

ELECTRICAL CONTACTS

The contact parts are important components in switching devices. They have to maintain their function from the new assembled state until the end of the functional life of the devices.

Desired Properties from Materials for Electrical Contacts

- Good Electrical and thermal conductivity
- Good Strength
- Good Spring Properties
- High arc erosion resistance
- High resistance against welding
- Low contact resistance
- Good arc moving properties
- Good arc extinguishing capability
- High hardness
- High corrosion resistance
- Good mechanical workability
- Environmentally friendly materials.

Applications

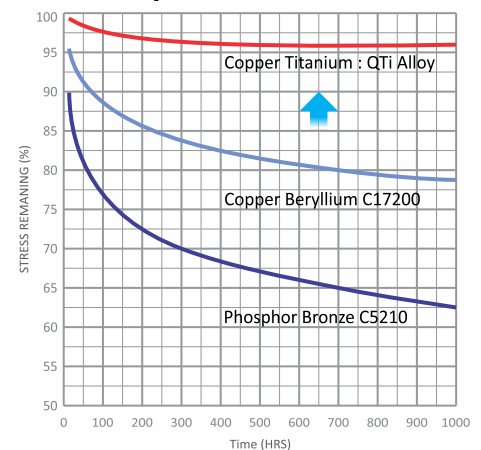
- | Electrical connectors |
- | MIL Standard Connectors Pins |
- | Phone Battery Contacts |
- | EMI Shielding Gaskets |
- | Touch Pad Springs | Lugs |
- | Low Voltage Switchgear |
- | High Voltage Canted Springs |
- | Electrical Switch and Relay Blades, Fuse Clips, Spring Connectors, Contact Bridges, Belleville Washers, Navigational Instruments |

Common materials currently used in the Industry

Brass	Brass contacts offer cost benefits, good conductivity and dependable electrical and mechanical performance for simple low voltage and low current applications.
Phosphor-Bronze	Phos-Bronze contacts, on the other hand, generally perform well in extended high-temperature environments. Phos-Bronze is typically the material of choice for contacts used in moderate-power connectors.
Beryllium Copper	Compared to brass and phosphor-bronze, Beryllium Copper has superior strength and spring properties and therefore comes in the smallest size and lightest weight. Not surprisingly, Beryllium Copper is the contact material of choice for most telecom, military and aerospace applications. For smaller contacts, Beryllium Copper is the material of choice as it helps miniaturisation.

Copper Titanium Alloy

- | Copper Titanium alloys are beryllium free alloys, provide much better performance as compared to other alloys.
- | Copper Titanium alloys have high strength and excellent spring properties over extended cycles.
- | Copper Beryllium and Copper Titanium soften at much higher temperature without losing its conductivity drastically and therefore longevity in performance.



Specification of Materials for Electrical Applications

	Composition	Tensile Strength (MPa)	Annealing Temperature C	Conductivity IACS	Hardness
Stainless Steel	12-20% Cr 14-18% Ni	700 MPa	250 C	7%-8%	420
Spring Brass	70% Copper 30% Zinc	500 MPa	180 C	50%-80%	120
Phosphorus Bronze	95% Copper 4.5% Tungsten Some Zinc	650 MPa	200 C	15%	202
Copper Beryllium	2% Beryllium	1200 MPa	400 C	11%-25%	340
Copper Titanium	Proprietary info	1240 MPa	450 C	11%-25%	400

BREAKTHROUGH INNOVATION IN THE FIELD OF MATERIALS

WARNING!

INHALING BERYLLIUM DUST OR FUMES MAY CAUSE SERIOUS, CHRONIC LUNG DISEASE AMONG EXPOSED WORKERS. THIS LUNG DISEASE CAN BE FATAL.

DISADVANTAGES : Copper Beryllium (CuBe)

- Needs precautions while machining and handling
- Creates an inhalation hazards known as Chronic Beryllium Disease (CBD)
- CBD may occur among people who are exposed to the dust or fumes from beryllium metal, metal oxides, alloys, ceramics or salts
- Latest research shows skin can be a route to CBD
- Expensive material
- High cost of compliance to safety standards



COPPER TITANIUM

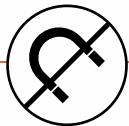
TECHNOLOGY DEVELOPED BY DRDO



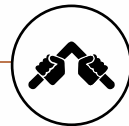
Beryllium Free



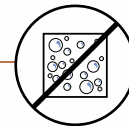
Non-Sparking



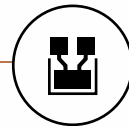
Non Magnetic



High Strength



Corrosion Resistant



Good Conductivity

ABOUT US

Pahwa MetalTech Pvt. Ltd. was incorporated in 2014 by experienced techno-managerial entrepreneurs with over 40 years of experience in engineering with a vision to become a leader in manufacturing high strength copper alloys.

Pahwa MetalTech has obtained an exclusive licence from DRDO (Defence Research & Development Organization) of a technology to manufacture high strength Copper Titanium alloys.

OTHER PRODUCTS



Non-Sparking Hand Tools



Resistance Welding Products



MIG Welding Contact Tips



Plunger Tips



Dies and Moulds



Valve Seats



Electrical Contacts



Special Applications



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