

Materials for Probing

Heraeus solutions for your test requirements

What makes Heraeus special:

Our core competencies at a glance

- › We melt the alloy you need: Processing of precious metal alloys into semi-finished products (fine wire, wire cuttings, foils)
- › We innovate materials for your next-gen test equipment: Unique combination of material expertise, application and manufacturing know-how
- › We customize our products to your needs: from alloying to ultrafine wires



Your Benefits:

Specialized alloys tailored to your testing application

- › Supportive advice on choosing and adapting the right material and configuration for your application
- › Consistently high quality standard and fast delivery times
- › Reliable innovation cycles of new alloys due to extensive facilities for mechanical/electrical testing (CCC/ MAC) and surface analysis in Heraeus laboratories



Get to know:

Our Semiconductor Material Portfolio

	Pd-based Alloys	
	Hera 648	Hera 6321
Main Components [wt%]	Pd35Ag30Au10Pt10	Pd39Ag29
Density [g/cm³]	11.8	10.4
Young's Modulus [GPa]	108	112
Yield Strength R_{p0,2} [MPa]	1050 – 1350	1100 – 1600
UTS [MPa]	1100 – 1400	1200 – 1700
Hardness [HV]	330 – 400	400 – 450
Thermal Conductivity [W/mK]	28	66
Electrical Resistivity [μOhm*cm]	35.9 – 33.2	21.3 – 12.3
IACS [%]	4.8 – 5.2	8.1 – 14.0
CCC* [mA]		380
MAC [mA]		290

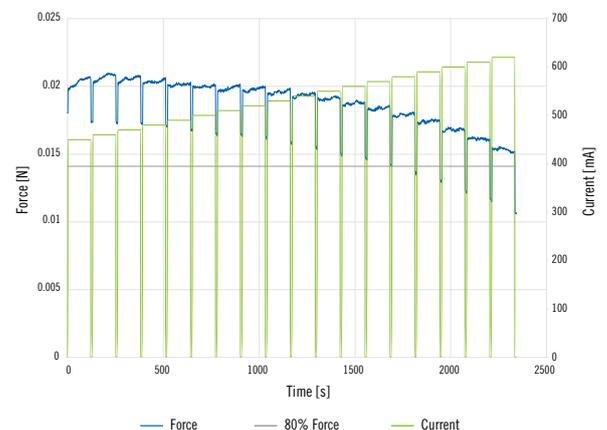
All information provided serves to compare the products and can be adapted to the respective

Revolutionary Pd-Alloy: Palysium

Innovative Heraeus alloy with unique microstructure

- › Due to its unique superlattice structure, Palysium has very high electrical conductivity (2.5 times higher than Hera 6321) combined with excellent spring properties and processing capabilities for wire diameters down to 15 μm.
- › These enable the realization of very accurate smaller needle sections addressing smaller pitch sizes, as well as faster and more reliable testing for more cost-efficient testing.

CCC-Measurement* of Palysium



*according to ISMI reference with: 41 μm diameter, 8 mm length, flat tip and end, OT 75 μm, offset 250 μm, 120 s current cycle time, 10 s off-time between cycles, room temperature

Palsium/Hera 6307	Further Alloys	
	Hera 1206	Hera 5270
Pd52Ag11	PtNi31.5	Rh dot
10.52	15.1	12.40
120	234	330
1250 – 1450	1500 – 1900	1900 – 2500
1300 – 1500	1600 – 2000	2100 – 2700
400 – 500	400 – 490	up to 530
144		150
7.2 – 6.4	41.0 – 33.2	5.7 – 5.4
24 – 27	4.2 – 5.2	30 – 32
590		650
506		540

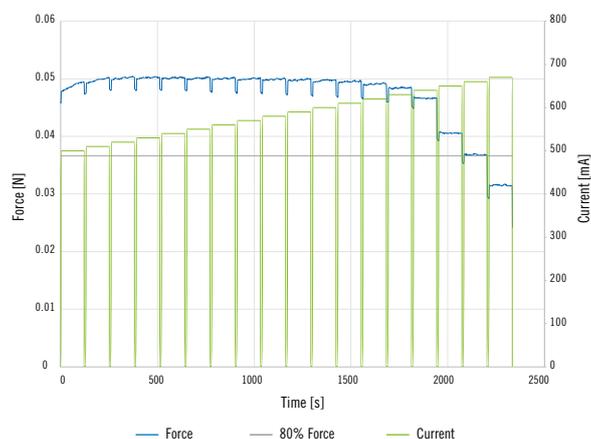
customer requirements on request.

Heraeus Rh-Alloy: Hera 5270

Significantly improved processability of pure Rh by doping

- › Pure Rh is characterized by high hardness and excellent conductivity. Processing of Rh is demanding due to embrittlement and cracks during drawing processes of ultrafine wires.
- › Hera 5270 significantly improved the processability of pure Rh by doping the material. Satisfactory properties can be achieved even for wire diameters down to 20 μm .

CCC-Measurement* of H5270



*according to ISMI reference with: 41 μm diameter, 8 mm length, flat tip and end, OT 75 μm , offset 250 μm , 120 s current cycle time, 10 s off-time between cycles, room temperature

Easy access: Our Material Database

Suitable precious metals and alloys are listed in the Heraeus Material Database which offers highest efficiency in material choice:

- › **Quick and easy access:**
No registration required, browse materials right away
- › **Transparency:**
Find the right material by setting filters, e.g. applications
- › **Comparability:**
Compare up to 4 materials and find out how they perform, e.g. electric resistivity, Young's Modulus, thermal conductivity



Simply scan the QR code and get to know our products.

Need personal advice? Contact our experts at Heraeus



Simply scan the QR code and get in touch with our sales team.

**We conserve resources
and promote a
circular economy.**

RESOURCES
are precious to us

**Our pledge to
RESPONSIBILITY**

PEOPLE
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CLIMATE
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people's well-being
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