



诺普材料  
Noble Metal Technology

Green Contact for Better Life



Foshan Noble Metal Technology Co.,Ltd.

# COMPANY PROFILE



**170**  
Personnel



**22**  
Years of Establishment



**32000** m<sup>2</sup>  
Foshan Plant 23,000 m<sup>2</sup>  
Zhuzhou Plant 9,000 m<sup>2</sup>

Foshan Noble Metal Technology Co.,Ltd.(known as NMT), headquarter located in Foshan, is a high-tech enterprise specializing in developing and manufacturing Silver-based electrical contact composite materials, components & assemblies, which are applied on electrical and electronic applications.

NMT has obtained National Invention Patent of “AgSnO<sub>2</sub>In<sub>2</sub>O<sub>3</sub> Electric Contact composite material and its manufacture processes” in 2008. Through our expert know-hows and strong technical team, NMT has further developed AgSnO<sub>2</sub> alloy materials with different compositions and innovative processes, which results in better performance and boarder range of its application. Additionally NMT has also developed various range of silver-based electrical contact materials such as AgNi, AgZnO and AgWC etc., which may offer our customer more options in their applications.

We have business segments of Contact Materials (in forms of powder, wires, clad strips & profiled), Contact Components (in forms of tips and rivets), Contact Assemblies (in forms of welded assemblies and stamping assemblies), and Silver Paste, which enable us to offer our customers integrated & cost-effective solutions with complete and reliable manufacture and quality control.

NMT has kept investing in R&D and following up the most up-to-date techniques and applications via cooperation and exchange with customers and research organizations, which drive NMT to deliver more innovative, eco-friendly and high-quality solutions to our customers.

## NMT Core Values

### INTEGRITY

Integrity is the fundament for NMT

### ACCOUNTABILITY

Be responsible for customer  
Provide safety & healthy environment for employee  
Seek for sustainable development

