







Hindustan Platinum at a glance

Since 1961, Hindustan Platinum has been a trusted global partner in refining precious group metals. Our deep-rooted expertise has been the foundation for our diverse business portfolio, encompassing Catalysts & Chemicals, Electrical Contacts, Engineered Products, and Nitro Technologies. Sustainability is at the heart of our innovation, driving the development of precious metal products that balance performance and environmental responsibility.

Strategically located in Navi Mumbai, our state-of-the-art facility optimizes our supply chain, enabling us to deliver our products to customers in over 50 countries across 5 continents. Our global footprint extends to subsidiaries in the United Arab Emirates (UAE) and Puerto Rico.

We cater to a wide range of industries, including Oil Refining, Petrochemical, Pharmaceutical, Chemical, Agrochemical, Flavors & Fragrances, Fine & Bulk Chemicals, Fertilizer, Sodium Nitrite/Nitrate, Industrial & Defence, Caprolactam & Cyanide, Mining, Switchgear, Home Appliances, Automotive, Glass, Jewellery, Synthetic Fibers, and Research & Analytical Laboratories, among others.

We are committed to building strong, long-lasting relationships with our customers by delivering tangible value, prioritizing customer satisfaction, and fostering a culture of transparency and collaboration.

Our Business Portfolio











REFINING SERVICES | CATALYST & CHEMICALS | ELECTRICAL CONTACTS | NITRO TECHNOLOGIES | ENGINEERED PRODUCTS

Our Accreditations













Electrical Contacts

Precision Components Powering a Sustainable Future

Electrical contacts are the indispensable heart of countless electrical systems, powering applications across diverse industries including switchgear, control gear, automotive, home appliances, elevators, and aerospace.

As a leading Indian manufacturer of electrical contacts, Hindustan Platinum is committed to delivering high-quality products. Our global reach ensures that we meet the diverse needs of customers worldwide. Our dedication to innovation has led to the development of value engineering services that optimize contact size and material composition without compromising performance. Our R&D has contributed to significant cost reduction while maintaining high-reliability standards to pass on both benefits to our customers.

With six decades of customer service, our technical experts have acquired extensive experience in producing low and medium-voltage switchgear contacts and have been helping customers choose the precise material for their requirements. We have catered to the growing demand over the last several years for high-performance contacts manufactured while keeping costs and processes under control.

We specialize in electrical contacts, offering comprehensive solutions backed by a robust infrastructure. Our in-house precious metals refinery, cutting-edge production facility, and expert team of metallurgists and engineers enable us to deliver tailored solutions.

From technical consultancy to customized product development, we partner with you to meet your specific needs. Our commitment to sustainability is integral to our operations, ensuring minimal environmental impact without compromising quality or performance.

Our facility has advanced ERP systems aiding production planning, manufacturing, and inventory management. The integrated barcode system ensures precise process control from raw materials to finished products.

Our acquisition of ABB's electrical contacts manufacturing plant in Humacao, Puerto Rico; strengthens our global reach. It enabled us to start serving North and South American markets more efficiently.

Industries We Serve













Products

Hindustan Platinum produces electrical contacts mainly for the low voltage and medium voltage industries, ranging from simple shapes to complex geometries. We maintain rigorous quality control measures. We understand that our customer's safety depends on our reliability, which is why we strive for continuous improvement and constant innovation.

Electrical Contacts

RIVETS

A) Solid Rivets

Offering superior electrical performance, solid rivets are manufactured in a wide range of sizes and alloys. High-speed cold heading provides greater strength to our contact rivets with consistent high quality. Standard rivets are usually supplied with a solid shank and are also available with indent or chamfered shanks. The accompanying heads can be flat, radial, conical or customized.

B) Bimetal Rivets

In a bimetal contact rivet, a layer of silver or silver alloy is metallurgically bonded to a copper shank. This high strength bonding imparts better thermal and current transfer compared to the brazed or welded types. Bimetal rivets can be provided with flat, radial, conical or customized heads. The shank could be solid, indent or chamfered in various sizes and specifications.

