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# COMPARISON OF MECHANICAL AND ACOUSTIC PROPERTIES FOR SELECTED NONFERROUS, FERROUS, AND PLASTIC MATERIALS

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UNITED STATES NAVAL ORDNANCE LABORATORY, WHITE OAK, MARYLAND

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# COMPARISON OF MECHANICAL AND ACOUSTIC PROPERTIES FOR SELECTED NONFERROUS, FERROUS, AND PLASTIC MATERIALS

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S. L. Hanlein, W. M. Hinckley, and F. P. Stecher

ABSTRACT: Mechanical and acoustic properties have been tabulated for 356 nonferrous, 173 ferrous, and 67 plastic materials. These properties include density, Young's modulus of elasticity, ultimate tensile strength, yield strength, strength-to-density ratio, elastic sound speed, and acoustic impedance. The tabulation was accomplished by means of a computer, programmed to generate values for the latter three properties and then to sort the seven properties into separate arrays for easy comparison of materials.

The limited number of materials and properties of materials presented allows the user to make an initial selection of a material, or materials. Further information on the vast number of other materials with the same property or properties of the initial selection should be obtained from the manufacturers or suppliers. Also, the values of properties listed are averages and are not maxima or minima.

U. S. NAVAL ORDNANCE LABORATORY
WHITE OAK, MARYLAND

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This report is part of the continuing effort of the U. S. Naval Ordnance Laboratory to characterize materials. This program was funded by DASA Subtask AA-106, "Materials Damage Prediction." This work was completed in order to meet the need for a systematic catalog of material properties.

The authors would like to express their appreciation to the many individuals who assisted in this undertaking, especially Mr. Andrea Ascosi for his able assistance in the compilation of the input data.

GEORGE G. BALL
Captain, USN
Commander

A. E. Seigel
A. E. SEIGEL
By direction

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REFERENCES

1. "Materials in Design Engineering Materials Selector Issue/ Mid-October 1966-1967," H. R. Clauser, Publisher & Editor

2. "Stress Waves in Solids," H. Kolsky, Clarendon Press, Oxford, 1953; Dover Reprint, 1964

# INTRODUCTION

In engineering design and in experimentation, various material properties are used. Some of these properties are determined experimentally and others are calculated from experimental results. For instance, density, modulus of elasticity, ultimate tensile strength and yield strength in compression and tension are experimental properties, while yield strength to density ratio, sound speed and acoustic impedance are determined from these experimental properties. Both types of properties are frequently used together. Density, yield strength and yield strength-to-density ratio are utilized in ballistic model and sabot designs, while modulus of elasticity, sound speed and acoustic impedance are necessary for stress wave studies.

Thus, there is a need to have these material properties available in an orderly array. However, such a reference is not available in the current literature. Therefore, a reference is presented which includes the following properties:

1. density
2. Young's modulus of elasticity
3. ultimate tensile strength
4. yield strength
   a. tensile (metals)
   b. compressive (plastics)
5. strength to density ratio
   a. tensile yield strength-to-density ratio (metals)
   b. ultimate tensile strength-to-density ratio (plastics)
6. sound speed in the elastic region
7. acoustic impedance in the elastic region

## DATA PROCUREMENT

The values for the density, modulus of elasticity, ultimate tensile strength and tensile or compressive yield strength were taken from reference 1. These values, along with the name of each material, were punched on data processing cards and served as input data to the computer program. This program, as presented in this report, was written in Fortran IV for the IBM 7090 computer using IBSYS version 13. The sorting subroutine was written in the machine language for this system. From the input data, the program generated values for the yield strength-to-density ratio, the elastic sound speed and the acoustic impedance. The sound speed (C) was obtained from Equation (1).

$$C = (E/\rho)^{\frac{1}{2}} \tag{1}$$

where E is Young's modulus of elasticity and $\rho$ is the density (see reference 2). The acoustic impedance (I) was determined from Equation (2).

$$I = \rho C \tag{2}$$

The computer program then sorted the input data and the computed data in descending order of values for each property. The result was eight tables, one for each property and one alphabetical listing of the materials.

## DATA PRESENTATION

Data are presented for nonferrous, ferrous, and plastic materials. There are separate sections for each category. The table of contents gives the location of each property listing for the three categories. Preceding each section is a list of the abbreviations used in that section. There are eight separate arrays presented in each section. First, the materials are listed in alphabetic order with the seven material properties. It should be noted that various heat treatment conditions are given for the same material. The names of the materials appear in the extreme left-hand column and the properties of each material appear in the seven columns to the right. The next seven arrays present listings of materials according to descending values of density, modulus of elasticity, ultimate tensile strength, yield strength, yield strength-to-density ratio, sound speed and acoustic impedance, respectively. Thus, if one specific material property value is required, one can determine from the appropriate material property table what material, or materials, will satisfy this particular requirements.

All values are presented in E format. For example, 2.000 E 05 is interpreted as $2.000 \times 10^{5}$ and 2.000 E-01 translates to $2.000 \times 10^{-1}$.

CATLOG

```
C
C     MAT(1,..5) = MATERIAL NAME
C     MAT(6) = DENSITY
C     MAT(7) = MODULUS OF ELASTICITY
C     MAT(8) = ULTIMATE STRENGTH OR COMPRESSIVE STRENGTH
C     MAT(9) = YIELD STRENGTH OR TENSILE STRENGTH
C     MAT(10) = YIELD STRENGTH / DENSITY OR TENSILE STRENGTH / DENSITY
C     MAT(11) = SOUND SPEED
C     MAT(12) = IMPEDANCE
C
      DIMENSION MAT(12,500), H(3,12), U(3,12), COM(12), L(2,500)
     1,MATS(12,500)
      REAL MAT, MATS
C
   11 WRITE (6,50)
   50 FORMAT (1H1)
C     READ NCOM = NUMBER OF CARDS CONTAINING ABBREVIATION INFORMATION
C          FORMAT (I10)
      READ (5,2) NCOM
    2 FORMAT (I10)
      IF (NCOM .EQ. 0) GO TO 1000
C
C     READ COM - ABBREVIATION INFORMATION
C          NCOM CARDS
C          FORMAT (12A6)
      DO 55 I=1,NCOM
      READ (5,51) COM
   51 FORMAT (12A6)
      WRITE (6,52) COM
   52 FORMAT (1H0,12A6)
   55 CONTINUE
C
C     READ H - SEVEN OUTPUT COLUMN HEADINGS
C          TWO CARDS
C          FORMAT (4(2A6,A2))
      READ (5,1) ((H(I,J),I=1,3),J=6,12)
    1 FORMAT (4(2A6,A2))
C
C     READ U - SEVEN OUTPUT COLUMN HEADING UNITS
C          TWO CARDS
C          FORMAT (4(2A6,A2))
      READ (5,1) ((U(I,J),I=1,3),J=6,12)
C
C     READ NDEN = 0 IF DENSITY IS TO BE READ
C                 1 IF SPECIFIC GRAVITY IS TO BE READ
C          FORMAT (I10)
      READ (5,2) NDEN
C
C     READ NMAT = NUMBER OF MATERIALS
C          FORMAT (I10)
      READ (5,2) NMAT
C
C     READ MAT - MATERIAL NAME, DENSITY OR SPECIFIC GRAVITY, MODULUS OF
C                ELASTICITY, ULTIMATE OR COMPRESSIVE STRENGTH, YIELD OR
C                TENSILE STRENGTH
```

```
          CATLOG
C         MATERIALS SHOULD BE READ IN ALPHABETICAL ORDER
C         NMAT CARDS
C         FORMAT (5A6,4F10.5)
      READ (5,3) ((MAT(I,J),I=1,9),J=1,NMAT)
    3 FORMAT (5A6,4F10.5)
      DO 4 I=1,NMAT
      IF (NDEN .EQ. 0)  GO TO 33
C
C     CALCULATE DENSITY
      MAT(6,I) = 0.036088 * MAT(6,I)
C
C     CALCULATE STRENGTH TO DENSITY RATIO
   33 MAT(10,I) = MAT(9,I)/MAT(6,I)
C
C     CALCULATE SOUND SPEED
      MAT(11,I) = SQRT(386.04*MAT(7,I)/MAT(6,I))
C
C     CALCULATE IMPEDANCE
      MAT(12,I) = MAT(6,I)*MAT(11,I)
C
C     TRUNCATE TO 4 SIGNIFICANT DIGITS AND ADD SORT PARAMETER.
      DO 44 J=6,12
      IF (MAT(J,I) .EQ. 0.)  GO TO 41
      JI = 4-INT(ALOG10(MAT(J,I)))
      GO TO 42
   41 JI = 10
   42 MATS(J,I) =(1.E-3*FLOAT(NMAT-I)+FLOAT(INT(10.**JI*MAT(J,I))))/
     110.**JI
   44 CONTINUE
    4 CONTINUE
      M = 12*NMAT
      KK = 7
      LL = 8
      MM = 9
      NN = 10
      KKK = 11
      III = 12
      KF = 0
      DO 10 ISORT=6,12
      II = ISORT
      JJ = KK
      KK = LL
      LL = MM
      MM = NN
      NN = KKK
      KKK = III
      III = II
      CALL ASORT (MATS,M,12,-ISORT,L)
  100 NPRINT = 29
      DO 5 K=1,NMAT
      IF (NPRINT-29) 7,5,5
    5 NPRINT = 0
      WRITE (6,6) (H(I,II),I=1,3),(H(I,JJ),I=1,3),(H(I,KK),I=1,3),
     1 (H(I,LL),I=1,3),(H(I,MM),I=1,3),(H(I,NN),I=1,3),(H(I,KKK),I=1,3)
    6 FORMAT (1H1,11X,8HMATERIAL,12X,3(2A6,A2))
      WRITE (6,66) (U(I,II),I=1,3),(U(I,JJ),I=1,3),(U(I,KK),I=1,3),
```

```
      CATLOG

    1 (U(I,LL),I=1,3),(U(I,MM),I=1,3),(U(I,NN),I=1,3),(U(I,KKK),I=1,3)
   66 FORMAT (1H ,31X,7(2A6,A2))
    7 NPRINT = NPRINT+1
      IF (KF) 15,15,16
   15 N = K
      GO TO 20
   16 N = L(2,K)
   20 WRITE (6,8) MAT(1,N),MAT(2,N),MAT(3,N),MAT(4,N),MAT(5,N),MAT(II,N)
    1 ,MAT(JJ,N),MAT(KK,N),MAT(LL,N),MAT(MM,N),MAT(NN,N),MAT(KKK,N)
    8 FORMAT (1H0,5A6,1P7E14.3)
    9 CONTINUE
      KF = KF+1
      IF (KF-1) 100,100,10
   10 CONTINUE
      GO TO 11
  1000 STOP
      END
```

## LIST OF NONFERROUS MATERIALS

Aluminum (Al)
AVC
Beryllium
Brass
Brass + Bronze
Bronze
Cobalt
Columbrium
Copper (CU)
Duranickel
Gilding
Gold
Hafnium
Iridium
Lead
Magnesium
Molybdenum (MO)
Muntz Metal
Nickel (NI)
Palladium
Platinum
Rhodium
Silver
Tantalum
Thorium
Tin
Titanium (TI)
Tungsten
Uranium
Vanadium
Zirconium (ZR)

Abbreviations are used in the following list where space limitations require them. Chemical symbols are used where they are applicable; other abbreviations are as follows:

CRS - cold rolled sheet
FREE CUT - free cutting
HALF - half hard
O - annealed
OAH - annealed, age hardened
OS - annealed sheet
P.H. - precipitation hardened
PHOS - phosphorus
QUARTER - quarter hard
SAH - spring, age hardened

HEADINGS

DEN - density
IN - inches
LBS - pounds
MOD OF ELAS - modulus of elasticity
PCI - pounds per cubic inch
PSI - pounds per square inch
SEC - second
YLD STR - tensile yield strength
ULT STR - ultimate tensile strength

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| ALUMINUM EC (O) | 9.800E-02 | 1.000E 07 | 1.200E 04 | 4.000E 03 | 4.082E 04 | 1.985E 05 | 1.945E 04 |
| ALUMINUM EC (HALF) | 9.800E-02 | 1.000E 07 | 1.600E 04 | 1.400E 04 | 1.429E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM EC (HARD) | 9.800E-02 | 1.000E 07 | 2.700E 04 | 2.400E 04 | 2.449E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 1060 (O) | 9.800E-02 | 1.000E 07 | 1.000E 04 | 4.000E 03 | 4.082E 04 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 1060 (HALF) | 9.800E-02 | 1.000E 07 | 1.400E 04 | 1.300E 04 | 1.327E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 1060 (HARD) | 9.800E-02 | 1.000E 07 | 1.900E 04 | 1.800E 04 | 1.837E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 1100 (O) | 9.800E-02 | 1.000E 07 | 1.300E 04 | 5.000E 03 | 5.102E 04 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 1100 (HALF) | 9.800E-02 | 1.000E 07 | 1.800E 04 | 1.700E 04 | 1.735E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 1100 (HARD) | 9.800E-02 | 1.000E 07 | 2.400E 04 | 2.200E 04 | 2.245E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 2011 (T3) | 1.020E-01 | 1.020E 07 | 5.900E 04 | 4.300E 04 | 4.216E 05 | 1.965E 05 | 2.004E 04 |
| ALUMINUM 2011 (T8) | 1.020E-01 | 1.020E 07 | 5.900E 04 | 4.500E 04 | 4.412E 05 | 1.965E 05 | 2.004E 04 |
| ALUMINUM 2014 (O) | 1.010E-01 | 1.060E 07 | 2.700E 04 | 1.400E 04 | 1.386E 05 | 2.013E 05 | 2.033E 04 |
| ALUMINUM 2014 (T4) | 1.010E-01 | 1.060E 07 | 6.200E 04 | 4.200E 04 | 4.158E 05 | 2.013E 05 | 2.033E 04 |
| ALUMINUM 2014 (T6) | 1.010E-01 | 1.060E 07 | 7.000E 04 | 6.000E 04 | 5.941E 05 | 2.013E 05 | 2.033E 04 |
| ALUMINUM 2017 (O) | 1.010E-01 | 1.050E 07 | 2.600E 04 | 1.000E 04 | 9.901E 04 | 2.003E 05 | 2.023E 04 |
| ALUMINUM 2017 (T4) | 1.010E-01 | 1.050E 07 | 6.200E 04 | 4.000E 04 | 3.960E 05 | 2.003E 05 | 2.023E 04 |
| ALUMINUM 2024 (O) | 1.000E-01 | 1.060E 07 | 2.700E 04 | 1.100E 04 | 1.100E 05 | 2.023E 05 | 2.023E 04 |
| ALUMINUM 2024 (T3) | 1.000E-01 | 1.060E 07 | 7.000E 04 | 5.000E 04 | 5.000E 05 | 2.023E 05 | 2.023E 04 |
| ALUMINUM 2219 (O) | 1.030E-01 | 1.060E 07 | 2.500E 04 | 1.100E 04 | 1.068E 05 | 1.993E 05 | 2.053E 04 |
| ALUMINUM 2219 (T42) | 1.030E-01 | 1.060E 07 | 5.200E 04 | 2.700E 04 | 2.621E 05 | 1.993E 05 | 2.053E 04 |
| ALUMINUM 2219 (T87) | 1.030E-01 | 1.060E 07 | 6.900E 04 | 5.700E 04 | 5.534E 05 | 1.993E 05 | 2.053E 04 |
| ALUMINUM 3003 (O) | 9.900E-02 | 1.000E 07 | 1.600 04 | 6.000E 03 | 6.061E 04 | 1.975E 05 | 1.959E 04 |
| ALUMINUM 3003 (HALF) | 9.900E-02 | 1.000E 07 | 2.200E 04 | 2.100E 04 | 2.121E 05 | 1.975E 05 | 1.959E 04 |
| ALUMINUM 3003 (HARD) | 9.900E-02 | 1.000E 07 | 2.800E 04 | 2.700E 04 | 2.727E 05 | 1.975E 05 | 1.959E 04 |
| ALUMINUM 3004 (O) | 9.800E-02 | 1.000E 07 | 2.600E 04 | 1.000E 04 | 1.020E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 3004 (HALF) | 9.800E-02 | 1.000E 07 | 3.500E 04 | 2.900E 04 | 2.959E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 3004 (HARD) | 9.800E-02 | 1.000E 07 | 4.100E 04 | 3.600E 04 | 3.673E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 5005 (O) | 9.700E-02 | 1.000E 07 | 1.800E 04 | 6.000E 03 | 6.186E 04 | 1.995E 05 | 1.935E 04 |
| ALUMINUM 5005 (HALF) | 9.700E-02 | 1.000E 07 | 2.300E 04 | 2.200E 04 | 2.268E 05 | 1.995E 05 | 1.935E 04 |
| ALUMINUM 5005 (HARD) | 9.700E-02 | 1.000E 07 | 2.900E 04 | 2.800E 04 | 2.887E 05 | 1.995E 05 | 1.935E 04 |
| ALUMINUM 5050 (O) | 9.700E-02 | 1.000E 07 | 2.100E 04 | 8.000E 03 | 8.247E 04 | 1.995E 05 | 1.935E 04 |
| ALUMINUM 5050 (HALF) | 9.700E-02 | 1.000E 07 | 2.800E 04 | 2.400E 04 | 2.474E 05 | 1.995E 05 | 1.935E 04 |
| ALUMINUM 5050 (HARD) | 9.700E-02 | 1.000E 07 | 3.200E 04 | 2.900E 04 | 2.990E 05 | 1.995E 05 | 1.935E 04 |
| ALUMINUM 5052 (O) | 9.700E-02 | 1.020E 07 | 2.800E 04 | 1.300E 04 | 1.340E 05 | 2.015E 05 | 1.954E 04 |
| ALUMINUM 5052 (HALF) | 9.700E-02 | 1.020E 07 | 3.800E 04 | 3.100E 04 | 3.196E 05 | 2.015E 05 | 1.954E 04 |
| ALUMINUM 5052 (HARD) | 9.700E-02 | 1.020E 07 | 4.200E 04 | 3.700E 04 | 3.814E 05 | 2.015E 05 | 1.954E 04 |
| ALUMINUM 5056 (O) | 9.500E-02 | 1.030E 07 | 4.200E 04 | 2.200E 04 | 2.316E 05 | 2.044E 05 | 1.944E 04 |
| ALUMINUM 5056 (HARD) | 9.500E-02 | 1.030E 07 | 6.000E 04 | 5.000E 04 | 5.263E 05 | 2.044E 05 | 1.944E 04 |
| ALUMINUM 5083 (O) | 9.600E-02 | 1.030E 07 | 4.200E 04 | 2.100E 04 | 2.187E 05 | 2.035E 05 | 1.954E 04 |
| ALUMINUM 5083 (HALF) | 9.600E-02 | 1.030E 07 | 4.600E 04 | 3.300E 04 | 3.437E 05 | 2.035E 05 | 1.954E 04 |
| ALUMINUM 5086 (O) | 9.600E-02 | 1.030E 07 | 3.800E 04 | 1.700E 04 | 1.771E 05 | 2.035E 05 | 1.954E 04 |
| ALUMINUM 5086 (HALF) | 9.600E-02 | 1.030E 07 | 4.700E 04 | 3.700E 04 | 3.854E 05 | 2.035E 05 | 1.954E 04 |
| ALUMINUM 5154 (O) | 9.600E-02 | 1.020E 07 | 3.500E 04 | 1.700E 04 | 1.771E 05 | 2.025E 05 | 1.944E 04 |
| ALUMINUM 5154 (HALF) | 9.600E-02 | 1.020E 07 | 4.200E 04 | 3.300E 04 | 3.437E 05 | 2.025E 05 | 1.944E 04 |
| ALUMINUM 5154 (HARD) | 9.600E-02 | 1.020E 07 | 4.800E 04 | 3.900E 04 | 4.062E 05 | 2.025E 05 | 1.944E 04 |
| ALUMINUM 5454 (O) | 9.700E-02 | 1.020E 07 | 3.600E 04 | 1.700E 04 | 1.753E 05 | 2.015E 05 | 1.954E 04 |
| ALUMINUM 5454 (HALF) | 9.700E-02 | 1.020E 07 | 4.400E 04 | 3.500E 04 | 3.608E 05 | 2.015E 05 | 1.954E 04 |
| ALUMINUM 5454 (HARD) | 9.700E-02 | 1.020E 07 | 3.800E 04 | 2.600E 04 | 2.680E 05 | 2.015E 05 | 1.954E 04 |
| ALUMINUM 5456 (O) | 9.600E-02 | 1.030E 07 | 4.500E 04 | 2.300E 04 | 2.396E 05 | 2.035E 05 | 1.954E 04 |
| ALUMINUM 5456 (HALF) | 9.600E-02 | 1.030E 07 | 5.100E 04 | 3.700E 04 | 3.854E 05 | 2.035E 05 | 1.954E 04 |
| ALUMINUM 5457 (O) | 9.800E-02 | 1.000E 07 | 1.300E 04 | 5.000E 03 | 5.102E 04 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 5457 (HALF) | 9.800E-02 | 1.000E 07 | 1.900E 04 | 1.600E 04 | 1.633E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 5457 (HARD) | 9.800E-02 | 1.000E 07 | 2.300E 04 | 1.900E 04 | 1.939E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 6061 (O) | 9.800E-02 | 1.000E 07 | 1.800E 04 | 8.000E 03 | 8.163E 04 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 6061 (T6) | 9.800E-02 | 1.000E 07 | 4.500E 04 | 4.000E 04 | 4.082E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 6063 (O) | 9.800E-02 | 1.000E 07 | 1.300E 04 | 7.000E 03 | 7.143E 04 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 6063 (T6) | 9.800E-02 | 1.000E 07 | 3.500E 04 | 3.100E 04 | 3.163E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 6066 (O) | 9.800E-02 | 1.000E 07 | 2.200E 04 | 1.200E 04 | 1.224E 05 | 1.985E 05 | 1.945E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| ALUMINUM 6061 (T6) | 9.800E-02 | 1.000E 07 | 5.700E 04 | 5.200E 04 | 5.306E 05 | 1.935E 05 | 1.945E 04 |
| ALUMINUM 6151 (T6) | 9.800E-02 | 1.000E 07 | 3.200E 04 | 2.800E 04 | 2.857E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 6262 (T9) | 9.800E-02 | 1.000E 07 | 5.800E 04 | 5.500E 04 | 5.612E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 7075 ( ) | 1.010E-01 | 1.040E 07 | 3.300E 04 | 1.500E 04 | 1.485E 05 | 1.994E 05 | 2.014E 04 |
| ALUMINUM 7075 (T6) | 1.010E-01 | 1.040E 07 | 8.300E 04 | 7.500E 04 | 7.228E 05 | 1.994E 05 | 2.014E 04 |
| ALUMINUM 7079 (T6) | 9.900E-02 | 1.030E 07 | 7.800E 04 | 6.800E 04 | 6.869E 05 | 2.004E 05 | 1.984E 04 |
| ALUMINUM 7178 ( ) | 1.020E-01 | 1.040E 07 | 3.300E 04 | 1.500E 04 | 1.471E 05 | 1.984E 05 | 2.024E 04 |
| ALUMINUM 7178 (T6) | 1.020E-01 | 1.040E 07 | 8.800E 04 | 7.800E 04 | 7.647E 05 | 1.984E 05 | 2.024E 04 |
| AVC N-25RE | 7.140E-01 | 6.000E 07 | 2.420E 05 | 2.250E 05 | 3.151E 05 | 1.801E 05 | 1.286E 05 |
| AVC (70MO, 30W) | 4.300E-01 | 5.000E 07 | 1.050E 05 | 9.500E 04 | 2.209E 05 | 2.119E 05 | 9.110E 04 |
| BERYLLIUM (C) | 6.700E-02 | 4.200E 07 | 6.000E 04 | 5.000E 03 | 7.463E 04 | 4.919E 05 | 3.296E 04 |
| BRASS, ALUMINUM (O) | 3.010E-01 | 1.600E 07 | 6.000E 04 | 2.700E 04 | 8.970E 04 | 1.432E 05 | 4.312E 04 |
| BRASS, CARTRIDGE 70CU (O) | 3.080E 01 | 1.600E 07 | 4.400E 04 | 1.100E 04 | 3.571E 04 | 1.416E 05 | 4.368E 04 |
| BRASS, CARTRIDGE 70CU (HARD) | 3.080E-01 | 1.600E 07 | 7.600E 04 | 6.300E 04 | 2.045E 05 | 1.416E 05 | 4.362E 04 |
| BRASS, CAST HIGH YELLOW (8A) | 3.010E-01 | 1.540E 07 | 6.500E 04 | 2.900E 04 | 8.306E 04 | 1.405E 05 | 4.230E 04 |
| BRASS, CAST HIGH YELLOW (8B) | 2.850E-01 | 1.450E 07 | 9.100E 04 | 4.600E 04 | 1.614E 05 | 1.401E 05 | 3.994E 04 |
| BRASS, CAST HIGH YELLOW (8C) | 2.770E-01 | 1.420E 07 | 1.120E 05 | 6.500E 04 | 2.347E 05 | 1.407E 05 | 3.897E 04 |
| BRASS, CAST LEAD RED (4A) | 3.180E-01 | 1.240E 07 | 3.300E 04 | 1.900E 04 | 4.717E 04 | 1.227E 05 | 3.902E 04 |
| BRASS, CAST LEAD RED (5A) | 3.110E-01 | 1.300E 07 | 2.900E 04 | 1.300E 04 | 4.180E 04 | 1.270E 05 | 3.951E 04 |
| BRASS, CAST LEAD RED (5B) | 3.170E-01 | 1.520E 07 | 3.000E 04 | 1.200E 04 | 3.785E 04 | 1.361E 05 | 4.313E 04 |
| BRASS, CAST LEAD YELLOW (6A) | 3.050E-01 | 1.400E 07 | 3.500E 04 | 1.200E 04 | 3.934E 04 | 1.331E 05 | 4.060E 04 |
| BRASS, CAST LEAD YELLOW (6B) | 3.030E-01 | 1.200E 07 | 3.000E 04 | 1.100E 04 | 3.630E 04 | 1.236E 05 | 3.747E 04 |
| BRASS, CAST LEAD YELLOW (6C) | 3.000E-01 | 1.300E 07 | 4.500E 04 | 1.600E 04 | 5.333E 04 | 1.293E 05 | 3.880E 04 |
| BRASS, CAST LEAD YELLOW (7A) | 2.890E-01 | 1.500E 07 | 6.000E 04 | 2.000E 04 | 6.920E 04 | 1.416E 05 | 4.091E 04 |
| BRASS, EXTRA-HIGH-LEAD (O) | 3.070E-01 | 1.400E 07 | 4.900E 04 | 1.700E 04 | 5.537E 04 | 1.327E 05 | 4.073E 04 |
| BRASS, EXTRA-HIGH-LEAD (HARD) | 3.070E-01 | 1.400E 07 | 7.400E 04 | 6.000E 04 | 1.954E 05 | 1.327E 05 | 4.073E 04 |
| BRASS, FORGING (O) | 3.050E-01 | 1.500E 07 | 5.200E 04 | 2.000E 04 | 6.557E 04 | 1.378E 05 | 4.203E 04 |
| BRASS, FREE-CUTTING (O) | 3.070E-01 | 1.400E 07 | 4.900E 04 | 1.800E 04 | 5.863E 04 | 1.327E 05 | 4.073E 04 |
| BRASS, FREE-CUTTING (HARD) | 3.070E-01 | 1.400E 07 | 6.800E 04 | 5.200E 04 | 1.694E 05 | 1.327E 05 | 4.073E 04 |
| BRASS, HIGH-LEAD (O) | 3.060E-01 | 1.500E 07 | 4.900E 04 | 1.700E 04 | 5.556E 04 | 1.376E 05 | 4.209E 04 |
| BRASS, HIGH-LEAD (HARD) | 3.060E-01 | 1.500E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 |
| BRASS, LEAD NAVAL (O) | 3.050E-01 | 1.500E 07 | 5.700E 04 | 2.500E 04 | 8.197E 04 | 1.378E 05 | 4.203E 04 |
| BRASS, LEAD NAVAL (QUARTER) | 3.050E-01 | 1.500E 07 | 6.900E 04 | 4.600E 04 | 1.508E 05 | 1.378E 05 | 4.203E 04 |
| BRASS, LEAD NAVAL (HALF) | 3.050E-01 | 1.500E 07 | 7.500E 04 | 5.300E 04 | 1.738E 05 | 1.378E 05 | 4.203E 04 |
| BRASS, LOW 80CU ( ) | 3.130E-01 | 1.600E 07 | 4.200E 04 | 1.200E 04 | 3.834E 04 | 1.405E 05 | 4.397E 04 |
| BRASS, LOW 80CU (HARD) | 3.130E-01 | 1.600E 07 | 7.400E 04 | 5.900E 04 | 1.885E 05 | 1.405E 05 | 4.397E 04 |
| BRASS, LOW-LEAD (O) | 3.060E-01 | 1.500E 07 | 5.100E 04 | 1.900E 04 | 6.209E 04 | 1.376E 05 | 4.209E 04 |
| BRASS, LOW-LEAD (HARD) | 3.060E-01 | 1.500E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 |
| BRASS, MEDIUM-LEAD (O) | 3.060E-01 | 1.500E 07 | 5.100E 04 | 1.900E 04 | 6.209E 04 | 1.376E 05 | 4.209E 04 |
| BRASS, MEDIUM-LEAD (HARD) | 3.060E-01 | 1.500E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 |
| BRASS, NAVAL (O) | 3.040E-01 | 1.500E 07 | 5.700E 04 | 2.500E 04 | 8.224E 04 | 1.380E 05 | 4.195E 04 |
| BRASS, NAVAL (QUARTER) | 3.040E-01 | 1.500E 07 | 6.900E 04 | 4.400E 04 | 1.513E 05 | 1.380E 05 | 4.198E 04 |
| BRASS, NAVAL (HALF) | 3.040E-01 | 1.500E 07 | 7.500E 04 | 5.300E 04 | 1.743E 05 | 1.380E 05 | 4.198E 04 |
| BRASS, RED 85CU (O) | 3.160E-01 | 1.700E 07 | 3.900E 04 | 1.000E 04 | 3.165E 04 | 1.441E 05 | 4.554E 04 |
| BRASS, RED 85CU (HARD) | 3.160E-01 | 1.700E 07 | 7.000E 04 | 5.700E 04 | 1.804E 05 | 1.441E 05 | 4.554E 04 |
| BRASS, YELLOW (O) | 3.060E-01 | 1.500E 07 | 4.600E 04 | 1.400E 04 | 4.575E 04 | 1.376E 05 | 4.209E 04 |
| BRASS, YELLOW (HARD) | 3.060E-01 | 1.500E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 |
| BRASS+BRONZE, CAST PB NI (1 A) | 3.180E-01 | 1.600E 07 | 3.000E 04 | 1.500E 04 | 4.717E 04 | 1.394E 05 | 4.432E 04 |
| BRASS+BRONZE, CAST PB NI (1 B) | 3.180E-01 | 1.500E 07 | 3.500E 04 | 1.700E 04 | 5.346E 04 | 1.349E 05 | 4.291E 04 |
| BRASS+BRONZE, CAST PB NI (11A) | 3.210E-01 | 1.910E 07 | 4.000E 04 | 1.700E 04 | 5.296E 04 | 1.516E 05 | 4.865E 04 |
| BRASS+BRONZE, CAST SI (12A) | 3.030E-01 | 1.500E 07 | 5.500E 04 | 2.200E 04 | 7.261E 04 | 1.382E 05 | 4.189E 04 |
| BRASS+BRONZE, CAST SI (13B) | 2.990E-01 | 1.540E 07 | 5.000E 04 | 2.500E 04 | 8.361E 04 | 1.410E 05 | 4.216E 04 |
| BRONZE, ADMIRALTY 71CU (O) | 3.080E-01 | 1.600E 07 | 5.300E 04 | 2.200E 04 | 7.143E 04 | 1.416E 05 | 4.362E 04 |
| BRONZE, AL B (HARD) | 2.850E-01 | 1.700E 07 | 8.200E 04 | 4.000E 04 | 1.404E 05 | 1.517E 05 | 4.325E 04 |
| BRONZE, AL-SI ( ) | 2.780E-01 | 1.600E 07 | 8.500E 04 | 4.400E 04 | 1.583E 05 | 1.491E 05 | 4.144E 04 |
| BRONZE, AL-SI (HARD) | 2.780E-01 | 1.600E 07 | 9.000E 04 | 5.000E 04 | 1.799E 05 | 1.491E 05 | 4.144E 04 |
| BRONZE, ARCHITECTURAL (O) | 3.060E-01 | 1.400E 07 | 6.000E 04 | 2.000E 04 | 6.536E 04 | 1.329E 05 | 4.067E 04 |
| BRONZE, CAST ALUMINUM (9A) | 2.810E-01 | 1.600E 07 | 7.000E 04 | 2.500E 04 | 8.897E 04 | 1.483E 05 | 4.166E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| BRONZE, CAST ALUMINUM (9B) | 2.640E-01 | 1.400E 07 | 7.000E 04 | 2 800E 04 | 1.061E 05 | 1.431E 05 | 3.777E 04 |
| BRONZE, CAST ALUMINUM (9C) | 2.720E-01 | 1.500E 07 | 7.500E 04 | 3.000E 04 | 1.103E 05 | 1.459E 05 | 3.969E 04 |
| BRONZE, CAST ALUMINUM (9D) | 2.720E-01 | 1.800E 07 | 9.000E 04 | 4 000E 04 | 1.471E 05 | 1.598E 05 | 4.347E 04 |
| BRONZE, CAST LEAD TIN (2A) | 3.110E-01 | 1.310E 07 | 3.600E 04 | 1.800E 04 | 5.145E 04 | 1.275E 05 | 3.966E 04 |
| BRONZE, CAST LEAD TIN (2B) | 3.140E-01 | 1.360E 07 | 3.600E 04 | 1.600E 04 | 5.096E 04 | 1.142E 05 | 3.585E 04 |
| BRONZE, CAST LEAD TIN (2C) | 3.140E-01 | 1.360E 07 | 3.600E 04 | 1 800E 04 | 5.732E 04 | 1.142E 05 | 3.585E 04 |
| BRONZE, CAST LEAD TIN (3A) | 3.250E-01 | 1.160E 07 | 3.400E 04 | 1.500E 04 | 4.615E 04 | 1.174E 05 | 3.815E 04 |
| BRONZE, CAST LEAD TIN (3B) | 3.290E-01 | 1 450E 07 | 3.300E 04 | 1.700E 04 | 5.312E 04 | 1.323E 05 | 4.232E 04 |
| BRONZE, CAST LEAD TIN (3C) | 3.200E-01 | 1.140E 07 | 2.800E 04 | 1 500E 04 | 4.687E 04 | 1.159E 05 | 3.708E 04 |
| BRONZE, CAST LEAD TIN (3D) | 3.290E-01 | 1.350E 07 | 2.800E 04 | 1.400E 04 | 4.255E 04 | 1.110E 05 | 3.652E 04 |
| BRONZE, CAST LEAD TIN (3E) | 3.320E-01 | 9.500E 06 | 2.300E 04 | 1.100E 04 | 3.313E 04 | 1.023E 05 | 3.396E 04 |
| BRONZE, CAST TIN (1A) | 3.140E-01 | 1.400E 07 | 4.000E 04 | 2.000E 04 | 6.369E 04 | 1.312E 05 | 4.120E 04 |
| BRONZE, CAST TIN (1B) | 3.110E-01 | 1.300E 07 | 4.000E 04 | 1.800E 04 | 5.788E 04 | 1.270E 05 | 3.951E 04 |
| BRONZE, COMMERCIAL 90CU (O) | 3.180E-01 | 1.700E 07 | 3.700E 04 | 1 000E 04 | 3.145E 04 | 1.437E 05 | 4.568E 04 |
| BRONZE, COMMERCIAL 90CU (HARD) | 3.180E-01 | 1.700E 07 | 6.100E 04 | 5.400E 04 | 1.698E 05 | 1.437E 05 | 4.568E 04 |
| BRONZE, HIGH SI (O) | 3.080E-01 | 1.500E 07 | 5.600E 04 | 2.000E 04 | 6.494E 04 | 1.371E 05 | 4.223E 04 |
| BRONZE, HIGH SI (HARD) | 3.080E-01 | 1 500E 07 | 9.200E 04 | 5 500E 04 | 1.786E 05 | 1.371E 05 | 4.223E 04 |
| BRONZE, JEWELRY 87.5CU (O) | 3.170E-01 | 1.700E 07 | 4.200E 04 | 1 500E 04 | 4.732E 04 | 1.439E 05 | 4.561E 04 |
| BRONZE, JEWELRY 87.5CU (HARD) | 3.170E-01 | 1.700E 07 | 6.600E 04 | 5 600E 04 | 1.767E 05 | 1.439E 05 | 4.561E 04 |
| BRONZE, LEAD COMMERCIAL (HALF) | 3.190E-01 | 1.700E 07 | 5.500E 04 | 5 000E 04 | 1.567E 05 | 1.434E 05 | 4.575E 04 |
| BRONZE, LOW SI (O) | 3.160E-01 | 1.700E 07 | 4.000E 04 | 1 500E 04 | 4.747E 04 | 1.441E 05 | 4.554E 04 |
| BRONZE, LOW SI (HARD) | 3.160E-01 | 1.700E 07 | 7.000E 04 | 5.500E 04 | 1.741E 05 | 1.441E 05 | 4.554E 04 |
| BRONZE, MANGANESE A (O) | 3.020E-01 | 1 500E 07 | 6.500E 04 | 3 000E 04 | 9.934E 04 | 1.385E 05 | 4.182E 04 |
| BRONZE, MANGANESE A (HALF) | 3.020E-01 | 1 500E 07 | 8.400E 04 | 6 000E 04 | 1.987E 05 | 1.385E 05 | 4.182E 04 |
| BRONZE, PHOS A (O) | 3.200E-01 | 1.600E 07 | 4.700E 04 | 3 900E 04 | 5.937E 04 | 1.389E 05 | 4.446E 04 |
| BRONZE, PHOS A (HALF) | 3.200E-01 | 1.600E 07 | 6.800E 04 | 5 500E 04 | 1.719E 05 | 1.389E 05 | 4.446E 04 |
| BRONZE, PHOS A (HARD) | 3.200E-01 | 1.600E 07 | 8.100E 04 | 7 500E 04 | 2.344E 05 | 1.389E 05 | 4.446E 04 |
| BRONZE, PHOS A (SPRING) | 3.200E-01 | 1.600E 07 | 1.000E 05 | -0 | -0. | 1.389E 05 | 4.446E 04 |
| BRONZE, PHOS A (EXTRA SPRING) | 3.200E-01 | 1 600E 07 | 1.070E 05 | -0 | -0. | 1.389E 05 | 4.446E 04 |
| BRONZE, PHOS B (O) | 3.180E-01 | 1.600E 07 | 5.500E 04 | 2 400E 04 | 7.547E 04 | 1.394E 05 | 4.432E 04 |
| BRONZE, PHOS B (HALF) | 3.180E-01 | 1.600E 07 | 7.600E 04 | 5 500E 04 | 1.730E 05 | 1.394E 05 | 4.432E 04 |
| BRONZE, PHOS B (HARD) | 3.180E-01 | 1 600E 07 | 9.300E 04 | 7 200E 04 | 2.264E 05 | 1.394E 05 | 4.432E 04 |
| BRONZE, PHOS B (SPRING) | 3.180E-01 | 1.600E 07 | 1.120E 05 | -0. | -0. | 1.394E 05 | 4.432E 04 |
| BRONZE, PHOS B (EXTRA SPRING) | 3.180E-01 | 1.600E 07 | 1.200E 05 | -0 | -0. | 1.394E 05 | 4.432E 04 |
| BRONZE, PHOS C (O) | 3.170E-01 | 1 600E 07 | 6.600E 04 | 2 800E 04 | 8.833E 04 | 1.396E 05 | 4.425E 04 |
| BRONZE, PHOS C (HALF) | 3.170E-01 | 1.600E 07 | 8.300E 04 | -0. | -0. | 1.396E 05 | 4.425E 04 |
| BRONZE, PHOS C (HARD) | 3.170E-01 | 1.600E 07 | 1.000E 05 | -0 | -0. | 1.396E 05 | 4.425E 04 |
| BRONZE, PHOS C (SPRING) | 3.170E-01 | 1.600E 07 | 1.220E 05 | -0 | -0. | 1.396E 05 | 4.425E 04 |
| BRONZE, PHOS C (EXTRA SPRING) | 3.170E-01 | 1.600E 07 | 1.280E 05 | -0. | -0. | 1.396E 05 | 4.425E 04 |
| BRONZE, PHOS E (O) | 3.210E-01 | 1.700E 07 | 4.000E 04 | 1 400E 04 | 4.361E 04 | 1.430E 05 | 4.590E 04 |
| BRONZE, PHOS E (HALF) | 3.210E-01 | 1.700E 07 | 5.500E 04 | -0 | -0. | 1.430E 05 | 4.590E 04 |
| BRONZE, PHOS E (HARD) | 3.210E 01 | 1.700E 07 | 6.500E 04 | 5 000E 04 | 1.558E 05 | 1.430E 05 | 4.590E 04 |
| BRONZE, PHOS E (SPRING) | 3.210E-01 | 1.700E 07 | 7.500E 04 | -0 | -0. | 1.430E 05 | 4.590E 04 |
| BRONZE, PHOS FREE-CUTTING ( ) | 3.210E-01 | 1 500E 07 | 4.400E 04 | 1.900E 04 | 5.919E 04 | 1.343E 05 | 4.311E 04 |
| BRONZE, PHOS FREE-CUT (HALF) | 3.210E-01 | 1 500E 07 | 5.800E 04 | 4 000E 04 | 1.246E 05 | 1.343E 05 | 4.311E 04 |
| BRONZE, P.H. SI (O) | 3.220E-01 | 1.800E 07 | 6.500E 04 | 6 000E 04 | 1.863E 05 | 1.469E 05 | 4.730E 04 |
| BRONZE, P.H. SI (HARD) | 3.220E-01 | 1.800E 07 | 1.000E 05 | 8.800E 04 | 2.733E 05 | 1.469E 05 | 4.730E 04 |
| COBALT | 3.200E-01 | 3.700E 07 | 3.440E 04 | 2 000E 4 | 6.250E 04 | 1.902E 05 | 6.088E 04 |
| COBALT HS-21 | 3.000E-01 | 3.600E 07 | 1.010E 05 | 8 200E 04 | 2.733E 05 | 2.152E 05 | 6.457E 04 |
| COBALT HS-31,X-40 | 3.100E-01 | 2 900E 07 | 1.080E 05 | 7 600E 04 | 2.452E 05 | 1.900E 05 | 5.891E 04 |
| COBALT J-1650 | 3.200E-01 | 3 300E 07 | 1.740E 05 | 1 160E 05 | 3.625E 05 | 2.013E 05 | 6.443E 04 |
| COBALT L-605 | 3.300E-01 | 3.400E 07 | 1.460E 5 | 6 700E 04 | 2.030E 05 | 2.000E 05 | 6.601E 04 |
| COBALT NIVCO | 3.100E-01 | 3 100E 07 | 1.650E 5 | 1 100E 05 | 3 546E 05 | 1.933E 05 | 5.992E 04 |
| COBALT S-816 | 3.100E-01 | 3 5 E 07 | 1.400E 05 | 7 000E 04 | 2 258E 05 | 2.088E 05 | 6.472E 04 |
| COBALT V-36 | 3.030E-01 | 3 200E 07 | 1.460E 05 | 8 300E 04 | 2.739E 05 | 2.019E 05 | 6.118E 04 |
| COLUMBIUM | 3.100E-01 | 1 500E 07 | 4.000E 04 | 3 500E 04 | 1 129E 05 | 1.367E 05 | 4.237E 04 |
| COLUMBIUM A-66 | 3.050E-01 | 1 400E 07 | 1.120E 5 | 9 000E 04 | 2.951E 05 | 1.369E 05 | 4.174E 04 |
| COLUMBIUM C-103 | 3.200E-01 | 1.260E 07 | 9 350E 04 | 8 800E 4 | 2.750E 05 | 1.233E 05 | 3.945E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| COLUMBIUM C-129 | 3,430E-01 | 1.600E 07 | 1,300E 04 | 1.020E 05 | 2.974E 05 | 1,342E 05 | 4.603E 04 |
| COLUMBIUM CB-12R | 3,100E-01 | 1.150E 07 | 4,800E 04 | 3.500E 04 | 1.129E 05 | 1,197E 05 | 3.710E 04 |
| COLUMBIUM CB-752 | 3,060E-01 | 1.500E 07 | 8,500E 04 | 7.000E 04 | 2.288E 05 | 1,376E 05 | 4.209E 04 |
| COPPER, BERYLLIUM (O) | 2,960E-01 | 1.900E 07 | 6,900E 04 | 2.500E 04 | 8.446E 04 | 1,574E 05 | 4.659E 04 |
| COPPER, BERYLLIUM (HARD) | 2,960E-01 | 1.900E 07 | 1.650E 05 | 1.300E 05 | 4.392E 05 | 1,574E 05 | 4.659E 04 |
| COPPER-NICKEL,10 (O) | 3,230E-01 | 1.800E 07 | 4,400E 04 | 1.600E 04 | 4.954E 04 | 1,467E 05 | 4.738E 04 |
| COPPER-NICKEL,10 (LIGHT DRAWN) | 3,230E-01 | 1.800E 07 | 6,000E 04 | 5.700E 04 | 1.765E 05 | 1,467E 05 | 4.738E 04 |
| COPPER-NICKEL,20 (O) | 3,230E-01 | 2.000E 07 | 4,500E 04 | -0. | -0. | 1,546E 05 | 4.994E 04 |
| COPPER-NICKEL,20 (LIGHT DRAWN) | 3,230E-01 | 2.000E 07 | 8,000E 04 | 7.500E 04 | 2,322E 05 | 1,546E 05 | 4.994E 04 |
| COPPER-NICKEL,30 (O) | 3,230E-01 | 2.200E 07 | 4,400E 04 | 2.000E 04 | 6.192E 04 | 1,622E 05 | 5.238E 04 |
| COPPER-NICKEL,30 (HALF) | 3,230E-01 | 2.200E 07 | 7,300E 04 | 6.800E 04 | 2.105E 05 | 1,622E 05 | 5.238E 04 |
| COPPER-NICKEL,30 (LIGHT DRAWN) | 3,230E-01 | 2.200E 07 | 7,500E 04 | -0. | -0. | 1,622E 05 | 5.238E 04 |
| COPPER, OXYGEN FREE (O) | 3,230E-01 | 1.700E 07 | 3,200E 04 | 1.000E 04 | 3.096E 04 | 1,425E 05 | 4.604E 04 |
| COPPER, OXYGEN FREE (HARD) | 3,230E-01 | 1.700E 07 | 5,000E 04 | 4.500E 04 | 1.393E 05 | 1,425E 05 | 4.604E 04 |
| COPPER, PHOS DEOXIDIZED (O) | 3,230E-01 | 1.700E 07 | 3,200E 04 | 1.000E 04 | 3.096E 04 | 1,425E 05 | 4.604E 04 |
| COPPER, PHOS DEOXIDIZED (HARD) | 3,230E-01 | 1.700E 07 | 5,000E 04 | 4.500E 04 | 1.393E 05 | 1,425E 05 | 4.604E 04 |
| COPPER, TELLURIUM (HALF) | 3,230E-01 | 1.600E 07 | 4,800E 04 | 4.400E 04 | 1.362E 05 | 1,383E 05 | 4.467E 04 |
| COPPER, TOUGH PITCH (O) | 3,210E-01 | 1.700E 07 | 3,200E 04 | 1.000E 04 | 3.115E 04 | 1,430E 05 | 4.590E 04 |
| COPPER, TOUGH PITCH (HARD) | 3,210E-01 | 1.700E 07 | 5,000E 04 | 4.500E 04 | 1.402E 05 | 1,430E 05 | 4.590E 04 |
| CU55-NI18-ZN27 (O) | 3,140E-01 | 1.800E 07 | 6,000E 04 | 2.700E 04 | 8.599E 04 | 1,488E 05 | 4.671E 04 |
| CU55-NI18-ZN27 (HARD) | 3,140E-01 | 1.800E 07 | 1,000E 05 | 8.500E 04 | 2.707E 05 | 1,488E 05 | 4.671E 04 |
| CU55-NI18-ZN27 (EXTRA HARD) | 3,140E-01 | 1.800E 07 | 1,080E 05 | 9.000E 04 | 2.866E 05 | 1,488E 05 | 4.671E 04 |
| CU65-NI10-ZN25 (O) | 3,140E-01 | 1.750E 07 | 4,900E 04 | 1.800E 04 | 5.732E 04 | 1,467E 05 | 4.606E 04 |
| CU65-NI10-ZN25 (HALF) | 3,140E-01 | 1.750E 07 | 7,300E 04 | 6.000E 04 | 1.911E 05 | 1,467E 05 | 4.606E 04 |
| CU65-NI10-ZN25 (HARD) | 3,140E-01 | 1.750E 07 | 8,600E 04 | 7.500E 04 | 2.389E 05 | 1,467E 05 | 4.606E 04 |
| CU65-NI10-ZN25 (EXTRA HARD) | 3,140E-01 | 1.750E 07 | 9,500E 04 | 7.600E 04 | 2.420E 05 | 1,467E 05 | 4.606E 04 |
| CU65-NI12-ZN23 (O) | 3,140E-01 | 1.800E 07 | 5,200E 04 | 1.800E 04 | 5.732E 04 | 1,488E 05 | 4.671E 04 |
| CU65-NI12-ZN23 (HALF) | 3,140E-01 | 1.800E 07 | 7,300E 04 | 6.000E 04 | 1.911E 05 | 1,488E 05 | 4.671E 04 |
| CU65-NI12-ZN23 (HARD) | 3,140E-01 | 1.800E 07 | 8,500E 04 | 7.500E 04 | 2.389E 05 | 1,488E 05 | 4.671E 04 |
| CU65-NI12-ZN23 (EXTRA HARD) | 3,140E-01 | 1.800E 07 | 9,300E 04 | 7.900E 04 | 2.516E 05 | 1,488E 05 | 4.671E 04 |
| CU65-NI15-ZN20 (O) | 3,140E-01 | 1.800E 07 | 5,300E 04 | 1.800E 04 | 5.732E 04 | 1,488E 05 | 4.671E 04 |
| CU65-NI15-ZN20 (HALF) | 3,140E-01 | 1.800E 07 | 7,400E 04 | 6.200E 04 | 1.975E 05 | 1,488E 05 | 4.671E 04 |
| CU65-NI15-ZN20 (HARD) | 3,140E-01 | 1.800E 07 | 8,500E 04 | 7.500E 04 | 2.389E 05 | 1,488E 05 | 4.671E 04 |
| CU65-NI15-ZN20 (EXTRA HARD) | 3,140E-01 | 1.800E 07 | 9,200E 04 | 7.900E 04 | 2.516E 05 | 1,488E 05 | 4.671E 04 |
| CU65-NI18-ZN17 (O) | 3,160E-01 | 1.800E 07 | 5,600E 04 | 2.500E 04 | 7.911E 04 | 1,483E 05 | 4.686E 04 |
| CU65-NI18-ZN17 (HALF) | 3,160E-01 | 1.800E 07 | 7,000E 04 | 6.000E 04 | 1.899E 05 | 1,483E 05 | 4.686E 04 |
| CU65-NI18-ZN17 (HARD) | 3,160E-01 | 1.800E 07 | 8,500E 04 | 7.400E 04 | 2.342E 05 | 1,483E 05 | 4.686E 04 |
| DURANICKEL 301 (O) | 2,980E-01 | 3.000E 07 | 9.000E 04 | 3.500E 04 | 1.174E 05 | 1,971E 05 | 5.875E 04 |
| DURANICKEL 301 (HAR) | 2,990E-01 | 3.000E 07 | 1.600E 05 | -0 | -0. | 1,971E 05 | 5.875E 04 |
| DURANICKEL 301 (SPRING) | 2,980E-01 | 3.000E 07 | 1,950E 05 | -0 | -0. | 1,971E 05 | 5.875E 04 |
| DURANICKEL 301 (SAW) | 2,980E-01 | 3.000E 07 | 1,800E 05 | -0 | -0. | 1,971E 05 | 5.875E 04 |
| GILDING 95CU (O) | 3,200E-01 | 1.700E 07 | 3,400E 04 | 1.000E 04 | 3.125E 04 | 1,432E 05 | 4.583E 04 |
| GILDING 95CU (HARD) | 3,200E-01 | 1.700E 07 | 5,600E 04 | 5.000E 04 | 1.562E 05 | 1,432E 05 | 4.583E 04 |
| GOLD (O) | 6,980E-01 | 1.200E 07 | 1,900E 04 | -0. | -0. | 8,147E 04 | 5.686E 04 |
| GOLD (COLD ROLLED-50) | 6,990E-01 | 1.200E 07 | 3,200E 04 | 3.000E 04 | 4.298E 04 | 8,147E 04 | 5.686E 04 |
| HAFNIUM (O) | 4,700E-01 | 2.000E 07 | 7,700E 04 | 3.200E 04 | 6.809E 04 | 1,282E 05 | 6.024E 04 |
| HAFNIUM (COLD WORKED) | 4,700E-01 | 2.000E 07 | 1,120E 05 | 9.600E 04 | 2.043E 05 | 1,282E 05 | 6.024E 04 |
| IRIDIUM (O) | 8,130E-01 | 7.900E 07 | 8,000E 04 | -0. | -0. | 1,937E 05 | 1.573E 05 |
| IRIDIUM (COLD WORKED) | 8,130E-01 | 7.900E 07 | 2,900E 05 | -0. | -0. | 1,937E 05 | 1.575E 05 |
| LEAD, CHEMICAL (CHILL CAST) | 4,100E-01 | 2.000E 06 | 2,600E 03 | -0. | -0. | 4,339E 04 | 1.779E 04 |
| LEAD, CHEMICAL (EXTRUDED) | 4,100E-01 | 2.000E 06 | 2,500E 03 | -0. | -0. | 4,339E 04 | 1.779E 04 |
| LEAD, CHEMICAL (ROLLED) | 4,100E-01 | 2.000E 06 | 2,400E 03 | 1.040E 03 | 4.000E 03 | 4,339E 04 | 1.779E 04 |
| LEAD, SOFT (CHILL CAST) | 4,100E-01 | 2.000E 06 | 2,000E 03 | -0. | -0. | 4,339E 04 | 1.779E 04 |
| LEAD, SOFT (EXTRUDED) | 4,100E-01 | 2.000E 06 | 2,000E 03 | -0 | -0. | 4,339E 04 | 1.779E 04 |
| LEAD, SOFT (ROLLED) | 4,100E-01 | 2.000E 06 | 2,100E 03 | -0. | -0. | 4,339E 04 | 1.779E 04 |
| LEAD, TELLURIUM (CHILL CAST) | 4,100E-01 | 2.000E 06 | 3,000E 03 | -0. | -0. | 4,339E 04 | 1.779E 04 |
| LEAD, TELLURIUM (ROLLED) | 4,100E-01 | 2.000E 06 | 2,800E 03 | -0. | -0. | 4,339E 04 | 1.779E 04 |
| LEAD, 1SB (CHILL CAST) | 4,060E-01 | 2.000E 06 | 3,400E 03 | -0. | -0. | 4,361E 04 | 1.770E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| LEAD, 1SB (EXTRUDED) | 4.040E-01 | 2.000E 06 | 2.900E 03 | -0. | -0. | 4.361E 04 | 1.770E 04 |
| LEAD, 1SB (EXTRUDED+AGED) | 4.040E-01 | 2.000E 06 | 3.000E 03 | -0. | -0. | 4.361E 04 | 1.770E 04 |
| LEAD, 1SB (ROLLED) | 4.040E-01 | 2.000E 06 | 3.000E 03 | -0 | -0. | 4.361E 04 | 1.770E 04 |
| MG, AM100A (AGED-CAST) | 6.900E-02 | 6.500E 06 | 4.000E 04 | 2.200E 04 | 3.385E 05 | 1.965E 05 | 1.277E 04 |
| MG, AM100A (AS CAST) | 6.900E-02 | 6.500E 06 | 2.200E 04 | 1.200E 04 | 1.846E 05 | 1.965E 05 | 1.277E 04 |
| MG, AM100A (SOLUTION TREATED) | 6.900E-02 | 6.500E 06 | 4.000E 04 | 1.300E 04 | 2.000E 05 | 1.965E 05 | 1.277E 04 |
| MG, AZ10A-F (EXTRUDED) | 6.390E-02 | 6.500E 06 | 3.900E 04 | 2.200E 04 | 3.465E 05 | 1.988E 05 | 1.262E 04 |
| MG, AZ31B-F (EXTRUDED) | 6.400E-02 | 6.500E 06 | 3.600E 04 | 2.400E 04 | 3.750E 05 | 1.980E 05 | 1.267E 04 |
| MG, AZ31B-F (FORGED) | 6.400E-02 | 6.500E 06 | 3.800E 04 | 2.800E 04 | 4.375E 05 | 1.980E 05 | 1.267E 04 |
| MG, AZ31D (M24) | 6.400E-02 | 6.500E 06 | 4.200E 04 | 3.200E 04 | 5.000E 05 | 1.980E 05 | 1.267E 04 |
| MG, AZ61A-F (EXTRUDED) | 6.500E-02 | 6.500E 06 | 4.100E 04 | 2.400E 04 | 3.692E 05 | 1.965E 05 | 1.277E 04 |
| MG, AZ61A-F (FORGED) | 6.500E-02 | 6.500E 06 | 4.300E 04 | 2.600E 04 | 4.000E 05 | 1.965E 05 | 1.277E 04 |
| MG, AZ63A (AGED-T6) | 6.600E-02 | 6.500E 06 | 4.000E 04 | 1.900E 04 | 2.879E 05 | 1.950E 05 | 1.287E 04 |
| MG, AZ63A (AS CAST) | 6.600E-02 | 6.500E 06 | 2.900E 04 | 1.400E 04 | 2.121E 05 | 1.950E 05 | 1.287E 04 |
| MG, AZ63A (SOLUTION TREATED) | 6.600E-02 | 6.500E 06 | 4.000E 04 | 1.300E 04 | 1.970E 05 | 1.950E 05 | 1.287E 04 |
| MG, AZ80A-T5 (EXTRUDED) | 6.500E-02 | 6.500E 06 | 5.000E 04 | 3.800E 04 | 5.846E 05 | 1.965E 05 | 1.277E 04 |
| MG, AZ80A-T5 (FORGED) | 6.500E-02 | 6.500E 06 | 5.000E 04 | 3.400E 04 | 5.231E 05 | 1.965E 05 | 1.277E 04 |
| MG, AZ81A (SOLUTION TREATED) | 6.500E-02 | 6.500E 06 | 4.000E 04 | 1.200E 04 | 1.846E 05 | 1.965E 05 | 1.277E 04 |
| MG, AZ91 (AS CAST) | 6.500E-02 | 6.500E 06 | 3.400E 04 | 2.300E 04 | 3.538E 05 | 1.965E 05 | 1.277E 04 |
| MG, AZ91C (AGED-CAST) | 6.500E-02 | 6.500E 06 | 4.000E 04 | 1.900E 04 | 2.923E 05 | 1.965E 05 | 1.277E 04 |
| MG, AZ91C (AS CAST) | 6.500E-02 | 6.500E 06 | 2.400E 04 | 1.400E 04 | 2.154E 05 | 1.965E 05 | 1.277E 04 |
| MG, AZ91C (SOLUTION TREATED) | 6.500E-02 | 6.500E 06 | 4.000E 04 | 1.200E 04 | 1.846E 05 | 1.965E 05 | 1.277E 04 |
| MG, AZ92A (AGED-CAST) | 6.600E-02 | 6.500E 06 | 4.000E 04 | 2.100E 04 | 3.182E 05 | 1.950E 05 | 1.287E 04 |
| MG, AZ92A (AS CAST) | 6.600E-02 | 6.500E 06 | 2.400E 04 | 1.400E 04 | 2.121E 05 | 1.950E 05 | 1.287E 04 |
| MG, AZ92A (SOLUTION TREATED) | 6.600E-02 | 6.500E 06 | 4.000E 04 | 1.400E 04 | 2.121E 05 | 1.950E 05 | 1.287E 04 |
| MG, EZ33A (T5-CAST) | 6.600E-02 | 6.500E 06 | 2.300E 04 | 1.600E 04 | 2.424E 05 | 1.950E 05 | 1.287E 04 |
| MG, HK31A (M24) | 6.500E-02 | 6.400E 06 | 3.700E 04 | 2.900E 04 | 4.462E 05 | 1.950E 05 | 1.267E 04 |
| MG, HK31A (T6-CAST) | 6.500E-02 | 6.500E 06 | 3.100E 04 | 1.400E 04 | 2.462E 05 | 1.965E 05 | 1.277E 04 |
| MG, HM21A (T8) | 6.400E-02 | 6.400E 06 | 3.400E 04 | 2.100E 04 | 3.281E 05 | 1.965E 05 | 1.257E 04 |
| MG, HM31A (T5) | 6.500E-02 | 6.500E 06 | 4.200E 04 | 3.300E 04 | 5.077E 05 | 1.965E 05 | 1.277E 04 |
| MG, HZ32A (T5-CAST) | 6.600E-02 | 6.500E 06 | 2.900E 04 | 1.900E 04 | 2.273E 05 | 1.950E 05 | 1.287E 04 |
| MG, K1A (F-CAST) | 6.300E-02 | 6.500E 06 | 2.900E 04 | 7.000E 03 | 1.111E 05 | 1.996E 05 | 1.257E 04 |
| MG, LA141A (T7) | 4.850E-02 | 6.000E 06 | 1.800E 04 | 1.300E 04 | 2.680E 05 | 2.185E 05 | 1.060E 04 |
| MG, QE10A (M24) | 6.300E-02 | 6.500E 06 | 3.400E 04 | 1.900E 04 | 3.016E 05 | 1.996E 05 | 1.257E 04 |
| MG, QE41A (T5-CAST) | 6.600E-02 | 6.500E 06 | 3.000E 04 | 2.000E 04 | 3.030E 05 | 1.950E 05 | 1.287E 04 |
| MG, QH62A (T5-CAST) | 6.700E-02 | 6.500E 06 | 4.000E 04 | 2.500E 04 | 3.731E 05 | 1.939E 05 | 1.297E 04 |
| MG, QK21A (T5-CAST) | 6.500E-02 | 6.500E 06 | 4.000E 04 | 2.400E 04 | 3.692E 05 | 1.965E 05 | 1.277E 04 |
| MG, ZK60A-T5 (EXTRUDED) | 6.600E-02 | 6.500E 06 | 5.000E 04 | 4.000E 04 | 6.061E 05 | 1.950E 05 | 1.287E 04 |
| MG, ZK60A-T5 (FORGED) | 6.600E-02 | 6.500E 06 | 4.400E 04 | 3.000E 04 | 4.545E 05 | 1.950E 05 | 1.287E 04 |
| MG, ZK61A (T6-CAST) | 6.600E-02 | 6.500E 06 | 4.900E 04 | 2.800E 04 | 4.242E 05 | 1.950E 05 | 1.287E 04 |
| MOLYBDENUM | 3.700E-01 | 4.700E 07 | 9.500E 04 | 8.200E 04 | 2.216E 05 | 2.214E 05 | 8.193E 04 |
| MO, TZM (.5TI, .1ZR) | 3.700E-01 | 4.600E 07 | 1.250E 05 | 1.050E 05 | 2.838E 05 | 2.191E 05 | 8.106E 04 |
| MO-0.5TI | 3.700E-01 | 4.600E 07 | 1.150E 05 | 1.040E 05 | 2.811E 05 | 2.191E 05 | 8.104E 04 |
| MUNTZ METAL, FREE-CUTTING (H) | 3.040E-01 | 1.500E 07 | 5.400E 04 | 2.000E 04 | 6.579E 04 | 1.380E 05 | 4.196E 04 |
| MUNTZ METAL, FREE-CUT (HARD) | 3.040E-01 | 1.500E 07 | 8.000E 04 | 6.000E 04 | 1.974E 05 | 1.380E 05 | 4.196E 04 |
| MUNTZ METAL, LEADED (O) | 3.040E-01 | 1.500E 07 | 5.400E 04 | 2.000E 04 | 6.579E 04 | 1.380E 05 | 4.196E 04 |
| MUNTZ METAL 60-40 (O) | 3.030E-01 | 1.500E 07 | 5.400E 04 | 2.100E 04 | 6.931E 04 | 1.382E 05 | 4.189E 04 |
| NICKEL-SPAN-C902 (COLD WORKED) | 2.930E-01 | 2.400E 07 | 1.790E 05 | 1.650E 05 | 5.631E 05 | 1.778E 05 | 5.210E 04 |
| NICKEL-SPAN-C902 (ROLLED) | 2.930E-01 | 2.400E 07 | 1.310E 05 | 1.260E 05 | 4.300E 05 | 1.778E 05 | 5.210E 04 |
| NICKEL 36 + IRON (O) | 2.910E-01 | 2.100E 07 | 7.100E 04 | 4.000E 04 | 1.375E 05 | 1.669E 05 | 4.857E 04 |
| NICKEL 36 + IRON (COLD WORKED) | 2.910E-01 | 2.100E 07 | 9.000E 04 | 7.000E 04 | 2.405E 05 | 1.669E 05 | 4.857E 04 |
| NICKEL 42 + IRON (O) | 2.940E-01 | 2.200E 07 | 6.800E 04 | 3.900E 04 | 1.327E 05 | 1.700E 05 | 4.997E 04 |
| NICKEL 42 + IRON (COLD WORKED) | 2.940E-01 | 2.200E 07 | 1.200E 05 | -0 | -0 | 1.700E 05 | 4.997E 04 |
| NICKEL 47-50 + IRON (O) | 2.960E-01 | 2.400E 07 | 7.700E 04 | 3.300E 04 | 1.115E 05 | 1.769E 05 | 5.237E 04 |
| NICKEL 47-50+FE (COLD WORKED) | 2.960E-01 | 2.400E 07 | 1.400E 05 | -0. | -0. | 1.769E 05 | 5.237E 04 |
| NICKEL 200 (O) | 3.210E-01 | 3.000E 07 | 5.500E 04 | 1.500E 04 | 4.673E 04 | 1.899E 05 | 6.097E 04 |
| NICKEL 200 (SPRING) | 3.210E-01 | 3.000E 07 | 9.000E 04 | 7.000E 04 | 2.181E 05 | 1.899E 05 | 6.097E 04 |
| NICKEL 201 (O) | 3.210E-01 | 3.000E 07 | 5.000E 04 | 1.200E 04 | 3.738E 04 | 1.899E 05 | 6.097E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| NICKEL 210 (AS CAST) | 3,010E-01 | 2.190E 07 | 4,500E 04 | 2.000E 04 | 6.645E 04 | 1.661E 05 | 4.998E 04 |
| NI, HASTELLOY B | 3,340E-01 | 2.640E 07 | 1,210E 05 | 5.650E 04 | 1.692E 05 | 1.747E 05 | 5.834E 04 |
| NI, HASTELLOY C | 3,230E-01 | 2.980E 07 | 1,210E 05 | 5.780E 04 | 1.789E 05 | 1.887E 05 | 6.096E 04 |
| NI, HASTELLOY X | 2,970E-01 | 2.840E 07 | 1.140E 05 | 5.220E 04 | 1.758E 05 | 1.928E 05 | 5.726E 04 |
| NI, INCONEL X-750 | 2,980E-01 | 3.100E 07 | 1,620E 05 | 9.200E 04 | 3.087E 05 | 2,004E 05 | 5.972E 04 |
| NI, INCONEL 610 (CAST) | 3,000E-01 | 3.100E 07 | 7,000E 04 | 3.000E 04 | 1.000E 05 | 1.997E 05 | 5.992E 04 |
| NI, INCONEL 700 | 2,950E-01 | 3.240E 07 | 1,710E 05 | 1.040E 05 | 3.525E 05 | 2,059E 05 | 6.074E 04 |
| NI, INCONEL 705 (CAST) | 2,920E-01 | 2.500E 07 | 9,000E 04 | 8.000E 04 | 2.740E 05 | 1,818E 05 | 5.309E 04 |
| NI, INCONEL 705 (DeAGED) | 2,920E-01 | 2.500E 07 | 9.000E 04 | 8.500E 04 | 2.911E 05 | 1,818E 05 | 5.309E 04 |
| NI, INCONEL 718 | 2,960E-01 | 2.900E 07 | 2,120E 05 | 1.750E 05 | 5.912E 05 | 1,945E 05 | 5.757E 04 |
| NI, M-252 | 2,980E-01 | 2.980E 07 | 1.800E 05 | 1.220E 05 | 4.094E 05 | 1,965E 05 | 5.855E 04 |
| NI, MONEL K-500 (O) | 3,060E-01 | 2.600E 07 | 9.000E 04 | 4.000E 04 | 1.307E 05 | 1,811E 05 | 5.542E 04 |
| NI, MONEL K-500 (OAH) | 3,060E-01 | 2.600E 07 | 1,300E 05 | 9.000E 04 | 2.941E 05 | 1,811E 05 | 5.542E 04 |
| NI, MONEL K-500 (SAH) | 3,060E-01 | 2.600E 07 | 1,700E 05 | 1.300E 05 | 4.248E 05 | 1,811E 05 | 5.542E 04 |
| NI, MONEL K-500 (SPRING) | 3,060E-01 | 2.600E 07 | 1,450E 05 | 1.300E 05 | 4.248E 05 | 1,811E 05 | 5.542E 04 |
| NI, MONEL 400 (O) | 3,190E-01 | 2.600E 07 | 7,000E 04 | 2.500E 04 | 7.837E 04 | 1,774E 05 | 5.658E 04 |
| NI, MONEL 400 (SPRING) | 3,190E-01 | 2.600E 07 | 1,000E 05 | 9.000E 04 | 2,821E 05 | 1,774E 05 | 5.658E 04 |
| NI, MONEL 411 (CAST) | 3,120E-01 | 1.900E 07 | 6.500E 04 | 3.200E 04 | 1,026E 05 | 1,533E 05 | 4.784E 04 |
| NI, MONEL 505 (CAST) | 3,020E-01 | 2.420E 07 | 1,150E 05 | 8.000E 04 | 2.649E 05 | 1,759E 05 | 5.312E 04 |
| NI, MONEL 505 (DeAGED) | 3,020E-01 | 2.420E 07 | 1,100E 05 | 8.000E 04 | 2.649E 05 | 1,759E 05 | 5.312E 04 |
| NI, NICROTUNG (CAST) | 3,000E-01 | 3.350E 07 | 1,300E 05 | 1 200E 05 | 4,000E 05 | 2,076E 05 | 6.229E 04 |
| NI, RENE-41, R-41 | 2,980E-01 | 3.180E 07 | 2,060E 05 | 1.540E 05 | 5,168E 05 | 2,030E 05 | 6.048E 04 |
| NI, UDIMET 500 | 2,900E-01 | 3.120E 07 | 1,970E 05 | 1 100E 05 | 3,793E 05 | 2,038E 05 | 5.910E 04 |
| NI, UDIMET 700 | 2,860E-01 | 3.210E 07 | 2,050E 05 | 1.400E 05 | 4,895E 05 | 2,082E 05 | 5.953E 04 |
| NI, UNITEMP 1753 | 3,050E-01 | 3.100E 07 | ,940E 05 | 1.300E 05 | 4.262E 05 | 1,981E 05 | 6.042E 04 |
| NI, WASPALOY | 2,940E-01 | 3.190E 07 | 1.880E 05 | 1.200E 05 | 4,054E 05 | 2,040E 05 | 6.038E 04 |
| PALLADIUM (O) | 4,340E-01 | 1.800E 07 | 2.000E 04 | 5.000E 03 | 1.152E 04 | 1,265E 05 | 5.492E 04 |
| PALLADIUM (COLD ROLLED-50) | 4,340E-01 | 1.800E 07 | 4,700E 04 | 3.000E 04 | 6.912E 04 | 1,265E 05 | 5.492E 04 |
| PLATINUM (O) | 7,750E-01 | 2.500E 07 | 1.800E 04 | 2.000E 03 | 2,581E 03 | 1,116E 05 | 8.648E 04 |
| PLATINUM (COLD ROLLED) | 7,750E-01 | 2.500E 07 | 2,800E 04 | 2.700E 04 | 3,484E 04 | 1,116E 05 | 8.648E 04 |
| RHODIUM (O) | 4,470E-01 | 5 500E 07 | 7,300E 04 | -0. | -0. | 2,179E 05 | 9.742E 04 |
| RHODIUM (COLD WORKED) | 4,470E-01 | 5.500E 07 | 3,000E 05 | -0. | -0. | 2,179E 05 | 9.742E 04 |
| RUTHENIUM (O) | 4,410E-01 | 6.800E 07 | 5,500E 04 | -0. | -0. | 2,440E 05 | 1.076E 05 |
| SILVER (O) | 3,790E-01 | 1.100E 07 | 2,200E 04 | 8 000E 03 | 2.111E 04 | 1,059E 05 | 4.012E 04 |
| SILVER (COLD ROLLED-50) | 3,790E-01 | 1.100E 07 | 5,400E 04 | 4 400E 04 | 1.161E 05 | 1,059E 05 | 4.012E 04 |
| TANTALUM | 6,000E-01 | 2.700E 07 | 6,000E 04 | 4.800E 04 | 8.000E 04 | 1,318E 05 | 7.908E 04 |
| TANTALUM-10W | 6,080E-01 | 2,100E 07 | 1,600E 05 | 1 980E 05 | 2,599E 05 | 1,155E 05 | 7,021E 04 |
| THORIUM (O) | 4,200E-01 | 1.000E 07 | 3,40 04 | 2.600E 04 | 6,190E 04 | 9,587E 04 | 4.027E 04 |
| THORIUM (COLD WORKED) | 4,200E-01 | 1.000E 07 | 4,900E 04 | 4.500E 04 | 1.071E 05 | 9,587E 04 | 4.027E 04 |
| TIN, GRADE A (CAST) | 2,640E-01 | 6.000E 06 | 2,100E 03 | 1.700E 03 | 6.439E 03 | 9,367E 04 | 2,473E 04 |
| TIN, GRADE A (CRS) | 2,640E-01 | 6.000E 06 | 2,800E 03 | 2 000E 03 | 7.576E 03 | 9,367E 04 | 2,473E 04 |
| TIN, GRADE A (OS) | 2,640E-01 | 6.000E 06 | 2,200E 03 | 1 300E 03 | 4,924E 03 | 9,367E 04 | 2,473E 04 |
| TIN, PEWTER (CRS) | 2,630E-01 | 7.700E 06 | 7,600E 03 | -0. | -0. | 1,063E 05 | 2,796E 04 |
| TIN, PEWTER (OS) | 2,630E-01 | 7.700E 06 | 8,600E 03 | -0. | -0. | 1,063E 05 | 2,796E 04 |
| TI, UNALLOYED | 1,630E-01 | 1.500E 07 | 6,000E 04 | 4.000E 04 | 2,454E 05 | 1,885E 05 | 3.072E 04 |
| TI, 5AL-2,5SN | 1,610E-01 | 1.600E 07 | 1.150E 05 | 1 100E 05 | 6,832E 05 | 1,959E 05 | 3.153E 04 |
| TI, 5AL-5SN-5ZR | 1,650E-01 | 1.600E 07 | 1,200E 05 | 1 130E 05 | 6,667E 05 | 1,935E 05 | 3.192E 04 |
| TI, 6AL-4V (O) | 1,600E-01 | 1.500E 07 | 1,306E 05 | 1.200E 05 | 7,500E 05 | 1,902E 05 | 3.044E 04 |
| TI, 6AL-4V (HEAT TREATED) | 1,600E-01 | 1.500E 07 | 1,450E 05 | 1.350E 05 | 8.437E 05 | 1,902E 05 | 3.044E 04 |
| TI, 6AL-6V-2SN (O) | 1,620E-01 | 1.600E 07 | 1,500E 05 | 1.300E 05 | 8,025E 05 | 1,953E 05 | 3.163E 04 |
| TI, 6AL-6V-2SN (HEAT TREATED) | 1,620E-01 | 1.600E 07 | 1,900E 05 | 1 750E 05 | 1.080E 06 | 1,953E 05 | 3.163E 04 |
| TI, 7AL-4MO (O) | 1,620E-01 | 1.600E 07 | 1,450E 05 | 1 350E 05 | 8,333E 05 | 1,953E 05 | 3.163E 04 |
| TI, 7AL-4MO (HEAT TREATED) | 1,620E-01 | 1.600E 07 | 1,600E 05 | 1 500E 05 | 9.259E 05 | 1,953E 05 | 3.163E 04 |
| TI, 8AL-1MO-1V (O) | 1,580E-01 | 1.700E 07 | 1,450E 05 | 1.400E 05 | 8.861E 05 | 2,038E 05 | 3.220E 04 |
| TI, 8AL-1MO-1V (HEAT TREATED) | 1,580E-01 | 1 700E 07 | 1,650E 05 | 1.500E 05 | 9.494E 05 | 2,038E 05 | 3.220E 04 |
| TI, 2FE-2CR-2MO (O) | 1,700E-01 | 1.600E 07 | 1.400E 05 | 1.200E 05 | 7.059E 05 | 1,906E 05 | 3.240E 04 |
| TI, 8MN (O) | 1,710E-01 | 1.550E 07 | 1,250E 05 | 1.200E 05 | 7.018E 05 | 1,871E 05 | 3.199E 04 |
| TI, 13V-11CR-3AL (O) | 1,750E-01 | 1 450E 07 | 1,300E 05 | 1.250E 05 | 7,143E 05 | 1,788E 05 | 3.130E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| TI, (3V-11CR-3AL (HEAT TREATED) | 1.750E-01 | 1.450E 07 | 1.900E 05 | 1.700E 05 | 9.714E 05 | 1.788E 05 | 3.130E 04 |
| TUNGSTEN | 7.000E-01 | 5.900E 07 | 2.200E 05 | 2.200E 05 | 3.143E 05 | 1.304E 05 | 1.263E 05 |
| URANIUM, DEPLETED (O) | 6.900E-01 | 2.000E 07 | 7.500E 04 | 2.500E 04 | 3.623E 04 | 1.058E 05 | 7.299E 04 |
| VANADIUM (O) | 2.300E-01 | 2.000E 07 | 7.200E 04 | 6.400E 04 | 2.783E 05 | 1.832E 05 | 4.214E 04 |
| VANADIUM (COLD WORKED) | 2.300E-01 | 2.000E 07 | 1.130E 05 | 1.090E 05 | 4.739E 05 | 1.832E 05 | 4.214E 04 |
| ZR, COMMERCIAL GRADE (O) | 2.370E-01 | 1.400E 07 | 6.400E 04 | 3.300E 04 | 2.236E 05 | 1.510E 05 | 3.579E 04 |
| ZR, REACTOR GRADE (O) | 2.390E-01 | 1.400E 07 | 3.900E 04 | 1.900E 04 | 6.383E 04 | 1.517E 05 | 3.564E 04 |
| ZR, ZIRCALOY-2 (O) | 2.370E-01 | 1.300E 07 | 6.000E 04 | 4.500E 04 | 1.899E 05 | 1.499E 05 | 3.553E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| IRIDIUM (0) | 8.130E-01 | 7.900E 07 | 8.000E 04 | -0. | -0. | 1.937E 05 | 1.575E 05 |
| IRIDIUM (COLD WORKED) | 8.130E-01 | 7.900E 07 | 2.900E 05 | -0. | -0. | 1.937E 05 | 1.575E 05 |
| PLATINUM (0) | 7.790E-01 | 2.500E 07 | 1.800E 04 | 2.000E 03 | 2.581E 03 | 1.116E 05 | 8.648E 04 |
| PLATINUM (COLD ROLLED) | 7.790E-01 | 2.500E 07 | 2.800E 04 | 2.700E 04 | 3.484E 04 | 1.116E 05 | 8.648E 04 |
| AVC W-25RE | 7.140E-01 | 6.000E 07 | 2.420E 05 | 2.250E 05 | 3.151E 05 | 1.801E 05 | 1.286E 05 |
| TUNGSTEN | 7.000E-01 | 5.900E 07 | 2.200E 05 | 2.200E 05 | 3.143E 05 | 1.804E 05 | 1.263E 05 |
| GOLD (0) | 6.980E-01 | 1.200E 07 | 1.900E 04 | -0. | -0. | 8.147E 04 | 5.686E 04 |
| GOLD (COLD ROLLED-50) | 6.980E-01 | 1.200E 07 | 3.200E 04 | 3.000E 04 | 4.298E 04 | 8.147E 04 | 5.686E 04 |
| URANIUM, DEPLETED (0) | 6.900E-01 | 2.000E 07 | 7.500E 04 | 2.500E 04 | 3.623E 04 | 1.058E 05 | 7.299E 04 |
| TANTALUM-10W | 6.080E-01 | 2.100E 07 | 1.600E 05 | 1.980E 05 | 2.599E 05 | 1.155E 05 | 7.021E 04 |
| TANTALUM | 6.000E-01 | 2.700E 07 | 6.000E 04 | 4.800E 04 | 8.000E 01 | 1.318E 05 | 7.908E 04 |
| HAFNIUM (0) | 4.700E-01 | 2.000E 07 | 7.700E 04 | 3.200E 04 | 6.809E 04 | 1.282E 05 | 6.024E 04 |
| HAFNIUM (COLD WORKED) | 4.700E-01 | 2.000E 07 | 1.120E 05 | 9.600E 04 | 2.043E 05 | 1.282E 05 | 6.024E 04 |
| RHODIUM (0) | 4.470E-01 | 5.500E 07 | 7.300E 04 | -0. | -0. | 2.179E 05 | 9.742E 04 |
| RHODIUM (COLD WORKED) | 4.470E-01 | 5.500E 07 | 3.000E 05 | -0. | -0. | 2.179E 05 | 9.742E 04 |
| RUTHENIUM (0) | 4.410E-01 | 6.800E 07 | 5.500E 04 | -0. | -0. | 2.440E 05 | 1.076E 05 |
| PALLADIUM (0) | .340E-01 | 1.800E 07 | 2.000E 04 | 5.000E 03 | 1.152E 04 | 1.265E 05 | 5.492E 04 |
| PALLADIUM (COLD ROLLED-50) | 4.340E-01 | 1.800E 07 | 4.700E 04 | 3.000E 04 | 6.912E 04 | 1.265E 05 | 5.492E 04 |
| AVC (7UNO, 30W) | 4.300E-01 | 5.000E 07 | 1.050E 05 | 9.500E 04 | 2.209E 05 | 2.119E 05 | 9.110E 04 |
| THORIUM (0) | 4.200E-01 | 1.000E 07 | 3.400E 04 | 2.600E 04 | 6.190E 04 | 9.587E 04 | 4.027E 04 |
| THORIUM (COLD WORKED) | 4.200E-01 | 1.000E 07 | 4.900E 04 | 4.500E 04 | 1.071E 05 | 9.587E 04 | 4.027E 04 |
| LEAD, CHEMICAL (CHILL CAST) | 4.100E-01 | 2.000E 06 | 2.600E 03 | -0 | -0. | 4.339E 04 | 1.779E 04 |
| LEAD, CHEMICAL (EXTRUDED) | 4.100E-01 | 2.000E 06 | 2.500E 03 | -0. | -0. | 4 339E 04 | 1.779E 04 |
| LEAD, CHEMICAL (ROLLED) | 4.100E-01 | 2.000E 06 | 2.400E 03 | 1.640E 03 | 4.000E 03 | 4.339E 04 | 1.779E 04 |
| LEAD, SOFT (CHILL CAST) | 4.100E-01 | 2.000E 06 | 2.000E 03 | -0. | -0. | 4.339E 04 | 1.779E 04 |
| LEAD, SOFT (EXTRUDED) | 4.100E-01 | 2.000E 06 | 03 | -0. | -0. | 4.339E 04 | 1.779E 04 |
| LEAD, SOFT (ROLLED) | 4.100E-01 | 2.000E 06 | 03 | -0. | -0. | 4.339E 04 | 1.779E 04 |
| LEAD, TELLURIUM (CHILL CAST) | 4.100E-01 | 2.000E 06 | .E 03 | -0. | -0. | 4.339E 04 | 1.779E 04 |
| LEAD, TELLURIUM (ROLLED) | 4.100E-01 | 2.000E 06 | 2.800E 03 | -0. | -0. | 4.339E 04 | 1.779E 04 |
| LEAD, 1SB (CHILL CAST) | 4.060E-01 | 2.000E 06 | 3.400E 03 | -0. | -0. | 4.361E 04 | 1.770E 04 |
| LEAD, 1SB (EXTRUDED) | 4.060E-01 | 2.000E 06 | 2.900E 03 | -0. | -0. | 4.361E 04 | 1.770E 04 |
| LEAD, 1SB (EXTRUDED+AGED) | 4.060E-01 | 2.000E 06 | 3.000E 03 | -0. | -0. | 4.361E 04 | 1.770E 04 |
| LEAD, 1SB (ROLLED) | 4.060E-01 | 2.000E 06 | 3.000E 03 | -0. | -0. | 4.361E 04 | 1.770E 04 |
| SILVER (0) | 3.790E-01 | 1.100E 07 | 2.200E 04 | 8.000E 03 | 2.111E 04 | 1.059E 05 | 4.012E 04 |
| SILVER (COLD ROLLED-50) | 3.790E-01 | 1.100E 07 | 5.400E 04 | 4.400E 04 | 1.161E 05 | 1.059E 05 | 4.012E 04 |
| MOLYBDENUM | 3.700E-01 | 4.700E 07 | 9.500E 04 | 8.200E 04 | 2.216E 05 | 2.214E 05 | 8.193E 04 |
| MO, TZM (.5TI, .1ZR) | 3.700E-01 | 4.600E 07 | 1.250E 05 | 1.050E 05 | 2.838E 05 | 2.191E 05 | 8.106E 04 |
| MO-0.5TI | 3.700E-01 | 4.600E 07 | 1.150E 05 | 1.040E 05 | 2.811E 05 | 2.191E 05 | 8.106E 04 |
| COLUMBIUM C-129 | 3.430E-01 | 1.600E 07 | 1.300E 04 | 1.020E 05 | 2.974E 05 | 1.342E 05 | 4.603E 04 |
| NI, HASTELLOY B | 3.340E-01 | 2.640E 07 | 1.210E 05 | 5.650E 04 | 1.692E 05 | 1.747E 05 | 5.836E 04 |
| BRONZE, CAST LEAD TIN (3E) | 3.320E-01 | 9.000E 06 | 2.300E 04 | 1.130E 04 | 3.313E 04 | 1.023E 05 | 3.396E 04 |
| COBALT L-605 | 3.300E-01 | 3.420E 07 | 1.460E 05 | 6.700E 04 | 2.030E 05 | 2.000E 05 | 6.601E 04 |
| BRONZE, CAST LEAD TIN (3D) | 3.290E-01 | 1.050E 07 | 2.800E 04 | 1.400E 04 | 4.255E 04 | 1.110E 05 | 3.652E 04 |
| BRONZE, CAST LEAD TIN (3A) | 3.250E-01 | 1.160E 07 | 3.400E 04 | 1.900E 04 | 4.615E 04 | 1.174E 05 | 3.815E 04 |
| COPPER-NICKEL,10 (0) | 3.230E-01 | 1.800E 07 | 4.400E 04 | 1.600E 04 | 4.954E 04 | 1.467E 05 | 4.738E 04 |
| COPPER-NICKEL,10 (LIGHT DRAWN) | 3.230E-01 | 1.800E 07 | 6.000E 04 | 5.700E 04 | 1.765E 05 | 1.467E 05 | 4.738E 04 |
| COPPER-NICKEL,20 (0) | 3.230E-01 | 2.000E 07 | 4.500E 04 | -0. | -0. | 1.546E 05 | 4.994E 04 |
| COPPER-NICKEL,20 (LIGHT DRAWN) | 3.230E-01 | 2.000E 07 | 8.000E 04 | 7.500E 04 | 2.322E 05 | 1.546E 05 | 4.994E 04 |
| COPPER-NICKEL,30 (0) | 3.230E-01 | 2.200E 07 | 4.400E 04 | 2.000E 04 | 6.192E 04 | 1.622E 05 | 5.238E 04 |
| COPPER-NICKEL,30 (HALF) | 3.230E-01 | 2.200E 07 | 7.300E 04 | 6.800E 04 | 2.105E 05 | 1.622E 05 | 5.238E 04 |
| COPPER-NICKEL,30 (LIGHT DRAWN) | 3.230E-01 | 2.200E 07 | 7.500E 04 | -0. | -0. | 1.622E 05 | 5.238E 04 |
| COPPER, OXYGEN FREE (0) | 3.230E-01 | 1.700E 07 | 3.200E 04 | 1 000E 04 | 3.096E 04 | 1.425E 05 | 4.604E 04 |
| COPPER, OXYGEN FREE (HARD) | 3.230E-01 | 1.700E 07 | 5.000E 04 | 4 500E 04 | 1.393E 05 | 1.425E 05 | 4.604E 04 |
| COPPER, PHOS DEOXIDIZED (0) | 3.230E-01 | 1.700E 07 | 3.200E 04 | 1.000E 04 | 3.096E 04 | 1.425E 05 | 4.604E 04 |
| COPPER, PHOS DEOXIDIZED (HARD) | 3.230E-01 | 1.700E 07 | 5.000E 04 | 4.500E 04 | 1.393E 05 | 1.425E 05 | 4.604E 04 |
| COPPER, TELLURIUM (HALF) | 3.230E-01 | 1.600E 07 | 4.800E 04 | 4.400E 04 | 1.362E 05 | 1.383E 05 | 4.467E 04 |
| NI, HASTELLOY C | 3.230E-01 | 2.980E 07 | 1.210E 05 | 5.780E 04 | 1.789E 05 | 1.[illegible]7E 05 | 6.0[illegible]6E 04 |
| BRONZE, P.M. SI (0) | 3.220E-01 | 1.800E 07 | 6.900E 04 | 6.000E 04 | 1.863E 05 | 1.469E 05 | 4.730E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| BRONZE, P,W, SI (HARD) | 3.230E-01 | 1.000E 07 | 1.000E 05 | 8.800E 04 | 2.733E 05 | 1.469E 05 | 4.730E 04 |
| BRASS+BRONZE, CAST PB NI (11A) | 3.210E-01 | 1.910E 07 | 4.000E 04 | 1.700E 04 | 5.296E 04 | 1.516E 05 | 4.869E 04 |
| BRONZE, PHOS E (0) | 3.210E-01 | 1.700E 07 | 4.000E 04 | 1.400E 04 | 4.341E 04 | 1.430E 05 | 4.590E 04 |
| BRONZE, PHOS E (HALF) | 3.210E-01 | 1.700E 07 | 5.900E 04 | -0. | -0. | 1.430E 05 | 4.590E 04 |
| BRONZE, PHOS E (HARD) | 3.210E-01 | 1.700E 07 | 6.500E 04 | 5.000E 04 | 1.558E 05 | 1.430E 05 | 4.590E 04 |
| BRONZE, PHOS E (SPRING) | 3.210E-01 | 1.700E 07 | 7.500E 04 | -0. | -0. | 1.430E 05 | 4.590E 04 |
| BRONZE, PHOS FREE-CUTTING (0) | 3.210E-01 | 1.500E 07 | 4.400E 04 | 1.000E 04 | 5.919E 04 | 1.343E 05 | 4.311E 04 |
| BRONZE, PHOS FREE-CUT (HALF) | 3.210E-01 | 1.500E 07 | 5.000E 04 | 4.000E 04 | 1.246E 05 | 1.343E 05 | 4.311E 04 |
| COPPER, TOUGH PITCH (0) | 3.210E-01 | 1.700E 07 | 3.200E 04 | 1.000E 04 | 3.115E 04 | 1.430E 05 | 4.590E 04 |
| COPPER, TOUGH PITCH (HARD) | 3.210E-01 | 1.700E 07 | 5.000E 04 | 4.500E 04 | 1.402E 05 | 1.430E 05 | 4.590E 04 |
| NICKEL 200 (0) | 3.210E-01 | 3.000E 07 | 5.500E 04 | 1.500E 04 | 4.673E 04 | 1.899E 05 | 6.097E 04 |
| NICKEL 200 (SPRING) | 3.210E-01 | 3.000E 07 | 9.000E 04 | 7.000E 04 | 2.181E 05 | 1.899E 05 | 6.097E 04 |
| NICKEL 201 (0) | 3.210E-01 | 3.000E 07 | 5.000E 04 | 1.200E 04 | 3.738E 04 | 1.899E 05 | 6.097E 04 |
| BRONZE, CAST LEAD TIN (3B) | 3.200E-01 | 1.450E 07 | 3.300E 04 | 1.700E 04 | 5.312E 04 | 1.323E 05 | 4.232E 04 |
| BRONZE, CAST LEAD TIN (3C) | 3.200E-01 | 1.113E 07 | 2.800E 04 | 1.500E 04 | 4.687E 04 | 1.159E 05 | 3.708E 04 |
| BRONZE, PHOS A (0) | 3.200E-01 | 1.600E 07 | 4.700E 04 | 1.900E 04 | 5.937E 04 | 1.389E 05 | 4.446E 04 |
| BRONZE, PHOS A (HALF) | 3.200E-01 | 1.600E 07 | 6.800E 04 | 5.900E 04 | 1.719E 05 | 1.389E 05 | 4.446E 04 |
| BRONZE, PHOS A (HARD) | 3.200E-01 | 1.600E 07 | 8.100E 04 | 7.500E 04 | 2.344E 05 | 1.389E 05 | 4.446E 04 |
| BRONZE, PHOS A (SPRING) | 3.200E-01 | 1.600E 07 | 1.000E 05 | -0. | -0 | 1.389E 05 | 4.446E 04 |
| BRONZE, PHOS A (EXTRA SPRING) | 3.200E-01 | 1.600E 07 | 1.070E 05 | -0. | -0. | 1.389E 05 | 4.446E 04 |
| COBALT | 3.200E-01 | 3.700E 07 | 3.440E 04 | 2.000E 04 | 6.250E 04 | 1.902E 05 | 6.088E 04 |
| COBALT J-1650 | 3.200E-01 | 3.340E 07 | 1.740E 05 | 1.160E 05 | 3.625E 05 | 2.013E 05 | 6.443E 04 |
| COLUMBIUM C-103 | 3.200E-01 | 1.260E 07 | 9.350E 04 | 8.000E 04 | 2.750E 05 | 1.233E 05 | 3.945E 04 |
| GILDING 95CU (0) | 3.200E-01 | 1.700E 07 | 3.400E 04 | 1.000E 04 | 3.125E 04 | 1.432E 05 | 4.583E 04 |
| GILDING 95CU (HARD) | 3.200E-01 | 1.700E 07 | 5.600E 04 | 5.000E 04 | 1.562E 05 | 1.432E 05 | 4.583E 04 |
| BRONZE, LEAD COMMERCIAL (HALF) | 3.190E-01 | 1.700E 07 | 5.500E 04 | 5.000E 04 | 1.567E 05 | 1.434E 05 | 4.575E 04 |
| NI, MONEL 400 (0) | 3.190E-01 | 2.600E 07 | 7.000E 04 | 2.500E 04 | 7.837E 04 | 1.774E 05 | 5.658E 04 |
| NI, MONEL 400 (SPRING) | 3.190E-01 | 2.600E 07 | 1.000E 05 | 9.000E 04 | 2.821E 05 | 1.774E 05 | 5.658E 04 |
| BRASS, CAST LEAD RED (4A) | 3.180E-01 | 1.240E 07 | 3.300E 04 | 1.500E 04 | 4.717E 04 | 1.227E 05 | 3.902E 04 |
| BRASS+BRONZE, CAST PB NI (5D4) | 3.180E-01 | 1.600E 07 | 3.000E 04 | 1.500E 04 | 4.717E 04 | 1.394E 05 | 4.432E 04 |
| BRASS+BRONZE, CAST PB NI (5D8) | 3.180E-01 | 1.500E 07 | 3.500E 04 | 1.700E 04 | 5.346E 04 | 1.349E 05 | 4.291E 04 |
| BRONZE, COMMERCIAL 90CU (0) | 3.180E-01 | 1.700E 07 | 3.700E 04 | 1.000E 04 | 3.145E 04 | 1.437E 05 | 4.568E 04 |
| BRONZE, COMMERCIAL 90CU (HARD) | 3.180E-01 | 1.700E 07 | 6.100E 04 | 5.400E 04 | 1.698E 05 | 1.437E 05 | 4.568E 04 |
| BRONZE, PHOS B (0) | 3.180E-01 | 1.600E 07 | 5.300E 04 | 2.400E 04 | 7.547E 04 | 1.394E 05 | 4.432E 04 |
| BRONZE, PHOS B (HALF) | 3.180E-01 | 1.600E 07 | 7.600E 04 | 5.900E 04 | 1.730E 05 | 1.394E 05 | 4.432E 04 |
| BRONZE, PHOS B (HARD) | 3.180E-01 | 1.600E 07 | 9.300E 04 | 7.200E 04 | 2.264E 05 | 1.394E 05 | 4.432E 04 |
| BRONZE, PHOS B (SPRING) | 3.180E-01 | 1.600E 07 | 1.120E 05 | -0. | -0. | 1.394E 05 | 4.432E 04 |
| BRONZE, PHOS B (EXTRA SPRING) | 3.180E-01 | 1.600E 07 | 1.200E 05 | -0. | -0. | 1.394E 05 | 4.432E 04 |
| BRASS, CAST LEAD RED (5B) | 3.170E-01 | 1.520E 07 | 3.000E 04 | 1.200E 04 | 3.785E 04 | 1.361E 05 | 4.313E 04 |
| BRONZE, JEWELRY 87.5CU (0) | 3.170E-01 | 1.700E 07 | 4.200E 04 | 1.500E 04 | 4.732E 04 | 1.439E 05 | 4.561E 04 |
| BRONZE, JEWELRY 87.5CU (HARD) | 3.170E-01 | 1.700E 07 | 6.600E 04 | 5.600E 04 | 1.767E 05 | 1.439E 05 | 4.561E 04 |
| BRONZE, PHOS C (0) | 3.170E-01 | 1.600E 07 | 6.600E 04 | 2.800E 04 | 8.833E 04 | 1.396E 05 | 4.425E 04 |
| BRONZE, PHOS C (HALF) | 3.170E-01 | 1.600E 07 | 8.300E 04 | -0. | -0. | 1.396E 05 | 4.425E 04 |
| BRONZE, PHOS C (HARD) | 3.170E-01 | 1.600E 07 | 1.000E 05 | -0. | -0. | 1.396E 05 | 4.425E 04 |
| BRONZE, PHOS C (SPRING) | 3.170E-01 | 1.600E 07 | 1.220E 05 | -0 | -0. | 1.396E 05 | 4.425E 04 |
| BRONZE, PHOS C (EXTRA SPRING) | 3.170E-01 | 1.600E 07 | 1.280E 05 | -0. | -0. | 1.396E 05 | 4.425E 04 |
| BRASS, RED 85CU (0) | 3.160E-01 | 1.700E 07 | 3.900E 04 | 1.000E 04 | 3.165E 04 | 1.441E 05 | 4.554E 04 |
| BRASS, RED 85CU (HARD) | 3.160E-01 | 1.700E 07 | 7.000E 04 | 5.700E 04 | 1.804E 05 | 1.441E 05 | 4.554E 04 |
| BRONZE, LOW SI (0) | 3.160E-01 | 1.700E 07 | 4.000E 04 | 1.500E 04 | 4.747E 04 | 1.441E 05 | 4.554E 04 |
| BRONZE, LOW SI (HARD) | 3.160E-01 | 1.700E 07 | 7.000E 04 | 5.500E 04 | 1.741E 05 | 1.441E 05 | 4.554E 04 |
| CU65-NI18-ZN17 (0) | 3.160E-01 | 1.800E 07 | 5.600E 04 | 2.500E 04 | 7.911E 04 | 1.483E 05 | 4.686E 04 |
| CU65-NI18-ZN17 (HALF) | 3.160E-01 | 1.800E 07 | 7.000E 04 | 6.000E 04 | 1.899E 05 | 1.483E 05 | 4.686E 04 |
| CU65-NI18-ZN17 (HARD) | 3.160E-01 | 1.800E 07 | 8.300E 04 | 7.400E 04 | 2.342E 05 | 1.483E 05 | 4.686E 04 |
| BRONZE, CAST LEAD TIN (2B) | 3.140E-01 | 1.760E 07 | 3.600E 04 | 1.600E 04 | 5.096E 04 | 1.142E 05 | 3.585E 04 |
| BRONZE, CAST LEAD TIN (2C) | 3.140E-01 | 1.760E 07 | 3.600E 04 | 1.800E 04 | 5.732E 04 | 1.142E 05 | 3.585E 04 |
| BRONZE, CAST TIN (1A) | 3.140E-01 | 1.400E 07 | 4.000E 04 | 2.000E 04 | 6.369E 04 | 1.312E 05 | 4.120E 04 |
| CU55-NI18-ZN27 (0) | 3.140E-01 | 1.800E 07 | 6.000E 04 | 2.700E 04 | 8.599E 04 | 1.488E 05 | 4.671E 04 |
| CU55-NI18-ZN27 (HARD) | 3.140E-01 | 1.800E 07 | 1.000E 05 | 8.500E 04 | 2.707E 05 | 1.488E 05 | 4.671E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| CU65-NI10-ZN27 (EXTRA HARD) | 3.140E-01 | 1.800E 07 | 1.080E 05 | 9.000E 04 | 2.866E 05 | 1.488E 05 | 4.671E 04 |
| CU65-NI10-ZN25 (O) | 3.140E-01 | 1.750E 07 | 4.900E 04 | 1.400E 04 | 5.732E 04 | 1.467E 05 | 4.606E 04 |
| CU65-NI10-ZN25 (HALF) | 3.140E-01 | 1.750E 07 | 7.300E 04 | 6.000E 04 | 1.911E 05 | 1.467E 05 | 4.606E 04 |
| CU65-NI10-ZN25 (HARD) | 3.140E-01 | 1.750E 07 | 8.600E 04 | 7.500E 04 | 2.389E 05 | 1.467E 05 | 4.606E 04 |
| CU65-NI10-ZN25 (EXTRA HARD) | 3.140E-01 | 1.750E 07 | 9.500E 04 | 7.600E 04 | 2.420E 05 | 1.467E 05 | 4.606E 04 |
| CU65-NI12-ZN23 (O) | 3.140E-01 | 1.800E 07 | 5.200E 04 | 1.800E 04 | 5.732E 04 | 1.488E 05 | 4.671E 04 |
| CU65-NI12-ZN23 (HALF) | 3.140E-01 | 1.800E 07 | 7.300E 04 | 6.000E 04 | 1.911E 05 | 1.488E 05 | 4.671E 04 |
| CU65-NI12-ZN23 (HARD) | 3.140E-01 | 1.800E 07 | 8.500E 04 | 7.500E 04 | 2.389E 05 | 1.488E 05 | 4.671E 04 |
| CU65-NI12-ZN23 (EXTRA HARD) | 3.140E-01 | 1.850E 07 | 9.300E 04 | 7.900E 04 | 2.516E 05 | 1.488E 05 | 4.671E 04 |
| CU65-NI15-ZN20 (O) | 3.140E-01 | 1.800E 07 | 5.300E 04 | 1.800E 04 | 5.732E 04 | 1.488E 05 | 4.671E 04 |
| CU65-NI15-ZN20 (HALF) | 3.140E-01 | 1.800E 07 | 7.400E 04 | 6.200E 04 | 1.975E 05 | 1.488E 05 | 4.671E 04 |
| CU65-NI15-ZN20 (HARD) | 3.140E-01 | 1.800E 07 | 8.500E 04 | 7.500E 04 | 2.389E 05 | 1.488E 05 | 4.671E 04 |
| CU65-NI15-ZN20 (EXTRA HARD) | 3.140E-01 | 1.800E 07 | 9.200E 04 | 7.900E 04 | 2.516E 05 | 1.488E 05 | 4.671E 04 |
| BRASS, LOW 80CU (O) | 3.130E-01 | 1.600E 07 | 4.200E 04 | 1.200E 04 | 3.834E 04 | 1.405E 05 | 4.397E 04 |
| BRASS, LOW 80CU (HARD) | 3.130E-01 | 1.600E 07 | 7.400E 04 | 5.900E 04 | 1.885E 05 | 1.405E 05 | 4.397E 04 |
| NI, MONEL 411 (CAST) | 3.120E-01 | 1.900E 07 | 6.500E 04 | 3.200E 04 | 1.026E 05 | 1.333E 05 | 4.784E 04 |
| BRASS, CAST LEAD RED (5A) | 3.110E-01 | 1.300E 07 | 2.900E 04 | 1.300E 04 | 4.180E 04 | 1.270E 05 | 3.951E 04 |
| BRONZE, CAST LEAD TIN (2A) | 3.110E-01 | 1.310E 07 | 3.600E 04 | 1.600E 04 | 5.145E 04 | 1.275E 05 | 3.966E 04 |
| BRONZE, CAST TIN (1B) | 3.110E-01 | 1.300E 07 | 4.000E 04 | 1.800E 04 | 5.788E 04 | 1.270E 05 | 3.951E 04 |
| COBALT HS-3[illegible]-X-40 | 3.100E-01 | 2.900E 07 | 1.080E 05 | 7.600E 04 | 2.452E 05 | 1.900E 05 | 5.891E 04 |
| COBALT NIVCO | 3.100E-01 | 3.000E 07 | 1.650E 05 | 1.100E 05 | 3.548E 05 | 1.933E 05 | 5.992E 04 |
| COBALT S-816 | 3.100E-01 | 3.500E 07 | 1.400E 05 | 7.000E 04 | 2.258E 05 | 2.088E 05 | 6.472E 04 |
| COLUMBIUM | 3.100E-01 | 1.500E 07 | 4.000E 04 | 3.500E 04 | 1.129E 05 | 1.367E 05 | 4.237E 04 |
| COLUMBIUM CB-1ZR | 3.100E-01 | 1.150E 07 | 4.800E 04 | 3.500E 04 | 1.129E 05 | 1.197E 05 | 3.710E 04 |
| BRASS, CARTRIDGE 70CU (O) | 3.080E-01 | 1.600E 07 | 4.400E 04 | 1.100E 04 | 3.571E [illegible] | 1.416E 05 | 4.362E 04 |
| BRASS, CARTRIDGE 70CU (HARD) | 3.080E-01 | 1.600E 07 | 7.600E 04 | 6.300E 04 | 2.045E 05 | 1.416E 05 | 4.362E 04 |
| BRONZE, ADMIRALTY 71CU (O) | 3.080E-01 | 1.600E 07 | 5.300E 04 | 2.200E 04 | 7.143E 04 | 1.416E 05 | 4.362E 04 |
| BRONZE, HIGH SI (O) | 3.080E-01 | 1.500E 07 | 5.600E 04 | 2.000E 04 | 6.494E 04 | 1.371E 05 | 4.223E 04 |
| BRONZE, HIGH SI (HARD) | 3.080E-01 | 1.500E 07 | 9.400E 04 | 5.500E 04 | 1.786E 05 | 1.371E 05 | 4.223E 04 |
| BRASS, EXTRA-HIGH-LEAD (O) | 3.070E-01 | 1.400E 07 | 4.900E 04 | 1.700E 04 | 5.537E 04 | 1.327E 05 | 4.073E 04 |
| BRASS, EXTRA-HIGH-LEAD (HARD) | 3.070E-01 | 1.400E 07 | 7.400E 04 | 6.000E 04 | 1.954E 05 | 1.327E 05 | 4.073E 04 |
| BRASS, FREE-CUTTING (O) | 3.070E-01 | 1.400E 07 | 4.900E 04 | 1.800E 04 | 5.863E 04 | 1.327E 05 | 4.073E 04 |
| BRASS, FREE-CUTTING (HARD) | 3.070E-01 | 1.400E 07 | 6.800E 04 | 5.200E 04 | 1.694E 05 | 1.327E 05 | 4.073E 04 |
| BRASS, HIGH-LEAD (O) | 3.060E-01 | 1.500E 07 | 4.900E 04 | 1.700E 04 | 5.556E 04 | 1.376E 05 | 4.209E 04 |
| BRASS, HIGH-LEAD (HARD) | 3.060E-01 | 1.500E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 |
| BRASS, LOW-LEAD (O) | 3.060E-01 | 1.500E 07 | 5.100E 04 | 1.900E 04 | 6.209E 04 | 1.376E 05 | 4.209E 04 |
| BRASS, LOW-LEAD (HARD) | 3.060E-01 | 1.500E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 |
| BRASS, MEDIUM-LEAD (O) | 3.060E-01 | 1.500E 07 | 5.100E 04 | 1.900E 04 | 6.209E 04 | 1.376E 05 | 4.209E 04 |
| BRASS, MEDIUM-LEAD (HARD) | 3.060E-01 | 1.500E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 |
| BRASS, YELLOW (O) | 3.060E-01 | 1.500E 07 | 4.600E 04 | 1.400E 04 | 4.575E 04 | 1.376E 05 | 4.209E 04 |
| BRASS, YELLOW (HARD) | 3.060E-01 | 1.500E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 |
| BRONZE, ARCHITECTUAL (O) | 3.060E-01 | 1.400E 07 | 6.000E 04 | 2.000E 04 | 6.536E 04 | 1.329E 05 | 4.067E 04 |
| COLUMBIUM CB-752 | 3.060E-01 | 1.500E 07 | 8.500E 04 | 7.000E 04 | 2.288E 05 | 1.376E 05 | 4.209E 04 |
| NI, MONEL K-500 (O) | 3.060E-01 | 2.600E 07 | 9.000E 04 | 4.000E 04 | 1.307E 05 | 1.611E 05 | 5.542E 04 |
| NI, MONEL K-500 (CAH) | 3.060E-01 | 2.600E 07 | 1.300E 05 | 9.000E 04 | 2.941E 05 | 1.611E 05 | 5.542E 04 |
| NI, MONEL K-500 (SAH) | 3.060E-01 | 2.600E 07 | 1.700E 05 | 1.300E 05 | 4.248E 05 | 1.611E 05 | 5.542E 04 |
| NI, MONEL K-500 (SPRING) | 3.060E-01 | 2.600E 07 | 1.450E 05 | 1.300E 05 | 4.248E 05 | 1.611E 05 | 5.542E 04 |
| BRASS, CAST LEAD YELLOW (6A) | 3.050E-01 | 1.400E 07 | 3.500E 04 | 1.200E 04 | 3.934E 04 | 1.331E 05 | 4.060E 04 |
| BRASS, FORGING (O) | 3.050E-01 | 1.500E 07 | 5.200E 04 | 2.000E 04 | 6.557E 04 | 1.378E 05 | 4.203E 04 |
| BRASS, LEAD NAVAL (O) | 3.050E-01 | 1.500E 07 | 5.700E 04 | 2.900E 04 | 8.197E 04 | 1.378E 05 | 4.203E 04 |
| BRASS, LEAD NAVAL (QUARTER) | 3.050E-01 | 1.500E 07 | 6.900E 04 | 4.600E 04 | 1.508E 05 | 1.378E 05 | 4.203E 04 |
| BRASS, LEAD NAVAL (HALF) | 3.050E-01 | 1.500E 07 | 7.500E 04 | 5.300E 04 | 1.738E 05 | 1.378E 05 | 4.203E 04 |
| COLUMBIUM B-66 | 3.050E-01 | 1.480E 07 | 1.120E 05 | 9.000E 04 | 2.951E 05 | 1.369E 05 | 4.174E 04 |
| NI, UNITEMP 1753 | 3.050E-01 | 3.100E 07 | 1.940E 05 | 1.300E 05 | 4.262E 05 | 1.981E 05 | 6.042E 04 |
| BRASS, NAVAL (O) | 3.040E-01 | 1.500E 07 | 5.700E 04 | 2.900E 04 | 8.224E 04 | 1.380E 05 | 4.196E 04 |
| BRASS, NAVAL (QUARTER) | 3.040E-01 | 1.500E 07 | 6.900E 04 | 4.600E 04 | 1.513E 05 | 1.380E 05 | 4.196E 04 |
| BRASS, NAVAL (HALF) | 3.040E-01 | 1.500E 07 | 7.500E 04 | 5.300E 04 | 1.743E 05 | 1.380E 05 | 4.196E 04 |
| MUNTZ METAL, FREE-CUTTING (O) | 3.040E-01 | 1.500E 07 | 5.400E 04 | 2.000E 04 | 6.579E 04 | 1.380E 05 | 4.196E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| MUNTZ METAL, FREE-CUT (HARD) | 3.040E-01 | 1.500E 07 | 8.000E 04 | 6.000E 04 | 1.974E 05 | 1.380E 05 | 4.196E 04 |
| MUNTZ METAL, LEADED (O) | 3.040E-01 | 1.500E 07 | 5.400E 04 | 2.000E 04 | 6.579E 04 | 1.360E 05 | 4.196E 04 |
| BRASS, CAST LEAD YELLOW (6B) | 3.030E-01 | 1.200E 07 | 3.000E 04 | 1.100E 04 | 3.630E 04 | 1.236E 05 | 3.747E 04 |
| BRASS+BRONZE, CAST SI (12A) | 3.030E-01 | 1.500E 07 | 5.500E 04 | 2.200E 04 | 7.261E 04 | 1.302E 05 | 4.189E 04 |
| COBALT V-36 | 3.030E-01 | 3.200E 07 | 1.460E 05 | 8.300E 04 | 2.739E 05 | 2.019E 05 | 6.118E 04 |
| MUNTZ METAL 60[illegible] | 3.030E-01 | 1.500E 07 | 5.400E 04 | 2.100E 04 | 6.931E 04 | 1.382E 05 | 4.189E 04 |
| BRONZE, MANGANESE A (O) | 3.020E-01 | 1.500E 07 | 6.500E 04 | 3.000E 04 | 9.934E 04 | 1.365E 05 | 4.182E 04 |
| BRONZE, MANGANESE A (HALF) | 3.020E-01 | 1.500E 07 | 8.400E 04 | 6.000E 04 | 1.987E 05 | 1.365E 05 | 4.182E 04 |
| NI, MONEL 505 (CAST) | 3.020E-01 | 2.420E 07 | 1.100E 05 | 8.000E 04 | 2.649E 05 | 1.759E 05 | 5.312E 04 |
| NI, MONEL 505 (AGED) | 3.020E-01 | 2.420E 07 | 1.100E 05 | 8.000E 04 | 2.649E 05 | 1.759E 05 | 5.312E 04 |
| BRASS, ALUMINUM (C) | 3.010E-01 | 1.600E 07 | 6.000E 04 | 2.700E 04 | 8.97[illegible]E 04 | 1.432E 05 | 4.312E 04 |
| BRASS, CAST HIGH YELLOW (8A) | 3.010E-01 | 1.540E 07 | 6.500E 04 | 2.500E 04 | 8.306E 04 | 1.405E 05 | 4.230E 04 |
| NICKEL 210 (AS CAST) | 3.010E-01 | 2.150E 07 | 4.500E 04 | 2.000E 04 | 6.645E 04 | 1.661E 05 | 4.998E 04 |
| BRASS, CAST LEAD YELLOW (8C) | 3.000E-01 | 1.300E 07 | 4.500E 04 | 1.600E 04 | 5.333E 04 | 1.293E 05 | 3.880E 04 |
| COBALT HS-21 | 3.000E-01 | 3.600E 07 | 1.010E 05 | 8.200E 04 | 2.733E 05 | 2.192E 05 | 6.457E 04 |
| NI, INCONEL 610 (CAST) | 3.000E-01 | 3.100E 07 | 7.000E 04 | 3.000E 04 | 1.000E 05 | 1.997E 05 | 5.992E 04 |
| NI, NICROTUNG (CAST) | 3.000E-01 | 3.350E 07 | 1.300E 05 | 1.200E 05 | 4.000E 05 | 2.076E 05 | 6.229E 04 |
| BRASS+BRONZE, CAST SI (13B) | 2.990E-01 | 1.540E 07 | 6.000E 04 | 2.500E 04 | 8.361E 04 | 1.4[illegible]E 05 | 4.216E 04 |
| DURANICKEL 301 (O) | 2.980E-01 | 3.000E 07 | 9.000E 04 | 3.500E 04 | 1.173E 05 | 1.971E 05 | 5.875E 04 |
| DURANICKEL 301 (DAW) | 2.980E-01 | 3.[illegible]00E 07 | 1.600E 05 | -0. | -0. | 1.971E 05 | 5.875E 04 |
| DURANICKEL 301 (SPRING) | 2.980E-01 | 3.[illegible]00E 07 | 1.550E 05 | -0. | -0. | 1.971E 05 | 5.875E 04 |
| DURANICKEL 301 (SAW) | 2.980E-01 | 3.[illegible]00E 07 | 1.800E 05 | -0. | -0. | 1.971E 05 | 5.875E 04 |
| NI, INCONEL X-750 | 2.980E-01 | 3.100E 07 | 1.620E 05 | 9.200E 04 | 3.087E 05 | 2.004E 05 | 5.972E 04 |
| NI, W-252 | 2.980E-01 | 2.940E 07 | 1.800E 05 | 1.220E 05 | 4.094E 05 | 1.965E 05 | 5.855E 04 |
| NI, RENE-41, R-41 | 2.980E-01 | 3.180E 07 | 2.060E 05 | 1.540E 05 | 5.168E 05 | 2.030E 05 | 6.048E 04 |
| NI, HASTELLOY X | 2.970E-01 | 2.840E 07 | 1.140E 05 | 5.220E 04 | 1.758E 05 | 1.928E 05 | 5.726E 04 |
| COPPER, BERYLLIUM (O) | 2.960E-01 | 1.900E 07 | 6.000E 04 | 2.500E 04 | 8.446E 04 | 1.574E 05 | 4.659E 04 |
| COPPER, BERYLLIUM (HARD) | 2.960E-01 | 1.900E 07 | 1.650E 05 | 1.300E 05 | 4.392E 05 | 1.574E 05 | 4.659E 04 |
| NICKEL 47-50 + IRON (O) | 2.960E-01 | 2.400E 07 | 7.700E 04 | 3.300E 04 | 1.115E 05 | 1.769E 05 | 5.237E 04 |
| NICKEL 47-50+FE (COLD WORKED) | 2.960E-01 | 2.400E 07 | 1.400E 05 | -0. | -0. | 1.769E 05 | 5.237E 04 |
| NI, INCONEL 718 | 2.960E-01 | 2.900E 07 | 2.120E 05 | 1.750E 05 | 5.912E 05 | 1.945E 05 | 5.757E 04 |
| NI, WASPALOY | 2.960E-01 | 3.190E 07 | 1.880E 05 | 1.200E 05 | 4.054E 05 | 2.040E 05 | 6.038E 04 |
| NI, INCONEL 700 | 2.950E-01 | 3.240E 07 | 1.710E 05 | 1.040E 05 | 3.525E 05 | 2.059E 05 | 6.074E 04 |
| NICKEL 42 + IRON (O) | 2.940E-01 | 2.200E 07 | 6.800E 04 | 3.900E 04 | 1.327E 05 | 1.700E 05 | 4.997E 04 |
| NICKEL 42 + IRON (COLD WORKED) | 2.940E-01 | 2.200E 07 | 1.200E 05 | -0 | -0. | 1.700E 05 | 4.997E 04 |
| NICKEL-SPAN-C902 (COLD WORKED) | 2.930E-01 | 2.400E 07 | 1.790E 05 | 1.650E 05 | 5.631E 05 | 1.778E 05 | 5.210E 04 |
| NICKEL-SPAN-C902 (ROLLED) | 2.930E-01 | 2.400E 07 | 1.310E 05 | 1.260E 05 | 4.300E 05 | 1.778E 05 | 5.210E 04 |
| NI, INCONEL 705 (CAST) | 2.920E-01 | 2.500E 07 | 9.000E 04 | 8.000E 04 | 2.740E 05 | 1.818E 05 | 5.309E 04 |
| NI, INCONEL 705 (COAGED) | 2.920E-01 | 2.500E 07 | 9.000E 04 | 8.500E 04 | 2.911E 05 | 1.813E 05 | 5.300E 04 |
| NICKEL 36 + IRON (O) | 2.910E-01 | 2.100E 07 | 7.100E 04 | 4.000E 04 | 1.375E 05 | 1.669E 05 | 4.857E 04 |
| NICKEL 36 + IRON (COLD WORKED) | 2.910E-01 | 2.100E 07 | 9.000E 04 | 7.000E 04 | 2.405E 05 | 1.669E 05 | 4.857E 04 |
| NI, UDIMET 500 | 2.900E-01 | 3.120E 07 | 1.970E 05 | 1.100E 05 | 3.793E 05 | 2.038E 05 | 5.910E 04 |
| BRASS, CAST LEAD YELLOW (7A) | 2.890E-01 | 1.500E 07 | 6.000E 04 | 2.000E 04 | 6.920E 04 | 1.416E 05 | 4.091E 04 |
| NI, UDIMET 700 | 2.840E-01 | 3.210E 07 | 2.050E 05 | 1.400E 05 | 4.895E 05 | 2.082E 05 | 5.953E 04 |
| BRASS, CAST HIGH YELLOW (8B) | 2.850E-01 | 1.450E 07 | 9.100E 04 | 4.600E 04 | 1.614E 05 | 1.401E 05 | 3.994E 04 |
| BRONZE, AL D (HARD) | 2.850E-01 | 1.700E 07 | 8.200E 04 | 4.000E 04 | 1.404E 05 | 1.517E 05 | 4.325E 04 |
| BRONZE, CAST ALUMINUM (9A) | 2.810E-01 | 1.600E 07 | 7.000E 04 | 2.500E 04 | 8.897E 04 | 1.483E 05 | 4.168E 04 |
| BRONZE, AL-SI (C) | 2.780E-01 | 1.600E 07 | 8.500E 04 | 4.400E 04 | 1.583E 05 | 1.491E 05 | 4.144E 04 |
| BRONZE, AL-SI (HARD) | 2.780E-01 | 1.600E 07 | 9.000E 04 | 5.000E 04 | 1.799E 05 | 1.491E 05 | 4.144E 04 |
| BRASS, CAST HIGH YELLOW (8C) | 2.770E-01 | 1.400E 07 | 1.120E 05 | 6.500E 04 | 2.347E 05 | 1.407E 05 | 3.897E 04 |
| BRONZE, CAST ALUMINUM (9C) | 2.720E-01 | 1.500E 07 | 7.500E 04 | 3.000E 04 | 1.103E 05 | 1.459E 05 | 3.969E 04 |
| BRONZE, CAST ALUMINUM (9D) | 2.720E-01 | 1.800E 07 | 9.000E 04 | 4.000E 04 | 1.471E 05 | 1.598E 05 | 4.347E 04 |
| BRONZE, CAST ALUMINUM (9B) | 2.640E-01 | 1.400E 07 | 7.000E 04 | 2.800E 04 | 1.061E 05 | 1.431E 05 | 3.777E 04 |
| TIN, GRADE A (CAST) | 2.640E-01 | 6.300E 06 | 2.100E 03 | 1.700E 03 | 6.439E 03 | 9.367E 04 | 2.473E 04 |
| TIN, GRADE A (CRS) | 2.640E-01 | 6.[illegible]00E 06 | 2.800E 03 | 2.000E 03 | 7.576E 03 | 9.367E 04 | 2.473E 04 |
| TIN, GRADE A (OS) | 2.640E-01 | 6.[illegible]00E 06 | 2.200E 03 | 1.300E 03 | 4.924E 03 | 9.367E 04 | 2.473E 04 |
| TIN, PEWTER (CRS) | 2.630E-01 | 7.700E 06 | 7.600E 03 | -0 | -0. | 1.063E 05 | 2.7[illegible] 04 |
| TIN, PEWTER (OS) | 2.630E-01 | 7.700E 06 | 8.600E 03 | -0. | -0. | 1.063E 05 | 2.796E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| ZR, COMMERCIAL GRADE (O) | 2,370E-01 | 1.400E 07 | 6,400E 04 | 5.300E 04 | 2.236E 05 | 1,510E 05 | 3.579E 04 |
| ZR, ZIRCALOY-2 (O) | 2,370E-01 | 1.380E 07 | 6.000E 04 | 4.500E 04 | 1.699E 05 | 1,499E 05 | 3.553E 04 |
| ZR, REACTOR GRADE (O) | 2,350E-01 | 1.400E 07 | 3.500E 04 | 1.500E 04 | 6.383E 04 | 1,517E 05 | 3,564E 04 |
| VANADIUM (O) | 2,300E-01 | 2.000E 07 | 7.200E 04 | 6.400E 04 | 2.783E 05 | 1,832E 05 | 4.214E 04 |
| VANADIUM (COLD WORKED) | 2,300E-01 | 2.000E 07 | 1.130E 05 | 1.090E 05 | 4.739E 05 | 1,832E 05 | 4.214E 04 |
| TI, 13V-11CR-3AL (O) | 1,790E-01 | 1.450E 07 | 1.300E 05 | 1.250E 05 | 7.143E 05 | 1,788E 05 | 3.130E 04 |
| TI, 13V-11CR-3AL (HEAT TREATED) | 1,790E-01 | 1.490E 07 | 1.900E 05 | 1.700E 05 | 9,714E 05 | 1,788E 05 | 3.130E 04 |
| TI, RMN (O) | 1,710E-01 | 1.550E 07 | 1.250E 05 | 1.200E 05 | 7.018E 05 | 1,8715 05 | 3.199E 04 |
| TI, FE-2CR-2MO (O) | 1,700E-01 | 1.600E 07 | 1.400E 05 | 1.200E 05 | 7,059E 05 | 1,906E 05 | 3.240E 04 |
| TI, 5AL-5SN-5ZR | 1,650E-01 | 1.600E 07 | 1.200E 05 | 1.100E 05 | 6.667E 05 | 1,939E 05 | 3.192E 04 |
| TI, UNALLOYED | 1,630E-01 | 1.500E 07 | 6.000E 04 | 4.000E 04 | 2.454E 05 | 1,885E 05 | 3.072E 04 |
| TI, 6AL-6V-2SN (O) | 1,620E-01 | 1.600E 07 | 1.300E 05 | 1.300E 05 | 8.025E 05 | 1,953E 05 | 3.163E 04 |
| TI, 6AL-6V-2SN (HEAT TREATED) | 1,620E-01 | 1.600E 07 | 1.950E 05 | 1.750E 05 | 1.080E 06 | 1,953E 05 | 3.163E 04 |
| TI, 7AL-4MO (O) | 1,620E-01 | 1.600E 07 | 1.450E 05 | 1.390E 05 | 8.333E 05 | 1,953E 05 | 3.163E 04 |
| TI, 7AL-4MO (HEAT TREATED) | 1,620E-01 | 1.600E 07 | 1.600E 05 | 1.500E 05 | 9.259E 05 | 1,953E 05 | 3.163E 04 |
| TI, 5AL-2,5SN | 1,610E-01 | 1.300E 07 | 1.150E 05 | 1.130E 05 | 6.832E 05 | 1,959E 05 | 3.153E 04 |
| TI, 6AL-4V (O) | 1,600E-01 | 1.500E 07 | 1.300E 05 | 1.200E 05 | 7,500E 05 | 1,902E 05 | 3,044E 04 |
| TI, 6AL-4V (HEAT TREATED) | 1,600E-01 | 1.500E 07 | 1.450E 05 | 1.390E 05 | 8.437E 05 | 1,902E 05 | 3.044E 04 |
| TI, 8AL-1MO-1V (O) | 1.580E-01 | 1.700E 07 | 1,450E 05 | 1.400E 05 | 8,861E 05 | 2,038E 05 | 3.220E 04 |
| TI, 8AL-1MO-1V (HEAT TREATED) | 1.580E-01 | 1.700E 07 | 1,650E 05 | 1.500E 05 | 9.494E 05 | 2,038E 05 | 3.220E 04 |
| ALUMINUM 2219 (O) | 1,030E-01 | 1.060E 07 | 2,500E 04 | 1.100E 04 | 1.068E 05 | 1,993E 05 | 2.053E 04 |
| ALUMINUM 2219 (T42) | 1,030E-01 | 1.060E 07 | 5,200E 04 | 2.700E 04 | 2.621E 05 | 1,993E 05 | 2.053E 04 |
| ALUMINUM 2219 (T87) | 1,030E-01 | 1.060E 07 | 6,800E 04 | 5.700E 04 | 5,534E 05 | 1,993E 05 | 2.053E 04 |
| ALUMINUM 2011 (T3) | 1,020E-01 | 1.020E 07 | 5,500E 04 | 4.300E 04 | 4,216E 05 | 1,965E 05 | 2.004E 04 |
| ALUMINUM 2011 (T8) | 1,020E-01 | 1.020E 07 | 5,900E 04 | 4.500E 04 | 4,412E 05 | 1,965E 05 | 2.004E 04 |
| ALUMINUM 7178 (O) | 1,020E-01 | 1.040E 07 | 3,300E 04 | 1.500E 04 | 1.471E 05 | 1,984E 05 | 2.024E 04 |
| ALUMINUM 7178 (T6) | 1,020E-01 | 1.040E 07 | 8,800E 04 | 7.800E 04 | 7,647E 05 | 1,984E 05 | 2.024E 04 |
| ALUMINUM 2014 (O) | 1,010E-01 | 1.060E 07 | 2,700E 04 | 1.400E 04 | 1,386E 05 | 2,013E 05 | 2.033E 04 |
| ALUMINUM 2014 (T4) | 1,010E-01 | 1.060E 07 | 6,200E 04 | 4.200E 04 | 4,158E 05 | 2,013E 05 | 2.033E 04 |
| ALUMINUM 2014 (T6) | 1,010E-01 | 1.060E 07 | 7,000E 04 | 6.000E 04 | 5.941E 05 | 2,013E 05 | 2.033E 04 |
| ALUMINUM 2017 (O) | 1,010E-01 | 1.050E 07 | 2,600E 04 | 1.000E 04 | 9,901E 04 | 2,003E 05 | 2.023E 04 |
| ALUMINUM 2017 (T4) | 1,010E-01 | 1.050E 07 | 6,200E 04 | 4.000E 04 | 3,960E 05 | 2,003E 05 | 2.023E 04 |
| ALUMINUM 7075 (O) | 1,010E-01 | 1.040E 07 | 3,300E 04 | 1.500E 04 | 1,485E 05 | 1,994E 05 | 2.014E 04 |
| ALUMINUM 7075 (T6) | 1,010E-01 | 1.040E 07 | 8,300E 04 | 7.300E 04 | 7,228E 05 | 1,994E 05 | 2.014E 04 |
| ALUMINUM 2024 (O) | 1,000E-01 | 1.060E 07 | 2,700E 04 | 1.100E 04 | 1.100E 05 | 2,023E 05 | 2.023E 04 |
| ALUMINUM 2024 (T3) | 1,000E-01 | 1.060E 07 | 7,000E 04 | 5.000E 04 | 5,000E 05 | 2,023E 05 | 2.023E 04 |
| ALUMINUM 3003 (O) | 9,900E-02 | 1.000E 07 | 1.600E 04 | 6.000E 03 | 6,061E 04 | 1,975E 05 | 1.955E 04 |
| ALUMINUM 3003 (HALF) | 9,900E-02 | 1.000E 07 | 2,200E 04 | 2.100E 04 | 2,121E 05 | 1,975E 05 | 1.955E 04 |
| ALUMINUM 3003 (HARD) | 9,900E-02 | 1.000E 07 | 2,900E 04 | 2.700E 04 | 2,727E 05 | 1,975E 05 | 1.955E 04 |
| ALUMINUM 7079 (T6) | 9,900E-02 | 1.030E 07 | 7,800E 04 | 6.800E 04 | 6,869E 05 | 2,004E 05 | 1.984E 04 |
| ALUMINUM EC (O) | 9,800E 02 | 1.000E 07 | 1,200E 04 | 4.000E 03 | 4,082E 04 | 1,985E 05 | 1.945E 04 |
| ALUMINUM EC (HALF) | 9,800E-02 | 1.000E 07 | 1,600E 04 | 1 400E 04 | 1,429E 05 | 1,985E 05 | 1.945E 04 |
| ALUMINUM EC (HARD) | 9,800E-02 | 1.000E 07 | 2,700E 04 | 2.400E 04 | 2,449E 05 | 1,985E 05 | 1.945E 04 |
| ALUMINUM 1060 (O) | 9,800E-02 | 1.000E 07 | 1,000E 04 | 4.000E 03 | 4,082E 04 | 1,985E 05 | 1.945E 04 |
| ALUMINUM 1060 (HALF) | 9,800E-02 | 1.000E 07 | 1,400E 04 | 1.300E 04 | 1,327E 05 | 1,985E 05 | 1.945E 04 |
| ALUMINUM 1060 (HARD) | 9,800E-02 | 1.000E 07 | 1,900E 04 | 1.800E 04 | 1,837E 05 | 1,985E 05 | 1.945E 04 |
| ALUMINUM 1100 (O) | 9,800E-02 | 1.000E 07 | 1,300E 04 | 5.000E 03 | 5,102E 04 | 1,985E 05 | 1.945E 04 |
| ALUMINUM 1100 (HALF) | 9,800E-02 | 1.000E 07 | 1,800E 04 | 1.700E 04 | 1,735E 05 | 1,985E 05 | 1.945E 04 |
| ALUMINUM 1100 (HARD) | 9,800E-02 | 1.000E 07 | 2,400E 04 | 2.200E 04 | 2,245E 05 | 1,985E 05 | 1.945E 04 |
| ALUMINUM 3004 (O) | 9,800E-02 | 1.000E 07 | 2,600E 04 | 1.000E 04 | 1,020E 05 | 1,985E 05 | 1.945E 04 |
| ALUMINUM 3004 (HALF) | 9,800E-02 | 1.000E 07 | 3,900E 04 | 2.900E 04 | 2,959E 05 | 1,985E 05 | 1.945E 04 |
| ALUMINUM 3004 (HARD) | 9,800E-02 | 1.000E 07 | 4,100E 04 | 3.600E 04 | 3,673E 05 | 1,985E 05 | 1.945E 04 |
| ALUMINUM 5457 (O) | 9,800E-02 | 1.000E 07 | 1,300E 04 | 5.000E 03 | 5,102E 04 | 1,985E 05 | 1.945E 04 |
| ALUMINUM 5457 (HALF) | 9,800E-02 | 1.000E 07 | 1,900E 04 | 1.600E 04 | 1,633E 05 | 1,985E 05 | 1.945E 04 |
| ALUMINUM 5457 (HARD) | 9,800E-02 | 1.000E 07 | 2,300E 04 | 1.900E 04 | 1,939E 05 | 1,985E 05 | 1.945E 04 |
| ALUMINUM 6061 (O) | 9,800E-02 | 1.000E 07 | 1,800E 04 | 8.000E 03 | 8,163E 04 | 1,985E 05 | 1.945E 04 |
| ALUMINUM 6061 (T4) | 9,800E-02 | 1.000E 07 | 4,500E 04 | 4.000E 04 | 4,082E 05 | 1,985E 05 | 1.945E 04 |
| ALUMINUM 6063 (O) | 9,800E-02 | 1.000E 07 | 1,300E 04 | 7.000E 03 | 7,143E 04 | 1,985E 05 | 1.945E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| ALUMINUM 6063 (T6) | 9.800E-02 | 1.000E 07 | 3.930E 04 | 3.100E 04 | 3.163E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 6066 (O) | 9.800E-02 | 1.000E 07 | 2.200E 04 | 1.200E 04 | 1.224E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 6066 (T6) | 9.800E-02 | 1.000E 07 | 5.700E 04 | 5.200E 04 | 5.306E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 6101 (T6) | 9.800E-02 | 1.000E 07 | 3.200E 04 | 2.800E 04 | 2.857E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 6262 (T9) | 9.800E-02 | 1.000E 07 | 5.600E 04 | 5.500E 04 | 5.612E 05 | 1.985E 05 | 1.945E 04 |
| ALUMINUM 5005 (O) | 9.700E-02 | 1.000E 07 | 1.800E 04 | 6.000E 03 | 6.186E 04 | 1.995E 05 | 1.935E 04 |
| ALUMINUM 5005 (HALF) | 9.700E-02 | 1.000E 07 | 2.300E 04 | 2.200E 04 | 2.268E 05 | 1.995E 05 | 1.935E 04 |
| ALUMINUM 5005 (HARD) | 9.700E-02 | 1.000E 07 | 2.900E 04 | 2.800E 04 | 2.887E 05 | 1.995E 05 | 1.935E 04 |
| ALUMINUM 5050 (O) | 9.700E-02 | 1.000E 07 | 2.100E 04 | 8.000E 03 | 8.247E 04 | 1.995E 05 | 1.935E 04 |
| ALUMINUM 5050 (HALF) | 9.700E-02 | 1.000E 07 | 2.800E 04 | 2.400E 04 | 2.474E 05 | 1.995E 05 | 1.935E 04 |
| ALUMINUM 5050 (HARD) | 9.700E-02 | 1.000E 07 | 3.200E 04 | 2.900E 04 | 2.990E 05 | 1.995E 05 | 1.935E 04 |
| ALUMINUM 5052 (O) | 9.700E-02 | 1.020E 07 | 2.800E 04 | 1.300E 04 | 1.340E 05 | 2.015E 05 | 1.954E 04 |
| ALUMINUM 5052 (HALF) | 9.700E-02 | 1.020E 07 | 3.800E 04 | 3.100E 04 | 3.196E 05 | 2.015E 05 | 1.954E 04 |
| ALUMINUM 5052 (HARD) | 9.700E-02 | 1.020E 07 | 4.200E 04 | 3.700E 04 | 3.814E 05 | 2.015E 05 | 1.954E 04 |
| ALUMINUM 5454 (O) | 9.700E-02 | 1.020E 07 | 3.400E 04 | 1.700E 04 | 1.753E 05 | 2.015E 05 | 1.954E 04 |
| ALUMINUM 5454 (HALF) | 9.700E-02 | 1.020E 07 | 4.400E 04 | 3.500E 04 | 3.608E 05 | 2.015E 05 | 1.954E 04 |
| ALUMINUM 5454 (HARD) | 9.700E-02 | 1.020E 07 | 3.800E 04 | 2.600E 04 | 2.680E 05 | 2.015E 05 | 1.954E 04 |
| ALUMINUM 5083 (O) | 9.600E-02 | 1.030E 07 | 4.200E 04 | 2.100E 04 | 2.137E 05 | 2.035E 05 | 1.954E 04 |
| ALUMINUM 5083 (HALF) | 9.600E-02 | 1.030E 07 | 5.600E 04 | 3.300E 04 | 3.437E 05 | 2.035E 05 | 1.954E 04 |
| ALUMINUM 5086 (O) | 9.600E-02 | 1.030E 07 | 3.800E 04 | 1.700E 04 | 1.771E 05 | 2.035E 05 | 1.954E 04 |
| ALUMINUM 5086 (HALF) | 9.600E-02 | 1.030E 07 | 4.700E 04 | 3.700E 04 | 3.854E 05 | 2.035E 05 | 1.954E 04 |
| ALUMINUM 5154 (O) | 9.600E-02 | 1.020E 07 | 3.500E 04 | 1.700E 04 | 1.771E 05 | 2.025E 05 | 1.944E 04 |
| ALUMINUM 5154 (HALF) | 9.600E-02 | 1.020E 07 | 4.300E 04 | 3.300E 04 | 3.437E 05 | 2.025E 05 | 1.944E 04 |
| ALUMINUM 5154 (HARD) | 9.600E-02 | 1.020E 07 | 4.800E 04 | 3.900E 04 | 4.062E 05 | 2.025E 05 | 1.944E 04 |
| ALUMINUM 5456 (O) | 9.600E-02 | 1.030E 07 | 4.500E 04 | 2.300E 04 | 2.396E 05 | 2.035E 05 | 1.954E 04 |
| ALUMINUM 5456 (HALF) | 9.600E-02 | 1.030E 07 | 5.100E 04 | 3.700E 04 | 3.854E 05 | 2.035E 05 | 1.954E 04 |
| ALUMINUM 5056 (O) | 9.500E-02 | 1.030E 07 | 4.200E 04 | 2.200E 04 | 2.316E 05 | 2.044E 05 | 1.944E 04 |
| ALUMINUM 5056 (HARD) | 9.500E-02 | 1.030E 07 | 6.000E 04 | 5.000E 04 | 5.263E 05 | 2.044E 05 | 1.944E 04 |
| BERYLLIUM (O) | 6.700E-02 | 4.200E 07 | 6.000E 04 | 5.000E 03 | 7.463E 04 | 4.919E 05 | 3.296E 04 |
| MG. ZH62A (T5-CAST) | 6.700E-02 | 6.500E 06 | 4.000E 04 | 2.500E 04 | 3.731E 05 | 1.935E 05 | 1.297E 04 |
| MG. AZ63A (AGED-T6) | 6.600E-02 | 6.500E 06 | 4.000E 04 | 1.900E 04 | 2.879E 05 | 1.950E 05 | 1.287E 04 |
| MG. AZ63A (AS CAST) | 6.600E-02 | 6.500E 06 | 2.900E 04 | 1.400E 04 | 2.121E 05 | 1.950E 05 | 1.287E 04 |
| MG. AZ63A (SOLUTION TREATED) | 6.600E-02 | 6.500E 06 | 4.000E 04 | 1.300E 04 | 1.970E 05 | 1.950E 05 | 1.287E 04 |
| MG. AZ92A (AGED-CAST) | 6.600E-02 | 6.500E 06 | 4.000E 04 | 2.100E 04 | 3.182E 05 | 1.950E 05 | 1.287E 04 |
| MG. AZ92A (AS CAST) | 6.600E-02 | 6.500E 06 | 2.400E 04 | 1.400E 04 | 2.121E 05 | 1.950E 05 | 1.287E 04 |
| MG. AZ92A (SOLUTION TREATED) | 6.600E-02 | 6.500E 06 | 4.000E 04 | 1.400E 04 | 2.121E 05 | 1.950E 05 | 1.287E 04 |
| MG. EZ33A (T5-CAST) | 6.600E-02 | 6.500E 06 | 2.300E 04 | 1.600E 04 | 2.424E 05 | 1.950E 05 | 1.287E 04 |
| MG. HZ32A (T5-CAST) | 6.600E-02 | 6.500E 06 | 2.900E 04 | 1.500E 04 | 2.273E 05 | 1.950E 05 | 1.287E 04 |
| MG. ZE41A (T5-CAST) | 6.600E-02 | 6.500E 06 | 3.000E 04 | 2.000E 04 | 3.030E 05 | 1.950E 05 | 1.287E 04 |
| MG. ZK60A-T5 (EXTRUDED) | 6.600E-02 | 6.500E 06 | 5.000E 04 | 4.000E 04 | 6.061E 05 | 1.950E 05 | 1.287E 04 |
| MG. ZK60A-T5 (FORGED) | 6.600E-02 | 6.500E 06 | 4.400E 04 | 3.000E 04 | 4.545E 05 | 1.950E 05 | 1.287E 04 |
| MG. ZK61A (T6-CAST) | 6.600E-02 | 6.500E 06 | 4.500E 04 | 2.800E 04 | 4.242E 05 | 1.950E 05 | 1.287E 04 |
| MG. AM100A (AGED-CAST) | 6.500E-02 | 6.500E 06 | 4.000E 04 | 2.200E 04 | 3.385E 05 | 1.965E 05 | 1.277E 04 |
| MG. AM100A (AS CAST) | 6.500E-02 | 6.500E 06 | 2.200E 04 | 1.200E 04 | 1.845E 05 | 1.965E 05 | 1.277E 04 |
| MG. AM100A (SOLUTION TREATED) | 6.500E-02 | 6.500E 06 | 4.000E 04 | 1.300E 04 | 2.000E 05 | 1.965E 05 | 1.277E 04 |
| MG. AZ61A-F (EXTRUDED) | 6.500E-02 | 6.500E 06 | 4.100E 04 | 2.400E 04 | 3.692E 05 | 1.96[illegible] 05 | 1.277E 04 |
| MG. AZ61A-F (FORGED) | 6.500E-02 | 6.500E 06 | 4.300E 04 | 2.600E 04 | 4.000E 05 | 1.965E 05 | 1.277E 04 |
| MG. AZ80A-T5 (EXTRUDED) | 6.500E- | 6.500E 06 | 5.000E 04 | 3.800E 04 | 5.4[illegible] 05 | 1.965E 05 | 1.277E 04 |
| MG. AZ80A-T5 (FORGED) | 6.500E-02 | 6.500E 06 | 5.000E 04 | 3.400E 04 | 5.231E 05 | 1.965E 05 | 1.277E 04 |
| MG. AZ31A (SOLUTION TREATED) | 6.500E-02 | 6.500E 06 | 4.000E 04 | 1.200E 04 | 1.846E 05 | 1.965E 05 | 1.277E 04 |
| MG. AZ91 (AS CAST) | 6.500E-02 | 6.500E 06 | 3.400E 04 | 2.300E 04 | 3.538E 05 | 1.965E 05 | 1.277E 04 |
| MG. AZ91C (AGED-CAST) | 6.500E-02 | 6.500E 06 | 4.000E 04 | 1.900E 04 | 2.923E 05 | 1.965E 05 | 1.277E 04 |
| MG. AZ91C (AS CAST) | 6.500E-02 | 6.500E 06 | 2.400E 04 | 1.400E 04 | 2.154E 05 | 1.965E 05 | 1.277E 04 |
| MG. AZ91C (SOLUTION TREATED) | 6.500E-02 | 6.500E 06 | 4.000E 04 | 1.200E 04 | 1.846E 05 | 1.965E 05 | 1.277E 04 |
| MG. HK31A (H24) | 6.500E-02 | 6.400E 06 | 3.700E 04 | 2.900E 04 | 4.462E 05 | 1.950E 05 | 1.267E 04 |
| MG. HK31A (T6-CAST) | 6.500E-02 | 6.500E 06 | 3.100E 04 | 1.400E 04 | 2.462E 05 | 1.965E 05 | 1.277E 04 |
| MG. HK31A (T5) | 6.500E-02 | 6.500E 06 | 4.200E 04 | 3.300E 04 | 5.[illegible]77E 05 | 1.965E 05 | 1.277E 04 |
| MG. ZK51A (T5-CAST) | 6.500E-02 | 6.500E 06 | 4.800E 04 | 2.400E 04 | 3.[illegible]28E 05 | 1.965E 05 | 1.277E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| MG, AZ31B-F (EXTRUDED) | 6.400E-02 | 6.500E 06 | 3.600E 04 | 2.400E 04 | 3.750E 05 | 1.980E 05 | 1.267E 04 |
| MG, AZ31B-F (FORGED) | 6.400E-02 | 6.500E 06 | 3.800E 04 | 2.850E 04 | 4.375E 05 | 1.980E 05 | 1.267E 04 |
| MG, AZ31B (H24) | 6.400E-02 | 6.500E 06 | 4.200E 04 | 3.200E 04 | 5.000E 05 | 1.980E 05 | 1.267E 04 |
| MG, HM21A (T8) | 6.400E-02 | 6.400E 06 | 3.400E 04 | 2.100E 04 | 3.281E 05 | 1.969E 05 | 1.257E 04 |
| MG, AZ10A-F (EXTRUDED) | 6.390E-02 | 6.500E 06 | 3.500E 04 | 2.200E 04 | 3.465E 05 | 1.988E 05 | 1.262E 04 |
| MG, K1A (F-CAST) | 6.300E-02 | 6.500E 06 | 2.500E 04 | 7.000E 03 | 1.111E 05 | 1.996E 05 | 1.257E 04 |
| MG, ZE10A (H24) | 6.300E-02 | 6.500E 06 | 3.400E 04 | 1.900E 04 | 3.016E 05 | 1.996E 05 | 1.257E 04 |
| MG, LA141A (T7) | 4.850E-02 | 6.000E 06 | 1.800E 04 | 1.300E 04 | 2.680E 05 | 2.185E 05 | 1.060E 04 |