### EFFICIENCY

Fast response to customer's need  
Quick adaption to market change

### INNOVATION

Innovation for high quality & cost effective solutions  
Strive for excellence



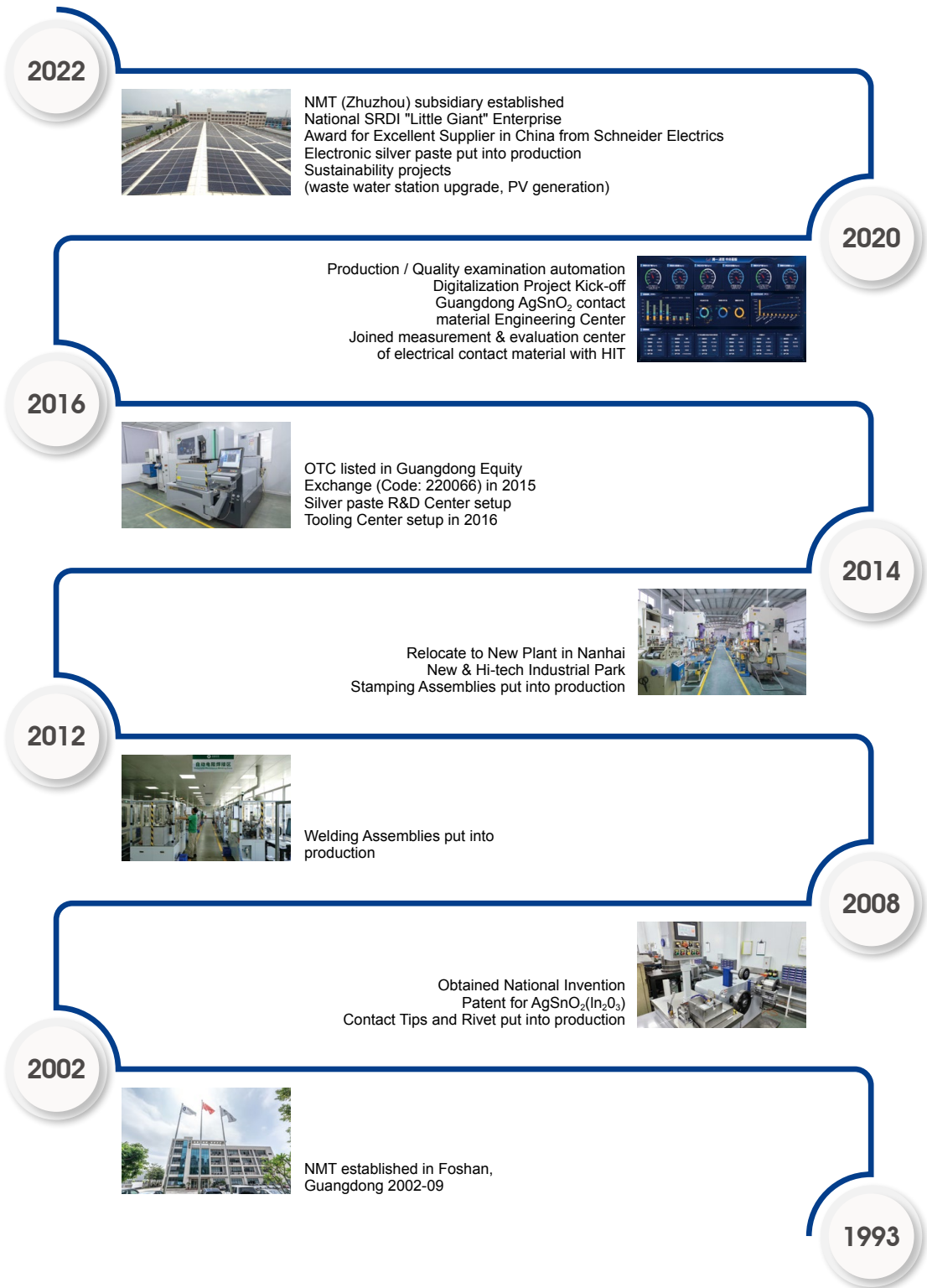
## Certificates



## Honors



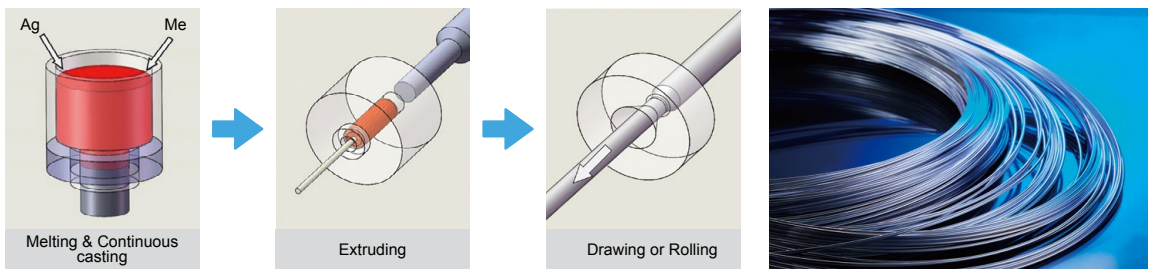
## NMT Development Milestone



## Electrical Contact Material Type and Properties

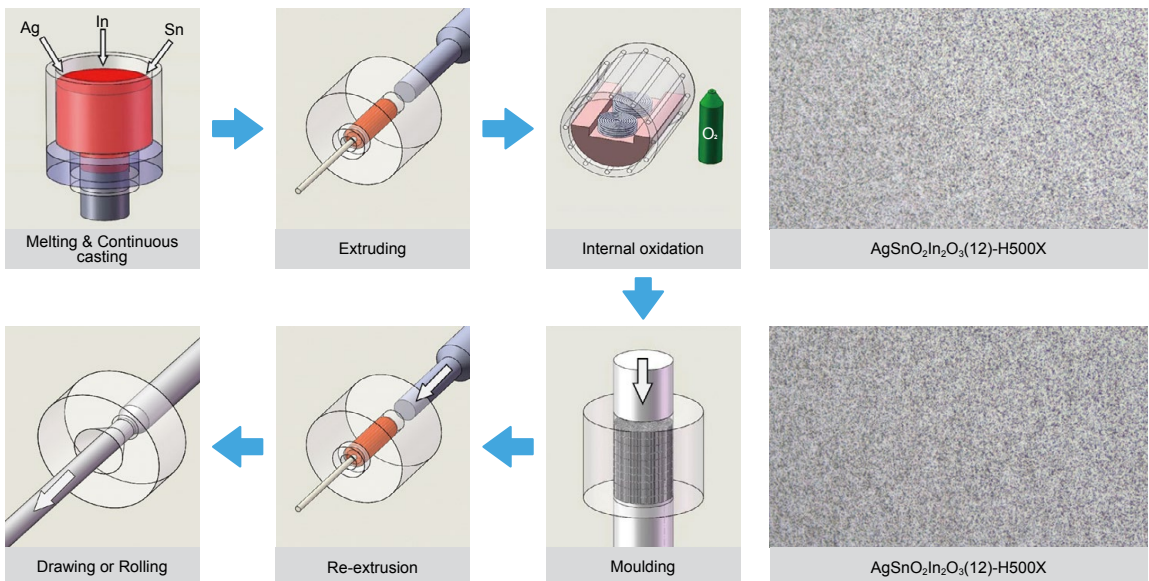
Material	Ag content (wt%)	Density (g/cm <sup>3</sup> )	Conductivity (IACS)	Hardness (HV)	Process
Ag	99.99	10.5	102%	30	Alloy Melting
