



Material: Fe-1.5 % Cu-0.6 % C; iron: water atomized, carbon: graphite UF4 sintering: ca. 1120 °C, ca. 20 min, 96 % N<sub>2</sub> + 5 % H<sub>2</sub>, 0.8 °C/s cooling rate  
heat treatment: -  
density: 6.36 g/cm<sup>3</sup>  
mech. properties: H = 100 HBW 2.5/62.5, R<sub>p0.2</sub> = -, R<sub>m</sub> = -  
smooth, K<sub>t</sub> = 1.0; ISO 3928; surface as sintered

Specimen:

Loading mode: Plane bending; R = 0; two different types of machines with 50 Hz and 120 Hz

Limiting no. of cycles: 10<sup>7</sup>

Endurance limit: 96.5 MPa

Reference: A. Zafari, P. Beiss; Fatigue Strength of Iron-Copper-Carbon PM steels ;PM Auto 2008, Proc. CD, Isfahan, 2008

Stress amplitude:	90	95	100	105	120	170	MPa
Cycles to failure:	13116.603	17273.400	17422.600	56.600	90.800	8.300	1000
	13052.800	360.800	412.400	992.100	129.400	10.500	
	11707.000	892.800	660.080	110.619	102.530	6.200	
	12934.500	329.209	551.912	639.749	66.830	8.900	
	304.600	16242.846	13535.900	307.369	111.792	8.419	
	12667.900	14540.500	14264.200	280.208	77.800	7.196	
	25963.600	339.300	258.600	208.800	79.200	12.900	
	20278.900	167.000	69.800	69.100	101.637	8.900	
	25262.000	12384.900	11514.400	742.592	121.073	6.269	
	21340.393	11918.900	12822.600	304.953	49.600	5.733	