| MATERIAL | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) |
|---|---|---|---|---|---|---|---|
| IRIDIUM (0) | 7.900E 07 | 8.000E 04 | -0. | -0. | 1.937E 05 | 1.575E 05 | 8.130E-01 |
| IRIDIUM (COLD WORKED) | 7.900E 07 | 2.900E 05 | -0. | -0. | 1.937E 05 | 1.575E 05 | 8.130E-01 |
| RUTHENIUM (0) | 6.800E 07 | 5.500E 04 | -0. | -0. | 2.440E 05 | 1.076E 05 | 4.410E-01 |
| AVC W-25RE | 6.000E 07 | 2.420E 05 | 2.250E 05 | 3.151E 05 | 1.801E 05 | 1.286E 05 | 7.140E-01 |
| TUNGSTEN | 5.900E 07 | 2.200E 05 | 2.200E 05 | 3.143E 05 | 1.804E 05 | 1.263E 05 | 7.000E-01 |
| RHODIUM (0) | 5.900E 07 | 7.300E 04 | -0. | -0. | 2.179E 05 | 9.742E 04 | 4.470E-01 |
| RHODIUM (COLD WORKED) | 5.900E 07 | 3.000E 05 | -0. | -0. | 2.179E 05 | 9.742E 04 | 4.470E-01 |
| AVC (70MO, 30W) | 5.000E 07 | 1.050E 05 | 9.500E 04 | 2.239E 05 | 2.119E 05 | 9.110E 04 | 4.300E-01 |
| MOLYBDENUM | 4.700E 07 | 9.500E 04 | 8.200E 04 | 2.216E 05 | 2.214E 05 | 8.193E 04 | 3.700E-01 |
| MO, TZM (.5TI, .1ZR) | 4.600E 07 | 1.250E 05 | 1.050E 05 | 2.838E 05 | 2.191E 05 | 8.106E 04 | 3.700E-01 |
| MO-0.5TI | 4.600E 07 | 1.150E 05 | 1.040E 05 | 2.811E 05 | 2.191E 05 | 8.106E 04 | 3.700E-01 |
| BERYLLIUM (0) | 4.200E 07 | 6.700E 04 | 5.000E 03 | 7.463E 04 | 4.919E 05 | 3.296E 04 | 6.700E-02 |
| COBALT HS-21 | 3.690E 07 | 1.010E 05 | 8.200E 04 | 2.733E 05 | 2.152E 05 | 6.457E 04 | 3.000E-01 |
| COBALT S-816 | 3.500E 07 | 1.400E 05 | 7.000E 04 | 2.258E 05 | 2.048E 05 | 6.472E 04 | 3.100E-01 |
| COBALT L-605 | 3.420E 07 | 1.460E 05 | 6.700E 04 | 2.030E 05 | 2.000E 05 | 6.601E 04 | 3.300E-01 |
| COBALT J-1650 | 3.360E 07 | 1.740E 05 | 1.160E 05 | 3.629E 05 | 2.013E 05 | 6.443E 04 | 3.200E-01 |
| NI, WICROTUNG (CAST) | 3.350E 07 | 1.300E 05 | 1.200E 05 | 4.000E 05 | 2.074E 05 | 6.229E 04 | 3.000E-01 |
| NI, INCONEL 706 | 3.240E 07 | 1.710E 05 | 1.040E 05 | 3.525E 05 | 2.059E 05 | 6.074E 04 | 2.950E-01 |
| NI, UDIMET 700 | 3.210E 07 | 2.150E 05 | 1.430E 05 | 4.895E 05 | 2.082E 05 | 5.953E 04 | 2.860E-01 |
| COBALT V-36 | 3.200E 07 | 1.460E 05 | 8.300E 04 | 2.739E 05 | 2.019E 05 | 6.118E 04 | 3.030E-01 |
| NI, WASPALOY | 3.190E 07 | 1.880E 05 | 1.200E 05 | 4.054E 05 | 2.040E 05 | 6.038E 04 | 2.960E-01 |
| NI, RENE-41, R-41 | 3.180E 07 | 2.160E 05 | 1.540E 05 | 5.168E 05 | 2.030E 05 | 6.048E 04 | 2.980E-01 |
| NI, UDIMET 500 | 3.120E 07 | 1.970E 05 | 1.130E 05 | 3.793E 05 | 2.038E 05 | 5.910E 04 | 2.900E-01 |
| NI, INCONEL X-750 | 3.100E 07 | 1.620E 05 | 9.200E 04 | 3.087E 05 | 2.004E 05 | 5.972E 04 | 2.980E-01 |
| NI, INCONEL 610 (CAST) | 3.100E 07 | 7.000E 04 | 3.000E 04 | 1.030E 05 | 1.997E 05 | 5.992E 04 | 3.000E-01 |
| NI, UNITEMP 1753 | 3.100E 07 | 1.940E 05 | 1.300E 05 | 4.262E 05 | 1.981E 05 | 6.042E 04 | 3.050E-01 |
| COBALT | 3.000E 07 | 3.440E 04 | 2.600E 04 | 6.250E 04 | 1.902E 05 | 6.088E 04 | 3.200E-01 |
| COBALT NIVCO | 3.000E 07 | 1.690E 05 | 1.130E 05 | 3.548E 05 | 1.933E 05 | 5.992E 04 | 3.100E-01 |
| DURANICKEL 301 (0) | 3.000E 07 | 9.000E 04 | 3.500E 04 | 1.174E 05 | 1.971E 05 | 5.875E 04 | 2.980E-01 |
| DURANICKEL 301 (OAW) | 3.000E 07 | 1.600E 05 | -0. | -0 | 1.971E 05 | 5.875E 04 | 2.980E-01 |
| DURANICKEL 301 (SPRING) | 3.000E 07 | 1.550E 05 | -0. | -0. | 1.971E 05 | 5.875E 04 | 2.980E-01 |
| DURANICKEL 301 (SAW) | 3.000E 07 | 1.800E 05 | -0. | -0. | 1.971E 05 | 5.875E 04 | 2.980E-01 |
| NICKEL 200 (0) | 3.000E 07 | 5.500E 04 | 1.500E 04 | 4.673E 04 | 1.899E 05 | 6.097E 04 | 3.210E-01 |
| NICKEL 200 (SPRING) | 3.000E 07 | 9.000E 04 | 7.000E 04 | 2.181E 05 | 1.899E 05 | 6.097E 04 | 3.210E-01 |
| NICKEL 201 (0) | 3.000E 07 | 5.000E 04 | 1.200E 04 | 3.738E 04 | 1.899E 05 | 6.097E 04 | 3.210E-01 |
| NI, HASTELLOY C | 2.980E 07 | 1.210E 05 | 5.700E 04 | 1.789E 05 | 1.887E 05 | 6.096E 04 | 3.230E-01 |
| NI, M-252 | 2.980E 07 | 1.800E 05 | 1.220E 05 | 4.094E 05 | 1.965E 05 | 5.855E 04 | 2.980E-01 |
| COBALT HS-31,X-40 | 2.900E 07 | 1.080E 05 | 7.600E 04 | 2.492E 05 | 1.900E 05 | 5.891E 04 | 3.100E-01 |
| NI, INCONEL 718 | 2.900E 07 | 2.120E 05 | 1.750E 05 | 5.912E 05 | 1.945E 05 | 5.757E 04 | 2.960E-01 |
| NI, HASTELLOY X | 2.840E 07 | 1.140E 05 | 5.220E 04 | 1.758E 05 | 1.928E 05 | 5.726E 04 | 2.970E-01 |
| TANTALUM | 2.700E 07 | 6.000E 04 | 4.800E 04 | 8.000E 04 | 1.318E 05 | 7.908E 04 | 6.000E-01 |
| NI, HASTELLOY B | 2.640E 07 | 1.210E 05 | 5.650E 04 | 1.892E 05 | 1.747E 05 | 5.834E 04 | 3.340E-01 |
| NI, MONEL K-500 (0) | 2.600E 07 | 9.000E 04 | 4.000E 04 | 1.307E 05 | 1.811E 05 | 5.542E 04 | 3.060E-01 |
| NI, MONEL K-500 (OAW) | 2.600E 07 | 1.300E 05 | 9.000E 04 | 2.941E 05 | 1.811E 05 | 5.542E 04 | 3.060E-01 |
| NI, MONEL K-500 (SAW) | 2.600E 07 | 1.700E 05 | 1.300E 05 | 4.248E 05 | 1.811E 05 | 5.542E 04 | 3.060E-01 |
| NI, MONEL K-500 (SPRING) | 2.600E 07 | 1.450E 05 | 1.300E 05 | 4.248E 05 | 1.811E 05 | 5.542E 04 | 3.060E-01 |
| NI, MONEL 400 (0) | 2.600E 07 | 7.000E 04 | 2.500E 04 | 7.837E 04 | 1.774E 05 | 5.658E 04 | 3.190E-01 |
| NI, MONEL 400 (SPRING) | 2.600E 07 | 1.000E 05 | 9.000E 04 | 2.821E 05 | 1.774E 05 | 5.658E 04 | 3.190E-01 |
| NI, INCONEL 705 (CAST) | 2.500E 07 | 9.000E 04 | 8.000E 04 | 2.740E 05 | 1.810E 05 | 5.309E 04 | 2.920E-01 |
| NI, INCONEL 705 (0+AGED) | 2.500E 07 | 9.000E 04 | 8.500E 04 | 2.911E 05 | 1.816E 05 | 5.309E 04 | 2.920E-01 |
| PLATINUM (0) | 2.500E 07 | 1.800E 04 | 2.000E 03 | 2.581E 03 | 1.116E 05 | 8.648E 04 | 7.750E-01 |
| PLATINUM (COLD ROLLED) | 2.500E 07 | 2.800E 04 | 2.700E 04 | 3.484E 04 | 1.116E 05 | 8.648E 04 | 7.750E-01 |
| NI, MONEL 505 (CAST) | 2.420E 07 | 1.100E 05 | 8.000E 04 | 2.649E 05 | 1.759E 05 | 5.312E 04 | 3.020E-01 |
| NI, MONEL 505 (0+AGED) | 2.420E 07 | 1.100E 05 | 8.000E 04 | 2.649E 05 | 1.759E 05 | 5.312E 04 | 3.020E-01 |
| NICKEL-SPAN-C902 (COLD WORKED) | 2.400E 07 | 1.700E 05 | 1.650E 05 | 5.631E 05 | 1.778E 05 | 5.210E 04 | 2.930E-01 |
| NICKEL-SPAN-C902 (ROLLED) | 2.400E 07 | 1.310E 05 | 1.260E 05 | 4.300E 05 | 1.778E 05 | 5.210E 04 | 2.930E-01 |
| NICKEL 47-9C + IRON (0) | 2.400E 07 | 7.700E 04 | 3.300E 04 | 1.115E 05 | 1.749E 05 | 5.237E 04 | 2.940E-01 |
| NICKEL 47-50+FE (COLD WORKED) | 2.400E 07 | 1.400E 05 | -0. | -0. | 1.749E 05 | 5.237E 04 | 2.940E-01 |

| MATERIAL | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) |
|---|---|---|---|---|---|---|---|
| COPPER-NICKEL,30 (O) | 2,200E 07 | 4.400E 04 | 2.000E 04 | 6.192E 04 | 1.622E 05 | 5,238E 04 | 3.230E-01 |
| COPPER-NICKEL,30 (HALF) | 2,200E 07 | 7.300E 04 | 6.800E 04 | 2 105E 05 | 1.622E 05 | 5,238E 04 | 3.230E-01 |
| COPPER-NICKEL,30 (LIGHT DRAWN) | 2,200E 07 | 7.500E 04 | -0. | -0. | 1.622E 05 | 5,238E 04 | 3.230E-01 |
| NICKEL 42 + IRON (O) | 2,200E 07 | 6.800E 04 | 3.900E 04 | 1.327E 05 | 1.700E 05 | 4,997E 04 | 2.940E-01 |
| NICKEL 42 + IRON (COLD WORKED) | 2,200E 07 | 1.200E 05 | -0. | -0. | 1.700E 05 | 4,997E 04 | 2.940E-01 |
| NICKEL 210 (AS CAST) | 2,190E 07 | 4.500E 04 | 2.000E 04 | 6.645E 04 | 1.661E 05 | 4,998E 04 | 3.010E-01 |
| NICKEL 36 + IRON (O) | 2,100E 07 | 7.100E 04 | 4.000E 04 | 1 375E 05 | 1.669E 05 | 4,857E 04 | 2.910E-01 |
| NICKEL 36 + IRON (COLD WORKED) | 2,100E 07 | 9.700E 04 | 7.000E 04 | 2 405E 05 | 1.669E 05 | 4,857E 04 | 2.910E-01 |
| TANTALUM-10W | 2,100E 07 | 1.600E 05 | 1.580E 05 | 2.599E 05 | 1.155E 05 | 7,021E 04 | 6.080E-01 |
| COPPER-NICKEL,20 (O) | 2,000E 07 | 4.500E 04 | -0. | -0. | 1.546E 05 | 4,994E 04 | 3.230E-01 |
| COPPER-NICKEL,20 (LIGHT DRAWN) | 2,000E 07 | 8.000E 04 | 7,500E 04 | 2 322E 05 | 1.546E 05 | 4,994E 04 | 3.230E-01 |
| HAFNIUM (O) | 2,000E 07 | 7.700E 04 | 3,200E 04 | 6.809E 04 | 1.282E 05 | 6,024E 04 | 4.700E-01 |
| HAFNIUM (COLD WORKED) | 2,000E 07 | 1.170E 05 | 9,600E 04 | 2.043E 05 | 1.282E 05 | 6.024E 04 | 4.700E-01 |
| URANIUM, DEPLETED (O) | 2,000E 07 | 7.500E 04 | 2.500E 04 | 3.623E 04 | 1.058E 05 | 7.299E 04 | 6.900E-01 |
| VANADIUM (O) | 2,000E 07 | 7.200E 04 | 6,400E 04 | 2.783E 05 | 1.832E 05 | 4,214E 04 | 2.300E-01 |
| VANADIUM (COLD WORKED) | 2,000E 07 | 1.530E 05 | 1,090E 05 | 4.739E 05 | 1.832E 05 | 4,214E 04 | 2,300E-01 |
| BRASS-BRONZE, CAST PR NI (11A) | 1,910E 07 | 4.700E 04 | 1.700E 04 | 5 296E 04 | 1.516E 05 | 4,865E 04 | 3.210E-01 |
| COPPER, BERYLLIUM (O) | 1,900E 07 | 6.000E 04 | 2.500E 04 | 8.446E 04 | 1.574E 05 | 4,659E 04 | 2.960E-01 |
| COPPER, BERYLLIUM (HARD) | 1,900E 07 | 1.650E 05 | 1.300E 05 | 4.392E 05 | 1.574E 05 | 4,659E 04 | 2.960E-01 |
| NI, MONEL 411 (CAST) | 1,900E 07 | 6.500E 04 | 3.200E 04 | 1.026E 05 | 1.533E 05 | 4,784E 04 | 3.120E-01 |
| BRONZE, CAST ALUMINUM (9D) | 1,800E 07 | 9.000E 04 | 4.000E 04 | 1 471E 05 | 1.598E 05 | 4,347E 04 | 2.720E-01 |
| BRONZE, P,M, SI (O) | 1,800E 07 | 6.500E 04 | 6.000E 04 | 1.863E 05 | 1.469E 05 | 4,730E 04 | 3.220E-01 |
| BRONZE, P,M, SI (HARD) | 1,800E 07 | 1. 00E 05 | 8.800E 04 | 2 733E 05 | 1.469E 05 | 4,730E 04 | 3.220E-01 |
| COPPER-NICKEL,10 (O) | 1,800E 07 | 4.400E 04 | 1.600E 04 | 4.954E 04 | 1.467E 05 | 4,738E 04 | 3.230E-01 |
| COPPER-NICKEL,10 (LIGHT DRAWN) | 1,800E 07 | 6.000E 04 | 5,700E 04 | 1.769E 05 | 1.467E 05 | 4,738E 04 | 3.230E-01 |
| CU55-NI18-ZN27 (O) | 1,800E 07 | 6.000E 04 | 2.700E 04 | 8 599E 04 | 1.488E 05 | 4,671E 04 | 3.140E-01 |
| CU55-NI18-ZN27 (HARD) | 1,800E 07 | 1.700E 05 | 8,500E 04 | 2.737E 05 | 1.488E 05 | 4,671E 04 | 3.140E-01 |
| CU55-NI18-ZN27 (EXTRA HARD) | 1,800E 07 | 1.080E 05 | 9,000E 04 | 2.866E 05 | 1.488E 05 | 4,671E 04 | 3.140E-01 |
| CU65-NI12-ZN23 (O) | 1,800E 07 | 5.200E 04 | 1.800E 04 | 5.732E 04 | 1.488E 05 | 4,671E 04 | 3.140E-01 |
| CU65-NI12-ZN23 (HALF) | 1,800E 07 | 7 300E 04 | 6.000E 04 | 1.911E 05 | 1.488E 05 | 4,671E 04 | 3.140E-01 |
| CU65-NI12-ZN23 (HARD) | 1,800E 07 | 8.500E 04 | 7.50 E 04 | 2 389E 05 | 1.488E 05 | 4,671E 04 | 3.140E-01 |
| CU65-NI12-ZN23 (EXTRA HARD) | 1,800E 07 | 9.300E 04 | 7,900E 04 | 2 516E 05 | 1.488E 05 | 4,671E 04 | 3.140E-01 |
| CU65-NI15-ZN20 (O) | 1,800E 07 | 5.300E 04 | 1.800E 04 | 5 732E 04 | 1.488E 05 | 4,671E 04 | 3.140E-01 |
| CU65-NI15-ZN20 (HALF) | 1,800E 07 | 7.400E 04 | 6.200E 04 | 1 975E 05 | 1.488E 05 | 4,671E 04 | 3.140E-01 |
| CU65-NI15-ZN20 (HARD) | 1,800E 07 | 8.500E 04 | 7.500E 04 | 2.389E 05 | 1.488E 05 | 4,671E 04 | 3.140E-01 |
| CU65-NI15-ZN20 (EXTRA HARD) | 1,800E 07 | 9.200E 04 | 7,900E 04 | 2.516E 05 | 1.488E 05 | 4,671E 04 | 3.140E-01 |
| CU65-NI18-ZN17 (O) | 1,800E 07 | 5.600E 04 | 2.500E 04 | 7.911E 04 | 1.483E 05 | 4,686E 04 | 3.160E-01 |
| CU65-NI18-ZN17 (HALF) | 1,800E 07 | 7.000E 04 | 6.000E 04 | 1 899E 05 | 1.483E 05 | 4,686E 04 | 3.160E-01 |
| CU65-NI18-ZN17 (HARD) | 1,800E 07 | 8.500E 04 | 7.400E 04 | 2.342E 05 | 1.483E 05 | 4,686E 04 | 3.160E-01 |
| PALLADIUM (O) | 1,800E 07 | 2 00E 04 | 5.000E 03 | 1 152E 04 | 1.265E 05 | 5,492E 04 | 4.340E-01 |
| PALLADIUM (COLD ROLLED-50) | 1,830E 07 | 4 700E 04 | 3.000E 04 | 6 912E 04 | 1.265E 05 | 5,492E 04 | 4.340E-01 |
| CU65-NI10-ZN25 (O) | 1,750E 07 | 4.900E 04 | 1.800E 04 | 5 732E 04 | 1.467E 05 | 4,606E 04 | 3.140E-01 |
| CU65-NI10-ZN25 (HALF) | 1,750E 07 | 7.300E 04 | 6.000E 04 | 1.911E 05 | 1.467E 05 | 4,606E 04 | 3.140E-01 |
| CU65-NI10-ZN25 (HARD) | 1,750E 07 | 8.600E 04 | 7.500E 04 | 2 389E 05 | 1.467E 05 | 4,606E 04 | 3.140E-01 |
| CU65-NI10-ZN25 (EXTRA HARD) | 1,750E 07 | 9.500E 04 | .600E 04 | 2 420E 05 | 1.467E 05 | 4,606E 04 | 3.140E-01 |
| BRASS, RED 85CU (O) | 1,700E 07 | 3 900E 04 | 1.000E 04 | 3.165E 04 | 1.441E 05 | 4,554E 04 | 3.160E-01 |
| BRASS, RED 85CU (HARD) | 1,700E 07 | 7. 00E 04 | 5.700E 04 | 1 804E 05 | 1.441E 05 | 4,554E 04 | 3.160E-01 |
| BRONZE, AL D (HARD) | 1,700E 07 | 6.200E 04 | 4.000E 04 | 1.404E 05 | 1.517E 05 | 4,325E 04 | 2.850E-01 |
| BRONZE, COMMERCIAL 90CU (O) | 1,700E 07 | 3.700E 04 | 1.000E 04 | 3.149E 04 | 1.437E 05 | 4,568E 04 | 3.180E-01 |
| BRONZE, COMMERCIAL 90CU (HARD) | 1,700E 07 | 6 100E 04 | 5.400E 04 | 1 698E 05 | 1.437E 05 | 4,568E 04 | 3.180E-01 |
| BRONZE, JEWELRY 87.5CU (O) | 1,700E 07 | 4.200E 04 | 1.500E 04 | 4 732E 04 | 1.439E 05 | 4,561E 04 | 3.170E-01 |
| BRONZE, JEWELRY 87.5CU (HARD) | 1,700E 07 | 6.400E 04 | 5.600E 04 | 1.767E 05 | 1.439E 05 | 4,561E 04 | 3.170E-01 |
| BRONZE, LEAD COMMERCIAL (HALF) | 1,700E 07 | 5.500E 04 | 5.000E 04 | 1.567E 05 | 1.434E 05 | 4,575E 04 | 3.190E-01 |
| BRONZE, LOW SI (O) | 1,700E 07 | 4.500E 04 | 1.500E 04 | 4 747E 04 | 1.441E 05 | 4,554E 04 | 3.160E-01 |
| BRONZE, LOW SI (HARD) | 1,700E 07 | 7.500E 04 | 5.500E 04 | 1.741E 05 | 1.441E 05 | 4,554E 04 | 3.160E-01 |
| BRONZE, PHOS E (O) | 1,700E 07 | 4.000E 04 | 1.400E 04 | 4.361E 04 | 1.430E 05 | 4,590E 04 | 3.210E-01 |
| BRONZE, PHOS E (HALF) | 1,700E 07 | 5.500E 04 | -0. | -0 | 1.430E 05 | 4,590E 04 | 3.210E-01 |
| BRONZE, PHOS E (HARD) | 1,700E 07 | 6.500E 04 | 5.000E 04 | 1.558E 05 | 1.430E 05 | 4,590E 04 | 3.210E-01 |