AgNi0.15	99.85	10.5	100%	40	
AgCu(10)	90	10.3	86%	60	

Processes Flow:



Material	Ag content (wt%)	Density (g/cm <sup>3</sup> )	Conductivity (IACS)	Hardness (HV)	Process
AgSnO <sub>2</sub> In <sub>2</sub> O <sub>3</sub> (8)	92	10.05	78.2%	90	Internally Oxidized
AgSnO <sub>2</sub> In <sub>2</sub> O <sub>3</sub> (10)	90	10	77.1%	95	
AgSnO <sub>2</sub> In <sub>2</sub> O <sub>3</sub> (12)	88	9.95	74.1%	100	
AgSnO <sub>2</sub> In <sub>2</sub> O <sub>3</sub> (14.5)	85.5	9.85	67.7%	105	

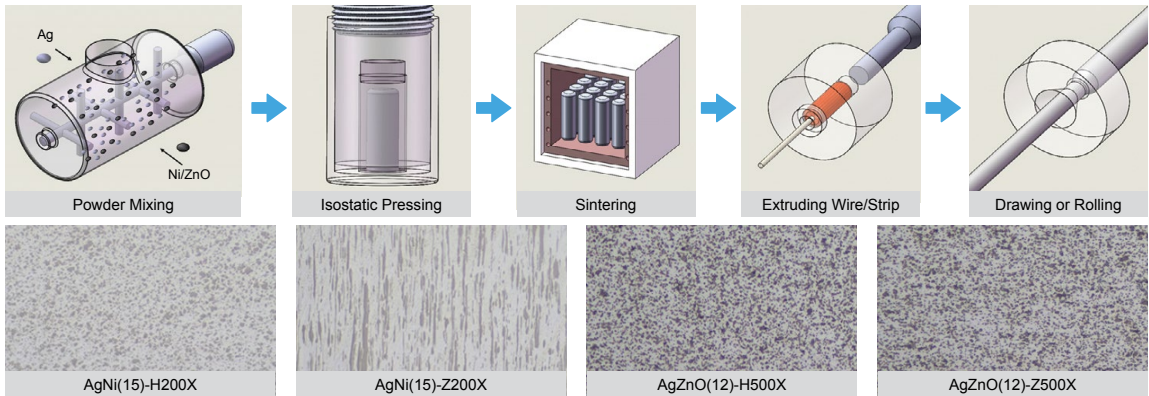
Processes Flow:



