

Conductivity and Resistivity Values for Iron & Alloys

Material	Conductivity		Resistivity	Reference	Notes
	(% IACS)	(Siemens/m)	(Ohm-m)	(See Endnotes)	
Iron					
Iron	18.00	1.044E+07	9.579E-08	ECTM	
Iron Ingot (99.9% Fe)	15.60	9.048E+06	1.105E-07	CSNDT	
Low-carbon white iron	3.25		5.300E-07	MHASM1	conductivity converted from resistivity
Martensitic nickel-chromium iron	2.16		8.000E-07	MHASM1	conductivity converted from resistivity
High-silicon iron	3.45		5.000E-07	MHASM1	conductivity converted from resistivity
High-nickel iron	1.0-1.2		1.4E-6--1.7E-6	MHASM1	conductivity converted from resistivity
Nickel-chromium-silicon iron	1.0-1.2		1.5E-6--1.7E-6	MHASM1	conductivity converted from resistivity
High-aluminum iron	0.72		2.400E-06	MHASM1	conductivity converted from resistivity
Medium-silicon ductile iron	2.0-3.0		5.8E-7--8.7E-7	MHASM1	conductivity converted from resistivity
High-nickel ductile (20% Ni)	1.69		1.020E-06	MHASM1	conductivity converted from resistivity
Carbon and Low-Alloy Steel					
1008 (Annealed)	11.81		1.460E-07	MHASM1	conductivity converted from resistivity
1010	12.06		1.430E-07	MHASM1	conductivity converted from resistivity
1015 (Annealed)	10.84		1.590E-07	MHASM1	conductivity converted from resistivity
1016 (Annealed)	10.78		1.600E-07	MHASM1	conductivity converted from resistivity
1018 (Annealed)	10.84		1.590E-07	MHASM1	conductivity converted from resistivity
1020	10.84		1.590E-07	MHASM1	conductivity converted from resistivity
1022 (Annealed)	10.84		1.590E-07	MHASM1	conductivity converted from resistivity
1025 (Annealed)	10.84		1.590E-07	MHASM1	conductivity converted from resistivity
1029 (Annealed)	10.78		1.600E-07	MHASM1	conductivity converted from resistivity
1030 (Annealed)	10.39		1.660E-07	MHASM1	conductivity converted from resistivity
1035 (Annealed)	10.58		1.630E-07	MHASM1	conductivity converted from resistivity
1040 (Annealed)	10.78		1.600E-07	MHASM1	conductivity converted from resistivity
1042 (Annealed)	10.08		1.710E-07	MHASM1	conductivity converted from resistivity
1043 (Annealed)	10.58		1.630E-07	MHASM1	conductivity converted from resistivity

1045 (Annealed)	10.64		1.620E-07	MHASM1	conductivity converted from resistivity
1046	10.58		1.630E-07	MHASM1	conductivity converted from resistivity
1050 (Annealed)	10.58		1.630E-07	MHASM1	conductivity converted from resistivity
1055	10.58		1.630E-07	MHASM1	conductivity converted from resistivity
1060	9.58		1.800E-07	MHASM1	conductivity converted from resistivity
1065	10.58		1.630E-07	MHASM1	conductivity converted from resistivity
1070	10.26		1.680E-07	MHASM1	conductivity converted from resistivity
1078 (Annealed)	9.58		1.800E-07	MHASM1	conductivity converted from resistivity
1080	9.58		1.800E-07	MHASM1	conductivity converted from resistivity
1095	9.58		1.800E-07	MHASM1	conductivity converted from resistivity
1137	10.14		1.700E-07	MHASM1	conductivity converted from resistivity
1141	10.14		1.700E-07	MHASM1	conductivity converted from resistivity
1151	10.14		1.700E-07	MHASM1	conductivity converted from resistivity
1524	8.29		2.080E-07	MHASM1	conductivity converted from resistivity
1524 (Annealed)	10.78		1.600E-07	MHASM1	conductivity converted from resistivity
1552	10.58		1.630E-07	MHASM1	conductivity converted from resistivity
4130 (Hardened and tempered)	7.73		2.230E-07	MHASM1	conductivity converted from resistivity
4140 (Hardened and tempered)	7.84		2.200E-07	MHASM1	conductivity converted from resistivity
4626 (Normalized and tempered)	8.62		2.000E-07	MHASM1	conductivity converted from resistivity
4815	6.63		2.600E-07	MHASM1	conductivity converted from resistivity
5132	8.21		2.100E-07	MHASM1	conductivity converted from resistivity
5140 (Hardened and tempered)	7.56		2.280E-07	MHASM1	conductivity converted from resistivity