| MATERIAL | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) |
|---|---|---|---|---|---|---|---|
| BRONZE, PHOS E (SPRING) | 1.700E 07 | 7.500E 04 | -0. | -0. | 1.430E 05 | 4.590E 04 | 3.210E-01 |
| COPPER, OXYGEN FREE (O) | 1.700E 07 | 3.200E 04 | 1.000E 04 | 3.096E 04 | 1.425E 05 | 4.604E 04 | 3.230E-01 |
| COPPER, OXYGEN FREE (HARD) | 1.700E 07 | 5.700E 04 | 4.500E 04 | 1.393E 05 | 1.425E 05 | 4.604E 04 | 3.230E-01 |
| COPPER, PHOS DEOXIDIZED (O) | 1.700E 07 | 3.200E 04 | 1.000E 04 | 3.096E 04 | 1.425E 05 | 4.604E 04 | 3.230E-01 |
| COPPER, PHOS DEOXIDIZED (HARD) | 1.700E 07 | 5.700E 04 | 4.500E 04 | 1.393E 05 | 1.425E 05 | 4.604E 04 | 3.230E-01 |
| COPPER, TOUGH PITCH (O) | 1.700E 07 | 3.200E 04 | 1.000E 04 | 3.119E 04 | 1.430E 05 | 4.590E 04 | 3.210E-01 |
| COPPER, TOUGH PITCH (HARD) | 1.700E 07 | 5.700E 04 | 4.500E 04 | 1.402E 05 | 1.430E 05 | 4.590E 04 | 3.210E-01 |
| GILDING 95CU (O) | 1.700E 07 | 3.400E 04 | 1.000E 04 | 3.129E 04 | 1.432E 05 | 4.583E 04 | 3.200E-01 |
| GILDING 95CU (HARD) | 1.700E 07 | 5.600E 04 | 5.000E 04 | 1.562E 05 | 1.432E 05 | 4.583E 04 | 3.200E-01 |
| TI, 8AL-1MO-1V (O) | 1.700E 07 | 1.490E 05 | 1.400E 05 | 8.861E 05 | 2.038E 05 | 3.220E 04 | 1.580E-01 |
| TI, 8AL-1MO-1V (HEAT TREATED) | 1.700E 07 | 1.650E 05 | 1.500E 05 | 9.494E 05 | 2.038E 05 | 3.220E 04 | 1.580E-01 |
| BRASS, ALUMINUM (O) | 1.600E 07 | 6.700E 04 | 2.700E 04 | 8.970E 04 | 1.432E 05 | 4.312E 04 | 3.010E-01 |
| BRASS, CARTRIDGE 70CU (O) | 1.600E 07 | 4.400E 04 | 1.100E 04 | 3.571E 04 | 1.416E 05 | 4.362E 04 | 3.080E-01 |
| BRASS, CARTRIDGE 70CU (HARD) | 1.600E 07 | 7.600E 04 | 6.300E 04 | 2.045E 05 | 1.416E 05 | 4.362E 04 | 3.080E-01 |
| BRASS, LOW 80CU (O) | 1.600E 07 | 4.200E 04 | 1.200E 04 | 3.834E 04 | 1.405E 05 | 4.397E 04 | 3.130E-01 |
| BRASS, LOW 80CU (HARD) | 1.600E 07 | 7.400E 04 | 5.900E 04 | 1.885E 05 | 1.405E 05 | 4.397E 04 | 3.130E-01 |
| BRASS-BRONZE, CAST PR MI (1'A) | 1.600E 07 | 3.700E 04 | 1.500E 04 | 4.717E 04 | 1.394E 05 | 4.432E 04 | 3.180E-01 |
| BRONZE, ADMIRALTY 71CU (O) | 1.600E 07 | 5.300E 04 | 2.200E 04 | 7.143E 04 | 1.415E 05 | 4.362E 04 | 3.080E-01 |
| BRONZE, AL-SI (O) | 1.600E 07 | 8.500E 04 | 4.400E 04 | 1.583E 05 | 1.491E 05 | 4.144E 04 | 2.780E-01 |
| BRONZE, AL-SI (HARD) | 1.600E 07 | 9.700E 04 | 5.000E 04 | 1.799E 05 | 1.491E 05 | 4.144E 04 | 2.780E-01 |
| BRONZE, CAST ALUMINUM (9A) | 1.600E 07 | 7.700E 04 | 2.500E 04 | 8.897E 04 | 1.483E 05 | 4.166E 04 | 2.810E-01 |
| BRONZE, PHOS A (O) | 1.600E 07 | 4.700E 04 | 1.900E 04 | 5.937E 04 | 1.389E 05 | 4.446E 04 | 3.200E-01 |
| BRONZE, PHOS A (HALF) | 1.600E 07 | 6.800E 04 | 5.500E 04 | 1.719E 05 | 1.389E 05 | 4.446E 04 | 3.200E-01 |
| BRONZE, PHOS A (HARD) | 1.600E 07 | 8.100E 04 | 7.500E 04 | 2.344E 05 | 1.389E 05 | 4.446E 04 | 3.200E-01 |
| BRONZE, PHOS A (SPRING) | 1.600E 07 | 1.700E 05 | -0. | -0. | 1.389E 05 | 4.446E 04 | 3.200E-01 |
| BRONZE, PHOS A (EXTRA SPRING) | 1.600E 07 | 1.070E 05 | -0. | -0. | 1.389E 05 | 4.446E 04 | 3.200E-01 |
| BRONZE, PHOS B (O) | 1.600E 07 | 5.500E 04 | 2.400E 04 | 7.547E 04 | 1.394E 05 | 4.432E 04 | 3.180E-01 |
| BRONZE, PHOS B (HALF) | 1.600E 07 | 7.600E 04 | 5.500E 04 | 1.730E 05 | 1.394E 05 | 4.432E 04 | 3.180E-01 |
| BRONZE, PHOS B (HARD) | 1.600E 07 | 9.300E 04 | 7.200E 04 | 2.264E 05 | 1.394E 05 | 4.432E 04 | 3.180E-01 |
| BRONZE, PHOS B (SPRING) | 1.600E 07 | 1.190E 05 | -0. | -0. | 1.394E 05 | 4.432E 04 | 3.180E-01 |
| BRONZE, PHOS B (EXTRA SPRING) | 1.600E 07 | 1.200E 05 | -0. | -0. | 1.394E 05 | 4.432E 04 | 3.180E-01 |
| BRONZE, PHOS C (O) | 1.600E 07 | 6.600E 04 | 2.800E 04 | 8.833E 04 | 1.396E 05 | 4.425E 04 | 3.170E-01 |
| BRONZE, PHOS C (HALF) | 1.600E 07 | 8.300E 04 | -0. | -0. | 1.396E 05 | 4.425E 04 | 3.170E-01 |
| BRONZE, PHOS C (HARD) | 1.600E 07 | 1.700E 05 | -0. | -0. | 1.396E 05 | 4.425E 04 | 3.170E-01 |
| BRONZE, PHOS C (SPRING) | 1.600E 07 | 1.220E 05 | -0. | -0. | 1.396E 05 | 4.425E 04 | 3.170E-01 |
| BRONZE, PHOS C (EXTRA SPRING) | 1.600E 07 | 1.280E 05 | -0. | -0 | 1.396E 05 | 4.425E 04 | 3.170E-01 |
| COLUMBIUM C-129 | 1.600E 07 | 1.300E 04 | 1.020E 05 | 2.974E 05 | 1.342E 05 | 4.603E 04 | 3.430E-01 |
| COPPER, TELLURIUM (HALF) | 1.600E 07 | 4.800E 04 | 4.400E 04 | 1.362E 05 | 1.383E 05 | 4.467E 04 | 3.230E-01 |
| TI, 5AL-2.5SN | 1.600E 07 | 1.150E 05 | 1.100E 05 | 6.832E 05 | 1.959E 05 | 3.153E 04 | 1.610E-01 |
| TI, 5AL-5SN-5ZR | 1.600E 07 | 1.200E 05 | 1.100E 05 | 6.667E 05 | 1.935E 05 | 3.192E 04 | 1.650E-01 |
| TI, 6AL-6V-2SN (O) | 1.600E 07 | 1.500E 05 | 1.300E 05 | 8.025E 05 | 1.953E 05 | 3.163E 04 | 1.620E-01 |
| TI, 6AL-6V-2SN (HEAT TREATED) | 1.600E 07 | 1.900E 05 | 1.750E 05 | 1.080E 06 | 1.953E 05 | 3.163E 04 | 1.620E-01 |
| TI, 7AL-4MO (O) | 1.600E 07 | 1.450E 05 | 1.350E 05 | 8.333E 05 | 1.953E 05 | 3.163E 04 | 1.620E-01 |
| TI, 7AL-4MO (HEAT TREATED) | 1.600E 07 | 1.600E 05 | 1.500E 05 | 9.259E 05 | 1.953E 05 | 3.163E 04 | 1.620E-01 |
| TI, 2FE-2CR-2MO (O) | 1.600E 07 | 1.400E 05 | 1.200E 05 | 7.059E 05 | 1.906E 05 | 3.240E 04 | 1.700E-01 |
| TI, 8MN (O) | 1.550E 07 | 1.250E 05 | 1.200E 05 | 7.018E 05 | 1.871E 05 | 3.199E 04 | 1.710E-01 |
| BRASS, CAST HIGH YELLOW (8A) | 1.540E 07 | 6.500E 04 | 2.500E 04 | 8.306E 04 | 1.405E 05 | 4.230E 04 | 3.010E-01 |
| BRASS-BRONZE, CAST SI (13B) | 1.540E 07 | 6.700E 04 | 2.500E 04 | 8.361E 04 | 1.410E 05 | 4.216E 04 | 2.990E-01 |
| BRASS, CAST LEAD RED (5B) | 1.520E 07 | 3.000E 04 | 1.200E 04 | 3.789E 04 | 1.361E 05 | 4.313E 04 | 3.170E-01 |
| BRASS, CAST LEAD YELLOW (7A) | 1.500E 07 | 6.000E 04 | 2.000E 04 | 6.920E 04 | 1.416E 05 | 4.091E 04 | 2.890E-01 |
| BRASS, FORGING (O) | 1.500E 07 | 5.200E 04 | 2.000E 04 | 6.557E 04 | 1.376E 05 | 4.203E 04 | 3.050E-01 |
| BRASS, HIGH-LEAD (O) | 1.500E 07 | 4.900E 04 | 1.700E 04 | 5.556E 04 | 1.376E 05 | 4.209E 04 | 3.060E-01 |
| BRASS, HIGH-LEAD (HARD) | 1.500E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 |
| BRASS, LEAD NAVAL (O) | 1.500E 07 | 5.700E 04 | 2.900E 04 | 8.197E 04 | 1.378E 05 | 4.203E 04 | 3.050E-01 |
| BRASS, LEAD NAVAL (QUARTER) | 1.500E 07 | 6.900E 04 | 4.600E 04 | 1.508E 05 | 1.378E 05 | 4.203E 04 | 3.050E-01 |
| BRASS, LEAD NAVAL (HALF) | 1.500E 07 | 7.500E 04 | 5.300E 04 | 1.738E 05 | 1.378E 05 | 4.203E 04 | 3.050E-01 |
| BRASS, LOW-LEAD (O) | 1.500E 07 | 5.100E 04 | 1.900E 04 | 6.209E 04 | 1.376E 05 | 4.209E 04 | 3.060E-01 |
| BRASS, LOW-LEAD (HARD) | 1.500E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 |

| MATERIAL | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) |
|---|---|---|---|---|---|---|---|
| BRASS, MEDIUM-LEAD (0) | 1.500E 07 | 5.100E 04 | 1.900E 04 | 6.209E 04 | 1.376E 05 | 4.209E 04 | 3.060E-01 |
| BRASS, MEDIUM-LEAD (HARD) | 1.500E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 |
| BRASS, NAVAL (0) | 1.500E 07 | 5.700E 04 | 2.500E 04 | 8.224E 04 | 1.380E 05 | 4.196E 04 | 3.040E-01 |
| BRASS, NAVAL (QUARTER) | 1.500E 07 | 6.900E 04 | 4.600E 04 | 1.513E 05 | 1.380E 05 | 4.196E 04 | 3.040E-01 |
| BRASS, NAVAL (HALF) | 1.500E 07 | 7.500E 04 | 5.300E 04 | 1.743E 05 | 1.380E 05 | 4.196E 04 | 3.040E-01 |
| BRASS, YELLOW (0) | 1.500E 07 | 4.600E 04 | 1.400E 04 | 4.579E 04 | 1.376E 05 | 4.209E 04 | 3.060E-01 |
| BRASS, YELLOW (HARD) | 1.500E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 |
| BRASS-BRONZE, CAST PB NI (10B) | 1.500E 07 | 3.500E 04 | 1.700E 04 | 5.346E 04 | 1.349E 05 | 4.291E 04 | 3.180E-01 |
| BRASS-BRONZE, CAST SI (12A) | 1.500E 07 | 5.500E 04 | 2.200E 04 | 7.261E 04 | 1.382E 05 | 4.189E 04 | 3.030E-01 |
| BRONZE, CAST ALUMINUM (9C) | 1.500E 07 | 7.500E 04 | 3.000E 04 | 1.103E 05 | 1.459E 05 | 3.969E 04 | 2.720E-01 |
| BRONZE, HIGH SI (0) | 1.500E 07 | 5.600E 04 | 2.000E 04 | 6.494E 04 | 1.371E 05 | 4.223E 04 | 3.080E-01 |
| BRONZE, HIGH SI (HARD) | 1.500E 07 | 9.200E 04 | 5.500E 04 | 1.786E 05 | 1.371E 05 | 4.223E 04 | 3.080E-01 |
| BRONZE, MANGANESE A (0) | 1.500E 07 | 6.500E 04 | 3.000E 04 | 9.934E 04 | 1.385E 05 | 4.182E 04 | 3.020E-01 |
| BRONZE, MANGANESE A (HALF) | 1.500E 07 | 8.400E 04 | 6.000E 04 | 1.987E 05 | 1.385E 05 | 4.182E 04 | 3.020E-01 |
| BRONZE, PHOS FREE-CUTTING (0) | 1.500E 07 | 4.400E 04 | 1.900E 04 | 5.919E 04 | 1.343E 05 | 4.311E 04 | 3.210E-01 |
| BRONZE, PHOS FREE-CUT (HALF) | 1.500E 07 | 5.800E 04 | 4.000E 04 | 1.246E 05 | 1.343E 05 | 4.311E 04 | 3.210E-01 |
| COLUMBIUM | 1.500E 07 | 4.500E 04 | 3.500E 04 | 1.129E 05 | 1.367E 05 | 4.237E 04 | 3.100E-01 |
| COLUMBIUM CB-752 | 1.500E 07 | 8.500E 04 | 7.000E 04 | 2.288E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 |
| MUNTZ METAL, FREE-CUTTING (0) | 1.500E 07 | 5.400E 04 | 2.000E 04 | 6.579E 04 | 1.380E 05 | 4.196E 04 | 3.040E-01 |
| MUNTZ METAL, FREE-CUT (HARD) | 1.500E 07 | 8.000E 04 | 6.000E 04 | 1.974E 05 | 1.380E 05 | 4.196E 04 | 3.040E-01 |
| MUNTZ METAL, LEADED (0) | 1.500E 07 | 5.400E 04 | 2.000E 04 | 6.579E 04 | 1.380E 05 | 4.196E 04 | 3.040E-01 |
| MUNTZ METAL 60CU (0) | 1.500E 07 | 5.400E 04 | 2.100E 04 | 6.931E 04 | 1.382E 05 | 4.189E 04 | 3.030E-01 |
| TI, UNALLOYED | 1.500E 07 | 6.000E 04 | 4.000E 04 | 2.454E 05 | 1.885E 05 | 3.072E 04 | 1.630E-01 |
| TI, 6AL-4V (0) | 1.500E 07 | 1.306E 05 | 1.200E 05 | 7.500E 05 | 1.902E 05 | 3.044E 04 | 1.600E-01 |
| TI, 6AL-4V (HEAT TREATED) | 1.500E 07 | 1.450E 05 | 1.350E 05 | 8.437E 05 | 1.902E 05 | 3.044E 04 | 1.600E-01 |
| COLUMBIUM B-66 | 1.480E 07 | 1.120E 05 | 9.000E 04 | 2.951E 05 | 1.369E 05 | 4.174E 04 | 3.050E-01 |
| BRASS, CAST HIGH YELLOW (8B) | 1.450E 07 | 9.100E 04 | 4.600E 04 | 1.614E 05 | 1.401E 05 | 3.994E 04 | 2.850E-01 |
| BRONZE, CAST LEAD TIN (3B) | 1.450E 07 | 3.300E 04 | 1.700E 04 | 5.312E 04 | 1.323E 05 | 4.232E 04 | 3.200E-01 |
| TI, 13V-11CR-3AL (0) | 1.450E 07 | 1.300E 05 | 1.250E 05 | 7.143E 05 | 1.788E 05 | 3.130E 04 | 1.750E-01 |
| TI, 13V-11CR-3AL (HEAT TREATED) | 1.450E 07 | 1.900E 05 | 1.700E 05 | 9.714E 05 | 1.788E 05 | 3.130E 04 | 1.750E-01 |
| BRASS, CAST HIGH YELLOW (8C) | 1.420E 07 | 1.120E 05 | 6.500E 04 | 2.347E 05 | 1.407E 05 | 3.897E 04 | 2.770E-01 |
| BRASS, CAST LEAD YELLOW (6A) | 1.400E 07 | 3.500E 04 | 1.200E 04 | 3.934E 04 | 1.331E 05 | 4.060E 04 | 3.050E-01 |
| BRASS, EXTRA-HIGH-LEAD (0) | 1.400E 07 | 4.900E 04 | 1.700E 04 | 5.537E 04 | 1.327E 05 | 4.073E 04 | 3.070E-01 |
| BRASS, EXTRA-HIGH-LEAD (HARD) | 1.400E 07 | 7.400E 04 | 6.000E 04 | 1.954E 05 | 1.327E 05 | 4.073E 04 | 3.070E-01 |
| BRASS, FREE-CUTTING (0) | 1.400E 07 | 4.900E 04 | 1.800E 04 | 5.863E 04 | 1.327E 05 | 4.073E 04 | 3.070E-01 |
| BRASS, FREE-CUTTING (HARD) | 1.400E 07 | 6.800E 04 | 5.200E 04 | 1.694E 05 | 1.327E 05 | 4.073E 04 | 3.070E-01 |
| BRONZE, ARCHITECTUAL (0) | 1.400E 07 | 6.000E 04 | 2.000E 04 | 6.536E 04 | 1.329E 05 | 4.067E 04 | 3.060E-01 |
| BRONZE, CAST ALUMINUM (9B) | 1.400E 07 | 7.000E 04 | 2.800E 04 | 1.061E 05 | 1.431E 05 | 3.777E 04 | 2.640E-01 |
| BRONZE, CAST TIN (1A) | 1.400E 07 | 4.000E 04 | 2.000E 04 | 6.369E 04 | 1.312E 05 | 4.120E 04 | 3.140E-01 |
| ZR, COMMERCIAL GRADE (C) | 1.400E 07 | 6.400E 04 | 5.300E 04 | 2.236E 05 | 1.530E 05 | 3.579E 04 | 2.370E-01 |
| ZR, REACTOR GRADE (0) | 1.400E 07 | 3.500E 04 | 1.500E 04 | 6.383E 04 | 1.517E 05 | 3.564E 04 | 2.350E-01 |
| ZR, ZIRCALOY-2 (0) | 1.380E 07 | 6.000E 04 | 4.500E 04 | 1.899E 05 | 1.499E 05 | 3.553E 04 | 2.370E-01 |
| BRONZE, CAST LEAD TIN (2A) | 1.310E 07 | 3.600E 04 | 1.600E 04 | 5.145E 04 | 1.275E 05 | 3.966E 04 | 3.110E-01 |
| BRASS, CAST LEAD RED (5A) | 1.300E 07 | 2.900E 04 | 1.300E 04 | 4.180E 04 | 1.270E 05 | 3.951E 04 | 3.110E-01 |
| BRASS, CAST LEAD YELLOW (6C) | 1.300E 07 | 4.500E 04 | 1.600E 04 | 5.333E 04 | 1.293E 05 | 3.880E 04 | 3.000E-01 |
| BRONZE, CAST TIN (1B) | 1.300E 07 | 4.000E 04 | 1.800E 04 | 5.788E 04 | 1.270E 05 | 3.951E 04 | 3.110E-01 |
| COLUMBIUM C-103 | 1.260E 07 | 9.350E 04 | 6.800E 04 | 2.750E 05 | 1.233E 05 | 3.945E 04 | 3.200E-01 |
| BRASS, CAST LEAD RED (4A) | 1.240E 07 | 3.300E 04 | 1.500E 04 | 4.717E 04 | 1.227E 05 | 3.902E 04 | 3.180E-01 |
| BRASS, CAST LEAD YELLOW (6B) | 1.200E 07 | 3.000E 04 | 1.100E 04 | 3.630E 04 | 1.236E 05 | 3.747E 04 | 3.030E-01 |
| GOLD (0) | 1.200E 07 | 1.900E 04 | -0. | -0. | 8.147E 04 | 5.686E 04 | 6.980E-01 |
| GOLD (COLD ROLLED-50) | 1.200E 07 | 3.200E 04 | 3.000E 04 | 4.298E 04 | 8.147E 04 | 5.686E 04 | 6.980E-01 |
| BRONZE, CAST LEAD TIN (3A) | 1.160E 07 | 3.400E 04 | 1.500E 04 | 4.615E 04 | 1.174E 05 | 3.815E 04 | 3.250E-01 |
| COLUMBIUM CB-1ZR | 1.150E 07 | 4.800E 04 | 3.500E 04 | 1.129E 05 | 1.197E 05 | 3.710E 04 | 3.100E-01 |
| BRONZE, CAST LEAD TIN (3C) | 1.113E 07 | 2.800E 04 | 1.500E 04 | 4.687E 04 | 1.159E 05 | 3.708E 04 | 3.200E-01 |
| SILVER (0) | 1.100E 07 | 2.200E 04 | 8.000E 03 | 2.111E 04 | 1.059E 05 | 4.012E 04 | 3.790E-01 |
| SILVER (COLD ROLLED-50) | 1.100E 07 | 5.400E 04 | 4.400E 04 | 1.161E 05 | 1.059E 05 | 4.012E 04 | 3.790E-01 |
| ALUMINUM 2014 (0) | 1.060E 07 | 2.700E 04 | 1.400E 04 | 1.386E 05 | 2.013E 05 | 2.033E 04 | 1.010E-01 |
| ALUMINUM 2014 (T4) | 1.060E 07 | 6.200E 04 | 4.200E 04 | 4.158E 05 | 2.013E 05 | 2.033E 04 | 1.010E-01 |

| MATERIAL | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) |
|---|---|---|---|---|---|---|---|
| ALUMINUM 2014 (T6) | 1.060E 07 | 7.000E 04 | 6.000E 04 | 5.941E 05 | 2.013E 05 | 2.033E 04 | 1.010E-01 |
| ALUMINUM 2024 (O) | 1.060E 07 | 2.700E 04 | 1.100E 04 | 1.100E 05 | 2.023E 05 | 2.023E 04 | 1.000E-01 |
| ALUMINUM 2024 (T3) | 1.060E 07 | 7.000E 04 | 5.000E 04 | 5.000E 05 | 2.023E 05 | 2.023E 04 | 1.000E-01 |
| ALUMINUM 2219 (O) | 1.060E 07 | 2.500E 04 | 1.100E 04 | 1.068E 05 | 1.993E 05 | 2.053E 04 | 1.030E-01 |
| ALUMINUM 2219 (T42) | 1.060E 07 | 5.200E 04 | 2.700E 04 | 2.621E 05 | 1.993E 05 | 2.053E 04 | 1.030E-01 |
| ALUMINUM 2219 (T87) | 1.060E 07 | 6.900E 04 | 5.700E 04 | 5.534E 05 | 1.993E 05 | 2.053E 04 | 1.030E-01 |
| BRONZE, CAST LEAD TIN (2B) | 1.060E 07 | 3.600E 04 | 1.600E 04 | 5.096E 04 | 1.142E 05 | 3.585E 04 | 3.140E-01 |
| BRONZE, CAST LEAD TIN (2C) | 1.060E 07 | 3.600E 04 | 1.800E 04 | 5.732E 04 | 1.142E 05 | 3.585E 04 | 3.140E-01 |
| ALUMINUM 2017 (O) | 1.050E 07 | 2.600E 04 | 1.000E 04 | 9.901E 04 | 2.003E 05 | 2.023E 04 | 1.010E-01 |
| ALUMINUM 2017 (T4) | 1.050E 07 | 6.200E 04 | 4.000E 04 | 3.960E 05 | 2.003E 05 | 2.023E 04 | 1.010E-01 |
| BRONZE, CAST LEAD TIN (3D) | 1.050E 07 | 2.800E 04 | 1.400E 04 | 4.259E 04 | 1.113E 05 | 3.652E 04 | 3.290E-01 |
| ALUMINUM 7075 (O) | 1.040E 07 | 3.300E 04 | 1.500E 04 | 1.485E 05 | 1.994E 05 | 2.014E 04 | 1.010E-01 |
| ALUMINUM 7075 (T6) | 1.040E 07 | 8.300E 04 | 7.300E 04 | 7.228E 05 | 1.994E 05 | 2.014E 04 | 1.010E-01 |
| ALUMINUM 7178 (O) | 1.040E 07 | 3.300E 04 | 1.500E 04 | 1.471E 05 | 1.984E 05 | 2.024E 04 | 1.020E-01 |
| ALUMINUM 7178 (T6) | 1.040E 07 | 8.800E 04 | 7.800E 04 | 7.647E 05 | 1.984E 05 | 2.024E 04 | 1.020E-01 |
| ALUMINUM 5056 (O) | 1.030E 07 | 4.200E 04 | 2.200E 04 | 2.316E 05 | 2.046E 05 | 1.944E 04 | 9.500E-02 |
| ALUMINUM 5056 (HARD) | 1.030E 07 | 6.000E 04 | 5.000E 04 | 5.263E 05 | 2.046E 05 | 1.944E 04 | 9.500E-02 |
| ALUMINUM 5083 (O) | 1.030E 07 | 4.200E 04 | 2.100E 04 | 2.187E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 |
| ALUMINUM 5083 (HALF) | 1.030E 07 | 4.600E 04 | 3.300E 04 | 3.437E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 |
| ALUMINUM 5086 (O) | 1.030E 07 | 3.800E 04 | 1.700E 04 | 1.771E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 |
| ALUMINUM 5086 (HALF) | 1.030E 07 | 4.700E 04 | 3.700E 04 | 3.854E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 |
| ALUMINUM 5456 (O) | 1.030E 07 | 4.500E 04 | 2.300E 04 | 2.396E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 |
| ALUMINUM 5456 (HALF) | 1.030E 07 | 5.100E 04 | 3.700E 04 | 3.854E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 |
| ALUMINUM 7079 (T6) | 1.030E 07 | 7.800E 04 | 6.800E 04 | 6.869E 05 | 2.004E 05 | 1.984E 04 | 9.900E-02 |
| ALUMINUM 2011 (T3) | 1.020E 07 | 5.500E 04 | 4.300E 04 | 4.216E 05 | 1.965E 05 | 2.004E 04 | 1.020E-01 |
| ALUMINUM 2011 (T8) | 1.020E 07 | 5.900E 04 | 4.500E 04 | 4.412E 05 | 1.965E 05 | 2.004E 04 | 1.020E-01 |
| ALUMINUM 5052 (O) | 1.020E 07 | 2.800E 04 | 1.300E 04 | 1.340E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 |
| ALUMINUM 5052 (HALF) | 1.020E 07 | 3.800E 04 | 3.100E 04 | 3.196E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 |
| ALUMINUM 5052 (HARD) | 1.020E 07 | 4.200E 04 | 3.700E 04 | 3.814E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 |
| ALUMINUM 5154 (O) | 1.020E 07 | 3.500E 04 | 1.700E 04 | 1.771E 05 | 2.025E 05 | 1.944E 04 | 9.600E-02 |
| ALUMINUM 5154 (HALF) | 1.020E 07 | 4.200E 04 | 3.300E 04 | 3.437E 05 | 2.025E 05 | 1.944E 04 | 9.600E-02 |
| ALUMINUM 5154 (HARD) | 1.020E 07 | 4.800E 04 | 3.900E 04 | 4.062E 05 | 2.025E 05 | 1.944E 04 | 9.600E-02 |
| ALUMINUM 5454 (O) | 1.020E 07 | 3.600E 04 | 1.700E 04 | 1.753E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 |
| ALUMINUM 5454 (HALF) | 1.020E 07 | 4.400E 04 | 3.500E 04 | 3.608E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 |
| ALUMINUM 5454 (HARD) | 1.020E 07 | 3.800E 04 | 2.600E 04 | 2.680E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 |
| ALUMINUM EC (O) | 1.000E 07 | 1.200E 04 | 4.000E 03 | 4.082E 04 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM EC (HALF) | 1.000E 07 | 1.600E 04 | 1.400E 04 | 1.429E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM EC (HARD) | 1.000E 07 | 2.700E 04 | 2.400E 04 | 2.449E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 1060 (O) | 1.000E 07 | 1.700E 04 | 4.000E 03 | 4.082E 04 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 1060 (HALF) | 1.000E 07 | 1.400E 04 | 1.300E 04 | 1.327E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 1060 (HARD) | 1.000E 07 | 1.900E 04 | 1.800E 04 | 1.837E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 1100 (O) | 1.000E 07 | 1.300E 04 | 5.000E 03 | 5.102E 04 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 1100 (HALF) | 1.000E 07 | 1.800E 04 | 1.700E 04 | 1.735E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 1100 (HARD) | 1.000E 07 | 2.400E 04 | 2.200E 04 | 2.245E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 3003 (O) | 1.000E 07 | 1.600E 04 | 6.000E 03 | 6.061E 04 | 1.975E 05 | 1.955E 04 | 9.900E-02 |
| ALUMINUM 3003 (HALF) | 1.000E 07 | 2.200E 04 | 2.100E 04 | 2.121E 05 | 1.975E 05 | 1.955E 04 | 9.900E-02 |
| ALUMINUM 3003 (HARD) | 1.000E 07 | 2.900E 04 | 2.700E 04 | 2.727E 05 | 1.975E 05 | 1.955E 04 | 9.900E-02 |
| ALUMINUM 3004 (O) | 1.030E 07 | 2.600E 04 | 1.000E 04 | 1.020E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 3004 (HALF) | 1.030E 07 | 3.500E 04 | 2.900E 04 | 2.959E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 3004 (HARD) | 1.000E 07 | 4.100E 04 | 3.600E 04 | 3.673E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 5005 (O) | 1.000E 07 | 1.800E 04 | 6.000E 03 | 6.186E 04 | 1.995E 05 | 1.935E 04 | 9.700E-02 |
| ALUMINUM 5005 (HALF) | 1.000E 07 | 2.300E 04 | 2.200E 04 | 2.268E 05 | 1.995E 05 | 1.935E 04 | 9.700E-02 |
| ALUMINUM 5005 (HARD) | 1.000E 07 | 2.900E 04 | 2.800E 04 | 2.887E 05 | 1.995E 05 | 1.935E 04 | 9.700E-02 |
| ALUMINUM 5050 (O) | 1.000E 07 | 2.100E 04 | 8.000E 03 | 8.247E 04 | 1.995E 05 | 1.935E 04 | 9.700E-02 |
| ALUMINUM 5050 (HALF) | 1.000E 07 | 2.800E 04 | 2.400E 04 | 2.474E 05 | 1.995E 05 | 1.935E 04 | 9.700E-02 |
| ALUMINUM 5050 (HARD) | 1.000E 07 | 3.200E 04 | 2.900E 04 | 2.990E 05 | 1.995E 05 | 1.935E 04 | 9.700E-02 |
| ALUMINUM 5457 ( ) | 1.000E 07 | 1.300E 04 | 5.000E 03 | 5.102E 04 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 5457 (HALF) | 1.000E 07 | 1.900E 04 | 1.600E 04 | 1.633E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |

| MATERIAL | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) |
|---|---|---|---|---|---|---|---|
| ALUMINUM 5457 (WARD) | 1.000E 07 | 2.300E 04 | 1.900E 04 | 1.939E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 6061 (O) | 1.000E 07 | 1.800E 04 | 8.000E 03 | 8.163E 04 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 6061 (T6) | 1.000E 07 | 4.500E 04 | 4.000E 04 | 4.082E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 6063 (O) | 1.000E 07 | 1.300E 04 | 7.000E 03 | 7.143E 04 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 6063 (T6) | 1.000E 07 | 3.500E 04 | 3.100E 04 | 3.163E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 6066 (O) | 1.000E 07 | 2.200E 04 | 1.200E 04 | 1.224E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 6066 (T6) | 1.000E | 5.700E 04 | 5.200E 04 | 5.306E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 6101 (T6) | 1.000E 07 | 3.200E 04 | 2.800E 04 | 2.857E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| ALUMINUM 6262 (T9) | 1.000E 07 | 5.800E 04 | 5.500E 04 | 5.612E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 |
| THORIUM (O) | 1.000E 07 | 3.400E 04 | 2.600E 04 | 6.190E 04 | 9.587E 04 | 4.027E 04 | 4.200E-01 |
| THORIUM (COLD WORKED) | 1.000E 07 | 4.900E 04 | 4.500E 04 | 1.071E 05 | 9.587E 04 | 4.027E 04 | 4.200E-01 |
| BRONZE, CAST LEAD TIN (3E) | 9.000E 06 | 2.300E 04 | 1.100E 04 | 3.313E 04 | 1.023E 05 | 3.396E 04 | 3.320E-01 |
| TIN, PEWTER (CRS) | 7.700E 06 | 7.600E 03 | -0. | -0. | 1.063E 05 | 2.796E 04 | 2.630E-01 |
| TIN, PEWTER (OS) | 7.700E 06 | 8.600E 03 | -0. | -0. | 1.063E 05 | 2.796E 04 | 2.630E-01 |
| MG, AM100A (AGED-CAST) | 6.900E 06 | 4.000E 04 | 2.200E 04 | 3.385E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 |
| MG, AM100A (AS CAST) | 6.900E 06 | 2.200E 04 | 1.200E 04 | 1.846E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 |
| MG, AM100A (SOLUTION TREATED) | 6.900E 06 | 4.100E 04 | 1.300E 04 | 2.000E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 |
| MG, AZ10A-F (EXTRUDED) | 6.900E 06 | 3.500E 04 | 2.200E 04 | 3.465E 05 | 1.988E 05 | 1.262E 04 | 6.350E-02 |
| MG, AZ31B-F (EXTRUDED) | 6.500E 06 | 3.600E 04 | 2.400E 04 | 3.750E 05 | 1.980E 05 | 1.267E 04 | 6.400E-02 |
| MG, AZ31B-F (FORGED) | 6.500E 06 | 3.800E 04 | 2.800E 04 | 4.375E 05 | 1.980E 05 | 1.267E 04 | 6.400E-02 |
| MG, AZ31B (H24) | 6.500E 06 | 4.200E 04 | 3.200E 04 | 5.000E 05 | 1.980E 05 | 1.267E 04 | 6.400E-02 |
| MG, AZ61A-F (EXTRUDED) | 6.500E 06 | 4.100E 04 | 2.400E 04 | 3.692E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 |
| MG, AZ61A-F (FORGED) | 6.500E 06 | 4.300E 04 | 2.600E 04 | 4.000E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 |
| MG, AZ63A (AGED-T6) | 6.500E 06 | 4.700E 04 | 1.900E 04 | 2.879E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 |
| MG, AZ63A (AS CAST) | 6.500E 06 | 2.900E 04 | 1.400E 04 | 2.121E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 |
| MG, AZ63A (SOLUTION TREATED) | 6.500E 06 | 4.700E 04 | 1.300E 04 | 1.970E 05 | 1.950E 05 | 1.237E 04 | 6.600E-02 |
| MG, AZ80A-T5 (EXTRUDED) | 6.500E 06 | 5.300E 04 | 3.800E 04 | 5.846E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 |
| MG, AZ80A-T5 (FORGED) | 6.500E 06 | 5.700E 04 | 3.400E 04 | 5.231E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 |
| MG, AZ81A (SOLUTION TREATED) | 6.500E 06 | 4.700E 04 | 1.200E 04 | 1.846E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 |
| MG, AZ91 (AS CAST) | 6.500E 06 | 3.400E 04 | 2.300E 04 | 3.538E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 |
| MG, AZ91C (AGED-CAST) | 6.500E 06 | 4.700E 04 | 1.900E 04 | 2.923E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 |
| MG, AZ91C (AS CAST) | 6.500E 06 | 2.400E 04 | 1.400E 04 | 2.154E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 |
| MG, AZ91C (SOLUTION TREATED) | 6.500E 06 | 4.700E 04 | 1.200E 04 | 1.846E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 |
| MG, AZ92A (AGED-CAST) | 6.500E 06 | 4.700E 04 | 2.100E 04 | 3.182E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 |
| MG, AZ92A (AS CAST) | 6.500E 06 | 2.400E 04 | 1.400E 04 | 2.121E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 |
| MG, AZ92A (SOLUTION TREATED) | 6.500E 06 | 4.700E 04 | 1.400E 04 | 2.121E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 |
| MG, EZ33A (T5-CAST) | 6.500E 06 | 2.300E 04 | 1.600E 04 | 2.424E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 |
| MG, WK31A (T6-CAST) | 6.500E 06 | 3.100E 04 | 1.600E 04 | 2.462E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 |
| MG, WK31A (T5) | 6.500E 06 | 4.200E 04 | 3.300E 04 | 5.077E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 |
| MG, WE32A (T5-CAST) | 6.500E 06 | 2.900E 04 | 1.500E 04 | 2.273E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 |
| MG, M1A (F-CAST) | 6.500E 06 | 2.500E 04 | 7.000E 03 | 1.111E 05 | 1.996E 05 | 1.257E 04 | 6.300E-02 |
| MG, ZE10A (H24) | 6.500E 06 | 3.400E 04 | 1.900E 04 | 3.016E 05 | 1.996E 05 | 1.257E 04 | 6.300E-02 |
| MG, ZE41A (T5-CAST) | 6.500E 06 | 3.000E 04 | 2.000E 04 | 3.030E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 |
| MG, ZH62A (T5-CAST) | 6.500E 06 | 4.700E 04 | 2.500E 04 | 3.731E 05 | 1.935E 05 | 1.297E 04 | 6.700E-02 |
| MG, ZK51A (T5-CAST) | 6.500E 06 | 4.700E 04 | 2.400E 04 | 3.692E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 |
| MG, ZK60A-T5 (EXTRUDED) | 6.500E 06 | 5.700E 04 | 4.000E 04 | 6.061E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 |
| MG, ZK60A-T5 (FORGED) | 6.500E 06 | 4.400E 04 | 3.000E 04 | 4.545E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 |
| MG, ZK61A (T6-CAST) | 6.500E 06 | 4.500E 04 | 2.800E 04 | 4.242E 05 | 1.950E 05 | 1.237E 04 | 6.600E-02 |
| MG, WK31A (H24) | 6.400E 06 | 3.700E 04 | 2.900E 04 | 4.462E 05 | 1.950E 05 | 1.267E 04 | 6.500E-02 |
| MG, HK21A (T8) | 6.400E 06 | 3.400E 04 | 2.100E 04 | 3.281E 05 | 1.965E 05 | 1.257E 04 | 6.400E-02 |
| MG, LA141A (T7) | 6.000E 06 | 1.800E 04 | 1.300E 04 | 2.630E 05 | 2.185E 05 | 1.060E 04 | 4.850E-02 |
| TIN, GRADE A (CAST) | 6.000E 06 | 2.100E 03 | 1.700E 03 | 6.439E 03 | 9.367E 04 | 2.473E 04 | 2.640E-01 |
| TIN, GRADE A (CRS) | 6.000E 06 | 2.800E 03 | 2.000E 03 | 7.576E 03 | 9.367E 04 | 2.473E 04 | 2.640E-01 |
| TIN, GRADE A (OS) | 6.000E 06 | 2.200E 03 | 1.300E 03 | 4.924E 03 | 9.367E 04 | 2.473E 04 | 2.640E-01 |
| LEAD, CHEMICAL (CHILL CAST) | 2.000E 06 | 2.600E 03 | -0. | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 |
| LEAD, CHEMICAL (EXTRUDED) | 2.000E 06 | 2.500E 03 | -0. | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 |
| LEAD, CHEMICAL (ROLLED) | 2.000E 06 | 2.400E 03 | 1.640E 03 | 4.000E 03 | 4.339E 04 | 1.779E 04 | 4.100E-01 |
| LEAD, SOFT (CHILL CAST) | 2.000E 06 | 2.700E 03 | -0. | -0 | 4.339E 04 | 1.779E 04 | 4.100E-01 |

| MATERIAL | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS*IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) |
|---|---|---|---|---|---|---|---|
| LEAD, SOFT (EXTRUDED) | 2.000E 06 | 2.000E 03 | -0. | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 |
| LEAD, SOFT (ROLLED) | 2.000E 06 | 2.100E 03 | -0. | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 |
| LEAD, TELLURIUM (CHILL CAST) | 2.000E 06 | 3.000E 03 | -0. | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 |
| LEAD, TELLURIUM (ROLLED) | 2.000E 06 | 2.800E 03 | -0. | -0 | 4.339E 04 | 1.779E 04 | 4.100E-01 |
| LEAD, 1SB (CHILL CAST) | 2.000E 06 | 3.400E 03 | -0. | -0. | 4.361E 04 | 1.770E 04 | 4.060E-01 |
| LEAD, 1SB (EXTRUDED) | 2.000E 06 | 2.900E 03 | -0. | -0. | 4.361E 04 | 1.770E 04 | 4.060E-01 |
| LEAD, 1SB (EXTRUDED+AGED) | 2.000E 06 | 3.000E 03 | -0. | -0. | 4.361E 04 | 1.770E 04 | 4.060E-01 |
| LEAD, 1SB (ROLLED) | 2.000E 06 | 3.000E 03 | -0. | -0. | 4.361E 04 | 1.770E 04 | 4.060E-01 |

| MATERIAL | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) |
|---|---|---|---|---|---|---|---|
| RHODIUM (COLD WORKED) | 3,000E 05 | -0. | -0. | 2.179E 05 | 9.742E 04 | 4.470E-01 | 5.500E 07 |
| IRIDIUM (COLD WORKED) | 2,900E 05 | -0. | -0. | 1 937E 05 | 1.575E 05 | 8.130E-01 | 7.900E 07 |
| AVC N-25RE | 2,420E 05 | 2.250E 05 | 3.151E 05 | 1.801E 05 | 1.286E 05 | 7.140E-01 | 6.000E 07 |
| TUNGSTEN | 2,200E 05 | 2.200E 05 | 3.143E 05 | 1.804E 05 | 1.263E 05 | 7.000E-01 | 5.900E 07 |
| NI, INCONEL 718 | 2,120E 05 | 1.750E 05 | 5.912E 05 | 1.949E 05 | 5.757E 04 | 2.960E-01 | 2.900E 07 |
| NI, RENE-41, R-41 | 2,060E 05 | 1.540E 05 | 5.168E 05 | 2 030E 05 | 6.048E 04 | 2.980E-01 | 3.180E 07 |
| NI, UDIMET 700 | 2,050E 05 | 1.400E 05 | 4.895E 05 | 2.082E 05 | 5.953E 04 | 2.860E-01 | 3.210E 07 |
| NI, UDIMET 500 | 1,970E 05 | 1.100E 05 | 3.793E 05 | 2.038E 05 | 5.910E 04 | 2.900E-01 | 3.120E 07 |
| NI, UNITEMP 1753 | 1,940E 05 | 1.300E 05 | 4.262E 05 | 1.981E 05 | 6.042E 04 | 3.050E-01 | 3.100E 07 |
| TI, 6AL-4V-2SN (HEAT TREATED) | 1,900E 05 | 1.750E 05 | 1.080E 06 | 1.953E 05 | 3.163E 04 | 1.620E-01 | 1.600E 07 |
| TI, 13V-11CR-3AL(HEAT TREATED) | 1,900E 05 | 1.700E 05 | 9,714E 05 | 1.788E 05 | 3.130E 04 | 1.750E-01 | 1.450E 07 |
| NI, WASPALOY | 1,880E 05 | 1.200E 05 | 4.054E 05 | 2.040E 05 | 6.038E 04 | 2.900E-01 | 3.190E 07 |
| DURANICKEL 301 (SAW) | 1,800E 05 | -0 | -0. | 1.971E 05 | 5.875E 04 | 2.980E-01 | 3.000E 07 |
| NI, M-252 | 1,800E 05 | 1.220E 05 | 4.094E 05 | 1.965E 05 | 5.855E 04 | 2.980E-01 | 2.980E 07 |
| NICKEL-SPAN-C902 (COLD WORKED) | 1,790E 05 | 1.650E 05 | 5.631E 05 | 1.778E 05 | 5.210E 04 | 2.930E-01 | 2.400E 07 |
| COBALT J-1650 | 1,740E 05 | 1.160E 05 | 3.625E 05 | 2.013E 05 | 6.443E 04 | 3.200E-01 | 3.360E 07 |
| NI, INCONEL 700 | 1,710E 05 | 1.040E 05 | 3.525E 05 | 2.059E 05 | 6.074E 04 | 2.950E-01 | 3.240E 07 |
| NI, MONEL K-500 (SAW) | 1,700E 05 | 1.300E 05 | 4.248E 05 | 1.811E 05 | 5.542E 04 | 3.060E-01 | 2.600E 07 |
| COBALT NIVCO | 1,650E 05 | 1.100E 05 | 3.548E 05 | 1.933E 05 | 5.992E 04 | 3.100E-01 | 3.000E 07 |
| COPPER, BERYLLIUM (HARD) | 1,650E 05 | 1.300E 05 | 4.392E 05 | 1.574E 05 | 4.659E 04 | 2.960E-01 | 1.900E 07 |
| TI, 8AL-1MO-1V (HEAT TREATED) | 1,650E 05 | 1.500E 05 | 9.494E 05 | 2.038E 05 | 3.220E 04 | 1.580E-01 | 1.700E 07 |
| NI, INCONEL X-750 | 1,620E 05 | 9.200E 04 | 3.087E 05 | 2.004E 05 | 5.972E 04 | 2.980E-01 | 3.100E 07 |
| DURANICKEL 301 (SAW) | 1,600E 05 | -0. | -0. | 1.971E 05 | 5.875E 04 | 2.980E-01 | 3.000E 07 |
| TANTALUM-10W | 1,600E 05 | 1.580E 05 | 2,599E 05 | 1.159E 05 | 7.021E 04 | 6.080E-01 | 2.100E 07 |
| TI, 7AL-4MO (HEAT TREATED) | 1,600E 05 | 1.500E 05 | 9,259E 05 | 1.953E 05 | 3.163E 04 | 1.620E-01 | 1.600E 07 |
| DURANICKEL 301 (SPRING) | 1,590E 05 | -0. | -0. | 1.971E 05 | 5.875E 04 | 2.980E-01 | 3.000E 07 |
| TI, 6AL-6V-2SN (O) | 1,500E 05 | 1.300E 05 | 8,025E 05 | 1.953E 05 | 3.163E 04 | 1.620E-01 | 1.600E 07 |
| COBALT L-605 | 1,460E 05 | 6.700E 04 | 2,030E 05 | 2.000E 05 | 6.601E 04 | 3.300E-01 | 3.420E 07 |
| COBALT V-36 | 1,460E 05 | 8.300E 04 | 2,739E 05 | 2.019E 05 | 6.118E 04 | 3.030E-01 | 3.260E 07 |
| NI, MONEL K-500 (SPRING) | 1,450E 05 | 1.300E 05 | 4.248E 05 | 1.811E 05 | 5.542E 04 | 3.060E-01 | 2.600E 07 |
| TI, 6AL-4V (HEAT TREATED) | 1,450E 05 | 1.350E 05 | 8.437E 05 | 1.902E 05 | 3.044E 04 | 1.600E-01 | 1.500E 07 |
| TI, 7AL-4MO (O) | 1,450E 05 | 1.350E 05 | 8,333E 05 | 1.953E 05 | 3.163E 04 | 1.620E-01 | 1.600E 07 |
| TI, 8AL-1MO-1V (O) | 1,450E 05 | 1.400E 05 | 8.861E 05 | 2.038E 05 | 3.220E 04 | 1.580E-01 | 1.700E 07 |
| COBALT S-816 | 1,400E 05 | 7.000E 04 | 2,258E 05 | 2.088E 05 | 6.472E 04 | 3.100E-01 | [illegible] 07 |
| NICKEL 47-50-FE (COLD WORKED) | 1,400E 05 | -0. | -0. | 1.769E 05 | 5.237E 04 | 2.960E-01 | 2.400E 07 |
| TI, 2FE-2CR-2MO (O) | 1,400E 05 | 1.200E 05 | 7,059E 05 | 1.906E 05 | 3.240E 04 | 1.700E-01 | 1.600E 07 |
| NICKEL-SPAN-C902 (ROLLED) | 1,310E 05 | 1.260E 05 | 4,300E 05 | 1 778E 05 | 5.210E 04 | 2.930E-01 | 2.400E 07 |
| TI, 6AL-4V (O) | 1,306E 05 | 1.200E 05 | 7,500E 05 | 1.902E 05 | 3.044E 04 | 1.600E-01 | 1.500E 07 |
| NI, MONEL K-500 (SAW) | 1,300E 05 | 9.000E 04 | 2,941E 05 | 1.811E 05 | 5.542E 04 | 3.060E-01 | 2.600E 07 |
| NI, NICROTUNG (CAST) | 1,300E 05 | 1.200E 05 | 4,000E 05 | 2.076E 05 | 6.229E 04 | 3.000E-01 | 3.350E 07 |
| TI, 13V-11CR-3AL (O) | 1,300E 05 | 1.250E 05 | 7.143E 05 | 1.788E 05 | 3.133E 04 | 1.750E-01 | 1.450E 07 |
| BRONZE, PHOS C (EXTRA SPRING) | 1,280E 05 | -0. | -0. | 1.396E 05 | 4.425E 04 | 3.170E-01 | 1.600E 07 |
| MO, TZM (.9TI, .1ZR) | 1,250E 05 | 1.050E 05 | 2,838E 05 | 2.191E 05 | 8.106E 04 | 3.700E-01 | 4.600E 07 |
| TI, AMN (O) | 1,250E 05 | 1.200E 05 | 7.018E 05 | 1.871E 05 | 3.199E 04 | 1.710E-01 | 1.550E 07 |
| BRONZE, PHOS C (SPRING) | 1,220E 05 | -0. | -0. | 1.396E 05 | 4.425E 04 | 3.170E-01 | 1.600E 07 |
| NI, HASTELLOY B | 1,210E 05 | 5.650E 04 | 1,692E 05 | 1.747E 05 | 5.834E 04 | 3.340E-01 | 2.640E 07 |
| NI, HASTELLOY C | 1,210E 05 | 5.780E 04 | 1,789E 05 | 1 887E 05 | 6.090E 04 | 3.230E-01 | 2.980E 07 |
| BRONZE, PHOS B (EXTRA SPRING) | 1,200E 05 | -0. | -0. | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 |
| NICKEL 42 + IRON (COLD WORKED) | 1,200E 05 | -0. | -0. | 1.700E 05 | 4.997E 04 | 2.940E-01 | 2.200E 07 |
| TI, 5AL-5SN-5ZR | 1,200E 05 | 1.100E 05 | 6,667E 05 | 1.935E 05 | 3.192E 04 | 1.650E-01 | 1.600E 07 |
| MO-0.5TI | 1,150E 05 | 1.040E 05 | 2,211E 05 | 2.191E 05 | 8.106E 04 | 3.700E-01 | 4.600E 07 |
| TI, 5AL-2,5SN | 1,150E 05 | 1.100E 05 | 6,832E 05 | 1.959E 05 | 3.153E 04 | 1.610E-01 | 1.600E 07 |
| NI, HASTELLOY X | 1,140E 05 | 5.220E 04 | 1,758E 05 | 1.928E 05 | 5.726E 04 | 2.970E-01 | 2.860E 07 |
| VANADIUM (COLD WORKED) | 1,130E 05 | 1.090E 05 | 4,739E 05 | 1.832E 05 | 4.214E 04 | 2.300E-01 | 2.000E 07 |
| BRASS, CAST HIGH YELLOW (8C) | 1,120E 05 | 6.500E 04 | 2,347E 05 | 1.407E 05 | 3.897E 04 | 2.770E-01 | 1.420E 07 |
| BRONZE, PHOS B (SPRING) | 1,120E 05 | -0. | -0. | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 |
| COLUMBIUM B-66 | 1,120E 05 | 9.000E 04 | 2,951E 05 | 1.369E 05 | 4.174E 04 | 3.050E-01 | 1.480E 07 |
| HAFNIUM (COLD WORKED) | 1,120E 05 | 9.300E 04 | 2.043E 05 | 1.282E 05 | 6.024E 04 | 4.700E-01 | 2.000E 07 |

| MATERIAL | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) |
|---|---|---|---|---|---|---|---|
| NI, MONEL 535 (CAST) | 1.100E 05 | 8.300E 04 | 2.649E 05 | 1.759E 05 | 5.312E 04 | 3.020E-01 | 2.420E 07 |
| NI, MONEL 509 (0+AGED) | 1.100E 05 | 8.000E 04 | 2.649E 05 | 1.759E 05 | 5.312E 04 | 3.020E-01 | 2.420E 07 |
| COBALT HS+31,X+40 | 1.080E 05 | 7.600E 04 | 2.452E 05 | 1.900E 05 | 5.891E 04 | 3.100E-01 | 2.900E 07 |
| CU55-NI18-ZN27 (EXTRA HARD) | 1.080E 05 | 9.100E 04 | 2.866E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 |
| BRONZE, PHOS A (EXTRA SPRING) | 1.070E 05 | -0. | -0. | 1.389E 05 | 4.446E 04 | 3.200E-01 | 1.600E 07 |
| AVC (70HO, 30W) | 1.050E 05 | 9.500E 04 | 2.209E 05 | 2.119E 05 | 9.110E 04 | 4.300E-01 | 5.000E 07 |
| COBALT HS-21 | 1.010E 05 | 8.200E 04 | 2.733E 05 | 2.152E 05 | 6.457E 04 | 3.000E-01 | 3.600E 07 |
| BRONZE, PHOS A (SPRING) | 1.000E 05 | -0. | -0. | 1.389E 05 | 4.446E 04 | 3.200E-01 | 1.600E 07 |
| BRONZE, PHOS C (HARD) | 1.000E 05 | -0. | -0. | 1.396E 05 | 4.425E 04 | 3.170E-01 | 1.600E 07 |
| BRONZE, P.H. SI (HARD) | 1.000E 05 | 8.800E 04 | 2.733E 05 | 1.469E 05 | 4.730E 04 | 3.220E-01 | 1.800E 07 |
| CU55-NI18-ZN27 (HARD) | 1.000E 05 | 8.500E 04 | 2.707E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 |
| NI, MONEL 400 (SPRING) | 1.000E 05 | 9.100E 04 | 2.821E 05 | 1.774E 05 | 5.658E 04 | 3.190E-01 | 2.600E 07 |
| CU65-NI10-ZN25 (EXTRA HARD) | 9.500E 04 | 7.600E 04 | 2.420E 05 | 1.467E 05 | 4.606E 04 | 3.140E-01 | 1.750E 07 |
| MOLYBDENUM | 9.500E 04 | 8.200E 04 | 2.216E 05 | 2.214E 05 | 8.193E 04 | 3.700E-01 | 4.700E 07 |
| COLUMBIUM C-103 | 9.350E 04 | 8.800E 04 | 2.750E 05 | 1.233E 05 | 3.945E 04 | 3.200E-01 | 1.260E 07 |
| BRONZE, PHOS B (HARD) | 9.300E 04 | 7.200E 04 | 2.264E 05 | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.400E 07 |
| CU65-NI12-ZN23 (EXTRA HARD) | 9.300E 04 | 7.900E 04 | 2.516E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 |
| BRONZE, HIGH SI (HARD) | 9.200E 04 | 5.500E 04 | 1.786E 05 | 1.371E 05 | 4.223E 04 | 3.080E-01 | 1.500E 07 |
| CU65-NI15-ZN20 (EXTRA HARD) | 9.200E 04 | 7.900E 04 | 2.516E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 |
| BRASS, CAST HIGH YELLOW (88) | 9.100E 04 | 4.600E 04 | 1.614E 05 | 1.401E 05 | 3.994E 04 | 2.850E-01 | 1.450E 07 |
| BRONZE, AL-SI (HARD) | 9.000E 04 | 5.000E 04 | 1.799E 05 | 1.491E 05 | 4.144E 04 | 2.780E-01 | 1.600E 07 |
| BRONZE, CAST ALUMINUM ( [illegible] ) | 9.000E 04 | 4.000E 04 | 1.471E 05 | 1.598E 05 | 4.347E 04 | 2.720E-01 | 1.800E 07 |
| DURANICKEL 301 (0) | 9.000E 04 | 3.500E 04 | 1.174E 05 | 1.971E 05 | 5.875E 04 | 2.980E-01 | 3.000E 07 |
| NICKEL 36 + IRON (COLD WORKED) | 9.000E 04 | 7.100E 04 | 2.405E 05 | 1.669E 05 | 4.857E 04 | 2.910E-01 | 2.100E 07 |
| NICKEL 230 (SPRING) | 9.000E 04 | 7.100E 04 | 2.741E 05 | 1.899E 05 | 6.097E 04 | 3.210E-01 | 3.000E 07 |
| NI, INCONEL 705 (CAST) | 9.000E 04 | 8.000E 04 | 2.740E 05 | 1.818E 05 | 5.309E 04 | 2.920E-01 | 2.500E 07 |
| NI, INCONEL 705 (0+AGED) | 9.000E 04 | 8.500E 04 | 2.911E 05 | 1.818E 05 | 5.309E 04 | 2.920E-01 | 2.500E 07 |
| NI, MONEL K-500 (0) | 9.000E 04 | 4.100E 04 | 1.307E 05 | 1.811E 05 | 5.542E 04 | 3.060E-01 | 2.600E 07 |
| ALUMINUM 7178 (T6) | 8.800E 04 | 7.800E 04 | 7.647E 05 | 1.984E 05 | 2.024E 04 | 1.020E-01 | 1.040E 07 |
| CU65-NI10-ZN25 (HARD) | 8.400E 04 | 7.500E 04 | 2.389E 05 | 1.467E 05 | 4.606E 04 | 3.140E-01 | 1.750E 07 |
| BRONZE, AL-SI (0) | 8.500E 04 | 4.400E 04 | 1.583E 05 | 1.491E 05 | 4.144E 04 | 2.780E-01 | 1.600E 07 |
| COLUMBIUM CB-752 | 8.500E 04 | 7.000E 04 | 2.288E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E [illegible] |
| CU65-NI12-ZN23 (HARD) | 8.500E 04 | 7.500E 04 | 2.389E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 |
| CU65-NI15-ZN20 (HARD) | 8.500E 04 | 7.500E 04 | 2.389E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 |
| CU65-NI18-ZN17 (HARD) | 8.500E 04 | 7.400E 04 | 2.342E 05 | 1.483E 05 | 4.686E 04 | 3.160E-01 | 1.800E 07 |
| BRONZE, MANGANESE A (HALF) | 8.400E 04 | 6.000E 04 | 1.987E 05 | 1.389E 05 | 4.182E 04 | 3.020E-01 | 1.500E 07 |
| ALUMINUM 7075 (T6) | 8.300E 04 | 7.300E 04 | 7.228E 05 | 1.994E 05 | 2.014E 04 | 1.010E-01 | 1.040E 07 |
| BRONZE, PHOS C (HALF) | 8.300E 04 | -0. | -0. | 1.396E 05 | 4.425E 04 | 3.170E-01 | 1.600E 07 |
| BRONZE, AL D (HARD) | 8.200E 04 | 4.000E 04 | 1.404E 05 | 1.517E 05 | 4.325E 04 | 2.850E-01 | 1.700E 07 |
| BRONZE, PHOS A (HARD) | 8.100E 04 | 7.500E 04 | 2.344E 05 | 1.389E 05 | 4.446E 04 | 3.200E-01 | 1.600E 07 |
| COPPER-NICKEL,20 (LIGHT DRAWN) | 8.000E 04 | 7.500E 04 | 2.322E 05 | 1.546E 05 | 4.994E 04 | 3.230E-01 | 2.000E 07 |
| IRIDIUM (0) | 8.000E 04 | -0. | -0. | 1.937E 05 | 1.575E 05 | 8.130E-01 | 7.900E 07 |
| MUNTZ METAL, FREE-CUT (HARD) | 8.000E 04 | 6.000E 04 | 1.974E 05 | 1.380E 05 | 4.196E 04 | 3.040E-01 | 1.500E 07 |
| ALUMINUM 7079 (T6) | 7.800E 04 | 6.800E 04 | 7.863E 05 | 2.004E 05 | 1.984E 04 | 9.900E-02 | 1.030E 07 |
| HAFNIUM (0) | 7.700E 04 | 3.200E 04 | 6.809E 04 | 1.282E 05 | 6.024E 04 | 4.700E-01 | 2.000E 07 |
| NICKEL 47+50 + IRON (0) | 7.700E 04 | 3.300E 04 | 1.115E 05 | 1.769E 05 | 5.237E 04 | 2.960E-01 | 2.400E 07 |
| BRASS, CARTRIDGE 70CU (HARD) | 7.600E 04 | 6.300E 04 | 2.045E 05 | 1.416E 05 | 4.362E 04 | 3.080E-01 | 1.600E 07 |
| BRONZE, PHOS B (HALF) | 7.500E 04 | 5.500E 04 | 1.730E 05 | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.400E 07 |
| BRASS, LEAD NAVAL (HALF) | 7.500E 04 | 5.300E 04 | 1.738E 05 | 1.378E 05 | 4.203E 04 | 3.050E-01 | 1.900E 07 |
| BRASS, NAVAL (HALF) | 7.500E 04 | 5.300E 04 | 1.743E 05 | 1.380E 05 | 4.196E 04 | 3.040E-01 | 1.500E 07 |
| BRONZE, CAST ALUMINUM (9C) | 7.500E 04 | 3.000E 04 | 1.103E 05 | 1.499E 05 | 3.969E 04 | 2.720E-01 | 1.500E 07 |
| BRONZE, PHOS E (SPRING) | 7.500E 04 | -0. | -0. | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.700E 07 |
| COPPER-NICKEL,30 (LIGHT DRAWN) | 7.500E 04 | -0. | -0. | 1.622E 05 | 5.238E 04 | 3.230E-01 | 2.200E 07 |
| URANIUM, DEPLETED (0) | 7.500E 04 | 2.300E 04 | 3.623E 04 | 1.058E 05 | 7.299E 04 | 6.900E-01 | 2.000E 07 |
| BRASS, EXTRA-HIGH-LEAD (HARD) | 7.400E 04 | 6.100E 04 | 1.954E 05 | 1.327E 05 | 4.073E 04 | 3.070E-01 | 1.400E 07 |
| BRASS, HIGH-LEAD (HARD) | 7.400E 04 | 6.100E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 |
| BRASS, LOW 80CU (HARD) | 7.400E 04 | 5.900E 04 | 1.885E 05 | 1.439E 05 | 4.397E 04 | 3.130E-01 | 1.600E 07 |
| BRASS, LOW-LEAD (HARD) | 7.400E 04 | 6.100E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 500E 07 |

| MATERIAL | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) |
|---|---|---|---|---|---|---|---|
| BRASS, MEDIUM-LEAD (HARD) | 7,400E 04 | 6,700E 04 | 1,961E 05 | 1.376E 05 | 4.209E 04 | 3,060E-01 | 1.500E 07 |
| BRASS, YELLOW (HARD) | 7,400E 04 | 6.700E 04 | 1,961E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 |
| CU65-NI15-ZN20 (HALF) | 7,400E 04 | 6.200E 04 | 1.975E 05 | 1 488E 05 | 4,671E 04 | 3.140E-01 | 1.800E 07 |
| COPPER-NICKEL,30 (HALF) | 7,300E 04 | 6.800E 04 | 2.109E 05 | 1.622E 05 | 5.238E 04 | 3,230E-01 | 2.200E 07 |
| CU65-NI10-ZN25 (HALF) | 7,300E 04 | 6,000E 04 | 1,911E 05 | 1 467E 05 | 4,604E 04 | 3.140E-01 | 1.750E 07 |
| CU65-NI12-ZN23 (HALF) | 7,300E 04 | 6.700E 04 | 1,911E 05 | 1.488E 05 | 4,671E 04 | 3,140E-01 | 1.800E 07 |
| RHODIUM (0) | 7,300E 04 | -0. | -0. | 2 179E 05 | 9,742E 04 | 4,470E-01 | 7.500E 07 |
| VANADIUM (0) | 7,200E 04 | 6.400E 04 | 2,783E 05 | 1.832E 05 | 4,214E 04 | 2,300E-01 | 2.000E 07 |
| NICKEL 36 + IRON (0) | 7,100E 04 | 4.000E 04 | 1.375E 05 | 1.669E 05 | 4,857E 04 | 2.910E-01 | 2.100E 07 |
| ALUMINUM 2014 T6) | 7,000E 04 | 6 00E 04 | 5,941E 05 | 2 013E 05 | 2,033E 04 | 1,010E-01 | 1.060E 07 |
| ALUMINUM 7024 (T3) | 7,000E 04 | 5.000E 04 | 5.000E 05 | 2.023E 05 | 2.023E 04 | 1,000E-01 | 1.040E 07 |
| BRASS, RED 85CU (HARD) | 7,000E 04 | 5.700E 04 | 1,874E 05 | 1 441E 05 | 4.554E 04 | 3,160E-01 | 1.700E 07 |
| BRONZE, CAST ALUMINUM (9A) | 7,000E 04 | 2.500E 04 | 8,897E 04 | 1.483E 05 | 4,166E 04 | 2,810E-01 | 1.600E 7 |
| BRONZE, CAST ALUMINUM (9B) | 7,000E 04 | 2 800E 04 | 1,041E 05 | 1.431E 05 | 3,777E 04 | 2,640E-01 | 1.400E 07 |
| BRONZE, LOW SI (HARD) | 7,000E 04 | 5.500E 04 | 1,741E 05 | 1.441E 05 | 4,554E 04 | 3,160E-01 | 1.700E 07 |
| CU65-NI18-ZN17 (HALF) | 7,000E 04 | 6.700E 04 | 1,899E 05 | 1.483E 05 | 4.686E 04 | 3,160E-01 | 1.800E 07 |
| NI, INCONEL 610 (CAST) | 7,000E 04 | 3.700E 04 | 1.000E 05 | 1.997E 05 | 5,992E 04 | 3,000E-01 | 3.100E 07 |
| NI, MONEL 400 (0) | 7,000E 04 | 2.500E 04 | 7.837E 04 | 1.774E 05 | 5,658E 04 | 3,190E-01 | 2.600E 07 |
| ALUMINUM 2219 (T87) | 6,950E 04 | 5.700E 04 | 5.534E 05 | 1.993E 05 | 2,053E 04 | 1,030E-01 | 1.060E 07 |
| BRASS, LEAD NAVAL (QUARTER) | 6,900E 04 | 4.600E 04 | 1.508E 05 | 1.378E 05 | 4,203E 04 | 3,050E-01 | 00E 07 |
| BRASS, NAVAL (QUARTER) | 6,900E 04 | 4.600E 04 | 1.513E 05 | 1 380E 05 | 4,196E 04 | 3,040E-01 | 00E 07 |
| BRASS, FREE-CUTTING (HARD) | 6,800E 04 | 5.200E 04 | 1.694E 05 | 1 327E 05 | 4,073E 04 | 3,070E-01 | 1.400E 07 |
| BRONZE, PHOS A (HALF) | 6,800E 04 | 5.500E 04 | 1.719E 05 | 1 389E 05 | 4,446E 04 | 3,200E-01 | 1.600E 07 |
| NICKEL 42 + IRON (0) | 6,800E 04 | 3.900E 04 | 1,327E 05 | 1.730E 05 | 4.997E 04 | 2.945E-01 | 2.200E 07 |
| BRONZE, JEWELRY 87.5CU (HARD) | 6,600E 04 | 5.600E 04 | 1.767E 05 | 1.439E 05 | 4.561E 04 | 3,170E-01 | 1 700E 07 |
| BRONZE, PHOS C (0) | 6,400E 04 | 2.800E 04 | 8,833E 04 | 1 396E 05 | 4,425E 04 | 3,170E-01 | 1.600E 07 |
| BRASS, CAST HIGH YELLOW (8A) | 6,500E 04 | 2.500E 04 | 8,306E 04 | 1.439E 05 | 4,230E 04 | 3,010E-01 | 1.540E 07 |
| BRONZE, MANGANESE A (0) | 6,500E 04 | 3.000E 04 | 9.934E 04 | 1.389E 05 | 4,182E 04 | 3,029E-01 | 1.500E 07 |
| BRONZE, PHOS E (HARD) | 6,500E 04 | 5.700E 04 | 1,958E 05 | 1.430E 05 | 4,590E 04 | 3,210E-01 | 1.700E 07 |
| BRONZE, P,M, SI (0) | 6,500E 04 | 6.700E 04 | 1.863E 05 | 1.469E 05 | 4,733E 04 | 3,220E-01 | 1.800E 07 |
| NI, MONEL 411 (CAST) | 6,500E 04 | 3.200E 04 | 1,026E 05 | 1.533E 05 | 4,784E 04 | 3,120E-01 | 1.900E 07 |
| ZR, COMMERCIAL GRADE (0) | 6,400E 04 | 5.300E 04 | 2,236E 05 | 1.510E 05 | 3,579E 04 | 2,370E-01 | 1.400E 07 |
| ALUMINUM 2014 (T4) | 6,200E 04 | 4.200E 04 | 4,238E 05 | 2.013E 05 | 2,033E 04 | 1,010E-01 | 1.040E 07 |
| ALUMINUM 2017 (T4) | 6,200E 04 | 4.300E 04 | 3,960E 05 | 2.013E 05 | 2,023E 04 | 1,010E-01 | 1.050E 07 |
| BRONZE, COMMERCIAL 90CU (HARD) | 6,100E 04 | 5.400E 04 | 1,698E 05 | 1.437E 05 | 4,568E 04 | 3,180E-01 | 1.700E 07 |
| ALUMINUM 5056 (HARD. | 6,000E 04 | 5.700E 04 | 5,263E 05 | 2.044E 05 | 1,944E 04 | 9,500E-02 | 1.030E 07 |
| BERYLLIUM (P) | 6,000E 04 | 5.700E 03 | 7,463E 04 | 4.919E 05 | 3,296E 04 | 6,700E-02 | 4.200E 07 |
| BRASS, ALUMINUM (0) | 6,000E 04 | 2.700E 04 | 8,973E 04 | 1.432E 05 | 4,312E 04 | 3,010E-01 | 1.600E 07 |
| BRASS, CAST LEAD YELLOW (7A) | 6,000E 04 | 2.000E 04 | 6,920E 04 | 1.416E 05 | 4,091E 04 | 2,890E-01 | 1.500E 07 |
| BRASS+BRONZE, CAST SI (13B) | 6,000E 04 | 2.500E 04 | 8,361E 04 | 1 410E 05 | 4,216E 04 | 2,990E-01 | 1.540E 07 |
| BRONZE, ARCHITECTURAL (0) | 6,000E 04 | 2.700E 04 | 6,536E 04 | 1.329E 05 | 4,067E 04 | 3,060E-01 | 1.400E 07 |
| COPPER, BERYLLIUM (0) | 6,000E 04 | 2.500E 04 | 8,446E 04 | 1.574E 05 | 4,659E 04 | 2,960E-01 | 1.900E 07 |
| COPPER-NICKEL,10 (LIGHT DRAWN) | 6,000E 04 | 5.700E 04 | 1,765E 05 | 1 467E 05 | 4,738E 04 | 3,230E-01 | 1.800E 07 |
| CU55-NI18-ZN27 (0) | 6,000E 04 | 2.700E 04 | 8,599E 04 | 1.488E 05 | 4,671E 04 | 3,140E-01 | 1.800E 07 |
| TANTALUM | 6,000E 04 | 4.800E 04 | 8,000E 04 | 1 318E 05 | 7,908E 04 | 6,000E-01 | 2.700E 07 |
| TI, UNALLOYED | 6,000E 04 | 4.700E 04 | 2,454E 05 | 1.885E 05 | 3,072E 04 | 1,630E-01 | 1.500E 07 |
| ZR, ZIRCALOY-2 (0) | 6,000E 04 | 4 500E 04 | 1,899E 05 | 1 499E 05 | 3,553E 04 | 2,370E-01 | 1.380E 07 |
| ALUMINUM 2011 (T8) | 5,900E 04 | 4 500E 04 | 4,412E 05 | 1.969E 05 | 2,004E 04 | 1,020E-01 | 1.020E 07 |
| ALUMINUM 6262 (T9) | 5,800E 04 | 5.500E 04 | 5,612E 05 | 1 985E 05 | 1,945E 04 | 9,800E-02 | 1.000E 07 |
| BRONZE, PHOS FREE-CUT (HALF) | 5,800E 04 | 4.700E 04 | 1,246E 05 | 1 343E 05 | 4,311E 04 | 3,210E-01 | 1.500E 07 |
| ALUMINUM 6066 (T6) | 5,700E 04 | 5.200E 04 | 5,306E 05 | 1.985E 05 | 1,945E 04 | 9,800E-02 | 1.000E 07 |
| BRASS, LEAD NAVAL (0) | 5,700E 04 | 2 500E 04 | 8,197E 04 | 1 378E 05 | 4,203E 04 | 3,050E-01 | 1.500E 07 |
| BRASS, NAVAL (0) | 5,700E 04 | 2.500E 04 | 8,224E 04 | 1 380E 05 | 4,196E 04 | 3,040E-01 | 1.500E 07 |
| BRONZE, HIGH SI (0) | 5,600E 04 | 2.700E 04 | 6,494E 04 | 1.371E 05 | 4,223E 04 | 3,080E-01 | 1.500E 07 |
| CU65-NI18-ZN17 (0) | 5,600E 04 | 2.500E 04 | 7,911E 04 | 1.483E 05 | 4 686E 04 | 3,160E-01 | 1.800E 07 |
| GILDING 95CU (HARD) | 5,600E 04 | 5.700E 04 | 1,562E 05 | 1.432E 05 | 4,583E 04 | 3,200E-01 | 1.700E 07 |
| ALUMINUM 2011 (T3) | 5,500E 04 | 4 300E 04 | 4,215E 05 | 1 969E 05 | 2,004E 04 | 1,020E-01 | 1.020E 07 |
| BRASS+BRONZE, CAST SI (12A) | 5,500E 04 | 2.200E 04 | 7,261E 04 | 1.382E 05 | 4,189E 04 | 3,030E-01 | 1.500E 07 |

| MATERIAL | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) |
|---|---|---|---|---|---|---|---|
| BRONZE, LEAD COMMERCIAL (HALF) | 5.500E 04 | 5.100E 04 | 1.567E 05 | 1.434E 05 | 4.575E 04 | 3.190E-01 | 1.700E 07 |
| BRONZE, PHOS B (O) | 5.500E 04 | 2.400E 04 | 7.547E 04 | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 |
| BRONZE, PHOS E (HALF) | 5.500E 04 | -0. | -0. | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.700E 07 |
| NICKEL 200 (O) | 5.500E 04 | 1.500E 04 | 4.673E 04 | 1.899E 05 | 6.097E 04 | 3.210E-01 | 3.000E 07 |
| RUTHENIUM (O) | 5.500E 04 | -0. | -0. | 2.440E 05 | 1.076E 05 | 4.410E-01 | 6.800E 07 |
| MUNTZ METAL, FREE-CUTTING ( ) | 5.400E 04 | 2.100E 04 | 6.579E 04 | 1.380E 05 | 4.196E 04 | 3.040E-01 | 1.500E 07 |
| MUNTZ METAL, LEADED (O) | 5.400E 04 | 2.100E 04 | 6.579E 04 | 1.380E 05 | 4.196E 04 | 3.040E-01 | 1.500E 07 |
| MUNTZ METAL 60CU (O) | 5.400E 04 | 2.100E 04 | 6.931E 04 | 1.382E 05 | 4.189E 04 | 3.030E-01 | 1.500E 07 |
| SILVER (COLD ROLLED-50) | 5.400E 04 | 4.400E 04 | 1.161E 05 | 1.059E 05 | 4.012E 04 | 3.790E-01 | 1.100E 07 |
| BRONZE, ADMIRALTY 71CU (O) | 5.300E 04 | 2.200E 04 | 7.143E 04 | 1.416E 05 | 4.362E 04 | 3.080E-01 | 1.600E 07 |
| CU65-NI15-ZN20 (O) | 5.300E 04 | 1.800E 04 | 5.732E 04 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 |
| ALUMINUM 2219 (T42) | 5.200E 04 | 2.700E 04 | 2.621E 05 | 1.993E 05 | 2.053E 04 | 1.030E-01 | 1.060E 07 |
| BRASS, FORGING (O) | 5.200E 04 | 2.000E 04 | 6.557E 04 | 1.378E 05 | 4.203E 04 | 3.030E-01 | 1.500E 07 |
| CU65-NI22-ZN23 (O) | 5.200E 04 | 1.800E 04 | 5.732E 04 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 |
| ALUMINUM 5456 (HALF) | 5.100E 04 | 3.700E 04 | 3.854E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 |
| BRASS, LOW-LEAD (O) | 5.100E 04 | 1.900E 04 | 6.209E 04 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 |
| BRASS, MEDIUM-LEAD (O) | 5.100E 04 | 1.900E 04 | 6.209E 04 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 |
| COPPER, OXYGEN FREE (HARD) | 5.000E 04 | 4.500E 04 | 1.393E 05 | 1.425E 05 | 4.604E 04 | 3.230E-01 | 1.700E 07 |
| COPPER, PHOS DEOXIDIZED (HARD) | 5.000E 04 | 4.500E 04 | 1.393E 05 | 1.425E 05 | 4.604E 04 | 3.230E-01 | 1.700E 07 |
| COPPER, TOUGH PITCH (HARD) | 5.000E 04 | 4.500E 04 | 1.402E 05 | 1.430E 05 | 4.620E 04 | 3.210E-01 | 1.700E 07 |
| MG, AZ80A-T5 (EXTRUDED) | 5.000E 04 | 3.800E 04 | 5.846E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 |
| MG, AZ80A-T5 (FORGED) | 5.000E 04 | 3.400E 04 | 5.231E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 |
| MG, ZK60A-T5 (EXTRUDED) | 5.000E 04 | 4.700E 04 | 6.061E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 |
| NICKEL 201 (O) | 5.000E 04 | 1.200E 04 | 3.738E 04 | 1.899E 05 | 6.097E 04 | 3.210E-01 | 3.000E 07 |
| BRASS, EXTRA-HIGH-LEAD (O) | 4.900E 04 | 1.700E 04 | 5.537E 04 | 1.327E 05 | 4.073E 04 | 3.070E-01 | 1.400E 07 |
| BRASS, FREE-CUTTING (O) | 4.900E 04 | 1.800E 04 | 5.853E 04 | 1.327E 05 | 4.073E 04 | 3.070E-01 | 1.400E 07 |
| BRASS, HIGH-LEAD (O) | 4.900E 04 | 1.700E 04 | 5.556E 04 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 |
| CU65-NI10-ZN25 (O) | 4.900E 04 | 1.800E 04 | 5.732E 04 | 1.467E 05 | 4.636E 04 | 3.140E-01 | 1.750E 07 |
| THORIUM (COLD WORKED) | 4.900E 04 | 4.500E 04 | 1.071E 05 | 9.587E 04 | 4.027E 04 | 4.200E-01 | 1.000E 07 |
| ALUMINUM 5154 (HARD) | 4.800E 04 | 3.900E 04 | 4.062E 05 | 2.025E 05 | 1.944E 04 | 9.600E-02 | 1.020E 07 |
| COLUMBIUM CB-1ZR | 4.800E 04 | 3.500E 04 | 1.129E 05 | 1.197E 05 | 3.710E 04 | 3.100E-01 | 1.150E 07 |
| COPPER, TELLURIUM (HALF) | 4.800E 04 | 4.400E 04 | 1.362E 05 | 1.383E 05 | 4.467E 04 | 3.230E-01 | 1.600E 07 |
| ALUMINUM 5086 (HALF) | 4.700E 04 | 3.700E 04 | 3.854E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 |
| BRONZE, PHOS A (O) | 4.700E 04 | 1.900E 04 | 5.937E 04 | 1.389E 05 | 4.446E 04 | 3.200E-01 | 1.600E 07 |
| PALLADIUM (COLD ROLLED-50) | 4.700E 04 | 3.000E 04 | 6.912E 04 | 1.269E 05 | 5.492E 04 | 4.340E-01 | 1.800E 07 |
| ALUMINUM 5083 (HALF) | 4.600E 04 | 3.300E 04 | 3.437E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 |
| BRASS, YELLOW ( ) | 4.600E 04 | 1.400E 04 | 4.575E 04 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 |
| ALUMINUM 5456 (O) | 4.500E 04 | 2.300E 04 | 2.396E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 |
| ALUMINUM 6061 (T6) | 4.500E 04 | 4.000E 04 | 4.082E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| BRASS, CAST LEAD YELLOW (6C) | 4.500E 04 | 1.600E 04 | 5.333E 04 | 1.293E 05 | 3.880E 04 | 3.000E-01 | 1.300E 07 |
| COPPER-NICKEL,20 (O) | 4.500E 04 | -0. | -0. | 1.546E 05 | 4.994E 04 | 3.230E-01 | 2.000E 07 |
| MG, ZK61A (T6-CAST) | 4.500E 04 | 2.800E 04 | 4.242E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 |
| NICKEL 210 (AS CAST) | 4.500E 04 | 2.100E 04 | 6.645E 04 | 1.661E 05 | 4.998E 04 | 3.010E-01 | 2.150E 07 |
| ALUMINUM 5454 (HALF) | 4.400E 04 | 3.500E 04 | 3.608E 05 | 2.019E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 |
| BRASS, CARTRIDGE 70CU (O) | 4.400E 04 | 1.100E 04 | 3.571E 04 | 1.416E 05 | 4.362E 04 | 3.080E-01 | 1.600E 07 |
| BRONZE, PHOS FREE-CUTTING (O) | 4.400E 04 | 1.900E 04 | 5.919E 04 | 1.343E 05 | 4.311E 04 | 3.210E-01 | 1.500E 07 |
| COPPER-NICKEL,10 (O) | 4.400E 04 | 1.600E 04 | 4.954E 04 | 1.467E 05 | 4.738E 04 | 3.230E-01 | 1.800E 07 |
| COPPER-NICKEL,30 (O) | 4.400E 04 | 2.000E 04 | 6.192E 04 | 1.622E 05 | 5.238E 04 | 3.230E-01 | 2.200E 07 |
| MG, ZK60A-T3 (FORGED) | 4.400E 04 | 3.100E 04 | 4.545E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 |
| MG, AZ61A-F (FORGED) | 4.300E 04 | 2.600E 04 | 4.000E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 |
| ALUMINUM 5052 (HARD) | 4.200E 04 | 3.700E 04 | 3.814E 05 | 2.019E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 |
| ALUMINUM 5086 (O) | 4.200E 04 | 2.200E 04 | 2.316E 05 | 2.046E 05 | 1.944E 04 | 9.500E-02 | 1.030E 07 |
| ALUMINUM 5083 (O) | 4.200E 04 | 2.100E 04 | 2.187E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 |
| ALUMINUM 5154 (HALF) | 4.200E 04 | 3.300E 04 | 3.437E 05 | 2.025E 05 | 1.944E 04 | 9.600E-02 | 1.020E 07 |
| BRASS, LOW 30CU (O) | 4.200E 04 | 1.200E 04 | 3.834E 04 | 1.405E 05 | 4.397E 04 | 3.130E-01 | 1.600E 07 |
| BRONZE, JEWELRY 87.5CU (O) | 4.200E 04 | 1.500E 04 | 4.732E 04 | 1.439E 05 | 4.561E 04 | 3.170E-01 | 1.700E 07 |
| MG, AZ31B (HR4) | 4.200E 04 | 3.200E 04 | 5.000E 05 | 1.980E 05 | 1.287E 04 | 6.400E-02 | 6.500E 06 |
| MG, AZ31A (H9) | 4.200E 04 | 3.300E 04 | 5.077E 05 | 1.969E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 |