## Electrical Contact Material Type and Properties

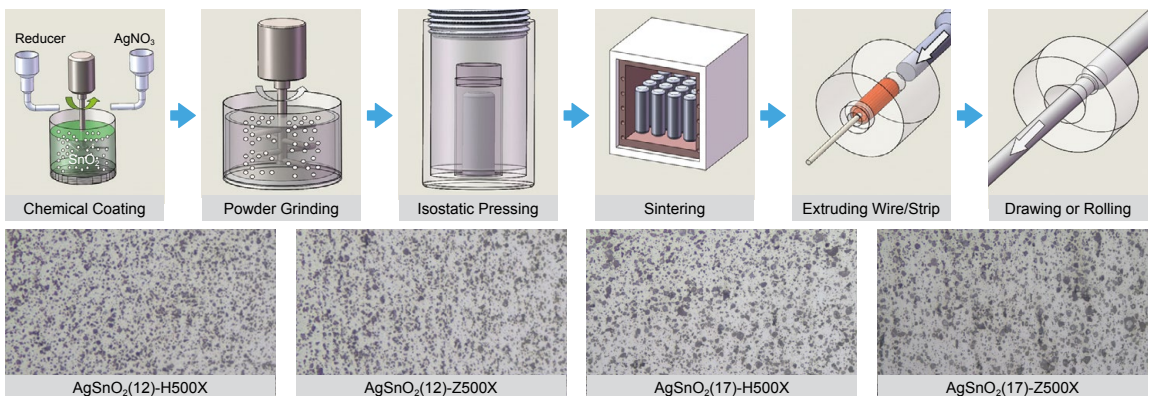
Material	Ag content (wt%)	Density (g/cm <sup>3</sup> )	Conductivity (IACS)	Hardness (HV)	Process
AgNi(10)	90	10.25	90%	90	Powder Metallurgy
AgNi(12)	88	10.22	88%	100	
AgNi(15)	85	10.2	85%	95	
AgNi(20)	80	10.1	80%	100	
AgNi(25)	75	10	75%	105	
AgNi(30)	70	9.9	70%	105	
AgZnO(8)	92	9.4	69%	65	
AgZnO(10)	90	9.3	66%	65	
AgZnO(12)	88	9.25	63%	70	
AgZnO(14)	86	9.15	60%	70	

### Processes Flow:

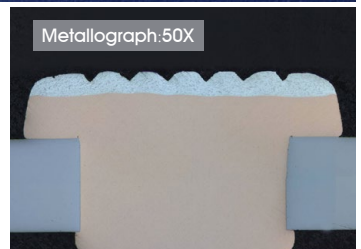
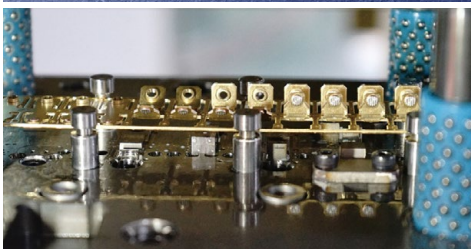


Material	Ag content (wt%)	Density (g/cm <sup>3</sup> )	Conductivity (IACS)	Hardness (HV)	Process
AgSnO <sub>2</sub> (8)	92	10	81.5%	80	Chemical Coating
AgSnO <sub>2</sub> (10)	90	9.9	77.5%	83	
AgSnO <sub>2</sub> (12)	88	9.81	75.1%	87	
AgSnO <sub>2</sub> (14)	86	9.7	77.5%	90	
AgSnO <sub>2</sub> (17)	83	9.6	68.8%	90	

### Processes Flow:



## Automatic Contact Rivet Assemblies



## Resistance Welding Assemblies



### Application

Mainly applied to Relay, Contactor, Electrical Switch, Motor Protection, Thermostats, etc.



