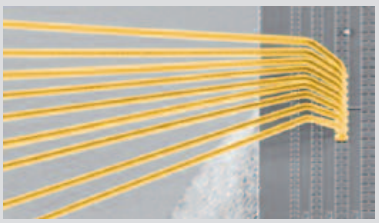
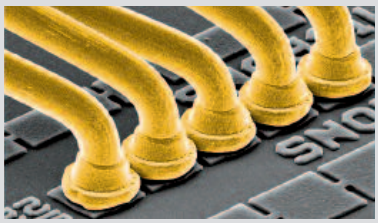
Heraeus

Au HA5

Fine Pitch • Low Loop • High Electrical Performance





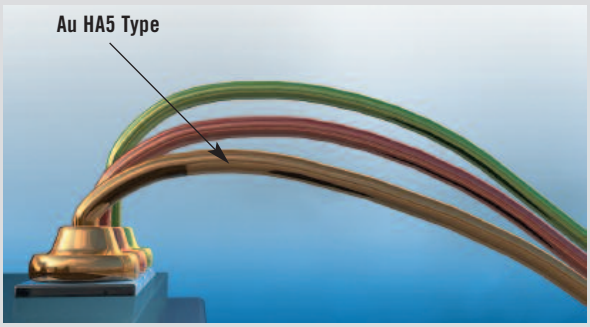
In contrast to doped Au wires, alloyed wire types contain a low percentage of alloying elements. This results in markedly higher wire strength, shorter heat affected zones and better thermal stability without a significant increase in electrical resistance. The increased wire strength, while maintaining all other mechanical properties, permits a reduction of wire diameter together with a marked saving in precious metal costs.

Areas of application

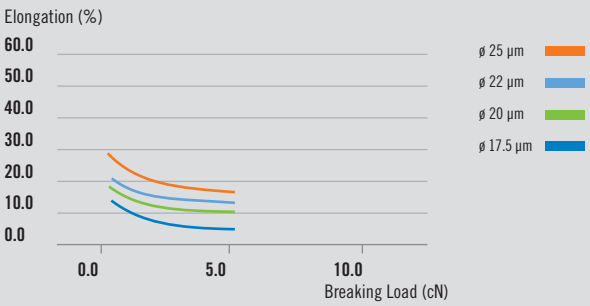
- High frequency bonding
- Low temperature bonding
- Low- and long-loop bonding
- High speed bonding
- Ultra fine pitch bonding
- Ball bumping

Au HA5 Benefits

- High strength and fine pitch wire type
- Increased strength, high loop stiffness
- Very good pull strengths and shear
- Long & low loop geometries
- Optimum stabilized phase formation
- High thermal stability
- Improved reliability



Breaking Load vs. Elongation



Recommended Technical Data of Au HA5

Diameter	**Microns (µm)**	17.5	20	23	25	30	32	38	50
	Mils	0.7	0.8	0.9	1.0	1.2	1.25	1.5	2.0
Elongation	**%**	2 – 5	2 – 5	2 – 8	2 – 8	2 – 8	2 – 8	3 – 8	3 – 10
Breaking Load	**cN**	> 5	> 6	> 9	> 11	> 17	> 18	> 26	> 44

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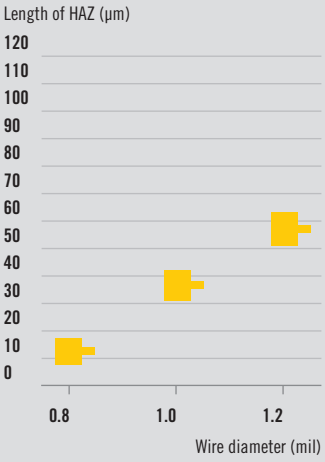
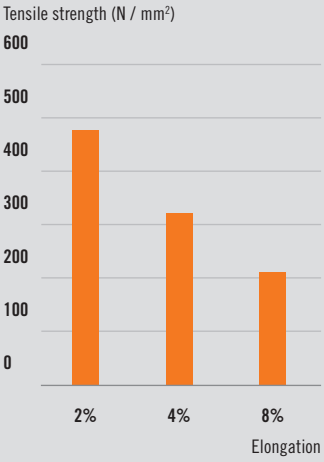
Characteristics of Au HA5

Non-Gold Elements	< 110 ppm	**Melting Point**	1063 °C
Breaking Load @ Room Temperature at 4% EL	> 13 g	**Density**	19.32 g/cm³
Breaking Load @ 250°C / 20 sec	> 10 g	**Heat Conductivity**	3.12 W/cmK
Elastic Modulus	> 90 GPa	**Electrical Resistivity**	2.3 µOhm-cm
Heat Affected Zone (HAZ) on 50 µm ball diameter	35 µm	**Coeff. of Linear Expansion (0 – 100°C)**	14.2 ppm / K
Neck Strength at 37 µm ball diameter	10 g	**Fusing Current for 25 µm, dia 10 mm length (in air), A**	0.5 A

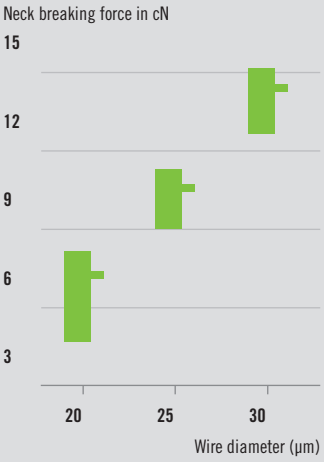
Heat Affected Zone (HAZ)



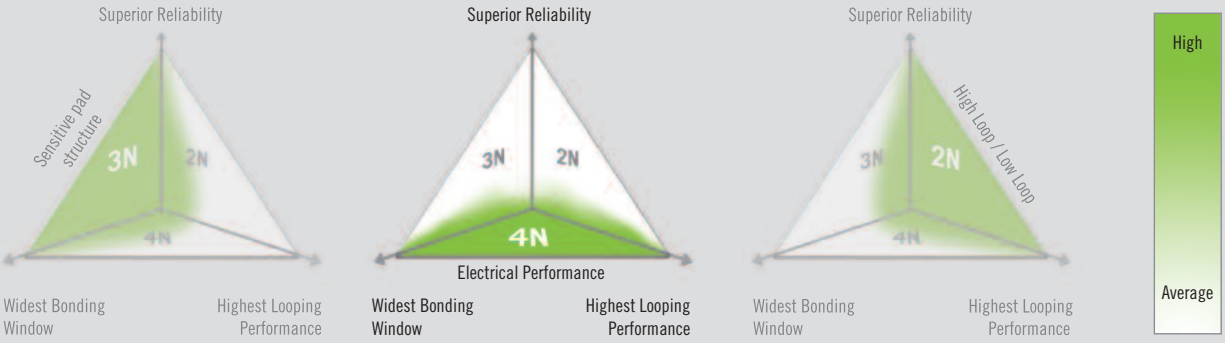
Breaking Load vs. Elongation



Neck Strength



Gold Wire Segmentation by Properties



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