| MATERIAL | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) |
|---|---|---|---|---|---|---|---|
| ALUMINUM 3004 (HARD) | 4.100E 04 | 3.600E 04 | 3.673E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| MG, AZ61A-F (EXTRUDED) | 4.100E 04 | 2.400E 04 | 3.692E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 |
| BRASS-BRONZE, CAST PB NI (11A) | 4.000E 04 | 1.700E 04 | 5.296E 04 | 1.516E 05 | 4.865E 04 | 3.210E-01 | 1.910E 07 |
| BRONZE, CAST TIN (1A) | 4.000E 04 | 2.000E 04 | 6.369E 04 | 1.312E 05 | 4.120E 04 | 3.140E-01 | 1.400E 07 |
| BRONZE, CAST TIN (1B) | 4.000E 04 | 1.800E 04 | 5.788E 04 | 1.270E 05 | 3.951E 04 | 3.110E-01 | 1.300E 07 |
| BRONZE, LOW SI (0) | 4.000E 04 | 1.500E 04 | 4.747E 04 | 1.441E 05 | 4.554E 04 | 3.160E-01 | 1.700E 07 |
| BRONZE, PHOS E (0) | 4.000E 04 | 1.400E 04 | 4.361E 04 | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.500E 07 |
| COLUMBIUM | 4.000E 04 | 3.500E 04 | 1.129E 05 | 1.387E 05 | 4.237E 04 | 3.100E-01 | 1.500E 07 |
| MG, AM100A (AGED-CAST) | 4.000E 04 | 2.200E 04 | 3.385E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 |
| MG, AM100A (SOLUTION TREATED) | 4.000E 04 | 1.300E 04 | 2.000E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 |
| MG, AZ63A (AGED-T6) | 4.000E 04 | 1.900E 04 | 2.879E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 |
| MG, AZ63A (SOLUTION TREATED) | 4.000E 04 | 1.300E 04 | 1.970E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 |
| MG, AZ81A (SOLUTION TREATED) | 4.000E 04 | 1.200E 04 | 1.846E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 |
| MG, AZ91C (AGED-CAST) | 4.000E 04 | 1.900E 04 | 2.923E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 |
| MG, AZ91C (SOLUTION TREATED) | 4.000E 04 | 1.200E 04 | 1.846E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 |
| MG, AZ92A (AGED-CAST) | 4.000E 04 | 2.100E 04 | 3.182E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 |
| MG, AZ92A (SOLUTION TREATED) | 4.000E 04 | 1.400E 04 | 2.121E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 |
| MG, ZH62A (T5-CAST) | 4.000E 04 | 2.500E 04 | 3.731E 05 | 1.935E 05 | 1.297E 04 | 6.700E-02 | 6.500E 06 |
| MG, ZK51A (T5-CAST) | 4.000E 04 | 2.400E 04 | 3.692E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 |
| BRASS, RED 85CU (0) | 3.900E 04 | 1.700E 04 | 3.165E 04 | 1.441E 05 | 4.554E 04 | 3.160E-01 | 1.700E 07 |
| ALUMINUM 5052 (HALF) | 3.600E 04 | 3.100E 04 | 3.196E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 |
| ALUMINUM 5086 (0) | 3.800E 04 | 1.700E 04 | 1.771E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 |
| ALUMINUM 5454 (HARD) | 3.800E 04 | 2.600E 04 | 2.680E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 |
| MG, AZ31B-F (FORGED) | 3.800E 04 | 2.800E 04 | 4.375E 05 | 1.980E 05 | 1.267E 04 | 6.400E-02 | 6.500E 06 |
| BRONZE, COMMERCIAL 90CU (0) | 3.700E 04 | 1.000E 04 | 3.145E 04 | 1.437E 05 | 4.568E 04 | 3.180E-01 | 1.700E 07 |
| MG, HK31A (H24) | 3.700E 04 | 2.900E 04 | 4.462E 05 | 1.950E 05 | 1.267E 04 | 6.500E-02 | 6.400E 06 |
| ALUMINUM 5456 (0) | 3.600E 04 | 1.700E 04 | 1.753E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 |
| BRONZE, CAST LEAD TIN (2A) | 3.600E 04 | 1.600E 04 | 5.145E 04 | 1.275E 05 | 3.966E 04 | 3.110E-01 | 1.310E 07 |
| BRONZE, CAST LEAD TIN (2B) | 3.600E 04 | 1.600E 04 | 5.096E 04 | 1.142E 05 | 3.585E 04 | 3.140E-01 | 1.060E 07 |
| BRONZE, CAST LEAD TIN (2C) | 3.600E 04 | 1.800E 04 | 5.732E 04 | 1.142E 05 | 3.585E 04 | 3.140E-01 | 1.060E 07 |
| MG, AZ31B-F (EXTRUDED) | 3.600E 04 | 2.400E 04 | 3.750E 05 | 1.980E 05 | 1.267E 04 | 6.400E-02 | 6.500E 06 |
| ALUMINUM 3004 (HALF) | 3.500E 04 | 2.900E 04 | 2.959E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| ALUMINUM 5154 (0) | 3.500E 04 | 1.700E 04 | 1.771E 05 | 2.025E 05 | 1.944E 04 | 9.600E-02 | 1.020E 07 |
| ALUMINUM 6063 (T6) | 3.500E 04 | 3.100E 04 | 3.163E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| BRASS, CAST LEAD YELLOW (6A) | 3.500E 04 | 1.200E 04 | 3.934E 04 | 1.331E 05 | 4.062E 04 | 3.050E-01 | 1.400E 07 |
| BRASS-BRONZE, CAST PB NI (11B) | 3.500E 04 | 1.700E 04 | 5.346E 04 | 1.349E 05 | 4.291E 04 | 3.180E-01 | 1.500E 07 |
| MG, AZ10A-F (EXTRUDED) | 3.500E 04 | 2.200E 04 | 3.465E 05 | 1.988E 05 | 1.242E 04 | 6.350E-02 | 6.900E 06 |
| ZR, REACTOR GRADE (0) | 3.500E 04 | 1.500E 04 | 6.383E 04 | 1.917E 05 | 3.564E 04 | 2.350E-01 | 1.400E 07 |
| COBALT | 3.440E 04 | 2.000E 04 | 6.250E 04 | 1.902E 05 | 6.089E 04 | 3.200E-01 | 3.000E 07 |
| BRONZE, CAST LEAD TIN (3A) | 3.400E 04 | 1.500E 04 | 4.615E 04 | 1.574E 05 | 3.815E 04 | 3.250E-01 | 1.160E 07 |
| GILDING 95CU (0) | 3.400E 04 | 1.000E 04 | 3.125E 04 | 1.432E 05 | 4.583E 04 | 3.200E-01 | 1.700E 07 |
| MG, AZ91 (AS CAST) | 3.400E 04 | 2.300E 04 | 3.538E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 |
| MG, HM21A (T8) | 3.400E 04 | 2.100E 04 | 3.281E 05 | 1.965E 05 | 1.257E 04 | 6.400E-02 | 6.400E 06 |
| MG, ZE10A (H24) | 3.400E 04 | 1.900E 04 | 3.016E 05 | 1.996E 05 | 1.257E 04 | 6.300E-02 | 6.500E 06 |
| THORIUM (0) | 3.400E 04 | 2.600E 04 | 6.190E 04 | 9.587E 04 | 4.027E 04 | 4.200E-01 | 1.000E 07 |
| ALUMINUM 7075 (0) | 3.300E 04 | 1.500E 04 | 1.485E 05 | 1.994E 05 | 2.014E 04 | 1.010E-01 | 1.040E 07 |
| ALUMINUM 7178 (0) | 3.300E 04 | 1.500E 04 | 1.471E 05 | 1.984E 05 | 2.024E 04 | 1.020E-01 | 1.040E 07 |
| BRASS, CAST LEAD RED (4A) | 3.300E 04 | 1.500E 04 | 4.717E 04 | 1.227E 05 | 3.902E 04 | 3.180E-01 | 1.240E 07 |
| BRONZE, CAST LEAD TIN (3B) | 3.300E 04 | 1.700E 04 | 5.312E 04 | 1.323E 05 | 4.232E 04 | 3.200E-01 | 1.450E 07 |
| ALUMINUM 5050 (HARD) | 3.200E 04 | 2.900E 04 | 2.990E 05 | 1.993E 05 | 1.935E 04 | 9.700E-02 | 1.000E 07 |
| ALUMINUM 6101 (T6) | 3.200E 04 | 2.800E 04 | 2.857E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| COPPER, OXYGEN FREE (0) | 3.200E 04 | 1.000E 04 | 3.096E 04 | 1.425E 05 | 4.604E 04 | 3.230E-01 | 1.700E 07 |
| COPPER, PHOS DEOXIDIZED (0) | 3.200E 04 | 1.000E 04 | 3.096E 04 | 1.425E 05 | 4.604E 04 | 3.230E-01 | 1.700E 07 |
| COPPER, TOUGH PITCH (0) | 3.200E 04 | 1.000E 04 | 3.115E 04 | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.700E 07 |
| GOLD (COLD ROLLED-50) | 3.200E 04 | 3.000E 04 | 4.298E 04 | 8.147E 04 | 5.686E 04 | 6.980E-01 | 1.200E 07 |
| MG, HK31A (T6-CAST) | 3.100E 04 | 1.600E 04 | 2.422E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 |
| BRASS, CAST LEAD RED (5B) | 3.000E 04 | 1.200E 04 | 3.785E 04 | 1.361E 05 | 4.313E 04 | 3.170E-01 | 1.520E 07 |
| BRASS, CAST LEAD YELLOW (6B) | 3.000E 04 | 1.100E 04 | 3.630E 04 | 1.238E 05 | 3.747E 04 | 3.030E-01 | 1.200E 07 |

| MATERIAL | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) |
|---|---|---|---|---|---|---|---|
| BRASS+BRONZE, CAST FR NI (1^A) | 3.000E 04 | 1.500E 04 | 4.717E 04 | 1.384E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 |
| MG, ?E41A (T5-CAST) | 3.000E 04 | 2.000E 04 | 3.030E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 |
| ALUMINUM 3003 (WARO) | 2.900E 04 | 2.700E 04 | 2.727E 05 | 1.979E 05 | 1.955E 04 | 9.900E-02 | 1.000E 07 |
| ALUMINUM 5005 (WARO) | 2.900E 04 | 2.800E 04 | 2.887E 05 | 1 995E 05 | 1.935E 04 | 9.700E-02 | 1.000E 07 |
| BRASS, CAST LEAD RED (9A) | 2.900E 04 | 1.300E 04 | 4.160E 04 | 1.270E 05 | 3.951E 04 | 3.110E-01 | 1.300E 07 |
| MG. AZ63A (AS CAST) | 2.900E 04 | 1.400E 04 | 2.121E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 |
| MG, HZ32A (T5-CAST) | 2.900E 04 | 1.500E 04 | 2.273E 05 | 1 950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 |
| ALUMINUM 5050 (WALF) | 2.800E 04 | 2.400E 04 | 2.474E 05 | 1.995E 05 | 1.935E 04 | 9.700E-02 | 1.000E 07 |
| ALUMINUM 5052 (O) | 2.800E 04 | 1.300E 04 | 1.340E 05 | 2 019E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 |
| BRONZE, CAST LEAD TIN (3C) | 2.800E 04 | 1.500E 04 | 4.687E 04 | 1.159E 05 | 3.708E 04 | 3.200E-01 | 1.113E 07 |
| BRONZE, CAST LEAD TIN (3D) | 2.800E 04 | 1.400E 04 | 4.255E 04 | 1 110E 05 | 3.652E 04 | 3.290E-01 | 1.050E 07 |
| PLATINUM (COLD ROLLED) | 2.600E 04 | 2.700E 04 | 3.484E 04 | 1 116E 05 | 8.648E 04 | 7.750E-01 | 2.500E 07 |
| ALUMINUM EC (WARO) | 2.700E 04 | 2.400E 04 | 2.449E 05 | 1.989E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| ALUMINUM 2014 (O) | 2.700E 04 | 1.400E 04 | 1.386E 05 | 2.013E 05 | 2.033E 04 | 1.010E-01 | 1.060E 07 |
| ALUMINUM 2024 (O) | 2.700E 04 | 1.100E 04 | 1.100E 05 | 2.023E 05 | 2.023E 04 | 1.000E-01 | 1.060E 07 |
| ALUMINUM 2017 (O) | 2.600E 04 | 1.000E 04 | 9.901E 04 | 2.030E 05 | 2.073E 04 | 1.010E-01 | 1.050E 07 |
| ALUMINUM 3004 (O) | 2.600E 04 | 1.700E 04 | 1.020E 05 | 1.983E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| ALUMINUM 2219 (O) | 2.500E 04 | 1.100E 04 | 1.068E 05 | 1.993E 05 | 2.053E 04 | 1.030E-01 | 1.060E 07 |
| MG, K1A (F-CAST) | 2.500E 04 | 7.000E 03 | 1.111E 05 | 1.966E 05 | 1.257E 04 | 6.300E-02 | 6.500E 06 |
| ALUMINUM 1100 (WARO) | 2.400E 04 | 2.200E 04 | 2.245E 05 | 1.989E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| MG, AZ91C (AS CAST) | 2.400E 04 | 1.400E 04 | 2.154E 05 | 1.969E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 |
| MG, AZ92A (AS CAST) | 2.400E 04 | 1 400E 04 | 2.121E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 |
| ALUMINUM 5005 (WALF) | 2.300E 04 | 2.200E 04 | 2.268E 05 | 1.995E 05 | 1.935E 04 | 9.700E-02 | 1.000E 07 |
| ALUMINUM 5457 (WARO) | 2.300E 04 | 1.900E 04 | 1.939E 05 | 1 989E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| BRONZE, CAST LEAD TIN (3E) | 2.300E 04 | 1.100E 04 | 3.313E 04 | 1 023E 05 | 3.396E 04 | 3.320E-01 | 9.000E 06 |
| MG, EZ33A (T5-CAST) | 2.300E 04 | 1.600E 04 | 2.424E 05 | 1 950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 |
| ALUMINUM 3003 (WALF) | 2.200E 04 | 2.100E 04 | 2.121E 05 | 1.975E 05 | 1.955E 04 | 9.900E-02 | 1.000E 07 |
| ALUMINUM 6061 (O) | 2.200E 04 | 1.200E 04 | 1.224E 05 | 1.985E 05 | 1.943E 04 | 9.800E-02 | 1.000E 07 |
| MG, AM100A (AS CAST) | 2.200E 04 | 1.200E 04 | 1.846E 05 | 1 969E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 |
| SILVER (O) | 2.200E 04 | 8.000E 03 | 2.111E 04 | 1.059E 05 | 4.012E 04 | 3.790E-01 | 1.100E 07 |
| ALUMINUM 5050 (O) | 2.100E 04 | 8.000E 03 | 8.247E 04 | 1 995E 05 | 1.935E 04 | 9.700E-02 | 1.000E 07 |
| PALLADIUM (O) | 2.000E 04 | 5.000E 03 | 1.152E 04 | 1.269E 05 | 5.492E 04 | 4.340E-01 | 1.800E 07 |
| ALUMINUM 1060 (WARO) | 1.900E 04 | 1.800E 04 | 1.837E 05 | 1.989E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| ALUMINUM 5457 (WALF) | 1.900E 04 | 1.600E 04 | 1.633E 05 | 1.989E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| GOLD (O) | 1.900E 04 | -0. | -0. | 8 147E 04 | 5.686E 04 | 6.980E-01 | 1.200E 07 |
| ALUMINUM 1100 (WALF) | 1.800E 04 | 1.700E 04 | 1.735E 05 | 1.989E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| ALUMINUM 5005 (O) | 1.800E 04 | 6.000E 03 | 6.186E 04 | 1 995E 05 | 1.935E 04 | 9.700E-02 | 1.000E 07 |
| ALUMINUM 6061 (O) | 1.800E 04 | 8.000E 03 | 8.163E 04 | 1.989E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| MG, LA141A (T7) | 1.800E 04 | 1.300E 04 | 2.680E 05 | 2 189E 05 | 1.060E 04 | 4.850E-02 | 6.000E 06 |
| PLATINUM (O) | 1.800E 04 | 2.000E 03 | 2.581E 03 | 1 116E 05 | 8.648E 04 | 7.750E-01 | 2.500E 07 |
| ALUMINUM EC (WALF) | 1.600E 04 | 1.400E 04 | 1.429E 05 | 1.989E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| ALUMINUM 3003 (O) | 1.600E 04 | 6.000E 03 | 6.061E 04 | 1 975E 05 | 1.955E 04 | 9.900E-02 | 1.000E 07 |
| ALUMINUM 1060 (WALF) | 1.400E 04 | 1.300E 04 | 1.327E 05 | 1 989E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| ALUMINUM 1100 (O) | 1.300E 04 | 5.000E 03 | 5.102E 04 | 1.989E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| ALUMINUM 5457 (O) | 1.300E 04 | 5.000E 03 | 5.102E 04 | 1.989E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| ALUMINUM 6063 (O) | 1.300E 04 | 7.000E 03 | 7.143E 04 | 1 989E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| COLUMBIUM C-129 | 1.300E 04 | 1.000E 05 | 2.974E 05 | 1 342E 05 | 4.603E 04 | 3.430E-01 | 1.400E 07 |
| ALUMINUM EC (O) | 1.200E 04 | 4.000E 03 | 4.082E 04 | 1 989E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| ALUMINUM 1060 (O) | 1.000E 04 | 4.000E 03 | 4.082E 04 | 1 989E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 |
| TIN, PEWTER (OS) | 8.600E 03 | -0. | -0. | 1 063E 05 | 2 796E 04 | 2.630E-01 | 7.700E 06 |
| TIN, PEWTER (CRS) | 7.600E 03 | -0. | -0. | 1.063E 05 | 2.796E 04 | 2.630E-01 | 7.700E 06 |
| LEAD, 1SB (CHILL CAST) | 3.400E 03 | -0 | -0. | 4 361E 04 | 1.770E 04 | 4.060E-01 | 2.000E 06 |
| LEAD, TELLURIUM (CHILL CAST) | 3.000E 03 | -0. | -0. | 4 339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 |
| LEAD, 1SB (EXTRUDED+AGED) | 3.000E 03 | -0. | -0. | 4 361E 04 | 1 770E 04 | 4.060E-01 | 2.000E 06 |
| LEAD, 1SB (ROLLED) | 3.000E 03 | -0. | -0. | 4 361E 04 | 1.770E 04 | 4.060E-01 | 2.000E 06 |
| LEAD, 1SB (EXTRUDED) | 2.900E 03 | -0. | -0. | 4 361E 04 | 1 770E 04 | 4.060E-01 | 2.000E 06 |
| LEAD TELLURIUM (ROLLED) | 2.800E 03 | - | -0. | 4 339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 |
| TIN, GRADE A (CRS) | 2.800E 03 | 2 000E 03 | 7.576E 03 | 6 367E 04 | 2 473E 04 | 2.640E-01 | 6.000E 06 |

| MATERIAL | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) |
|---|---|---|---|---|---|---|---|
| LEAD, CHEMICAL (CHILL CAST) | 2.600E 03 | -0. | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 |
| LEAD, CHEMICAL (EXTRUDED) | 2.900E 03 | -0. | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 |
| LEAD, CHEMICAL (ROLLED) | 2.400E 03 | 1.640E 03 | 4.000E 03 | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 |
| TIN, GRADE A (OS) | 2.200E 03 | 1.300E 03 | 4.924E 03 | 9.367E 04 | 2.473E 04 | 2.640E-01 | 6.000E 06 |
| LEAD, SOFT (ROLLED) | 2.100E 03 | -0. | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 |
| TIN, GRADE A (CAST) | 2.100E 03 | 1.700E 03 | 6.439E 03 | 9.367E 04 | 2.473E 04 | 2.640E-01 | 6.000E 06 |
| LEAD, SOFT (CHILL CAST) | 2.000E 03 | -0. | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 |
| LEAD, SOFT (EXTRUDED) | 2.000E 03 | -0. | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 |

| MATERIAL | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) |
|---|---|---|---|---|---|---|---|
| AVC N-25RE | 2.250E 05 | 3.151E 05 | 1.801E 05 | 1.286E 05 | 7.140E-01 | 6.000E 07 | 2.420E 05 |
| TUNGSTEN | 2.200E 05 | 3.143E 05 | 1.804E 05 | 1.263E 05 | 7.000E-01 | 5.900E 07 | 2.200E 05 |
| NI, INCONEL 718 | 1.750E 05 | 5.912E 05 | 1.945E 05 | 5.757E 04 | 2.960E-01 | 2.900E 07 | 2.120E 05 |
| TI, 6AL-6V-2SN (HEAT TREATED) | 1.750E 05 | 1.080E 06 | 1.953E 05 | 3.163E 04 | 1.620E-01 | 1.600E 07 | 1.900E 05 |
| TI, 13V-11CR-3AL(HEAT TREATED) | 1.700E 05 | 9.714E 05 | 1.788E 05 | 3.130E 04 | 1.750E-01 | 1.450E 07 | 1.900E 05 |
| NICKEL-SPAN-C902 (COLD WORKED) | 1.690E 05 | 5.631E 05 | 1.778E 05 | 5.210E 04 | 2.930E-01 | 2.400E 07 | 1.790E 05 |
| TANTALUM-10W | 1.580E 05 | 2.599E 05 | .155E 05 | 7.021E 04 | 6.080E-01 | 2.100E 07 | 1.600E 05 |
| NI, RENE-41, R-41 | 1.540E 05 | 5.168E 05 | 2.030E 05 | 6.048E 04 | 2.980E-01 | 3.180E 07 | 2.040E 05 |
| TI, 7AL-4MO (HEAT TREATED) | 1.500E 05 | 9.259E 05 | 1.953E 05 | 3.163E 04 | 1.620E-01 | 1.600E 07 | 1.600E 05 |
| TI, 8AL-1MO-1V (HEAT TREATED) | 1.500E 05 | 9.494E 05 | 2.038E 05 | 3.220E 04 | 1.580E-01 | 1.700E 07 | 1.650E 05 |
| NI, UDIMET 700 | 1.400E 05 | 4.895E 05 | 2.082E 05 | 5.953E 04 | 2.860E-01 | 3.210E 07 | 2.050E 05 |
| TI, 8AL-1MO-1V (O) | 1.400E 05 | 8.861E 05 | 2.038E 05 | 3.220E 04 | 1.580E-01 | 1.700E 07 | 1.450E 05 |
| TI, 6AL-4V (HEAT TREATED) | 1.350E 05 | 8.437E 05 | 1.902E 05 | 3.044E 04 | 1.600E-01 | 1.500E 07 | 1.450E 05 |
| TI, 7AL-4MO (O) | 1.350E 05 | 8.333E 05 | 1.953E 05 | 3.163E 04 | 1.620E-01 | 1.600E 07 | 1.450E 05 |
| COPPER, BERYLLIUM (HARD) | 1.300E 05 | 4.392E 05 | 1.574E 05 | 4.659E 04 | 2.960E-01 | 1.[illegible]00E 07 | 1.650E 05 |
| NI, MONEL K-500 (SAW) | 1.300E 05 | 4.248E 05 | 1.811E 05 | 5.542E 04 | 3.060E-01 | 2.600E 07 | 1.700E 05 |
| NI, MONEL K-500 (SPRING) | 1.300E 05 | 4.248E 05 | 1.811E 05 | 5.542E 04 | 3.060E-01 | 2.600E 07 | 1.450E 05 |
| NI, UNITEMP 1753 | 1.300E 05 | 4.262E 05 | 1.981E 05 | 6.042E 04 | 3.050E-01 | 3.100E 07 | 1.940E 05 |
| TI, 6AL-6V-2SN (O) | 1.300E 05 | 8.[illegible]29E 05 | 1.953E 05 | 3.163E 04 | 1.620E-01 | 1.600E 07 | 1.500E 05 |
| NICKEL-SPAN-C902 (ROLLED) | 1.260E 05 | 4.300E 05 | 1.778E 05 | 5.210E 04 | 2.930E-01 | 2.400E 07 | 1.310E 05 |
| TI, 13V-11CR-3AL (O) | 1.250E 05 | 7.143E 05 | 1.788E 05 | 3.130E 04 | 1.750E-01 | 1.450E 07 | 1.300E 05 |
| NI, M-252 | 1.220E 05 | 4.094E 05 | 1.965E 05 | 5.855E 04 | 2.980E-01 | 2.930E 07 | 1.800E 05 |
| NI, NICROTUNG (CAST) | 1.200E 05 | 4.000E 05 | 2.076E 05 | 6.229E 04 | 3.000E-01 | 3.350E 07 | 1.300E 05 |
| NI, WASPALOY | 1.200E 05 | 4.054E 05 | 2.040E 05 | 6.038E 04 | 2.960E-01 | 3.190E 07 | 1.880E 05 |
| TI, 6AL-4V (O) | 1.200E 05 | 7.500E 05 | 1.902E 05 | 3.044E 04 | 1.600E-01 | 1.500E 07 | 1.306E 05 |
| TI, 2FE-2CR-2MO (O) | 1.200E 05 | 7.[illegible]49E 05 | 1.906E 05 | 3.240E 04 | 1.700E-01 | 1.600E 07 | 1.400E 05 |
| TI, 8MN (O) | 1.200E 05 | 7.[illegible]18E 05 | 1.871E 05 | 3.199E 04 | 1.710E-01 | 1.550E 07 | 1.250E 05 |
| COBALT J-1650 | 1.100E 05 | 3.625E 05 | 2.013E 05 | 6.443E 04 | 3.200E-01 | 3.360E 07 | 1.740E 05 |
| COBALT NIVCO | 1.100E 05 | 3.548E 05 | 1.933E 05 | 5.992E 04 | 3.100E-01 | 3.000E 07 | 1.650E 05 |
| NI UDIMET 500 | 1.100E 05 | 3.793E 05 | 2.038E 05 | 5.910E 04 | 2.900E-01 | 3.120E 07 | 1.970E 05 |
| TI, 5AL-2,5SN | 1.100E 05 | 6.832E 05 | 1.959E 05 | 3.153E 04 | 1.610E-01 | 1.600E 07 | 1.150E 05 |
| TI, 5AL-5SN-5ZR | 1.100E 05 | 6.667E 05 | 1.935E 05 | 3.192E 04 | 1.650E-01 | 1.600E 07 | 1.200E 05 |
| VANADIUM (COLD WORKED) | 1.090E 05 | 4.739E 05 | 1.832E 05 | 4.214E 04 | 2.300E-01 | 2.000E 07 | 1.130E 05 |
| MO, TZM (.5TI, .1ZR) | 1.050E 05 | 2.838E 05 | 2.191E 05 | 8.106E 04 | 3.700E-01 | 4.600E 07 | 1.250E 05 |
| MO-0 5TI | 1.040E 05 | 2.811E 05 | 2.191E 05 | 8.106E 04 | 3.700E-01 | 4.600E 07 | 1.150E 05 |
| NI, INCONEL 700 | 1.040E 05 | 3.525E 05 | 2.059E 05 | 6.074E 04 | 2.950E-01 | 3.240E 07 | 1.710E 05 |
| COLUMBIUM C-129 | 1.020E 05 | 2.974E 05 | 1.342E 05 | 4.603E 04 | 3.430E-01 | 1.600E 07 | 1.300E 04 |
| HAFNIUM (COLD WORKED) | 9.600E 04 | 2.043E 05 | 2.282E 05 | 6.024E 04 | 4.700E-01 | 2.000E 07 | 1.120E 05 |
| AVC (70MO, 30W) | 9.500E 04 | 2.209E 05 | 2.119E 05 | 9.110E 04 | 4.300E-01 | 5.000E 07 | 1.050E 05 |
| N INCONEL X-750 | 9.200E 04 | 3.067E 05 | 2.034E 05 | 5.972E 04 | 2.980E-01 | 3.100E 07 | 1.620E 05 |
| COLUMBIUM 5-66 | 9.000E 04 | 2.951E 05 | 1.36[illegible] 05 | 4.174E 04 | 3.050E-01 | 1.480E 07 | 1.120E 05 |
| CU55-NI18-ZN27 (EXTRA HARD) | 9.000E 04 | 2.866E 05 | 1.[illegible] 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 1.080E 05 |
| NI, MONEL K-500 (SAW) | 9.000E 04 | 2.941E 05 | 1.811E 05 | 5.542E 04 | 3.060E-01 | 2.600E 07 | 1.300E 05 |
| NI, MONEL 400 (SPRING) | 9.000E 04 | 2.821E 05 | 1.774E 05 | 5.658E 04 | 3.190E-01 | 2.600E 07 | 1.000E 05 |
| BRONZE, P,M, SI (HARD) | 8.800E 04 | 2.733E 05 | 1.469E 05 | 4.730E 04 | 3.220E-01 | 1.800E 07 | 1.000E 05 |
| COLUMBIUM C-103 | 8.500E 04 | 2.750E 05 | 1.233E 05 | 3.945E 04 | 3.200E-01 | 1.260E 07 | 9.350E 04 |
| CU55-NI18-ZN27 (HARD) | 8.500E 04 | 2.707E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 1.000E 05 |
| NI, INCONEL 705 (O-AGED) | 8.500E 04 | 2.911E 05 | 1.818E 05 | 5.309E 04 | 2.920E-01 | 2.500E 07 | 9.000E 04 |
| COBALT V-36 | 8.300E 04 | 2.739E 05 | 2.019E 05 | 6.118E 04 | 3.030E-01 | 3.200E 07 | 1.460E 05 |
| COBALT HS-21 | 8.200E 04 | 2.733E 05 | 2.152E 05 | 6.457E 04 | 3.000E-01 | 3.600E 07 | 1.018E 05 |
| MOLYBDENUM | 8.200E 04 | 2.214E 05 | 2.214E 05 | 8.193E 04 | 3.700E-01 | 4.700E 07 | 9.500E 04 |
| NI, INCONEL 705 (CAST) | 8.000E 04 | 2.740E 05 | 1.818E 05 | 5.309E 04 | 2.920E-01 | 2.500E 07 | 9.000E 04 |
| NI, MONEL 505 (CAST) | 8.000E 04 | 2.649E 05 | 1.759E 05 | 5.312E 04 | 3.020E-01 | 2.420E 07 | 1.100E 05 |
| NI, MONEL 505 (AGED) | 8.000E 04 | 2.649E 05 | 1.759E 05 | 5.312E 04 | 3.020E-01 | 2.420E 07 | 1.100E 05 |
| CU65-NI12-ZN23 (EXTRA HARD) | 7.900E 04 | 2.516E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 9.300E 04 |
| CU65-NI15-ZN20 (EXTRA HARD) | 7.900E 04 | 2.516E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 9.200E 04 |
| ALUMINUM 7178 (T6) | 7.800E 04 | 7.647E 05 | 1.984E 05 | 2.024E 04 | 1.020E-01 | 1.040E 07 | 8.800E 04 |
| COBALT HS-31,X-40 | 7.600E 04 | 2.452E 05 | 1.900E 05 | 5.891E 04 | 3.100E-01 | 2.900E 07 | 1.380E 05 |

| MATERIAL | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) |
|---|---|---|---|---|---|---|---|
| CU65-NI10-ZN25 (EXTRA HARD) | 7.600E 04 | 2.420E 05 | 1.467E 05 | 4.606E 04 | 3.140E-01 | 1.750E 07 | 9.500E 04 |
| BRONZE, PHOS A (HARD) | 7.500E 04 | 2.344E 05 | 1.389E 05 | 4.446E 04 | 3.200E-01 | 1.600E 07 | 8.100E 04 |
| COPPER-NICKEL,20 (LIGHT DRAWN) | 7.500E 04 | 2.322E 05 | 1.546E 05 | 4.994E 04 | 3.230E-01 | 2.030E 07 | 9.000E 04 |
| CU65-NI10-ZN25 (HARD) | 7.500E 04 | 2.389E 05 | 1.467E 05 | 4.606E 04 | 3.140E-01 | 1.750E 07 | 8.600E 04 |
| CU65-NI12-ZN23 (HARD) | 7.500E 04 | 2.389E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 8.500E 04 |
| CU65-NI15-ZN20 (HARD) | 7.500E 04 | 2.389E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 8.500E 04 |
| CU65-NI16-ZN17 (HARD) | 7.400E 04 | 2.342E 05 | 1.483E 05 | 4.686E 04 | 3.160E-01 | 1.800E 07 | 8.500E 04 |
| ALUMINUM 7075 (T6) | 7.300E 04 | 7.228E 05 | 1.994E 05 | 2.014E 04 | 1.010E-01 | 1.040E 07 | 8.300E 04 |
| BRONZE, PHOS B (HARD) | 7.200E 04 | 2.264E 05 | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 | 9.300E 04 |
| COBALT S-816 | 7.000E 04 | 2.258E 05 | 2.088E 05 | 6.472E 04 | 3.100E-01 | 3.500E 07 | 1.400E 05 |
| COLUMBIUM CB-752 | 7.000E 04 | 2.288E 05 | 1.376E 05 | 4.239E 04 | 3.060E-01 | 1.500E 07 | 8.500E 04 |
| NICKEL 36 + IRON (COLD WORKED) | 7.000E 04 | 2.405E 05 | 1.669E 05 | 4.857E 04 | 2.910E-01 | 2.100E 07 | 9.002E 04 |
| NICKEL 200 (SPRING) | 7.000E 04 | 2.181E 05 | 1.899E 05 | 6.097E 04 | 3.210E-01 | 3.000E 07 | 9.000E 04 |
| ALUMINUM 7079 (T6) | 6.800E 04 | 6.869E 05 | 2.004E 05 | 1.984E 04 | 9.900E-02 | 1.030E 07 | 7.800E 04 |
| COPPER-NICKEL,30 (HALF) | 6.800E 04 | 2.105E 05 | 1.622E 05 | 5.238E 04 | 3.230E-01 | 2.200E 07 | 7.300E 04 |
| COBALT L-605 | 6.700E 04 | 2.030E 05 | 2.000E 05 | 6.601E 04 | 3.300E-01 | 3.420E 07 | 1.440E 05 |
| BRASS, CAST HIGH YELLOW (BC) | 6.500E 04 | 2.347E 05 | 1.407E 05 | 3.897E 04 | 2.770E-01 | 1.420E 07 | 1.120E 05 |
| VANADIUM (O) | 6.400E 04 | 2.783E 05 | 1.832E 05 | 4.214E 04 | 2.300E-01 | 2.000E 07 | 7.200E 04 |
| BRASS, CARTRIDGE 70CU (HARD) | 6.300E 04 | 2.045E 05 | 1.416E 05 | 4.362E 04 | 3.080E-01 | 1.600E 07 | 7.600E 04 |
| CU65-NI15-ZN20 (HALF) | 6.200E 04 | 1.975E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 7.400E 04 |
| ALUMINUM 2014 (T6) | 6.000E 04 | 5.941E 05 | 2.013E 05 | 2.033E 04 | 1.010E-01 | 1.040E 07 | 7.000E 04 |
| BRASS, EXTRA-HIGH-LEAD (HARD) | 6.000E 04 | 1.954E 05 | 1.327E 05 | 4.073E 04 | 3.070E-01 | 1.400E 07 | 7.400E 04 |
| BRASS, HIGH-LEAD (HARD) | 6.000E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 | 7.400E 04 |
| BRASS, LOW-LEAD (HARD) | 6.000E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 | 7.400E 04 |
| BRASS, MEDIUM-LEAD (HARD) | 6.000E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 | 7.400E 04 |
| BRASS, YELLOW (HARD) | 6.000E 04 | 1.961E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 | 7.400E 04 |
| BRONZE, MANG E A (HALF) | 6.000E 04 | 1.987E 05 | 1.385E 05 | 4.182E 04 | 3.020E-01 | 1.500E 07 | 8.400E 04 |
| BRONZE, P,M, SI (O) | 6.000E 04 | 1.863E 05 | 1.469E 05 | 4.738E 04 | 3.220E-01 | 1.0[illegible] 07 | 6.500E 04 |
| CU65-NI10-ZN25 (HALF) | 6.000E 04 | 1.911E 05 | 1.467E 05 | 4.606E 04 | 3.140E-01 | 1.750E 07 | 7.300E 04 |
| CU65-NI12-ZN23 (HALF) | 6.000E 04 | 1.911E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 7.300E 04 |
| CU65-NI16-ZN17 (HALF) | 6.000E 04 | 1.899E 05 | 1.483E 05 | 4.686E 04 | 3.160E-01 | 1.800E 07 | 7.000E 04 |
| MUNTZ METAL, FREE-CUT (HARD) | 6.000E 04 | 1.974E 05 | 1.380E 05 | 4.196E 04 | 3.040E-01 | 1.500E 07 | 8.000E 04 |
| BRASS, LOW 80CU (HARD) | 5.900E 04 | 1.865E 05 | 1.405E 05 | 4.397E 04 | 3.130E-01 | 1.600E 07 | 7.400E 04 |
| NI, HASTELLOY C | 5.780E 04 | 1.785E 05 | 1.887E 05 | 6.096E 04 | 3.230E-01 | 2.980E 07 | 1.210E 05 |
| ALUMINUM 2219 (T87) | 5.700E 04 | 5.574E 05 | 1.993E 05 | 2.053E 04 | 1.030E-01 | 1.060E 07 | 6.900E 04 |
| BRASS, RED 85CU (HARD) | 5.700E 04 | 1.804E 05 | 1.441E 05 | 4.554E 04 | 3.160E-01 | 1.700E 07 | 7.600E 04 |
| COPPER-NICKEL,10 (LIGHT DRAWN) | 5.700E 04 | 1.765E 05 | 1.467E 05 | 4.738E 04 | 3.230E-01 | 1.800E 07 | 6.000E 04 |
| NI, HASTELLOY B | 5.650E 04 | 1.692E 05 | 1.747E 05 | 5.834E 04 | 3.340E-01 | 2.640E 07 | 1.210E 05 |
| BRONZE, JEWELRY 87.5CU (HARD) | 5.600E 04 | 1.767E 05 | 1.439E 05 | 4.561E 04 | 3.170E-01 | 1.700E 07 | 6.600E 04 |
| ALUMINUM 6262 (T9) | 5.500E 04 | 5.612E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 5.800E 04 |
| BRONZE, HIGH SI (HARD) | 5.300E 04 | 1.786E 05 | 1.371E 05 | 4.223E 04 | 3.080E-01 | 1.500E 07 | 9.200E 04 |
| BRONZE, LOW SI (HARD) | 5.500E 04 | 1.741E 05 | 1.441E 05 | 4.554E 04 | 3.160E-01 | 1.700E 07 | 7.000E 04 |
| BRONZE, PHOS A (HALF) | 5.500E 04 | 1.719E 05 | 1.389E 05 | 4.446E 04 | 3.200E-01 | 1.600E 07 | 6.800E 04 |
| BRONZE, PHOS B (HALF) | 5.500E 04 | 1.730E 05 | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 | 7.600E 04 |
| BRONZE, COMMERCIAL 90CU (HARD) | 5.400E 04 | 1.698E 05 | 1.437E 05 | 4.568E 04 | 3.180E-01 | 1.700E 07 | 6.100E 04 |
| BRASS, LEAD NAVAL (HALF) | 5.300E 04 | 1.738E 05 | 1.378E 05 | 4.203E 04 | 3.050E-01 | 1.500E 07 | 7.900E 04 |
| BRASS, NAVAL (HALF) | 5.300E 04 | 1.743E 05 | 1.380E 05 | 4.196E 04 | 3.040E-01 | 1.500E 07 | 7.900E 04 |
| ZR, COMMERCIAL GRADE (O) | 5.300E 04 | 2.236E 05 | 1.910E 05 | 3.579E 04 | 2.370E-01 | 1.400E 07 | 6.400E 04 |
| NI, HASTELLOY X | 5.220E 04 | 1.758E 05 | 1.928E 05 | 5.726E 04 | 2.970E-01 | 2.860E 07 | 1.140E 05 |
| ALUMINUM 6066 (T6) | 5.200E 04 | 5.306E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 5.700E 04 |
| BRASS, FREE-CUTTING (HARD) | 5.200E 04 | 1.694E 05 | 1.327E 05 | 4.073E 04 | 3.070E-01 | 1.400E 07 | 6.800E 04 |
| ALUMINUM 2024 (T3) | 5.000E 04 | 5.000E 05 | 2.023E 05 | 2.023E 04 | 1.000E-01 | 1.060E 07 | 7.800E 04 |
| ALUMINUM 5056 (HARD) | 5.000E 04 | 5.263E 05 | 2.046E 05 | 1.944E 04 | 9.500E-02 | 1.030E 07 | 6.030E 04 |
| BRONZE, AL-BI (HARD) | 5.000E 04 | 1.799E 05 | 1.491E 05 | 4.144E 04 | 2.780E-01 | 1.600E 07 | 9.800E 04 |
| BRONZE, LEAD COMMERCIAL (HALF) | 5.000E 04 | 1.567E 05 | 1.434E 05 | 4.979E 04 | 3.190E-01 | 1.700E 07 | 5.900E 04 |
| BRONZE, PHOS E (HARD) | 5.000E 04 | 1.558E 05 | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.700E 07 | 6.900E 04 |
| GILDING 95CU (HARD) | 5.000E 04 | 1.562E 05 | 1.432E 05 | 4.583E 04 | 3.200E-01 | 1.700E 07 | 5.600E 04 |
| TANTALUM | 4.800E 04 | 8.000E 04 | 1.318E 05 | 7.908E 04 | 6.000E-01 | 2.700E 07 | 6.000E 04 |

| MATERIAL | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) |
|---|---|---|---|---|---|---|---|
| BRASS, CAST HIGH YELLOW (88) | 4,600E 04 | 1.614E 05 | 1.401E 05 | 3.994E 04 | 2.850E-01 | 1.450E 07 | 9.100E 04 |
| BRASS, LEAD NAVAL (QUARTER) | 4,600E 04 | 1.508E 05 | 1.378E 05 | 4.203E 04 | 3.050E-01 | 1.900E 07 | 6.900E 04 |
| BRASS, NAVAL (QUARTER) | 4,600E 04 | 1.513E 05 | 1.380E 05 | 4.198E 04 | 3.040E-01 | 1.500E 07 | 6.900E 04 |
| ALUMINUM 2011 (T8) | 4,500E 04 | 4.412E 05 | 1.965E 05 | 2.004E 04 | 1.020E-01 | 1.020E 07 | 5.900E 04 |
| COPPER, OXYGEN FREE (HARD) | 4,500E 04 | 1.393E 05 | 1.425E 05 | 4.604E 04 | 3.230E-01 | 1.700E 07 | 5.000E 04 |
| COPPER, PHOS DEOXIDIZED (HARD) | 4,500E 04 | 1.393E 05 | 1.425E 05 | 4.604E 04 | 3.230E-01 | 1.700E 07 | 5.000E 04 |
| COPPER, TOUGH PITCH (HARD) | 4,500E 04 | 1.402E 05 | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.700E 07 | 5.000E 04 |
| THORIUM (COLD WORKED) | 4,500E 04 | 1.071E 05 | 9.587E 04 | 4.027E 04 | 4.200E-01 | 1.000E 07 | 4.900E 04 |
| ZR, ZIRCALOY-2 (O) | 4,500E 04 | 1.899E 05 | 1.499E 05 | 3.993E 04 | 2.370E-01 | 1.380E 07 | 6.000E 04 |
| BRONZE, AL-SI (O) | 4,400E 04 | 1.583E 05 | 1.491E 05 | 4.144E 04 | 2.780E-01 | 1.600E 07 | 8.500E 04 |
| COPPER, TELLURIUM (HALF) | 4,400E 04 | 1.362E 05 | 1.383E 05 | 4.467E 04 | 3.230E-01 | 1.600E 07 | 4.800E 04 |
| SILVER (COLD ROLLED-50) | 4,400E 04 | 1.161E 05 | 1.059E 05 | 4.012E 04 | 3.790E-01 | 1.100E 07 | 5.400E 04 |
| ALUMINUM 2011 (T3) | 4,300E 04 | 4.214E 05 | 1.965E 05 | 2.004E 04 | 1.020E-01 | 1.020E 07 | 5.500E 04 |
| ALUMINUM 2014 (T4) | 4,200E 04 | 4.158E 05 | 2.013E 05 | 2.033E 04 | 1.010E-01 | 1.060E 07 | 6.200E 04 |
| ALUMINUM 2017 (T4) | 4,000E 04 | 3.960E 05 | 2.003E 05 | 2.023E 04 | 1.010E-01 | 1.050E 07 | 6.200E 04 |
| ALUMINUM 6061 (T6) | 4,000E 04 | 4.082E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 4.500E 04 |
| BRONZE, AL D (HARD) | 4,000E 04 | 1.404E 05 | 1.517E 05 | 4.325E 04 | 2.850E-01 | 1.700E 07 | 8.200E 04 |
| BRONZE, CAST ALUMINUM (90) | 4,000E 04 | 1.471E 05 | 1.598E 05 | 4.347E 04 | 2.720E-01 | 1.800E 07 | 9.000E 04 |
| BRONZE, PHOS FREE-CUT (HALF) | 4,000E 04 | 1.246E 05 | 1.343E 05 | 4.311E 04 | 3.210E-01 | 1.900E 07 | 5.800E 04 |
| MG, ZK60A-T5 (EXTRUDED) | 4,000E 04 | 6.061E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 5.000E 04 |
| NICKEL 36 + IRON (O) | 4,000E 04 | 1.375E 05 | 1.669E 05 | 4.857E 04 | 2.910E-01 | 2.100E 07 | 7.100E 04 |
| NI, MONEL K-500 (O) | 4,000E 04 | 1.307E 05 | 1.811E 05 | 5.542E 04 | 3.060E-01 | 2.600E 07 | 9.000E 04 |
| TI, UNALLOYED | 4,000E 04 | 2.454E 05 | 1.885E 05 | 3.072E 04 | 1.630E-01 | 1.500E 07 | 6.000E 04 |
| ALUMINUM 5154 (HARD) | 3,900E 04 | 4.062E 05 | 2.025E 05 | 1.944E 04 | 9.600E-02 | 1.020E 07 | 4.800E 04 |
| NICKEL 42 + IRON (O) | 3,900E 04 | 1.327E 05 | 1.700E 05 | 4.997E 04 | 2.940E-01 | 2.200E 07 | 6.800E 04 |
| MG, AZ80A-T5 (EXTRUDED) | 3,800E 04 | 5.846E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 5.000E 04 |
| ALUMINUM 5052 (HARD) | 3,700E 04 | 3.814E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 | 4.200E 04 |
| ALUMINUM 5086 (HALF) | 3,700E 04 | 3.854E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 4.700E 04 |
| ALUMINUM 5456 (HALF) | 3,700E 04 | 3.854E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 5.100E 04 |
| ALUMINUM 3004 (HARD) | 3,600E 04 | 3.673E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 4.100E 04 |
| ALUMINUM 5454 (HALF) | 3,500E 04 | 3.608E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 | 4.400E 04 |
| COLUMBIUM | 3,500E 04 | 1.129E 05 | 1.367E 05 | 4.237E 04 | 3.100E-01 | 1.500E 07 | 4.000E 04 |
| COLUMBIUM CB-1ZR | 3,500E 04 | 1.129E 05 | 1.197E 05 | 3.710E 04 | 3.100E-01 | 1.150E 07 | 4.800E 04 |
| DURANICKEL 301 (O) | 3,500E 04 | 1.174E 05 | 1.971E 05 | 5.875E 04 | 2.980E-01 | 3.000E 07 | 9.000E 04 |
| MG, AZ80A-T5 (FORGED) | 3,400E 04 | 5.231E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 5.000E 04 |
| ALUMINUM 5083 (HALF) | 3,300E 04 | 3.437E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 4.600E 04 |
| ALUMINUM 5154 (HALF) | 3,300E 04 | 3.437E 05 | 2.025E 05 | 1.944E 04 | 9.600E-02 | 1.020E 07 | 4.200E 04 |
| MG, HK31A (T5) | 3,300E 04 | 5.277E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.200E 04 |
| NICKEL 47-53 + IRON (O) | 3,300E 04 | 1.115E 05 | 1.769E 05 | 5.237E 04 | 2.960E-01 | 2.400E 07 | 7.700E 04 |
| HAFNIUM (O) | 3,200E 04 | 6.809E 04 | 1.282E 05 | 6.024E 04 | 4.700E-01 | 2.000E 07 | 7.700E 04 |
| MG, AZ31B (H24) | 3,200E 04 | 5.000E 05 | 1.980E 05 | 1.267E 04 | 6.400E-02 | 6.500E 06 | 4.200E 04 |
| NI, MONEL 411 (CAST) | 3,200E 04 | 1.024E 05 | 1.533E 05 | 4.784E 04 | 3.120E-01 | 1.900E 07 | 6.500E 04 |
| ALUMINUM 5052 (HALF) | 3,100E 04 | 3.196E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 | 3.800E 04 |
| ALUMINUM 6063 (T6) | 3,100E 04 | 3.163E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 3.500E 04 |
| BRONZE, CAST ALUMINUM (9C) | 3,000E 04 | 1.103E 05 | 1.459E 05 | 3.969E 04 | 2.720E-01 | 1.500E 07 | 7.500E 04 |
| BRONZE, MANGANESE A (O) | 3,000E 04 | 9.934E 04 | 1.385E 05 | 4.182E 04 | 3.020E-01 | 1.500E 07 | 6.500E 04 |
| GOLD (COLD ROLLED-50) | 3,000E 04 | 4.298E 04 | 8.147E 04 | 5.886E 04 | 6.980E-01 | 1.200E 07 | 3.200E 04 |
| MG, ZK60A-T5 (FORGED) | 3,000E 04 | 4.545E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.400E 04 |
| NI, INCONEL 610 (CAST) | 3,000E 04 | 1.000E 05 | 1.997E 05 | 5.992E 04 | 3.000E-01 | 3.100E 07 | 7.000E 04 |
| PALLADIUM (COLD ROLLED-50) | 3,000E 04 | 6.912E 04 | 1.269E 05 | 5.492E 04 | 4.340E-01 | 1.800E 07 | 4.700E 04 |
| ALUMINUM 3004 (HALF) | 2,900E 04 | 2.959E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 3.500E 04 |
| ALUMINUM 5050 (HARD) | 2,900E 04 | 2.990E 05 | 1.995E 05 | 1.955E 04 | 9.700E-02 | 1.000E 07 | 3.200E 04 |
| MG, HK31A (H24) | 2,900E 04 | 4.462E 05 | 1.950E 05 | 1.267E 04 | 6.500E-02 | 6.400E 06 | 3.700E 04 |
| ALUMINUM 5005 (HARD) | 2,800E 04 | 2.887E 05 | 1.995E 05 | 1.955E 04 | 9.700E-02 | 1.000E 07 | 2.900E 04 |
| ALUMINUM 6101 (T6) | 2,800E 04 | 2.857E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 3.200E 04 |
| BRONZE, CAST ALUMINUM (9B) | 2,800E 04 | 1.761E 05 | 1.431E 05 | 3.777E 04 | 2.640E-01 | 1.400E 07 | 7.000E 04 |
| BRONZE, PHOS C (O) | 2,800E 04 | 8.833E 04 | 1.396E 05 | 4.425E 04 | 3.170E-01 | 1.600E 07 | 6.600E 04 |
| MG, AZ31B-F (FORGED) | 2,800E 04 | 4.375E 05 | 1.980E 05 | 1.267E 04 | 6.400E-02 | 6.500E 06 | 3.800E 04 |

| MATERIAL | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) |
|---|---|---|---|---|---|---|---|
| MG, ZK61A (T6-CAST) | 2,800E 04 | 4.242E 05 | 1,950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.500E 04 |
| ALUMINUM 2219 (T42) | 2,700E 04 | 2.621E 05 | 1,993E 05 | 2.053E 04 | 1.030E-01 | 1.040E 07 | 5.200E 04 |
| ALUMINUM 3003 (WARM) | 2,700E 04 | 2.727E 05 | 1,979E 05 | 1 959E 04 | 9.900E-02 | 1.000E 07 | 2.900E 04 |
| BRASS, ALUMINUM (0) | 2,700E 04 | 8.970E 04 | 1.432E 05 | 4.312E 04 | 3.010E-01 | 1.600E 07 | 6.000E 04 |
| CU55-NI18-ZN27 (0) | 2,700E 04 | 8.599E 04 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 6.000E 04 |
| PLATINUM (COLD ROLLED) | 2,700E 04 | 3.484E 04 | 1.116E 05 | 8.648E 04 | 7.750E-01 | 2.900E 07 | 2.800E 04 |
| ALUMINUM 5454 (WARM) | 2,600E 04 | 2.680E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 | 3.800E 04 |
| MG, AZ61A-F (FORGED) | 2,400E 04 | 4.000E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.300E 04 |
| THORIUM (0) | 2,400E 04 | 6.190E 04 | 9.587E 04 | 4.027E 04 | 4.200E-01 | 1.000E 07 | 3.400E 04 |
| BRASS, CAST HIGH YELLOW (8A) | 2,500E 04 | 8.306E 04 | 1.405E 05 | 4.230E 04 | 3.010E-01 | 1.540E 07 | 6.500E 04 |
| BRASS, LEAD NAVAL (0) | 2,500E 04 | 8.197E 04 | 1.378E 05 | 4.203E 04 | 3.050E-01 | 1.500E 07 | 5.700E 04 |
| BRASS, NAVAL (0) | 2,500E 04 | 8.224E 04 | 1.380E 05 | 4.196E 04 | 3.040E-01 | 1.500E 07 | 5.700E 04 |
| BRASS-BRONZE, CAST SI (13B) | 2,500E 04 | 8.361E 04 | 1.410E 05 | 4.210E 04 | 2.990E-01 | 1.540E 07 | 6.000E 04 |
| BRONZE, CAST ALUMINUM (2A) | 2,500E 04 | 8.897E 04 | 1.483E 05 | 4.166E 04 | 2.810E-01 | 1.600E 07 | 7.000E 04 |
| COPPER, BERYLLIUM (0) | 2,500E 04 | 8.446E 04 | 1.574E 05 | 4.659E 04 | 2.960E-01 | 1.900E 07 | 6.000E 04 |
| CU65-NI18-ZN17 (0) | 2,500E 04 | 7 911E 04 | 1.483E 05 | 4 686E 04 | 3.160E-01 | 1.800E 07 | 5.600E 04 |
| MG, ZH62A (T5-CAST) | 2,500E 04 | 3.731E 05 | 1,935E 05 | 1 297E 04 | 6.700E-02 | 6.500E 06 | 4.000E 04 |
| NI, MONEL 400 (0) | 2,500E 04 | 7 837E 04 | 1.774E 05 | 5.658E 04 | 3.190E-01 | 2.600E 07 | 7.000E 04 |
| URANIUM, DEPLETED (0) | 2 500E 04 | 3.673E 04 | 1.058E 05 | 7.299E 04 | 6.900E-01 | 2.000E 07 | 7.500E 04 |
| ALUMINUM 6C (WARM) | 2,400E 04 | 2.449E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 2.700E 04 |
| ALUMINUM 5050 (WALF) | 2,400E 04 | 2.474E 05 | 1.995E 05 | 1 939E 04 | 9.700E-02 | 1.000E 07 | 2.8 0E 04 |
| BRONZE, PHOS B (0) | 2,400E 04 | 7.547E 04 | 1.394E 05 | 4 432E 04 | 3.180E-01 | 1.600E 07 | 5 00E 04 |
| MG, AZ31B-F (EXTRUDED) | 2,400E 04 | 3.750E 05 | 1.980E 05 | 1.267E 04 | 6.400E-02 | 6.500E 06 | 3.400E 04 |
| MG, AZ61A-F (EXTRUDED) | 2,400E 04 | 3.692E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.100E 04 |
| MG, ZK51A (T5-CAST) | 2,400E 04 | 3.692E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 |
| ALUMINUM 5454 (0) | 2,300E 04 | 2.366E 05 | 2.035E 05 | 1 954E 04 | 9.600E-01 | 1.030E 07 | 4.500E 04 |
| MG, AZ91 (AS CAST) | 2,300E 04 | 3.538E 05 | 1,965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 2.400E 04 |
| ALUMINUM 1100 (WARM) | 2,200E 04 | 2.245E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 2.400E 04 |
| ALUMINUM 5005 (WALF) | 2,200E 04 | 2.268E 05 | 1.995E 05 | 1.939E 04 | 9.700E-02 | 1.000E 07 | 2,300E 04 |
| ALUMINUM 5056 (0) | 2,200E 04 | 2.316E 05 | 2.044E 05 | 1.944E 04 | 9.500E-02 | 1.030E 07 | 4.200E 04 |
| BRASS-BRONZE, CAST SI (12A) | 2,200E 04 | 7.261E 04 | 1.242E 05 | 4 189E 04 | 3.030E-01 | 1.500E 07 | 5.500E 04 |
| BRONZE, ADMIRALTY 71PU (0) | 2,200E 04 | 7.143E 04 | 1.416E 05 | 4.362E 04 | 3.080E-01 | 1.600E 07 | 5.300E 04 |
| MG, AM100A (AGED-CAST) | 2,200E 04 | 3.385E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 |
| MG, AZ10A-F (EXTRUDED) | 2,200E 04 | 3.465E 05 | 1.988E 05 | 1.262E 04 | 6.350E-02 | 6.500E 06 | 3.500E 04 |
| ALUMINUM 3003 (WALF) | 2,100E 04 | 2.121E 05 | 1.975E 05 | 1 959E 04 | 9.900E-02 | 1.000E 07 | 2.200E 04 |
| ALUMINUM 5083 (0) | 2,100E 04 | 2.187E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 4.200E 04 |
| MG, AZ92A (AGED-CAST) | 2,100E 04 | 3.162E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.000E 04 |
| MG, HM21A (T8) | 2,100E 04 | 3.281E 05 | 1.965E 05 | 1.297E 04 | 6.400E-02 | 6.400E 06 | 3.400E 04 |
| MUNTZ METAL 60CU (0) | 2,100E 04 | 6.931E 04 | 1.382E 05 | 4.189E 04 | 3.030E-01 | 1.500E 07 | 5.400E 04 |
| BRASS, CAST LEAD YELLOW (7A) | 2,000E 04 | 6.920E 04 | 1.416E 05 | 4.091E 04 | 2.890E-01 | 1.500E 07 | 6.000E 04 |
| BRASS, FORGING (0) | 2,000E 04 | 6.557E 04 | 1.378E 05 | 4.203E 04 | 3.050E-01 | 1.500E 07 | 5.200E 04 |
| BRONZE, ARCHITECTUAL (0) | 2,000E 04 | 6.536E 04 | 1.329E 05 | 4.067E 04 | 3.060E-01 | 1.400E 07 | 6.000E 04 |
| BRONZE, CAST TIN (1A) | 2,000E 04 | 6.369E 04 | 1.312E 05 | 4 120E 04 | 3.140E-01 | 1.400E 07 | 4.000E 04 |
| BRONZE, HIGH SI (0) | 2,000E 04 | 6.494E 04 | 1.371E 05 | 4 223E 04 | 3.080E-01 | 1.500E 07 | 5.600E 04 |
| COBALT | 2,000E 04 | 6 250E 04 | 1.902E 05 | 6 988E 04 | 3.200E-01 | 3.000E 07 | 3.440E 04 |
| COPPER-NICKEL,30 (0) | 2,000E 04 | 6.192E 04 | 1.622E 05 | 5.238E 04 | 3.230E-01 | 2.200E 07 | 4.430E 04 |
| MG, ZE41A (T5-CAST) | 2,000E 04 | 3.030E 05 | 1,950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 3.000E 04 |
| MUNTZ METAL, FREE-CUTTING ( ) | 2,000E 04 | 6.579E 04 | 1.380E 05 | 4 196E 04 | 3.040E-01 | 1.500E 07 | 5.400E 04 |
| MUNTZ METAL, LEADED (0) | 2,000E 04 | 6.579E 04 | 1.380E 05 | 4 196E 04 | 3.040E-01 | 1.500E 07 | 5.400E 04 |
| NICKEL 210 (AS CAST) | 2,000E 04 | 6.645E 04 | 1.661E 05 | 4.998E 04 | 3.010E-01 | 2.150E 07 | 4.500E 04 |
| ALUMINUM 5457 (WARM) | 1,900E 04 | 1.939E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 2.300E 04 |
| BRASS, LOW-LEAD (0) | 1,900E 04 | 6.209E 04 | 1.374E 05 | 4 209E 04 | 3.060E-01 | 1.500E 07 | 5.100E 04 |
| BRASS, MEDIUM-LEAD (0) | 1,900E 04 | 6 209E 04 | 1.376E 05 | 4 209E 04 | 3.060E-01 | 1.500E 07 | 5.100E 04 |
| BRONZE, PHOS A (0) | 1,900E 04 | 5.937E 04 | 1.389E 05 | 4 446E 04 | 3.200E-01 | 1.600E 07 | 4.700E 04 |
| BRONZE, PHOS FREE-CUTTING (0) | 1,900E 04 | 5.919E 04 | 1.343E 05 | 4 311E 04 | 3.210E-01 | 1.500E 07 | 4.400E 04 |
| MG, AZ63A (AGED-T6) | 1,900E 04 | 2.879E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.000E 04 |
| MG, AZ91C (AGED-CAST) | 1,900E 04 | 2.993E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 |
| MG, ZE10A (H24) | 1,900E 04 | 3 116E 05 | 1.996E 05 | 1.257E 04 | 6.300E-02 | 6.500E 06 | 3.400E 04 |

| MATERIAL | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PCI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) |
|---|---|---|---|---|---|---|---|
| ALUMINUM 1060 (HARD) | 1.800E 04 | 1.837E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.900E 04 |
| BRASS, FREE-CUTTING (0) | 1.800E 04 | 5.863E 04 | 1.327E 05 | 4.073E 04 | 3.070E-01 | 1.400E 07 | 4.900E 04 |
| BRONZE, CAST LEAD TIN (2C) | 1.800E 04 | 5.732E 04 | 1.142E 05 | 3.589E 04 | 3.140E-01 | 1.060E 07 | 3.600E 04 |
| BRONZE, CAST TIN (1B) | 1.800E 04 | 5.768E 04 | 1.270E 05 | 3.951E 04 | 3.110E-01 | 1.300E 07 | 4.000E 04 |
| CU65-NI10-ZN25 (0) | 1.800E 04 | 5.732E 04 | 1.467E 05 | 4.606E 04 | 3.140E-01 | 1.750E 07 | 4.900E 04 |
| CU65-NI12-ZN23 (0) | 1.800E 04 | 5.732E 04 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 5.200E 04 |
| CU65-NI15-ZN20 (0) | 1.800E 04 | 5.732E 04 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 5.300E 04 |
| ALUMINUM 1100 (HALF) | 1.700E 04 | 1.735E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.800E 04 |
| ALUMINUM 5086 (0) | 1.700E 04 | 1.771E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 3.800E 04 |
| ALUMINUM 5154 (0) | 1.700E 04 | 1.771E 05 | 2.025E 05 | 1.944E 04 | 9.600E-02 | 1.020E 07 | 3.500E 04 |
| ALUMINUM 5454 (0) | 1.700E 04 | 1.753E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 | 3.600E 04 |
| BRASS, EXTRA-HIGH-LEAD (0) | 1.700E 04 | 5.537E 04 | 1.327E 05 | 4.073E 04 | 3.070E-01 | 1.400E 07 | 4.900E 04 |
| BRASS, HIGH-LEAD (0) | 1.700E 04 | 5.556E 04 | 1.376E 05 | 4.239E 04 | 3.060E-01 | 1.500E 07 | 4.900E 04 |
| BRASS+BRONZE, CAST PB NI (1B) | 1.700E 04 | 5.346E 04 | 1.349E 05 | 4.291E 04 | 3.180E-01 | 1.500E 07 | 3.500E 04 |
| BRASS+BRONZE, CAST PB NI (11A) | 1.700E 04 | 5.266E 04 | 1.516E 05 | 4.865E 04 | 3.210E-01 | 1.910E 07 | 4.000E 04 |
| BRONZE, CAST LEAD TIN (3B) | 1.700E 04 | 5.312E 04 | 1.323E 05 | 4.232E 04 | 3.200E-01 | 1.450E 07 | 3.300E 04 |
| ALUMINUM 5457 (HALF) | 1.600E 04 | 1.635E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.900E 04 |
| BRASS, CAST LEAD YELLOW (4C) | 1.600E 04 | 5.333E 04 | 1.293E 05 | 3.880E 04 | 3.000E-01 | 1.300E 07 | 4.500E 04 |
| BRONZE, CAST LEAD TIN (2A) | 1.600E 04 | 5.145E 04 | 1.275E 05 | 3.966E 04 | 3.110E-01 | 1.310E 07 | 3.600E 04 |
| BRONZE, CAST LEAD TIN (2B) | 1.600E 04 | 5.266E 04 | 1.142E 05 | 3.589E 04 | 3.140E-01 | 1.060E 07 | 3.600E 04 |
| COPPER-NICKEL,10 (0) | 1.600E 04 | 4.954E 04 | 1.467E 05 | 4.738E 04 | 3.230E-01 | 1.800E 07 | 4.400E 04 |
| MG, EZ33A (T5-CAST) | 1.600E 04 | 2.424E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 2.300E 04 |
| MG, HK31A (T6-CAST) | 1.600E 04 | 2.462E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 3.100E 04 |
| ALUMINUM 7075 (0) | 1.500E 04 | 1.485E 05 | 1.994E 05 | 2.014E 04 | 1.010E-01 | 1.040E 07 | 3.300E 04 |
| ALUMINUM 7178 (0) | 1.500E 04 | 1.471E 05 | 1.984E 05 | 2.024E 04 | 1.020E-01 | 1.040E 07 | 3.300E 04 |
| BRASS, CAST LEAD RED (4A) | 1.500E 04 | 4.717E 04 | 1.227E 05 | 3.932E 04 | 3.180E-01 | 1.240E 07 | 3.300E 04 |
| BRASS+BRONZE, CAST PB NI (1A) | 1.500E 04 | 4.717E 04 | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 | 3.000E 04 |
| BRONZE, CAST LEAD TIN (3A) | 1.500E 04 | 4.615E 04 | 1.174E 05 | 3.819E 04 | 3.250E-01 | 1.160E 07 | 3.400E 04 |
| BRONZE, CAST LEAD TIN (3C) | 1.500E 04 | 4.687E 04 | 1.159E 05 | 3.708E 04 | 3.200E-01 | 1.113E 07 | 2.800E 04 |
| BRONZE, JEWELRY 87.5CU (0) | 1.500E 04 | 4.732E 04 | 1.439E 05 | 4.561E 04 | 3.170E-01 | 1.700E 07 | 4.200E 04 |
| BRONZE, LOW SI (0) | 1.500E 04 | 4.747E 04 | 1.441E 05 | 4.554E 04 | 3.160E-01 | 1.700E 07 | 4.900E 04 |
| MG, HZ32A (T5-CAST) | 1.500E 04 | 2.273E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 2.900E 04 |
| NICKEL 200 (0) | 1.500E 04 | 4.673E 04 | 1.899E 05 | 6.097E 04 | 3.210E-01 | 3.000E 07 | 5.500E 04 |
| ZR, REACTOR GRADE (0) | 1.500E 04 | 6.383E 04 | 1.517E 05 | 3.564E 04 | 2.350E-01 | 1.400E 07 | 3.500E 04 |
| ALUMINUM EC (HALF) | 1.400E 04 | 1.429E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.400E 04 |
| ALUMINUM 2014 (0) | 1.400E 04 | 1.386E 05 | 2.013E 05 | 2.033E 04 | 1.010E-01 | 1.060E 07 | 2.700E 04 |
| BRASS, YELLOW (0) | 1.400E 04 | 4.575E 04 | 1.376E 05 | 4.239E 04 | 3.060E-01 | 1.500E 07 | 4.600E 04 |
| BRONZE, CAST LEAD TIN (3D) | 1.400E 04 | 4.255E 04 | 1.110E 05 | 3.652E 04 | 3.290E-01 | 1.050E 07 | 2.800E 04 |
| BRONZE, PHOS E (0) | 1.400E 04 | 4.361E 04 | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.700E 07 | 3.000E 04 |
| MG, AZ63A (AS CAST) | 1.400E 04 | 2.121E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 2.900E 04 |
| MG, AZ91C (AS CAST) | 1.400E 04 | 2.154E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 2.400E 04 |
| MG, AZ92A (AS CAST) | 1.400E 04 | 2.121E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 2.400E 04 |
| MG, AZ92A (SOLUTION TREATED) | 1.400E 04 | 2.121E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.000E 04 |
| ALUMINUM 1060 (HALF) | 1.300E 04 | 1.327E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.400E 04 |
| ALUMINUM 5652 (0) | 1.300E 04 | 1.340E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 | 2.800E 04 |
| BRASS, CAST LEAD RED (5A) | 1.300E 04 | 4.180E 04 | 1.270E 05 | 3.951E 04 | 3.110E-01 | 1.300E 07 | 2.900E 04 |
| MG, AM100A (SOLUTION TREATED) | 1.300E 04 | 2.700E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 |
| MG, AZ63A (SOLUTION TREATED) | 1.300E 04 | 1.970E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.000E 04 |
| MG, LA141A (T7) | 1.300E 04 | 2.680E 05 | 2.185E 05 | 1.060E 04 | 4.850E-02 | 6.000E 06 | 1.800E 04 |
| ALUMINUM 6061 (0) | 1.200E 04 | 1.224E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 2.200E 04 |
| BRASS, CAST LEAD RED (5B) | 1.200E 04 | 3.785E 04 | 1.341E 05 | 4.313E 04 | 3.170E-01 | 1.520E 07 | 3.000E 04 |
| BRASS, CAST LEAD YELLOW (6A) | 1.200E 04 | 3.934E 04 | 1.331E 05 | 4.060E 04 | 3.050E-01 | 1.400E 07 | 3.500E 04 |
| BRASS, LOW 80CU (0) | 1.200E 04 | 3.834E 04 | 1.409E 05 | 4.397E 04 | 3.130E-01 | 1.600E 07 | 4.200E 04 |
| MG, AM100A (AS CAST) | 1.200E 04 | 1.844E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 2.200E 04 |
| MG, AZ81A (SOLUTION TREATED) | 1.200E 04 | 1.846E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 |
| MG, AZ91C (SOLUTION TREATED) | 1.200E 04 | 1.846E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 |
| NICKEL 201 (0) | 1.200E 04 | 3.738E 04 | 1.899E 05 | 6.097E 04 | 3.210E-01 | 3.000E 07 | 5.000E 04 |
| ALUMINUM 2024 (0) | 1.100E 04 | 1.100E 05 | 2.023E 05 | 2.023E 04 | 1.000E-01 | 1.060E 07 | 2.700E 04 |

| MATERIAL | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (MSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) |
|---|---|---|---|---|---|---|---|
| ALUMINUM 2219 (0) | 1,100E 04 | 1.[illegible]65E 05 | 1,993E 05 | 2 053E 04 | 1,030E-01 | 1,040E 07 | 2.500E 04 |
| BRASS, CARTRIDGE 70CU (0) | 1,100E 04 | 3.571E 04 | 1,416E 05 | 4.362E 04 | 3,080E-01 | 1,600E 07 | 4.400E 04 |
| BRASS, CAST LEAD YELLOW (6B) | 1,100E 04 | 3.630E 04 | 1,236E 05 | 3.747E 04 | 3,030E-01 | 1,200E 07 | 3.000E 04 |
| BRONZE, CAST LEAD TIN (3E) | 1,100E 04 | 3.313E 04 | 1,073E 05 | 3.396E 04 | 3.320E-01 | 9,000E 06 | 2.300E 04 |
| ALUMINUM 2017 (0) | 1,000E 04 | 9.901E 04 | 2,003E 05 | 2.023E 04 | 1,010E-01 | 1,050E 07 | 2.600E 04 |
| ALUMINUM 3004 (0) | 1,000E 04 | 1.020E 05 | 1,985E 05 | 1.94[illegible]E 04 | 9,800E-02 | [illegible],000E 07 | 2.600E 04 |
| BRASS, RED 85CU (0) | 1,000E 04 | 3.165E 04 | 1,441E 05 | 4.554E 04 | 3,160E-01 | 1,700E 07 | 3.900E 04 |
| BRONZE, COMMERCIAL 90CU (0) | 1,000E 04 | 3,145E 04 | 1,437E 05 | 4.568E 04 | 3,180E-01 | 1,700E 07 | 3.700E 04 |
| COPPER, OXYGEN FREE (0) | 1,000E 04 | [illegible] 04 | 1,429E 05 | 4 604E 04 | 3.230E-01 | 1,700E 07 | 3.200E 04 |
| COPPER, PHOS DEOXIDIZED (0) | 1,000E 04 | | 1,429E 05 | 4.604E 04 | 3.230E-01 | 1,700E 07 | 3.200E 04 |
| COPPER, TOUGH PITCH (0) | 1,000E 04 | [illegible] | [illegible]30E 05 | 4 590E 04 | 3.210E-01 | 1,700E 07 | 3.200E 04 |
| GILDING 95CU (0) | 1,000E 04 | [illegible] | [illegible]32E 05 | 4 583E 04 | 3.200E-01 | 1,700E 07 | 3.400E 04 |
| ALUMINUM 5050 (0) | 8,000E 03 | 8 247E 04 | 1,995E 05 | 1.935E 04 | 9,700E-02 | 1,000E 07 | 2.100E 04 |
| ALUMINUM 6061 (0) | 8,000E 03 | 8.163E 04 | 1,985E 05 | 1.945E 04 | 9,800E-02 | 1,000E 07 | 1.800E 04 |
| SILVER (0) | 8,000E 03 | 2.111E 04 | 1,079E 05 | 4 012E 04 | 3.790E-01 | 1,100E 07 | 2.200E 04 |
| ALUMINUM 6063 (0) | 7,000E 03 | 7.143E 04 | 1,985E 05 | 1.945E 04 | 9.800E-02 | 1,000E 07 | 1.300E 04 |
| MG, K1A (F-CAST) | 7,000E 03 | 1.111E 05 | 1,996E 05 | 1.257E 04 | 6,300E-02 | 6,500E 06 | 2.500E 04 |
| ALUMINUM 3003 (0) | 6,000E 03 | 6.061E 04 | 1,975E 05 | 1.955E 04 | 9.900E-02 | 1.000E 07 | 1.600E 04 |
| ALUMINUM 5005 (0) | 6,000E 03 | 6.186E 04 | 1,995E 05 | 1.935E 04 | 9,700E-02 | 1,000E 07 | 1.800E 04 |
| ALUMINUM 1100 (0) | 5,000E 03 | 5.102E 04 | 1,985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.300E 04 |
| ALUMINUM 5457 (0) | 5,000E 03 | 5.102E 04 | 1,985E 05 | 1.945E 04 | 9,800E-02 | 1.000E 07 | 1.300E 04 |
| BERYLLIUM (0) | 5,000E 03 | 7.463E 04 | 4,919E 05 | 3.296E 04 | 6,700E-02 | 4,200E 07 | 6.800E 04 |
| PALLADIUM (0) | 5,000E 03 | 1.152E 04 | 1,265E 05 | 5.492E 04 | 4,340E-01 | 1,800E 07 | 2.000E 04 |
| ALUMINUM EC (0) | 4,000E 03 | 4.082E 04 | 1,985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.200E 04 |
| ALUMINUM 1060 (0) | 4,000E 03 | 4.082E 04 | 1,985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.000E 04 |
| PLATINUM (0) | 2,000E 03 | 2.581E 03 | 1,116E 05 | 8.648E 04 | 7,750E-01 | 2,900E 07 | 1.800E 04 |
| TIN, GRADE A (CRS) | 2,000E 03 | 7.576E 03 | 9,367E 04 | 2.473E 04 | 2,640E-01 | 6,000E 06 | 2.800E 03 |
| TIN, GRADE A (CAST) | 1,700E 03 | 6.439E 03 | 9,367E 04 | 2.473E 04 | 2,640E-01 | 6,000E 06 | 2.100E 03 |
| LEAD, CHEMICAL (ROLLED) | 1,640E 03 | 4.000E 03 | 4,339E 04 | 1.779E 04 | 4.100E-01 | 2,000E 06 | 2.400E 03 |
| TIN, GRADE A (OS) | 1,300E 03 | 4.924E 03 | 9,367E 04 | 2.473E 04 | 2,640E-01 | 6,000E 06 | 2.200E 03 |
| BRONZE, PHOS A (SPRING) | -0. | -0. | 1,389E 05 | 4.446E 04 | 3,200E-01 | 1,600E 07 | 1.000E 05 |
| BRONZE, PHOS A (EXTRA SPRING) | -0. | -0. | 1,389E 05 | 4.446E 04 | 3,200E-01 | 1,600E 07 | 1.070E 05 |
| BRONZE, PHOS B (SPRING) | -0. | -0. | 1,394E 05 | 4 432E 04 | 3,180E-01 | 1,600E 07 | 1.120E 05 |
| BRONZE, PHOS B (EXTRA SPRING) | -0. | -0. | 1,394E 05 | 4 432E 04 | 3,180E-01 | 1,600E 07 | 1.200E 05 |
| BRONZE, PHOS C (HALF) | -0. | -0. | 1,396E 05 | 4.425E 04 | 3,170E-01 | 1,600E 07 | 8.300E 04 |
| BRONZE, PHOS C (HARD) | -0. | -0. | 1,396E 05 | 4.425E 04 | 3,170E-01 | 1,600E 07 | 1.000E 05 |
| BRONZE, PHOS C (SPRING) | -0. | -0. | 1,396E 05 | 4.425E 04 | 3.170E-01 | 1,600E 07 | 1.220E 05 |
| BRONZE, PHOS C (EXTRA SPRING) | -0. | -0. | 1,396E 05 | 4.425E 04 | 3,170E-01 | 1,600E 07 | 1.280E 05 |
| BRONZE, PHOS E (HALF) | -0. | -0. | 1,430E 05 | 4,590E 04 | 3,210E-01 | 1,700E 07 | 5.900E 04 |
| BRONZE, PHOS E (SPRING) | -0. | -0. | 1,430E 05 | 4,590E 04 | 3,210E-01 | 1,700E 07 | 7.500E 04 |
| COPPER-NICKEL,20 (0) | -0. | -0. | 1,546E 05 | 4.994E 04 | 3,230E-01 | 2,000E 07 | 4.900E 04 |
| COPPER-NICKEL,30 (LIGHT DRAWN) | -0. | -0. | 1,622E 05 | 5.238E 04 | 3,230E-01 | 2,200E 07 | 7.500E 04 |
| DURANICKEL 301 (RAW) | -0. | -0. | 1,971E 05 | 5 875E 04 | 2,980E-01 | 3,000E 07 | 1.600E 05 |
| DURANICKEL 301 (SPRING) | -0. | -0. | 1,971E 05 | 5.875E 04 | 2,980E-01 | 3,000E 07 | 1.950E 05 |
| DURANICKEL 301 (SAW) | -0. | -0. | 1,971E 05 | 5 875E 04 | 2,980E-01 | 3,000E 07 | 1.800E 05 |
| GOLD (0) | -0. | -0. | 8,147E 04 | 5 686E 04 | 6,980E-01 | 1,200E 07 | [illegible] 04 |
| IRIDIUM (0) | -0. | -0 | 1,937E 05 | 1.575E 05 | 8,130E-01 | 7,[illegible]0E 07 | 6.000E 04 |
| IRIDIUM (COLD WORKED) | -0. | -0 | 1,937E 05 | 1.575E 05 | 8,130E-01 | 7,900E 07 | 2.900E 05 |
| LEAD, CHEMICAL (CHILL CAST) | -0. | -0. | 4,339E 04 | 1 779E 04 | 4,100E-01 | 2,000E 06 | 2.400E 03 |
| LEAD, CHEMICAL (EXTRUDED) | -0. | -0. | 4,339E 04 | 1 779E 04 | 4,100E-01 | 2,000E 06 | 2.500E 03 |
| LEAD, SOFT (CHILL CAST) | -0. | -0. | 4,339E 04 | 1.779E 04 | 4,100E-01 | 2,000E 06 | 2.000E 03 |
| LEAD, SOFT (EXTRUDED) | -0. | -0. | 4,339E 04 | 1 779E 04 | 4,100E-01 | 2,000E 06 | 2.000E 03 |
| LEAD, SOFT (ROLLED) | -0. | -0. | 4,339E 04 | 1.779E 04 | 4,100E-01 | 2,000E 06 | 2 100E 03 |
| LEAD, TELLURIUM (CHILL CAST) | -0. | -0. | 4,339E 04 | 1.779E 04 | 4,100E-01 | 2,000E 06 | 3.000E 03 |
| LEAD, TELLURIUM (ROLLED) | -0. | -0. | 4,339E 04 | 1.779E 04 | 4,100E-01 | 2,000E 06 | 2.800E 03 |
| LEAD, 1SB (CHILL CAST) | -0. | -0. | 4,361E 04 | 1.770E 04 | 4,060E-01 | 2,000E 06 | 3.400E 03 |
| LEAD, 1SB (EXTRUDED) | -0. | -0. | 4,361E 04 | 1.770E 04 | 4,060E-01 | 2,000E 06 | 2.900E 03 |
| LEAD, 1SB (EXTRUDED+AGED) | -0. | -0. | 4,361E 04 | 1.770E 04 | 4,060E-01 | 2,000E 06 | 3.000E 03 |

| MATERIAL | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) |
|---|---|---|---|---|---|---|---|
| LEAD, 1SB (ROLLED) | -0. | -0. | 4.361E 04 | 1.770E 04 | 4.060E-01 | 2.000E 06 | 3.000E 03 |
| NICKEL 42 + IRON (COLD WORKED) | -0. | -0. | 1.700E 05 | 4.997E 04 | 2.940E-01 | 2.200E 07 | 1.200E 05 |
| NICKEL 47-50+FE (COLD WORKED) | -0. | -0. | 1.769E 05 | 5.237E 04 | 2.960E-01 | 2.400E 07 | 1.400E 05 |
| RHODIUM (0) | -0. | -0. | 2.179E 05 | 9.742E 04 | 4.470E-01 | 5.500E 07 | 7.300E 04 |
| RHODIUM (COLD WORKED) | -0. | -0. | 2.179E 05 | 9.742E 04 | 4.470E-01 | 5.500E 07 | 3.000E 05 |
| RUTHENIUM (0) | -0. | -0. | 2.440E 05 | 1.074E 05 | 4.410E-01 | 6.800E 07 | 5.500E 04 |
| TIN, PEWTER (CRS) | -0. | -0. | 1.063E 05 | 2.796E 04 | 2.630E-01 | 7.700E 06 | 7.600E 03 |
| TIN, PEWTER (OS) | -0. | -0. | 1.063E 05 | 2.796E 04 | 2.630E-01 | 7.700E 06 | 8.600E 03 |

