.

CONTACTS CHARACTERISTICS

While material choice for electric contacts we should consider next basic features:

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- high thermal and electric conductivity
 - high melting temperature
 - high level of hardness
 - good arc strength
 - endurance against adhesion (welding)
 - good corrosion and oxidation resistance
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Considering these demands for electro-contact's material choice, material choice is compromise, so it is necessary to know contact's exploitation conditions and characteristics of used materials.

By sinter-metallurgy procedures it is possible to make materials that satisfy even the hardest work conditions.

CONTACTS PRODUCTION

Basic operations while making contacts by sinter-metallurgy procedures are:

- making powder mixture from suitable, prepared powders
- making rough parts in desired shapes
- sintering on the suitable temperatures in furnaces with designed temperature
- later finish (pressing, rolling etc.) in order to reach desired characteristics

Every kind of these materials has specific production procedure. Contacts that are hard to braze are made as bimetal, while brazing side of the contact has built in pure silver layer with width 0,1 to 0,4 mm. Contacts shapes are delivered according to the buyer's demands.

PRODUCT ASSORTMENT

Material Ag - Ni:

These contacts made of these kinds of alloys are good to braze, so these are made without brazing layer. Nickel contents vary between 10 to 40 %, and basic material is silver.

Material Type	Density g/cm ³	Hardness HB	Electric resistance μΩcm
Ag90Ni	9,90	50 - 90	2,10 - 2,30
Ag80Ni	9,85	55 - 100	2,30 - 2,40
Ag70Ni	9,70	65 - 100	2,50 - 2,70
Ag60Ni	9,50	70 - 120	2,90 - 3,30

Usage: signaling and automatization on the rail, magnetic starters, stopping automates of alternate and direct current, relays for hard work conditions, high voltage devices

Material Ag - CdO:

These contacts are made with silver layer for easier brazing. Common contents of CdO are 8, 10, 12 and 15%.

Material Type	Density g/cm ³	Hardness HB	Electric resistance $\mu\Omega\text{cm}$
Ag92CdO	9,85	58	2,00
Ag90CdO	9,80	60 - 70	2,10
Ag88CdO	9,73	66 - 75	2,15
Ag85CdO	9,70	70 - 80	2,20

Usage: motors starters with internal combustion, relays of high-loaded connectors, signaling devices, low-voltage commutation devices, air switches, micro-switches etc.

Material Ag - C:

These contacts are made with silver layer for easier brazing. Carbon contents vary between 0,5 and 5%, and basic material is silver:

Material Type	Density g/cm ³	Hardness HB	Electric resistance $\mu\Omega\text{cm}$
Ag99C	9,90	40	1,80
Ag98C	9,70	40	1,95
Ag97C	9,10	42	2,00
Ag96C	8,80	39	2,17
Ag95C	8,60	38	2,32

Usage: lift controlling devices, relays signaling on the rail, tap changers, braking resistors, switches on low voltage installations, contactors (sliding, etc.), etc.

Other materials

On consumers demands we make contacts made of composites that are not presented with this booklet (AgW, AgMo, CuW and CuMo). Contacts can have various shapes and characteristics.

SHAPES AND DIMENSIONS OF CONTACTS

We make contacts in various shapes and sizes regarding consumer's demands. Now we are producing contacts with flat and curved faces that are different dimensions.

Some switch devices, breakers etc. can have contacts made as necessary, without later finishing.

Also it is possible to make smaller contacts from bigger shapes. Max dimension that we are making is 50x30x10 mm.

If you can not decide what kind of contacts to put into device, you can send us a sample of contacts that was satisfying in exploitation, so we can make a choice and recommend you what kind of contacts to use in specified working conditions

OTHER ACTIVITIES OF OUR FIRM

Based on your drawing we can make contacts carriers, and mount contact plates by hard brazing.

Also, we repair various sorts of switches for different devices, machines for structural engineering, transportation means etc.

After our work is done, we provide a quality authentication.