

TABLE C-6
MODULUS OF ELASTICITY, U.S. UNITS, FOR METALS

Material	E = Modulus of Elasticity, Msi (Millions of psi), at Temperature, °F									
	-425	-400	-350	-325	-200	-100	70	200	300	400
Ferrous Metals										
Gray cast iron	...	...	...	...	...	...	13.4	13.2	12.9	12.6
Carbon steels, C ≤ 0.3%	31.9	...	...	31.4	30.8	30.2	29.5	28.8	28.3	27.7
Carbon steels, C > 0.3%	31.7	...	...	31.2	30.6	30.0	29.3	28.6	28.1	27.5
Carbon-moly steels	31.7	...	...	31.1	30.5	29.9	29.2	28.5	28.0	27.4
Nickel steels, Ni 2%–9%	30.1	...	...	29.6	29.1	28.5	27.8	27.1	26.7	26.1
Cr-Mo steels, Cr ½%–2%	32.1	...	...	31.6	31.0	30.4	29.7	29.0	28.5	27.9
Cr-Mo steels, Cr 2¼%–3%	33.1	...	...	32.6	32.0	31.4	30.6	29.8	29.4	28.8
Cr-Mo steels, Cr 5%–9%	33.4	...	...	32.9	32.3	31.7	30.9	30.1	29.7	29.0
Chromium steels, Cr 12%, 17%, 27%	31.8	...	...	31.2	30.7	30.1	29.2	28.5	27.9	27.3
Austenitic steels (TP304, 310, 316, 321, 347)	30.8	...	...	30.3	29.7	29.0	28.3	27.6	27.0	26.5
Copper and Copper Alloys (UNS Nos.)										
Comp. and leaded Sn-bronze (C83600, C92200)	...	...	...	14.8	14.6	14.4	14.0	13.7	13.4	13.2
Naval brass, Si- & Al-bronze (C46400, C65500, C95200, C95400)	...	...	...	15.9	15.6	15.4	15.0	14.6	14.4	14.1
Copper (C11000)	...	...	...	16.9	16.6	16.5	16.0	15.6	15.4	15.0
Copper, red brass, Al-bronze (C10200, C12000, C12200, C12500, C14200, C23000, C61400)	...	...	...	18.0	17.7	17.5	17.0	16.6	16.3	16.0
90Cu-10Ni (C70600)	...	...	...	19.0	18.7	18.5	18.0	17.6	17.3	16.9
Leaded Ni-bronze	...	...	...	20.1	19.8	19.6	19.0	18.5	18.2	17.9
80Cu-20Ni (C71000)	...	...	...	21.2	20.8	20.6	20.0	19.5	19.2	18.8
70Cu-30Ni (C71500)	...	...	...	23.3	22.9	22.7	22.0	21.5	21.1	20.7
Nickel and Nickel Alloys (UNS Nos.)										
Monel 400 N04400	28.3	...	...	27.8	27.3	26.8	26.0	25.4	25.0	24.7
Alloys N06007, N08320	30.3	...	...	29.5	29.2	28.6	27.8	27.1	26.7	26.4
Alloys N08800, N08810, N06002	31.1	...	...	30.5	29.9	29.4	28.5	27.8	27.4	27.1
Alloys N06455, N10276	32.5	...	...	31.6	31.3	30.6	29.8	29.1	28.6	28.3
Alloys N02200, N02201, N06625	32.7	...	...	32.1	31.5	30.9	30.0	29.3	28.8	28.5
Alloy N06600	33.8	...	...	33.2	32.6	31.9	31.0	30.2	29.9	29.5
Alloy N10001	33.9	...	...	33.3	32.7	32.0	31.1	30.3	29.9	29.5
Alloy N10665	34.2	...	...	33.3	33.0	32.3	31.4	30.6	30.1	29.8
Unalloyed Titanium										
Grades 1, 2, 3, and 7	...	...	...	...	...	...	15.5	15.0	14.6	14.0

(continued)