| MATERIAL | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) |
|---|---|---|---|---|---|---|---|
| TI, 6AL-6V-2SN (HEAT TREATED) | 1.080E 06 | 1.993E 05 | 3.163E 04 | 1.620E-01 | 1.600E 07 | 1.900E 05 | 1.700E 05 |
| TI, 13V-11CR-3AL(HEAT TREATED) | 9.714E 05 | 1.788E 05 | 3.130E 04 | 1.750E-01 | 1.450E 07 | 1.900E 05 | 1.700E 05 |
| TI, 8AL-1MO-1V (HEAT TREATED) | 9.494E 05 | 2.038E 05 | 3.220E 04 | 1.580E-01 | 1.700E 07 | 1.650E 05 | 1.500E 05 |
| TI, 7AL-4MO (HEAT TREATED) | 9.259E 05 | 1.993E 05 | 3.163E 04 | 1.620E-01 | 1.600E 07 | 1.600E 05 | 1.500E 05 |
| TI, 8-1-1MO-1V (O) | 8.861E 05 | 2.038E 05 | 3.220E 04 | 1.580E-01 | 1.700E 07 | 1.450E 05 | 1.400E 05 |
| TI, 6AL-4V (HEAT TREATED) | 8.437E 05 | 1.902E 05 | 3.044E 04 | 1.600E-01 | 1.500E 07 | 1.450E 05 | 1.350E 05 |
| TI, 7AL-4MO (O) | 8.333E 05 | 1.993E 05 | 3.163E 04 | 1.620E-01 | 1.600E 07 | 1.450E 05 | 1.350E 05 |
| TI, 6AL-6V-2SN (O) | 8.025E 05 | 1.993E 05 | 3.163E 04 | 1.620E-01 | 1.600E 07 | 1.500E 05 | 1.300E 05 |
| ALUMINUM 7178 (T6) | 7.647E 05 | 1.984E 05 | 2.024E 04 | 1.020E-01 | 1.040E 07 | 8.800E 04 | 7.800E 04 |
| TI, 6AL-4V (O) | 7.500E 05 | 1.902E 05 | 3.044E 04 | 1.600E-01 | 1.500E 07 | 1.300E 05 | 1.200E 05 |
| ALUMINUM 7075 (T6) | 7.226E 05 | 1.994E 05 | 2.014E 04 | 1.010E-01 | 1.040E 07 | 8.300E 04 | 7.300E 04 |
| TI, 13V-11CR-3AL (O) | 7.143E 05 | 1.788E 05 | 3.130E 04 | 1.750E-01 | 1.450E 07 | 1.300E 05 | 1.250E 05 |
| TI, 2FE-2CR-2MO (O) | 7.039E 05 | 1.906E 05 | 3.240E 04 | 1.700E-01 | 1.600E 07 | 1.400E 05 | 1.200E 05 |
| TI, 8MN (O) | 7.018E 05 | 1.871E 05 | 3.199E 04 | 1.710E-01 | 1.550E 07 | 1.250E 05 | 1.200E 05 |
| ALUMINUM 7079 (T6) | 6.869E 05 | 2.004E 05 | 1.984E 04 | 9.900E-02 | 1.030E 07 | 7.600E 04 | 6.800E 04 |
| TI, 5AL-2.5SN | 6.832E 05 | 1.959E 05 | 3.153E 04 | 1.610E-01 | 1.600E 07 | 1.150E 05 | 1.100E 05 |
| TI, 5AL-5SN-5ZR | 6.667E 05 | 1.935E 05 | 3.192E 04 | 1.650E-01 | 1.600E 07 | 1.200E 05 | 1.100E 05 |
| MG, ZK60A-T5 (EXTRUDED) | 6.061E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 5.000E 04 | 4.000E 04 |
| ALUMINUM 2014 (T6) | 5.941E 05 | 2.013E 05 | 2.033E 04 | 1.010E-01 | 1.060E 07 | 7.000E 04 | 6.000E 04 |
| NI, INCONEL 718 | 5.912E 05 | 1.945E 05 | 5.757E 04 | 2.960E-01 | 2.900E 07 | 2.120E 05 | 1.750E 05 |
| MG, AZ80A-T5 (EXTRUDED) | 5.546E 05 | 1.945E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 5.000E 04 | 3.800E 04 |
| NICKEL-SPAN-C902 (COLD WORKED) | 5.631E 05 | 1.778E 05 | 5.210E 04 | 2.930E-01 | 2.400E 07 | 1.700E 05 | 1.650E 05 |
| ALUMINUM 6262 (T9) | 5.612E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 5.800E 04 | 5.500E 04 |
| ALUMINUM 2219 (T87) | 5.534E 05 | 1.993E 05 | 2.053E 04 | 1.030E-01 | 1.060E 07 | 6.900E 04 | 5.700E 04 |
| ALUMINUM 6061 (T6) | 5.376E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 5.700E 04 | 5.200E 04 |
| ALUMINUM 5056 (WARD) | 5.263E 05 | 2.046E 05 | 1.944E 04 | 9.500E-02 | 1.030E 07 | 6.000E 04 | 5.000E 04 |
| MG, AZ80A-T5 (FORGED) | 5.231E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 5.000E 04 | 3.400E 04 |
| NI, RENE-41, R-41 | 5.188E 05 | 2.130E 05 | 6.048E 04 | 2.980E-01 | 3.180E 07 | 2.060E 05 | 1.940E 05 |
| MG, HK31A (T5) | 5.077E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.200E 04 | 3.300E 04 |
| ALUMINUM 2024 (T3) | 5.000E 05 | 2.023E 05 | 2.023E 04 | 1.000E-01 | 1.040E 07 | 7.000E 04 | 5.000E 04 |
| MG, AZ31B (H24) | 5.000E 05 | 1.980E 05 | 1.267E 04 | 6.400E-02 | 6.500E 06 | 4.200E 04 | 3.200E 04 |
| NI, UDIMET 700 | 4.895E 05 | 2.082E 05 | 5.953E 04 | 2.860E-01 | 3.210E 07 | 2.050E 05 | 1.400E 05 |
| VANADIUM (COLD WORKED) | 4.734E 05 | 1.832E 05 | 4.214E 04 | 2.300E-01 | 2.000E 07 | 1.130E 05 | 1.090E 05 |
| MG, ZK60A-T5 (FORGED) | 4.545E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.400E 04 | 3.000E 04 |
| MG, HK31A (H24) | 4.462E 05 | 1.980E 05 | 1.267E 04 | 6.500E-02 | 6.400E 06 | 3.700E 04 | 2.900E 04 |
| ALUMINUM 3003 (T8) | 4.412E 05 | 1.965E 05 | 2.034E 04 | 1.020E-01 | 1.020E 07 | 5.900E 04 | 4.500E 04 |
| COPPER, BERYLLIUM (WARD) | 4.392E 05 | 1.574E 05 | 4.659E 04 | 2.960E-01 | 1.900E 07 | 1.650E 05 | 1.300E 05 |
| MG, AZ31B-F (FORGED) | 4.375E 05 | 1.980E 05 | 1.267E 04 | 6.400E-02 | 6.500E 06 | 3.800E 04 | 2.800E 04 |
| NICKEL-SPAN-C902 (ROLLED) | 4.300E 05 | 1.778E 05 | 5.210E 04 | 2.930E-01 | 2.400E 07 | 1.310E 05 | 1.260E 05 |
| NI, UNITEMP 1753 | 4.262E 05 | 1.981E 05 | 6.042E 04 | 3.050E-01 | 3.100E 07 | 1.940E 05 | 1.300E 05 |
| NI, MONEL K-500 (SAW) | 4.248E 05 | 1.811E 05 | 5.542E 04 | 3.060E-01 | 2.600E 07 | 1.700E 05 | 1.300E 05 |
| NI, MONEL K-500 (SPRING) | 4.248E 05 | 1.811E 05 | 5.542E 04 | 3.060E-01 | 2.600E 07 | 1.450E 05 | 1.300E 05 |
| MG, ZK61A (T6-CAST) | 4.242E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.500E 04 | 2.800E 04 |
| ALUMINUM 2011 (T3) | 4.216E 05 | 1.965E 05 | 2.004E 04 | 1.020E-01 | 1.020E 07 | 5.500E 04 | 4.300E 04 |
| ALUMINUM 2014 (T4) | 4.158E 05 | 2.013E 05 | 2.033E 04 | 1.010E-01 | 1.060E 07 | 6.200E 04 | 4.200E 04 |
| NI, R-252 | 4.094E 05 | 1.945E 05 | 5.859E 04 | 2.980E-01 | 2.980E 07 | 1.800E 05 | 1.220E 05 |
| ALUMINUM 6061 (T6) | 4.082E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 4.500E 04 | 4.000E 04 |
| ALUMINUM 5154 (WARD) | 4.042E 05 | 2.025E 05 | 1.944E 04 | 9.600E-02 | 1.020E 07 | 4.800E 04 | 3.900E 04 |
| NI, WASPALOY | 4.054E 05 | 2.040E 05 | 6.038E 04 | 2.960E-01 | 3.200E 07 | 2.080E 05 | 1.400E 05 |
| MG, AZ61A-F (FORGED) | 4.000E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 | 2.600E 04 |
| NI, MICROTUNG (CAST) | 4.000E 05 | 2.076E 05 | 6.229E 04 | 3.030E-01 | 3.050E 07 | 1.[illegible]0E 05 | 1.200E 05 |
| ALUMINUM 2017 (T4) | 3.960E 05 | 2.036E 05 | 2.023E 04 | 1.010E-01 | 1.080E 07 | 6.200E 04 | 4.000E 04 |
| ALUMINUM 5086 (WARP) | 3.854E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 4.700E 04 | 3.700E 04 |
| ALUMINUM 5456 (WARP) | 3.854E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 5.100E 04 | 3.700E 04 |
| ALUMINUM 5052 (WARD) | 3.814E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 | 4.200E 04 | 3.700E 04 |
| NI, UDIMET 500 | 3.763E 05 | 2.038E 05 | 5.910E 04 | 2.930E-01 | .120E 07 | 1.970E 05 | 1.[illegible]00E 05 |
| MG, AZ31B-F (EXTRUDED) | 3.750E 05 | 1.980E 05 | 1.267E 04 | 6.400E-02 | 6.500E 06 | 3.400E [illegible] | 2.4[illegible]0E 04 |
| MG, ZK61A (T5-CAST) | 3.731E 05 | 1.950E 05 | 1.287E 04 | 6.700E-02 | 6.500E 06 | 4.000E 04 | 2.500E 04 |

| MATERIAL | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) |
|---|---|---|---|---|---|---|---|
| MG, AZ61A-F (EXTRUDED) | 3,692E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.100E 04 | 2.400E 04 |
| MG, ZK51A (T5-CAST) | 3,692E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 | 2.400E 04 |
| ALUMINUM 3004 (HARD) | 3,673E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 4.100E 04 | 3.600E 04 |
| COBALT J-1650 | 3,629E 05 | 2.013E 05 | 6.443E 04 | 3.200E-01 | 3.360E 07 | 1.740E 05 | 1.160E 05 |
| ALUMINUM 5454 (HALF) | 3,608E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 | 4.400E 04 | 3.500E 04 |
| COBALT NIVCO | 3,548E 05 | 1.933E 05 | 5.992E 04 | 3.100E-01 | 3.000E 07 | 1.650E 05 | 1.10 E 05 |
| MG, AZ91 (AS CAST) | 3,538E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 3.400E 04 | 2.300E 04 |
| NI, INCONEL 700 | 3,525E 05 | 2.059E 05 | 6.074E 04 | 2.950E-01 | 3.240E 07 | 1.710E 05 | 1.040E 05 |
| MG, AZ10A-F (EXTRUDED) | 3,465E 05 | 1.948E 05 | 1.262E 04 | 6.350E-02 | 6.500E 06 | 3.500E 04 | 2.200E 04 |
| ALUMINUM 5083 (HALF) | 3,437E 05 | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 4.600E 04 | 3.300E 04 |
| ALUMINUM 5154 (HALF) | 3,437E 05 | 2.025E 05 | 1.946E 04 | 9.600E-02 | 1.020E 07 | 4.200E 04 | 3.300E 04 |
| MG, AM100A (AGED-CAST) | 3,385E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 | 2.200E 04 |
| MG, HM21A (T8) | 3,281E 05 | 1.965E 05 | 1.257E 04 | 6.400E-02 | 6.400E 06 | 3.400E 04 | 2.100E 04 |
| ALUMINUM 5052 (HALF) | 3,196E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 | 3.800E 04 | 3.100E 04 |
| MG, AZ92A (AGED-CAST) | 3,182E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.000E 04 | 2.100E 04 |
| ALUMINUM 3003 (T6) | 3,163E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 3.500E 04 | 3.100E 04 |
| AVC N-25RE | 3,151E 05 | 1.801E 05 | 1.286E 05 | 7.140E-01 | 6.000E 07 | 2.420E 05 | 2.250E 05 |
| TUNGSTEN | 3,143E 05 | 1.804E 05 | 1.263E 05 | 7.000E-01 | 5.900E 07 | 2.200E 05 | 2.200E 05 |
| NI, INCONEL X-750 | 3,087E 05 | 2.004E 05 | 5.972E 04 | 2.980E-01 | 3.100E 07 | 1.620E 05 | 9.200E 04 |
| MG, ZE41A (T5-CAST) | 3,030E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 3.000E 04 | 2.000E 04 |
| MG, ZE10A (H24) | 3,016E 05 | 1.996E 05 | 1.257E 04 | 6.300E-02 | 6.500E 06 | 3.400E 04 | 1.900E 04 |
| ALUMINUM 5050 (HARD) | 2,990E 05 | 1.995E 05 | 1.935E 04 | 9.700E-02 | 1.000E 07 | 3.200E 04 | 2.900E 04 |
| COLUMBIUM C-129 | 2,974E 05 | 1.342E 05 | 4.603E 04 | 3.430E-01 | 4.600E 07 | 1.300E 04 | 1.020E 05 |
| ALUMINUM 3004 (HALF) | 2,950E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 3.500E 04 | 2.900E 04 |
| COLUMBIUM B-66 | 2,951E 05 | 1.369E 05 | 4.174E 04 | 3.050E-01 | 1.480E 07 | 1.120E 05 | 9.000E 04 |
| NI, MONEL K-500 (CAH) | 2,931E 05 | 1.811E 05 | 5.542E 04 | 3.060E-01 | 2.600E 07 | 1.300E 05 | 9.000E 04 |
| MG, AZ91C (AGED-CAST) | 2,923E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 | 1.900E 04 |
| NI, INCONEL 706 (D+AGED) | 2,911E 05 | 1.818E 05 | 5.309E 04 | 2.900E-01 | 2.500E 07 | 9.000E 04 | 8.500E 04 |
| ALUMINUM 5005 (HARD) | 2,867E 05 | 1.993E 05 | 1.935E 04 | 9.700E-02 | 1.000E 07 | 2.900E 04 | 2.800E 04 |
| MG, AZ63A (AGED-T6) | 2,879E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.000E 04 | 1.900E 04 |
| CU55-NI18-ZN27 (EXTRA HARD) | 2,866E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 1.080E 05 | 9.000E 04 |
| ALUMINUM 6101 (T6) | 2,857E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 3.200E 04 | 2.800E 04 |
| MO, TZM (.5TI, .1ZR) | 2,838E 05 | 2.191E 05 | 8.106E 04 | 3.700E-01 | 4.600E 07 | 1.250E 05 | 1.050E 05 |
| NI, MONEL 400 (SPRING) | 2,821E 05 | 1.774E 05 | 5.658E 04 | 3.190E-01 | 2.600E 07 | 1.000E 05 | 9.000E 04 |
| MO-0.5TI | 2,811E 05 | 2.191E 05 | 8.106E 04 | 3.700E-01 | 4.600E 07 | 1.150E 05 | 1.040E 05 |
| VANADIUM (D) | 2,783E 05 | 1.832E 05 | 4.214E 04 | 2.300E-01 | 2.000E 07 | 7.200E 04 | 6.400E 04 |
| COLUMBIUM C-103 | 2,750E 05 | 1.2[illegible] 05 | 3.945E 04 | 3.200E-01 | 1.260E 07 | 9.350E 04 | 8.800E 04 |
| NI, INCONEL 705 (CAST) | 2,740E 05 | 1.818E 05 | 5.309E 04 | 2.920E-01 | 2.500E 07 | 9.000E 04 | 8.000E 04 |
| COBALT V-36 | 2,739E 05 | 2.019E 05 | 6.118E 04 | 3.030E-01 | 3.200E 07 | 1.440E 05 | 8.300E 04 |
| COBALT HS-21 | 2,733E 05 | 2.152E 05 | 6.457E 04 | 3.000E-01 | 3.600E 07 | 1.010E 05 | 8.200E 04 |
| BRONZE, P.H. SI (HARD) | 2,733E 05 | 1.469E 05 | 4.730E 04 | 3.220E-01 | 1.800E 07 | 1.000E 05 | 8.800E 04 |
| ALUMINUM 3003 (HARD) | 2,727E 05 | 1.975E 05 | 1.955E 04 | 9.900E-02 | 1.000E 07 | 2.900E 04 | 2.700E 04 |
| CU55-NI18-ZN27 (HARD) | 2,707E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 1.000E 05 | 9.500E 04 |
| ALUMINUM 5454 (HARD) | 2,380E 05 | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 | 3.800E 04 | 2.400E 04 |
| MG, LA141A (T7) | 2,680E 05 | 2.185E 05 | 1.060E 04 | 4.850E-02 | 6.000E 06 | [illegible].800E 04 | 1.300E 04 |
| NI, MONEL 505 (CAST) | 2,649E 05 | 1.759E 05 | 5.312E 04 | 3.020E-01 | 2.420E 07 | 1.100E 05 | 8.000E 04 |
| NI, MONEL 505 (D+AGED) | 2,649E 05 | 1.759E 05 | 5.312E 04 | 3.020E-01 | 2.420E 07 | 1.100E 05 | 8.000E 04 |
| ALUMINUM 2219 (T42) | 2,621E 05 | 1.993E 05 | 2.053E 04 | 1.030E-01 | 1.060E 07 | 5.200E 04 | 2.700E 04 |
| TANTALUM-10W | 2,599E 05 | 1.155E 05 | 7.021E 04 | 6.080E-01 | 2.100E 07 | 1.600E 05 | 1.580E 05 |
| CU65-NI12-ZN23 (EXTRA HARD) | 2,516E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 9.300E 04 | 7.900E 04 |
| CU65-NI[illegible]-ZN20 (EXTRA HARD) | 2,516E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 9.200E 04 | 7.900E 04 |
| ALUMINUM [illegible] (HALF) | 2,474E 05 | 1.995E 05 | 1.935E 04 | 9.700E-02 | 1.000E 07 | 2.800E 04 | 2.400E 04 |
| MG, HK31 (T6-CAST) | 2,462E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 3.100E 04 | 1.600E 04 |
| TI, UNALLOYED | 2,454E 05 | 1.885E 05 | 3.072E 04 | 1.630E-01 | 1.500E 07 | 6.000E 04 | 4.000E 04 |
| COBALT HS-31,X-40 | 2,452E 05 | 1.900E 05 | 5.891E 04 | 3.100E-01 | 2.900E 07 | 1.080E 05 | 7.600E 04 |
| ALUMINUM EC (HARD) | 2,449E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 2.700E 04 | 2.400E 04 |
| MG, EZ33A (T5-CAST) | 2,424E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 2.300E 04 | 1.600E 04 |
| CU65-NI10-ZN25 (EXTRA HARD) | 2,420E 05 | 1.467E 05 | 4.636E 04 | 3.140E-01 | 1.750E 07 | 9.500E 04 | 7.600E 04 |

| MATERIAL | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS PSI) | ULT STR (PSI) | YLD STR (PSI) |
|---|---|---|---|---|---|---|---|
| NICKEL 36 + IRON (COLD WORKED) | 2.409E 05 | 1.669E 05 | 4.857E 04 | 2.910E-01 | 2.100E 07 | 9.000E 04 | 7.000E 04 |
| ALUMINUM 5456 ( ) | 2.396E 05 | 2.735E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 4.500E 04 | 2.300E 04 |
| CU65-NI10-ZN25 (HARD) | 2.389E 05 | 1.467E 05 | 4.606E 04 | 3.140E-01 | 1.750E 07 | 8.600E 04 | 7.500E 04 |
| CU65-NI12-ZN23 (HARD) | 2.389E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 8.500E 04 | 7.500E 04 |
| CU65-NI15-ZN20 (HARD) | 2.389E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 8.500E 04 | 7.500E 04 |
| BRASS, CAST HIGH YELLOW (8C) | 2.347E 05 | 1.407E 05 | 5.897E 04 | 2.770E-01 | 1.420E 07 | 1.120E 05 | 6.500E 04 |
| BRONZE, PHOS A (HARD) | 2.344E 05 | 1.389E 05 | 4.446E 04 | 3.200E-01 | 1.600E 07 | 8.100E 04 | 7.500E 04 |
| CU65-NI18-ZN17 (HARD) | 2.342E 05 | 1.483E 05 | 4.636E 04 | 3.160E-01 | 1.800E 07 | 8.500E 04 | 7.400E 04 |
| COPPER-NICKEL,20 (LIGHT DRAWN) | 2.322E 05 | 1.546E 05 | 4.994E 04 | 3.230E-01 | 2.000E 07 | 8.000E 04 | 7.500E 04 |
| ALUMINUM 5056 ( ) | 2.316E 05 | 2.146E 05 | 1.944E 04 | 9.500E-02 | 1.030E 07 | 4.200E 04 | 2.200E 04 |
| COLUMBIUM CB-752 | 2.288E 05 | 1.376E 05 | 4.239E 04 | 3.060E-01 | 1.500E 07 | 8.500E 04 | 7.000E 04 |
| MG, HZ32A (T5-CAST) | 2.273E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 2.900E 04 | 1.500E 04 |
| ALUMINUM 5005 (HALF) | 2.268E 05 | 1.995E 05 | 1.935E 04 | 9.700E-02 | 1.000E 07 | 2.300E 04 | 2.200E 04 |
| BRONZE, PHOS B (HARD) | 2.264E 05 | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 | 9.300E 04 | 7.200E 04 |
| COBALT S-816 | 2.258E 05 | 2.188E 05 | 5.472E 04 | 3.130E-01 | 3.500E 07 | 1.400E 05 | 7.000E 04 |
| ALUMINUM 1100 (HARD) | 2.245E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 2.400E 04 | 2.200E 04 |
| ZR, COMMERCIAL GRADE (0) | 2.236E 05 | 1.510E 05 | 3.579E 04 | 2.370E-01 | 1.400E 07 | 6.400E 04 | 5.300E 04 |
| MOLYBDENUM | 2.216E 05 | 2.214E 05 | 8.193E 04 | 3.700E-01 | 4.700E 07 | 9.500E 04 | 8.200E 04 |
| AVC (70MO, 30W) | 2.209E 05 | 2.119E 05 | 9.110E 04 | 4.300E-01 | 5.000E 07 | 1.050E 05 | 9.500E 04 |
| ALUMINUM 5083 ( ) | 2.187E 05 | 2.135E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 4.200E 04 | 2.100E 04 |
| NICKEL 200 (SPRING) | 2.181E 05 | 1.899E 05 | 6.097E 04 | 3.210E-01 | 3.000E 07 | 9.300E 04 | 7.000E 04 |
| MG, AZ91C (AS CAST) | 2.154E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 2.400E 04 | 1.400E 04 |
| ALUMINUM 3003 (HALF) | 2.121E 05 | 1.975E 05 | 1.955E 04 | 9.900E-02 | 1.000E 07 | 2.200E 04 | 2.100E 04 |
| MG, AZ63A (AS CAST) | 2.121E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 2.900E 04 | 1.400E 04 |
| MG, AZ92A (AS CAST) | 2.121E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 2.400E 04 | 1.400E 04 |
| MG, AZ92A (SOLUTION TREATED) | 2.121E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.000E 04 | 1.400E 04 |
| COPPER-NICKEL,30 (HALF) | 2.105E 05 | 1.622E 05 | 5.238E 04 | 3.230E-01 | 2.200E 07 | 7.300E 04 | 6.800E 04 |
| BRASS, CARTRIDGE 70CU (HARD) | 2.045E 05 | 1.416E 05 | 4.362E 04 | 3.080E-01 | 1.600E 07 | 7.600E 04 | 6.300E 04 |
| HAFNIUM (COLD WORKED) | 2.043E 05 | 1.282E 05 | 6.024E 04 | 4.700E-01 | 2.000E 07 | 1.120E 05 | 9.600E 04 |
| COBALT L-605 | 2.030E 05 | 2.000E 05 | 6.601E 04 | 3.300E-01 | 3.420E 07 | 1.460E 05 | 6.700E 04 |
| MG, AM100A (SOLUTION TREATED) | 2.000E 05 | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 | 1.300E 04 |
| BRONZE, MANGANESE A (HALF) | 1.987E 05 | 1.385E 05 | 4.182E 04 | 3.020E-01 | 1.500E 07 | 8.400E 04 | 4.500E 04 |
| CU65-NI15-ZN20 (HALF) | 1.975E 05 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 7.400E 04 | 6.200E 04 |
| MUNTZ METAL, FREE-CUT (HARD) | 1.974E 05 | 1.380E 05 | 4.196E 04 | 3.040E-01 | 1.500E 07 | 8.000E 04 | 6.000E 04 |
| MG, AZ63A (SOLUTION TREATED) | 1.970E 05 | 1.950E 05 | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.000E 04 | 1.300E 04 |
| BRASS, HIGH-LEAD (HARD) | 1.961E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 | 7.400E 04 | 6.000E 04 |
| BRASS, LOW-LEAD (HARD) | 1.961E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 | 7.400E 04 | 6.000E 04 |
| BRASS, MEDIUM-LEAD (HARD) | 1.961E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 | 7.400E 04 | 6.000E 04 |
| BRASS, YELLOW (HARD) | 1.961E 05 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 | 7.400E 04 | 6.000E 04 |
| BRASS, EXTRA-HIGH-LEAD (HARD) | 1.954E 05 | 1.327E 05 | 4.073E 04 | 3.070E-01 | 1.400E 07 | 7.400E 04 | 6.000E 04 |
| ALUMINUM 5457 (HARD) | 1.939E 05 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 2.300E 04 | 1.900E 04 |
| CU65-NI10-ZN25 (HALF) | 1.911E 05 | 1.467E 05 | 4.606E 04 | 3.140E-01 | 1.750E 07 | 7.300E 04 | 6.000E 04 |
| CU65-NI12-ZN23 (HALF) | 1.911E 05 | 1.483E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 7.300E 04 | 6.000E 04 |
| CU65-NI18-ZN17 (HALF) | 1.899E 05 | 1.463E 05 | 4.636E 04 | 3.160E-01 | 1.800E 07 | 7.000E 04 | 6.000E 04 |
| ZR, ZIRCALOY-2 (0) | 1.899E 05 | 1.499E 05 | 3.553E 04 | 2.370E-01 | 1.380E 07 | 6.000E 04 | 4.500E 04 |
| BRASS, LOW 80CU (HARD) | 1.885E 05 | 1.495E 05 | 4.397E 04 | 3.130E-01 | 1.600E 07 | 7.400E 04 | 5.900E 04 |
| BRONZE, PHM, SI (D) | 1.863E 05 | 1.469E 05 | 4.730E 04 | 3.220E-01 | 1.800E 07 | 6.500E 04 | 6.000E 04 |
| MG, AM100A (AS CAST) | 1.846E 05 | 1.965E 05 | 1.277E 04 | 6.900E-02 | 6.500E 06 | 2.200E 04 | 1.[illegible]00E 04 |
| MG, AZ81A (SOLUTION TREATED) | 1.846E 05 | 1.965E 05 | 1.277E 04 | 6.900E-02 | 6.500E 06 | 4.000E 04 | 1.200E 04 |
| MG, AZ91C (SOLUTION TREATED) | 1.846E 05 | 1.965E 05 | 1.277E 04 | 6.900E-02 | 6.500E 06 | 4.000E 04 | 1.200E 04 |
| ALUMINUM 1060 (HARD) | 1.837E 05 | 1.985E 05 | 1.945E 04 | 9.800E 02 | 1.000E 07 | 1.900E 04 | 1.800E 04 |
| BRASS, RED 85CU (HARD) | 1.804E 05 | 1.441E 05 | 4.354E 04 | 3.160E-01 | 1.700E 07 | 7.000E 04 | 5.700E 04 |
| BRONZE, AL-SI (HARD) | 1.790E 05 | 1.491E 05 | 4.144E 04 | 2.780E-01 | 1.650E 07 | 9.000E 04 | 5.000E 04 |
| NI, HASTELLOY C | 1.783E 05 | 1.867E 05 | 6.096E 04 | 3.230E-01 | 2.980E 07 | 1.210E 05 | 5.700E 04 |
| BRONZE, HIGH SI (HARD) | 1.[illegible] 05 | 1.371E 05 | 4.223E 04 | 3.080E-01 | 1.500E 07 | 9.200E 04 | 5.500E 04 |
| ALUMINUM 5086 (0) | 1.771E 05 | 2.135E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 3.000E 04 | 1.700E 04 |
| ALUMINUM 5154 (0) | 1.771E 05 | 2.135E 05 | 1.944E 04 | 9.600E-02 | 1.020E 07 | 3.500E 04 | 1.700E 04 |
| BRONZE, JEWELRY 87.5CU (HARD) | 1.767E 05 | 1.439E 05 | 4.561E 04 | 3.170E-01 | 1.700E 07 | 6.[illegible]00E 04 | 5.[illegible]00E 04 |

| MATERIAL | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) |
|---|---|---|---|---|---|---|---|
| COPPER-NICKEL,10 (LIGHT DRAWN) | 1.760E 05 | 1.467E 05 | 4,738E 04 | 3.230E-01 | 1.800E 07 | 6.000E 04 | 5.700E 04 |
| NI, HASTELLOY X | 1.758E 05 | 1.978E 05 | 5,726E 04 | 2.970E-01 | 2.660E 07 | 1.140E 05 | 5.220E 04 |
| ALUMINUM 5454 (O) | 1.753E 05 | 2.015E 05 | 1,954E 04 | 9.700E-02 | 1.020E 07 | 3.600E 04 | 1.700E 04 |
| BRASS, NAVAL (HALF) | 1.743E 05 | 1.380E 05 | 4,196E 04 | 3.040E-01 | 1.500E 07 | 7,500E 04 | 5.300E 04 |
| BRONZE, LOW SI (HARD) | 1.741E 05 | 1.441E 05 | 4,554E 04 | 3.160E-01 | 1.700E 07 | 7.000E 04 | 5.500E 04 |
| BRASS, LEAD NAVAL (HALF) | 1.738E 05 | 1.378E 05 | 4,203E 04 | 3.050E-01 | 1.500E 07 | 7,500E 04 | 5.300E 04 |
| ALUMINUM 1100 (HALF) | 1.735E 05 | 1.985E 05 | 1,945E 04 | 9.800E-02 | 1.000E 07 | 1.800E 04 | 1.700E 04 |
| BRONZE, PHOS B (HALF) | 1.730E 05 | 1.394E 05 | 4,432E 04 | 3.180E-01 | 1.600E 07 | 7.600E 04 | 5.500E 04 |
| BRONZE, PHOS A (HALF) | 1.719E 05 | 1.389E 05 | 4,446E 04 | 3.200E-01 | 1.600E 07 | 6.800E 04 | 5.500E 04 |
| BRONZE, COMMERCIAL 90CU (HARD) | 1.698E 05 | 1.437E 05 | 4,569E 04 | 3.180E-01 | 1.700E 07 | 6.100E 04 | 5.400E 04 |
| BRASS, FREE-CUTTING (HARD) | 1.694E 05 | 1.327E 05 | 4,073E 04 | 3.070E-01 | 1.400E 07 | 6.800E 04 | 5.200E 04 |
| NI, HASTELLOY B | 1.692E 05 | 1.747E 05 | 5,834E 04 | 3.340E-01 | 2.640E 07 | 1.210E 05 | 5.650E 04 |
| ALUMINUM 5457 (HALF) | 1.633E 05 | 1.985E 05 | 1,945E 04 | 9.800E-02 | 1.000E 07 | 1,900E 04 | 1.600E 04 |
| BRASS, CAST HIGH YELLOW (8B) | 1.614E 05 | 1.401E 05 | 3,994E 04 | 2.850E-01 | 1.450E 07 | 9,100E 04 | 4.600E 04 |
| BRONZE, AL-SI (O) | 1.583E 05 | 1.491E 05 | 4,144E 04 | 2.780E-01 | 1.600E 07 | 8,500E 04 | 4.400E 04 |
| BRONZE, LEAD COMMERCIAL (HALF) | 1.567E 05 | 1.434E 05 | 4,575E 04 | 3.190E-01 | 1.700E 07 | 5,500E 04 | 5.000E 04 |
| GILDING 95CU (HARD) | 1.562E 05 | 1.432E 05 | 4,583E 04 | 3.200E-01 | 1.700E 07 | 5,600E 04 | 5.000E 04 |
| BRONZE, PHOS E (HARD) | 1.558E 05 | 1.430E 05 | 4,590E 04 | 3.210E-01 | 1.700E 07 | 6,500E 04 | 5.000E 04 |
| BRASS, NAVAL (QUARTER) | 1.513E 05 | 1.380E 05 | 4,196E 04 | 3.040E-01 | 1.500E 07 | 6.900E 04 | 4.600E 04 |
| BRASS, LEAD NAVAL (QUARTER) | 1.508E 05 | 1.378E 05 | 4,203E 04 | 3.050E-01 | 1.500E 07 | 6,900E 04 | 4.600E 04 |
| ALUMINUM 7075 (O) | 1.485E 05 | 1.984E 05 | 2,014E 04 | 1.010E-01 | 1.040E 07 | 3,300E 04 | 1.500E 04 |
| ALUMINUM 7178 (O) | 1.471E 05 | 1.984E 05 | 2,024E 04 | 1.020E-01 | 1.040E 07 | 3,300E 04 | 1.500E 04 |
| BRONZE, CAST ALUMINUM (9D) | 1.471E 05 | 1.598E 05 | 4,347E 04 | 2.720E-01 | 1.800E 07 | 9,000E 04 | 4.000E 04 |
| ALUMINUM 6C (HALF) | 1.429E 05 | 1.985E 05 | 1,945E 04 | 9.800E-02 | 1.050E 07 | 1,600E 04 | 1.400E 04 |
| BRONZE, AL D (HARD) | 1.404E 05 | 1.517E 05 | 4,325E 04 | 2.850E-01 | 1.700E 07 | 8,200E 04 | 4.000E 04 |
| COPPER, TOUGH PITCH (HARD) | 1.402E 05 | 1.430E 05 | 4,590E 04 | 3.210E-01 | 1.700E 07 | 9,000E 04 | 4.500E 04 |
| COPPER, OXYGEN FREE (HARD) | 1.393E 05 | 1.425E 05 | 4,604E 04 | 3.230E-01 | 1.700E 07 | 9,000E 04 | 4.500E 04 |
| COPPER, PHOS DEOXIDIZED (HARD) | 1.393E 05 | 1.425E 05 | 4,604E 04 | 3.230E-01 | 1.700E 07 | 9,000E 04 | 4.500E 04 |
| ALUMINUM 2014 (O) | 1.386E 05 | 2.015E 05 | 2,033E 04 | 1.010E-01 | 1.040E 07 | 2,700E 04 | 1.400E 04 |
| NICKEL 36 + IRON (O) | 1.375E 05 | 1.669E 05 | 4,857E 04 | 2.910E-01 | 2.100E 07 | 7.200E 04 | 4.300E 04 |
| COPPER, TELLURIUM (HALF) | 1.362E 05 | 1.383E 05 | 4,467E 04 | 3.230E-01 | 1.600E 07 | 4,800E 04 | 4.400E 04 |
| ALUMINUM 5052 (O) | 1.340E 05 | 2.015E 05 | 1,954E 04 | 9.700E-02 | 1.020E 07 | 2,800E 04 | 1.300E 04 |
| ALUMINUM 1060 (HALF) | 1.327E 05 | 1.985E 05 | 1,945E 04 | 9.800E-02 | 1.000E 07 | [illegible]0E 04 | 1.300E 04 |
| NICKEL 42 + IRON (O) | 1.327E 05 | 1.700E 05 | 4,997E 04 | 2.940E-01 | 2.200E 07 | [illegible]0E 04 | 3.900E 04 |
| NI, MONEL K-500 (O) | 1.307E 05 | 1.811E 05 | 5,542E 04 | 3.060E-01 | 2.600E 07 | 9,000E 04 | 4.000E 04 |
| BRONZE, PHOS FREE-CUT (HALF) | 1.246E 05 | 1.343E 05 | 4,311E 04 | 3.210E-01 | 1.500E 07 | 5,800E 04 | 4.000E 04 |
| ALUMINUM 6061 (O) | 1.224E 05 | 1.985E 05 | 1,945E 04 | 9.800E-02 | 1.000E 07 | 2,200E 04 | 1.200E 04 |
| DURANICKEL 301 (O) | 1.174E 05 | 1.971E 05 | 5,875E 04 | 2.980E-01 | 3.000E 07 | 9,000E 04 | 3.500E 04 |
| SILVER (COLD ROLLED-90) | 1.161E 05 | 1.059E 05 | 4,012E 04 | 3.790E-01 | 1.100E 07 | 5,400E 04 | 4.400E 04 |
| COLUMBIUM | 1.129E 05 | 1.367E 05 | 4,237E 04 | 3.100E-01 | 1.500E 07 | 4,000E 04 | 3.500E 04 |
| COLUMBIUM CB-12R | 1.129E 05 | 1.197E 05 | 3,710E 04 | 3.100E-01 | 1.150E 07 | 4,800E 04 | 3.500E 04 |
| NICKEL 47-50 + IRON (O) | 1.115E 05 | 1.769E 05 | 5,237E 04 | 2.960E-01 | 2.400E 07 | 7,700E 04 | 3.300E 04 |
| MG, M1A (F-CAST) | 1.111E 05 | 1.996E 05 | 1,257E 04 | 6.300E-02 | 6.500E 06 | 2,500E 04 | 7.000E 03 |
| BRONZE, CAST ALUMINUM (9C) | 1.103E 05 | 1.459E 05 | 3,969E 04 | 2.720E-01 | 1.500E 07 | 7,500E 04 | 3.800E 04 |
| ALUMINUM 2024 (O) | 1.100E 05 | 2.023E 05 | 2,023E 04 | 1.000E-01 | 1.060E 07 | 2,700E 04 | 1.100E 04 |
| THORIUM (COLD WORKED) | 1.071E 05 | 9.587E 04 | 4,027E 04 | 4.200E-01 | 1.000E 07 | 4,900E 04 | 4.500E 04 |
| ALUMINUM 2219 (O) | 1.068E 05 | 1.993E 05 | 2,053E 04 | 1.030E-01 | 1.040E 07 | 2,500E 04 | 1.100E 04 |
| BRONZE, CAST ALUMINUM (9B) | 1.061E 05 | 1.431E 05 | 3,777E 04 | 2.640E-01 | 1.400E 07 | 7,000E 04 | 2.800E 04 |
| NI, MONEL 411 (CAST) | 1.026E 05 | 1.933E 05 | 4,734E 04 | 3.120E-01 | 1.900E 07 | 6,500E 04 | 3.200E 04 |
| ALUMINUM 3004 (O) | 1.020E 05 | 1.985E 05 | 1,945E 04 | 9.800E-02 | 1.000E 07 | 2,600E 04 | 1.000E 04 |
| NI, INCONEL 610 (CAST) | 1.000E 05 | 1.997E 05 | 5,992E 04 | 3.000E-01 | 3.100E 07 | 7,000E 04 | 3.000E 04 |
| BRONZE, MANGANESE A (O) | 9.934E 04 | 1.585E 05 | 4,182E 04 | 3.020E-01 | 1.500E 07 | 6,500E 04 | 3.000E 04 |
| ALUMINUM 2017 (O) | 9.901E 04 | 2.023E 05 | 2,023E 04 | 1.010E-01 | 1.050E 07 | 2,600E 04 | 1.030E 04 |
| BRASS, ALUMINUM (C) | 8.970E 04 | 1.432E 05 | 4,312E 04 | 3.010E-01 | 1.400E 07 | 8,000E 04 | 2.700E 04 |
| BRONZE, CAST ALUMINUM (9A) | 8.897E 04 | 1.483E 05 | 4,166E 04 | 2.810E-01 | 1.600E 07 | 7,000E 04 | 2.500E 04 |
| BRONZE, PHOS C (O) | 8.833E 04 | 1.368E 05 | 4,425E 04 | 3.170E-01 | 1.600E 07 | 6,000E 04 | 2.800E 04 |
| CU95-NI18-2497 (O) | 8.598E 04 | 1.488E 05 | 4,671E 04 | 3.140E-01 | 1.800E 07 | 6,000E 04 | 2.700E 04 |
| COPPER, BERYLLIUM (O) | 8.446E 04 | 1.574E 05 | 4,850E 04 | 3.060E-01 | 1.900E 07 | 6,000E 04 | 2.500E 04 |

| MATERIAL | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) |
|---|---|---|---|---|---|---|---|
| BRASS-BRONZE, CAST SI (13B) | 8.361E 04 | 1.410E 05 | 4.216E 04 | 2.990E-01 | 1.540E 07 | 6.000E 04 | 2.500E 04 |
| BRASS, CAST HIGH YELLOW (8A) | 8.306E 04 | 1.405E 05 | 4.230E 04 | 3.010E-01 | 1.540E 07 | 6.500E 34 | 2.500E 04 |
| ALUMINUM 5056 (0) | 8.247E 04 | 1 995E 05 | 1.935E 04 | 9 700E-02 | 1.000E 07 | 2.100E 04 | 8.000E 03 |
| BRASS, NAVAL (0) | 8.224E 04 | 1.380E 05 | 4.196E 04 | 3.040E-01 | 1.500E 07 | 5.700E 04 | 2.500E 04 |
| BRASS, LEAD NAVAL (0) | 8.197E 04 | 1.378E 05 | 4.203E 04 | 3 050E-01 | 1.500E 07 | 5.700E 04 | 2.500E 04 |
| ALUMINUM 6061 (0) | 8.163E 04 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.800E 04 | 8.000E 03 |
| TANTALUM | 8.003E 04 | 1 318E 05 | 7.908E 04 | 6.000E-01 | 2.700E 07 | 6.000E 04 | 4.800E 04 |
| CU65-NI18-ZN17 (0) | 7.911E 04 | 1.483E 05 | 4.686E 04 | 3.160E-01 | 1.800E 07 | 5.600E 04 | 2.500E 04 |
| NI, MONEL 400 (0) | 7.837E 04 | 1.774E 05 | 5.658E 04 | 3.190E-01 | 2.600E 07 | 7.000E 04 | 2.500E 04 |
| BRONZE, PHOS B (0) | 7.547E 04 | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 | 5.500E 04 | 2.400E 04 |
| BERYLLIUM (0) | 7.463E 04 | 4 919E 05 | 3.296E 04 | 6.700E-02 | 4.200E 07 | 6.300E 04 | 5.000E 03 |
| BRASS-BRONZE, CAST SI (12A) | 7.261E 04 | 1.382E 05 | 4.189E 04 | 3.030E-01 | 1.500E 07 | 5.500E 04 | 2.200E 04 |
| ALUMINUM 6063 (0) | 7.143E 04 | 1.985E 05 | 1.945E 04 | 9.600E-02 | 1.000E 07 | 1.300E 04 | 7.000E 03 |
| BRONZE, ADMIRALTY 91CU (0) | 7.143E 04 | 1.416E 05 | 4.362E 04 | 3.090E-01 | 1.600E 07 | 5.300E 04 | 2.200E 04 |
| MUNTZ METAL 60CU (0) | 6.931E 04 | 1.382E 05 | 4.189E 04 | 3.030E-01 | 1.500E 07 | 5.400E 04 | 2.100E 04 |
| BRASS, CAST LEAD YELLOW (7A) | 6.930E 04 | 1.416E 05 | 4.091E 04 | 2.890E-01 | 1.500E 07 | 6.000E 04 | 2.000E 04 |
| PALLADIUM (COLD ROLLED-50) | 6.913E 04 | 1.265E 05 | 5.492E 04 | 4.340E-01 | 1.800E 07 | 4.700E 04 | 3.000E 04 |
| HAFNIUM (0) | 6.809E 04 | 1 282E 05 | 6.024E 04 | 4 700E-01 | 2.000E 07 | 7.700E 04 | 3.200E 04 |
| NICKEL 210 (AS CAST) | 6.645E 04 | 1.661E 05 | 4.998E 04 | 3.010E-01 | 2.150E 07 | 4.500E 04 | 2.000E 04 |
| MUNTZ METAL, FREE-CUTTING (0) | 6.579E 04 | 1.380E 05 | 4.194E 04 | 3.040E-01 | 1.500E 07 | 5.400E 04 | 2.000E 04 |
| MUNTZ METAL, LEADED (0) | 6.579E 04 | 1.380E 05 | 4.196E 04 | 3.040E-01 | 1.500E 07 | 5.400E 04 | 2.000E 04 |
| BRASS, FORGING (0) | 6.557E 04 | 1.378E 05 | 4.203E 04 | 3 050E-01 | 1.500E 07 | 5.200E 04 | 2.000E 04 |
| BRONZE, ARCHITECTUAL (0) | 6.536E 04 | 1.329E 05 | 4.067E 04 | 3 060E-01 | 1.400E 07 | 6.000E 04 | 2.000E 04 |
| BRONZE, HIGH SI (0) | 6.454E 04 | 1 371E 05 | 4.223E 04 | 3 080E-01 | 1.500E 07 | 5.600E 04 | 2.000E 04 |
| ZR, REACTOR GRADE (0) | 6.353E 04 | 1.517E 05 | 3.564E 04 | 2 350E-01 | 1.400E 07 | 3.500E 04 | 1.900E 04 |
| BRONZE, CAST TIN (1A) | 6.349E 04 | 1.312E 05 | 4.120E 04 | 3.140E-01 | 1.400E 07 | 4.000E 04 | 2.000E 04 |
| COBALT | 6.250E 04 | 1.902E 05 | 6.088E 04 | 3.200E-01 | 3.000E 07 | 3.440E 04 | 2.000E 04 |
| BRASS, LOW-LEAD (0) | 6.209E 04 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 | 5.100E 04 | 1.900E 04 |
| BRASS, MEDIUM-LEAD (0) | 6.209E 04 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 | 5.100E 04 | 1.900E 04 |
| COPPER-NICKEL,30 (0) | 6.1[illegible]2E 04 | 1.622E 05 | 5.238E 04 | 3 230E-01 | 2.200E 07 | 4.400E 04 | 2.000E 04 |
| THORIUM (0) | 6.190E 04 | 9.587E 04 | 4.027E 04 | 4 200E-01 | 1.000E 07 | 3.400E 04 | 2.400E 04 |
| ALUMINUM 5005 (0) | 6.186E 04 | 1.995E 05 | 1.935E 04 | 9 700E-02 | 1.000E 07 | 1.800E 04 | 6.000E 03 |
| ALUMINUM 3003 (0) | 6.061E 04 | 1.979E 05 | 1.955E 04 | 9 900E-02 | 1.000E 07 | 1.600E 04 | 6.300E 03 |
| BRONZE, PHOS A (0) | 5.937E 04 | 1.389E 05 | 4.446E 04 | 3 230E-01 | 1.600E 07 | 4.700E 04 | 1.900E 04 |
| BRONZE, PHOS FREE-CUTTING (0) | 5.919E 04 | 1.343E 05 | 4.311E 04 | 3 210E-01 | 1.500E 07 | 4.400E 04 | 1.900E 04 |
| BRASS, FREE-CUTTING (0) | 5.863E 04 | 1.327E 05 | 4.073E 04 | 3 070E-01 | 1.400E 07 | 4.900E 04 | 1.800E 04 |
| BRONZE, CAST TIN (1B) | 5.788E 04 | 1.270E 05 | 3.951E 04 | 3.110E-01 | 1 300E 07 | 4.000E 04 | 1.800E 04 |
| BRONZE, CAST LEAD TIN (2C) | 5.732E 04 | 1.142 05 | 3.585E 04 | 140E-01 | 1.040E 07 | 3.600E 04 | 1.800E 04 |
| CU65-NI10-ZN25 (0) | 5.732E 04 | 1.467E 05 | 4.606E 04 | 3.140E-01 | 1.750E 07 | 4.900E 04 | 1.800E 04 |
| CU65-NI12-ZN23 (0) | 5.732E 04 | 1.488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 5.200E 04 | 1.800E 04 |
| CU65-NI15-ZN20 (0) | 5.732E 04 | 1.488E 05 | 4.671E 04 | 3 140E-01 | 1.800E 07 | 5.300E 04 | 1.800E 04 |
| BRASS HIGH-LEAD (0) | 5.556E 04 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 | 4.900E 04 | 1.700E 04 |
| BRASS, EXTRA-HIGH-LEAD (0) | 5.537E 04 | 1.327E 05 | 4.073E 04 | 3 070E-01 | 1 400E 07 | 4.600E 04 | 1.700E 04 |
| BRASS-BRONZE, CAST PR NI (1-H) | 5.346E 04 | 1.349E 05 | 4.291E 04 | 3 180E-01 | 1.500E 07 | 3.500E 04 | 1.700E 04 |
| BRASS, CAST LEAD YELLOW (6C) | 5.333E 04 | 1.293E 05 | 3.880E 04 | 3 000E-01 | 1.300E 07 | 4.500E 04 | 1.600E 04 |
| BRONZE, CAST LEAD TIN (3B) | 5.312E 04 | 1.323E 05 | 4.232E 04 | 3 230E-01 | 1.4535 07 | 3.300E 04 | 1.700E 04 |
| BRASS-BRONZE, CAST PR NI (11A) | 5.296E 04 | 1.516E 05 | 4.865E 04 | 3.210E-01 | 1.910E 07 | 4.000E 03 | 1.700E 04 |
| BRONZE, CAST LEAD TIN (2A) | 5.145E 04 | 1.279E 05 | 3.964E 04 | 3.110E-01 | 1.310E 07 | 3.600E 04 | 1.600E 04 |
| ALUMINUM 1100 (0) | 5.102E 04 | 1 985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.300E 04 | 5.000E 03 |
| ALUMINUM 5457 (0) | 5.102E 04 | 1 985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.300E 04 | 5.000E 03 |
| BRONZE, CAST LEAD TIN (2B) | 5.096E 04 | 1 142E 05 | 3.989E 04 | 3 140E-01 | 1.060E 07 | 3.600E 04 | 1.600E 04 |
| COPPER-NICKEL,10 (0) | 4.954E 04 | 1 467E 05 | 4.738E 04 | 3 230E-01 | 1.800E 07 | 4.400E 04 | 1.600E 04 |
| BRONZE, LOW SI (0) | 4.747E 04 | 1.441E 05 | 4.554E 04 | 3 160E-01 | 1.700E 07 | 4.600E 04 | 1.500E 04 |
| BRONZE, JEWELRY 87.5CU (0) | 4.732E 04 | 1 439E 05 | 4.561E 04 | 3.170E-01 | 1.700E 07 | 4.200E 04 | 1.500E 04 |
| BRASS, CAST LEAD RBC (4A) | 4.717E 04 | 1 227E 05 | 3.832E 04 | 3.180E-01 | 1.240E 07 | 3.300E 04 | 1.500E 04 |
| BRASS-BRONZE, CAST PR NI (1 A) | 4.717E 04 | 1.364E 05 | 4.432E 04 | 3 180E-01 | 1.600E 07 | 3.000E 04 | 1.500E 04 |
| BRONZE, CAST LEAD TIN (3C) | 4.687E 04 | 1.159E 05 | 3.708E 04 | 3 230E-01 | 1.113E 07 | 2.800E 04 | 1.500E 04 |
| NICKEL 200 (0) | 4.673E 04 | 1.809E 05 | 6.092E 04 | 3 230E-01 | 3 [illegible]E 07 | 3.500E 04 | 1.500E 04 |

| MATERIAL | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) |
|---|---|---|---|---|---|---|---|
| BRONZE, CAST LEAD TIN (3A) | 4.615E 04 | 1.174E 05 | 3.815E 04 | 3.250E-01 | 1.160E 07 | 3.400E 04 | 1.500E 04 |
| BRASS, YELLOW (0) | 4.575E 04 | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.500E 07 | 4.600E 04 | 1.400E 04 |
| BRONZE, PHOS E (0) | 4.361E 04 | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.700E 07 | 4.000E 04 | 1.400E 04 |
| GOLD (COLD ROLLED-90) | 4.293E 04 | 8.147E 04 | 5.686E 04 | 6.980E-01 | 1.200E 07 | 3.200E 04 | 3.000E 04 |
| BRONZE, CAST LEAD TIN (3D) | 4.255E 04 | 1.110E 05 | 3.652E 04 | 3.290E-01 | 1.050E 07 | 2.800E 04 | 1.400E 04 |
| BRASS, CAST LEAD RED (5A) | 4.180E 04 | 1.270E 05 | 3.951E 04 | 3.110E-01 | 1.300E 07 | 3.900E 04 | 1.300E 04 |
| ALUMINUM EC (0) | 4.082E 04 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.200E 04 | 4.000E 03 |
| ALUMINUM 1060 (0) | 4.082E 04 | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.000E 04 | 4.000E 03 |
| BRASS, CAST LEAD YELLOW (6A) | 3.934E 04 | 1.331E 05 | 4.060E 04 | 3.050E-01 | 1.400E 07 | 3.500E 04 | 1.200E 04 |
| BRASS, LOW 80CU (0) | 3.834E 04 | 1.405E 05 | 4.397E 04 | 3.130E-01 | 1.600E 07 | 4.000E 04 | 1.200E 04 |
| BRASS, CAST LEAD RED (5B) | 3.785E 04 | 1.361E 05 | 4.313E 04 | 3.170E-01 | 1.520E 07 | 3.000E 04 | 1.200E 04 |
| NICKEL 201 (0) | 3.738E 04 | 1.889E 05 | 6.097E 04 | 3.210E-01 | 3.000E 07 | 5.000E 04 | 1.200E 04 |
| BRASS, CAST LEAD YELLOW (6B) | 3.630E 04 | 1.236E 05 | 3.747E 04 | 3.030E-01 | 1.200E 07 | 3.000E 04 | 1.100E 04 |
| URANIUM, DEPLETED (0) | 3.623E 04 | 1.758E 05 | 7.299E 04 | 6.900E-01 | 2.000E 07 | 7.500E 04 | 2.500E 04 |
| BRASS, CARTRIDGE 70CU (0) | 3.571E 04 | 1.416E 05 | 4.362E 04 | 3.080E-01 | 1.600E 07 | 4.400E 04 | 1.100E 04 |
| PLATINUM (COLD ROLLED) | 3.484E 04 | 1.118E 05 | 8.648E 04 | 7.750E-01 | 2.500E 07 | 2.800E 04 | 2.700E 04 |
| BRONZE, CAST LEAD TIN (3E) | 3.313E 04 | 1.192E 05 | 3.396E 04 | 3.320E-01 | 9.000E 06 | 2.300E 04 | 1.100E 04 |
| BRASS, RED 85CU (0) | 3.165E 04 | 1.441E 05 | 4.554E 04 | 3.160E-01 | 1.700E 07 | 3.900E 04 | 1.000E 04 |
| BRONZE, COMMERCIAL 90CU (0) | 3.145E 04 | 1.437E 05 | 4.568E 04 | 3.180E-01 | 1.700E 07 | 3.700E 04 | 1.000E 04 |
| GILDING 95CU (0) | 3.125E 04 | 1.432E 05 | 4.583E 04 | 3.200E-01 | 1.700E 07 | 3.400E 04 | 1.000E 04 |
| COPPER, TOUGH PITCH (0) | 3.115E 04 | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.700E 07 | 3.200E 04 | 1.000E 04 |
| COPPER, OXYGEN FREE (0) | 3.096E 04 | 1.425E 05 | 4.604E 04 | 3.230E-01 | 1.700E 07 | 3.200E 04 | 1.000E 04 |
| COPPER, PHOS DEOXIDIZED (0) | 3.096E 04 | 1.425E 05 | 4.604E 04 | 3.230E-01 | 1.700E 07 | 3.200E 04 | 1.000E 04 |
| SILVER (0) | 2.111E 04 | 1.759E 05 | 4.012E 04 | 3.790E-01 | 1.100E 07 | 2.200E 04 | 8.000E 03 |
| PALLADIUM (0) | 1.152E 04 | 1.265E 05 | 5.492E 04 | 4.340E-01 | 1.800E 07 | 2.000E 04 | 5.000E 03 |
| TIN, GRADE A (CRS) | 7.576E 03 | 9.367E 04 | 2.473E 04 | 2.640E-01 | 6.000E 06 | 2.800E 03 | 2.000E 03 |
| TIN, GRADE A (CAST) | 6.439E 03 | 9.367E 04 | 2.473E 04 | 2.640E-01 | 6.000E 06 | 2.100E 03 | 1.700E 03 |
| TIN, GRADE A (OS) | 4.924E 03 | 9.367E 04 | 2.473E 04 | 2.640E-01 | 6.000E 06 | 1.200E 03 | 1.300E 03 |
| LEAD, CHEMICAL (ROLLED) | 4.000E 03 | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.400E 03 | 1.600E 03 |
| PLATINUM (0) | 2.981E 03 | 1.116E 05 | 8.648E 04 | 7.750E-01 | 2.500E 07 | 1.800E 04 | 2.000E 03 |
| BRONZE, PHOS A (SPRING) | -0. | 1.3[illegible] 05 | 4.446E 04 | 3.200E-01 | 1.600E 07 | 1.000E 05 | -0. |
| BRONZE, PHOS A (EXTRA SPRING) | -0. | 1.3[illegible] 05 | 4.446E 04 | 3.200E-01 | 1.600E 07 | 1.070E 05 | -0. |
| BRONZE, PHOS B (SPRING) | -0. | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 | 1.120E 05 | -0. |
| BRONZE, PHOS B (EXTRA SPRING) | -0. | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 | 1.200E 05 | -0. |
| BRONZE, PHOS C (HALF) | -0. | 1.396E 05 | 4.425E 04 | 3.170E-01 | 1.600E 07 | 8.300E 04 | -0. |
| BRONZE, PHOS C (HARD) | -0. | 1.396E 05 | 4.425E 04 | 3.170E-01 | 1.600E 07 | 1.000E 05 | -0. |
| BRONZE, PHOS C (SPRING) | -0. | 1.396E 05 | 4.425E 04 | 3.170E-01 | 1.600E 07 | 1.220E 05 | -0. |
| BRONZE, PHOS C (EXTRA SPRING) | -0. | 1.398E 05 | 4.425E 04 | 3.170E-01 | 1.600E 07 | 1.280E 05 | -0. |
| BRONZE, PHOS E (HALF) | -0. | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.700E 07 | 9.500E 04 | -0. |
| BRONZE, PHOS E (SPRING) | -0. | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.700E 07 | 7.500E 04 | -0. |
| COPPER-NICKEL,20 (0) | -0. | 1.546E 05 | 4.994E 04 | 3.230E-01 | 2.000E 07 | 4.500E 04 | -0. |
| COPPER-NICKEL,30 (LIGHT DRAWN) | -0. | 1.652E 05 | 5.238E 04 | 3.230E-01 | 2.200E 07 | 7.500E 04 | -0. |
| DURANICKEL 301 (RAW) | -0. | 1.971E 05 | 5.875E 04 | 2.980E-01 | 3.000E 07 | 1.600E 05 | -0. |
| DURANICKEL 301 (SPRING) | -0. | 1.971E 05 | 5.875E 04 | 2.980E-01 | 3.000E 07 | 1.550E 05 | -0. |
| DURANICKEL 301 (SAW) | -0. | 1.971E 05 | 5.875E 04 | 2.980E-01 | 3.000E 07 | 1.800E 05 | -0. |
| GOLD (0) | -0. | 8.147E 04 | 5.686E 04 | 6.980E-01 | 1.200E 07 | 1.900E 04 | -0. |
| IRIDIUM (0) | -0. | 1.937E 05 | 1.575E 05 | 8.130E-01 | 7.900E 07 | 8.000E 04 | -0. |
| IRIDIUM (COLD WORKED) | -0. | 1.937E 05 | 1.575E 05 | 8.130E-01 | 7.900E 07 | 2.900E 05 | -0. |
| LEAD, CHEMICAL (CHILL CAST) | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.600E 03 | -0. |
| LEAD, CHEMICAL (EXTRUDED) | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.500E 03 | -0. |
| LEAD, SOFT (CHILL CAST) | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.000E 03 | -0. |
| LEAD, SOFT (EXTRUDED) | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.000E 03 | -0. |
| LEAD, SOFT (ROLLED) | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.100E 03 | -0. |
| LEAD, TELLURIUM (CHILL CAST) | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 | 3.000E 03 | -0. |
| LEAD, TELLURIUM (ROLLED) | -0. | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.800E 03 | -0. |
| LEAD, 1SB (CHILL CAST) | -0. | 4.361E 04 | 1.770E 04 | 4.060E-01 | 2.000E 06 | 3.400E 03 | -0. |
| LEAD, 1SB (EXTRUDED) | -0. | 4.361E 04 | 1.770E 04 | 4.060E-01 | 2.000E 06 | 2.900E 03 | -0. |
| LEAD, 1SB (EXTRUDED+AGED) | -0. | 4.361E 04 | 1.770E 04 | 4.060E-01 | 2.000E 06 | 3.000E 03 | -0. |

| MATERIAL | YLD STR/DEN (LBF-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) |
|---|---|---|---|---|---|---|---|
| LEAD, ISB (ROLLED) | -0. | 4.361E 04 | 1.773E 04 | 4.060E-01 | 2.000E 06 | 3.000E 03 | -0. |
| NICKEL 42 + IRON (COLD WORKED) | -0. | 1.700E 05 | 4.997E 04 | 2.940E-01 | 2.200E 07 | 1.200E 05 | -0. |
| NICKEL 47-50+6E (COLD WORKED) | -0. | 1.749E 05 | 5.237E 04 | 2.960E-01 | 2.400E 07 | 1.400E 05 | -0. |
| RHODIUM (D) | -0. | 2.179E 05 | 9.742E 04 | 4.470E-01 | 5.500E 07 | 7.300E 04 | -0. |
| RHODIUM (COLD WORKED) | -0. | 2.179E 05 | 9.742E 04 | 4.470E-01 | 5.500E 07 | 3.000E 05 | -0. |
| RUTHENIUM (D) | -0. | 2.440E 05 | 1.076E 05 | 4.410E-01 | 6.800E 07 | 5.900E 04 | -0. |
| TIN, PEWTER (CRS) | -0. | 1.763E 05 | 2.796E 04 | 2.630E-01 | 7.700E 06 | 7.600E 03 | -0. |
| TIN, PEWTER (DS) | -0. | 1.763E 05 | 2.796E 04 | 2.630E-01 | 7.700E 06 | 8.600E 03 | -0. |

| MATERIAL | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) |
|---|---|---|---|---|---|---|---|
| BERYLLIUM (O) | 4.919E 05 | 3.296E 04 | 6.700E-02 | 4.200E 07 | 6.000E 04 | 5.000E 03 | 7.463E 04 |
| RUTHENIUM (O) | 2.440E 05 | 1.076E 05 | 4.410E-01 | 6.800E 07 | 5.500E 04 | -0. | -0. |
| MOLYBDENUM | 2.214E 05 | 8.193E 04 | 3.700E-01 | 4.700E 07 | 9.500E 04 | 8.200E 04 | 2.216E 05 |
| MO, TZM (.5TI, .1ZR) | 2.191E 05 | 8.106E 04 | 3.700E-01 | 4.600E 07 | 1.250E 05 | 1.050E 05 | 2.838E 05 |
| MO-0.5TI | 2.191E 05 | 8.106E 04 | 3.700E-01 | 4.600E 07 | 1.150E 05 | 1.040E 05 | 2.811E 05 |
| MG, LA141A (T7) | 2.185E 05 | 1.060E 04 | 4.850E-02 | 6.000E 06 | 1.800E 04 | 1.300E 04 | 2.630E 05 |
| RHODIUM (O) | 2.179E 05 | 9.742E 04 | 4.470E-01 | 5.500E 07 | 7.300E 04 | -0. | -0. |
| RHODIUM (COLD WORKED) | 2.179E 05 | 9.742E 04 | 4.470E-01 | 5.500E 07 | 3.000E 05 | -0. | -0. |
| COBALT HS-21 | 2.152E 05 | 6.457E 04 | 3.000E-01 | 3.600E 07 | 1.010E 05 | 8.200E 04 | 2.733E 05 |
| AVC (70MO, 30W) | 2.119E 05 | 9.110E 04 | 4.300E-01 | 5.000E 07 | 1.050E 05 | 9.500E 04 | 2.209E 05 |
| COBALT S-816 | 2.088E 05 | 6.472E 04 | 3.100E-01 | 3.500E 07 | 1.400E 05 | 7.000E 04 | 2.258E 05 |
| NI, UDIMET 700 | 2.082E 05 | 5.953E 04 | 2.860E-01 | 3.210E 07 | 2.050E 05 | 1.400E 05 | 4.899E 05 |
| NI, NICROTUNG (CAST) | 2.076E 05 | 6.229E 04 | 3.000E-01 | 3.350E 07 | 1.300E 05 | 1.200E 05 | 4.000E 05 |
| NI, INCONEL 700 | 2.059E 05 | 6.074E 04 | 2.950E-01 | 3.240E 07 | 1.710E 05 | 1.040E 05 | 3.529E 05 |
| ALUMINUM 5056 (O) | 2.046E 05 | 1.944E 04 | 9.500E-02 | 1.030E 07 | 4.200E 04 | 2.200E 04 | 2.316E 05 |
| ALUMINUM 5056 (HARD) | 2.046E 05 | 1.944E 04 | 9.500E-02 | 1.030E 07 | 6.000E 04 | 5.000E 04 | 5.263E 05 |
| NI, WASPALOY | 2.040E 05 | 6.038E 04 | 2.960E-01 | 3.190E 07 | 1.880E 05 | 1.200E 05 | 4.054E 05 |
| TI, 8AL-1MO-1V (O) | 2.038E 05 | 3.220E 04 | 1.580E-01 | 1.700E 07 | 1.450E 05 | 1.400E 05 | 8.861E 05 |
| TI, 8AL-1MO-1V (HEAT TREATED) | 2.038E 05 | 3.220E 04 | 1.580E-01 | 1.700E 07 | 1.650E 05 | 1.500E 05 | 9.494E 05 |
| NI, UDIMET 500 | 2.038E 05 | 5.910E 04 | 2.900E-01 | 3.170E 07 | 1.970E 05 | 1.100E 05 | 3.793E 05 |
| ALUMINUM 5083 (O) | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 4.300E 04 | 2.100E 04 | 2.187E 05 |
| ALUMINUM 5083 (HALF) | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 4.600E 04 | 3.300E 04 | 3.437E 05 |
| ALUMINUM 5086 (O) | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 3.800E 04 | 1.700E 04 | 1.771E 05 |
| ALUMINUM 5086 (HALF) | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 4.700E 04 | 3.700E 04 | 3.854E 05 |
| ALUMINUM 5456 (O) | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 4.500E 04 | 2.300E 04 | 2.396E 05 |
| ALUMINUM 5456 (HALF) | 2.035E 05 | 1.954E 04 | 9.600E-02 | 1.030E 07 | 5.100E 04 | 3.700E 04 | 3.854E 05 |
| NI, RENE-41, R-41 | 2.030E 05 | 6.048E 04 | 2.980E-01 | 3.180E 07 | 2.060E 05 | 1.540E 05 | 5.168E 05 |
| ALUMINUM 5154 (O) | 2.029E 05 | 1.944E 04 | 9.600E-02 | 1.020E 07 | 3.500E 04 | 1.700E 04 | 1.771E 05 |
| ALUMINUM 5154 (HALF) | 2.029E 05 | 1.944E 04 | 9.600E-02 | 1.020E 07 | 4.200E 04 | 3.300E 04 | 3.437E 05 |
| ALUMINUM 5154 (HARD) | 2.029E 05 | 1.944E 04 | 9.600E-02 | 1.020E 07 | 4.800E 04 | 3.900E 04 | 4.062E 05 |
| ALUMINUM 2024 (O) | 2.023E 05 | 2.023E 04 | 1.000E-01 | 1.060E 07 | 2.700E 04 | 1.100E 04 | 1.100E 05 |
| ALUMINUM 2024 (T3) | 2.023E 05 | 2.023E 04 | 1.000E-01 | 1.060E 07 | 7.000E 04 | 5.000E 04 | 5.000E 05 |
| COBALT V-36 | 2.019E 05 | 6.118E 04 | 3.030E-01 | 3.200E 07 | 1.440E 05 | 8.300E 04 | 2.739E 05 |
| ALUMINUM 5052 (O) | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 | 2.800E 04 | 1.300E 04 | 1.340E 05 |
| ALUMINUM 5052 (HALF) | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 | 3.800E 04 | 3.100E 04 | 3.196E 05 |
| ALUMINUM 5052 (HARD) | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 | 4.200E 04 | 3.700E 04 | 3.814E 05 |
| ALUMINUM 5454 (O) | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 | 3.600E 04 | 1.700E 04 | 1.753E 05 |
| ALUMINUM 5454 (HALF) | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 | 4.400E 04 | 3.500E 04 | 3.608E 05 |
| ALUMINUM 5454 (HARD) | 2.015E 05 | 1.954E 04 | 9.700E-02 | 1.020E 07 | 3.800E 04 | 2.600E 04 | 2.680E 05 |
| COBALT J-2650 | 2.013E 05 | 6.443E 04 | 3.200E-01 | 3.360E 07 | 1.740E 05 | 1.160E 05 | 3.625E 05 |
| ALUMINUM 2014 (O) | 2.013E 05 | 2.033E 04 | 1.010E-01 | 1.050E 07 | 2.700E 04 | 1.400E 04 | 1.386E 05 |
| ALUMINUM 2014 (T4) | 2.013E 05 | 2.033E 04 | 1.010E-01 | 1.060E 07 | 6.200E 04 | 4.200E 04 | 4.158E 05 |
| ALUMINUM 2014 (T6) | 2.013E 05 | 2.033E 04 | 1.010E-01 | 1.060E 07 | 7.000E 04 | 6.000E 04 | 5.941E 05 |
| ALUMINUM 7079 (T6) | 2.004E 05 | 1.984E 04 | 9.900E-02 | 1.030E 07 | 7.800E 04 | 6.800E 04 | 6.869E 05 |
| NI, INCONEL X-750 | 2.004E 05 | 5.972E 04 | 2.980E-01 | 3.130E 07 | 1.620E 05 | 9.200E 04 | 3.087E 05 |
| ALUMINUM 2017 (O) | 2.003E 05 | 2.023E 04 | 1.010E-01 | 1.050E 07 | 2.600E 04 | 1.000E 04 | 9.931E 04 |
| ALUMINUM 2017 (T4) | 2.003E 05 | 2.023E 04 | 1.010E-01 | 1.050E 07 | 6.200E 04 | 4.000E 04 | 3.960E 05 |
| COBALT L-605 | 2.000E 05 | 6.601E 04 | 3.300E-01 | 3.420E 07 | 1.440E 05 | 6.700E 04 | 2.030E 05 |
| NI, INCONEL 610 (CAST) | 1.997E 05 | 5.992E 04 | 3.000E-01 | 3.130E 07 | 7.000E 04 | 3.000E 04 | 1.000E 05 |
| MG, K1A (F-CAST) | 1.996E 05 | 1.297E 04 | 6.500E-02 | 6.500E 06 | 2.500E 04 | 7.000E 03 | 1.111E 05 |
| MG, ZE10A (H24) | 1.996E 05 | 1.297E 04 | 6.500E-02 | 6.500E 06 | 3.400E 04 | 1.900E 04 | 3.016E 05 |
| ALUMINUM 5005 (O) | 1.995E 05 | 1.935E 04 | 9.700E-02 | 1.000E 07 | 1.800E 04 | 6.000E 03 | 6.186E 04 |
| ALUMINUM 5005 (HALF) | 1.995E 05 | 1.935E 04 | 9.700E-02 | 1.000E 07 | 2.300E 04 | 2.200E 04 | 2.268E 05 |
| ALUMINUM 5005 (HARD) | 1.995E 05 | 1.935E 04 | 9.700E-02 | 1.000E 07 | 2.900E 04 | 2.800E 04 | 2.887E 05 |
| ALUMINUM 5050 (O) | 1.995E 05 | 1.935E 04 | 9.700E-02 | 1.000E 07 | 2.100E 04 | 8.000E 03 | 8.247E 04 |
| ALUMINUM 5050 (HALF) | 1.995E 05 | 1.935E 04 | 9.700E-02 | 1.000E 07 | 2.800E 04 | 2.400E 04 | 2.474E 05 |
| ALUMINUM 5050 (HARD) | 1.995E 05 | 1.935E 04 | 9.700E-02 | 1.000E 07 | 3.200E 04 | 2.900E 04 | 2.990E 05 |
| ALUMINUM 7075 (O) | 1.984E 05 | 2.014E 04 | 1.010E-01 | 1.040E 07 | 3.300E 04 | 1.500E 04 | 1.485E 05 |

| MATERIAL | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) |
|---|---|---|---|---|---|---|---|
| ALUMINUM 7075 (T6) | 1.994E 05 | 2.014E 04 | 1.010E-01 | 1.040E 07 | 8.300E 04 | 7.300E 04 | 7.228E 05 |
| ALUMINUM 2219 (O) | 1.993E 05 | 2.053E 04 | 1.030E-01 | 1.060E 07 | 2.500E 04 | 1.100E 04 | 1.068E 05 |
| ALUMINUM 2219 (T42) | 1.993E 05 | 2.053E 04 | 1.030E-01 | 1.060E 07 | 5.200E 04 | 2.700E 04 | 2.621E 05 |
| ALUMINUM 2219 (T87) | 1.993E 05 | 2.053E 04 | 1.030E-01 | 1.060E 07 | 6.900E 04 | 5.700E 04 | 5.534E 05 |
| MG, AZ10A-F (EXTRUDED) | 1.988E 05 | 1.262E 04 | 6.350E-02 | 6.500E 06 | 3.500E 04 | 2.200E 04 | 3.465E 05 |
| ALUMINUM EC (O) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.200E 04 | 4.000E 03 | 4.082E 04 |
| ALUMINUM EC (HALF) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.600E 04 | 1.400E 04 | 1.429E 05 |
| ALUMINUM EC (HARD) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 2.700E 04 | 2.400E 04 | 2.449E 05 |
| ALUMINUM 1060 (O) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.000E 04 | 4.000E 03 | 4.082E 04 |
| ALUMINUM 1060 (HALF) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.400E 04 | 1.300E 04 | 1.327E 05 |
| ALUMINUM 1060 (HARD) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.900E 04 | 1.800E 04 | 1.837E 05 |
| ALUMINUM 1100 (O) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.300E 04 | 5.000E 03 | 5.102E 04 |
| ALUMINUM 1100 (HALF) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.800E 04 | 1.700E 04 | 1.735E 05 |
| ALUMINUM 1100 (HARD) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 2.400E 04 | 2.200E 04 | 2.245E 05 |
| ALUMINUM 3004 (O) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 2.600E 04 | 1.000E 04 | 1.020E 05 |
| ALUMINUM 3004 (HALF) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 3.500E 04 | 2.900E 04 | 2.959E 05 |
| ALUMINUM 3004 (HARD) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 4.100E 04 | 3.600E 04 | 3.673E 05 |
| ALUMINUM 5457 (O) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.300E 04 | 5.000E 03 | 5.102E 04 |
| ALUMINUM 5457 (HALF) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.900E 04 | 1.600E 04 | 1.633E 05 |
| ALUMINUM 5457 (HARD) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 2.300E 04 | 1.900E 04 | 1.939E 05 |
| ALUMINUM 6061 (O) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.800E 04 | 8.000E 03 | 8.163E 04 |
| ALUMINUM 6061 (T6) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 4.500E 04 | 4.000E 04 | 4.082E 05 |
| ALUMINUM 6063 (O) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.300E 04 | 7.000E 03 | 7.143E 04 |
| ALUMINUM 6063 (T6) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 3.500E 04 | 3.100E 04 | 3.163E 05 |
| ALUMINUM 6066 (O) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 2.200E 04 | 1.200E 04 | 1.224E 05 |
| ALUMINUM 6066 (T6) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 5.700E 04 | 5.200E 04 | 5.306E 05 |
| ALUMINUM 6101 (T6) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 3.200E 04 | 2.800E 04 | 2.857E 05 |
| ALUMINUM 9282 (T9) | 1.985E 05 | 1.945E 04 | 9.800E-02 | 1.000E 07 | 5.800E 04 | 5.500E 04 | 5.612E 05 |
| ALUMINUM 7178 (O) | 1.984E 05 | 2.024E 04 | 1.020E-01 | 1.040E 07 | 3.300E 04 | 1.500E 04 | 1.471E 05 |
| ALUMINUM 7178 (T6) | 1.984E 05 | 2.024E 04 | 1.020E-01 | 1.040E 07 | 8.800E 04 | 7.800E 04 | 7.647E 05 |
| NI, UNITEMP 1753 | 1.951E 05 | 6.042E 04 | 3.050E-01 | 3.100E 07 | 1.940E 05 | 1.300E 05 | 4.262E 05 |
| MG, AZ31B-F (EXTRUDED) | 1.950E 05 | 1.267E 04 | 6.400E-02 | 6.500E 06 | 3.600E 04 | 2.400E 04 | 3.750E 05 |
| MG, AZ31B-F (FORGED) | 1.950E 05 | 1.267E 04 | 6.400E-02 | 6.500E 06 | 3.800E 04 | 2.800E 04 | 4.375E 05 |
| MG, AZ31B (H24) | 1.950E 05 | 1.267E 04 | 6.400E-02 | 6.500E 06 | 4.200E 04 | 3.200E 04 | 5.000E 05 |
| ALUMINUM 3003 (O) | 1.975E 05 | 1.955E 04 | 9.900E-02 | 1.000E 07 | 1.600E 04 | 6.000E 03 | 6.061E 04 |
| ALUMINUM 3003 (HALF) | 1.975E 05 | 1.955E 04 | 9.900E-02 | 1.000E 07 | 2.200E 04 | 2.100E 04 | 2.121E 05 |
| ALUMINUM 3003 (HARD) | 1.975E 05 | 1.955E 04 | 9.900E-02 | 1.000E 07 | 2.900E 04 | 2.700E 04 | 2.727E 05 |
| DURANICKEL 301 (O) | 1.971E 05 | 5.875E 04 | 2.980E-01 | 3.000E 07 | 9.000E 04 | 3.500E 04 | 1.174E 05 |
| DURANICKEL 301 (OAW) | 1.971E 05 | 5.875E 04 | 2.980E-01 | 3.000E 07 | 1.600E 05 | -0. | -0. |
| DURANICKEL 301 (SPRING) | 1.971E 05 | 5.875E 04 | 2.980E-01 | 3.000E 07 | 1.550E 05 | -0. | -0. |
| DURANICKEL 301 (SAW) | 1.971E 05 | 5.875E 04 | 2.980E-01 | 3.000E 07 | 1.800E 05 | -0. | -0. |
| ALUMINUM 2011 (T3) | 1.965E 05 | 2.004E 04 | 1.020E-01 | 1.020E 07 | 5.500E 04 | 4.300E 04 | 4.216E 05 |
| ALUMINUM 2011 (T8) | 1.965E 05 | 2.004E 04 | 1.020E-01 | 1.020E 07 | 5.900E 04 | 4.500E 04 | 4.412E 05 |
| MG, AM100A (AGED-CAST) | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 | 2.200E 04 | 3.385E 05 |
| MG, AM100A (AS CAST) | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 2.200E 04 | 1.200E 04 | 1.846E 05 |
| MG, AM100A (SOLUTION TREATED) | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 | 1.300E 04 | 2.000E 05 |
| MG, AZ61A-F (EXTRUDED) | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.100E 04 | 2.400E 04 | 3.692E 05 |
| MG, AZ61A-F (FORGED) | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.300E 04 | 2.600E 04 | 4.000E 05 |
| MG, AZ80A-T5 (EXTRUDED) | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 5.000E 04 | 3.800E 04 | 5.846E 05 |
| MG, AZ80A-T5 (FORGED) | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 5.000E 04 | 3.400E 04 | 5.231E 05 |
| MG, AZ81A (SOLUTION TREATED) | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 | 1.200E 04 | 1.846E 05 |
| MG, AZ91 (AS CAST) | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 3.400E 04 | 2.300E 04 | 3.538E 05 |
| MG, AZ91C (AGED-CAST) | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 | 1.900E 04 | 2.923E 05 |
| MG, AZ91C (AS CAST) | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 2.400E 04 | 1.400E 04 | 2.154E 05 |
| MG, AZ91C (SOLUTION TREATED) | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 | 1.200E 04 | 1.846E 05 |
| MG, HK31A (T6-CAST) | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 3.100E 04 | 1.600E 04 | 2.462E 05 |
| MG, HK31A (T8) | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 3.400E 04 | 2.100E 04 | 3.231E 05 |
| MG, HK31A (T9) | 1.965E 05 | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.200E 04 | 3.300E 04 | 5.077E 05 |

| MATERIAL | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/IN/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) |
|---|---|---|---|---|---|---|---|
| MG, ZK51A (T5-CAST) | 1.985E 05 | 1.277E 04 | 6.500E-02 | 6.900E 06 | 4.000E 04 | 2.400E 04 | 3.692E 05 |
| NI, M-252 | 1.985E 05 | 5.859E 04 | 2.980E-01 | 2.980E 07 | 1.800E 05 | 1.220E 05 | 4.094E 05 |
| TI- 5AL-2.5SN | 1.939E 05 | 3.193E 04 | 1.610E-01 | 1.600E 07 | 1.150E 05 | 1.100E 05 | 6.832E 05 |
| TI, 6AL-6V-2SN (O) | 1.953E 05 | 3.143E 04 | 1.620E-01 | 1.600E 07 | 1.500E 05 | 1.300E 05 | 8.025E 05 |
| TI, 6AL-6V-2SN (HEAT TREATED) | 1.953E 05 | 3.163E 04 | 1.620E-01 | 1.600E 07 | 1.900E 05 | 1.750E 05 | 1.080E 06 |
| TI, 7AL-4MO (O) | 1.953E 05 | 3.163E 04 | 1.620E-01 | 1.600E 07 | 1.450E 05 | 1.350E 05 | 8.333E 05 |
| TI, 7AL-4MO (HEAT TREATED) | 1.953E 05 | 3.163E 04 | 1.620E-01 | 1.600E 07 | 1.600E 05 | 1.500E 05 | 9.259E 05 |
| MG, AZ63A (AGED-T6) | 1.950E 05 | 1.267E 04 | 6.600E-02 | 6.900E 06 | 4.000E 04 | 1.900E 04 | 2.879E 05 |
| MG, AZ63A (AS CAST) | 1.950E 05 | 1.267E 04 | 6.600E-02 | 6.900E 06 | 2.900E 04 | 1.400E 04 | 2.121E 05 |
| MG, AZ63A (SOLUTION TREATED) | 1.950E 05 | 1.267E 04 | 6.600E-02 | 6.900E 06 | 4.000E 04 | 1.300E 04 | 1.970E 05 |
| MG, AZ92A (AGED-CAST) | 1.950E 05 | 1.267E 04 | 6.600E-02 | 6.900E 06 | 4.000E 04 | 2.100E 04 | 3.182E 05 |
| MG, AZ92A (AS CAST) | 1.950E 05 | 1.267E 04 | 6.600E-02 | 6.900E 06 | 2.400E 04 | 1.400E 04 | 2.121E 05 |
| MG, AZ92A (SOLUTION TREATED) | 1.950E 05 | 1.267E 04 | 6.600E-02 | 6.900E 06 | 4.000E 04 | 1.400E 04 | 2.121E 05 |
| MG, EZ33A (T5-CAST) | 1.950E 05 | 1.267E 04 | 6.600E-02 | 6.900E 06 | 2.300E 04 | 1.600E 04 | 2.424E 05 |
| MG, HZ32A (T5-CAST) | 1.950E 05 | 1.267E 04 | 6.600E-02 | 6.900E 06 | 2.900E 04 | 1.900E 04 | 2.273E 05 |
| MG, ZE41A (T5-CAST) | 1.950E 05 | 1.267E 04 | 6.600E-02 | 6.900E 06 | 3.000E 04 | 2.000E 04 | 3.030E 05 |
| MG, ZK60A-T5 (EXTRUDED) | 1.950E 05 | 1.267E 04 | 6.600E-02 | 6.500E 06 | 5.000E 04 | 4.000E 04 | 6.061E 05 |
| MG, ZK60A-T5 (FORGED) | 1.950E 05 | 1.267E 04 | 6.600E-02 | 6.900E 06 | 4.400E 04 | 3.000E 04 | 4.545E 05 |
| MG, ZK61A (T6-CAST) | 1.950E 05 | 1.267E 04 | 6.600E-02 | 6.500E 06 | 4.500E 04 | 2.800E 04 | 4.242E 05 |
| MG, HK31A (H24) | 1.950E 05 | 1.267E 04 | 6.500E-02 | 6.400E 06 | 3.700E 04 | 2.900E 04 | 4.442E 05 |
| NI, INCONEL 718 | 1.945E 05 | 5.757E 04 | 2.960E-01 | 2.900E 07 | 2.120E 05 | 1.750E 05 | 5.912E 05 |
| IRIDIUM (O) | 1.937E 05 | 1.575E 05 | 8.130E-01 | 7.900E 07 | 8.000E 04 | -0. | -0. |
| IRIDIUM (COLD WORKED) | 1.937E 05 | 1.575E 05 | 8.130E-01 | 7.900E 07 | 2.900E 05 | -0. | -0. |
| MG, ZH62A (T5-CAST) | 1.935E 05 | 1.267E 04 | 6.700E-02 | 6.900E 06 | 4.000E 04 | 2.500E 04 | 3.731E 05 |
| TI, 5AL-5SN-5ZR | 1.933E 05 | 3.192E 04 | 1.650E-01 | 1.600E 07 | 1.200E 05 | 1.100E 05 | 6.667E 05 |
| COBALT NIVCO | 1.933E 05 | 5.992E 04 | 3.100E-01 | 3.000E 07 | 1.690E 05 | 1.100E 05 | 3.548E 05 |
| NI, HASTELLOY X | 1.928E 05 | 5.736E 04 | 2.970E-01 | 2.800E 07 | 1.140E 05 | 5.220E 04 | 1.758E 05 |
| TI, 2FE-2CR-2MO (O) | 1.906E 05 | 3.240E 04 | 1.700E-01 | 1.600E 07 | .450E 05 | 1.200E 05 | 7.059E 05 |
| COBALT | 1.902E 05 | 6.288E 04 | 3.200E-01 | 3.000E 07 | 3.440E 04 | 2.300E 04 | 6.250E 04 |
| TI, 6AL-4V (O) | 1.902E 05 | 3.244E 04 | 1.600E-01 | 1.500E 07 | 1.394E 05 | 1.200E 05 | 7.500E 05 |
| TI, 6AL-4V (HEAT TREATED) | 1.902E 05 | 3.244E 04 | 1.600E-01 | 1.500E 07 | 1.493E 05 | 1.350E 05 | 8.437E 05 |
| COBALT HS-31,X-40 | 1.900E 05 | 5.891E 04 | 3.100E-01 | 2.900E 07 | 1.380E 05 | 7.400E 04 | 2.452E 05 |
| NICKEL 200 (O) | 1.899E 05 | 6.797E 04 | 3.210E-01 | 3.000E 07 | 5.500E 04 | 1.900E 04 | 4.673E 04 |
| NICKEL 200 (SPRING) | 1.899E 05 | 6.797E 04 | 3.210E-01 | 3.000E 07 | 9.000E 04 | 7.000E 04 | 2.181E 05 |
| NICKEL 201 (O) | 1.899E 05 | 6.797E 04 | 3.210E-01 | 3.000E 07 | 5.000E 04 | 1.200E 04 | 3.738E 04 |
| NI, HASTELLOY C | 1.887E 05 | 6.736E 04 | 3.330E-01 | 2.980E 07 | 1.210E 05 | 5.780E 04 | 1.780E 05 |
| TI, 8MALLOYED | 1.885E 05 | 3.472E 04 | 1.830E-01 | 1.950E 07 | 6.000E 04 | 4.000E 04 | 2.454E 05 |
| TI, AMN (O) | 1.871E 05 | 3.198E 04 | 1.710E-01 | 1.950E 07 | 1.250E 05 | 1.270E 05 | 7.018E 05 |
| VANADIUM (O) | 1.832E 05 | 4.214E 04 | 2.300E-01 | 2.000E 07 | 7.200E 04 | 6.400E 04 | 2.783E 05 |
| VANADIUM (COLD WORKED) | 1.832E 05 | 4.214E 04 | 2.300E-01 | 2.000E 07 | 1.130E 05 | 1.090E 05 | 4.739E 05 |
| NI, INCONEL 705 (CAST) | 1.818E 05 | 5.309E 04 | 2.920E-01 | 2.900E 07 | 9.000E 04 | 8.000E 04 | 2.740E 05 |
| NI, INCONEL 705 (SOLADED) | 1.818E 05 | 5.339E 04 | 2.920E-01 | 2.900E 07 | 9.000E 04 | 8.500E 04 | 2.911E 05 |
| NI, MONEL K-500 (O) | 1.811E 05 | 5.542E 04 | 3.060E-01 | 2.400E 07 | 9.000E 04 | 4.000E 04 | 1.307E 05 |
| NI, MONEL K-500 (COLD WORKED) | 1.811E 05 | 5.542E 04 | 3.060E-01 | 2.400E 07 | 1.300E 05 | 9.000E 04 | 2.941E 05 |
| NI, MONEL K-500 (SAW) | 1.811E 05 | 5.542E 04 | 3.060E-01 | 2.400E 07 | 1.700E 05 | 1.300E 05 | 4.248E 05 |
| NI, MONEL K-500 (SPRING) | 1.811E 05 | 5.542E 04 | 3.060E-01 | 2.400E 07 | 1.450E 05 | 1.300E 05 | 4.248E 05 |
| TUNGSTEN | 1.804E 05 | 1.263E 05 | 7.000E-01 | 5.900E 07 | 2.200E 05 | 2.200E 05 | 3.143E 05 |
| AVC W-25RE | 1.801E 05 | 1.266E 05 | 7.140E-01 | 6.000E 07 | 2.400E 05 | 2.250E 05 | 3.151E 05 |
| TI, 13V-11CR-3AL (O) | 1.788E 05 | 3.130E 04 | 1.750E-01 | 1.450E 07 | 1.380E 05 | 1.290E 05 | 7.143E 05 |
| TI, 13V-11CR-3AL (HEAT TREATED) | 1.788E 05 | 3.130E 04 | 1.750E-01 | 1.450E 07 | 1.900E 05 | 1.700E 05 | 9.714E 05 |
| NICKEL-SPAN-C902 (COLD WORKED) | 1.778E 05 | 5.210E 04 | 2.930E-01 | 2.400E 07 | 1.790E 05 | 1.650E 05 | 5.631E 05 |
| NICKEL-SPAN-C902 (ROLLED) | 1.778E 05 | 5.210E 04 | 2.930E-01 | 2.400E 07 | 1.310E 05 | 1.260E 05 | 4.300E 05 |
| NI, MONEL 400 (O) | 1.774E 05 | 5.498E 04 | 3.100E-01 | 2.600E 07 | 7.000E 04 | 2.500E 04 | 7.837E 04 |
| NI, MONEL 400 (SPRING) | 1.774E 05 | 5.638E 04 | 3.190E-01 | 2.600E 07 | 1.000E 05 | 9.000E 04 | 2.821E 05 |
| NICKEL 47-53 + IRON (O) | 1.769E 05 | 5.237E 04 | 2.960E-01 | 2.400E 07 | 7.700E 04 | 3.300E 04 | 1.115E 05 |
| NICKEL 47-53+FE (COLD WORKED) | 1.769E 05 | 5.237E 04 | 2.960E-01 | 2.400E 07 | 1.900E 05 | -0. | -0. |
| NI, MONEL 505 (CAST) | 1.759E 05 | 5.312E 04 | 3.020E-01 | 2.425E 07 | 1.100E 05 | 8.000E 04 | 2.649E 05 |
| NI, MONEL 505 (TREATED) | 1.759E 05 | 5.312E 04 | 3.020E-01 | 2.425E 07 | 1.100E 05 | 8.000E 04 | 2.649E 05 |