In India, we were the first to introduce the Bimetal rivets in 1973. It was a revolutionary product as it reduced the Silver content upto 60%. Customer gets the same performance at a substantially lower cost.

C) Trimetal Rivets

In a trimetal rivet, the silver alloy is present on the rivet head and at the tip of the rivet shank. The middle part of the rivet is made by copper. This allows that the rivet is shaped onto a double headed contact, when riveted onto a copper or copper alloy carrier.





PROFILES

A) Solid Profiles

We manufacture high quality solid profiles of various compositions, shapes and sizes, such as discs and blanks. The contact side can be flat, radial or conical. Solid contact profiles are available with or without a brazeable layer. The brazeable layer can be pure silver, silver-cadmium, silver-nickel or any other silver brazing alloy.

B) Bimetal Profiles

Bimetal profiles are manufactured by bonding a silver alloy directly to a base metal (usually copper, nickel or their alloys).

C) Trimetal Profiles

Trimetal profiles have contact layers on both sides of the contact. This aids in making double-headed moving contacts.

D) Projection Welding Buttons

Projection welding buttons are contact tips that can be reliably welded to terminals without brazing agents.





02 Semi-Finished Products

A) Silver & Silver Alloyed Wire

Silver and silver alloyed wires are normally used in high-speed machines for manufacturing rivets and assemblies. We export these wires to many companies worldwide.

B) Silver Anodes

We manufacture high purity silver anodes with fine grain structure resulting in uniform erosion for better life. Anodes are used in the electroplating industry.

C) Silver & Silver Alloyed Strips

We manufacture silver and silver alloyed strips. These strips can be supplied with or without a brazeable layer.

D) Clad Strips

Available in various sizes, clad strips is a multi-layered strip formed by contact material and other metals.





O3 Brazing Alloys

Brazing alloy selection depends upon application, brazing method, metals to be joined, working temperature etc.

Hindustan Platinum produces high quality silver-based brazing alloys. We supply a wide range of filler materials in the form of foils, rods, strips, wires etc. to Industries such as HVACR, Tooling and Electrical.

The amount of Silver in standard brazing alloys varies from 2% to 55%. We manufacture Cadmium free brazing alloys complying to RoHS requirement. Cadmium bearing alloys are also available.

Silver Brazing Alloys are produced according to International Standards ISO 17672, however we also cater to customized specifications and sizes.

A) Wires / Rods

Brazing Alloys are available as wires and rods with standard diameter of 1.0mm. We can supply different sizes on request. They can be supplied in continuous form with different packaging such as spool, coil etc.

B) Strips

Brazing Alloys are available as strips with very low thickness. They can be supplied in continuous form with different packaging, such as Spool, Coil etc.

C) Pre-Form

Brazing Alloys are available in different shapes and sizes i.e. disc, square, rings etc. with very low thickness.





O4 Contact Assemblies

We offer our customers complete assemblies including welded, brazed or riveted assemblies. The carriers are available in various base metals such as copper, brass, phosphor bronze, etc.

Welded Assemblies

We provide assemblies using resistance welding where the contact is individually welded onto a pre-stamped carrier material depending on the volume. We also provide wire welded assemblies where the carrier is formed from a strip using a progressive die.

B) Brazed Assemblies

We braze Silver/Silver Alloyed Contacts on various types of carriers such as Copper/Brass using different brazing process such as resistance brazing, induction brazing and furnace brazing and flame brazing. We check the bonding strength by various methods on the final assemblies.

C) Riveted Assemblies

We provide riveted assemblies to our customers using various processes, including both semi-automatic and fully automatic riveting options. For very high volumes, we also provide the customer, the option of in-die riveting.





05 Alloys

SILVER-GRAPHITE (Ag/C)

Silver-Graphite contacts are manufactured by powder metallurgy and are normally supplied with vertical graphite particle orientation or with random structure. For some applications, it can also be produced with parallel graphite particle orientation.

Silver-Graphite is normally used in circuit breakers, motor-protective circuit breakers, fault-current circuit breakers and power switches.

