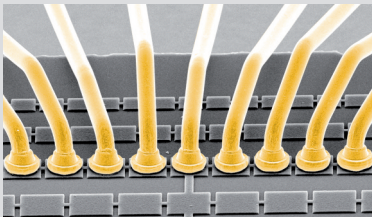
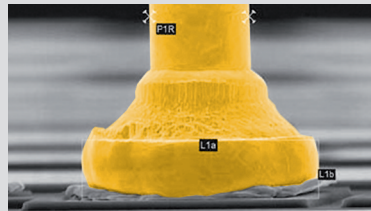


## Au HA3

### Low Loop • High Reliability • Bumping



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



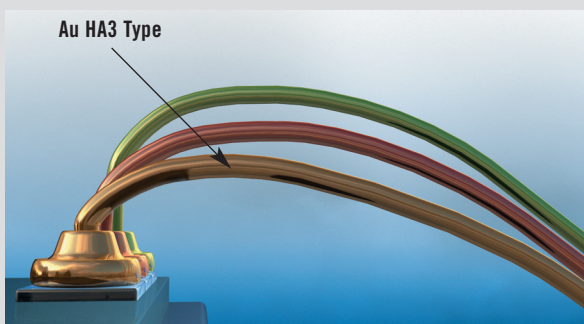
wire diameter together with a marked saving in precious metal costs.

Areas of application

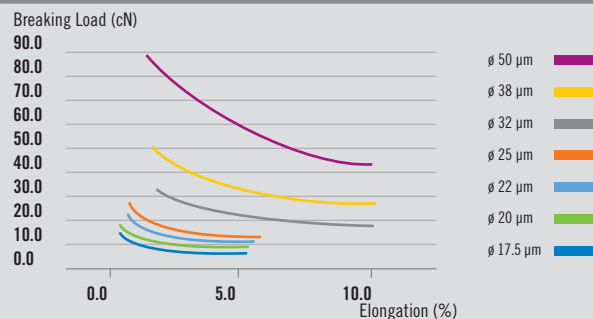
- High frequency bonding
- Low temperature bonding
- Low- and long-loop bonding
- High speed bonding
- Ultra fine pitch bonding
- Ball bumping

#### Au HA3 Benefits

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



#### Breaking Load vs. Elongation



#### Recommended Technical Data of Au HA3

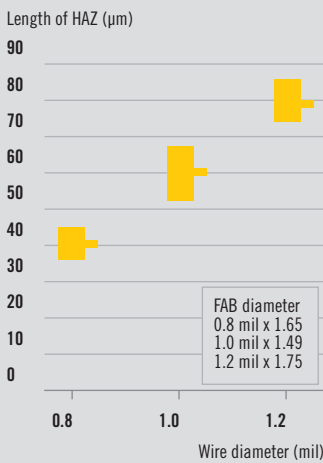
Diameter	Microns (µm)	17.5	20	23	25	30	33	38	50
	Mils	0.7	0.8	0.9	1.0	1.2	1.3	1.5	2.0
Elongation	%	2 – 6	2 – 6	2 – 6	2 – 8	2 – 8	3 – 8	3 – 8	3 – 8
Breaking Load	cN	> 5	> 6	> 8	> 10	> 15	> 18	> 22	> 40

For other diameters, please contact Heraeus Bonding Wires sales representative.

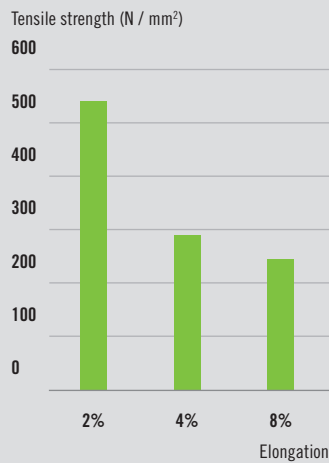
## HA3 Characteristics for 25 µm diameter

Non-Gold Elements	< 100 ppm	Heat Conductivity	3.03 W / cmK
Elastic Modulus	> 90 GPa	Electrical Resistivity	2.9 µΩ-cm
Heat Affected Zone (HAZ)	60 – 100 µm	Coeff. of Linear Expansion (20 – 100 °C)	14.2 ppm / K
Melting Point	1063 °C	Fusing Current for 25 µm, dia 10 mm length (in air)	0.345 A
Density	19.2 g / cm <sup>3</sup>		

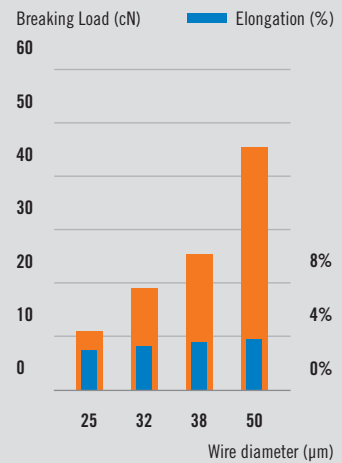
### Heat Affected Zone (HAZ)



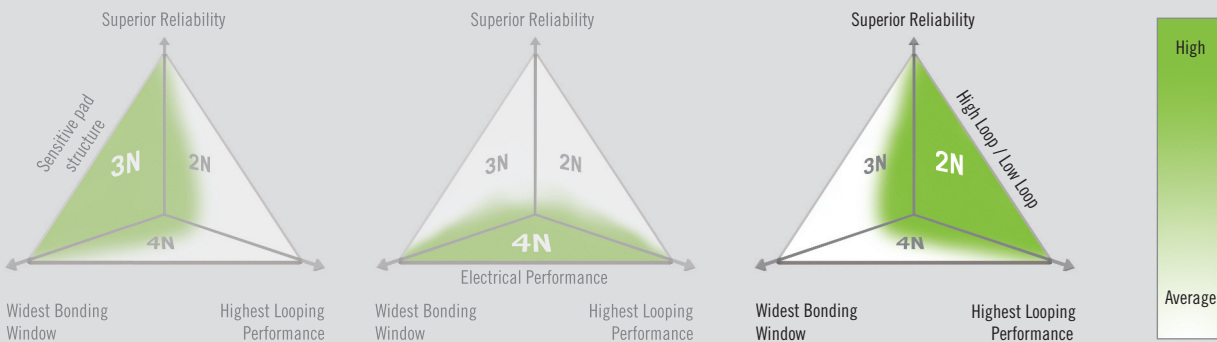
### Breaking Load vs. Elongation



### High Temperature Strength (HTS)



## Gold Wire Segmentation by Properties



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