| MATERIAL | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) |
|---|---|---|---|---|---|---|---|
| NI, HASTELLOY B | 1,747E 05 | 5.834E 04 | 3.340E-01 | 2 640E 07 | 1.210E 05 | 5.650E 04 | 1.692E 05 |
| NICKEL 42 + IRON (O) | 1,700E 05 | 4.997E 04 | 2.940E-01 | 2.200E 07 | 6.800E 04 | 3.900E 04 | 1.327E 05 |
| NICKEL 42 + IRON (COLD WORKED) | 1,700E 05 | 4.997E 0 | 2.940E-01 | 2 200E 07 | 1.200E 05 | -0. | -0. |
| NICKEL 36 + IRON (O) | 1,660E 05 | 4 847E 04 | 2.910E-01 | 2 100E 07 | 7.100E 04 | 4.000E 04 | 1.375E 05 |
| NICKEL 36 + IRON (COLD WORKED) | 1,660E 05 | 4.85[illegible]E 04 | 2.910E-01 | 2.100E 07 | 9.000E 04 | 7.000E 04 | 2.405E 05 |
| NICKEL 210 (AS CAST) | 1,661E 05 | 4.998E 04 | 3.010E-01 | 2.150E 07 | 4.500E 04 | 2.000E 04 | 6.645E 04 |
| COPPER-NICKEL,30 (O) | 1,622E 05 | 5.238E 04 | 3.230E-01 | 2.000E 07 | 4.400E 04 | 2.000E 04 | 6.192E 04 |
| COPPER-NICKEL,30 (HALF) | 1,622E 05 | 5.238E 04 | 3.230E-01 | 2 200E 07 | 7.300E 04 | 6.800E 04 | 2.105E 05 |
| COPPER-NICKEL,30 (LIGHT DRAWN) | 1,622E 05 | 5.238E 04 | 3.230E-01 | 2.200E 07 | 7.500E 04 | -0. | -0. |
| BRONZE, CAST ALUMINUM (9D) | 1,598E 05 | 4.347E 04 | 2.720E-01 | 1 800E 07 | 9.000E 04 | 4.000E 04 | 1.471E 05 |
| COPPER, BERYLLIUM (O) | 1,574E 05 | 4.699E 04 | 2.960E-01 | 1.900E 07 | 6.300E 04 | 2.500E 04 | 8.446E 04 |
| COPPER, BERYLLIUM (HARD) | 1,574E 05 | 4 699E 04 | 2.960E-01 | 1.900E 07 | 1.65[illegible]E 05 | 1.300E 05 | 4.392E 05 |
| COPPER-NICKEL,20 (O) | 1,546E 05 | 4.994E 04 | 3.230E-01 | 2.000E 07 | 4.500E 04 | -0. | -0. |
| COPPER-NICKEL,20 (LIGHT DRAWN) | 1,546E 05 | 4.994E 04 | 3.230E-01 | 2.000E 07 | 8.000E 04 | 7.500E 04 | 2.322E 05 |
| NI, MONEL 411 (CAST) | 1,533E 05 | 4.784E 04 | 3.120E-01 | 1 900E 07 | 6.500E 04 | 3.200E 04 | 1.026E 05 |
| BRONZE, AL D (HARD) | 1,517E 05 | 4.325E 04 | 2.850E-01 | 1.700E 07 | 8.200E 04 | 4.000E 04 | 1.404E 05 |
| ZR, REACTOR GRADE (O) | 1,517E 05 | 3 564E 04 | 2.350E-01 | 1.400E 07 | 3.500E 04 | 1.500E 04 | 6.383E 04 |
| BRASS+BRONZE, CAST PB NI (11A) | 1,516E 05 | 4 665E 04 | 3.210E-01 | 1.910E 07 | 4.000E 04 | 1.700E 04 | 5.296E 04 |
| ZR, COMMERCIAL GRADE (O) | 1,510E 05 | 3.579E 04 | 2.370E-01 | 1 400E 07 | 6.400E 04 | 5.300E 04 | 2.236E 05 |
| ZR, ZIRCALOY-2 (O) | 1,499E 05 | 3.593E 04 | 2.370E-01 | 1.380E 07 | 6.000E 04 | 4.500E 04 | 1.899E 05 |
| BRONZE, AL-SI (O) | 1,491E 05 | 4.144E 04 | 2.780E-01 | 1 600E 07 | 8.500E 04 | 4.400E 04 | 1.583E 05 |
| BRONZE, AL-SI (HARD) | 1,491E 05 | 4 144E 04 | 2.780E-01 | 1.400E 07 | 9.000E 04 | 5.000E 04 | 1.799E 05 |
| CU55-NI18-ZN27 (O) | 1,488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 6.000E 04 | 2.700E 04 | 8.909E 04 |
| CU55-NI18-ZN27 (HARD) | 1,488E 05 | 4 671E 04 | 3.140E-01 | 1 800E 07 | 1.000E 05 | 5.500E 04 | 2.707E 05 |
| CU55-NI18-ZN27 (EXTRA HARD) | 1,488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 1.080E 05 | 9.000E 04 | 2.866E 05 |
| CU65-NI12-ZN23 (O) | 1,488E 05 | 4.671E 04 | 3.140E-01 | 1 800E 07 | 5.200E 04 | 1.800E 04 | 5.732E 04 |
| CU65-NI12-ZN23 (HALF) | 1,488E 05 | 4.671E 04 | 3.140E-01 | 1 800E 07 | 7.300E 04 | 6.000E 04 | 1.911E 05 |
| CU65-NI12-ZN23 (HARD) | 1,488E 05 | 4 671E 04 | 3.140E-01 | 1.800E 07 | 8.500E 04 | 7.500E 04 | 2.389E 05 |
| CU65-NI12-ZN23 (EXTRA HARD) | 1,488E 05 | 4.671E 04 | 3.140E-01 | 1.800E 07 | 9.300E 04 | 7.900E 04 | 2.516E 05 |
| CU65-NI15-ZN20 (O) | 1,488E 05 | 4 671E 04 | 3.140E-01 | 1 800E 07 | 5.300E 04 | 1.800E 04 | 5.732E 04 |
| CU65-NI15-ZN20 (HALF) | 1,488E 05 | 4 671E 04 | 3.140E-01 | 1 800E 07 | 7.400E 04 | 6.200E 04 | 1.975E 05 |
| CU65-NI15-ZN20 (HARD) | 1,488E 05 | 4 671E 04 | 3.140E-01 | 1 800E 07 | 8.500E 04 | 7.500E 04 | 2.389E 05 |
| CU65-NI15-ZN20 (EXTRA HARD) | 1,488E 05 | 4 671E 04 | 3.140E-01 | 1 800E 07 | 9.200E 04 | 7.900E 04 | 2.516E 05 |
| CU65-NI18-ZN17 (O) | 1,483E 05 | 4 646E 04 | 3.160E-01 | 1 800E 07 | 5.400E 04 | 2.500E 04 | 7.911E 04 |
| CU65-NI18-ZN17 (HALF) | 1,483E 05 | 4 646E 04 | 3.160E-01 | 1 800E 07 | 7.000E 04 | 6.000E 04 | 1.899E 05 |
| CU65-NI18-ZN17 (HARD) | 1,483E 05 | 4 646E 04 | 3.160E-01 | 1 800E 07 | 8 500E 04 | 7.400E 04 | 2.342E 05 |
| BRONZE, CAST ALUMINUM (9A) | 1,483E 05 | 4.166E 04 | 2.810E-01 | 1 600E 07 | 7.000E 04 | 2.900E 04 | 8.897E 04 |
| BRONZE, P.M. SI (O) | 1,469E 05 | 4 730E 04 | 3.220E-01 | 1 800E 07 | 6.500E 04 | 6.000E 04 | 1.863E 05 |
| BRONZE, P.M. SI (HARD) | 1,469E 05 | 4 730E 04 | 3 220E-01 | 1 800E 07 | 1.000E 05 | 8.800E 04 | 2.733E 05 |
| COPPER-NICKEL,10 (O) | 1,467E 05 | 4 738E 04 | 3.230E-01 | 1 800E 07 | 4.400E 04 | 1.600E 04 | 4.954E 04 |
| COPPER-NICKEL,10 (LIGHT DRAWN) | 1,467E 05 | 4.738E 04 | 3.230E-01 | 1 800E 07 | 6 000E 04 | 5.700E 04 | 1.765E 05 |
| CU65-NI10-ZN25 (O) | 1,467E 05 | 4 646E 04 | 3.140E-01 | 1 750E 07 | 4 900E 04 | 1.800E 04 | 5.732E 04 |
| CU65-NI10-ZN25 (HALF) | 1,467E 05 | 4 646E 04 | 3.140E-01 | 1 750E 07 | 7.300E 04 | 6.000E 04 | 1.911E 05 |
| CU65-NI10-ZN25 (HARD) | 1,467E 05 | 4 646E 04 | 3.140E-01 | 1 750E 07 | 8.600E 04 | 7.500E 04 | 2.389E 05 |
| CU65-NI10-ZN25 (EXTRA HARD) | 1,467E 05 | 4 646E 04 | 3.140E-01 | 1 750E 07 | 9.500E 04 | 7.600E 04 | 2.420E 05 |
| BRONZE, CAST ALUMINUM (9C) | 1,459E 05 | 3 969E 04 | 2 720E-01 | 1 500E 07 | 7.500E 04 | 3.000E 04 | 1.103E 05 |
| BRASS, RED 85CU (O) | 1,441E 05 | 4 554E 04 | 3.160E-01 | 1 700E 07 | 3.800E 04 | 1.600E 04 | 3.165E 04 |
| BRASS, RED 85CU (HARD) | 1,441E 05 | 4 554E 04 | 3.160E-01 | 1 700E 07 | 7.000E 04 | 5.700E 04 | 1.804E 05 |
| BRONZE, LOW SI (O) | 1,441E 05 | 4 554E 04 | 3.160E-01 | 1 700E 07 | 4.500E 04 | 1.500E 04 | 4.747E 04 |
| BRONZE, LOW SI (HARD) | 1,441E 05 | 4 554E 04 | 3.160E-01 | 1 700E 07 | 7.000E 04 | 5.500E 04 | 1.741E 05 |
| BRONZE, JEWELRY 87.5CU (O) | 1,439E 05 | 4 561E 04 | 3.170E-01 | 1 700E 07 | 4.200E 04 | 1.500E 04 | 4.732E 04 |
| BRONZE, JEWELRY 87.5CU (HARD) | 1,439E 05 | 4 561E 04 | 3.170E-01 | 1 700E 07 | 6.600E 04 | 5.600E 04 | 1.767E 05 |
| BRONZE, COMMERCIAL 90CU (O) | 1,437E 05 | 4.568E 04 | 3.180E-01 | 1 700E 07 | 3 700E 04 | 1.000E 04 | 3.145E 04 |
| BRONZE, COMMERCIAL 90CU (HARD) | 1,437E 05 | 4 568E 04 | 3.180E-01 | 1 700E 07 | 6 100E 04 | 5.400E 04 | 1.698E 05 |
| BRONZE, LEAD COMMERCIAL (NA 9) | 1,434E 05 | 4 575E 04 | 3.190E-01 | 1 700E 07 | 5.500E 04 | 5.000E 04 | 1.567E 05 |
| BRASS, ALUMINUM (O) | 1,432E 05 | 4 312E 04 | 3.0[illegible]E-01 | 1 400E 07 | 6.300E 04 | 2.700E 04 | 8.970E 04 |
| GILDING 95CU (O) | 1,432E 05 | 4 583E 04 | 3.200E-01 | 1 700E 07 | 3.400E 04 | 1.000E 04 | 3.185E 04 |
| GILDING 95CU (HARD) | 1,432E 05 | 4 583E 04 | 3.200E-01 | 1 700E 07 | 5.600E 04 | 5 000E 04 | 1.562E 05 |

| MATERIAL | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) |
|---|---|---|---|---|---|---|---|
| BRONZE, CAST ALUMINUM (9B) | 1.431E 05 | 3.777E 04 | 2.640E-01 | 1.400E 07 | 7.000E 04 | 2.800E 04 | 1.061E 05 |
| BRONZE, PHOS E (0) | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.700E 07 | 4.000E 04 | 1.400E 04 | 4.361E 04 |
| BRONZE, PHOS E (HALF) | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.700E 07 | 5.500E 04 | -0. | -0. |
| BRONZE, PHOS E (HARD) | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.700E 07 | 6.500E 04 | 5.000E 04 | 1.558E 05 |
| BRONZE, PHOS E (SPRING) | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.700E 07 | 7.500E 04 | -0. | -0. |
| COPPER, TOUGH PITCH (0) | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.700E 07 | 3.200E 04 | 1.000E 04 | 3.119E 04 |
| COPPER, TOUGH PITCH (HARD) | 1.430E 05 | 4.590E 04 | 3.210E-01 | 1.700E 07 | 5.000E 04 | 4.500E 04 | 1.402E 05 |
| COPPER, OXYGEN FREE (0) | 1.429E 05 | 4.604E 04 | 3.230E-01 | 1.700E 07 | 3.200E 04 | 1.000E 04 | 3.096E 04 |
| COPPER, OXYGEN FREE (HARD) | 1.429E 05 | 4.604E 04 | 3.230E-01 | 1.700E 07 | 5.000E 04 | 4.500E 04 | 1.393E 05 |
| COPPER, PHOS DEOXIDIZED (L) | 1.429E 05 | 4.604E 04 | 3.230E-01 | 1.700E 07 | 3.200E 04 | 1.000E 04 | 3.096E 04 |
| COPPER, PHOS DEOXIDIZED (HARD) | 1.429E 05 | 4.604E 04 | 3.230E-01 | 1.700E 07 | 5.000E 04 | 4.500E 04 | 1.393E 05 |
| BRASS, CARTRIDGE 70CU (0) | 1.416E 05 | 4.362E 04 | 3.080E-01 | 1.600E 07 | 4.400E 04 | 1.100E 04 | 3.571E 04 |
| BRASS, CARTRIDGE 70CU (HARD) | 1.416E 05 | 4.362E 04 | 3.080E-01 | 1.600E 07 | 7.400E 04 | 6.300E 04 | 2.045E 05 |
| BRONZE, ADMIRALTY 71CU (0) | 1.416E 05 | 4.362E 04 | 3.080E-01 | 1.600E 07 | 5.300E 04 | 2.200E 04 | 7.143E 04 |
| BRASS, CAST LEAD YELLOW (7A) | 1.410E 05 | 4.091E 04 | 2.890E-01 | 1.900E 07 | 6.000E 04 | 2.000E 04 | 6.920E 04 |
| BRASS+BRONZE, CAST SI (13B) | 1.410E 05 | 4.216E 04 | 2.990E-01 | 1.940E 07 | 6.000E 04 | 2.500E 04 | 8.361E 04 |
| BRASS, CAST HIGH YELLOW (8C) | 1.407E 05 | 3.897E 04 | 2.770E-01 | 1.420E 07 | 1.120E 05 | 6.500E 04 | 2.347E 05 |
| BRASS, CAST HIGH YELLOW (8A) | 1.405E 05 | 4.230E 04 | 3.010E-01 | 1.340E 07 | 6.500E 04 | 2.500E 04 | 8.306E 04 |
| BRASS, LOW 80CU (0) | 1.405E 05 | 4.397E 04 | 3.130E-01 | 1.600E 07 | 4.200E 04 | 1.200E 04 | 3.834E 04 |
| BRASS, LOW 80CU (HARD) | 1.405E 05 | 4.397E 04 | 3.130E-01 | 1.600E 07 | 7.400E 04 | 5.900E 04 | 1.885E 05 |
| BRASS, CAST HIGH YELLOW (8B) | 1.401E 05 | 3.994E 04 | 2.850E-01 | 1.499E 07 | 9.100E 04 | 4.600E 04 | 1.614E 05 |
| BRONZE, PHOS C (0) | 1.396E 05 | 4.429E 04 | 3.170E-01 | 1.600E 07 | 6.400E 04 | 2.800E 04 | 8.833E 04 |
| BRONZE, PHOS C (HALF) | 1.396E 05 | 4.429E 04 | 3.170E-01 | 1.600E 07 | 8.300E 04 | -0. | -0. |
| BRONZE, PHOS C (HARD) | 1.396E 05 | 4.429E 04 | 3.170E-01 | 1.600E 07 | 1.000E 05 | -0. | -0. |
| BRONZE, PHOS C (SPRING) | 1.396E 05 | 4.429E 04 | 3.170E-01 | 1.600E 07 | 1.220E 05 | -0. | -0. |
| BRONZE, PHOS C (EXTRA SPRING) | 1.396E 05 | 4.429E 04 | 3.170E-01 | 1.600E 07 | 1.280E 05 | -0. | -0. |
| BRASS+BRONZE, CAST PB NI (10A) | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 | 3.000E 04 | 1.500E 04 | 4.717E 04 |
| BRONZE, PHOS B (0) | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 | 5.500E 04 | 2.400E 04 | 7.547E 04 |
| BRONZE, PHOS B (HALF) | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 | 7.400E 04 | 5.500E 04 | 1.730E 05 |
| BRONZE, PHOS B (HARD) | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 | 9.300E 04 | 7.200E 04 | 2.264E 05 |
| BRONZE, PHOS B (SPRING) | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 | 1.120E 05 | -0. | -0. |
| BRONZE, PHOS B (EXTRA SPRING) | 1.394E 05 | 4.432E 04 | 3.180E-01 | 1.600E 07 | 1.200E 05 | -0. | -0. |
| BRONZE, PHOS A (0) | 1.389E 05 | 4.446E 04 | 3.200E-01 | 1.600E 07 | 4.700E 04 | 1.900E 04 | 5.937E 04 |
| BRONZE, PHOS A (HALF) | 1.389E 05 | 4.446E 04 | 3.200E-01 | 1.600E 07 | 6.800E 04 | 5.500E 04 | 1.719E 05 |
| BRONZE, PHOS A (HARD) | 1.389E 05 | 4.446E 04 | 3.200E-01 | 1.600E 07 | 8.100E 04 | 7.500E 04 | 2.344E 05 |
| BRONZE, PHOS A (SPRING) | 1.389E 05 | 4.446E 04 | 3.200E-01 | 1.600E 07 | 1.000E 05 | -0. | -0. |
| BRONZE, PHOS A (EXTRA SPRING) | 1.389E 05 | 4.446E 04 | 3.200E-01 | 1.600E 07 | 1.070E 05 | -0. | -0. |
| BRONZE, MANGANESE A (0) | 1.385E 05 | 4.182E 04 | 3.020E-01 | 1.900E 07 | 6.500E 04 | 3.000E 04 | 9.934E 04 |
| BRONZE, MANGANESE A (HALF) | 1.385E 05 | 4.182E 04 | 3.020E-01 | 1.900E 07 | 8.400E 04 | 6.000E 04 | 1.987E 05 |
| COPPER, TELLURIUM (HALF) | 1.383E 05 | 4.467E 04 | 3.230E-01 | 1.600E 07 | 4.800E 04 | 4.400E 04 | 1.362E 05 |
| BRASS+BRONZE, CAST SI (12A) | 1.382E 05 | 4.189E 04 | 3.030E-01 | 1.900E 07 | [illegible] | 2.200E 04 | 7.261E 04 |
| HUNTZ METAL 60CU (0) | 1.382E 05 | 4.189E 04 | 3.030E-01 | 1.900E 07 | [illegible] | 2.100E 04 | 6.931E 04 |
| BRASS, NAVAL (0) | 1.380E 05 | 4.196E 04 | 3.040E-01 | 1.900E 07 | [illegible] | 2.500E 04 | 8.224E 04 |
| BRASS, NAVAL (QUARTER) | 1.380E 05 | 4.196E 04 | 3.040E-01 | 1.900E 07 | [illegible] | 4.600E 04 | 1.513E 05 |
| BRASS, NAVAL (HALF) | 1.380E 05 | 4.196E 04 | 3.040E-01 | 1.900E 07 | [illegible] | 5.300E 04 | 1.743E 05 |
| HUNTZ METAL, FREE-CUTTING (0) | 1.380E 05 | 4.196E 04 | 3.040E-01 | 1.900E 07 | 5.400E 04 | 2.000E 04 | 6.579E 04 |
| HUNTZ METAL, FREE-CUT (HARD) | 1.380E 05 | 4.196E 04 | 3.040E-01 | 1.900E 07 | 8.000E 04 | 6.000E 04 | 1.974E 05 |
| HUNTZ METAL, LEADED (0) | 1.380E 05 | 4.196E 04 | 3.040E-01 | 1.900E 07 | 5.400E 04 | 2.000E 04 | 6.579E 04 |
| BRASS, FORGING (0) | 1.378E 05 | 4.203E 04 | 3.050E-01 | 1.900E 07 | 5.200E 04 | 2.000E 04 | 6.557E 04 |
| BRASS, LEAD NAVAL (0) | 1.378E 05 | 4.203E 04 | 3.050E-01 | 1.900E 07 | 5.700E 04 | 2.500E 04 | 8.197E 04 |
| BRASS, LEAD NAVAL (QUARTER) | 1.378E 05 | 4.203E 04 | 3.050E-01 | 1.900E 07 | 6.900E 04 | 4.600E 04 | 1.508E 05 |
| BRASS, LEAD NAVAL (HALF) | 1.378E 05 | 4.203E 04 | 3.050E-01 | 1.900E 07 | 7.500E 04 | 5.300E 04 | 1.738E 05 |
| BRASS, HIGH-LEAD (0) | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.900E 07 | 4.900E 04 | 1.700E 04 | 5.556E 04 |
| BRASS, HIGH-LEAD (HARD) | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.900E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 |
| BRASS, LOW-LEAD (0) | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.900E 07 | 5.100E 04 | 1.900E 04 | 6.209E 04 |
| BRASS, LOW-LEAD (HARD) | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.900E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 |
| BRASS, MEDIUM-LEAD (0) | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.900E 07 | 5.100E 04 | 1.900E 04 | 6.209E 04 |
| BRASS, MEDIUM-LEAD (HARD) | 1.376E 05 | 4.209E 04 | 3.060E-01 | 1.900E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 |

| MATERIAL | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) |
|---|---|---|---|---|---|---|---|
| BRASS, YELLOW (1) | 1,376E 05 | 4.209E 04 | 3,060E-01 | 1.900E 07 | 4.600E 04 | 1.400E 04 | 4,575E 04 |
| BRASS, YELLOW (HARD) | 1,376E 05 | 4.209E 04 | 3,060E-01 | 1.900E 07 | 7.400E 04 | 6.600E 04 | 1.961E 05 |
| COLUMBIUM CB-752 | 1,376E 05 | 4.209E 04 | 3,060E-01 | 1.900E 07 | 8.500E 04 | 7.000E 04 | 2.288E 05 |
| BRONZE, HIGH SI (0) | 1,371E 05 | 4.223E 04 | 3,080E-01 | 1.900E 07 | 5.400E 04 | 2.000E 04 | 6.494E 04 |
| BRONZE, HIGH SI (HARD) | 1,371E 05 | 4.223E 04 | 3.080E-01 | 1.900E 07 | 9.200E 04 | 5.500E 04 | 1.788E 05 |
| COLUMBIUM B-66 | 1,369E 05 | 4.174E 04 | 3,050E-01 | 1.480E 07 | 1.120E 05 | 9.000E 04 | 2.951E 05 |
| COLUMBIUM | 1,367E 05 | 4.237E 04 | 3.100E-01 | 1.900E 07 | 4.000E 04 | 3.500E 04 | 1.129E 05 |
| BRASS, CAST LEAD RED (9B) | 1,361E 05 | 4.313E 04 | 3.170E-01 | 1.520E 07 | 3.000E 04 | 1.200E 04 | 3.785E 04 |
| BRASS+BRONZE, CAST PB NI (1 B) | 1,349E 05 | 4.291E 04 | 3.180E-01 | 1.900E 07 | 3.500E 04 | 1.700E 04 | 5.346E 04 |
| BRONZE, PHOS FREE-CUTTING (A) | 1,343E 05 | 4.311E 04 | 3,210E-01 | 1.500E 07 | 4.400E 04 | 1.900E 04 | 5.919E 04 |
| BRONZE, PHOS FREE-CUT (HALF) | 1,343E 05 | 4.311E 04 | 3,210E-01 | 1.500E 07 | 5.800E 04 | 4.000E 04 | 1.246E 05 |
| COLUMBIUM C-529 | 1,342E 05 | 4.603E 04 | 3,430E-01 | 1.400E 07 | 1.300E 04 | 1.020E 05 | 2.974E 05 |
| BRASS, CAST LEAD YELLOW (6A) | 1,331E 05 | 4.060E 04 | 3.050E-01 | 1.400E 07 | 3.500E 04 | 1.200E 04 | 3.934E 04 |
| BRONZE, ARCHITECTURAL (0) | 1,329E 05 | 4.067E 04 | 3.060E-01 | 1.400E 07 | 6.000E 04 | 2.000E 04 | 6.536E 04 |
| BRASS, EXTRA-HIGH-LEAD (0) | 1,327E 05 | 4.073E 04 | 3,070E-01 | 1.400E 07 | 4.900E 04 | 1.700E 04 | 5.537E 04 |
| BRASS, EXTRA-HIGH-LEAD (HARD) | 1,327E 05 | 4.073E 04 | 3,070E-01 | 1.400E 07 | 7.000E 04 | 6.000E 04 | 1.954E 05 |
| BRASS, FREE-CUTTING (0) | 1,327E 05 | 4.073E 04 | 3.070E-01 | 1.400E 07 | 4.900E 04 | 1.800E 04 | 5.863E 04 |
| BRASS, FREE-CUTTING (HARD) | 1,327E 05 | 4.073E 04 | 3.070E-01 | 1.400E 07 | 6.800E 04 | 5.200E 04 | 1.694E 05 |
| BRONZE, CAST LEAD TIN (3B) | 1,323E 05 | 4.232E 04 | 3,200E-01 | 1.490E 07 | 3.300E 04 | 1.700E 04 | 5.312E 04 |
| TANTALUM | 1,318E 05 | 7.908E 04 | 6,000E-01 | 2.700E 07 | 6.000E 04 | 4.800E 04 | 8.000E 04 |
| BRONZE, CAST TIN (1A) | 1,312E 05 | 4.120E 04 | 3,140E-01 | 1.400E 07 | 4.000E 04 | 2.000E 04 | 6,369E 04 |
| BRASS, CAST LEAD YELLOW (6C) | 1,293E 05 | 3.880E 04 | 3,000E-01 | 1.300E 07 | 4.500E 04 | 1.600E 04 | 5.333E 04 |
| HAFNIUM (0) | 1,282E 05 | 6.024E 04 | 4,700E-01 | 2.000E 07 | 7.700E 04 | 3,200E 04 | 6.809E 04 |
| HAFNIUM (COLD WORKED) | 1,282E 05 | 6.024E 04 | 4,700E-01 | 2.000E 07 | 1.120E 05 | 9.600E 04 | 2.043E 05 |
| BRONZE, CAST LEAD TIN (2A) | 1,279E 05 | 3.960E 04 | 3,110E-01 | 1.310E 07 | 3.600E 04 | 1.600E 04 | 5.145E 04 |
| BRASS, CAST LEAD RED (9A) | 1,270E 05 | 3.951E 04 | 3.110E-01 | 1.300E 07 | 2.900E 04 | 1.300E 04 | 4,180E 04 |
| BRONZE, CAST TIN (1B) | 1,270E 05 | 3.951E 04 | 3.110E-01 | 1.300E 07 | 4.000E 04 | 1.800E 04 | 5,788E 04 |
| PALLADIUM (0) | 1,265E 05 | 5.492E 04 | 4,340E-01 | 1.800E 07 | 2.000E 04 | 5.000E 03 | 1.152E 04 |
| PALLADIUM (COLD ROLLED-90) | 1,265E 05 | 5.492E 04 | 4,340E-01 | 1.800E 07 | 4.700E 04 | 3.030E 04 | 6.912E 04 |
| BRASS, CAST LEAD YELLOW (6B) | 1,236E 05 | 3.747E 04 | 3.030E-01 | 1.200E 07 | 3.000E 04 | 1.100E 04 | 3.630E 04 |
| COLUMBIUM C-103 | 1,233E 05 | 3.945E 04 | 3,200E-01 | 1 260E 07 | 9.350E 04 | 8.300E 04 | 2,750E 05 |
| BRASS, CAST LEAD RED (4A) | 1,227E 05 | 3.902E 04 | 3,180E-01 | 1 240E 07 | 3.300E 04 | 1.500E 04 | 4,717E 04 |
| COLUMBIUM CB-1ZR | 1,197E 05 | 3.710E 04 | 3.100E-01 | 1.150E 07 | 4.800E 04 | 3.500E 04 | 1.129E 05 |
| BRONZE, CAST LEAD TIN (3A) | 1,174E 05 | 3.815E 04 | 3,250E-01 | 1.140E 07 | 3,400E 04 | 1.500E 04 | 4,615E 04 |
| BRONZE, CAST LEAD TIN (3C) | 1,159E 05 | 3.700E 04 | 3.200E-01 | 1.113E 07 | 2.800E 04 | 1.500E 04 | 4.687E 04 |
| TANTALUM-10W | 1,159E 05 | 7.021E 04 | 6,080E-01 | 2.100E 07 | 1.600E 05 | 1.500E 05 | 2,799E 05 |
| BRONZE, CAST LEAD TIN (2B) | 1,142E 05 | 3.583E 04 | 3,140E-01 | 1.060E 07 | 3.600E 04 | 1.600E 04 | 5.096E 04 |
| BRONZE, CAST LEAD TIN (2C) | 1,142E 05 | 3.583E 04 | 3.140E-01 | 1.060E 07 | 3.600E 04 | 1.800E 04 | 5,732E 04 |
| PLATINUM (0) | 1,116E 05 | 8.648E 04 | 7,750E-01 | 2 500E 07 | 1.800E 04 | 2,000E 03 | 2.581E 03 |
| PLATINUM (COLD ROLLED) | 1.116E 05 | 8.648E 04 | 7.750E-01 | 2.500E 07 | 2.800E 04 | 2,700E 04 | 3.484E 04 |
| BRONZE, CAST LEAD TIN (3D) | 1,110E 05 | 3.652E 04 | 3,290E-01 | 1.090E 07 | 2.800E 04 | 1.400E 04 | 4.255E 04 |
| TIN, PEWTER (CRS) | 1,063E 05 | 2.796E 04 | 2.630E-01 | 7.700E 06 | 7.600E 03 | -0. | -0. |
| TIN, PEWTER (OS) | 1.063E 05 | 2.796E 04 | 2,630E-01 | 7.700E 06 | 8.600E 03 | -0. | -0. |
| SILVER (0) | 1,059E 05 | 4.012E 04 | 3,790E-01 | 1.100E 07 | 2.200E 04 | 8.000E 03 | 2.111E 04 |
| SILVER (COLD ROLLED-90) | 1,059E 05 | 4.012E 04 | 3,790E-01 | 1.100E 07 | 5.400E 04 | 4.400E 04 | 1.161E 05 |
| URANIUM, DEPLETED (0) | 1,038E 05 | 7.209E 04 | 6,900E-01 | 2.000E 07 | 7.500E 04 | 2.500E 04 | 3.623E 04 |
| BRONZE, CAST LEAD TIN (3E) | 1,023E 05 | 3.344E 04 | 3,320E-01 | 9.000E 06 | 2.300E 04 | 1.100E 04 | 3.312E 04 |
| THORIUM (0) | 9,587E 04 | 4.097E 04 | 4,200E-01 | 1.000E 07 | 3.400E 04 | 2.600E 04 | 6.190E 04 |
| THORIUM (COLD WORKED) | 9.587E 04 | 4.097E 04 | 4,200E-01 | 1.000E 07 | 4.900E 04 | 4.500E 04 | 1.071E 05 |
| TIN, GRADE A (CAST) | 9,367E 04 | 2.472E 04 | 2,640E-01 | 6 000E 06 | 2.100E 03 | 1.500E 03 | 6.439E 03 |
| TIN, GRADE A (CRS) | 9,367E 04 | 2.473E 04 | 2,640E-01 | 6 000E 06 | 2.800E 03 | 2.000E 03 | 7,576E 03 |
| TIN, GRADE A (OS) | 9,367E 04 | 2.473E 04 | 2,640E-01 | 6.000E 06 | 2.200E 03 | 1.300E 03 | 4,924E 03 |
| GOLD (0) | 8,197E 04 | 5.686E 04 | 6,980E-01 | 1.200E 07 | 1.900E 04 | -0. | -0. |
| GOLD (COLD ROLLED-90) | 8.147E 04 | 5.685E 04 | 6,980E-01 | 1.200E 07 | 3.200E 04 | 3.000E 04 | .298E 04 |
| LEAD, 1SB (CHILL CAST) | 4,361E 04 | 1.770E 04 | 4,060E-01 | 2.000E 06 | 3.400E 03 | -0. | -0. |
| LEAD, 1SB (EXTRUDED) | 4,361E 04 | 1.770E 04 | 4,060E-01 | 2.000E 06 | 2.900E 03 | -0. | -0. |
| LEAD, 1SB (EXTRUDED+AGED) | 4,361E 04 | 1.770E 04 | 4,060E-01 | 2.000E 06 | 3.000E 03 | -0. | -0. |
| LEAD, 1SB (ROLLED) | 4.361E 04 | 1.770E 04 | 4,060E-01 | 2.000E 06 | 3.000E 03 | -0. | -0. |

| MATERIAL | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) |
|---|---|---|---|---|---|---|---|
| LEAD, CHEMICAL (CHILL CAST) | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.400E 03 | -0. | -0. |
| LEAD, CHEMICAL (EXTRUDED) | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.500E 03 | -0. | -0. |
| LEAD, CHEMICAL (ROLLED) | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.400E 03 | 1.640E 03 | 4.000E 03 |
| LEAD, SOFT (CHILL CAST) | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.000E 03 | -0. | -0. |
| LEAD, SOFT (EXTRUDED) | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.000E 03 | -0. | -0. |
| LEAD, SOFT (ROLLED) | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.100E 03 | -0. | -0. |
| LEAD, TELLURIUM (CHILL CAST) | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.000E 06 | 3.000E 03 | -0. | -0. |
| LEAD, TELLURIUM (ROLLED) | 4.339E 04 | 1.779E 04 | 4.100E-01 | 2.900E 06 | 2.800E 03 | -0. | -0. |

| MATERIAL | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) |
|---|---|---|---|---|---|---|---|
| IRIDIUM (0) | 1.575E 05 | 8.130E-01 | 7.900E 07 | 8.000E 04 | -0. | -0. | 1.937E 05 |
| IRIDIUM (COLD WORKED) | 1.575E 05 | 8.130E-01 | 7.900E 07 | 2.700E 05 | -0. | -0. | 1.937E 05 |
| AVC N-25RE | 1.266E 05 | 7.140E-01 | 6.000E 07 | 2.420E 05 | 2.250E 05 | 3.151E 05 | 1.861E 05 |
| TUNGSTEN | 1.263E 05 | 7.000E-01 | 5.900E 07 | 2.200E 05 | 2.200E 05 | 3.143E 05 | 1.884E 05 |
| RUTHENIUM (3) | 1.076E 05 | 4.410E-01 | 6.800E 07 | 5.900E 04 | -0. | -0. | 2.440E 05 |
| RHODIUM (0) | 9.742E 04 | 4.470E-01 | 5.500E 07 | 7.300E 04 | -0. | -0. | 2.179E 05 |
| RHODIUM (COLD WORKED) | 9.742E 04 | 4.470E-01 | 5.500E 07 | 3.000E 05 | -0. | -0. | 2.179E 05 |
| AVC (70MO, 30W) | 9.110E 04 | 4.300E-01 | 5.000E 07 | 1.050E 05 | 9.500E 04 | 2.209E 05 | 2.119E 05 |
| PLATINUM (0) | 8.648E 04 | 7.750E-01 | 2.500E 07 | 1.800E 04 | 2.000E 03 | 3.581E 03 | 1.113E 05 |
| PLATINUM (COLD ROLLED) | 8.648E 04 | 7.750E-01 | 2.500E 07 | 2.800E 04 | 2.700E 04 | 3.484E 04 | 1.116E 05 |
| MOLYBDENUM | 8.193E 04 | 3.700E-01 | 4.700E 07 | 9.500E 04 | 8.200E 04 | 2.216E 05 | 2.214E 05 |
| MO, TZM (.5TI, .1ZR) | 8.106E 04 | 3.700E-01 | 4.600E 07 | 1.250E 05 | 1.050E 05 | 2.838E 05 | 2.191E 05 |
| MO-0.5TI | 8.106E 04 | 3.700E-01 | 4.600E 07 | 1.150E 05 | 1.040E 05 | 2.811E 05 | 2.191E 05 |
| TANTALUM | 7.908E 04 | 6.600E-01 | 2.700E 07 | 4.000E 04 | 4.000E 04 | 8.000E 04 | 1.318E 05 |
| URANIUM, DEPLETED (0) | 7.299E 04 | 6.900E-01 | 2.000E 07 | 7.500E 04 | 2.500E 04 | 3.623E 04 | 1.058E 05 |
| TANTALUM-10W | 7.021E 04 | 6.080E-01 | 2.100E 07 | 1.400E 05 | 1.300E 05 | 2.599E 05 | 1.155E 05 |
| COBALT L-605 | 6.601E 04 | 3.300E-01 | 3.420E 07 | 1.440E 05 | 6.700E 04 | 2.030E 05 | 2.000E 05 |
| COBALT S-816 | 6.472E 04 | 3.100E-01 | 3.500E 07 | 1.400E 05 | 7.000E 04 | 2.258E 05 | 2.088E 05 |
| COBALT HS-21 | 6.457E 04 | 3.100E-01 | 3.600E 07 | 1.010E 05 | 8.200E 04 | 2.733E 05 | 2.152E 05 |
| COBALT J-1650 | 6.443E 04 | 3.200E-01 | 3.360E 07 | 1.740E 05 | 1.140E 05 | 3.625E 05 | 2.013E 05 |
| NI, NICROTUNG (CAST) | 6.229E 04 | 3.000E-01 | 3.350E 07 | 1.300E 05 | 1.200E 05 | 4.000E 05 | 2.076E 05 |
| COBALT V-36 | 6.118E 04 | 3.030E-01 | 3.200E 07 | 1.460E 05 | 8.300E 04 | 2.739E 05 | 2.019E 05 |
| NICKEL 200 (0) | 6.097E 04 | 3.210E-01 | 3.000E 07 | 5.500E 04 | 1.500E 04 | 4.673E 04 | 1.899E 05 |
| NICKEL 200 (SPRING) | 6.097E 04 | 3.210E-01 | 3.000E 07 | 9.000E 04 | 7.000E 04 | 2.181E 05 | 1.899E 05 |
| NICKEL 201 (0) | 6.097E 04 | 3.210E-01 | 3.000E 07 | 5.000E 04 | 1.200E 04 | 3.738E 04 | 1.899E 05 |
| NI, HASTELLOY C | 6.096E 04 | 3.230E-01 | 2.980E 07 | 1.210E 05 | 5.780E 04 | 1.789E 05 | 1.887E 05 |
| COBALT | 6.088E 04 | 3.200E-01 | 3.000E 07 | 3.440E 04 | 2.000E 04 | 6.250E 04 | 1.902E 05 |
| NI, INCONEL 700 | 6.074E 04 | 2.950E-01 | 3.240E 07 | 1.710E 05 | 1.040E 05 | 3.525E 05 | 2.059E 05 |
| NI, RENE-41, R-41 | 6.048E 04 | 2.980E-01 | 3.180E 07 | 2.060E 05 | 1.540E 05 | 5.168E 05 | 2.030E 05 |
| NI, UNITEMP 1753 | 6.042E 04 | 3.050E-01 | 3.100E 07 | 1.940E 05 | 1.300E 05 | 4.262E 05 | 1.981E 05 |
| NI, WASPALOY | 6.038E 04 | 2.960E-01 | 3.190E 07 | 1.880E 05 | 1.200E 05 | 4.054E 05 | 2.040E 05 |
| HAFNIUM (0) | 6.024E 04 | 4.700E-01 | 2.000E 07 | 7.700E 04 | 3.200E 04 | 6.809E 04 | 1.262E 05 |
| HAFNIUM (COLD WORKED) | 6.024E 04 | 4.700E-01 | 2.000E 07 | 1.120E 05 | 9.600E 04 | 2.043E 05 | 1.262E 05 |
| COBALT NIVCO | 5.992E 04 | 3.100E-01 | 3.000E 07 | 1.450E 05 | 1.100E 05 | 3.548E 05 | 1.933E 05 |
| NI, INCONEL 610 (CAST) | 5.992E 04 | 3.000E-01 | 3.100E 07 | 7.000E 04 | 3.000E 04 | 1.000E 05 | 1.997E 05 |
| NI, INCONEL X-750 | 5.972E 04 | 2.980E-01 | 3.100E 07 | 1.420E 05 | 9.200E 04 | 3.087E 05 | 2.004E 05 |
| NI, UDIMET 700 | 5.953E 04 | 2.860E-01 | 3.210E 07 | 2.050E 05 | 1.400E 05 | 4.895E 05 | 2.082E 05 |
| NI, UDIMET 500 | 5.910E 04 | 2.900E-01 | 3.120E 07 | 1.970E 05 | 1.600E 05 | 5.793E 05 | 2.038E 05 |
| COBALT HS-31,X-40 | 5.891E 04 | 3.100E-01 | 2.900E 07 | 1.080E 05 | 7.600E 04 | 2.452E 05 | 1.900E 05 |
| DURANICKEL 301 (0) | 5.875E 04 | 2.980E-01 | 3.000E 07 | 9.000E 04 | 3.500E 04 | 1.174E 05 | 1.971E 05 |
| DURANICKEL 301 (OAW) | 5.875E 04 | 2.980E-01 | 3.000E 07 | 1.400E 05 | -0. | -0. | 1.971E 05 |
| DURANICKEL 301 (SPRING) | 5.875E 04 | 2.980E-01 | 3.000E 07 | 1.550E 05 | -0. | -0. | 1.971E 05 |
| DURANICKEL 301 (SAW) | 5.875E 04 | 2.980E-01 | 3.000E 07 | 1.800E 05 | -0. | -0. | 1.971E 05 |
| NI, N-252 | 5.855E 04 | 2.980E-01 | 2.980E 07 | 1.800E 05 | 1.220E 05 | 4.094E 05 | 1.963E 05 |
| NI, HASTELLOY B | 5.834E 04 | 3.340E-01 | 2.640E 07 | 1.210E 05 | 5.650E 04 | 1.692E 05 | 1.747E 05 |
| NI, INCONEL 718 | 5.757E 04 | 2.950E-01 | 2.900E 07 | 2.120E 05 | 1.750E 05 | 5.912E 05 | 1.945E 05 |
| NI, HASTELLOY X | 5.726E 04 | 2.970E-01 | 2.860E 07 | 1.140E 05 | 5.220E 04 | 1.758E 05 | 1.928E 05 |
| GOLD (0) | 5.686E 04 | 6.980E-01 | 1.200E 07 | 1.900E 04 | -0. | -0. | 8.147E 04 |
| GOLD (COLD ROLLED-50) | 5.686E 04 | 6.980E-01 | 1.200E 07 | 3.200E 04 | 3.000E 04 | 4.298E 04 | 8.147E 04 |
| NI, MONEL 400 (0) | 5.658E 04 | 3.190E-01 | 2.000E 07 | 7.000E 04 | 2.500E 04 | 7.837E 04 | 1.774E 05 |
| NI, MONEL 400 (SPRING) | 5.658E 04 | 3.190E-01 | 2.000E 07 | 1.000E 05 | 9.000E 04 | 2.821E 05 | 1.774E 05 |
| NI, MONEL K-500 (0) | 5.542E 04 | 3.060E-01 | 2.600E 07 | 9.000E 04 | 4.000E 04 | 1.307E 05 | 1.811E 05 |
| NI, MONEL K-500 (OAW) | 5.542E 04 | 3.060E-01 | 2.600E 07 | 1.300E 05 | 9.000E 04 | 2.941E 05 | 1.811E 05 |
| NI, MONEL K-500 (SAW) | 5.542E 04 | 3.060E-01 | 2.600E 07 | 1.700E 05 | 1.300E 05 | 4.248E 05 | 1.811E 05 |
| NI, MONEL K-500 (SPRING) | 5.542E 04 | 3.060E-01 | 2.600E 07 | 1.450E 05 | 1.300E 05 | 4.248E 05 | 1.811E 05 |
| PALLADIUM (0) | 5.492E 04 | 4.340E-01 | 1.800E 07 | 2.000E 04 | 5.000E 03 | 1.152E 04 | 1.265E 05 |
| PALLADIUM (COLD ROLLED-50) | 5.492E 04 | 4.340E-01 | 1.800E 07 | 4.700E 04 | 3.000E 04 | 6.912E 04 | 1.265E 05 |
| NI, MONEL 505 (CAST) | 5.312E 04 | 3.020E-01 | 2.420E 07 | 1.100E 05 | 8.000E 04 | 2.649E 05 | 1.759E 05 |

| MATERIAL | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) |
|---|---|---|---|---|---|---|---|
| NI, MONEL 535 (CHARGED) | 5.312E 04 | 3.[illegible]20E-01 | 2.420E 07 | 1.130E 05 | 8.000E 04 | 2.649E 05 | 1.750E 05 |
| NI, INCONEL 705 (CAST) | 5.309E 04 | 2.920E-01 | 2.500E 07 | 9.000E 04 | 8.000E 04 | 2.740E 05 | 1.818E 05 |
| NI, INCONEL 705 (CHARGED) | 5.309E 04 | 2.920E-01 | 2.500E 07 | 9.000E 04 | 8.500E 04 | 2.911E 05 | 1.818E 05 |
| COPPER-NICKEL,30 (O) | 5.238E 04 | 3.230E-01 | 2.200E 07 | 4.400E 04 | 2.000E 04 | 6.192E 04 | 1.622E 05 |
| COPPER-NICKEL,30 (HALF) | 5.238E 04 | 3.230E-01 | 2.200E 07 | 7.300E 04 | 6.800E 04 | 2.105E 05 | 1.622E 05 |
| COPPER-NICKEL,30 (LIGHT DRAWN) | 5.238E 04 | 3.230E-01 | 2.200E 07 | 7.500E 04 | -0. | -0. | 1.622E 05 |
| NICKEL 47-50 + IRON (O) | 5.237E 04 | 2.960E-01 | 2.400E 07 | 7.700E 04 | 3.300E 04 | 1.115E 05 | 1.769E 05 |
| NICKEL 47-50+FE (COLD WORKED) | 5.237E 04 | 2.960E-01 | 2.400E 07 | 1.400E 05 | -0. | -0. | 1.769E 05 |
| NICKEL-SPAN-C902 (COLD WORKED) | 5.210E 04 | 2.930E-01 | 2.400E 07 | 1.790E 05 | 1.650E 05 | 5.63[illegible] 05 | 1.778E 05 |
| NICKEL-SPAN-C902 (ROLLED) | 5.210E 04 | 2.930E-01 | 2.400E 07 | 1.310E 05 | 1.260E 05 | 4.300E 05 | 1.778E 05 |
| NICKEL 210 (AS CAST) | 4.998E 04 | 3.110E-01 | 2.150E 07 | 4.500E 04 | 2.000E 04 | 6.643E 04 | 1.661E 05 |
| NICKEL 42 + IRON (O) | 4.997E 04 | 2.940E-01 | 2.200E 07 | 6.800E 04 | 3.900E 04 | 1.327E 05 | 1.700E 05 |
| NICKEL 42 + IRON (COLD WORKED) | 4.997E 04 | 2.940E-01 | 2.200E 07 | 1.230E 05 | -0. | -0. | 1.700E 05 |
| COPPER-NICKEL,20 (O) | 4.994E 04 | 3.230E-01 | 2.000E 07 | 4.500E 04 | -0. | -0. | 1.546E 05 |
| COPPER-NICKEL,20 (LIGHT DRAWN) | 4.994E 04 | 3.230E-01 | 2.000E 07 | 8.000E 04 | 7.500E 04 | 2.322E 05 | 1.546E 05 |
| BRASS+BRONZE, CAST PR NI (11A) | 4.865E 04 | 3.210E-01 | 1.910E 07 | 4.000E 04 | 3.700E 04 | 5.286E 04 | 1.516E 05 |
| NICKEL 36 + IRON (O) | 4.857E 04 | 2.910E-01 | 2.100E 07 | 7.100E 04 | 4.200E 04 | 1.379E 05 | 1.669E 05 |
| NICKEL 36 + IRON (COLD WORKED) | 4.857E 04 | 2.910E-01 | 2.100E 07 | 9.000E 04 | 7.000E 04 | 2.405E 05 | 1.669E 05 |
| NI, MONEL 411 (CAST) | 4.784E 04 | 3.120E-01 | 1.900E 07 | 6.500E 04 | 3.200E 04 | 1.026E 05 | 1.533E 05 |
| COPPER-NICKEL,1 (O) | 4.738E 04 | 3.230E-01 | 1.800E 07 | 4.400E 04 | 1.600E 04 | 4.954E 04 | 1.467E 05 |
| COPPER-NICKEL,10 (LIGHT DRAWN) | 4.738E 04 | 3.230E-01 | 1.800E 07 | 6.000E 04 | 5.700E 04 | 1.765E 05 | 1.467E 05 |
| BRONZE, P,H, SI (O) | 4.730E 04 | 3.220E-01 | 1.500E 07 | 6.500E 04 | 6.000E 04 | 1.863E 05 | 1.469E 05 |
| BRONZE, P,H, SI (HARD) | 4.730E 04 | 3.220E-01 | 1.800E 07 | 1.000E 05 | 8.800E 04 | 2.733E 05 | 1.469E 05 |
| CU65-NI18-ZN17 (O) | 4.686E 04 | 3.160E-01 | 1.800E 07 | 5.400E 04 | 2.500E 04 | 7.911E 04 | 1.483E 05 |
| CU65-NI18-ZN17 (HALF) | 4.686E 04 | 3.160E-01 | 1.800E 07 | 7.000E 04 | 6.000E 04 | 1.899E 05 | 1.483E 05 |
| CU65-NI18-ZN17 (HARD) | 4.686E 04 | 3.160E-01 | 1.800E 07 | 8.500E 04 | 7.400E 04 | 2.342E 05 | 1.483E 05 |
| CU55-NI18-ZN27 (O) | 4.671E 04 | 3.140E-01 | 1.800E 07 | 6.000E 04 | 2.700E 04 | 8.599E 04 | 1.488E 05 |
| CU55-NI18-ZN27 (HARD) | 4.671E 04 | 3.140E-01 | 1.800E 07 | 1.000E 05 | 8.500E 04 | 2.707E 05 | 1.488E 05 |
| CU55-NI18-ZN27 (EXTRA HARD) | 4.671E 04 | 3.140E-01 | 1.800E 07 | 1.080E 05 | 9.000E 04 | 2.866E 05 | 1.488E 05 |
| CU65-NI12-ZN23 (O) | 4.671E 04 | 3.140E-01 | 1.800E 07 | 200E 04 | 1.000E 04 | 9.732E 04 | 1.488E 05 |
| CU65-NI12-ZN23 (HALF) | 4.671E 04 | 3.140E-01 | 1.800E 07 | 7.300E 04 | 6.000E 04 | 1.911E 05 | 1.488E 05 |
| CU65-NI12-ZN23 (HARD) | 4.671E 04 | 3.140E-01 | 1.800E 07 | 8.500E 04 | 7.500E 04 | 2.389E 05 | 1.488E 05 |
| CU65-NI12-ZN23 (EXTRA HARD) | 4.671E 04 | 3.140E-01 | 1.800E 07 | 9.300E 04 | 7.900E 04 | 2.516E 05 | 1.488E 05 |
| CU65-NI15-ZN20 (O) | 4.671E 04 | 3.140E-01 | 1.800E 07 | 5.300E 04 | 1.800E 04 | 5.732E 04 | 1.488E 05 |
| CU65-NI15-ZN20 (HALF) | 4.671E 04 | 3.140E-01 | 1.800E 07 | 7.400E 04 | 6.200E 04 | 1.975E 05 | 1.488E 05 |
| CU65-NI15-ZN20 (HARD) | 4.671E 04 | 3.140E-01 | 1.800E 07 | 8.500E 04 | 7.500E 04 | 2.389E 05 | 1.488E 05 |
| CU65-NI15-ZN20 (EXTRA HARD) | 4.671E 04 | 3.140E-01 | 1.800E 07 | 9.200E 04 | 7.900E 04 | 2.516E 05 | 1.488E 05 |
| COPPER, BERYLLIUM (O) | 4.659E 04 | 2.960E-01 | 1.900E 07 | 6.900E 04 | 2.500E 04 | 8.446E 04 | 1.574E 05 |
| COPPER, BERYLLIUM (HARD) | [illegible]E 04 | 2.960E-01 | 1.900E 07 | 1.650E 05 | 1.300E 05 | 4.392E 05 | 1.574E 05 |
| CU65-NI10-ZN25 (O) | 4.606E 04 | 3.140E-01 | 1.750E 07 | 4.900E 04 | 1.800E 04 | 5.732E 04 | 1.467E 05 |
| CU65-NI10-ZN25 (HALF) | 4.606E 04 | 3.140E-01 | 1.750E 07 | 7.300E 04 | 6.000E 04 | 1.911E 05 | 1.467E 05 |
| CU65-NI10-ZN25 (HARD) | 4.606E 04 | 3.140E-01 | 1.750E 07 | 8.600E 04 | 7.500E 04 | 2.389E 05 | 1.467E 05 |
| CU65-NI10-ZN25 (EXTRA HARD) | 4.606E 04 | 3.140E-01 | 1.750E 07 | 9.500E 04 | 7.600E 04 | 2.420E 05 | 1.467E 05 |
| COPPER, OXYGEN FREE (O) | 4.604E 04 | 3.230E-01 | 1.700E 07 | 3.200E 04 | 1.000E 04 | 3.096E 04 | 1.425E 05 |
| COPPER, OXYGEN FREE (HARD) | 4.604E 04 | 3.230E-01 | 1.700E 07 | 5.000E 04 | 4.500E 04 | 1.393E 05 | 1.425E 05 |
| COPPER, PHOS DEOXIDIZED (O) | 4.604E 04 | 3.230E-01 | 1.700E 07 | 3.200E 04 | 1.000E 04 | 3.096E 04 | 1.425E 05 |
| COPPER, PHOS DEOXIDIZED (HARD) | 4.604E 04 | 3.230E-01 | 1.700E 07 | 5.000E 04 | 4.500E 04 | 1.393E 05 | 1.425E 05 |
| COLUMBIUM C-129 | 4.603E 04 | 3.470E-01 | 1.600E 07 | 1.300E 04 | 1.020E 05 | 2.974E 05 | 1.342E 05 |
| BRONZE, PHOS E (O) | 4.590E 04 | 3.210E-01 | 1.700E 07 | 4.000E 04 | 1.400E 04 | 4.361E 04 | 1.430E 05 |
| BRONZE, PHOS E (HALF) | 4.590E 04 | 3.210E-01 | 1.700E 07 | 5.500E 04 | -0. | -0. | 1.430E 05 |
| BRONZE, PHOS E (HARD) | 4.590E 04 | 3.210E-01 | 1.700E 07 | 6.500E 04 | 5.000E 04 | 1.558E 05 | 1.430E 05 |
| BRONZE, PHOS E (SPRING) | 4.590E 04 | 3.210E-01 | 1.700E 07 | 7.500E 04 | -0. | -0. | 1.430E 05 |
| COPPER, TOUGH PITCH (O) | 4.590E 04 | 3.210E-01 | 1.700E 07 | 3.200E 04 | 1.000E 04 | 3.115E 04 | 1.430E 05 |
| COPPER, TOUGH PITCH (HARD) | 4.590E 04 | 3.210E-01 | 1.700E 07 | 5.000E 04 | [illegible]500E 04 | 1.402E 05 | 1.430E 05 |
| GILDING 95CU (O) | 4.583E 04 | 3.200E-01 | 1.700E 07 | 3.400E 04 | 1.000E 04 | 3.125E 04 | 1.432E 05 |
| GILDING 95CU (HARD) | 4.583E 04 | 3.200E-01 | 1.700E 07 | 5.400E 04 | 5.000E 04 | 1.562E 05 | 1.432E 05 |
| BRONZE, LEAD COMMERCIAL (ALF) | 4.575E 04 | 3.190E-01 | 1.700E 07 | 5.900E 04 | 5.0[illegible]E 04 | 1.567E 05 | 1.434E 05 |
| BRONZE, COMMERCIAL 90CU (O) | 4.568E 04 | 3.180E-01 | 1.700E 07 | 3.700E 04 | 1.000E 04 | 3.145E 04 | 1.437E 05 |

| MATERIAL | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBF-IN/LBM) | SOUND SPEED (IN/SEC) |
|---|---|---|---|---|---|---|---|
| BRONZE, COMMERCIAL 90CU (HARD) | 4.568E 04 | 3.160E-01 | 1.700E 07 | 6.100E 04 | 5.400E 04 | 1.698E 05 | 1.437E 05 |
| BRONZE, JEWELRY 87.5CU (O) | 4.561E 04 | 3.170E-01 | 1.700E 07 | 4.200E 04 | 1.500E 04 | 4.732E 04 | 1.436E 05 |
| BRONZE, JEWELRY 87.5CU (HARD) | 4.561E 04 | 3.170E-01 | 1.700E 07 | 6.600E 04 | 5.600E 04 | 1.767E 05 | 1.436E 05 |
| BRASS, RED 85CU (O) | 4.554E 04 | 3.160E-01 | 1.700E 07 | 3.500E 04 | 1.000E 04 | 3.165E 04 | 1.441E 05 |
| BRASS, RED 85CU (HARD) | 4.554E 04 | 3.160E-01 | 1.700E 07 | 7.000E 04 | 5.700E 04 | 1.804E 05 | 1.441E 05 |
| BRONZE, LOW SI (O) | 4.554E 04 | 3.160E-01 | 1.700E 07 | 4.000E 04 | 1.500E 04 | 4.747E 04 | 1.441E 05 |
| BRONZE, LOW SI (HARD) | 4.554E 04 | 3.160E-01 | 1.700E 07 | 7.000E 04 | 5.500E 04 | 1.741E 05 | 1.441E 05 |
| COPPER, TELLURIUM (HALF) | 4.467E 04 | 3.230E-01 | 1.600E 07 | 4.000E 04 | 4.400E 04 | 1.362E 05 | 1.383E 05 |
| BRONZE, PHOS A (O) | 4.446E 04 | 3.200E-01 | 1.600E 07 | 4.700E 04 | 1.900E 04 | 5.937E 04 | 1.389E 05 |
| BRONZE, PHOS A (HALF) | 4.446E 04 | 3.200E-01 | 1.600E 07 | 6.800E 04 | 5.500E 04 | 1.719E 05 | 1.389E 05 |
| BRONZE, PHOS A (HARD) | 4.446E 04 | 3.200E-01 | 1.600E 07 | 8.100E 04 | 7.500E 04 | 2.344E 05 | 1.389E 05 |
| BRONZE, PHOS A (SPRING) | 4.446E 04 | 3.200E-01 | 1.600E 07 | 1.000E [illegible] | -0. | -0. | 1.389E 05 |
| BRONZE, PHOS A (EXTRA SPRING) | 4.446E 04 | 3.200E-01 | 1.600E 07 | 1.0[illegible] | -0. | -0. | 1.389E 05 |
| BRASS-BRONZE, CAST PR NI (13A) | 4.432E 04 | 3.180E-01 | 1.600E 07 | 3.000E 04 | 1.500E 04 | 4.717E 04 | 1.394E 05 |
| BRONZE, PHOS B (O) | 4.432E 04 | 3.180E-01 | 1.600E 07 | 5.500E 04 | 2.400E 04 | 7.547E 04 | 1.394E 05 |
| BRONZE, PHOS B (HALF) | 4.432E 04 | 3.180E-01 | 1.600E 07 | 7.600E 04 | 5.500E 04 | 1.730E 05 | 1.394E 05 |
| BRONZE, PHOS B (HARD) | 4.432E 04 | 3.180E-01 | 1.600E 07 | 9.300E 04 | 7.200E 04 | 2.264E 05 | 1.394E 05 |
| BRONZE, PHOS B (SPRING) | 4.432E 04 | 3.180E-01 | 1.600E 07 | 1.120E 05 | -0. | -0. | 1.394E 05 |
| BRONZE, PHOS B (EXTRA SPRING) | 4.432E 04 | 3.180E-01 | 1.600E 07 | 1.200E 05 | -0. | -0. | 1.394E 05 |
| BRONZE, PHOS C (O) | 4.425E 04 | 3.170E-01 | 1.600E 07 | 6.600E 04 | 2.800E 04 | 8.833E 04 | 1.396E 05 |
| BRONZE, PHOS C (HALF) | 4.425E 04 | 3.170E-01 | 1.600E 07 | 8.300E 04 | -0. | -0. | 1.396E 05 |
| BRONZE, PHOS C (HARD) | 4.425E 04 | 3.170E-01 | 1.600E 07 | 1.000E 05 | -0. | -0. | 1.396E 05 |
| BRONZE, PHOS C (SPRING) | 4.425E 04 | 3.170E-01 | 1.600E 07 | 1.320E 05 | -0. | -0. | 1.396E 05 |
| BRONZE, PHOS C (EXTRA SPRING) | 4.425E 04 | 3.170E-01 | 1.600E 07 | 1.230E 05 | -0. | -0. | 1.396E 05 |
| BRASS, LOW 88CU (O) | 4.397E 04 | 3.130E-01 | 1.600E 07 | 4.200E 04 | 1.200E 04 | 3.834E 04 | 1.405E 05 |
| BRASS, LOW 88CU (HARD) | 4.397E 04 | 3.130E-01 | 1.600E 07 | 7.400E 04 | 5.900E 04 | 1.885E 05 | 1.405E 05 |
| BRASS, CARTRIDGE 70CU (O) | 4.362E 04 | 3.080E-01 | 1.600E 07 | 4.400E 04 | 1.100E 04 | 3.571E 04 | 1.416E 05 |
| BRASS, CARTRIDGE 70CU (HARD) | 4.362E 04 | 3.080E-01 | 1.600E 07 | 7.600E 04 | 6.300E 04 | 2.049E 05 | 1.416E 05 |
| BRONZE, ADMIRALTY 71CU (O) | 4.362E 04 | 3.080E-01 | 1.600E 07 | 5.300E 04 | 2.200E 04 | 7.143E 04 | 1.416E 05 |
| BRONZE, CAST ALUMINUM (9D) | 4.347E 04 | 2.720E-01 | 1.600E 07 | 9.000E 04 | 4.000E 04 | 1.471E 05 | 1.598E 05 |
| BRONZE, AL D (HARD) | 4.325E 04 | 2.850E-01 | 1.700E 07 | 8.200E 04 | 4.000E 04 | 1.404E 05 | 1.517E 05 |
| BRASS, CAST LEAD RED (5B) | 4.313E 04 | 3.170E-01 | 1.520E 07 | 3.800E 04 | 1.200E 04 | 3.785E 04 | 1.361E 05 |
| BRASS, ALUMINUM (O) | 4.312E 04 | 3.010E-01 | 1.600E 07 | 6.000E 04 | 2.700E 04 | 8.970E 04 | 1.432E 05 |
| BRONZE, PHOS FREE-CUTTING (O) | 4.311E 04 | 3.210E-01 | 1.500E 07 | 4.400E 04 | 1.900E 04 | 5.919E 04 | 1.343E 05 |
| BRONZE, PHOS FREE-CUT (HALF) | 4.311E 04 | 3.210E-01 | 1.500E 07 | 5.800E 04 | 4.000E 04 | 1.246E 05 | 1.343E 05 |
| BRASS-BRONZE, CAST PR NI (13B) | 4.291E 04 | 3.180E-01 | 1.500E 07 | 3.500E 04 | 1.700E 04 | 5.346E 04 | 1.349E 05 |
| COLUMBIUM | 4.257E 04 | 3.100E-01 | 1.500E 07 | 4.800E 04 | 3.500E 04 | 1.129E 05 | 1.367E 05 |
| BRONZE, CAST LEAD TIN (3B) | 4.232E 04 | 3.200E-01 | 1.450E 07 | 3.550E 04 | 1.700E 04 | 5.312E 04 | 1.323E 05 |
| BRASS, CAST HIGH YELLOW (8A) | 4.230E 04 | 3.210E-01 | 1.540E 07 | 6.500E 04 | 2.500E 04 | 8.308E 04 | 1.405E 05 |
| BRONZE HIGH SI (O) | 4.223E 04 | 3.180E-01 | 1.500E 07 | 5.600E 04 | 2.300E 04 | 6.494E 04 | 1.371E 05 |
| BRONZE, HIGH SI (HARD) | 4.223E 04 | 3.080E-01 | 1.500E 07 | 9.200E 04 | 5.500E 04 | 1.786E 05 | 1.371E 05 |
| BRASS-BRONZE, CAST SI (13B) | 4.216E 04 | 2.990E-01 | 1.540E 07 | 6.000E 04 | 2.500E 04 | 8.361E 04 | 1.410E 05 |
| VANADIUM (9) | 4.214E 04 | 2.300E-01 | 2.000E 07 | 7.200E 04 | 6.400E 04 | 2.783E 05 | 1.832E 05 |
| VANADIUM (COLD WORKED) | 4.214E 04 | 2.300E-01 | 2.000E 07 | 1.130E 05 | 1.090E 05 | 4.739E 05 | 1.832E 05 |
| BRASS, HIGH-LEAD (O) | 4.209E 04 | 3.060E-01 | 1.500E 07 | 4.900E 04 | 1.700E 04 | 5.556E 04 | 1.376E 05 |
| BRASS, HIGH-LEAD (HARD) | 4.209E 04 | 3.060E-01 | 1.500E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 | 1.376E 05 |
| BRASS, LOW-LEAD (O) | 4.209E 04 | 3.060E-01 | 1.500E 07 | 5.100E 04 | 1.900E 04 | 6.209E 04 | 1.376E 05 |
| BRASS, LOW-LEAD (HARD) | 4.209E 04 | 3.060E-01 | 1.500E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 | 1.376E 05 |
| BRASS, MEDIUM-LEAD (O) | 4.209E 04 | 3.060E-01 | 1.500E 07 | 5.100E 04 | 1.900E 04 | 6.209E 04 | 1.376E 05 |
| BRASS, MEDIUM-LEAD (HARD) | 4.209E 04 | 3.060E-01 | 1.500E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 | 1.376E 05 |
| BRASS, YELLOW (O) | 4.209E 04 | 3.060E-01 | 1.500E 07 | 4.600E 04 | 1.400E 04 | 4.575E 04 | 1.376E 05 |
| BRASS, YELLOW (HARD) | 4.209E 04 | 3.060E-01 | 1.500E 07 | 7.400E 04 | 6.000E 04 | 1.961E 05 | 1.376E 05 |
| COLUMBIUM CB-752 | 4.209E 04 | 3.060E-01 | 1.500E 07 | 8.500E 04 | 7.000E 04 | 2.288E 05 | 1.376E 05 |
| BRASS, FORGING (O) | 4.203E 04 | 3.050E-01 | 1.500E 07 | 5.200E 04 | 2.000E 04 | 6.557E 04 | 1.378E 05 |
| BRASS, LEAD NAVAL (O) | 4.203E 04 | 3.050E-01 | 1.500E 07 | 5.700E 04 | 2.500E 04 | 8.197E 04 | 1.378E 05 |
| BRASS, LEAD NAVAL (QUARTER) | 4.203E 04 | 3.050E-01 | 1.500E 07 | 6.900E 04 | 4.400E 04 | 1.508E 05 | 1.378E 05 |
| BRASS, LEAD NAVAL (HALF) | 4.203E 04 | 3.050E-01 | 1.500E 07 | 7.500E 04 | 5.300E 04 | 1.738E 05 | 1.378E 05 |
| BRASS, NAVAL (O) | 4.196E 04 | 3.040E-01 | 1.500E 07 | 5.700E 04 | 2.500E 04 | 8.224E 04 | 1.380E 05 |

| MATERIAL | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) |
|---|---|---|---|---|---|---|---|
| BRASS, NAVAL (QUARTER) | 4,198E 04 | 3.[illegible]49E-01 | 1.500E 07 | 6.900E 04 | 4.400E 04 | 1.513E 05 | 1.380E 05 |
| BRASS, NAVAL (HALF) | 4,196E 04 | 3.[illegible]49E-01 | 1.500E 07 | 7.500E 04 | 5.300E 04 | 1.743E 05 | 1.383E 05 |
| MUNTZ METAL, FREE-CUTTING (0) | 4,196E 04 | 3.[illegible]40E-01 | 1.500E 07 | 5.400E 04 | 2.000E 04 | 6.579E 04 | 1.380E 05 |
| MUNTZ METAL, FREE-CUT (HARD) | 4,196E 04 | 3.[illegible]40E-01 | 1.500E 07 | 6.800E 04 | 6.000E 04 | 1.974E 05 | 1.380E 05 |
| MUNTZ METAL, LEADED (0) | 4,196E 04 | 3.[illegible]40E-01 | 1.500E 07 | 5.400E 04 | 2.000E 04 | 6.579E 04 | 1.380E 05 |
| BRASS+BRONZE, CAST SI (12A) | 4,[illegible]39E 04 | 3.030E-01 | 1.500E 07 | 5.500E 04 | 2.200E 04 | 7.241E 04 | 1.382E 05 |
| MUNTZ METAL 60CL (0) | 4,184E 04 | 3.050E-01 | 1.500E 07 | 5.400E 04 | 2.100E 04 | 6.931E 04 | 1.382E 05 |
| BRONZE, MANGANESE A (0) | 4,182E 04 | 3.090E-01 | 1.500E 07 | 6.500E 04 | 3.000E 04 | 9.934E 04 | 1.385E 05 |
| BRONZE, MANGANESE A (HALF) | 4,182E 04 | 3.090E-01 | 1.500E 07 | 8.400E 04 | 6.000E 04 | 1.967E 05 | 1.385E 05 |
| COLUMBIUM 5-66 | 4,174E 04 | 3.050E-01 | 1.400E 07 | 1.120E 05 | 9.000E 04 | 2.951E 05 | 1.369E 05 |
| BRONZE, CAST ALUMINUM (9A) | 4,166E 04 | 2.810E-01 | 1.400E 07 | 7.000E 04 | 2.[illegible]E 04 | 8.897E 04 | 1.483E 05 |
| BRONZE, AL-SI (0) | 4,144E 04 | 2.780E-01 | 1.600E 07 | 8.500E 04 | 4.[illegible]E 04 | 1.583E 05 | 1.491E 05 |
| BRONZE, AL-SI (HARD) | 4,144E 04 | 2.780E-01 | 1.600E 07 | 9.000E 04 | 5.000E 04 | 1.799E 05 | 1.491E 05 |
| BRONZE, CAST TIN (1A) | 4,120E 04 | 3.140E-01 | 1.400E 07 | 4.000E 04 | 2.000E 04 | 6.369E 04 | 1.312E 05 |
| BRASS, CAST LEAD YELLOW (7A) | 4,091E 04 | 2.800E-01 | 1.500E 07 | 6.000E 04 | 2.000E 04 | 6.920E 04 | 1.416E 05 |
| BRASS, EXTRA-HIGH-LEAD (0) | 4,07[illegible] 04 | 3.070E-01 | 1.400E 07 | 4.900E 04 | 1.700E 04 | 5.537E 04 | 1.327E 05 |
| BRASS, EXTRA-HIGH-LEAD (HARD) | 4,073E 04 | 3.070E-01 | 1.400E 07 | 7.400E 04 | 6.000E 04 | 1.954E 05 | 1.327E 05 |
| BRASS, FREE-CUTTING (0) | 4,073E 04 | 3.070E-01 | 1.400E 07 | 5.000E 04 | 1.300E 04 | 4.863E 04 | 1.327E 05 |
| BRASS, FREE-CUTTING (HARD) | 4,073E 04 | 3.070E-01 | 1.400E 07 | 6.800E 04 | 5.200E 04 | 1.694E 05 | 1.327E 05 |
| BRONZE, ARCHITECTUAL (0) | 4,067E 04 | 3.060E-01 | 1.400E 07 | 5.000E 04 | 2.000E 04 | 6.536E 04 | 1.329E 05 |
| BRASS, CAST LEAD YELLOW (6A) | 4,060E 04 | 3.[illegible]90E-01 | 1.400E 07 | 3.500E 04 | 1.200E 04 | 3.934E 04 | 1.331E 05 |
| THORIUM (0) | 4,027E 04 | 4.200E-01 | 1.000E 07 | 3.400E 04 | 2.000E 04 | 6.190E 04 | 9.587E 04 |
| THORIUM (COLD WORKED) | 4,027E 04 | 4.200E-01 | 1.000E 07 | 4.900E 04 | 4.500E 04 | 1.073E 05 | 9.587E 04 |
| SILVER (0) | 4,012E 04 | 3.700E-01 | 1.100E 07 | 2.200E 04 | 8.000E 03 | 2.111E 04 | 1.059E 05 |
| SILVER (COLD ROLLED-50) | 4,012E 04 | 3.700E-01 | 1.100E 07 | 5.[illegible]E 04 | 4.400E 04 | 1.161E 05 | 1.059E 05 |
| BRASS, CAST HIGH YELLOW (8B) | 3,994E 04 | 2.850E-01 | 1.450E 07 | 9.[illegible]E 04 | 4.600E 04 | 1.614E 05 | 1.401E 05 |
| BRONZE, CAST ALUMINUM (5C) | 3,960E 04 | 2.720E-01 | 1.500E 07 | 7.500E 04 | 3.000E 04 | 1.103E 05 | 1.459E 05 |
| BRONZE, CAST LEAD TIN (2A) | 3,946E 04 | 3.110E-01 | 1.310E 07 | 3.600E 04 | 1.000E 04 | 3.145E 04 | 1.275E 05 |
| BRASS, CAST LEAD RED (5A) | 3,951E 04 | 3.110E-01 | 1.300E 07 | 2.900E 04 | 1.300E 04 | 4.180E 04 | 1.270E 05 |
| BRONZE, CAST TIN (1B) | 3,951E 04 | 3.110E-01 | 1.300E 07 | 4.000E 04 | 1.800E 04 | 5.788E 04 | 1.270E 05 |
| COLUMBIUM C-103 | 3,945E 04 | 3.200E-01 | 1.260E 07 | 9.350E 04 | 8.800E 04 | 2.750E 05 | 1.233E 05 |
| BRASS, CAST LEAD RED (4A) | 3,902E 04 | 3.180E-01 | 1.240E 07 | 3.300E 04 | 1.500E 04 | 4.717E 04 | 1.227E 05 |
| BRASS, CAST HIGH YELLOW (8C) | 3,897E 04 | 2.770E-01 | 1.420E 07 | 1.120E 05 | 8.500E 04 | 2.347E 05 | 1.407E 05 |
| BRASS, CAST LEAD YELLOW (6C) | 3,880E 04 | 3.000E-01 | 1.300E 07 | 4.900E 04 | 1.400E 04 | 5.333E 04 | 1.293E 05 |
| BRONZE, CAST LEAD TIN (3A) | 3,815E 04 | 3.250E-01 | 1.160E 07 | 3.400E 04 | 1.500E 04 | 4.615E 04 | 1.174E 05 |
| BRONZE, CAST ALUMINUM (9B) | 3,777E 04 | 2.640E-01 | 1.400E 07 | 7.300E 04 | 2.800E 04 | 1.061E 05 | 1.431E 05 |
| BRASS, CAST LEAD YELLOW (6B) | 3,747E 04 | 3.[illegible]30E-01 | 1.200E 07 | 3.000E 04 | 1.100E 04 | 3.630E 04 | 1.236E 05 |
| COLUMBIUM CB-12R | 3,710E 04 | 3.100E-01 | 1.150E 07 | 4.800E 04 | 3.900E 04 | 1.129E 05 | 1.197E 05 |
| BRONZE, CAST LEAD TIN (3C) | 3,708E 04 | 3.200E-01 | 1.113E 07 | 2.800E 04 | 1.500E 04 | 4.687E 04 | 1.159E 05 |
| BRONZE, CAST LEAD TIN (3D) | 3,652E 04 | 3.290E-01 | 1.050E 07 | 2.800E 04 | 1.400E 04 | 4.255E 04 | 1.110E 05 |
| BRONZE, CAST LEAD TIN (2B) | 3,585E 04 | 3.140E-01 | 1.080E 07 | 3.600E 04 | 1.000E 04 | 5.098E 04 | 1.142E 05 |
| BRONZE, CAST LEAD TIN (2C) | 3,585E 04 | 3.140E-01 | 1.080E 07 | 3.650E 04 | 1.000E 04 | 5.732E 04 | 1.142E 05 |
| ZR, COMMERCIAL GRADE (0) | 3,579E 04 | 2.370E-01 | 1.400E 07 | 6.400E 04 | 5.300E 04 | 2.236E 05 | 1.510E 05 |
| ZR, REACTOR GRADE (0) | 3,564E 04 | 2.350E-01 | 1.400E 07 | 3.900E 04 | 1.500E 04 | 6.383E 04 | 1.517E 05 |
| ZR, ZIRCALOY-2 (0) | 3,553E 04 | 2.370E-01 | 1.380E 07 | 6.000E 04 | 4.500E 04 | 1.899E 05 | 1.499E 05 |
| BRONZE, CAST LEAD TIN (3E) | 3,396E 04 | 3.320E-01 | 9.000E 06 | 2.300E 04 | 1.100E 04 | 3.313E 04 | 1.023E 05 |
| BERYLLIUM (0) | 3,296E 04 | 6.700E-02 | 4.200E 07 | 6.000E 04 | 5.000E 05 | 7.463E 04 | 4.919E 05 |
| TI, 2FE-2CR-2MO (0) | 3,240E 04 | 1.700E-01 | 1.600E 07 | 1.400E 05 | 1.200E 05 | 7.059E 05 | 1.906E 05 |
| TI, 8AL-1MO-1V (0) | 3,220E 04 | 1.580E-01 | 1.700E 07 | 1.450E 05 | 1.400E 05 | 8.861E 05 | 2.038E 05 |
| TI, 8AL-1MO-1V (HEAT TREATED) | 3,220E 04 | 1.580E-01 | 1.700E 07 | 1.650E 05 | 1.500E 05 | 9.494E 05 | 2.038E 05 |
| TI, 8MN (0) | 3,199E 04 | 1.710E-01 | 1.550E 07 | 1.250E 05 | 1.200E 05 | 7.018E 05 | 1.871E 05 |
| TI, 5AL-5SN-5ZR | 3,192E 04 | 1.650E-01 | 1.600E 07 | 1.200E 05 | 1.100E 05 | 6.667E 05 | 1.935E 05 |
| TI, 4AL-6V-2SN (0) | 3,163E 04 | 1.620E-01 | 1.600E 07 | 1.900E 05 | 1.300E 05 | 8.025E 05 | 1.953E 05 |
| TI, 4AL-6V-2SN (HEAT TREATED) | 3,163E 04 | 1.620E-01 | 1.600E 07 | 1.900E 05 | 1.750E 05 | 1.080E 06 | 1.953E 05 |
| TI, 75A-4MO (0) | 3,163E 04 | 1.620E-01 | 1.600E 07 | 1.450E 05 | 1.350E 05 | 8.333E 05 | 1.953E 05 |
| TI, 75A-4MO (HEAT TREATED) | 3,163E 04 | 1.620E-01 | 1.600E 07 | 1.600E 05 | 1.500E 05 | 9.259E 05 | 1.953E 05 |
| TI, 4AL-2.5SN | 3,153E 04 | 1.610E-01 | 1.600E 07 | 1.150E 05 | 1.100E 05 | 6.832E 05 | 1.959E 05 |
| TI, [illegible]-11CR-3AL (0) | 3,135E 04 | 1.740E-01 | 1.450E 07 | 1.300E 05 | 1.250E 05 | 7.143E 05 | 1.780E 05 |