Because of the graphite properties, this material is known for having the best anti-welding properties among the contact materials. In addition to that, due to the high silver content, Silver-Graphite contacts have low contact resistance. The disadvantages of this contact material is the low arc erosion resistance, especially during break operations and the low formability.

Our Silver-Graphite contacts are available in the form of contact tips with a brazeable silver side or with brazing alloy layer. The typical properties of this material are listed in the table below:

Alloy	Graphite Content (%)	Conductivity (% IACS)	Density (g/cm3)	Hardness HV1
Ag/C 97/3	3	82 - 90	8.9	43
Ag/C 96/4	4	78 - 84	8.7	41
Ag/C 95/5	5	75 - 81	8.5	39





SILVER-CADMIUM OXIDE (AG/CDO)

Silver-Cadmium Oxide is probably the best and more flexible contact material ever discovered, because of its balanced properties. This contact material is recognized by:

- · Good arc-extinguishing properties
- Low arc erosion
- Low and stable contact resistance during the lifetime of the device
- Low temperature rise
- Excellent anti-welding properties

However, due to the Cd toxicity, its use is restricted in some areas like the European Union.

Silver-Cadmium Oxide can be produced by two routes, powder metallurgy (PM) and internal oxidation (IO), which bifurcate into several other different process methods. We master most of the process methods and the best choice will depend on the interaction between the contact material and the customer device. One of our most successful products is the extremely ductile Ag/CdO 85/15 wire, produced through internal oxidation, which is used to manufacture bimetal contacts.

Typical applications of Ag/CdO are switches, relays, wiring devices, contactors, electrical showers.

Our Silver-Cadmium Oxide contacts are normally produced in the shape of wires, strips, rivets and contact tips and the typical properties of this material are listed in the table below:

Alloy	CdO Content	Process	Conductivity (% IACS)	Density (g/cm³)	Hardness (HV10)	Tensile Strength (MPa)
Ag/CdO 90/10	10	Ю	83	10.2	60-115	240-400
Ag/CdO 88/12	12	Ю	78	10.1	70-115	260-460
Ag/CdO 85/15	15	Ю	76	10.1	80-125	265-500
Ag/CdO 83/17	17	10	74	10	85-130	270-530
Ag/CdO 90/10	10	PM	86	10.2	60-110	260-440
Ag/CdO 88/12	12	PM	83	10.2	65-115	260-460
Ag/CdO 85/15	15	PM	78	10.1	70-120	260-480



SILVER AND SILVER ALLOYS

Pure Silver (min. 99.9% of Silver) has the highest thermal and electrical conductivities among all metals, is very resistant against oxidation and has excellent formability. However, its low mechanical strength, high erosion rate, high tendency of welding and high tendency of tarnishing in contact with sulphur limits its application.

Typical uses of Pure Silver are push-buttons, relays, appliance and control switches for very low currents.

For improving some properties of the Pure Silver, like mechanical strength and erosion resistance, other elements like Copper and Nickel are added forming Silver Alloys. However, the addition of elements in the pure silver worse the contact resistance, the anti-oxidation properties and the formability of the contact material.

When 0.15% of Nickel is added during the melting process, very fine and dispersed nickel particles are precipitate during the solidification, decreasing the grain size of the Ag grains, producing what is called Fine Grain Silver (Ag/Ni 99.85/0.15). The main advantages of Fine Grain Silver are the improved mechanical properties, if compared with pure silver, without a significant worsening of the best properties of the pure silver, which make Fine Grain Silver a better choice than Pure Silver in most applications.

Since Copper has a much better solubility in Silver than Nickel, adding Copper is a good alternative for increasing the mechanical properties of Pure Silver even more. The addition of Copper also improves the arc erosion resistance and anti-welding properties of the contacts, however the increase of copper content will have negative influence in other characteristics like contact resistance and resistance against oxidation.

Typical uses of Silver Alloys are switches, relays and wire devices up to 20A.