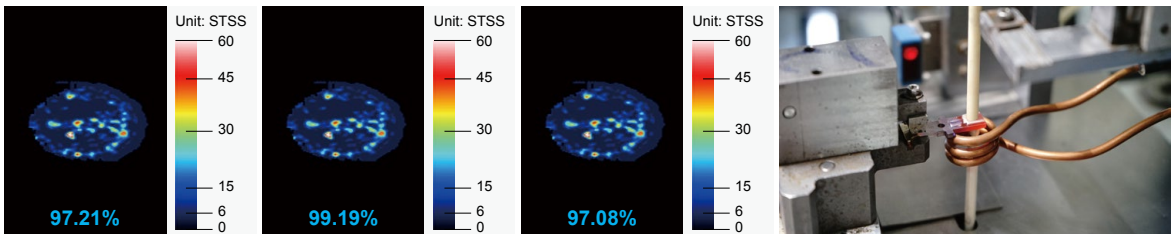
## Brazing Assemblies

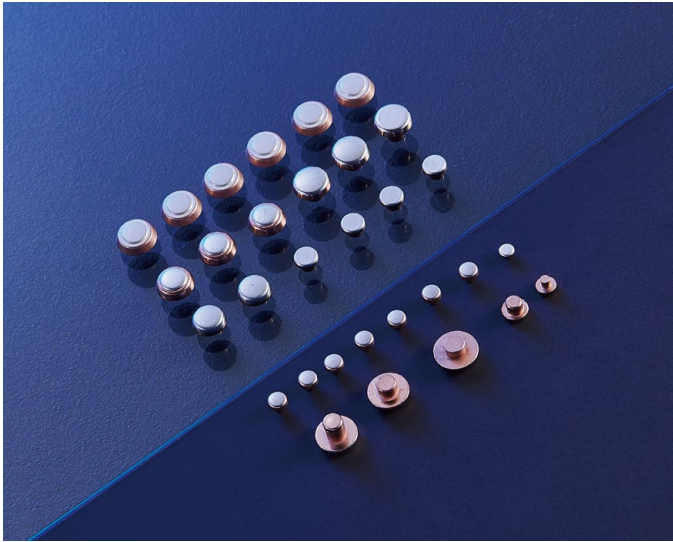


### Application

Mainly applied to Contactor, Circuit Breaker, Control Switch Devices, etc.

### BRAZING RATE





## Contact Rivets








### Application

Mainly applied to riveting assembly for Relay, Electrical Switch, Wall Switch etc.

### Material

Ag AgNi AgCu AgZnO AgSnO<sub>2</sub>  
AgSnO<sub>2</sub>In<sub>2</sub>O<sub>3</sub> etc.

### COMMON FORMS OF CONTACT RIVETS

Items	Solid Rivets		Bimetal Rivets				Trimetal Rivets	
Head Form	F / R		F / R				Conic	F / R
Figure								
Shank Form	Flat Shank	Flat Shank	Chamfered Shank	Countersunk Shank	Drilled Shank	Flat Shank	Flat Shank	



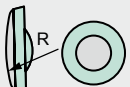
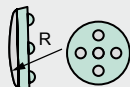
## Button Contacts

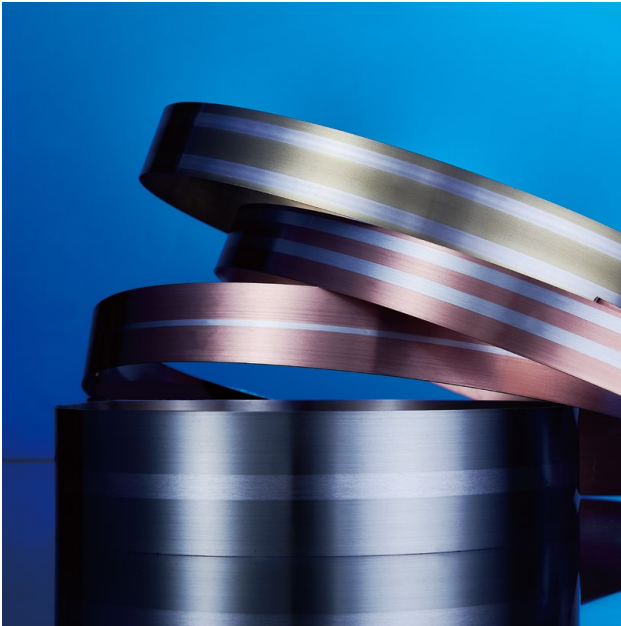
### Application

Mainly applied to welding assembly for Electrical Switch, Thermostats, Motor protection etc.

