# Heraeus



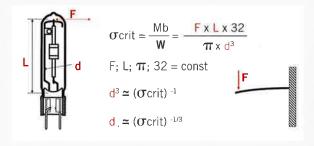
Nb HT 1600 Micro-doped Nb alloy

## Nb HT 1600 Micro-doped Nb alloy

#### ■ Nb HT 1600 is a new developed micro-doped Nb alloy

- Ht 1600 was developed as a Nb alloy with a high temperature stability. This was achieved by the micro-doping. A second effect of that micro-doping is an improvement of the mechanical properties.
- In comparison with standard NbZr1% the yield strength could be doubled and the tensile strength is increased by the factor of 1,5 with almost the same elongation values.
- Caused by these improves mechanical properties, the Nb HT 1600 wire could be ideally used as construction wire.
- Compared with Nb or NbZr1%, this new alloy offers the possibility to use smaller dimensions and therefore less material but it keeps the same stability.

#### Bending "one side fixed"



- $d_{HT1600} = d_{NbZr1\%} \times 0.78$
- diameter with the same bending property





### Comparison of the mechanical properties between NbZr1% and new alloy "HT 1600":

Property		Yield Strength	Tensile Strength	Elongation A <sub>L</sub> 254
Material	NbZr1%	130 MPA	230 MPA	28 %
	HT1600	270 MPA	375 MPA	25 %

### NbZr1% HT1600 Diameter

0,76 mm	0,59 mm	
0,72 mm	0,56 mm	
0,60 mm	0,47 mm	
0,50 mm	0,39 mm	
0,35 mm	0,27 mm	

- d ~ (**o**crit) -1/3
- $\mathbf{m} d_{HT1600} = d_{NbZr1\%} \times (270/130)^{-1/3}$
- $d_{HT1600} = d_{NbZr1\%} \times 0.78$
- > ~ 40 % less Material
- ■>~22 % less Shadow
- $d_{HT1600} = d_{NbZr1\%} x < 0.78$

Possible applications:

Frame work and support parts for HD lamps

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