Our Pure Silver and Silver-Alloys contacts are normally produced in the shape of wires, strips, rivets and contact tips and the typical properties of these materials are listed in the table below:

Alloy	Cu or Ni Content (%)	Conductivity (% IACS)	Density (g/cm³)	Hardness (HV10)	Tensile Strength (MPa)
Ag 99.9	0	105%	10.5	30-90	200-400
Ag/Ni 99.85/0.15	0.15	100%	10.5	40-100	220-420
Ag/Cu 97/3	3	90%	10.4	45-120	250-500
Ag/Cu 95/5	5	88%	10.4	55-135	270-580
Ag/Cu 90/10	10	86%	10.3	55-150	275-580



SILVER-NICKEL (AG/NI)

Silver-Nickel is a very popular contact material and is used all around the world. As there is no significant solubility between the two elements, this material is produced by the powder metallurgy (PM) route. For Nickel contents up to 30%, the preferable PM route is extrusion of Ag/Ni into wires and strips and for Nickel content above 30%, the preferable PM route is Press-Sinter-Repress (PSR).

Silver-Nickel contacts have good mechanical strength, good welding resistance, low and almost constant contact resistance throughout the life of contact, high arc resistance, good arc moving and extinguishing properties. In addition to that, one of the major reasons of the popularity of this contact material is the fact that it can be directly welded onto copper carriers from wire, without the necessity of adding brazing alloy, bringing significant cost advantages for automation of welding lines. However, this advantage limits the application of Silver-Nickel materials to currents up to 100A, when not paired with other contact materials as Silver-Graphite.

Typical uses of Silver-Nickel contacts are relays, switches, wiring devices, thermostats, contactors circuit breakers, motor protective circuit breakers.

Our Silver-Nickel contacts are normally produced in the shape of wires, strips, rivets and contact tips and the typical properties of these materials are listed in the table below:

Alloy	Ni Content (%)	Process	Conductivity (% IACS)	Density (g/cm³)	Hardness (HV10)	Tensile Strength (MPa)
Ag/Ni 90/10	10	PM	90	10.2	40-110	240-430
Ag/Ni 85/15	15	PM	86	10.1	60-120	250-430
Ag/Ni 80/20	20	PM	83	10	70-130	280-470
Ag/Ni 70/30	30	PM	71	9.8	80-140	330-530
Ag/Ni 60/40	40	PSR	64	9.7	80-150	370-580



SILVER-TIN OXIDE (AG/ SNO₂)

Silver-Tin Oxide is a very popular contact material and is largely used for replacing Silver-Cadmium Oxide. In addition to not be a hazardous material, the main properties of Silver-Tin Oxide contacts are:

- · Good arc-extinguishing properties
- Very low arc erosion
- Low and stable contact resistance during the lifetime of the device
- Low material transfer during DC load
- Good temperature rise
- Excellent anti-welding properties

Silver-Tin Oxide can be produced by two routes, powder metallurgy (PM) and internal oxidation (IO), which bifurcate into several other different process methods. In both cases, the use of dopants aids the electrical performance and formability of the materials. HP domains most of the process methods and the best choice will depend on the interaction between the contact material and the customer device.

Typical applications of Ag/SnO_2 are switches, relays (including automotive relays), contactors.

Our Silver-Tin Oxide contacts are normally produced in the shape of wires, strips, rivets and contact tips and the typical properties of this material are listed in the table below:

Alloy	SnO ₂ Content (%)	Process	Conductivity (% IACS)	Density (g/cm³)	Hardness (HV10)
Ag/SnO ₂ 90/10	10	Ю	81	9.8	95-115
Ag/SnO ₂ 90/10	10	PM	83	9.8	60-100
Ag/SnO ₂ 88/12	12	PM	78	9.7	65-110
Ag/SnO ₂ 88/14	14	PM	71	9.7	70-115



SILVER ZINC OXIDE (Ag/ZnO)

Silver-Zinc Oxide is another contact material used for replacing Silver-Cadmium Oxide in European Union, typically used in lower current switches, relays and contactors. In addition to not be a hazardous material, the main properties of Zinc Oxide contacts are:

- · Very low arc erosion
- Low and stable contact resistance during the lifetime of the device
- Excellent anti-welding properties
- Our Silver-Zinc Oxide contacts can be produced in the shape of wires, strips, rivets and contact tips. The typical composition produced by HP is Ag/ZnO 91/9.