### Material

Ag AgNi AgSnO<sub>2</sub> AgSnO<sub>2</sub>In<sub>2</sub>O<sub>3</sub>

Items	Button Contacts (Back)	
Shape	One Point Back	Five Points Back
Figure		



## Clad Strip

### Application

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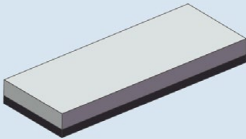
Mainly applied to Wall Switch, Electrical Switch, Connectors, Plugs sockets etc.

### Material

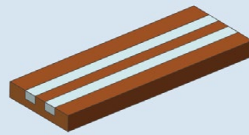
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Ag/Cu AgNi/Cu AgSnO<sub>2</sub>/Cu  
AgSnO<sub>2</sub>In<sub>2</sub>O<sub>3</sub>/Cu etc.

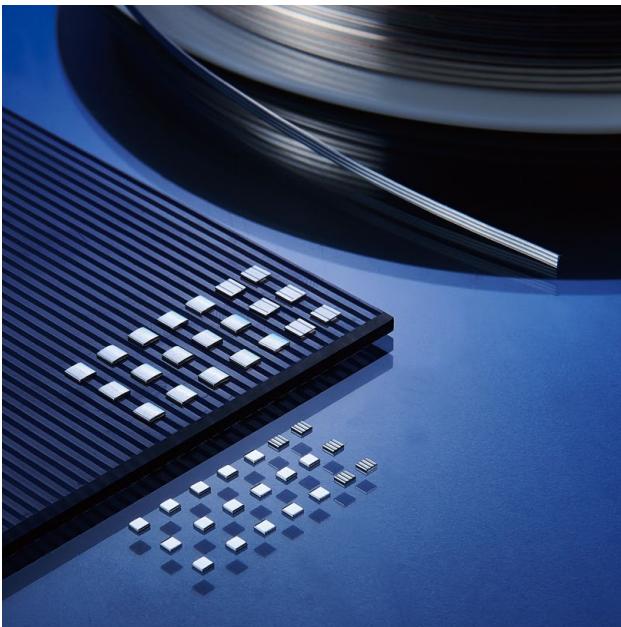
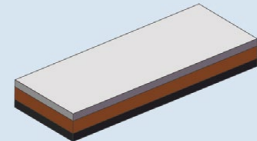
Bi-Metal



Inlay



Multi-Layer Clad



## Profiled Strip

### Application

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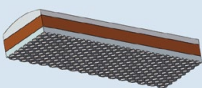
Mainly applied to Motor protection, Electrical Switch, Relays, Control Switch Devices etc.

### Material

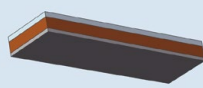
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Ag/CuNi AgNi/CuNi AgSnO<sub>2</sub>/Cu/BCuP  
AgSnO<sub>2</sub>In<sub>2</sub>O<sub>3</sub>/Cu/BCuP etc.

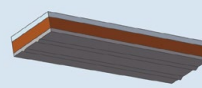
knurled tape



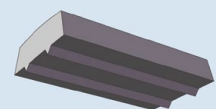
breze backed tape



double rail tape



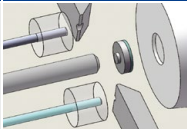
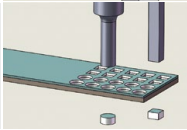
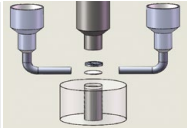
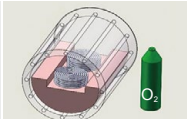
tape