Wrought Stainless Steel (annealed)					
201	2.50		6.900E-07	MHASM1	conductivity converted from resistivity
202	2.50		6.900E-07	MHASM1	conductivity converted from resistivity
301	2.39		7.200E-07	MHASM1	conductivity converted from resistivity
302	2.39		7.200E-07	MHASM1	conductivity converted from resistivity
302B	2.39		7.200E-07	MHASM1	conductivity converted from resistivity
303	2.39		7.200E-07	MHASM1	conductivity converted from resistivity
304	2.39		7.200E-07	MHASM1	conductivity converted from resistivity
302Cu	2.39		7.200E-07	MHASM1	conductivity converted from resistivity
304N	2.39		7.200E-07	MHASM1	conductivity converted from resistivity
304	2.50	1.450E+06	6.897E-07	ECTM	
304	2.50	1.450E+06	6.897E-07	CSNDT	
305	2.39		7.200E-07	MHASM1	conductivity converted from resistivity
308	2.39		7.200E-07	MHASM1	conductivity converted from resistivity
309	2.21		7.800E-07	MHASM1	conductivity converted from resistivity
310	2.21		7.800E-07	MHASM1	conductivity converted from resistivity
314	2.24		7.700E-07	MHASM1	conductivity converted from resistivity
316	2.33		7.400E-07	MHASM1	conductivity converted from resistivity
316N	2.33		7.400E-07	MHASM1	conductivity converted from resistivity
316	2.30	1.334E+06	7.496E-07	CSNDT	
317	2.33		7.400E-07	MHASM1	conductivity converted from resistivity
317L	2.18		7.900E-07	MHASM1	conductivity converted from resistivity
321	2.39		7.200E-07	MHASM1	conductivity converted from resistivity
329	2.30		7.500E-07	MHASM1	conductivity converted from resistivity
330	1.69		1.020E-06	MHASM1	conductivity converted from resistivity
347	2.36		7.300E-07	MHASM1	conductivity converted from resistivity
347	2.40	1.392E+06	7.184E-07	CSNDT	
384	2.18		7.900E-07	MHASM1	conductivity converted from resistivity

405	2.87		6.000E-07	MHASM1	conductivity converted from resistivity
410	3.02		5.700E-07	MHASM1	conductivity converted from resistivity
414	2.46		7.000E-07	MHASM1	conductivity converted from resistivity
416	3.02		5.700E-07	MHASM1	conductivity converted from resistivity
420	3.13		5.500E-07	MHASM1	conductivity converted from resistivity
429	2.92		5.900E-07	MHASM1	conductivity converted from resistivity
430	2.87		6.000E-07	MHASM1	conductivity converted from resistivity
430F	2.87		6.000E-07	MHASM1	conductivity converted from resistivity
431	2.39		7.200E-07	MHASM1	conductivity converted from resistivity
434	2.87		6.000E-07	MHASM1	conductivity converted from resistivity
436	2.87		6.000E-07	MHASM1	conductivity converted from resistivity
439	2.74		6.300E-07	MHASM1	conductivity converted from resistivity
440A	2.87		6.000E-07	MHASM1	conductivity converted from resistivity
440C	2.87		6.000E-07	MHASM1	conductivity converted from resistivity
444	2.78		6.200E-07	MHASM1	conductivity converted from resistivity
446	2.57		6.700E-07	MHASM1	conductivity converted from resistivity
PH 13-8 Mo	1.69		1.020E-06	MHASM1	conductivity converted from resistivity
15-5 PH	2.24		7.700E-07	MHASM1	conductivity converted from resistivity
17-4 PH	2.16		8.000E-07	MHASM1	conductivity converted from resistivity
17-7 PH	2.08		8.300E-07	MHASM1	conductivity converted from resistivity