If you have different requirements, HP has a team of materials engineers, specialized in the development of contact materials, that will study your necessities.

SILVER - REFRACTORY MATERIAL (Ag/W, Ag/WC, Ag/Mo and Ag/WC/C)

Silver-Refractory Material family is mainly composed by Silver-Tungsten (Ag/W), Silver-Tungsten Carbide (Ag/WC) and Silver-Molybdenum (Ag/Mo) and is a special category of arcing contact materials for use in high fault current applications, like residential circuit breakers, industrial breakers and high current switchgears.

Ag/W materials are largely used in North America as a result of the high current level fault protection required by UL even for residential homes, while in Europe Ag/WC is the most common material of this family, normally paired with Ag/C.

These materials combine the excellent electrical and thermal conductivity of silver with the high arc resistance, high hardness and high thermal resistance of the refractory metals and its carbides, offering a composite material with the following properties:

- · Low contact welding
- Low erosion, under arcing
- Very high resistance against arc erosion, even under high currents
- Poor arc moving properties
- High hardness
- Acceptable contact resistance

The table below shows the difference between these contact materials.

CONTACT MATERIAL	COMPARISON
Ag/W	 Highest hardness Highest arc resistance Increasing contact resistance and temperature rise during lifetime Highest welding tendency during short-circuit
Ag/WC	Lowest contact resistance and temperature rise Stable contact resistance Lower tendency to contact welding Lower arc resistance
Ag/Mo	Worse anti-welding and anti-corrosion properties than Ag/W Stable contact resistance Low density of Molybdenum brings cost advantage Lower arc resistance



These materials, in the shape of contact tips, can be produced by different PM routes and can be highly customized depending on the application of the customer and typical properties of some alloys are listed in the table below:

Alloy	W, MO or WC Content (%)	Conductivity (%IACS)	Hardness (HV10)
Ag/W 50/50	50	45	95-150
Ag/W 40/60	60	41	110-160
Ag/W 35/65	65	38	120-180
Ag/W 30/70	70	34	130-190
Ag/W 25/75	75	33	140-200
Ag/WC 40/60	60	35	120-160
Ag/WC 50/50	50	37	130-170
Ag/WC 60/40	40	40	140-180
Ag/Mo 40/60	60	32	105-165

This table shows typical material properties. The real contact properties will depend on the shape and production route. If you have specific requirements, our materials engineers, specializing in the development of contact materials, will analyze and address your needs.

For some special applications that require lower temperature rise or lower contact welding, graphite can be added to the Ag/WC, forming Ag/WC/C. The disadvantage is a lower arc resistance.





COPPER - TUNGSTEN (Cu/W)

Copper-Tungsten is a contact material used as electrodes or for high power switching in medium and high voltage. The properties of Cu/W materials are similar to the properties of Ag/W. Nonetheless, although the cost of Cu/W is much lower than the cost of Ag/W, it cannot be used as a replacement, because, unlike the silver oxides, the copper oxides are very stable in high temperatures and drastically impact the contact resistance. Therefore, Cu/W are normally used in applications where the contact tip is protected against oxidation.

Copper-Tungsten is supplied by HP in the shape of contact tips and can also be machined into complex shapes. The typical properties are the following:

Alloy	W Content (%)	Conductivity (% IACS)	Hardness (HRB)
Cu/W 40/60	60	35-45	70-90
Cu/W 35/65	65	32-40	75-95
Cu/W 30/70	70	28-38	80-100
Cu/W 25/75	75	27-36	85-100
Cu/W 20/80	80	26-34	95-110

This table shows typical material properties. The real contact properties will depend on the shape and production route. If you have specific requirements, our materials engineers, specializing in the development of contact materials, will analyze and address your needs.

SILVER - PALLADIUM (Ag/Pd)

Harder than fine Silver, this contact material has a higher melting point and exhibits a nobler surface. It is largely resistant to sulphur and abrasion and burning. Available in the form of wire, rivets, profiles and contact tips.