| MATERIAL | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) |
|---|---|---|---|---|---|---|---|
| TI, 13V-11CR-3AL (HEAT TREATED) | 3,130E 04 | 1.790E-01 | 1.450E 07 | 1.900E 05 | 1.700E 05 | 9,714E 05 | 1.788E 05 |
| TI, UNALLOYED | 3,672E 04 | 1.630E-01 | 1.500E 07 | 6.800E 04 | 4.000E 04 | 2,454E 05 | 1.685E 05 |
| TI, 6AL-4V (O) | 3,844E 04 | 1.600E-01 | 1.900E 07 | 1.300E 05 | 1.200E 05 | 7,500E 05 | 1.902E 05 |
| TI, 6AL-4V (HEAT TREATED) | 3,844E 04 | 1.600E-01 | 1.900E 07 | 1.490E 05 | 1.350E 05 | 8,437E 05 | 1.902E 05 |
| TIN, PEWTER (CRS) | 2,796E 04 | 2.630E-01 | 7,700E 06 | 7.600E 03 | -0. | -0. | 1.063E 05 |
| TIN, PEWTER (OS) | 2,796E 04 | 2.630E-01 | 7,700E 06 | 3.600E 03 | -0. | -0. | 1.063E 05 |
| TIN, GRADE A (CAST) | 2,473E 04 | 2.640E-01 | 6.000E 06 | 2.100E 03 | 1.700E 03 | 6,439E 03 | 9,367E 04 |
| TIN, GRADE A (CRS) | 2,473E 04 | 2.640E-01 | 6,000E 06 | 2.800E 03 | 2.000E 03 | 7,576E 03 | 9,367E 04 |
| TIN, GRADE A (OS) | 2,473E 04 | 2.640E-01 | 6.000E 06 | 2.200E 03 | 1.300E 03 | 4,924E 03 | 9,367E 04 |
| ALUMINUM 2219 (O) | 2,053E 04 | 1.030E-01 | 1.060E 07 | 2.900E 04 | 1.100E 04 | 1,068E 05 | 1.993E 05 |
| ALUMINUM 2219 (T42) | 2,053E 04 | 1.030E-01 | 1.060E 07 | 5.200E 04 | 2.700E 04 | 2,622E 05 | 1.993E 05 |
| ALUMINUM 2219 (T87) | 2,053E 04 | 1.030E-01 | 1.060E 07 | 6.900E 04 | 5.700E 04 | 5,534E 05 | 1.993E 05 |
| ALUMINUM 2014 (O) | 2,033E 04 | 1.010E-01 | 1.060E 07 | 2.700E 04 | 1.400E 04 | 1,386E 05 | 2,013E 05 |
| ALUMINUM 2014 (T4) | 2,033E 04 | 1.010E-01 | 1.060E 07 | 6.200E 04 | 4.200E 04 | 4,158E 05 | 2,013E 05 |
| ALUMINUM 2014 (T6) | 2,033E 04 | 1.010E-01 | 1.060E 07 | 7.000E 04 | 6.000E 04 | 5,941E 05 | 2,013E 05 |
| ALUMINUM 7178 (O) | 2,024E 04 | 1.020E-01 | 1.040E 07 | 3.300E 04 | 1.500E 04 | 1,471E 05 | 1.984E 05 |
| ALUMINUM 7178 (T6) | 2,024E 04 | 1.020E-01 | 1.040E 07 | 8.800E 04 | 7.800E 04 | 7,647E 05 | 1.984E 05 |
| ALUMINUM 2017 (O) | 2,023E 04 | 1.010E-01 | 1.050E 07 | 2.600E 04 | 1.000E 04 | 9,901E 04 | 2.003E 05 |
| ALUMINUM 2017 (T4) | 2,023E 04 | 1.010E-01 | 1.050E 07 | 6.200E 04 | 4.000E 04 | 3,960E 05 | 2.003E 05 |
| ALUMINUM 2024 (O) | 2,023E 04 | 1.000E-01 | 1.060E 07 | 2.700E 04 | 1.100E 04 | 1,100E 05 | 2.023E 05 |
| ALUMINUM 2024 (T3) | 2,023E 04 | 1.000E-01 | 1.060E 07 | 7.000E 04 | 5.000E 04 | 5,000E 05 | 2,023E 05 |
| ALUMINUM 7075 (O) | 2,014E 04 | 1.010E-01 | 1.040E 07 | 3.300E 04 | 1.500E 04 | 1,485E 05 | 1.994E 05 |
| ALUMINUM 7075 (T6) | 2,014E 04 | 1.010E-01 | 1.040E 07 | 8.300E 04 | 7.300E 04 | 7,228E 05 | 1.994E 05 |
| ALUMINUM 2011 (T3) | 2,004E 04 | 1.020E-01 | 1.020E 07 | 5.500E 04 | 4.300E 04 | 4,216E 05 | 1.965E 05 |
| ALUMINUM 2011 (T8) | 2,004E 04 | 1.020E-01 | 1.020E 07 | 5.900E 04 | 4.500E 04 | 4,412E 05 | 1.965E 05 |
| ALUMINUM 7079 (T6) | 1,984E 04 | 9.900E-02 | 1.030E 07 | 7.400E 04 | 6.000E 04 | 6,869E 05 | 2,004E 05 |
| ALUMINUM 3003 (O) | 1,959E 04 | 9.900E-02 | 1.000E 07 | 1.600E 04 | 6.000E 03 | 6,061E 04 | 1.975E 05 |
| ALUMINUM 3003 (HALF) | 1,959E 04 | 9.900E-02 | 1.000E 07 | 2.200E 04 | 2.100E 04 | 2,121E 05 | 1.975E 05 |
| ALUMINUM 3003 (HARD) | 1,959E 04 | 9.900E-02 | 1.000E 07 | 2.900E 04 | 2.700E 04 | 2,727E 05 | 1.975E 05 |
| ALUMINUM 5052 (O) | 1,954E 04 | 9.700E-02 | 1.020E 07 | 2.800E 04 | 1.300E 04 | 1,340E 05 | 2.015E 05 |
| ALUMINUM 5052 (HALF) | 1,954E 04 | 9.700E-02 | 1.020E 07 | 3.800E 04 | 3.100E 04 | 3,196E 05 | 2,015E 05 |
| ALUMINUM 5052 (HARD) | 1,954E 04 | 9.700E-02 | 1.020E 07 | 4.200E 04 | 3.700E 04 | 3,814E 05 | 2.015E 05 |
| ALUMINUM 5454 (O) | 1,954E 04 | 9.700E-02 | 1.020E 07 | 3.000E 04 | 1.700E 04 | 1,753E 05 | 2.015E 05 |
| ALUMINUM 5454 (HALF) | 1,954E 04 | 9.700E-02 | 1.020E 07 | 4.400E 04 | 3.500E 04 | 3,608E 05 | 2,015E 05 |
| ALUMINUM 5454 (HARD) | 1,954E 04 | 9.700E-02 | 1.020E 07 | 3.800E 04 | 2.800E 04 | 2,888E 05 | 2.015E 05 |
| ALUMINUM 5083 (O) | 1,954E 04 | 9.600E-02 | 1.030E 07 | 4.200E 04 | 2.100E 04 | 2,187E 05 | 2.035E 05 |
| ALUMINUM 5083 (HALF) | 1,954E 04 | 9.600E-02 | 1.030E 07 | 4.600E 04 | 3.300E 04 | 3,437E 05 | 2,035E 05 |
| ALUMINUM 5086 (O) | 1,954E 04 | 9.600E-02 | 1.030E 07 | 3.800E 04 | 1.700E 04 | 1,771E 05 | 2.035E 05 |
| ALUMINUM 5086 (HALF) | 1,954E 04 | 9.600E-02 | 1.030E 07 | 4.700E 04 | 3.700E 04 | 3,854E 05 | 2.035E 05 |
| ALUMINUM 5456 (O) | 1,954E 04 | 9.600E-02 | 1.030E 07 | 4.500E 04 | 2.300E 04 | 2,396E 05 | 2.035E 05 |
| ALUMINUM 5456 (HALF) | 1,954E 04 | 9.600E-02 | 1.030E 07 | 5.100E 04 | 3.700E 04 | 3,854E 05 | 2.035E 05 |
| ALUMINUM EC (O) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 1.200E 04 | 4.300E 03 | 4,082E 04 | 1.985E 05 |
| ALUMINUM EC (HALF) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 1.600E 04 | 1.400E 04 | 1,429E 05 | 1.985E 05 |
| ALUMINUM EC (HARD) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 2.700E 04 | 2.400E 04 | 2,449E 05 | 1.985E 05 |
| ALUMINUM 1060 (O) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 1.000E 04 | 4.000E 03 | 4,082E 04 | 1.985E 05 |
| ALUMINUM 1060 (HALF) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 1.400E 04 | 1.300E 04 | 1,327E 05 | 1.985E 05 |
| ALUMINUM 1060 (HARD) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 1.900E 04 | 1.800E 04 | 1,837E 05 | 1.985E 05 |
| ALUMINUM 1100 (O) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 1.300E 04 | 5.000E 03 | 5,102E 04 | 1.985E 05 |
| ALUMINUM 1100 (HALF) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 1.800E 04 | 1.700E 04 | 1,735E 05 | 1.985E 05 |
| ALUMINUM 1100 (HARD) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 2.400E 04 | 2.200E 04 | 2,245E 05 | 1.985E 05 |
| ALUMINUM 3004 (O) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 2.400E 04 | 1.000E 04 | 1,020E 05 | 1.985E 05 |
| ALUMINUM 3004 (HALF) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 3.500E 04 | 2.900E 04 | 2,959E 05 | 1.985E 05 |
| ALUMINUM 3004 (HARD) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 4.100E 04 | 3.600E 04 | 3,673E 05 | 1.985E 05 |
| ALUMINUM 5457 (O) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 1.300E 04 | 5.000E 03 | 5,102E 04 | 1.985E 05 |
| ALUMINUM 5457 (HALF) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 1.900E 04 | 1.600E 04 | 1,633E 05 | 1.985E 05 |
| ALUMINUM 5457 (HARD) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 2.300E 04 | 1.900E 04 | 1,939E 05 | 1.985E 05 |
| ALUMINUM 6061 (O) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 1.800E 04 | 8.000E 03 | 8,163E 04 | 1.985E 05 |
| ALUMINUM 6061 (T6) | 1,945E 04 | 9.800E-02 | 1.000E 07 | 4.500E 04 | 4.000E 04 | 4,082E 05 | 1.985E 05 |

| MATERIAL | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) |
|---|---|---|---|---|---|---|---|
| ALUMINUM 6063 (T) | 1.945E 04 | 9.800E-02 | 1.000E 07 | 1.300E 04 | 7.000E 03 | 7.143E 04 | 1.985E 05 |
| ALUMINUM 6063 (T6) | 1.945E 04 | 9.800E-02 | 1.000E 07 | 3.500E 04 | 3.100E 04 | 3.163E 05 | 1.985E 05 |
| ALUMINUM 6063 (T) | 1.945E 04 | 9.800E-02 | 1.000E 07 | 2.200E 04 | 1.200E 04 | 1.224E 05 | 1.985E 05 |
| ALUMINUM 6066 (T6) | 1.945E 04 | 9.800E-02 | 1.000E 07 | 5.700E 04 | 5.200E 04 | 5.306E 05 | 1.985E 05 |
| ALUMINUM 6101 (T6) | 1.945E 04 | 9.800E-02 | 1.000E 07 | 3.200E 04 | 2.800E 04 | 2.857E 05 | 1.985E 05 |
| ALUMINUM 6262 (T9) | 1.945E 04 | 9.800E-02 | 1.000E 07 | 5.800E 04 | 5.500E 04 | 5.612E 05 | 1.985E 05 |
| ALUMINUM 5154 ( ) | 1.944E 04 | 9.600E-02 | 1.020E 07 | 3.500E 04 | 1.700E 04 | 1.771E 05 | 2.025E 05 |
| ALUMINUM 5154 (WALF) | 1.944E 04 | 9.600E-02 | 1.020E 07 | 4.200E 04 | 3.300E 04 | 3.437E 05 | 2.025E 05 |
| ALUMINUM 5154 (WARD) | 1.944E 04 | 9.600E-02 | 1.020E 07 | 4.800E 04 | 3.900E 04 | 4.062E 05 | 2.025E 05 |
| ALUMINUM 5056 ( ) | 1.944E 04 | 9.500E-02 | 1.030E 07 | 4.200E 04 | 2.200E 04 | 2.316E 05 | 2.046E 05 |
| ALUMINUM 5056 (WARD) | 1.944E 04 | 9.500E-02 | 1.030E 07 | 6.000E 04 | 5.000E 04 | 5.263E 05 | 2.046E 05 |
| ALUMINUM 5005 ( ) | 1.935E 04 | 9.700E-02 | 1.000E 07 | 1.800E 04 | 6.300E 03 | 6.186E 04 | 1.995E 05 |
| ALUMINUM 5005 (WALF) | 1.935E 04 | 9.700E-02 | 1.000E 07 | 2.300E 04 | 2.200E 04 | 2.268E 05 | 1.995E 05 |
| ALUMINUM 5005 (WARD) | 1.935E 04 | 9.700E-02 | 1.000E 07 | 2.900E 04 | 2.800E 04 | 2.887E 05 | 1.995E 05 |
| ALUMINUM 5050 ( ) | 1.935E 04 | 9.700E-02 | 1.000E 07 | 2.100E 04 | 8.000E 03 | 8.247E 04 | 1.995E 05 |
| ALUMINUM 5050 (WALF) | 1.935E 04 | 9.700E-02 | 1.000E 07 | 2.600E 04 | 2.400E 04 | 2.474E 05 | 1.995E 05 |
| ALUMINUM 5050 (WARD) | 1.935E 04 | 9.700E- | 1.000E 07 | 3.200E 04 | 2.900E 04 | 2.990E 05 | 1.995E 05 |
| LEAD, CHEMICAL (CHILL CAST) | 1.776E 04 | 4.100E-01 | 2.000E 06 | 2.400E 03 | -0. | -0. | 4.339E 04 |
| LEAD, CHEMICAL (EXTRUDED) | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.900E 03 | -0. | -0. | 4.339E 04 |
| LEAD, CHEMICAL (ROLLED) | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.400E 03 | 1.840E 03 | 4.000E 03 | 4.339E 04 |
| LEAD, SOFT (CHILL CAST) | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.000E 03 | -0. | -0. | 4.339E 04 |
| LEAD, SOFT (EXTRUDED) | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.000E 03 | -0. | -0. | 4.339E 04 |
| LEAD, SOFT (ROLLED) | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.100E 03 | -0. | -0. | 4.339E 04 |
| LEAD, TELLURIUM (CHILL CAST) | 1.779E 04 | 4.100E-01 | 2.000E 06 | 3.000E 03 | -0. | -0. | 4.339E 04 |
| LEAD, TELLURIUM (ROLLED) | 1.779E 04 | 4.100E-01 | 2.000E 06 | 2.600E 03 | -0. | -0. | 4.339E 04 |
| LEAD, 1SB (CHILL CAST) | 1.770E 04 | 4.060E-01 | 2.000E 06 | 3.400E 03 | -0. | -0. | 4.361E 04 |
| LEAD, 1SB (EXTRUDED) | 1.770E 04 | 4.060E-01 | 2.000E 06 | 2.900E 03 | -0. | -0. | 4.361E 04 |
| LEAD, 1SB (EXTRUDED+AGED) | 1.770E 04 | 4.060E-01 | 2.000E 06 | 3.000E 03 | -0. | -0. | 4.361E 04 |
| LEAD, 1SB (ROLLED) | 1.770E 04 | 4.060E-01 | 2.000E 06 | 3.000E 03 | -0. | -0. | 4.361E 04 |
| MG, ZH62A (T5-CAST) | 1.287E 04 | 6.700E-02 | 6.500E 06 | 4.000E 04 | 2.500E 04 | 3.731E 05 | 1.935E 05 |
| MG, AZ63A (AGED-T6) | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.000E 04 | 1.900E 04 | 2.879E 05 | 1.950E 05 |
| MG, AZ63A (AS CAST) | 1.287E 04 | 6.600E-02 | 6.500E 06 | 2.900E 04 | 1.400E 04 | 2.121E 05 | 1.950E 05 |
| MG, AZ63A (SOLUTION TREATED) | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.000E 04 | 1.300E 04 | 1.970E 05 | 1.950E 05 |
| MG, AZ92A (AGED-CAST) | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.000E 04 | 2.100E 04 | 3.182E 05 | 1.950E 05 |
| MG, AZ92A (AS CAST) | 1.287E 04 | 6.600E-02 | 6.500E 06 | 2.400E 04 | 1.400E 04 | 2.121E 05 | 1.950E 05 |
| MG, AZ92A (SOLUTION TREATED) | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.000E 04 | 1.400E 04 | 2.121E 05 | 1.950E 05 |
| MG, EZ33A (T5-CAST) | 1.287E 04 | 6.600E-02 | 6.500E 06 | 2.300E 04 | 1.600E 04 | 2.424E 05 | 1.950E 05 |
| MG, WZ32A (T5-CAST) | 1.287E 04 | 6.600E-02 | 6.500E 06 | 2.900E 04 | 1.500E 04 | 2.273E 05 | 1.950E 05 |
| MG, ZE41A (T5-CAST) | 1.287E 04 | 6.600E-02 | 6.500E 06 | 3.000E 04 | 2.000E 04 | 3.030E 05 | 1.950E 05 |
| MG, ZK60A-T5 (EXTRUDED) | 1.287E 04 | 6.600E-02 | 6.500E 06 | 5.000E 04 | 4.000E 04 | 6.061E 05 | 1.950E 05 |
| MG, ZK60A-T5 (FORGED) | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.400E 04 | 3.000E 04 | 4.545E 05 | 1.950E 05 |
| MG, ZK61A (T6-CAST) | 1.287E 04 | 6.600E-02 | 6.500E 06 | 4.500E 04 | 2.800E 04 | 4.242E 05 | 1.950E 05 |
| MG, AM100A (AGED-CAST) | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.300E 04 | 2.200E 04 | 3.385E 05 | 1.965E 05 |
| MG, AM100A (AS CAST) | 1.277E 04 | 6.500E-02 | 6.500E 06 | 2.200E 04 | 1.200E 04 | 1.846E 05 | 1.965E 05 |
| MG, AM100A (SOLUTION TREATED) | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 | [illegible]E 04 | 2.000E 05 | 1.965E 05 |
| MG, AZ61A-F (EXTRUDED) | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.100E 04 | 2.400E 04 | 3.692E 05 | 1.965E 05 |
| MG, AZ61A-F (FORGED) | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.300E 04 | 2.600E 04 | 4.000E 05 | 1.965E 05 |
| MG, AZ80A-T5 (EXTRUDED) | 1.277E 04 | 6.500E-02 | 6.500E 06 | 5.000E 04 | 3.800E 04 | 5.846E 05 | 1.965E 05 |
| MG, AZ80A-T5 (FORGED) | 1.277E 04 | 6.500E-02 | 6.500E 06 | 5.000E 04 | 3.400E 04 | 5.231E 05 | 1.965E 05 |
| MG, AZ81A (SOLUTION TREATED) | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 | 1.200E 04 | 1.846E 05 | 1.965E 05 |
| MG, AZ91 (AS CAST) | 1.277E 04 | 6.500E-02 | 6.500E 06 | 3.400E 04 | 2.300E 04 | 3.538E 05 | 1.965E 05 |
| MG, AZ91C (AGED-CAST) | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 | 1.900E 04 | 2.923E 05 | 1.965E 05 |
| MG, AZ91C (AS CAST) | 1.277E 04 | 6.500E-02 | 6.500E 06 | 2.400E 04 | 1.400E 04 | 2.154E 05 | 1.965E 05 |
| MG, AZ91C (SOLUTION TREATED) | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 | 1.200E 04 | 1.846E 05 | 1.965E 05 |
| MG, WE31A (T6-CAST) | 1.277E 04 | 6.500E-02 | 6.500E 06 | 3.100E 04 | 1.600E 04 | 2.462E 05 | 1.965E 05 |
| MG, WE31A (T5) | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.200E 04 | 3.300E 04 | 5.077E 05 | 1.965E 05 |
| MG, ZE51A (T5-CAST) | 1.277E 04 | 6.500E-02 | 6.500E 06 | 4.000E 04 | 2.400E 04 | 3.692E 05 | 1.965E 05 |
| MG, AZ31B-F (EXTRUDED) | 1.287E 04 | 6.400E-02 | 6.500E 06 | 3.400E 04 | 2.400E 04 | 3.750E 05 | 1.980E 05 |

| MATERIAL | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) |
|---|---|---|---|---|---|---|---|
| MG, AZ31B-F (FORGED) | 1.307E 04 | 6.440E-02 | 6.500E 06 | 3.800E 04 | 2.800E 04 | 4.375E 05 | 2.980E 05 |
| MG, AZ31B (M24) | 1.207E 04 | 6.400E-02 | 6.500E 06 | 4.320E 04 | 3.230E 04 | 5.403E 05 | 1.920E 05 |
| MG, HK31A (M24) | 1.267E 04 | 6.500E-02 | 6.400E 06 | 3.500E 04 | 2.900E 04 | 4.462E 05 | 1.955E 05 |
| MG, AZ10A-F (EXTRUDED) | 1.262E 04 | 6.350E-02 | 6.500E 06 | 3.300E 04 | 2.200E 04 | 3.465E 05 | 1.936E 05 |
| MG, HM21A (T8) | 1.297E 04 | 6.400E-02 | 6.400E 06 | 3.400E 04 | 2.100E 04 | 3.281E 05 | 1.965E 05 |
| MG, K1A (F-CAST) | 1.297E 04 | 6.300E-02 | 6.500E 06 | 2.500E 04 | 7.000E 03 | 1.111E 05 | 1.996E 05 |
| MG, ZE10A (M24) | 1.257E 04 | 6.300E-02 | 6.500E 06 | 3.400E 04 | 1.900E 04 | 3.016E 05 | 1.996E 05 |
| MG, LA141A (T7) | 1.060E 04 | 4.850E-02 | 6.000E 06 | 1.900E 04 | 1.300E 04 | 2.680E 05 | 2.189E 05 |

## LIST OF FERROUS MATERIALS

Age Hardenable Stainless Steel (AHSS)

Alloy Steel

Anstenitic Stainless Steel (ASS)

Carbon Steel (CS)

Ferritic

Free-Cutting Carbon Steel

Heat Resistant (HRESIS) Alloy

High Temperature Steel (HTS)

Iron Base Superalloy (IBS)

Ingot Iron

Martensitic Stainless Steel (MSS)

Nodular (NOD)

Nitriding Steel (NS)

Pearlitic

Stainless Steel (SS)

Ultrahigh Strength Steel (UHSS)

Wrought Iron

Abbreviations are used in the following list where space limitations require them. Chemical symbols are used where they are applicable; other abbreviations are as follows:

AHSS - age hardenable stainless steel
ASS - austenitic stainless steel
CARB-GR - carburizing grade
CS - carbon steel
DUC - ductile
FCCS - free-cutting carbon steel
FSS - ferritic stainless steel
HARD-GR - hardening grade
HARD+TEMP - hardened + tempered
HRESIS - heat resistant
HTS - high temperature steel

IBS - iron base superalloy
LONG - longitudinal
MSS - martensitic stainless steel
NOD - nodular
NS - nitriding steel
O - annealed
SS - stainless steel
TRAN - transverse
UHSS - ultrahigh strength steels

HEADINGS

DEN - density
IN - inches
LBS - pounds
MOD OF ELAS - modulus of elasticity
PCI - pounds per cubic inch
PSI - pounds per square inch
SEC - second
YLD STR - tensile yield strength
ULT STR - ultimate tensile strength

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| AHSS (CAST) AM-355 | 2,820E-01 | 2.930E 07 | 2,230E 05 | 1.830E 05 | 6.489E 05 | 2,003E 05 | 5.648E 04 |
| AHSS (CAST) 17-4PH | 2,800E-01 | 2.850E 07 | 1.700E 05 | 1.400E 05 | 5.000E 05 | 1.982E 05 | 5.550E 04 |
| AHSS (WROUGHT) ALMER 362 | 2,810E-01 | 2.890E 07 | 1.650E 05 | 1.600E 05 | 5.694E 05 | 1.993E 05 | 5.599E 04 |
| AHSS (WROUGHT) AM-350 | 2,820E-01 | 2.940E 07 | 2.060E 05 | 1.730E 05 | 6.135E 05 | 2.006E 05 | 5.657E 04 |
| AHSS (WROUGHT) AM-355 | 2,820E-01 | 2.930E 07 | 1.860E 05 | 1.710E 05 | 6.064E 05 | 2.003E 05 | 5.648E 04 |
| AHSS (WROUGHT) PH 15-7 MO (RH) | 2,770E-01 | 2.900E 07 | 2.400E 05 | 2.250E 05 | 8.123E 05 | 2.010E 05 | 5.569E 04 |
| AHSS (WROUGHT) PH 15-7 MO (TH) | 2,770E-01 | 2.900E 07 | 2.100E 05 | 2.000E 05 | 7.220E 05 | 2.010E 05 | 5.569E 04 |
| AHSS (WROUGHT) STAINLESS W | 2,800E-01 | 2.800E 07 | 1.950E 05 | 1.800E 05 | 6.429E 05 | 1.965E 05 | 5.501E 04 |
| AHSS (WROUGHT) 17-4 PH (H1150) | 2,810E-01 | 2.850E 07 | 1.450E 05 | 1.250E 05 | 4.448E 05 | 1.979E 05 | 5.560E 04 |
| AHSS (WROUGHT) 17-7 PH (RH950) | 2,760E-01 | 2.900E 07 | 2.350E 05 | 2.200E 05 | 7.971E 05 | 2.014E 05 | 5.559E 04 |
| AHSS (WROUGHT) 17-7PH (TH1050) | 2,760E-01 | 2.900E 07 | 2.000E 05 | 1.850E 05 | 6.703E 05 | 2.014E 05 | 5.559E 04 |
| AHSS (WROUGHT) 17-14 CU MO | 2,870E-01 | 2.800E 07 | 3.600E 04 | 4.200E 04 | 1.463E 05 | 1.941E 05 | 5.570E 04 |
| ALLOY STEEL (CAST) 65,000 | 2,830E-01 | 2.900E 07 | 6.800E 04 | 3.800E 04 | 1.343E 05 | 1.989E 05 | 5.629E 04 |
| ALLOY STEEL (CAST) 70,000 | 2,830E-01 | 2.900E 07 | 7.400E 04 | 4.400E 04 | 1.555E 05 | 1.989E 05 | 5.629E 04 |
| ALLOY STEEL (CAST) 80,000 | 2,830E-01 | 2.900E 07 | 8.600E 04 | 5.400E 04 | 1.908E 05 | 1.989E 05 | 5.629E 04 |
| ALLOY STEEL (CAST) 90,000 | 2,830E-01 | 2.900E 07 | 9.500E 04 | 6.400E 04 | 2.261E 05 | 1.989E 05 | 5.629E 04 |
| ALLOY STEEL (CAST) 105,000 | 2,830E-01 | 2.900E 07 | 1.100E 05 | 9.100E 04 | 3.216E 05 | 1.989E 05 | 5.629E 04 |
| ALLOY STEEL (CAST) 120,000 | 2,830E-01 | 2.900E 07 | 1.280E 05 | 1.120E 05 | 3.958E 05 | 1.989E 05 | 5.629E 04 |
| ALLOY STEEL (CAST) 150,000 | 2,830E-01 | 2.900E 07 | 1.580E 05 | 1.420E 05 | 5.018E 05 | 1.989E 05 | 5.629E 04 |
| ALLOY STEEL (CAST) 175,000 | 2,830E-01 | 2.900E 07 | 1.790E 05 | 1.600E 05 | 5.654E 05 | 1.989E 05 | 5.629E 04 |
| ALLOY STEEL (CAST) 200,000 | 2,830E-01 | 2.900E 07 | 2.050E 05 | 1.700E 05 | 6.007E 05 | 1.989E 05 | 5.629E 04 |
| ASS (WROUGHT, O) 201 | 2,800E-01 | 2.800E 07 | 1.150E 05 | 5.500E 04 | 1.964E 05 | 1.965E 05 | 5.501E 04 |
| ASS (WROUGHT, COLD WORKED) 201 | 2,800E-01 | 2.800E 07 | 1.500E 05 | 1.100E 05 | 3.929E 05 | 1.965E 05 | 5.501E 04 |
| ASS (WROUGHT, O) 202 | 2,800E-01 | 2.800E 07 | 1.050E 05 | 5.500E 04 | 1.964E 05 | 1.965E 05 | 5.501E 04 |
| ASS (WROUGHT, O) 301 | 2,900E-01 | 2.800E 07 | 1.100E 05 | 4.000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT, COLD WORKED) 301 | 2,900E-01 | 2.800E 07 | 1.850E 05 | 1.400E 05 | 4.828E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT, O) 302 | 2,900E-01 | 2.800E 07 | 9.000E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT, O) 302B | 2,900E-01 | 2.800E 07 | 9.500E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT, O) 304 | 2,900E-01 | 2.800E 07 | 8.400E 04 | 4.200E 04 | 1.448E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT, O) 304 L | 2,900E-01 | 2.800E 07 | 8.100E 04 | 3.900E 04 | 1.345E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT, O) 305 | 2,900E-01 | 2.800E 07 | 8.500E 04 | 3.800E 04 | 1.310E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT, O) 308 | 2,900E-01 | 2.800E 07 | 8.500E 04 | 3.500E 04 | 1.207E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT) 309 | 2,900E-01 | 2.900E 07 | 9.000E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 | 5.698E 04 |
| ASS (WROUGHT) 309S | 2,900E-01 | 2.900E 07 | 9.000E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 | 5.698E 04 |
| ASS (WROUGHT) 310 | 2,900E-01 | 2.900E 07 | 9.500E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 | 5.698E 04 |
| ASS (WROUGHT) 310S | 2,900E-01 | 2.900E 07 | 9.500E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 | 5.698E 04 |
| ASS (WROUGHT) 314 | 2,800E-01 | 2.900E 07 | 1.000E 05 | 5.000E 04 | 1.786E 05 | 2.000E 05 | 5.599E 04 |
| ASS (WROUGHT) 316 | 2,900E-01 | 2.800E 07 | 8.400E 04 | 4.200E 04 | 1.448E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT) 317 | 2,900E-01 | 2.800E 07 | 9.000E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT) 321 | 2,900E-01 | 2.800E 07 | 9.000E 04 | 3.500E 04 | 1.207E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT) 347-348 | 2,900E-01 | 2.800E 07 | 9.500E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 |
| CS (CARB-GR) C1015 | 2,830E-01 | 2.900E 07 | 7.300E 04 | 4.600E 04 | 1.625E 05 | 1.989E 05 | 5.629E 04 |
| CS (CARB-GR) C1020 | 2,830E-01 | 2.900E 07 | 7.500E 04 | 4.800E 04 | 1.696E 05 | 1.989E 05 | 5.629E 04 |
| CS (CARB-GR) C1022 | 2,830E-01 | 2.900E 07 | 8.200E 04 | 4.900E 04 | 1.661E 05 | 1.989E 05 | 5.629E 04 |
| CS (CARB-GR) C1117 | 2,830E-01 | 2.900E 07 | 9.700E 04 | 5.900E 04 | 2.085E 05 | 1.989E 05 | 5.629E 04 |
| CS (CARB-GR) C1118 | 2,830E-01 | 2.900E 07 | 1.130E 05 | 7.700E 04 | 2.721E 05 | 1.989E 05 | 5.629E 04 |
| CS (CAST) 40,000 | 2,830E-01 | 3.010E 07 | 6.300E 04 | 3.500E 04 | 1.237E 05 | 2.028E 05 | 5.734E 04 |
| CS (CAST) 65,000 | 2,830E-01 | 3.010E 07 | 6.800E 04 | 3.800E 04 | 1.343E 05 | 2.028E 05 | 5.734E 04 |
| CS (CAST) 70,000 | 2,830E-01 | 3.000E 07 | 7.500E 04 | 4.200E 04 | 1.484E 05 | 2.023E 05 | 5.725E 04 |
| CS (CAST) 80,000 | 2,830E-01 | 2.990E 07 | 8.200E 04 | 4.[illegible]E 04 | 1.696E 05 | 2.020E 05 | 5.715E 04 |
| CS (CAST) 85,000 | 2,830E-01 | 2.990E 07 | 9.000E 04 | 5.500E 04 | 1.943E 05 | 2.020E 05 | 5.715E 04 |
| CS (CAST) 100,000 | 2,830E-01 | 2.970E 07 | 1.050E 05 | 7.500E 04 | 2.650E 05 | 2.013E 05 | 5.696E 04 |
| CS (HARD-GR) C1030 | 2,830E-01 | 2.900E 07 | 1.220E 05 | 9.300E 04 | 3.286E 05 | 1.989E 05 | 5.629E 04 |
| CS (HARD-GR) C1040 | 2,830E-01 | 2.900E 07 | 1.130E 05 | 8.400E 04 | 3.039E 05 | 1.989E 05 | 5.629E 04 |
| CS (HARD-GR) C1050 | 2,830E-01 | 2.900E 07 | 1.430E 05 | 1.080E 05 | 3.816E 05 | 1.989E 05 | 5.629E 04 |
| CS (HARD-GR) C1060 | 2,830E-01 | 2.900E 07 | 1.600E 05 | 1.120E 05 | 3.958E 05 | 1.989E 05 | 5.629E 04 |
| CS (HARD-GR) C1080 | 2,830E-01 | 2.900E 07 | 1.900E 05 | 1.420E 05 | 5.018E 05 | 1.989E 05 | 5.629E 04 |
| CS (HARD-GR) C1095 | 2,830E-01 | 2.900E 07 | 1.800E 05 | 1.200E 05 | 4.243E 05 | 1.989E 05 | 5.629E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| CS (HARD-GR) C1137 | 2,820E-01 | 2.900E 07 | 1.580E 05 | 1.380E 05 | 4.894E 05 | 1,992E 05 | 5.619E 04 |
| CS (HARD-GR) C1141 | 2,820E-01 | 2.900E 07 | 2.370E 05 | 1.880E 05 | 6.667E 05 | 1,992E 05 | 5.619E 04 |
| CS (HARD-GR) C1144 | 2,820E-01 | 2.900E 07 | 1.280E 05 | 9.100E 04 | 3.227E 05 | 1.992E 05 | 5.619E 04 |
| FERRITIC 32510 (CAST) | 2,590E-01 | 2.500E 07 | 5.000E 04 | 3.250E 04 | 1.255E 05 | 1.930E 05 | 5.000E 04 |
| FERRITIC 35019 (CAST) | 2,590E-01 | 2.500E 07 | 5.300E 04 | 3.500E 04 | 1.351E 05 | 1.930E 05 | 5.000E 04 |
| FCCS (WROUGHT) B1111 | 2,830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 |
| FCCS (WROUGHT) B1211 | 2,830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 |
| FCCS (WROUGHT) B1112 | 2,830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 |
| FCCS (WROUGHT) B1212 | 2,830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 |
| FCCS (WROUGHT) B1113 | 2,830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 |
| FCCS (WROUGHT) B1213 | 2,830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 |
| FSS (WROUGHT, O) 405 | 2,800E-01 | 2.900E 07 | 6.500E 04 | 3.500E 04 | 1.250E 05 | 2.000E 05 | 5.599E 04 |
| FSS (WROUGHT, COLD WORKED) 405 | 2,800E-01 | 2.900E 07 | 8.500E 04 | 7.000E 04 | 2.500E 05 | 2.000E 05 | 5.599E 04 |
| FSS (WROUGHT, O) 430 | 2,800E-01 | 2.900E 07 | 7.500E 04 | 4.000E 04 | 1.429E 05 | 2.000E 05 | 5.599E 04 |
| FSS (WROUGHT, COLD WORKED) 430 | 2,800E-01 | 2.900E 07 | 7.500E 04 | 4.500E 04 | 1.607E 05 | 2.000E 05 | 5.599E 04 |
| FSS (WROUGHT, O) 430F | 2,800E-01 | 2.900E 07 | 8.000E 04 | 5.500E 04 | 1.964E 05 | 2.000E 05 | 5.599E 04 |
| FSS (WROUGHT,COLD WORKED) 430F | 2,800E-01 | 2.900E 07 | 8.000E 04 | 5.500E 04 | 1.964E 05 | 2.000E 05 | 5.599E 04 |
| FSS (WROUGHT, O) 446 | 2,700E-01 | 2.900E 07 | 8.000E 04 | 5.000E 04 | 1.852E 05 | 2.036E 05 | 5.498E 04 |
| FSS (WROUGHT, COLD WORKED) 446 | 2,700E-01 | 2.900E 07 | 9.500E 04 | 7.000E 04 | 2.593E 05 | 2.036E 05 | 5.498E 04 |
| WRESIS ALLOY (CAST) WA | 2,790E-01 | 2.900E 07 | 9.500E 04 | 6.500E 04 | 2.330E 05 | 2.003E 05 | 5.589E 04 |
| WRESIS ALLOY (CAST) WC | 2,720E-01 | 2.900E 07 | 7.000E 04 | 6.500E 04 | 2.390E 05 | 2.029E 05 | 5.518E 04 |
| WRESIS ALLOY (CAST) WD | 2,740E-01 | 2.700E 07 | 8.500E 04 | 4.800E 04 | 1.752E 05 | 1.950E 05 | 5.344E 04 |
| WRESIS ALLOY (CAST) WE | 2,770E-01 | 2.500E 07 | 9.500E 04 | 4.500E 04 | 1.625E 05 | 1.867E 05 | 5.170E 04 |
| WRESIS ALLOY (CAST) WF | 2,800E-01 | 2.800E 07 | 8.500E 04 | 4.500E 04 | 1.607E 05 | 1.965E 05 | 5.501E 04 |
| WRESIS ALLOY (CAST) WH TYPE 1 | 2,790E-01 | 2.700E 07 | 8.000E 04 | 5.000E 04 | 1.792E 05 | 1.933E 05 | 5.393E 04 |
| WRESIS ALLOY (CAST) WH TYPE 2 | 2,790E-01 | 2.700E 07 | 8.500E 04 | 4.000E 04 | 1.434E 05 | 1.933E 05 | 5.393E 04 |
| WRESIS ALLOY (CAST) WI | 2,790E-01 | 2.700E 07 | 8.000E 04 | 4.500E 04 | 1.613E 05 | 1.933E 05 | 5.393E 04 |
| WRESIS ALLOY (CAST) WK | 2,800E-01 | 2.900E 07 | 7.500E 04 | 5.000E 04 | 1.786E 05 | 2.000E 05 | 5.599E 04 |
| WRESIS ALLOY (CAST) WL | 2,790E-01 | 2.900E 07 | 8.200E 04 | 5.200E 04 | 1.864E 05 | 2.003E 05 | 5.589E 04 |
| WRESIS ALLOY (CAST) WN | 2,830E-01 | 2.700E 07 | 6.800E 04 | 3.800E 04 | 1.343E 05 | 1.919E 05 | 5.431E 04 |
| WRESIS ALLOY (CAST) WT | 2,860E-01 | 2.700E 07 | 7.000E 04 | 4.000E 04 | 1.399E 05 | 1.909E 05 | 5.460E 04 |
| WRESIS ALLOY (CAST) WU | 2,900E-01 | 2.700E 07 | 7.000E 04 | 4.000E 04 | 1.379E 05 | 1.896E 05 | 5.498E 04 |
| WRESIS ALLOY (CAST) WW | 2.940E-01 | 2.500E 07 | 6.800E 04 | 3.600E 04 | 1.224E 05 | 1.812E 05 | 5.327E 04 |
| WRESIS ALLOY (CAST) WX | 2,940E-01 | 2.500E 07 | 6.500E 04 | 3.600E 04 | 1.224E 05 | 1.812E 05 | 5.327E 04 |
| WTS (WROUGHT) CHROMOLOY | 2,850E-01 | 3.160E 07 | 1.390E 05 | 1.170E 05 | 4.105E 05 | 2.009E 05 | 5.896E 04 |
| WTS (WROUGHT) GREEK ASCOLOY | 2,840E-01 | 2.900E 07 | 1.700E 05 | 1.500E 05 | 5.282E 05 | 1.985E 05 | 5.639E 04 |
| WTS (WROUGHT) LAPELLOY | 2,810E-01 | 3.100E 07 | 1.570E 05 | 1.250E 05 | 4.448E 05 | 2.030E 05 | 5.705E 04 |
| WTS (WROUGHT) 14 MV | 2,830E-01 | 2.950E 07 | 1.500E 05 | 1.270E 05 | 4.488E 05 | 2.006E 05 | 5.677E 04 |
| IGS (WROUGHT) A-286 | 2,860E-01 | 2.910E 07 | 1.460E 05 | 1.000E 05 | 3.497E 05 | 1.982E 05 | 5.668E 04 |
| IBS (WROUGHT) AMS 5700 | 2,900E-01 | 3.100E 07 | 1.100E 05 | 4.800E 04 | 1.655E 05 | 1.998E 05 | 5.795E 04 |
| IBS (WROUGHT) D-979 | 2,950E-01 | 3.100E 07 | 2.040E 05 | 1.460E 05 | 4.949E 05 | 1.961E 05 | 5.849E 04 |
| IBS (WROUGHT) INCOLOY 901 | 2,960E-01 | 2.900E 07 | 1.750E 05 | 1.300E 05 | 4.392E 05 | 1.975E 05 | 5.849E 04 |
| IBS (WROUGHT OR CAST) MULTIMET | 2,960E-01 | 2.880E 07 | 1.180E 05 | 9.800E 04 | 1.999E 05 | 1.938E 05 | 5.737E 04 |
| IBS (WROUGHT) REFRACTALOY 26 | 2,980E-01 | 3.060E 07 | 1.540E 05 | 9.100E 04 | 3.074E 05 | 1.998E 05 | 5.913E 04 |
| IBS (WROUGHT) S-590 | 3,010E-01 | 3.110E 07 | 1.420E 05 | 7.500E 04 | 2.492E 05 | 1.997E 05 | 6.011E 04 |
| IBS (WROUGHT) UNITEMP 212 | 2,860E-01 | 2.900E 07 | 1.670E 05 | 1.340E 05 | 4.685E 05 | 1.978E 05 | 5.658E 04 |
| IBS (WROUGHT) W 545 | 2,850E-01 | 2.840E 07 | 1.810E 05 | 1.330E 05 | 4.667E 05 | 1.961E 05 | 5.590E 04 |
| IBS (WROUGHT) 19-9DL | 2,910E-01 | 2.870E 07 | 1.420E 05 | 1.120E 05 | 3.849E 05 | 1.934E 05 | 5.628E 04 |
| IBS (WROUGHT) 19-9DL(CR-NI) | 2,870E-01 | 2.950E 07 | 1.140E 05 | 7.100E 04 | 2.474E 05 | 1.992E 05 | 5.717E 04 |
| IBS (WROUGHT) 19-9DL(CR-NI-CO) | 2,870E-01 | 2.950E 07 | 1.180E 05 | 6.900E 04 | 2.404E 05 | 1.992E 05 | 5.717E 04 |
| INGOT IRON (O) | 2,800E-01 | 2.980E 07 | 4.200E 04 | 1.900E 04 | 6.788E 04 | 2.027E 05 | 5.679E 04 |
| INGOT IRON (COLD DRAWN) | 2,800E-01 | 2.980E 07 | 7.300E 04 | 6.900E 04 | 2.464E 05 | 2.027E 05 | 5.679E 04 |
| INGOT IRON (HOT ROLLED) | 2,800E-01 | 2.980E 07 | 4.400E 04 | 2.300E 04 | 8.214E 04 | 2.027E 05 | 5.679E 04 |
| MSS (WROUGHT, O) 403 | 2,800E-01 | 2.900E 07 | 7.000E 04 | 4.000E 04 | 1.429E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, HARD+TEMP) 403 | 2,800E-01 | 2.900E 07 | 1.100E 05 | 8.900E 04 | 3.036E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, O) 410 | 2,800E-01 | 2.900E 07 | 6.500E 04 | 3.500E 04 | 1.250E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, HARD+TEMP) 410 | 2,800E-01 | 2.900E 07 | 9.000E 04 | 6.000E 04 | 2.143E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, O) 414 | 2,800E-01 | 2.900E 07 | 1.150E 05 | 9.000E 04 | 3.214E 05 | 2.000E 05 | 5.599E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| MSS (WROUGHT, HARD+TEMP) 414 | 2,800E-01 | 2.900E 07 | 1.200E 05 | 1.050E 05 | 3.750E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, O) 416 | 2,800E-01 | 2.900E 07 | 7.900E 04 | 4.000E 04 | 1.429E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, HARD+TEMP) 416 | 2,800E-01 | 2.900E 07 | 9.000E 04 | 6.000E 04 | 2.143E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, O) 420 | 2,800E-01 | 2.900E 07 | 9.500E 04 | 5.000E 04 | 1.786E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, HARD+TEMP) 42 | 2,800E-01 | 2.900E 07 | 2.300E 05 | 1.950E 05 | 6.964E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, O) 431 | 2,800E-01 | 2.900E 07 | 1.250E 05 | 9.500E 04 | 3.393E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, HARD+TEMP) 431 | 2,800E-01 | 2.900E 07 | 1.250E 05 | 9.500E 04 | 3.393E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, O) 440A | 2,800E-01 | 2.900E 07 | 1.050E 05 | 6.000E 04 | 2.143E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, HARD+TEMP) 440A | 2,800E-01 | 2.900E 07 | 2.300E 05 | 2.400E 05 | 8.571E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, O) 440B | 2,800E-01 | 2.900E 07 | 1.070E 05 | 6.200E 04 | 2.214E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, HARD+TEMP) 440 B | 2,800E-01 | 2.900E 07 | 2.800E 05 | 2.700E 05 | 9.643E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, O) 440C | 2,800E-01 | 2.900E 07 | 1.120E 05 | 6.500E 04 | 2.321E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, HARD+TEMP) 440C | 2,800E-01 | 2.900E 07 | 2.850E 05 | 2.750E 05 | 9.821E 05 | 2.000E 05 | 5.599E 04 |
| NOD OR DUC NRESIS (CAST) | 2,500E-01 | 2.200E 07 | 6.000E 04 | 4.500E 04 | 1.800E 05 | 1.843E 05 | 4.608E 04 |
| NOD OR DUC AUSTENITIC (CAST) | 2,480E-01 | 1.850E 07 | 5.800E 04 | 3.200E 04 | 1.194E 05 | 1.632E 05 | 4.375E 04 |
| NOD OR DUC 60-40-18 (CAST) | 2,370E-01 | 2.200E 07 | 6.000E 04 | 4.500E 04 | 1.751E 05 | 1.818E 05 | 4.672E 04 |
| NOD OR DUC 80-55-06 (CAST) | 2,570E-01 | 2.200E 07 | 9.000E 04 | 6.000E 04 | 2.335E 05 | 1.818E 05 | 4.672E 04 |
| NOD OR DUC 100-70-03 (CAST) | 2,570E-01 | 2.200E 07 | 1.000E 05 | 7.500E 04 | 2.913E 05 | 1.818E 05 | 4.672E 04 |
| NOD OR DUC 120-90-02 (CAST) | 2,570E-01 | 2.200E 07 | 1.200E 05 | 9.000E 04 | 3.502E 05 | 1.818E 05 | 4.672E 04 |
| NS (WROUGHT) EZ | 2,830E-01 | 2.900E 07 | 1.260E 05 | 9.000E 04 | 3.180E 05 | 1.989E 05 | 5.629E 04 |
| NS (WROUGHT) N | 2,830E-01 | 2.900E 07 | 1.320E 05 | 1.140E 05 | 4.028E 05 | 1.989E 05 | 5.629E 04 |
| NS (WROUGHT) 135 | 2,830E-01 | 2.900E 07 | 1.380E 05 | 1.200E 05 | 4.240E 05 | 1.989E 05 | 5.629E 04 |
| NS (WROUGHT) 135 MODIFIED | 2,830E-01 | 2.900E 07 | 1.590E 05 | 1.410E 05 | 4.982E 05 | 1.989E 05 | 5.629E 04 |
| PEARLITIC 45007 (CAST) | 2,650E-01 | 2.600E 07 | 6.800E 04 | 4.500E 04 | 1.698E 05 | 1.946E 05 | 5.157E 04 |
| PEARLITIC 45010 (CAST) | 2,650E-01 | 2.600E 07 | 6.900E 04 | 4.500E 04 | 1.698E 05 | 1.946E 05 | 5.157E 04 |
| PEARLITIC 48004 (CAST) | 2,650E-01 | 2.650E 07 | 7.000E 04 | 4.800E 04 | 1.811E 05 | 1.965E 05 | 5.207E 04 |
| PEARLITIC 50007 (CAST) | 2,650E-01 | 2.650E 07 | 7.500E 04 | 5.000E 04 | 1.887E 05 | 1.965E 05 | 5.207E 04 |
| PEARLITIC 53004 (CAST) | 2,650E-01 | 2.650E 07 | 8.000E 04 | 5.300E 04 | 2.000E 05 | 1.965E 05 | 5.207E 04 |
| PEARLITIC 60003 (CAST) | 2,650E-01 | 2.600E 07 | 8.000E 04 | 6.000E 04 | 2.264E 05 | 1.946E 05 | 5.157E 04 |
| PEARLITIC 80002 (CAST) | 2,650E-01 | 2.600E 07 | 1.000E 05 | 8.000E 04 | 3.019E 05 | 1.946E 05 | 5.157E 04 |
| SS (CAST, HARD+TEMP) CA-15 | 2,790E-01 | 2.900E 07 | 2.000E 05 | 1.500E 05 | 5.455E 05 | 2.018E 05 | 5.549E 04 |
| SS (CAST, HARD+TEMP) CA-40 | 2,790E-01 | 2.900E 07 | 2.200E 05 | 1.650E 05 | 6.000E 05 | 2.018E 05 | 5.549E 04 |
| SS (CAST, O) CB-30 | 2,720E-01 | 2.900E 07 | 9.500E 04 | 6.000E 04 | 2.206E 05 | 2.029E 05 | 5.518E 04 |
| SS (CAST, O) CC-50 | 2,720E-01 | 2.900E 07 | 9.700E 04 | 6.500E 04 | 2.390E 05 | 2.029E 05 | 5.518E 04 |
| SS (CAST, AS CAST) CC-50 | 2,720E-01 | 2.900E 07 | 7.000E 04 | 6.000E 04 | 2.206E 05 | 2.029E 05 | 5.518E 04 |
| SS (CAST) CD-4MCU | 2,770E-01 | 2.900E 07 | 1.050E 05 | 8.500E 04 | 3.069E 05 | 2.010E 05 | 5.569E 04 |
| SS (CAST) CE-30 | 2,770E-01 | 2.500E 07 | 9.700E 04 | 6.300E 04 | 2.274E 05 | 1.867E 05 | 5.170E 04 |
| SS (CAST) CF-3 | 2,800E-01 | 2.700E 07 | 7.700E 04 | 3.700E 04 | 1.321E 05 | 1.929E 05 | 5.402E 04 |
| SS (CAST) CF-3M | 2,800E-01 | 2.700E 07 | 8.000E 04 | 4.200E 04 | 1.500E 05 | 1.929E 05 | 5.402E 04 |
| SS (CAST) CF-8 | 2,800E-01 | 2.800E 07 | 7.700E 04 | 3.700E 04 | 1.321E 05 | 1.965E 05 | 5.501E 04 |
| SS (CAST) CF-8C | 2,800E-01 | 2.800E 07 | 7.700E 04 | 3.800E 04 | 1.357E 05 | 1.965E 05 | 5.501E 04 |
| SS (CAST) CF-8M | 2,800E-01 | 2.800E 07 | 8.000E 04 | 4.200E 04 | 1.500E 05 | 1.965E 05 | 5.501E 04 |
| SS (CAST) CF-16F | 2,800E-01 | 2.800E 07 | 7.700E 04 | 4.000E 04 | 1.429E 05 | 1.965E 05 | 5.501E 04 |
| SS (CAST) CF-20 | 2,800E-01 | 2.800E 07 | 7.700E 04 | 3.600E 04 | 1.286E 05 | 1.965E 05 | 5.501E 04 |
| SS (CAST) CG-8M | 2,810E-01 | 2.800E 07 | 8.200E 04 | 4.300E 04 | 1.530E 05 | 1.961E 05 | 5.511E 04 |
| SS (CAST) CH-20 | 2,790E-01 | 2.800E 07 | 8.800E 04 | 5.000E 04 | 1.792E 05 | 1.968E 05 | 5.492E 04 |
| SS (CAST) CK-20 | 2,800E-01 | 2.900E 07 | 7.600E 04 | 3.800E 04 | 1.357E 05 | 2.000E 05 | 5.599E 04 |
| SS (CAST) CN-7M | 2,890E-01 | 2.400E 07 | 6.900E 04 | 3.100E 04 | 1.073E 05 | 1.790E 05 | 5.175E 04 |
| UHSS (WROUGHT) M-6A | 2,830E-01 | 3.300E 07 | 2.840E 05 | 2.500E 05 | 8.834E 05 | 2.023E 05 | 5.725E 04 |
| UHSS (WROUGHT) MODIFIED M-11 | 2,810E-01 | 3.300E 07 | 2.950E 05 | 2.410E 05 | 8.577E 05 | 2.030E 05 | 5.705E 04 |
| UHSS (WROUGHT) MX-2 | 2,760E-01 | 2.940E 07 | 2.790E 05 | 2.300E 05 | 8.659E 05 | 2.028E 05 | 5.597E 04 |
| UHSS (WROUGHT) 18 NI | 2,950E-01 | 2.650E 07 | 2.750E 05 | 2.680E 05 | 9.241E 05 | 1.878E 05 | 5.447E 04 |
| UHSS (WROUGHT) 20 NI | 2,950E-01 | 2.500E 07 | 2.810E 05 | 2.700E 05 | 9.153E 05 | 1.809E 05 | 5.336E 04 |
| UHSS (WROUGHT) 25 NI | 2,960E-01 | 2.400E 07 | 3.190E 05 | 2.840E 05 | 9.595E 05 | 1.769E 05 | 5.237E 04 |
| UHSS (WROUGHT) 4340 | 2,830E-01 | 3.300E 07 | 2.870E 05 | 2.700E 05 | 9.541E 05 | 2.023E 05 | 5.725E 04 |
| WROUGHT IRON LONG (HOT ROLLED) | 2,780E-01 | 2.950E 07 | 4.800E 04 | 2.700E 04 | 9.712E 04 | 2.024E 05 | 5.627E 04 |
| WROUGHT IRON TRAN (HOT ROLLED) | 2,780E-01 | 2.950E 07 | 3.900E 04 | 2.700E 04 | 9.712E 04 | 2.024E 05 | 5.627E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| IBS (WROUGHT) S-590 | 3.010E-01 | 3.110E 07 | 1.420E 05 | 7 500E 04 | 2.492E 05 | 1.997E 05 | 6.011E 04 |
| IBS (WROUGHT) INCOLOY 901 | 2.960E-01 | 2.990E 07 | 1.750E 05 | 1.300E 05 | 4.392E 05 | 1.975E 05 | 5.845E 04 |
| IBS (WROUGHT OR CAST) ULTIMET | 2.960E-01 | 2.880E 07 | 1.180E 05 | 5.800E 04 | 1.959E 05 | 1.938E 05 | 5.737E 04 |
| IBS (WROUGHT) REFRACTALOY 26 | 2.960E-01 | 3.060E 07 | 1.340E 05 | 9.100E 04 | 3.074E 05 | 1.998E 05 | 5.913E 04 |
| UNSS (WROUGHT) 25 NI | 2.940E-01 | 2.400E 07 | 3.190E 05 | 2.840E 05 | 9.595E 05 | 1.769E 05 | 5.237E 04 |
| IBS (WROUGHT) D-979 | 2.950E-01 | 3.000E 07 | 2.040E 05 | 1.460E 05 | 4.949E 05 | 1.981E 05 | 5.845E 04 |
| UNSS (WROUGHT) 20 NI | 2.990E-01 | 2.560E 07 | 2.810E 05 | 2.700E 05 | 9.153E 05 | 1.809E 05 | 5.336E 04 |
| WRESIS ALLOY (CAST) MW | 2.940E-01 | 2.500E 07 | 6.800E 04 | 3.600E 04 | 1.224E 05 | 1.812E 05 | 5.327E 04 |
| WRESIS ALLOY (CAST) MX | 2.940E-01 | 2.500E 07 | 6.500E 04 | 3.600E 04 | 1.224E 05 | 1.812E 05 | 5.327E 04 |
| IBS (WROUGHT) 16-25-6 | 2.910E-01 | 2.820E 07 | 1.420E 05 | 1.120E 05 | 3.849E 05 | 1.934E 05 | 5.628E 04 |
| ASS (WROUGHT, O) 301 | 2.900E-01 | 2.800E 07 | 1.100E 05 | 4.000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT, COLD WORKED) 301 | 2.900E-01 | 2.800E 07 | 1.850E 05 | 1.400E 05 | 4.828E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT, O) 302 | 2.900E-01 | 2.800E 07 | 9.000E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT, O) 302B | 2.900E-01 | 2.800E 07 | 9.500E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT, O) 304 | 2.900E-01 | 2.800E 07 | 8.400E 04 | 4.200E 04 | 1.448E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT, O) 304 L | 2.900E-01 | 2.800E 07 | 8.100E 04 | 3.900E 04 | 1.345E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT, O) 305 | 2.900E-01 | 2.800E 07 | 8.500E 04 | 3.800E 04 | 1.310E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT, O) 308 | 2.900E-01 | 2.800E 07 | 8.300E 04 | 3.500E 04 | 1.207E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT) 309 | 2.900E-01 | 2.900E 07 | 9.000E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 | 5.698E 04 |
| ASS (WROUGHT) 309S | 2.900E-01 | 2.900E 07 | 9.000E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 | 5.698E 04 |
| ASS (WROUGHT) 310 | 2.900E-01 | 2.900E 07 | 9.500E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 | 5.698E 04 |
| ASS (WROUGHT) 310S | 2.900E-01 | 2.900E 07 | 9.500E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 | 5.698E 04 |
| ASS (WROUGHT) 316 | 2.900E-01 | 2.800E 07 | 8.400E 04 | 4.200E 04 | 1.448E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT) 317 | 2.900E-01 | 2.800E 07 | 9.000E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT) 321 | 2.900E-01 | 2.800E 07 | 9.000E 04 | 3.500E 04 | 1.207E 05 | 1.931E 05 | 5.599E 04 |
| ASS (WROUGHT) 347-348 | 2.900E-01 | 2.800E 07 | 9.000E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 |
| WRESIS ALLOY (CAST) MU | 2.900E-01 | 2.700E 07 | 7.000E 04 | 4.000E 04 | 1.379E 05 | 1.860E 05 | 5.498E 04 |
| IBS (WROUGHT) AMS 5700 | 2.900E-01 | 3.000E 07 | 1.100E 05 | 4.800E 04 | 1.655E 05 | 1.998E 05 | 5.798E 04 |
| UNSS (WROUGHT) 18 NI | 2.900E-01 | 2.690E 07 | 2.750E 05 | 2.680E 05 | 9.241E 05 | 1.878E 05 | 5.447E 04 |
| SS (CAST) CN-7M | 2.890E-01 | 2.400E 07 | 6.900E 04 | 3.100E 04 | 1.073E 05 | 1.790E 05 | 5.175E 04 |
| AMSS (WROUGHT) 17-14 CU MO | 2.870E-01 | 2.800E 07 | 8.600E 04 | 4.200E 04 | 1.463E 05 | 1.941E 05 | 5.570E 04 |
| IBS (WROUGHT) 19-9DL (CR-NI) | 2.870E-01 | 2.950E 07 | 1.140E 05 | 7.100E 04 | 2.474E 05 | 1.992E 05 | 5.717E 04 |
| IBS (WROUGHT) 19-9DL(CR-NI-CO) | 2.870E-01 | 2.950E 07 | 1.180E 05 | 6.900E 04 | 2.404E 05 | 1.992E 05 | 5.717E 04 |
| WRESIS ALLOY (CAST) MT | 2.840E-01 | 2.700E 07 | 7.000E 04 | 4 000E 04 | 1.399E 05 | 1.909E 05 | 5.460E 04 |
| IBS (WROUGHT) A-286 | 2.860E-01 | 2.910E 07 | 1.460E 05 | 1.000E 05 | 3.497E 05 | 1.982E 05 | 5.668E 04 |
| IBS (WROUGHT) UNITEMP 212 | 2.860E-01 | 2.900E 07 | 1.870E 05 | 1.340E 05 | 4.685E 05 | 1.978E 05 | 5.658E 04 |
| WTS (WROUGHT) CHROMOLOY | 2.850E-01 | 3.160E 07 | 1.390E 05 | 1 170E 05 | 4.105E 05 | 2.069E 05 | 5.898E 04 |
| IBS (WROUGHT) W 545 | 2.850E-01 | 2.840E 07 | 1.810E 05 | 1.330E 05 | 4.667E 05 | 1.941E 05 | 5.590E 04 |
| WTS (WROUGHT) GREEK ASCOLOY | 2.840E-01 | 2.900E 07 | 1.700E 05 | 1.500E 05 | 5.282E 05 | 1.989E 05 | 5.639E 04 |
| ALLOY STEEL (CAST) 65,000 | 2.830E-01 | 2.900E 07 | 6.800E 04 | 3.800E 04 | 1.343E 05 | 1.989E 05 | 5.629E 04 |
| ALLOY STEEL (CAST) 70,000 | 2.830E-01 | 2.900E 07 | 7.400E 04 | 4.400E 04 | 1.555E 05 | 1.989E 05 | 5.629E 04 |
| ALLOY STEEL (CAST) 80,000 | 2.830E-01 | 2 900E 07 | 8.600E 04 | 5.400E 04 | 1.908E 05 | 1.989E 05 | 5.629E 04 |
| ALLOY STEEL (CAST) 90,000 | 2.830E-01 | 2.900E 07 | 9.900E 04 | 6.400E 04 | 2.261E 05 | 1.989E 05 | 5.629E 04 |
| ALLOY STEEL (CAST) 105,000 | 2.830E-01 | 2.900E 07 | 1.100E 05 | 9.100E 04 | 3.216E 05 | 1.989E 05 | 5.629E 04 |
| ALLOY STEEL (CAST) 120,000 | 2.830E-01 | 2.900E 07 | 1.280E 05 | 1.120E 05 | 3.958E 05 | 1.989E 05 | 5.629E 04 |
| ALLOY STEEL (CAST) 150,000 | 2.830E-01 | 2.900E 07 | 1.580E 05 | 1.420E 05 | 5.018E 05 | 1.989E 05 | 5.629E 04 |
| ALLOY STEEL (CAST) 175,000 | 2.830E-01 | 2.900E 07 | 1.790E 05 | 1 600E 05 | 5.654E 05 | 1.989E 05 | 5.629E 04 |
| ALLOY STEEL (CAST) 200,000 | 2.830E-01 | 2.900E 07 | 2.050E 05 | 1.700E 05 | 6.007E 05 | 1.989E 05 | 5.629E 04 |
| CS (CARB-GR) C1015 | 2.830E-01 | 2.900E 07 | 7.300E 04 | 4.600E 04 | 1.625E 05 | 1.989E 05 | 5.629E 04 |
| CS (CARB-GR) C1020 | 2.830E-01 | 2.900E 07 | 7.500E 04 | 4.800E 04 | 1.696E 05 | 1.989E 05 | 5.629E 04 |
| CS (CARB-GR) C1022 | 2.830E-01 | 2.900E 07 | 8.200E 04 | 4.700E 04 | 1.661E 05 | 1.989E 05 | 5.629E 04 |
| CS (CARB-GR) C1117 | 2.830E-01 | 2.900E 07 | 9.700E 04 | 5.900E 04 | 2.085E 05 | 1.989E 05 | 5.629E 04 |
| CS (CARB-GR) C1118 | 2.830E-01 | 2.900E 07 | 1.130E 05 | 7.700E 04 | 2.721E 05 | 1.989E 05 | 5.629E 04 |
| CS (CAST) 60,000 | 2.830E-01 | 3.010E 07 | 6.300E 04 | 3.500E 04 | 1.237E 05 | 2.026E 05 | 5.734E 04 |
| CS (CAST) 65,000 | 2.830E-01 | 3.010E 07 | 6.800E 04 | 3.800E 04 | 1.343E 05 | 2.026E 05 | 5.734E 04 |
| CS (CAST) 70,000 | 2.830E-01 | 3.000E 07 | 7.500E 04 | 4.200E 04 | 1.484E 05 | 2.023E 05 | 5.725E 04 |
| CS (CAST) 80,000 | 2.830E-01 | 2.990E 07 | 8.200E 04 | 4.800E 04 | 1.696E 05 | 2.020E 05 | 5.715E 04 |
| CS (CAST) 85,000 | 2.830E-01 | 2.990E 07 | 9.000E 04 | 5.500E 04 | 1.943E 05 | 2.020E 05 | 5.715E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| CS (CAST) 100,000 | 2,830E-01 | 2,970E 07 | 1.050E 05 | 7.500E 04 | 2.650E 05 | 2.013E 05 | 5.696E 04 |
| CS (HARD-GR) C1030 | 2,830E-01 | 2.900E 07 | 1.220E 05 | 9.300E 04 | 3.286E 05 | 1.989E 05 | 5.629E 04 |
| CS (HARD-GR) C1040 | 2,830E-01 | 2.900E 07 | 1.130E 05 | 8.600E 04 | 3.039E 05 | 1.989E 05 | 5.629E 04 |
| CS (HARD-GR) C1050 | 2,830E-01 | 2.900E 07 | 1.430E 05 | 1 080E 05 | 3.816E 05 | 1.989E 05 | 5.629E 04 |
| CS (HARD-GR) C1060 | 2,830E-01 | 2.900E 07 | 1.600E 05 | 1.120E 05 | 3.958E 05 | 1.989E 05 | 5.629E 04 |
| CS (HARD-GR) C1080 | 2,830E-01 | 2.900E 07 | 1.900E 05 | 1.420E 05 | 5.018E 05 | 1.989E 05 | 5.629E 04 |
| CS (HARD-GR) C1095 | 2,830E-01 | 2.900E 07 | 1.800E 05 | 1.200E 05 | 4.240E 05 | 1.989E 05 | 5.629E 04 |
| FCCS (WROUGHT) B1111 | 2,830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 |
| FCCS (WROUGHT) B1211 | 2,830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 |
| FCCS (WROUGHT) B1112 | 2,830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 |
| FCCS (WROUGHT) B1212 | 2,830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 |
| FCCS (WROUGHT) B1113 | 2,830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 |
| FCCS (WROUGHT) B1213 | 2,830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 |
| HRESIS ALLOY (CAST) WN | 2,830E-01 | 2.700E 07 | 6.800E 04 | 3.800E 04 | 1.343E 05 | 1.919E 05 | 5.431E 04 |
| HTS (WROUGHT) 14 MV | 2,830E-01 | 2.990E 07 | 1.500E 05 | 1.270E 05 | 4.488E 05 | 2.006E 05 | 5.677E 04 |
| HS (WROUGHT) EZ | 2,830E-01 | 2.900E 07 | 1.260E 05 | 9.000E 04 | 3.180E 05 | 1.989E 05 | 5.629E 04 |
| HS (WROUGHT) N | 2,830E-01 | 2.900E 07 | 1.320E 05 | 1.140E 05 | 4.028E 05 | 1.989E 05 | 5.629E 04 |
| HS (WROUGHT) 135 | 2,830E-01 | 2.900E 07 | 1.380E 05 | 1.250E 05 | 4.240E 05 | 1.989E 05 | 5.629E 04 |
| HS (WROUGHT) 135 MODIFIED | 2,830E-01 | 2.900E 07 | 1.590E 05 | 1.410E 05 | 4.982E 05 | 1.989E 05 | 5.629E 04 |
| UHSS (WROUGHT) D-6A | 2.830E-01 | 3.000E 07 | 2.040E 05 | 2.500E 05 | 8.834E 05 | 2.023E 05 | 5.729E 04 |
| UHSS (WROUGHT) 4340 | 2,830E-01 | 3.000E 07 | 2.070E 05 | 2.700E 05 | 9.541E 05 | 2.023E 05 | 5.729E 04 |
| AMSS (CAST) AM-355 | 2,820E-01 | 2.930E 07 | 2.230E 05 | 1.830E 05 | 6.489E 05 | 2.003E 05 | 5.648E 04 |
| AMSS (WROUGHT) AM-350 | 2,820E-01 | 2.940E 07 | 2.060E 05 | 1.730E 05 | 6.135E 05 | 2.004E 05 | 5.657E 04 |
| AMSS (WROUGHT) AM-355 | 2,820E-01 | 2.930E 07 | 1.860E 05 | 1.710E 05 | 6.064E 05 | 2.003E 05 | 5.648E 04 |
| CS (HARD-GR) C1137 | 2,820E-01 | 2.900E 07 | 1.980E 05 | 1.380E 05 | 4.894E 05 | 1.992E 05 | 5.619E 04 |
| CS (HARD-GR) C1141 | 2,820E-01 | 2.900E 07 | 2.370E 05 | 1.880E 05 | 6.667E 05 | 1.992E 05 | 5.619E 04 |
| CS (HARD-GR) C1144 | 2,820E-01 | 2.900E 07 | 1.280E 05 | 9.100E 04 | 3.227E 05 | 1.992E 05 | 5.619E 04 |
| AMSS (WROUGHT) ALMER 362 | 2,810E-01 | 2.890E 07 | 1.650E 05 | 1.600E 05 | 5.694E 05 | 1.993E 05 | 5.599E 04 |
| AMSS (WROUGHT) 17-4 PH (H1150) | 2,810E-01 | 2.850E 07 | 1.450E 05 | 1.250E 05 | 4.448E 05 | 1.979E 05 | 5.560E 04 |
| HTS (WROUGHT) LAPELLOY | 2,810E-01 | 3.000E 07 | 1.570E 05 | 1.250E 05 | 4.448E 05 | 2.030E 05 | 5.705E 04 |
| SS (CAST) CG-8M | 2,810E-01 | 2.800E 07 | 8.200E 04 | 4.300E 04 | 1.530E 05 | 1.961E 05 | 5.511E 04 |
| UHSS (WROUGHT) MODIFIED H-11 | 2,810E-01 | 3.000E 07 | 2.950E 05 | 2.410E 05 | 8.577E 05 | 2.030E 05 | 5.705E 04 |
| AMSS (CAST) 17-4PH | 2,800E-01 | 2.850E 07 | 1.700E 05 | 1.400E 05 | 5.000E 05 | 1.982E 05 | 5.550E 04 |
| AMSS (WROUGHT) STAINLESS W | 2,800E-01 | 2.800E 07 | 1.950E 05 | 1.800E 05 | 6.429E 05 | 1.965E 05 | 5.501E 04 |
| ASS (WROUGHT, O) 201 | 2,800E-01 | 2.800E 07 | 1.150E 05 | 5 500E 04 | 1.964E 05 | 1.965E 05 | 5.501E 04 |
| ASS (WROUGHT, COLD WORKED) 201 | 2,800E-01 | 2.800E 07 | 1.500E 05 | 1.100E 05 | 3.929E 05 | 1.965E 05 | 5.501E 04 |
| ASS (WROUGHT, O) 202 | 2,800E-01 | 2.800E 07 | 1.050E 05 | 5.500E 04 | 1.964E 05 | 1.965E 05 | 5.501E 04 |
| ASS (WROUGHT) 314 | 2,800E-01 | 2.900E 07 | 1.000E 05 | 5.000E 04 | 1.786E 05 | 2.000E 05 | 5.599E 04 |
| FSS (WROUGHT, O) 405 | 2,800E-01 | 2.900E 07 | 6.500E 04 | 3.500E 04 | 1.250E 05 | 2.000E 05 | 5.599E 04 |
| FSS (WROUGHT, COLD WORKED) 405 | 2,800E-01 | 2.900E 07 | 8.500E 04 | 7.000E 04 | 2.500E 05 | 2.000E 05 | 5.599E 04 |
| FSS (WROUGHT, O) 430 | 2,800E-01 | 2.900E 07 | 7.500E 04 | 4.000E 04 | 1.429E 05 | 2.000E 05 | 5.599E 04 |
| FSS (WROUGHT, COLD WORKED) 430 | 2,800E-01 | 2.900E 07 | 7.500E 04 | 4.500E 04 | 1.607E 05 | 2.000E 05 | 5.599E 04 |
| FSS (WROUGHT, O) 430F | 2,800E-01 | 2.900E 07 | 8.000E 04 | 5.500E 04 | 1.964E 05 | 2.000E 05 | 5.599E 04 |
| FSS (WROUGHT,COLD WORKED) 430F | 2,800E-01 | 2.900E 07 | 3.000E 04 | 5.500E 04 | 1.964E 05 | 2.000E 05 | 5.599E 04 |
| HRESIS ALLOY (CAST) HF | 2,800E-01 | 2.800E 07 | 8.500E 04 | 4.500E 04 | 1.607E 05 | 1.965E 05 | 5.501E 04 |
| HRESIS ALLOY (CAST) HK | 2,800E-01 | 2.900E 07 | 7.500E 04 | 5.000E 04 | 1.786E 05 | 2.000E 05 | 5.599E 04 |
| INGOT IRON (O) | 2,800E-01 | 2.980E 07 | 4.200E 04 | 1 900E 04 | 6.786E 04 | 2.027E 05 | 5.675E 04 |
| INGOT IRON (COLD DRAWN) | 2,800E-01 | 2.980E 07 | 7.300E 04 | 6.900E 04 | 2.464E 05 | 2.027E 05 | 5.675E 04 |
| INGOT IRON (HOT ROLLED) | 2,800E-01 | 2.980E 07 | 4.400E 04 | 2.300E 04 | 8.214E 04 | 2.027E 05 | 5.675E 04 |
| MSS (WROUGHT, O) 403 | 2,800E-01 | 2.900E 07 | 7.000E 04 | 4 000E 04 | 1.429E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, HARD+TEMP) 403 | 2,800E-01 | 2.900E 07 | 1.100E 05 | 8.500E 04 | 3.036E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, O) 410 | 2,800E-01 | 2.900E 07 | 6.500E 04 | 3.500E 04 | 1.250E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, HARD+TEMP) 410 | 2,800E-01 | 2.900E 07 | 9.000E 04 | 6 000E 04 | 2.143E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, O) 414 | 2,800E-01 | 2.900E 07 | 1.150E 05 | 9 000E 04 | 3.214E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, HARD+TEMP) 414 | 2,800E-01 | 2.900E 07 | 1.200E 05 | 1 050E 05 | 3.750E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, O) 416 | 2,800E-01 | 2.900E 07 | 7.500E 04 | 4 000E 04 | 1.429E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, HARD+TEMP) 416 | 2,800E-01 | 2.900E 07 | 9.000E 04 | 6.000E 04 | 2.143E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, O) 420 | 2,800E-01 | 2.900E 07 | 7.500E 04 | 5 000E 04 | 1.786E 05 | 2.000E 05 | 5.599E 04 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| MSS (WROUGHT, HARD+TEMP) 42- | 2.800E-01 | 2.900E 07 | 2.300E 05 | 1 950E 05 | 6.964E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, O) 431 | 2.800E-01 | 2.900E 07 | 1.250E 05 | 9 500E 04 | 3.393E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, HARD+TEMP) 431 | 2.800E-01 | 2.900E 07 | 1.250E 05 | 9 500E 04 | 3.393E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, O) 440A | 2.800E-01 | 2.900E 07 | 1.050E 05 | 6.000E 04 | 2.143E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, HARD+TEMP) 44-A | 2.800E-01 | 2.900E 07 | 2.400E 05 | 2.400E 05 | 8.571E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, O) 440B | 2.800E-01 | 2.900E 07 | 1.370E 05 | 6.200E 04 | 2.214E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, HARD+TEMP) 44-B | 2.800E-01 | 2.900E 07 | 2.800E 05 | 2.700E 05 | 9.643E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, O) 440C | 2.800E-01 | 2.900E 07 | 1.100E 05 | 5.900E 04 | 2.321E 05 | 2.000E 05 | 5.599E 04 |
| MSS (WROUGHT, HARD+TEMP) 44-C | 2.800E-01 | 2.900E 07 | 2.850E 05 | 2 750E 05 | 9.821E 05 | 2.000E 05 | 5.599E 04 |
| SS (CAST) CF-3 | 2.800E-01 | 2.700E 07 | 7.700E 04 | 3.700E 04 | 1.321E 05 | 1.929E 05 | 5.402E 04 |
| SS (CAST) CF-3M | 2.800E-01 | 2.700E 07 | 8.000E 04 | 4 200E 04 | 1.500E 05 | 1.928E 05 | 5.402E 04 |
| SS (CAST) CF-8 | 2.800E-01 | 2.800E 07 | 7.700E 04 | 3.700E 04 | 1.321E 05 | 1.969E 05 | 5.501E 04 |
| SS (CAST) CF-8C | 2.800E-01 | 2.800E 07 | 7.700E 04 | 3.800E 04 | 1.357E 05 | 1.969E 05 | 5.501E 04 |
| SS (CAST) CF-8M | 2.800E-01 | 2.800E 07 | 8.000E 04 | 4.200E 04 | 1.500E 05 | 1.969E 05 | 5.501E 04 |
| SS (CAST) CF-10F | 2.800E-01 | 2 800E 07 | 7.700E 04 | 4 000E 04 | 1.429E 05 | 1.969E 05 | 5.501E 04 |
| SS (CAST) CF-20 | 2.800E-01 | 2 800E 07 | 7.700E 04 | 3 600E 04 | 1.286E 05 | 1.969E 05 | 5.501E 04 |
| SS (CAST) CK-20 | 2.800E-01 | 2.900E 07 | 7.400E 04 | 3.800E 04 | 1.357E 05 | 2.000E 05 | 5.599E 04 |
| NRESIS ALLOY (CAST) MA | 2.790E-01 | 2.900E 07 | 9.500E 04 | 6.500E 04 | 2.330E 05 | 2.003E 05 | 5.589E 04 |
| NRESIS ALLOY (CAST) MM TYPE 1 | 2.790E-01 | 2.700E 07 | 8.000E 04 | 5 000E 04 | 1.792E 05 | 1.933E 05 | 5.393E 04 |
| NRESIS ALLOY (CAST) MM TYPE 2 | 2.790E-01 | 2.700E 07 | 8.500E 04 | 4 000E 04 | 1.434E 05 | 1.933E 05 | 5.393E 04 |
| NRESIS ALLOY (CAST) MI | 2.790E-01 | 2 700E 07 | 8.000E 04 | 4 500E 04 | 1.613E 05 | 1.933E 05 | 5.393E 04 |
| NRESIS ALLOY (CAST) ML | 2.790E-01 | 2.900E 07 | 8.200E 04 | 5.200E 04 | 1.864E 05 | 2.003E 05 | 5.589E 04 |
| SS (CAST) CN-20 | 2.790E-01 | 2.800E 07 | 8.000E 04 | 5.000E 04 | 1.792E 05 | 1.968E 05 | 5.492E 04 |
| WROUGHT IRON LONG (HOT ROLLED) | 2.780E-01 | 2.990E 07 | 4.000E 04 | 2.700E 04 | 9.712E 04 | 2.024E 05 | 5.627E 04 |
| WROUGHT IRON TRAN (HOT ROLLED) | 2.780E-01 | 2.990E 07 | 3.900E 04 | 2.700E 04 | 9.712E 04 | 2.024E 05 | 5.627E 04 |
| AMSS (WROUGHT) PH 15-7 MO (RH) | 2.770E-01 | 2.900E 07 | 2.400E 05 | 2.250E 05 | 8.123E 05 | 2.010E 05 | 5.569E 04 |
| AMSS (WROUGHT) PH 15-7 MO (TH) | 2.770E-01 | 2.900E 07 | 2.100E 05 | 2.000E 05 | 7.220E 05 | 2.010E 05 | 5.569E 04 |
| NRESIS ALLOY (CAST) NE | 2.770E-01 | 2 500E 07 | 9.500E 04 | 4.500E 04 | 1.625E 05 | 1.867E 05 | 5.170E 04 |
| SS (CAST) CD-4MCU | 2.770E-01 | 2.900E 07 | 1.050E 05 | 8 500E 04 | 3.069E 05 | 2.010E 05 | 5.569E 04 |
| SS (CAST) CE-30 | 2.770E-01 | 2.500E 07 | 9.700E 04 | 6.300E 04 | 2.274E 05 | 1.867E 05 | 5.170E 04 |
| AMSS (WROUGHT) 17-7 PH (RH950) | 2.760E-01 | 2.900E 07 | 2.350E 05 | 2 200E 05 | 7.971E 05 | 2.014E 05 | 5.559E 04 |
| AMSS (WROUGHT) 17-7PH (TH1050) | 2.760E-01 | 2.900E 07 | 2.000E 05 | 1 850E 05 | 6.703E 05 | 2.014E 05 | 5.559E 04 |
| UMSS (WROUGHT) HX-2 | 2.760E-01 | 2 940E 07 | 2.790E 05 | 2 300E 05 | 8.699E 05 | 2.020E 05 | 5.597E 04 |
| SS (CAST, HARD+TEMP) CA-15 | 2.750E-01 | 2.900E 07 | 2.000E 05 | 1 500E 05 | 5.455E 05 | 2.018E 05 | 5.549E 04 |
| SS (CAST, HARD+TEMP) CA-40 | 2.750E-01 | 2 900E 07 | 2.200E 05 | 1 650E 05 | 6.000E 05 | 2.018E 05 | 5.549E 04 |
| NRESIS ALLOY (CAST) MD | 2.740E-01 | 2.700E 07 | 8.500E 04 | 4.800E 04 | 1.752E 05 | 1.950E 05 | 5.344E 04 |
| NRESIS ALLOY (CAST) MC | 2.720E-01 | 2.900E 07 | 7.000E 04 | 6 500E 04 | 2.390E 05 | 2.029E 05 | 5.918E 04 |
| SS (CAST, O) CB-30 | 2.720E-01 | 2.900E 07 | 9.500E 04 | 6 000E 04 | 2.206E 05 | 2.029E 05 | 5.918E 04 |
| SS (CAST, O) CC-50 | 2.720E-01 | 2 900E 07 | 9.700E 04 | 6 500E 04 | 2.390E 05 | 2.029E 05 | 5.918E 04 |
| SS (CAST, AS CAST) CC-50 | 2.720E-01 | 2.900E 07 | 7.000E 04 | 6.000E 04 | 2 206E 05 | 2.029E 05 | 5.918E 04 |
| FSS (WROUGHT, O) 440 | 2.700E-01 | 2.900E 07 | 8.000E 04 | 5 000E 04 | 1.852E 05 | 2.036E 05 | 5.498E 04 |
| FSS (WROUGHT, COLD WORKED) 440 | 2.700E-01 | 2 900E 07 | 8.500E 04 | 7 000E 04 | 2.593E 05 | 2.036E 05 | 5.498E 04 |
| NOD OR DUC AUSTENITIC (CAST) | 2.680E-01 | 1 850E 07 | 5.800E 04 | 3 200E 04 | 1.194E 05 | 1.632E 05 | 4.375E 04 |
| PEARLITIC 45007 (CAST) | 2.650E-01 | 2 600E 07 | 6.800E 04 | 4 500E 04 | 1.698E 05 | 1.946E 05 | 5.157E 04 |
| PEARLITIC 45010 (CAST) | 2.650E-01 | 2.600E 07 | 6.500E 04 | 4 500E 04 | 1 698E 05 | 1.946E 05 | 5.157E 04 |
| PEARLITIC 48004 (CAST) | 2.650E-01 | 2 650E 07 | 7.000E 04 | 4 800E 04 | 1.811E 05 | 1.965E 05 | 5.207E 04 |
| PEARLITIC 50007 (CAST) | 2.650E-01 | 2 650E 07 | 7.500E 04 | 5 000E 04 | 1.887E 05 | 1.965E 05 | 5.207E 04 |
| PEARLITIC 53004 (CAST) | 2.650E-01 | 2 650E 07 | 8.000E 04 | 5 300E 04 | 2 000E 05 | 1.965E 05 | 5.207E 04 |
| PEARLITIC 60003 (CAST) | 2.650E-01 | 2.600E 07 | 8.000E 04 | 6 000E 04 | 2.264E 05 | 1.946E 05 | 5.157E 04 |
| PEARLITIC 80002 (CAST) | 2.650E-01 | 2 600E 07 | 1.000E 05 | 8.000E 04 | 3 019E 05 | 1.946E 05 | 5.157E 04 |
| FERRITIC 32510 (CAST) | 2.590E-01 | 2 500E 07 | 5.000E 04 | 3 250E 04 | 1.255E 05 | 1.930E 05 | 5.000E 04 |
| FERRITIC 35018 (CAST) | 2.590E-01 | 2 500E 07 | 5.300E 04 | 3 500E 04 | 1 351E 05 | 1.930E 05 | 5.000E 04 |
| NOD OR DUC 80-4 -18 (CAST) | 2.570E-01 | 2.200E 07 | 6.000E 04 | 4 500E 04 | 1.751E 05 | 1.818E 05 | 4.672E 04 |
| NOD OR DUC 80-55-06 (CAST) | 2.570E-01 | 2.200E 07 | 9.000E 04 | 6 000E 04 | 2 335E 05 | 1.818E 05 | 4.672E 04 |
| NOD OR DUC 100-70-03 (CAST) | 2.570E-01 | 2.200E 07 | 1.000E 05 | 7 500E 04 | 2.918E 05 | 1.818E 05 | 4.672E 04 |
| NOD OR DUC 120-90-02 (CAST) | 2.570E-01 | 2.200E 07 | 1.200E 05 | 9 000E 04 | 3 502E 05 | 1.818E 05 | 4.672E 04 |
| NOD OR DUC NRESIS (CAST) | 2.500E-01 | 2 200E 07 | 6 000E 04 | 4 500E 04 | 1.800E 05 | 1.643E 05 | 4.008E 04 |