<i>Wrought and P/M Superalloys</i>					
Elgiloy	1.73		9.950E-07	MHASM1	conductivity converted from resistivity
Hastelloy "A"	1.40	8.120E+05	1.232E-06	CSNDT	
Hastelloy "B" & "C"	1.30	7.540E+05	1.326E-06	CSNDT	
Hastelloy "D"	1.50	8.700E+05	1.149E-06	CSNDT	
Hastelloy "X"	1.50	8.700E+05	1.149E-06	ECTM	
Hastelloy "X"	1.46		1.180E-06	MHASM1	conductivity converted from resistivity
Haynes 150	2.13		8.100E-07	MHASM1	conductivity converted from resistivity
Haynes 188	1.87		9.220E-07	MHASM1	conductivity converted from resistivity
Haynes 230	1.38		1.250E-06	MHASM1	conductivity converted from resistivity
Incoloy 800	1.74		9.890E-07	MHASM1	conductivity converted from resistivity
Incoloy 825	1.53		1.130E-06	MHASM1	conductivity converted from resistivity
Incoloy 903	2.83		6.100E-07	MHASM1	conductivity converted from resistivity
Incoloy 907	2.47		6.970E-07	MHASM1	conductivity converted from resistivity
Incoloy 909	2.37		7.280E-07	MHASM1	conductivity converted from resistivity
Inconel 600	1.70	9.860E+05	1.014E-06	ECTM	
Inconel 600	1.67		1.030E-06	MHASM1	conductivity converted from resistivity
Inconel 601	1.45		1.190E-06	MHASM1	conductivity converted from resistivity
Inconel 617	1.41		1.220E-06	MHASM1	conductivity converted from resistivity
Inconel 625	1.34		1.290E-06	MHASM1	conductivity converted from resistivity
Inconel 690	11.65		1.480E-07	MHASM1	conductivity converted from resistivity
Inconel 718	1.38		1.250E-06	MHASM1	conductivity converted from resistivity
Inconel X750	1.41		1.220E-06	MHASM1	conductivity converted from resistivity

L-605	1.94		8.900E-07	MHASM1	conductivity converted from resistivity
M-252	1.58		1.090E-06	MHASM1	conductivity converted from resistivity
MP35N	1.71		1.010E-06	MHASM1	conductivity converted from resistivity
Nimonic 263	1.50		1.150E-06	MHASM1	conductivity converted from resistivity
Nimonic 105	1.32		1.310E-06	MHASM1	conductivity converted from resistivity
Nimonic 115	1.24		1.390E-06	MHASM1	conductivity converted from resistivity
Nimonic 75	1.39		1.240E-06	MHASM1	conductivity converted from resistivity
Nimonic 80A	1.36		1.270E-06	MHASM1	conductivity converted from resistivity
Nimonic 90	1.46		1.180E-06	MHASM1	conductivity converted from resistivity
Nimonic PE.16	1.57		1.100E-06	MHASM1	conductivity converted from resistivity
Nimonic PK.33	1.37		1.260E-06	MHASM1	conductivity converted from resistivity
Rene 41	1.32		1.308E-06	MHASM1	conductivity converted from resistivity
Stellite 6B	1.89		9.100E-07	MHASM1	conductivity converted from resistivity
Udimet 500	1.43		1.203E-06	MHASM1	conductivity converted from resistivity
Waspaloy	1.39		1.240E-06	MHASM1	conductivity converted from resistivity

CSNDT=CSNDT compiled by Eddy Current Technology Incorporated

ECTM=Eddy Current Testing Manual on Eddy Current Method compiled by Eddy Current Technology Incorporated

MHASM1=ASM Metals Handbook--Volume 1, Tenth Edition