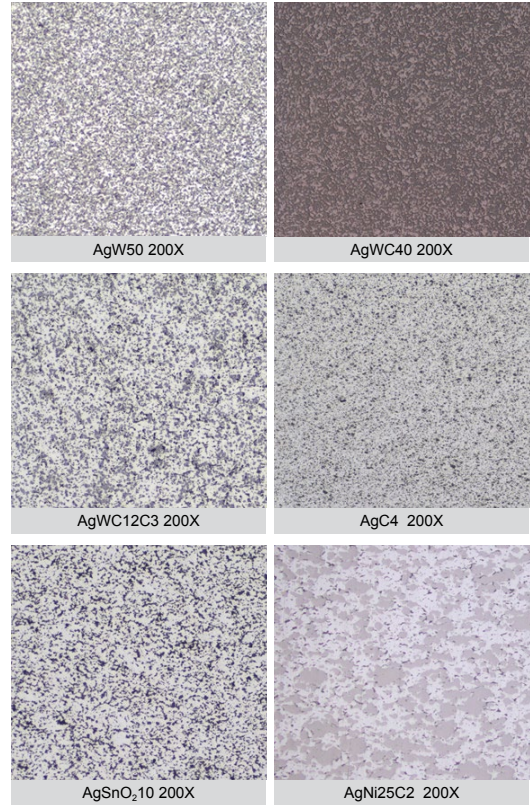
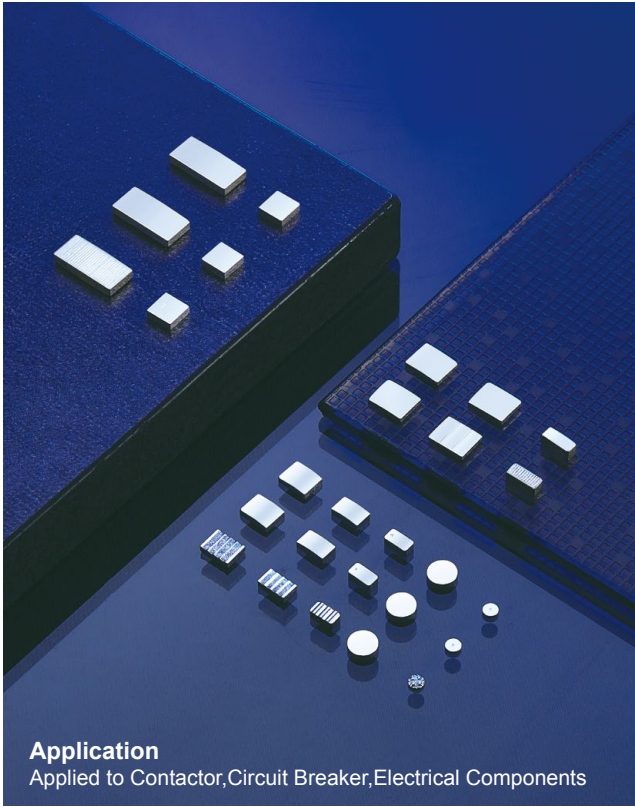
## Electrical Silver Contact Tips



**Application**  
Applied to Contactor, Circuit Breaker, Electrical Components

Manufacturing Process	Schematic	Limitation of Size	Shape of Tips	Bonding Strength	Material
Wire Forming		$\leq \Phi 10\text{mm}$	Round	Good	AgSnO <sub>2</sub> AgNi AgZnO AgSnO <sub>2</sub> In <sub>2</sub> O <sub>3</sub>
Strip Bonding		No limitation	Square Round	Good	AgSnO <sub>2</sub> AgNi AgZnO AgSnO <sub>2</sub> In <sub>2</sub> O <sub>3</sub>
Powder Compression		No limitation	All shapes	Extremely good	AgSnO <sub>2</sub> AgC AgW AgWC AgWCC AgNiC AgZnO
Internal Oxidation		No limitation	All shapes	Good	AgSnO <sub>2</sub> In <sub>2</sub> O <sub>3</sub>

## Powder Metal Contacts



Material	Ag Component (wt%)	Density (g/cm <sup>3</sup> )	Conductivity (IACS)	Hardness (HV)
AgW50	50±2.0	13.2	57	130
AgW65	35±2.0	14.6	50	160
AgWC30	70±3	11.35	59	125
AgWC40	60±3	11.8	50	140
AgWC12C3	85±1.0	9.6	60	56
AgWC22C3	75±1.0	10	58	66
AgNi15C4	95.5±1.5	9	33	65
AgNi25C2	71.5±2	9.2	53	60
AgC4	96±0.7	8.8	75	42
AgC5	95±0.8	8.6	69	42
AgSnO <sub>2</sub> (10)	90±1	9.6	70	75
AgSnO <sub>2</sub> (12)	88±1	9.5	65	65
AgZnO(12)	88	9.25	63	70
AgZnO(14)	86	9.1	50	70
		9.15	60	

