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|-------------------------|--|
| Material:               | Fe-1.5 % Cu carbonitrided; iron: water atomised WPL 150 (Mannesmann)<br>copper: F5 (<br>sintering: 1120 °C, 30 min, 70 % N <sub>2</sub> + 30 % H <sub>2</sub><br>heat treatment: 920 °C, 3.5 h, endogas with 0.17 % CO <sub>2</sub> + NH <sub>3</sub> ; oil 60 °C;<br>no tempering mentioned; case depth: through hardened<br>density: 6.8 ± 0.05 g/cm <sup>3</sup><br>mech. properties: H = 537 HV10; R <sub>p0.2</sub> = -; R <sub>m</sub> = 625 MPa |
| Specimen:               | rectangular bar 90 x 11 x 5, central hole Ø 2mm, hole compacted, K <sub>t</sub> = 2.8; surface as sintered   |
| Loading mode:           | axial, R = 0; 25 Hz  |
| Limiting no. of cycles: | 2 · 10 <sup>6</sup>  |
| Endurance limit:        | 94 MPa (decided)   |
| Reference:              | C.M. Sonsino: Schwingfestigkeit von verschiedenen Sinterstählen und Bemessungskriterien für gesinterte Bauteile; LBF-Report No. FB-170; Fraunhofer-Institut für Betriebsfestigkeit, Darmstadt, 1984  |

|                    |          |          |          |         |        |
|--------------------|----------|----------|----------|---------|--------|
| Stress amplitude:  | 115      | 124      | 132      | 138     | MPa    |
| Cycles to failure: | 2000.000 | 2000.000 | 2000.000 | 42,459  | · 1000 |
|                    |          |          |          | 45,917  |        |
|                    |          |          |          | 66,984  |        |
|                    |          |          |          | 165,566 |        |
|                    |          |          |          | 191,840 |        |
|                    |          |          |          | 335,714 |        |
|                    |          |          |          | 378,416 |        |