



**Material:** Fe-1.5 % Cu-0.6 % C; iron; water atomized sintering:  $1100 \leq T \leq 1120$  °C, 20 min, 95 % N<sub>2</sub> + 5 % H<sub>2</sub>, 0.8 °C/s cooling rate, surface slightly carburized, average carbon content 0.580 %  
**heat treatment:** -  
**density:** 6.95 g/cm<sup>3</sup>  
**mech. properties:** H = 152 HBW 2.5/62.5, R<sub>p0.2</sub> = -, R<sub>m</sub> = -  
**Specimen:** smooth, K<sub>t</sub> = 1.0; ISO 3928; surface as sintered  
**Loading mode:** Plane bending; R = -1; two different types of machines with 50 Hz and 120 Hz  
**Limiting no. of cycles:** 10<sup>7</sup>  
**Endurance limit:** 177.2 MPa  
**Reference:** A. Zafari, P. Beiss; Effect of Sintering Furnace on the Fatigue Strength of Fe-1.5Cu-0.6C; Adv. Powder Metall. & Particulate Mat.-2007, Proc. CD, part 5, p. 86-94; MPIF, Princeton, NJ, 2007

Stress amplitude:	175	180	185	190	200	240	MPa
Cycles to failure:	511.3	352.3	492.0	190.1	327.7	57.2	· 1000
	303.9	421.3	812.4	371.7	142.8	56.4	
	473.7	533.3	373.2	12131.7	296.5	52.6	
	11689.2	1448.0	408.4	506.8	151.0	92.1	
	10038.4	336.8	709.0	545.6	341.6	93.9	
	13766.7	15645.9	508.9	359.9	222.7	48.5	
	13826.4	416.6	1219.1	288.0	309.4	40.0	
	360.2	537.3	186.9	274.6	412.2	63.5	
	13776.2	835.7	759.4	134.8	265.2	35.8	
	10000.0	339.2	408.6	380.8	431.7	76.5	
		502.2		251.7			
		313.7		208.1			
				404.1			