## Brazing Paste



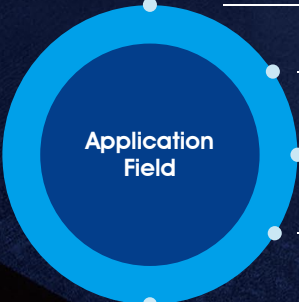
### SILVER BASE BRAZING PASTE

Cadmium Free Silver Brazing Alloys (BAg)							
NMT Number	AWS Number	Ag	Cu	Zn	Sn	Solidus Temperature	Liquidus Temperature
NMT-101	BAg-9	65	20	15	/	670°C	720°C
NMT-102	BAg-7	56	22	17	5	620°C	655°C
NMT-103	BAg-5	45	30	25	/	663°C	743°C
NMT-104	BAg-36	45	27	25	3	640°C	680°C


### COPPER BRAZING PASTE

Cadmium Free Silver Brazing Alloys (BAgCuP)						
NMT Number	AWS Number	Ag	Cu	P	Solidus Temperature	Liquidus Temperature
NMT-201	BCuP-5	15	20	15	640°C	800°C
NMT-202	BCuP-8	18	22	17	643°C	666°C
NMT-203	-	25	30	25	650°C	720°C


## Product Application




**Application Field**




Industrial Electrical Apparatus




Household Electrical Appliance








Building Electrical Appliance



Automotive Electrical Appliance




Communication Electrical Appliance

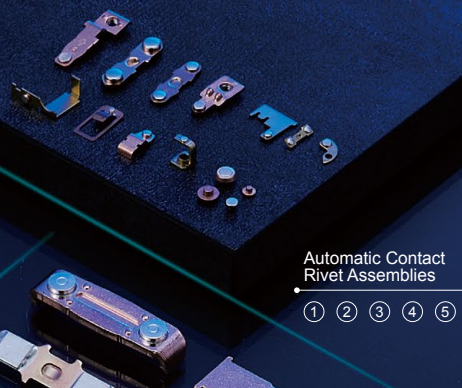
**Brazing Assemblies**

⑪



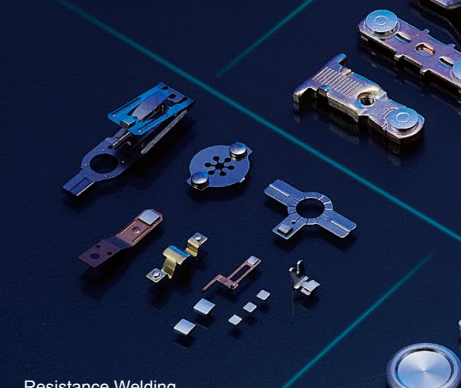
**Automatic Contact Rivet Assemblies**

① ② ③ ④ ⑤



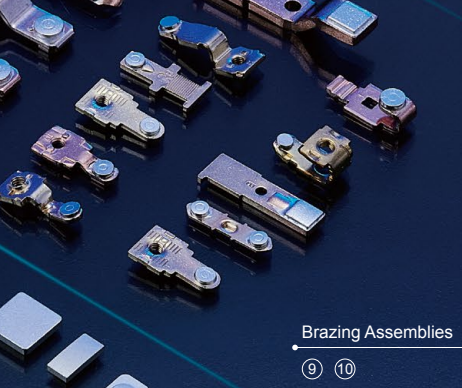
**Resistance Welding Assemblies**

⑥ ⑦ ⑧




**Brazing Assemblies**


⑨ ⑩




**Electrical Silver Contact Tips**

⑫ ⑬ ⑭







Relays




Electrical switch




Micro switch




Wall switch




Automobile switch




Motor protection




Auto-reset Thermostats




Capillary Thermostats




AC contactor




Power contactor




High Voltage DC Relay



ACB



MCCB



MCB

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