Alloy	Pd (%)	Conductivity (% IACS)	Hardness HV10	Tensile Strength (MPa)
Ag/Pd 95/5	5	40-45	91	248





Hindustan Platinum - Advantage

State-of-the-Art Manufacturing Facility – Our facilities in India and Puerto Rico are equipped with world-class, cutting-edge technology, including high-speed cold heading and advanced brazing processes. With integrated precious metal refining, we ensure superior product quality and complete control over raw materials, enabling seamless global supply.

State-of-the-art Laboratories – Laboratories facilitates vital tests like Squeeze Test, Bonding test, Microstructure with multiple quantitative analysis, Hardness, Density, Conductivity, Grain Size distribution, Moisture, Measurement of complex geometries, Precious Metal Analysis and Evaluation

ISO-Certified Manufacturing - An ISO-compliant facility that integrates advanced ERP systems for production planning, manufacturing, and inventory management, ensuring precision and efficiency.

Unmatched Quality Standards - Stringent quality checks ensure reliability, durability, and safety for our customers' operations.

Kaizen-Driven Innovation - Teams are encouraged to implement Kaizen, fostering continuous improvement and process efficiency to deliver superior products.

Precision Engineering & Tooling Expertise - Expertly crafted components tailored for low and medium-voltage applications with precision tooling for diverse industries, including automotive, aerospace, and home appliances.

Commitment to EHS Excellence - Hindustan Platinum prioritizes Environment, Health, and Safety, ensuring minimal environmental impact while maintaining superior product performance.

Sustainability Commitment - Our in-house recycling processes and eco-friendly operations align with global sustainability goals, ensuring reduced waste and environmental responsibility. Our Silver as a raw material is 100% sourced from in-house refinery. We are committed to keeping people safe and healthy at work.

Global Reach & Legacy - Over six decades of expertise, including the acquisition of ABB's electrical contacts plant, extends our capabilities to North and South America.

Customized Solutions – Tailored product development and technical consultancy services meet unique customer requirements, enhancing performance and cost efficiency.

Comprehensive Product Range - Includes rivets, profiles, brazing alloys, and semi-finished products made from innovative materials like Silver-Graphite, Silver-Nickel, and Silver-Tin Oxide.



ISO Accreditations

A strict emphasis on quality, integrity, and precision in all our business processes has ensured that all our businesses are certified by the International Organization for Standardization (ISO).













Sustainability at Hindustan Platinum

At Hindustan Platinum, we are more than a business—we are a socially responsible organization committed to making a positive impact on the environment and our communities. We believe it is our duty to protect and nurture the world for future generations.

Commitment to SBTi Net-Zero Standard

We are aligned with the Science Based Targets initiative (SBTi) Net-Zero Standard, setting ambitious emissions reduction targets to meet the urgency of climate science and support a sustainable future.

EcoVadis Silver Rating

Recognized with a Silver rating by EcoVadis, the global leader in sustainability assessments, we are in the top 15% of companies worldwide, demonstrating our dedication to sustainable practices across all operations.

Aiming for 'Zero Waste

Our zero-waste approach enables us to recycle 99% of hazardous process waste and utilize 100% of biodegradable waste on-site, underscoring our commitment to resource conservation and sustainable waste management.

Energy Offset Through Wind Power

In the past two years, 46% of our energy requirements have been met through wind power, reducing our carbon footprint and reliance on non-renewable energy sources.

Rainwater Harvesting

We collect around 20,000 kiloliters of rainwater annually, conserving water resources and reducing dependency on external sources.

Our Commitment to Sustainability















Social Responsibility

We are dedicated to building a flourishing community by supporting the less-privileged in our society. Through joint initiatives by Hindustan Platinum and the Choksi Charity Foundation, we focus on healthcare, education, women's empowerment, senior care, environmental sustainability, arts and culture, sports, rural development, and disaster relief.







Health care and sanitization



Education



Women empowerment



Facilities for senior citizens



Environment sustainability







Sports



Support for armed forces



Rural development







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