| MATERIAL | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) |
|---|---|---|---|---|---|---|---|
| WTS (WROUGHT) CHROMOLOY | 3.160E 07 | 1.300E 05 | 1.170E 05 | 4.139E 05 | 2.044E 05 | 5.896E 04 | 2.850E-01 |
| IBS (WROUGHT) S-590 | 3.110E 07 | 1.420E 05 | 7.500E 04 | 2.492E 05 | 1.997E 05 | 5.511E 04 | 3.010E-01 |
| IBS (WROUGHT) REFRACTALOY 26 | 3.060E 07 | 1.540E 05 | 9.100E 04 | 3.074E 05 | 1.998E 05 | 5.913E 04 | 2.960E-01 |
| CS (CAST) 60.000 | 3.010E 07 | 6.300E 04 | 3.500E 04 | 1.237E 05 | 2.026E 05 | 5.734E 04 | 2.830E-01 |
| CS (CAST) 65.000 | 3.010E 07 | 6.800E 04 | 3.800E 04 | 1.343E 05 | 2.026E 05 | 5.734E 04 | 2.830E-01 |
| CS (CAST) 70.000 | 3.000E 07 | 7.300E 04 | 4.200E 04 | 1.484E 05 | 2.023E 05 | 5.725E 04 | 2.830E-01 |
| WTS (WROUGHT) LAPELLOY | 3.000E 07 | 1.570E 05 | 1.250E 05 | 4.448E 05 | 2.030E 05 | 5.705E 04 | 2.810E-01 |
| IBS (WROUGHT) AMS 5780 | 3.000E 07 | 1.190E 05 | 4.800E 04 | 1.659E 05 | 1.998E 05 | 5.795E 04 | 2.900E-01 |
| IBS (WROUGHT) D-979 | 3.000E 07 | 2.140E 05 | 1.460E 05 | 4.949E 05 | 1.981E 05 | 5.845E 04 | 2.950E-01 |
| UHSS (WROUGHT) D-6A | 3.000E 07 | 2.840E 05 | 2.500E 05 | 8.834E 05 | 2.023E 05 | 5.725E 04 | 2.830E-01 |
| UHSS (WROUGHT) MODIFIED H-11 | 3.000E 07 | 2.950E 05 | 2.410E 05 | 8.577E 05 | 2.030E 05 | 5.705E 04 | 2.810E-01 |
| UHSS (WROUGHT) 4340 | 3.000E 07 | 2.870E 05 | 2.700E 05 | 9.541E 05 | 2.023E 05 | 5.725E 04 | 2.830E-01 |
| CS (CAST) 80.000 | 2.990E 07 | 8.200E 04 | 4.800E 04 | 1.696E 05 | 2.020E 05 | 5.715E 04 | 2.830E-01 |
| CS (CAST) 85.000 | 2.990E 07 | 9.000E 04 | 5.900E 04 | 1.943E 05 | 2.020E 05 | 5.715E 04 | 2.830E-01 |
| IBS (WROUGHT) INCOLOY 901 | 2.990E 07 | 1.750E 05 | 1.300E 05 | 4.392E 05 | 1.975E 05 | 5.845E 04 | 2.960E-01 |
| INGOT IRON (O) | 2.980E 07 | 4.200E 04 | 1.900E 04 | 6.700E 04 | 2.027E 05 | 5.675E 04 | 2.800E-01 |
| INGOT IRON (COLD DRAWN) | 2.980E 07 | 7.300E 04 | 6.900E 04 | 2.464E 05 | 2.027E 05 | 5.675E 04 | 2.800E-01 |
| INGOT IRON (HOT ROLLED) | 2.980E 07 | 4.400E 04 | 2.300E 04 | 8.213E 04 | 2.027E 05 | 5.675E 04 | 2.800E-01 |
| CS (CAST) 100.000 | 2.970E 07 | 1.090E 05 | 7.500E 04 | 2.650E 05 | 2.013E 05 | 5.696E 04 | 2.830E-01 |
| WTS (WROUGHT) 14 MV | 2.950E 07 | 1.500E 05 | 1.270E 05 | 4.488E 05 | 2.006E 05 | 5.677E 04 | 2.830E-01 |
| IBS (WROUGHT) 19-9DL (CR-NI) | 2.950E 07 | 1.140E 05 | 7.100E 04 | 2.474E 05 | 1.992E 05 | 5.717E 04 | 2.870E-01 |
| IBS (WROUGHT) 19-9DL(CR-NI-MO) | 2.950E 07 | 1.140E 05 | 6.900E 04 | 2.404E 05 | 1.992E 05 | 5.717E 04 | 2.870E-01 |
| WROUGHT IRON BAR (HOT ROLLED) | 2.950E 07 | 5.800E 04 | 2.700E 04 | 9.712E 04 | 2.024E 05 | 5.627E 04 | 2.780E-01 |
| WROUGHT IRON BRAM (HOT ROLLED) | 2.950E 07 | 3.600E 04 | 2.700E 04 | 9.712E 04 | 2.024E 05 | 5.627E 04 | 2.780E-01 |
| AMSS (WROUGHT) AM-350 | 2.940E 07 | 2.040E 05 | 1.730E 05 | 6.135E 05 | 2.006E 05 | 5.657E 04 | 2.820E-01 |
| UHSS (WROUGHT) HY-2 | 2.940E 07 | 2.700E 05 | 2.390E 05 | 8.459E 05 | 2.028E 05 | 5.597E 04 | 2.760E-01 |
| AMSS (CAST) AM-355 | 2.930E 07 | 2.210E 05 | 1.830E 05 | 6.489E 05 | 2.003E 05 | 5.648E 04 | 2.820E-01 |
| AMSS (WROUGHT) AM-355 | 2.930E 07 | 1.840E 05 | 1.710E 05 | 6.064E 05 | 2.003E 05 | 5.648E 04 | 2.820E-01 |
| IBS (WROUGHT) A-286 | 2.910E 07 | 1.400E 05 | 1.000E 05 | 3.497E 05 | 1.982E 05 | 5.668E 04 | 2.860E-01 |
| AMSS (WROUGHT) PH 15-7 MO (RH) | 2.900E 07 | 2.400E 05 | 2.250E 05 | 8.123E 05 | 2.013E 05 | 5.569E 04 | 2.770E-01 |
| AMSS (WROUGHT) PH 15-7 MO (TH) | 2.900E 07 | 2.100E 05 | 2.000E 05 | 7.220E 05 | 2.013E 05 | 5.569E 04 | 2.770E-01 |
| AMSS (WROUGHT) 17-7 PH (RH950) | 2.900E 07 | 2.350E 05 | 2.220E 05 | 7.871E 05 | 2.014E 05 | 5.559E 04 | 2.760E-01 |
| AMSS (WROUGHT) 17-7PH (TH1050) | 2.900E 07 | 2.100E 05 | 1.850E 05 | 6.703E 05 | 2.014E 05 | 5.559E 04 | 2.760E-01 |
| ALLOY STEEL (CAST) 65.000 | 2.900E 07 | 6.800E 04 | 3.800E 04 | 1.343E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| ALLOY STEEL (CAST) 70.000 | 2.900E 07 | 7.400E 04 | 4.400E 04 | 1.559E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| ALLOY STEEL (CAST) 80.000 | 2.900E 07 | 8.600E 04 | 5.400E 04 | 1.908E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| ALLOY STEEL (CAST) 90.000 | 2.900E 07 | 9.500E 04 | 6.400E 04 | 2.261E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| ALLOY STEEL (CAST) 100.000 | 2.900E 07 | 1.100E 05 | 9.100E 04 | 3.216E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| ALLOY STEEL (CAST) 120.000 | 2.900E 07 | 1.240E 05 | 1.120E 05 | 3.958E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| ALLOY STEEL (CAST) 150.000 | 2.900E 07 | 1.540E 05 | 1.420E 05 | 5.018E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| ALLOY STEEL (CAST) 175.000 | 2.900E 07 | 1.700E 05 | 1.600E 05 | 5.654E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| ALLOY STEEL (CAST) 200.000 | 2.900E 07 | 2.000E 05 | 1.700E 05 | 6.007E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| ASS (WROUGHT) 309 | 2.900E 07 | 9.100E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 | 5.698E 04 | 2.900E-01 |
| ASS (WROUGHT) 309S | 2.900E 07 | 9.100E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 | 5.698E 04 | 2.900E-01 |
| ASS (WROUGHT) 310 | 2.900E 07 | 9.100E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 | 5.698E 04 | 2.900E-01 |
| ASS (WROUGHT) 310S | 2.900E 07 | 9.500E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 | 5.698E 04 | 2.900E-01 |
| ASS (WROUGHT) 314 | 2.900E 07 | 1.100E 05 | 5.000E 04 | 1.780E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| CS (CARB-GR) C1015 | 2.900E 07 | 7.300E 04 | 4.600E 04 | 1.625E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| CS (CARB-GR) C1020 | 2.900E 07 | 7.500E 04 | 4.800E 04 | 1.696E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| CS (CARB-GR) C1022 | 2.900E 07 | 8.200E 04 | 4.700E 04 | 1.661E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| CS (CARB-GR) C1117 | 2.900E 07 | 9.700E 04 | 5.900E 04 | 2.085E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| CS (CARB-GR) C1118 | 2.900E 07 | 1.100E 05 | 7.700E 04 | 2.721E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| CS (WARD-GR) C1030 | 2.900E 07 | 1.200E 05 | 9.300E 04 | 3.288E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| CS (WARD-GR) C1040 | 2.900E 07 | 1.100E 05 | 8.600E 04 | 3.039E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| CS (WARD-GR) C1050 | 2.900E 07 | 1.400E 05 | 1.080E 05 | 3.816E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| CS (WARD-GR) C1060 | 2.900E 07 | 1.400E 05 | 1.120E 05 | 3.958E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| CS (WARD-GR) C1080 | 2.900E 07 | 1.900E 05 | 1.420E 05 | 5.018E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| CS (WARD-GR 1.95 | 2.900E 07 | 1.800E 05 | 1.200E 05 | 4.240E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |

| MATERIAL | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) |
|---|---|---|---|---|---|---|---|
| CS (HARD-GR) C1137 | 2.900E 07 | 1.580E 05 | 1.360E 05 | 4.894E 05 | 1.992E 05 | 5.619E 04 | 2.820E-01 |
| CS (HARD-GR) C1141 | 2.900E 07 | 2.370E 05 | 1.880E 05 | 6.667E 05 | 1.992E 05 | 5.619E 04 | 2.820E-01 |
| CS (HARD-GR) C1144 | 2.900E 07 | 1.280E 05 | 9.100E 04 | 3.227E 05 | 1.992E 05 | 5.619E 04 | 2.820E-01 |
| FCCS (WROUGHT) R1111 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| FCCS (WROUGHT) R1211 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| FCCS (WROUGHT) R1112 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| FCCS (WROUGHT) R1212 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| FCCS (WROUGHT) R1113 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| FCCS (WROUGHT) R1213 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| FSS (WROUGHT, O) 405 | 2.900E 07 | 6.500E 04 | 3.900E 04 | 1.250E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| FSS (WROUGHT, COLD WORKED) 405 | 2.900E 07 | 8.500E 04 | 7.000E 04 | 2.500E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| FSS (WROUGHT, O) 430 | 2.900E 07 | 7.500E 04 | 4.000E 04 | 1.429E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| FSS (WROUGHT, COLD WORKED) 430 | 2.900E 07 | 7.500E 04 | 4.500E 04 | 1.607E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| FSS (WROUGHT, O) 430F | 2.900E 07 | 8.000E 04 | 5.500E 04 | 1.964E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| FSS (WROUGHT,COLD WORKED) 430F | 2.900E 07 | 8.000E 04 | 5.500E 04 | 1.964E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| FSS (WROUGHT, O) 446 | 2.900E 07 | 8.000E 04 | 5.000E 04 | 1.892E 05 | 2.036E 05 | 5.498E 04 | 2.700E-01 |
| FSS (WROUGHT, COLD WORKED) 446 | 2.900E 07 | 8.500E 04 | 7.000E 04 | 2.593E 05 | 2.036E 05 | 5.498E 04 | 2.700E-01 |
| HRESIS ALLOY (CAST) HA | 2.900E 07 | 9.500E 04 | 6.500E 04 | 2.330E 05 | 2.003E 05 | 5.509E 04 | 2.790E-01 |
| HRESIS ALLOY (CAST) HC | 2.900E 07 | 7.000E 04 | 6.500E 04 | 2.390E 05 | 2.029E 05 | 5.518E 04 | 2.720E-01 |
| HRESIS ALLOY (CAST) HK | 2.900E 07 | 7.500E 04 | 5.000E 04 | 1.786E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| HRESIS ALLOY (CAST) HL | 2.900E 07 | 8.200E 04 | 5.200E 04 | 1.864E 05 | 2.003E 05 | 5.589E 04 | 2.790E-01 |
| HTS (WROUGHT) GREEK ASCOLOY | 2.900E 07 | 1.700E 05 | 1.500E 05 | 5.282E 05 | 1.985E 05 | 5.639E 04 | 2.840E-01 |
| IBS (WROUGHT) UNITEMP 212 | 2.900E 07 | 1.870E 05 | 1.340E 05 | 4.685E 05 | 1.978E 05 | 5.658E 04 | 2.860E-01 |
| MSS (WROUGHT, O) 403 | 2.900E 07 | 7.000E 04 | 4.000E 04 | 1.429E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, HARD+TEMP) 403 | 2.900E 07 | 1.100E 05 | 8.500E 04 | 3.036E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, O) 410 | 2.900E 07 | 6.500E 04 | 3.500E 04 | 1.250E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, HARD+TEMP) 410 | 2.900E 07 | 9.000E 04 | 6.000E 04 | 2.143E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, O) 414 | 2.900E 07 | 1.150E 05 | 9.000E 04 | 3.214E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, HARD+TEMP) 414 | 2.900E 07 | 1.200E 05 | 1.050E 05 | 3.750E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, O) 416 | 2.900E 07 | 7.500E 04 | 4.000E 04 | 1.429E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, HARD+TEMP) 416 | 2.900E 07 | 9.500E 04 | 6.000E 04 | 2.143E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, O) 420 | 2.900E 07 | 9.500E 04 | 5.000E 04 | 1.786E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, HARD+TEMP) 420 | 2.900E 07 | 2.300E 05 | 1.950E 05 | 6.964E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, O) 431 | 2.900E 07 | 1.250E 05 | 9.500E 04 | 3.393E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, HARD+TEMP) 431 | 2.900E 07 | 1.250E 05 | 9.500E 04 | 3.393E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, O) 440A | 2.900E 07 | 1.150E 05 | 6.000E 04 | 2.143E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, HARD+TEMP) 440A | 2.900E 07 | 2.600E 05 | 2.400E 05 | 8.571E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, O) 440B | 2.900E 07 | 1.070E 05 | 6.200E 04 | 2.214E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, HARD+TEMP) 440B | 2.900E 07 | 2.800E 05 | 2.700E 05 | 9.643E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, O) 440C | 2.900E 07 | 1.100E 05 | 6.500E 04 | 2.321E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| MSS (WROUGHT, HARD+TEMP) 440C | 2.900E 07 | 2.850E 05 | 2.750E 05 | 9.821E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| HS (WROUGHT) EZ | 2.900E 07 | 1.260E 05 | 9.000E 04 | 3.180E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| HS (WROUGHT) A | 2.900E 07 | 1.720E 05 | 1.140E 05 | 4.028E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| HS (WROUGHT) 135 | 2.900E 07 | 1.380E 05 | 1.200E 05 | 4.230E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| HS (WROUGHT) 135 MODIFIED | 2.900E 07 | 1.590E 05 | 1.410E 05 | 4.982E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 |
| SS (CAST, HARD+TEMP) CA-15 | 2.900E 07 | 2.700E 05 | 1.900E 05 | 5.455E 05 | 2.018E 05 | 5.540E 04 | 2.750E-01 |
| SS (CAST, HARD+TEMP) CA-40 | 2.900E 07 | 2.200E 05 | 1.650E 05 | 6.000E 05 | 2.018E 05 | 5.540E 04 | 2.750E-01 |
| SS (CAST, O) CB-30 | 2.900E 07 | 9.500E 04 | 6.000E 04 | 2.200E 05 | 2.029E 05 | 5.518E 04 | 2.720E-01 |
| SS (CAST, O) CC-50 | 2.900E 07 | 9.700E 04 | 6.500E 04 | 2.395E 05 | 2.029E 05 | 5.518E 04 | 2.720E-01 |
| SS (CAST, AS CAST) CC-50 | 2.900E 07 | 7.000E 04 | 6.000E 04 | 2.206E 05 | 2.029E 05 | 5.518E 04 | 2.720E-01 |
| SS (CAST) CD-4MCU | 2.900E 07 | 1.150E 05 | 8.500E 04 | 3.069E 05 | 2.010E 05 | 5.569E 04 | 2.770E-01 |
| SS (CAST) CH-20 | 2.900E 07 | 9.300E 04 | 3.800E 04 | 1.397E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 |
| AMSS (WROUGHT) ALMEN 362 | 2.890E 07 | 1.650E 05 | 1.400E 05 | 5.694E 05 | 1.993E 05 | 5.599E 04 | 2.810E-01 |
| IBS (WROUGHT OR CAST) MULTIMET | 2.880E 07 | 1.160E 05 | 5.800E 04 | 1.959E 05 | 1.938E 05 | 5.737E 04 | 2.960E-01 |
| AMSS (CAST) 17-4PH | 2.850E 07 | 1.760E 05 | 1.400E 05 | 5.000E 05 | 1.982E 05 | 5.558E 04 | 2.803E-01 |
| AMSS (WROUGHT) 17-4 PH (H1150) | 2.850E 07 | 1.430E 05 | 1.250E 05 | 4.448E 05 | 1.979E 05 | 5.568E 04 | 2.810E-01 |
| IBS (WROUGHT) W 949 | 2.840E 07 | 1.810E 05 | 1.330E 05 | 4.669E 05 | 1.941E 05 | 5.596E 04 | 2.850E-01 |
| IBS (WROUGHT) 16-25-6 | 2.820E 07 | 1.420E 05 | 1.120E 05 | 3.849E 05 | 1.934E 05 | 5.628E 04 | 2.910E-01 |

| MATERIAL | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LCB) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) |
|---|---|---|---|---|---|---|---|
| AMSS (WROUGHT) STAINLESS W | 2.800E 07 | 1.090E 05 | 1.300E 05 | 6.498E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 |
| AMSS (WROUGHT) 17-14 CU MO | 2.800E 07 | 8.600E 04 | 4.200E 04 | 1.463E 05 | 1.941E 05 | 5.570E 04 | 2.870E-01 |
| ASS (WROUGHT, O) 201 | 2.800E 07 | 1.190E 05 | 5.300E 04 | 1.936E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 |
| ASS (WROUGHT COLD WORKED) 201 | 2.800E 07 | 1.500E 05 | 1.100E 05 | 3.929E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 |
| ASS (WROUGHT, O) 202 | 2.800E 07 | 1.[illegible]90E 05 | 5.50[illegible]E 04 | 1.964E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 |
| ASS (WROUGHT, O) 301 | 2.800E 07 | 1.100E 05 | 4.300E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 |
| ASS (WROUGHT, COLD WORKED) 301 | 2.800E 07 | 1.850E 05 | 1.400E 05 | 4.828E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 |
| ASS (WROUGHT, O) 302 | 2.800E 07 | 9.[illegible]00E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 |
| ASS (WROUGHT, O) 302B | 2.800E 07 | 9.500E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 |
| ASS (WROUGHT, O) 304 | 2.800E 07 | 8.400E 04 | 4.200E 04 | 1.448E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 |
| ASS (WROUGHT, O) 304 L | 2.800E 07 | 8.100E 04 | 3.900E 04 | 1.345E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 |
| ASS (WROUGHT, O) 305 | 2.800E 07 | 8.300E 04 | 3.800E 04 | 1.310E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 |
| ASS (WROUGHT, O) 308 | 2.800E 07 | 8.500E 04 | 5.500E 04 | 1.207E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 |
| ASS (WROUGHT) 316 | 2.800E 07 | 8.400E 04 | 4.200E 04 | 1.448E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 |
| ASS (WROUGHT) 317 | 2.800E 07 | 9.[illegible]00E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 |
| ASS (WROUGHT) 321 | 2.800E 07 | 9.[illegible]00E 04 | 3.500E 04 | 1.207E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 |
| ASS (WROUGHT) 347-348 | 2.800E 07 | 9.500E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 |
| WRESIS ALLOY (CAST) WT | 2.800E 07 | 8.500E 04 | 4.500E 04 | 1.607E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 |
| SS (CAST) CF-8 | 2.800E 07 | 7.700E 04 | 3.700E 04 | 1.321E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 |
| SS (CAST) CF-8C | 2.800E 07 | [illegible] | 3.800E 04 | 1.357E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 |
| SS (CAST) CF-8M | 2.800E 07 | 8.[illegible]00E 04 | 4.200E 04 | 1.500E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 |
| SS (CAST) CF-10F | 2.800E 07 | 7.700E 04 | 4.000E 04 | 1.429E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 |
| SS (CAST) CF-20 | 2.800E 07 | 7.700E 04 | 3.400E 04 | 1.286E 05 | 1.965E 05 | 5.501E 04 | 2.100E-01 |
| SS (CAST) CG-8M | 2.800E 07 | 8.200E 04 | 4.300E 04 | 1.530E 05 | 1.961E 05 | 5.511E 04 | 2.810E-01 |
| SS (CAST) CH-20 | 2.800E 07 | 8.600E 04 | 5.000E 04 | 1.792E 05 | 1.968E 05 | 5.492E 04 | 2.790E-01 |
| WRESIS ALLOY (CAST) WD | 2.700E 07 | 8.500E 04 | 4.800E 04 | 1.752E 05 | 1.950E 05 | 5.344E 04 | 2.740E-01 |
| WRESIS ALLOY (CAST) WH TYPE 1 | 2.700E 07 | 8.000E 04 | 5.000E 04 | 1.792E 05 | 1.933E 05 | 5.393E 04 | 2.790E-01 |
| WRESIS ALLOY (CAST) WH TYPE 2 | 2.700E 07 | 8.500E 04 | 4.000E 04 | 1.434E 05 | 1.933E 05 | 5.393E 04 | 2.790E-01 |
| WRESIS ALLOY (CAST) WI | 2.700E 07 | 8.000E 04 | 4.500E 04 | 1.613E 05 | 1.933E 05 | 5.393E 04 | 2.790E-01 |
| WRESIS ALLOY (CAST) WN | 2.700E 07 | 6.800E 04 | 3.800E 04 | 1.343E 05 | 1.919E 05 | 5.431E 04 | 2.830E-01 |
| WRESIS ALLOY (CAST) WT | 2.700E 07 | 7.000E 04 | 4.000E 04 | 1.399E 05 | 1.909E 05 | 5.460E 04 | 2.860E-01 |
| WRESIS ALLOY (CAST) WU | 2.700E 07 | 7.700E 04 | 4.000E 04 | 1.379E 05 | 1.896E 05 | 5.498E 04 | 2.900E-01 |
| SS (CAST) CF-3 | 2.700E 07 | 7.700E 04 | 3.700E 04 | 1.321E 05 | 1.929E 05 | 5.402E 04 | 2.800E-01 |
| SS (CAST) CF-3M | 2.700E 07 | 8.[illegible]00E 04 | 4.200E 04 | 1.500E 05 | 1.929E 05 | 5.402E 04 | 2.800E-01 |
| PEARLITIC 48004 (CAST) | 2.650E 07 | 7.[illegible]00E 04 | 4.600E 04 | 1.811E 05 | 1.965E 05 | 5.207E 04 | 2.650E-01 |
| PEARLITIC 50007 (CAST) | 2.650E 07 | 7.500E 04 | 5.000E 04 | 1.887E 05 | 1.965E 05 | 5.207E 04 | 2.650E 01 |
| PEARLITIC 53004 (CAST) | 2.650E 07 | 8.000E 04 | 5.300E 04 | 2.000E 05 | 1.965E 05 | 5.207E 04 | 2.650E-01 |
| UHSS (WROUGHT) 18 NI | 2.490E 07 | 2.750E 05 | 2.400E 05 | 9.241E 05 | 1.878E 05 | 5.447E 04 | 2.900E-01 |
| PEARLITIC 45007 (CAST) | 2.600E 07 | 6.800E 04 | 4.500E 04 | 1.698E 05 | 1.946E 05 | 5.157E 04 | 2.650E-01 |
| PEARLITIC 49010 (CAST) | 2.600E 07 | 6.500E 04 | 4.500E 04 | 1.698E 05 | 1.946E 05 | 5.157E 04 | 2.650E-01 |
| PEARLITIC 60003 (CAST) | 2.600E 07 | 8.[illegible]00E 04 | 6.000E 04 | 2.264E 05 | 1.946E 05 | 5.157E 04 | 2.650E-01 |
| PEARLITIC 80002 (CAST) | 2.600E 07 | 1.[illegible]00E 05 | 8.[illegible]00E 04 | 3.019E 05 | 1.946E 05 | 5.157E 04 | 2.650E-01 |
| FERRITIC 32510 (CAST) | 2.500E 07 | 5.[illegible]00E 04 | 3.750E 04 | 1.755E 05 | 1.930E 05 | 5.000E 04 | 2.590E-01 |
| FERRITIC 35518 (CAST) | 2.500E 07 | 5.300E 04 | 3.500E 04 | 1.351E 05 | 1.930E 05 | 5.000E 04 | 2.590E-01 |
| WRESIS ALLOY (CAST) WE | 2.500E 07 | 9.500E 04 | 4.500E 04 | 1.625E 05 | 1.867E 05 | 5.170E 04 | 2.770E-01 |
| WRESIS ALLOY (CAST) WW | 2.500E 07 | 6.800E 04 | 3.600E 04 | 1.224E 05 | 1.812E 05 | 5.327E 04 | 2.940E-01 |
| WRESIS ALLOY (CAST) WX | 2.500E 07 | 6.800E 04 | 3.600E 04 | 1.224E 05 | 1.812E 05 | 5.327E 04 | 2.940E-01 |
| SS (CAST) CE-30 | 2.500E 07 | 9.700E 04 | 6.300E 04 | 2.274E 05 | 1.867E 05 | 5.170E 04 | 2.770E-01 |
| UHSS (WROUGHT) 20 NI | 2.500E 07 | 2.810E 05 | 2.700E 05 | 9.193E 05 | 1.809E 05 | 5.336E 04 | 2.950E-01 |
| SS (CAST) CA-7M | 2.400E 07 | 6.900E 04 | 5.100E 04 | 1.835E 05 | 1.790E 05 | 5.175E 04 | 2.890E-01 |
| UHSS (WROUGHT) 25 NI | 2.400E 07 | 3.190E 05 | 2.840E 05 | 9.595E 05 | 1.769E 05 | 5.237E 04 | 2.960E-01 |
| NOD OR DUC WRESIS (CAST) | 2.200E 07 | 6.[illegible]00E 04 | 4.500E 04 | 1.800E 05 | 1.843E 05 | 4.608E 04 | 2.500E-01 |
| NOD OR DUC 60-40-18 (CAST) | 2.200E 07 | 6.[illegible]00E 04 | 4.500E 04 | 1.751E 05 | 1.818E 05 | 4.672E 04 | 2.570E-01 |
| NOD OR DUC 80-55-06 (CAST) | 2.200E 07 | 9.000E 04 | 6.500E 04 | 2.339E 05 | 1.818E 05 | 4.672E 04 | 2.570E-01 |
| NOD OR DUC 100-70-03 (CAST) | 2.200E 07 | 1.[illegible]00E 05 | 7.300E 04 | 2.918E 05 | 1.818E 05 | 4.672E 04 | 2.570E-01 |
| NOD OR DUC 120-90-02 (CAST) | 2.200E 07 | 1.200E 05 | 9.[illegible]00E 04 | 3.502E 05 | 1.818E 05 | 4.672E 04 | 2.570E-01 |
| NOD OR DUC AUSTENITIC (CAST) | 2.650E 07 | 5.800E 04 | 3.200E 04 | 1.194E 05 | 1.832E 05 | 4.375E 04 | 2.680E-01 |

| MATERIAL | ULT STR (PSI) | YLD STN (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/DEC) | DENSITY (PCI) | MOD OF ELAS (PSI) |
|---|---|---|---|---|---|---|---|
| UHSS (WROUGHT) 29 NI | 3,190E 05 | 2.840E 05 | 9.595E 05 | 1.769E 05 | 5.237E 04 | 2.940E-01 | 2.480E 07 |
| UHSS (WROUGHT) MODIFIED H-11 | 2,950E 05 | 2.410E 05 | 8.577E 05 | 2.036E 05 | 5.705E 04 | 2.810E-01 | 3.000E 07 |
| UHSS (WROUGHT) 4340 | 2,870E 05 | 2.760E 05 | 9.541E 05 | 2.823E 05 | 5.725E 04 | 2.830E-01 | 3.000E 07 |
| HSS (WROUGHT, HARD+TEMP) 440C | 2,850E 05 | 2.750E 05 | 9.821E 05 | 2.800E 05 | 5.590E 04 | 2.800E-01 | 2.900E 07 |
| UHSS (WROUGHT) D-6A | 2,840E 05 | 2.500E 05 | 8.834E 05 | 2.053E 05 | 5.725E 04 | 2.330E-01 | 3.000E 07 |
| UHSS (WROUGHT) 20 NI | 2,810E 05 | 2.300E 05 | 9.153E 05 | 1.809E 05 | 5.336E 04 | 2.950E-01 | 2.900E 07 |
| HSS (WROUGHT, HARD+TEMP) 440B | 2,800E 05 | 2.760E 05 | 9.643E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| UHSS (WROUGHT) HX-2 | 2,790E 05 | 2.390E 05 | 8.609E 05 | 2.056E 05 | 5.597E 04 | 2.700E-01 | 2.940E 07 |
| UHSS (WROUGHT) 18 NI | 2,750E 05 | 2.640E 05 | 9.241E 05 | 1.853E 05 | 5.447E 04 | 2.960E-01 | 2.650E 07 |
| HSS (WROUGHT, HARD+TEMP) 440A | 2,660E 05 | 2.400E 05 | 8.571E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| AHSS (WROUGHT) PH 15-7 MO (RH) | 2,400E 05 | 2.290E 05 | 8.123E 05 | 2.010E 05 | 5.569E 04 | 2.770E-01 | 2.900E 07 |
| CS (HARD-GR) C1141 | 2,370E 05 | 1.880E 05 | 6.697E 05 | 1.992E 05 | 5.419E 04 | 2.820E-01 | 2.900E 07 |
| AHSS (WROUGHT) 17-7 PH (RH950) | 2,350E 05 | 2.260E 05 | 7.971E 05 | 2.014E 05 | 5.559E 04 | 2.760E-01 | 2.900E 07 |
| HSS (WROUGHT, HARD+TEMP) 420 | 2,300E 05 | 1.950E 05 | 6.964E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.980E 07 |
| AHSS (CAST) AM-355 | 2,230E 05 | 1.830E 05 | 6.489E 05 | 2.003E 05 | 5.648E 04 | 2.820E-01 | 2.930E 07 |
| SS (CAST, HARD+TEMP) CA-40 | 2,200E 05 | 1.650E 05 | 6.000E 05 | 2.018E 05 | 5.549E 04 | 2.750E-01 | 2.900E 07 |
| AHSS (WROUGHT) PH 15-7 MO (TH) | 2,100E 05 | 2.000E 05 | 7.220E 05 | 2.016E 05 | 5.560E 04 | 2.770E-01 | 2.900E 07 |
| AHSS (WROUGHT) AM-350 | 2,080E 05 | 1.730E 05 | 6.135E 05 | 2.006E 05 | 5.657E 04 | 2.820E-01 | 2.940E 07 |
| ALLOY STEEL (CAST) 200,000 | 2,050E 05 | 1.700E 05 | 6.007E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| IBS (WROUGHT) D-979 | 2,040E 05 | 1.440E 05 | 4.949E 05 | 1.981E 05 | 5.845E 04 | 2.950E-01 | 3.000E 07 |
| AHSS (WROUGHT) 17-7PH (TH1050) | 2,000E 05 | 1.850E 05 | 6.703E 05 | 2.014E 05 | 5.559E 04 | 2.760E-01 | 2.900E 07 |
| SS (CAST, HARD+TEMP) CA-15 | 2,000E 05 | 1.500E 05 | 5.455E 05 | 2.018E 05 | 5.549E 04 | 2.750E-01 | 2.900E 07 |
| AHSS (WROUGHT) STAINLESS W | 1,950E 05 | 1.800E 05 | 6.429E 05 | 1.969E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 |
| CS (HARD-GR) C1080 | 1,900E 05 | 1.420E 05 | 5.018E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| CS (HARD-GR) C1095 | 1,880E 05 | 1.200E 05 | 4.240E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| IBS (WROUGHT) UNITEMP 212 | 1,870E 05 | 1.340E 05 | 4.685E 05 | 1.978E 05 | 5.658E 04 | 2.860E-01 | 2.900E 07 |
| AHSS (WROUGHT) AM-355 | 1,860E 05 | 1.710E 05 | 6.064E 05 | 2.003E 05 | 5.648E 04 | 2.820E-01 | 2.930E 07 |
| ASS (WROUGHT, COLD WORKED) 301 | 1,850E 05 | 1.400E 05 | 4.828E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.900E 07 |
| IBS (WROUGHT) W 545 | 1,810E 05 | 1.330E 05 | 4.667E 05 | 1.961E 05 | 5.590E 04 | 2.850E-01 | 2.840E 07 |
| ALLOY STEEL (CAST) 175,000 | 1,790E 05 | 1.600E 05 | 5.654E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| IBS (WROUGHT) INCOLOY 901 | 1,750E 05 | 1.300E 05 | 4.392E 05 | 1.979E 05 | 5.845E 04 | 2.960E-01 | 2.990E 07 |
| AHSS (CAST) 17-4PH | 1,730E 05 | 1.400E 05 | 5.030E 05 | 1.902E 05 | 5.530E 04 | 2.880E-01 | 2.850E 07 |
| HTS (WROUGHT) GREEK ASCOLOY | 1,700E 05 | 1.500E 05 | 5.283E 05 | 1.985E 05 | 5.639E 04 | 2.840E-01 | 2.900E 07 |
| AHSS (WROUGHT) ALNFR 362 | 1,650E 05 | 1.600E 05 | 5.694E 05 | 1.993E 05 | 5.599E 04 | 2.810E-01 | 2.890E 07 |
| CS (HARD-GR) C1040 | 1,600E 05 | 1.120E 05 | 3.950E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| NS (WROUGHT) 135 MODIFIED | 1,590E 05 | 1.410E 05 | 4.982E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| ALLOY STEEL (CAST) 150,000 | 1,580E 05 | 1.420E 05 | 5.018E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| CS (HARD-GR) C1137 | 1,580E 05 | 1.380E 05 | 4.894E 05 | 1.992E 05 | 5.619E 04 | 2.820E-01 | 2.900E 07 |
| HTS (WROUGHT) LAPELLOY | 1,570E 05 | 1.260E 05 | 4.448E 05 | 2.030E 05 | 5.705E 04 | 2.810E-01 | 3.080E 07 |
| IBS (WROUGHT)-REFRACTALOY 26 | 1,540E 05 | 9.100E 04 | 3.074E 05 | 1.903E 05 | 5.913E 04 | 2.960E-01 | 3.060E 07 |
| ASS (WROUGHT, COLD WORKED) 201 | 1,500E 05 | 1.100E 05 | 3.928E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 |
| HTS (WROUGHT) 14 RV | 1,500E 05 | 1.270E 05 | 4.488E 05 | 2.006E 05 | 5.677E 04 | 2.830E-01 | 2.990E 07 |
| IBS (WROUGHT) A-286 | 1,460E 05 | 1.100E 05 | 3.897E 05 | 1.982E 05 | 5.648E 04 | 3.060E-01 | 2.910E 07 |
| AHSS (WROUGHT) 17-4 PH (H1150) | 1,450E 05 | 1.250E 05 | 4.448E 05 | 1.979E 05 | 5.508E 04 | 2.810E-01 | 2.850E 07 |
| CS (HARD-GR) C1050 | 1,430E 05 | 1.100E 05 | 3.816E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| IBS (WROUGHT) S-590 | 1,420E 05 | 7.900E 04 | 2.492E 05 | 1.997E 05 | 6.011E 04 | 3.010E-01 | 3.110E 07 |
| IBS (WROUGHT) 16-25-6 | 1,420E 05 | 1.120E 05 | 3.849E 05 | 1.934E 05 | 5.628E 04 | 2.910E-01 | 2.820E 07 |
| HTS (WROUGHT) CHROMOLOY | 1,330E 05 | 1.170E 05 | 4.105E 05 | 2.069E 05 | 5.896E 04 | 2.850E-01 | 3.160E 07 |
| NS (WROUGHT) 139 | 1,330E 05 | 1.260E 05 | 4.240E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| NS (WROUGHT) N | 1,320E 05 | 1.140E 05 | 4.028E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| ALLOY STEEL (CAST) 120,000 | 1,280E 05 | 1.120E 05 | 3.958E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| CS (HARD-GR) C1144 | 1,280E 05 | 9.100E 04 | 3.227E 05 | 1.992E 05 | 5.619E 04 | 2.820E-01 | 2.900E 07 |
| NS (WROUGHT) EZ | 1,260E 05 | 9.700E 04 | 3.180E 05 | 1.959E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| HSS (WROUGHT, O) 431 | 1,250E 05 | 9.500E 04 | 3.393E 05 | 2.009E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| HSS (WROUGHT, HARD+TEMP) 431 | 1,250E 05 | 9.500E 04 | 3.393E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| CS (HARD-GR) C1030 | 1,220E 05 | 9.300E 04 | 3.288E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| HSS (WROUGHT, HARD+TEMP) 414 | 1,200E 05 | 1.050E 05 | 3.750E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| NOD OR DUC 120-90-02 (CAST) | 1,200E 05 | 9.000E 04 | 3.5922 05 | 1.818E 05 | 4.672E 04 | 2.570E-01 | 2.200E 07 |

| MATERIAL | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) |
|---|---|---|---|---|---|---|---|
| IBS (WROUGHT OR CAST) MULTIWET | 1.180E 05 | 5.850E 04 | 1.959E 05 | 1.936E 05 | 5.737E 04 | 2.960E-01 | 2.880E 07 |
| IBS (WROUGHT) 19-9DL(CR-NI-MO) | 1.180E 05 | 6.900E 04 | 2.434E 05 | 1.992E 05 | 5.717E 04 | 2.870E-01 | [illegible] |
| ASS (WROUGHT, O) 201 | 1.150E 05 | 5.500E 04 | 1.964E 05 | 1.905E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 |
| MSS (WROUGHT, O) 414 | 1.150E 05 | 9.000E 04 | 3.214E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| IBS (WROUGHT) 19-9DL (CR-NI) | 1.140E 05 | 7.100E 04 | 2.474E 05 | 1.996E 05 | 5.717E 04 | 2.870E-01 | 2.950E 07 |
| CS (CARB-GR) C1118 | 1.130E 05 | 7.700E 04 | 2.721E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| CS (MARG-GR) .1045 | 1.130E 05 | 8.600E 04 | 3.039E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| ALLOY STEEL (CAST) 105,000 | 1.100E 05 | 9.100E 04 | 3.216E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| ASS (WROUGHT, O) 301 | 1.100E 05 | 3.700E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 |
| IBS (WROUGHT) AMS 5700 | 1.100E 05 | 4.800E 04 | 1.695E 05 | 1.998E 05 | 5.795E 04 | 2.900E-01 | 3.000E 07 |
| MSS (WROUGHT, HARD+TEMP) 403 | 1.100E 05 | 8.500E 04 | 3.036E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.950E 07 |
| MSS (WROUGHT, O) 440C | 1.100E 05 | 6.500E 04 | 2.321E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| MSS (WROUGHT, O) 440B | 1.070E 05 | 6.200E 04 | 2.214E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.950E 07 |
| ASS (WROUGHT, O) 202 | 1.050E 05 | 5.500E 04 | 1.964E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 |
| CS (CAST) 100,000 | 1.050E 05 | 7.500E 04 | 2.650E 05 | 2.013E 05 | 5.696E 04 | 2.830E-01 | 2.970E 07 |
| MSS (WROUGHT, O) 440A | 1.050E 05 | 6.000E 04 | 2.143E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| SS (CAST) CD-4MCU | 1.050E 05 | 8.500E 04 | 3.033E 05 | 2.019E 05 | 5.569E 04 | 2.770E-01 | 2.900E 07 |
| ASS (WROUGHT) 314 | 1.000E 05 | 5.700E 04 | 1.786E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| NOD OR DUC 100-70-03 (CAST) | 1.000E 05 | 7.500E 04 | 2.918E 05 | 1.818E 05 | 4.672E 04 | 2.570E-01 | 2.200E 07 |
| PEARLITIC 85002 (CAST) | 1.000E 05 | 8.000E 04 | 3.019E 05 | 1.946E 05 | 5.157E 04 | 2.650E-01 | 2.600E 07 |
| CS (CARB-GR) C1117 | 9.700E 04 | 5.900E 04 | 2.085E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| SS (CAST, O) CC-50 | 9.700E 04 | 6.500E 04 | 2.390E 05 | 2.029E 05 | 5.518E 04 | 2.720E-01 | 2.900E 07 |
| SS (CAST) CE-30 | 9.700E 04 | 6.300E 04 | 2.274E 05 | 1.867E 05 | 5.170E 04 | 2.770E-01 | 2.500E 07 |
| ALLOY STEEL (CAST) 90,000 | 9.500E 04 | 6.400E 04 | 2.261E 05 | 1.989E 05 | 5.599E 04 | 2.830E-01 | 2.900E 07 |
| ASS (WROUGHT, O) 302B | 9.500E 04 | 4.100E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.600E 07 |
| ASS (WROUGHT) 310 | 9.500E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 | 5.698E 04 | 2.900E-01 | 2.900E 07 |
| ASS (WROUGHT) 310S | 9.500E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 | 5.698E 04 | 2.900E-01 | 2.900E 07 |
| ASS (WROUGHT) 347-348 | 9.500E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.900E 07 |
| WRESIS ALLOY (CAST) WA | 9.500E 04 | 6.500E 04 | 2.330E 05 | 2.003E 05 | 5.549E 04 | 2.790E-01 | 2.900E 07 |
| WRESIS ALLOY (CAST) WE | 9.500E 04 | 4.500E 04 | 1.625E 05 | 1.867E 05 | 5.170E 04 | 2.770E-01 | 2.500E [illegible] |
| MSS (WROUGHT, O) 420 | 9.500E 04 | 5.100E 04 | 1.786E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E [illegible] |
| SS (CAST, O) CR-30 | 9.500E 04 | 6.100E 04 | 2.206E 05 | 2.029E 05 | 5.518E 04 | 2.720E-01 | 2.900E 07 |
| ASS (WROUGHT, O) 302 | 9.000E 04 | 4.100E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 |
| ASS (WROUGHT) 3[illegible]4 | 9.000E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 | 5.698E 04 | 2.900E-01 | 2.900E 07 |
| ASS (WROUGHT) 3[illegible]3 | 9.000E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 | 5.698E 04 | 2.900E-01 | 2.900E 07 |
| ASS (WROUGHT) 317 | 9.000E 04 | 4.100E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 |
| ASS (WROUGHT) 321 | 9.000E 04 | 3.500E 04 | 1.207E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 |
| CS (CAST) 55,000 | 9.000E 04 | 5.500E 04 | 1.943E 05 | 2.020E 05 | 5.715E 04 | 2.830E-01 | 2.990E 07 |
| MSS (WROUGHT, HARD+TEMP) 41[illegible] | 9.000E 04 | 6.000E 04 | 2.143E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| MSS (WROUGHT, HARD+TEMP) 416 | 9.000E 04 | 6.000E 04 | 2.143E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| NOD OR DUC 80-55-06 (CAST) | 9.000E 04 | 6.200E 04 | 2.335E 05 | 1.818E 05 | 4.672E 04 | 2.570E-01 | 2.200E 07 |
| SS (CAST) CH-20 | 8.850E 04 | 5.000E 04 | 1.792E 05 | 1.968E 05 | 5.492E 04 | 2.790E-01 | 2.850E 07 |
| AHSS (WROUGHT) 17-04 CU MO | 8.600E 04 | 4.200E 04 | 1.463E 05 | 1.941E 05 | 5.570E 04 | 2.870E-01 | 2.800E 07 |
| ALLOY STEEL (CAST) 80,000 | 8.600E 04 | 5.400E 04 | 1.908E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| ASS (WROUGHT, O) 305 | 8.500E 04 | 3.800E 04 | 1.310E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 |
| ASS (WROUGHT, O) 308 | 8.300E 04 | 3.500E 04 | 1.207E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 |
| FSS (WROUGHT, COLD WORKED) 405 | 8.500E 04 | 7.[illegible]00E 04 | 2.500E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| FSS (WROUGHT, COLD WORKED) 446 | 8.500E 04 | 7.000E 04 | 2.593E 05 | 2.036E 05 | 5.498E 04 | 2.700E-01 | 2.900E 07 |
| WRESIS ALLOY (CAST) WD | 8.500E 04 | 4.800E 04 | 1.752E 05 | 1.950E 05 | 5.344E 04 | 2.740E-01 | 2.700E 07 |
| WRESIS ALLOY (CAST) WF | 8.500E 04 | 4.500E 04 | 1.607E 05 | 1.969E 05 | 5.551E 04 | 2.800E-01 | 2.400E 07 |
| WRESIS ALLOY (CAST) WW TYPE 2 | 8.300E 04 | 4.000E 04 | 1.434E 05 | 1.933E 05 | 5.393E 04 | 2.790E-01 | 2.700E 07 |
| ASS (WROUGHT, O) 304 | 8.400E 04 | 4.200E 04 | 1.448E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 |
| ASS (WROUGHT) 316 | 8.400E 04 | 4.200E 04 | 1.448E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 |
| CS (CARB-GR) C1022 | 8.200E 04 | 4.700E 04 | 1.661E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| CS (CAST) 80,000 | 8.200E 04 | 4.800E 04 | 1.696E 05 | 2.020E 05 | 5.715E 04 | 2.830E-01 | 2.990E 07 |
| WRESIS ALLOY (CAST) WL | 8.200E 04 | 5.200E 04 | 1.864E 05 | 2.023E 05 | 5.589E 04 | 2.760E-01 | 2.900E 07 |
| SS (CAST) CG-8M | 8.200E 04 | 4.300E 04 | 1.539E 05 | 1.961E 05 | 5.511E 04 | 2.810E-01 | 2.800E 07 |
| ASS (WROUGHT, O) 304 L | 8.100E 04 | 3.900E 04 | 1.345E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 |

| MATERIAL | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) |
|---|---|---|---|---|---|---|---|
| FCCS (WROUGHT) B1111 | 8.000E 04 | 7.500E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| FCCS (WROUGHT) B1211 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| FCCS (WROUGHT) B1112 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| FCCS (WROUGHT) B1212 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| FCCS (WROUGHT) B1113 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| FCCS (WROUGHT) B1213 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| FSS (WROUGHT, O) 430F | 8.000E 04 | 5.500E 04 | 1.964E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| FSS (WROUGHT,COLD WORKED) 430F | 8.000E 04 | 5.500E 04 | 1.964E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| FSS (WROUGHT, O) 446 | 8.000E 04 | 5.000E 04 | 1.852E 05 | 2.036E 05 | 5.498E 04 | 2.700E-01 | 2.900E 07 |
| WRESIS ALLOY (CAST) WW TYPE 1 | 8.000E 04 | 5.000E 04 | 1.792E 05 | 1.933E 05 | 5.393E 04 | 2.790E-01 | 2.700E 07 |
| WRESIS ALLOY (CAST) WI | 8.000E 04 | 4.500E 04 | 1.613E 05 | 1.933E 05 | 5.393E 04 | 2.790E-01 | 2.700E 07 |
| PEARLITIC 53004 (CAST) | 8.000E 04 | 5.300E 04 | 2.000E 05 | 1.965E 05 | 5.207E 04 | 2.650E-01 | 2.650E 07 |
| PEARLITIC 60003 (CAST) | 8.000E 04 | 6.000E 04 | 2.264E 05 | 1.944E 05 | 5.157E 04 | 2.650E-01 | 2.600E 07 |
| SS (CAST, CF-3M | 8.000E 04 | 4.200E 04 | 1.500E 05 | 1.929E 05 | 5.402E 04 | 2.830E-01 | 2.700E 07 |
| SS (CAST) CF-8M | 8.000E 04 | 4.200E 04 | 1.500E 05 | 1.965E 05 | 5.501E 04 | 2.830E-01 | 2.600E 07 |
| SS (CAST) CF-3 | 7.700E 04 | 3.700E 04 | 1.321E 05 | 1.929E 05 | 5.402E 04 | 2.800E-01 | 2.700E 07 |
| SS (CAST) CF-8 | 7.700E 04 | 3.700E 04 | 1.321E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 |
| SS (CAST) CF-8C | 7.700E 04 | 3.800E 04 | 1.357E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 |
| SS (CAST) CF-16F | 7.700E 04 | 4.000E 04 | 1.429E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 |
| SS (CAST) CF-20 | 7.700E 04 | 3.600E 04 | 1.286E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 |
| SS (CAST) LN-20 | 7.600E 04 | 3.800E 04 | 1.357E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| CS (CARB-GR) C1020 | 7.500E 04 | 4.800E 04 | 1.696E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| CS (CAST) 70,000 | 7.500E 04 | 4.200E 04 | 1.484E 05 | 2.023E 05 | 5.729E 04 | 2.830E-01 | 3.000E 07 |
| FSS (WROUGHT, O) 430 | 7.500E 04 | 4.000E 04 | 1.429E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| FSS (WROUGHT, COLD WORKED) 430 | 7.500E 04 | 4.500E 04 | 1.607E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| WRESIS ALLOY (CAST) WK | 7.500E 04 | 5.000E 04 | 1.786E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| MSS (WROUGHT, O) 416 | 7.500E 04 | 4.000E 04 | 1.429E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| PEARLITIC 50007 (CAST) | 7.500E 04 | 5.000E 04 | 1.887E 05 | 1.965E 05 | 5.207E 04 | 2.650E-01 | 2.650E 07 |
| ALLOY STEEL (CAST) 70,000 | 7.400E 04 | 4.400E 04 | 1.555E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| CS (CARB-GR) C1015 | 7.300E 04 | 4.600E 04 | 1.628E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| INGOT IRON (COLD DRAWN) | 7.300E 04 | 6.900E 04 | 2.464E 05 | 2.027E 05 | 5.675E 04 | 2.800E-01 | 2.600E 07 |
| WRESIS ALLOY (CAST) WC | 7.000E 04 | 6.500E 04 | 2.390E 05 | 2.029E 05 | 5.518E 04 | 2.720E-01 | 2.900E 07 |
| WRESIS ALLOY (CAST) WT | 7.000E 04 | 4.000E 04 | 1.399E 05 | 1.909E 05 | 5.460E 04 | 2.860E-01 | 2.700E 07 |
| WRESIS ALLOY (CAST) WU | 7.000E 04 | 4.000E 04 | 1.379E 05 | 1.896E 05 | 5.498E 04 | 2.900E-01 | 2.700E 07 |
| MSS (WROUGHT, O) 403 | 7.000E 04 | 4.000E 04 | 1.429E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| PEARLITIC 40004 (CAST) | 7.000E 04 | 4.800E 04 | 1.811E 05 | 1.965E 05 | 5.207E 04 | 2.650E-01 | 2.650E 07 |
| SS (CAST, AS CAST) CC-50 | 7.000E 04 | 6.000E 04 | 2.206E 05 | 2.029E 05 | 5.518E 04 | 2.720E-01 | 2.900E 07 |
| SS (CAST) CN-7M | 6.900E 04 | 3.100E 04 | 1.073E 05 | 1.790E 05 | 5.175E 04 | 2.890E-01 | 2.400E 07 |
| ALLOY STEEL (CAST) 65,000 | 6.800E 04 | 3.800E 04 | 1.343E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 |
| CS (CAST) 65,000 | 6.600E 04 | 3.800E 04 | 1.343E 05 | 2.026E 05 | 5.734E 04 | 2.830E-01 | 3.000E 07 |
| WRESIS ALLOY (CAST) WN | 6.800E 04 | 3.800E 04 | 1.343E 05 | 1.919E 05 | 5.431E 04 | 2.830E-01 | 2.700E 07 |
| WRESIS ALLOY (CAST) WW | 6.800E 04 | 3.600E 04 | 1.224E 05 | 1.912E 05 | 5.327E 04 | 2.940E-01 | 2.900E 07 |
| PEARLITIC 45007 (CAST) | 6.800E 04 | 4.500E 04 | 1.698E 05 | 1.944E 05 | 5.157E 04 | 2.650E-01 | 2.600E 07 |
| FSS (WROUGHT, O) 405 | 6.500E 04 | 3.500E 04 | 1.250E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| WRESIS ALLOY (CAST) WX | 6.500E 04 | 3.600E 04 | 1.224E 05 | 1.912E 05 | 5.327E 04 | 2.940E-01 | 2.900E 07 |
| MSS (WROUGHT, O) 410 | 6.500E 04 | 3.500E 04 | 1.250E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 |
| PEARLITIC 45010 (CAST) | 6.500E 04 | 4.500E 04 | 1.653E 05 | 1.944E 05 | 5.157E 04 | 2.650E-01 | 2.600E 07 |
| CS (CAST) 60,000 | 6.300E 04 | 3.500E 04 | 1.237E 05 | 2.026E 05 | 5.734E 04 | 2.830E-01 | 3.000E 07 |
| NOD OR DUC WRSSIB (CAST) | 6.000E 04 | 4.500E 04 | 1.800E 05 | 1.843E 05 | 4.308E 04 | 2.500E-01 | 2.200E 07 |
| NOD OR DUC 60-40-18 (CAST) | 6.000E 04 | 4.500E 04 | 1.751E 05 | 1.818E 05 | 4.672E 04 | 2.570E-01 | 2.200E 07 |
| NOD OR DUC AUSTENITIC (CAST) | 5.600E 04 | 3.200E 04 | 1.196E 05 | 1.632E 05 | 4.375E 04 | 2.680E-01 | 1.850E 07 |
| FERRITIC 35018 (CAST) | 5.300E 04 | 3.500E 04 | 1.351E 05 | 1.938E 05 | 5.000E 04 | 2.590E-01 | 2.500E 07 |
| FERRITIC 38010 (CAST) | 5.000E 04 | 3.250E 04 | 1.255E 05 | 1.938E 05 | 5.000E 04 | 2.590E-01 | 2.500E 07 |
| WROUGHT IRON LONG (HOT ROLLED) | 4.800E 04 | 2.700E 04 | 9.712E 04 | 2.024E 05 | 5.627E 04 | 2.780E-01 | 2.950E 07 |
| INGOT IRON (HOT ROLLED) | 4.400E 04 | 2.300E 04 | 8.214E 04 | 2.027E 05 | 5.675E 04 | 2.800E-01 | 2.900E 07 |
| INGOT IRON (B) | 4.200E 04 | 1.900E 04 | 6.786E 04 | 2.027E 05 | 5.675E 04 | 2.800E-01 | 2.900E 07 |
| WROUGHT IRON TRAN (HOT ROLLED) | 3.900E 04 | 2.700E 04 | 9.712E 04 | 2.024E 05 | 5.627E 04 | 2.780E-01 | 2.950E 07 |

| MATERIAL | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) |
|---|---|---|---|---|---|---|---|
| UHS2 (WROUGHT) 29 NI | 2,040E 05 | 9.995E 05 | 1,760E 05 | 5.237E 04 | 2,960E-01 | 2,480E 07 | 3.190E 05 |
| HSS (WROUGHT, HARD+TEMP) 440C | 2,790E 05 | 9.821E 05 | 2,000E 05 | 5.599E 04 | 2,800E-01 | 2,980E 07 | 2.850E 05 |
| HSS (WROUGHT, HARD+TEMP) 440B | 2,780E 05 | 9.643E 05 | 2,000E 05 | 5.599E 04 | 2,800E-01 | 2,980E 07 | 2.850E 05 |
| UHSS (WROUGHT) 20 NI | 2,780E 05 | 9.153E 05 | 1,809E 05 | 5.336E 04 | 2,930E-01 | 2,900E 07 | 2.810E 05 |
| UHSS (WROUGHT) 4340 | 2,760E 05 | 9.541E 05 | 2,023E 05 | 5.729E 04 | 2,830E-01 | 3,000E 07 | 2.870E 05 |
| UHSS (WROUGHT) 18 NI | 2,680E 05 | 9.241E 05 | 1,876E 05 | 5.447E 04 | 2,900E-01 | 2,650E 07 | 2.750E 05 |
| UHSS (WROUGHT) D-6A | 2,500E 05 | 8.834E 05 | 2,023E 05 | 5.729E 04 | 2,830E-01 | 3,000E 07 | 2.840E 05 |
| UHSS (WROUGHT) MODIFIED M-51 | 2,410E 05 | 8.977E 05 | 2,030E 05 | 5.709E 04 | 2,810E-01 | 3,000E 07 | 2.950E 05 |
| HSS (WROUGHT, HARD+TEMP) 4614 | 2,400E 05 | 8.571E 05 | 2,000E 05 | 5.599E 04 | 2,800E-01 | 2,900E 07 | 2.600E 05 |
| UHSS (WROUGHT) MX-2 | 2,390E 05 | 8.459E 05 | 2,028E 05 | 5.707E 04 | 2,760E-01 | 2,940E 07 | 2.790E 05 |
| AHSS (WROUGHT) PH 15-7 MO (RH) | 2,290E 05 | 8.123E 05 | 2,010E 05 | 5.569E 04 | 2,770E-01 | 2,900E 07 | 2.400E 05 |
| AHSS (WROUGHT) 17-7 PH (RH950) | 2,200E 05 | 7.971E 05 | 2,014E 05 | 5.559E 04 | 2,760E-01 | 2,900E 07 | 2.350E 05 |
| AHSS (WROUGHT) PH 15-7 MO (TH) | 2,000E 05 | 7.220E 05 | 2,010E 05 | 5.569E 04 | 2,770E-01 | 2,900E 07 | 2.130E 05 |
| HSS (WROUGHT, HARD+TEMP) 420 | 1,990E 05 | 6.964E 05 | 2,000E 05 | 5.599E 04 | 2.800E-01 | 2,900E 07 | 2.300E 05 |
| CS (HARD+GR) C1141 | 1,880E 05 | 6.667E 05 | 1,992E 05 | 5.619E 04 | 2.820E-01 | 2,900E 07 | 2.370E 05 |
| AHSS (WROUGHT) 17-7PH (TH1050) | 1,890E 05 | 6.703E 05 | 2,014E 05 | 5.559E 04 | 2.760E-01 | 2,900E 07 | 2.000E 05 |
| AHSS (CAST) AM-355 | 1,830E 05 | 6.489E 05 | 2.003E 05 | 5.648E 04 | 2.820E-01 | 2,930E 07 | 2.230E 05 |
| AHSS (WROUGHT) STAINLESS W | 1,800E 05 | 6.429E 05 | 1,969E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 1.930E 05 |
| AHSS (WROUGHT) AM-350 | 1,730E 05 | 6.135E 05 | 2.006E 05 | 5.657E 04 | 2.820E-01 | 2.940E 07 | 2.040E 05 |
| AHSS (WROUGHT) AM-355 | 1,710E 05 | 6.064E 05 | 2,003E 05 | 5.648E 04 | 2.820E-01 | 2,930E 07 | 1.840E 05 |
| ALLOY STEEL (CAST) 200,000 | 1,700E 05 | 6.078E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2,900E 07 | 2.030E 05 |
| SS (CAST, HARD+TEMP) CA-40 | 1,690E 05 | 6.003E 05 | 2.018E 05 | 5.549E 04 | 2.750E-01 | 2,900E 07 | 2 200E 05 |
| AHSS (WROUGHT) ALMAR 362 | 1,600E 05 | 5.694E 05 | 1,993E 05 | 5.599E 04 | 2.810E-01 | 2,890E 07 | 1.630E 05 |
| ALLOY STEEL (CAST) 199,000 | 1,600E 05 | 5.654E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2,900E 07 | 1.720E 05 |
| HTS (WROUGHT) GREEK ASCOLOY | 1,500E 05 | 5.282E 05 | 1,985E 05 | 5.639E 04 | 2.840E-01 | 2,900E 07 | 1.700E 05 |
| SS (CAST, HARD+TEMP) CA-15 | 1,500E 05 | 5.455E 05 | 2.015E 05 | 5.549E 04 | 2.750E-01 | 2,900E 07 | 2.000E 05 |
| IBS (WROUGHT) D-979 | 1,460E 05 | 4.949E 05 | 1,981E 05 | 5.649E 04 | 2.950E-01 | 3,000E 07 | 2.040E 05 |
| ALLOY STEEL (CAST) 190,000 | 1,420E 05 | 5.018E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2,900E 07 | 1.580E 05 |
| CS (HARD+GR) C1080 | 1,420E 05 | 5.018E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2,900E 07 | 1.900E 05 |
| HS (WROUGHT) 135 MODIFIED | 1,410E 05 | 4.982E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2,900E 07 | 1.590E 05 |
| AHSS (CAST) 17-4PH | 1,400E 05 | 5.000E 05 | 1,982E 05 | 5.550E 04 | 2.800E-01 | 2,850E 07 | 1.700E 05 |
| ASS (WROUGHT, COLD WORKED) 301 | 1,400E 05 | 4.826E 05 | 1,931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 1.550E 05 |
| CS (HARD+GR) C1137 | 1,380E 05 | 4.894E 05 | 1,992E 05 | 5.619E 04 | 2.820E-01 | 2,900E 07 | 1.560E 05 |
| IBS (WROUGHT) UNITEMP 212 | 1,340E 05 | 4.685E 05 | 1,978E 05 | 5.656E 04 | 2.860E-01 | 2,900E 07 | 1.870E 05 |
| IBS (WROUGHT) W 545 | 1,330E 05 | 4.667E 05 | 1,961E 05 | 5.590E 04 | 2.850E-01 | 2,840E 07 | 1.810E 05 |
| IBS (WROUGHT) INCOLOY 901 | 1,300E 05 | 4.392E 05 | 1,975E 05 | 5.845E 04 | 2.960E-01 | 2,990E 07 | 1.750E 05 |
| HTS (WROUGHT) 14 RV | 1,270E 05 | 4.488E 05 | 2,006E 05 | 5.677E 04 | 2.830E-01 | 2,850E 07 | 1.500E 05 |
| AHSS (WROUGHT) 17-4 PH (H1150) | 1,250E 05 | 4.448E 05 | 1,979E 05 | 5.560E 04 | 2.810E-01 | 2,850E 07 | 1.450E 05 |
| HTS (WROUGHT) LAPELLOY | 1,250E 05 | 4.448E 05 | 2.030E 05 | 5.709E 04 | 2.810E-01 | 3,000E 07 | 1.570E 05 |
| CS (HARD+GR) C1095 | 1,200E 05 | 4.240E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2,900E 07 | 1.880E 05 |
| HS (WROUGHT) 135 | 1,200E 05 | 4.240E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2,900E 07 | 1.380E 05 |
| HTS (WROUGHT) CHROMOLOY | 1,170E 05 | 4.105E 05 | 2,049E 05 | 5.896E 04 | 2.850E-01 | 3,160E 07 | 1.390E 05 |
| HS (WROUGHT) H | 1,140E 05 | 4.028E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2,900E 07 | 1.320E 05 |
| ALLOY STEEL (CAST) 120,000 | 1,120E 05 | 3.958E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2,900E 07 | 1.280E 05 |
| CS (HARD+GR) C1050 | 1,120E 05 | 3.958E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2,900E 07 | 1.600E 05 |
| IBS (WROUGHT) 16-25-6 | 1,120E 05 | 3.849E 05 | 1,934E 05 | 5.028E 04 | 2.910E-01 | 2,820E 07 | 1.020E 05 |
| ASS (WROUGHT, COLD WORKED) 201 | 1,100E 05 | 3.929E 05 | 1,965E 05 | 5.531E 04 | 2.800E-01 | 2,800E 07 | 1.500E 05 |
| CS (HARD+GR) C1090 | 1,080E 05 | 3.816E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2,900E 07 | 1.430E 05 |
| HSS (WROUGHT, HARD+TEMP) 414 | 1,050E 05 | 3.790E 05 | 2,000E 05 | 5.599E 04 | 2.800E-01 | 2,900E 07 | 1.203E 05 |
| IBS (WROUGHT) A-286 | 1,000E 05 | 3.497E 05 | 1,982E 05 | 5.668E 04 | 2.860E-01 | 2,910E 07 | 1.440E 05 |
| HSS (WROUGHT, O) 431 | 9,900E 04 | 3.393E 05 | 2,000E 05 | 5.599E 04 | 2.800E-01 | 2,900E 07 | 1.250E 05 |
| HSS (WROUGHT, HARD+TEMP) 431 | 9,900E 04 | 3.393E 05 | 2,000E 05 | 5.599E 04 | 2.800E-01 | 2,900E 07 | 1.250E 05 |
| CS (HARD+GR) C1030 | 9,300E 04 | 3.288E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2,900E 07 | 1.220E 05 |
| ALLOY STEEL (CAST) 105,000 | 9,100E 04 | 3.216E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2,900E 07 | 1.100E 05 |
| CS (HARD+GR) C1144 | 9,100E 04 | 3.227E 05 | 1,992E 05 | 5.619E 04 | 2.820E-01 | 2,900E 07 | 1.280E 05 |
| IBS (WROUGHT) REPRACTALOY 26 | 9,100E 04 | 3.274E 05 | 1,998E 05 | 5.913E 04 | 2.960E-01 | 3,060E 07 | 1.540E 05 |
| HSS (WROUGHT, O) 414 | 9,000E 04 | 3.214E 05 | 2,000E 05 | 5.599E 04 | 2.800E-01 | 2,900E 07 | 1.150E 05 |
| MOD OR DUC 120-90-02 (CAST) | 8,000E 04 | 3.502E 05 | 1.818E 05 | 4.672E 04 | 2.570E-01 | 2,200E 07 | 1.200E 05 |

| MATERIAL | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) |
|---|---|---|---|---|---|---|---|
| MS (WROUGHT) 8Z | 9,000E 04 | 3.180E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.200E 05 |
| CS (HARD-GR) C1040 | 9,000E 04 | 3.039E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.030E 05 |
| HSS (WROUGHT, HARD-TEMP) 403 | 8,900E 04 | 3.036E 05 | 2,000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.100E 05 |
| SS (CAST) CR-4MCU | 8,900E 04 | 3.069E 05 | 2.010E 05 | 5.569E 04 | 2.770E-01 | 2.900E 07 | 1.050E 05 |
| PEARLITIC 80002 (CAST) | 8,000E 04 | 3.019E 05 | 1.946E 05 | 5.197E 04 | 2.650E-01 | 2.600E 07 | 1.000E 05 |
| CS (CARB-GR) C1118 | 7,700E 04 | 2.721E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.130E 05 |
| CS (CAST) 100,000 | 7,500E 04 | 2.498E 05 | 2.013E 05 | 3.696E 03 | 2.830E-01 | 2.970E 07 | 1.050E 05 |
| IBS (WROUGHT) S-990 | 7,500E 04 | 2.492E 05 | 1,997E 05 | 6.011E 04 | 3.010E-01 | 3.113E 07 | 1.420E 05 |
| NOD OR DUC 100-70-03 (CAST) | 7,500E 04 | 2.910E 05 | 1.810E 05 | 4.072E 04 | 2.570E-01 | 2.200E 07 | 1.000E 05 |
| IGS (WROUGHT) 19-9DL (CR-NI) | 7,100E 04 | 2.474E 05 | 1,992E 05 | 5.717E 04 | 2.870E-01 | 2.050E 07 | 1.140E 05 |
| FCCS (WROUGHT) 01111 | 7,000E 04 | 2.475E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 |
| FCCS (WROUGHT) 01211 | 7,000E 04 | 2.473E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 |
| FCCS (WROUGHT) 01112 | 7,000E 04 | 2.473E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 |
| FCCS (WROUGHT) 01212 | 7,000E 04 | 2.473E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 |
| FCCS (WROUGHT) 01113 | 7,000E 04 | 2.473E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 |
| FCCS (WROUGHT) 01213 | 7,000E 04 | 2.473E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 |
| FSS (WROUGHT, COLD WORKED) 405 | 7,000E 04 | 2.500E 05 | 2,000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 8.500E 04 |
| FSS (WROUGHT, COLD WORKED) 446 | 7,000E 04 | 2.503E 05 | 2,036E 05 | 5.498E 04 | 2.700E-01 | 2.900E 07 | 8.500E 04 |
| IBS (WROUGHT) 19-9DL(CR-NI-MO) | 6,900E 04 | 2.404E 05 | 1,992E 05 | 5.717E 04 | 2.870E-01 | 2.950E 07 | 1.140E 05 |
| INGOT IRON (COLD DRAWN) | 6,900E 04 | 2.464E 05 | 2,027E 05 | 5.675E 04 | 2.800E-01 | 2.990E 07 | 7.300E 04 |
| NRESIS ALLOY (CAST) MA | 6,900E 04 | 2.330E 05 | 2,003E 05 | 5.589E 04 | 2.790E-01 | 2.900E 07 | 9.500E 04 |
| NRESIS ALLOY (CAST) MC | 6,900E 04 | 2.390E 05 | 2.029E 05 | 5.518E 04 | 2.720E-01 | 2.900E 07 | 7.000E 04 |
| HSS (WROUGHT, O) 440C | 6,900E 04 | 2.321E 05 | 2,000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.100E 05 |
| SS (CAST, O) CC-50 | 6,900E 04 | 2.390E 05 | 2,029E 05 | 5.518E 04 | 2.720E-01 | 2.900E 07 | 9.700E 04 |
| ALLOY STEEL (CAST) 90,000 | 6,400E 04 | 2.261E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 9.500E 04 |
| SS (CAST) CB-30 | 6,300E 04 | 2.274E 05 | 1,867E 05 | 5.170E 04 | 2.770E-01 | 2.500E 07 | 5.700E 04 |
| HSS (WROUGHT, O) 440B | 6,200E 04 | 2.214E 05 | 2,000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.070E 05 |
| HSS (WROUGHT, HARD-TEMP) 410 | 6,000E 04 | 2.143E 05 | 2,000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 9.000E 04 |
| HSS (WROUGHT, HARD-TEMP) 416 | 6,000E 04 | 2.143E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 9.000E 04 |
| HSS (WROUGHT, O) 440A | 6,000E 04 | 2.143E 05 | 2,000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.050E 05 |
| NOD OR DUC 80-55-06 (CAST) | 6,000E 04 | 2.335E 05 | 1.818E 05 | 4.072E 04 | 2.570E-01 | 2.200E 07 | 9.000E 04 |
| PEARLITIC 60003 (CAST) | 6,000E 04 | 2.264E 05 | 1.946E 05 | 5.197E 04 | 2.650E-01 | 2.600E 07 | 8.000E 04 |
| SS (CAST, O) CB-30 | 6,000E 04 | 2.206E 05 | 2,029E 05 | 5.518E 04 | 2.720E-01 | 2.900E 07 | 9.500E 04 |
| SS (CAST, AS CAST) CC-50 | 6,000E 04 | 2.206E 05 | 2,029E 05 | 5.518E 04 | 2.720E-01 | 2.900E 07 | 7.000E 04 |
| CS (CARB-GR) C1117 | 5,900E 04 | 2.085E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 9.700E 04 |
| IBS (WROUGHT OR CAST) MULTIMET | 5,800E 04 | 1.959E 05 | 1,938E 05 | 5.737E 04 | 2.960E-01 | 2.080E 07 | 1.180E 05 |
| ASS (WROUGHT, O) 201 | 5,500E 04 | 1.964E 05 | 1,965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 1.150E 05 |
| ASS (WROUGHT, O) 202 | 5,500E 04 | 1.964E 05 | 1,965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 1.050E 05 |
| CS (CAST) 85,000 | 5,500E 04 | 1.943E 05 | 2,020E 05 | 5.715E 04 | 2.830E-01 | 2.990E 07 | 9.000E 04 |
| FSS (WROUGHT, O) 430F | 5,500E 04 | 1.964E 05 | 2,000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 8.000E 04 |
| FSS (WROUGHT,COLD WORKED) 430F | 5,500E 04 | 1.964E 05 | 2,000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 8.000E 04 |
| ALLOY STEEL (CAST) 80,000 | 5,400E 04 | 1.908E 05 | 1,989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.400E 04 |
| PEARLITIC 53004 (CAST) | 5,300E 04 | 2.000E 05 | 1,965E 05 | 5.207E 04 | 2.650E-01 | 2.650E 07 | 8.000E 04 |
| NRESIS ALLOY (CAST) ML | 5,200E 04 | 1.864E 05 | 2,003E 05 | 5.589E 04 | 2.790E-01 | 2.900E 07 | 8.200E 04 |
| ASS (WROUGHT) 304 | 5,000E 04 | 1.786E 05 | 2,000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.000E 05 |
| FSS (WROUGHT, O) 446 | 5,000E 04 | 1.852E 05 | 2,036E 05 | 5.498E 04 | 2.700E-01 | 2.900E 07 | 8.000E 04 |
| NRESIS ALLOY (CAST) NM TYPE 1 | 5,000E 04 | 1.792E 05 | 1.933E 05 | 5.363E 04 | 2.790E-01 | 2.700E 07 | 8.000E 04 |
| NRESIS ALLOY (CAST) MK | 5,000E 04 | 1.786E 05 | 2,000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.500E 04 |
| HSS (WROUGHT, O) 420 | 5,000E 04 | 1.786E 05 | 2,000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 9.500E 04 |
| PEARLITIC 50007 (CAST) | 5,000E 04 | 1.887E 05 | 1.965E 05 | 5.207E 04 | 2.650E-01 | 2.650E 07 | 7.500E 04 |
| SS (CAST) CH-20 | 5,000E 04 | 1.792E 05 | 1.968E 05 | 5.433E 04 | 2.760E-01 | 2.800E 07 | 8.800E 04 |
| CS (CARB-GR) C1020 | 4,800E 04 | 1.696E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 7.500E 04 |
| CS (CAST) 60,000 | 4,800E 04 | 1.696E 05 | 2,020E 05 | 5.715E 04 | 2.830E-01 | 2.990E 07 | 8.200E 04 |
| NRESIS ALLOY (CAST) MD | 4,800E 04 | 1.752E 05 | 1.950E 05 | 5.344E 04 | 2.740E-01 | 2.700E 07 | 8.500E 04 |
| IBS (WROUGHT) AMS 5760 | 4,800E 04 | 1.655E 05 | 1.998E 05 | 5.755E 04 | 2.900E-01 | 3.000E 07 | 1.100E 05 |
| PEARLITIC 40004 (CAST) | 4,800E 04 | 1.811E 05 | 1.965E 05 | 5.207E 04 | 2.650E-01 | 2.650E 07 | 7.000E 04 |
| CS (CARB-GR) C1022 | 4,700E 04 | 1.661E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.200E 04 |
| CS (CARB-GR) C1019 | 4,600E 04 | 1.625E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 7.300E 04 |

| MATERIAL | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) |
|---|---|---|---|---|---|---|---|
| ASS (WROUGHT) 309 | 4,500E 04 | 1.552E 05 | 1.969E 05 | 5.698E 04 | 2.900E-01 | 2.900E 07 | 9.000E 04 |
| ASS (WROUGHT) 309S | 4,500E 04 | 1.552E 05 | 1.969E 05 | 5.698E 04 | 2.900E-01 | 2.900E 07 | 9.000E 04 |
| ASS (WROUGHT) 310 | 4,500E 04 | 1.552E 05 | 1.969E 05 | 5.698E 04 | 2.900E-01 | 2.900E 07 | 9.500E 04 |
| ASS (WROUGHT) 310S | 4,500E 04 | 1.552E 05 | 1.969E 05 | 5.698E 04 | 2.900E-01 | 2.900E 07 | 9.500E 04 |
| FSS (WROUGHT, COLD WORKED) 430 | 4,500E 04 | 1.467E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.500E 04 |
| WRESIS ALLOY (CAST) WE | 4,500E 04 | 1.625E 05 | 1.867E 05 | 5.170E 04 | 2.770E-01 | 2.500E 07 | 9.500E 04 |
| WRESIS ALLOY (CAST) WF | 4,500E 04 | 1.607E 05 | 1.969E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 8.500E 04 |
| WRESIS ALLOY (CAST) WI | 4,500E 04 | 1.613E 05 | 1.933E 05 | 5.393E 04 | 2.790E-01 | 2.700E 07 | 8.000E 04 |
| NOD OR DUC WRESIS (CAST) | 4,500E 04 | 1.800E 05 | 1.643E 05 | 4.608E 04 | 2.500E-01 | 2.200E 07 | 6.000E 04 |
| NOD OR DUC 60-40-18 (CAST) | 4,500E 04 | 1.751E 05 | 1.818E 05 | 4.672E 04 | 2.570E-01 | 2.200E 07 | 6.000E 04 |
| PEARLITIC 45007 (CAST) | 4,500E 04 | 1.698E 05 | 1.946E 05 | 5.157E 04 | 2.650E-01 | 2.600E 07 | 6.800E 04 |
| PEARLITIC 45010 (CAST) | 4,500E 04 | 1.698E 05 | 1.946E 05 | 5.157E 04 | 2.650E-01 | 2.600E 07 | 6.500E 04 |
| ALLOY STEEL (CAST) 70,000 | 4,400E 04 | 1.595E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 7.400E 04 |
| SS (CAST) CG-8M | 4,300E 04 | 1.530E 05 | 1.961E 05 | 5.511E 04 | 2.810E-01 | 2.800E 07 | 8.200E 04 |
| AMSS (WROUGHT) 17-14 CU MO | 4,200E 04 | 1.464E 05 | 1.941E 05 | 5.378E 04 | 2.870E-01 | 2.800E 07 | 8.600E 04 |
| ASS (WROUGHT, O) 304 | 4,200E 04 | 1.448E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 8.400E 04 |
| ASS (WROUGHT) 316 | 4,200E 04 | 1.448E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 8.400E 04 |
| CS (CAST) 70,000 | 4,200E 04 | 1.464E 05 | 2.023E 05 | 5.729E 04 | 2.830E-01 | 3.000E 07 | 7.500E 04 |
| SS (CAST) CF-3M | 4,200E 04 | 1.500E 05 | 1.929E 05 | 5.402E 04 | 2.800E-01 | 2.700E 07 | 8.000E 04 |
| SS (CAST) CF-8M | 4,200E 04 | 1.500E 05 | 1.969E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 8.000E 04 |
| ASS (WROUGHT, O) 301 | 4,000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 1.100E 05 |
| ASS (WROUGHT, O) 302 | 4,000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 9.000E 04 |
| ASS (WROUGHT, O) 302B | 4,000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 9.500E 04 |
| ASS (WROUGHT) 317 | 4,000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 9.000E 04 |
| ASS (WROUGHT) 347-348 | 4,000E 04 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 9.500E 04 |
| FSS (WROUGHT, O) 430 | 4,000E 04 | 1.429E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.500E 04 |
| WRESIS ALLOY (CAST) WN TYPE 2 | 4,000E 04 | 1.434E 05 | 1.933E 05 | 5.393E 04 | 2.790E-01 | 2.700E 07 | 8.500E 04 |
| WRESIS ALLOY (CAST) WT | 4,000E 04 | 1.369E 05 | 1.909E 05 | 5.460E 04 | 2.860E-01 | 2.700E 07 | 7.000E 04 |
| WRESIS ALLOY (CAST) WU | 4,000E 04 | 1.379E 05 | 1.896E 05 | 5.495E 04 | 2.900E-01 | 2.700E 07 | 7.000E 04 |
| MSS (WROUGHT, O) 403 | 4,000E 04 | 1.429E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.000E 04 |
| MSS (WROUGHT, O) 416 | 4,000E 04 | 1.429E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.500E 04 |
| SS (CAST) CF-13F | 4,000E 04 | 1.429E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 7.700E 04 |
| ASS (WROUGHT, O) 304 L | 3,900E 04 | 1.345E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 8.100E 04 |
| ALLOY STEEL (CAST) 65,000 | 3,800E 04 | 1.343E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 6.800E 04 |
| ASS (WROUGHT, O) 305 | 3,800E 04 | 1.310E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 8.500E 04 |
| CS (CAST) 65,000 | 3,800E 04 | 1.343E 05 | 2.026E 05 | 5.734E 04 | 2.830E-01 | 3.010E 07 | 6.800E 04 |
| WRESIS ALLOY (CAST) WN | 3,800E 04 | 1.343E 05 | 1.919E 05 | 5.431E 04 | 2.830E-01 | 2.700E 07 | 6.800E 04 |
| SS (CAST) CF-8C | 3,800E 04 | 1.397E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 7.700E 04 |
| SS (CAST) CK-20 | 3,800E 04 | 1.357E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.600E 04 |
| SS (CAST) CF-3 | 3,700E 04 | 1.321E 05 | 1.929E 05 | 5.402E 04 | 2.800E-01 | 2.700E 07 | 7.700E 04 |
| SS (CAST) CF-8 | 3,700E 04 | 1.321E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 7.700E 04 |
| WRESIS ALLOY (CAST) WW | 3,600E 04 | 1.224E 05 | 1.812E 05 | 5.327E 04 | 2.940E-01 | 2.500E 07 | 6.800E 04 |
| WRESIS ALLOY (CAST) WX | 3,600E 04 | 1.224E 05 | 1.812E 05 | 5.327E 04 | 2.940E-01 | 2.500E 07 | 6.900E 04 |
| SS (CAST) CF-20 | 3,600E 04 | 1.286E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 7.700E 04 |
| ASS (WROUGHT, O) 308 | 3,500E 04 | 1.207E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 8.500E 04 |
| ASS (WROUGHT) 321 | 3,500E 04 | 1.207E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 9.000E 04 |
| CS (CAST) 60,000 | 3,500E 04 | 1.237E 05 | 2.026E 05 | 5.734E 04 | 2.830E-01 | 3.010E 07 | 6.300E 04 |
| FERRITIC 35018 (CAST) | 3,500E 04 | 1.351E 05 | 1.930E 05 | 5.000E 04 | 2.590E-01 | 2.500E 07 | 5.300E 04 |
| FSS (WROUGHT, O) 405 | 3,500E 04 | 1.250E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 6.500E 04 |
| MSS (WROUGHT, O) 410 | 3,500E 04 | 1.250E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 6.500E 04 |
| FERRITIC 32510 (CAST) | 3,250E 04 | 1.255E 05 | 1.930E 05 | 5.000E 04 | 2.590E-01 | 2.500E 07 | 5.000E 04 |
| NOD OR DUC AUSTENITIC (CAST) | 3,200E 04 | 1.194E 05 | 1.632E 05 | 4.375E 04 | 2.680E-01 | 1.850E 07 | 5.800E 04 |
| SS (CAST) CA-7M | 3,100E 04 | 1.073E 05 | 1.790E 05 | 5.175E 04 | 2.890E-01 | 2.400E 07 | 6.900E 04 |
| WROUGHT IRON LONG (HOT ROLLED) | 2,700E 04 | 9.712E 04 | 2.024E 05 | 5.627E 04 | 2.780E-01 | 2.950E 07 | 4.800E 04 |
| WROUGHT IRON TRAN (HOT ROLLED) | 2,700E 04 | 9.712E 04 | 2.024E 05 | 5.627E 04 | 2.780E-01 | 2.950E 07 | 3.900E 04 |
| INGOT IRON (HOT ROLLED) | 2,300E 04 | 8.214E 04 | 2.027E 05 | 5.675E 04 | 2.800E-01 | 2.980E 07 | 4.400E 04 |
| INGOT IRON (O) | 1,900E 04 | 6.786E 04 | 2.027E 05 | 5.675E 04 | 2.800E-01 | 2.980E 07 | 4.200E 04 |

| MATERIAL | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) |
|---|---|---|---|---|---|---|---|
| MSS (WROUGHT, HARD+TEMP) 440C | 9,821E 05 | 2.000E 05 | 5.999E 04 | 2.800E-01 | 2.900E 07 | 2.850E 05 | 2.750E 05 |
| MSS (WROUGHT, HARD+TEMP) 440B | 9,643E 05 | 2.006E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 2.800E 05 | 2.700E 05 |
| UHSS (WROUGHT) 29 NI | 9,395E 05 | 1.769E 05 | 5.237E 04 | 2.960E-01 | 2.400E 07 | 3.190E 05 | 2.840E 05 |
| UHSS (WROUGHT) 4340 | 9,341E 05 | 2.023E 05 | 5.725E 04 | 2.830E-01 | 3.000E 07 | 2.870E 05 | 2.700E 05 |
| UHSS (WROUGHT) 18 NI | 9,241E 05 | 1.878E 05 | 5.447E 04 | 2.900E-01 | 2.650E 07 | 2.750E 05 | 2.400E 05 |
| UHSS (WROUGHT) 20 NI | 9,153E 05 | 1.809E 05 | 5.336E 04 | 2.950E-01 | 2.500E 07 | 2.810E 05 | 2.700E 05 |
| UHSS (WROUGHT) D-6A | 8,834E 05 | 2.023E 05 | 5.725E 04 | 2.830E-01 | 3.000E 07 | 2.840E 05 | 2.500E 05 |
| UHSS (WROUGHT) HY-2 | 8,659E 05 | 2.028E 05 | 5.597E 04 | 2.760E-01 | 2.940E 07 | 2.790E 05 | 2.390E 05 |
| UHSS (WROUGHT) MODIFIED H-11 | 8,977E 05 | 2.030E 05 | 5.705E 04 | 2.810E-01 | 3.000E 07 | 2.950E 05 | 2.410E 05 |
| MSS (WROUGHT, HARD+TEMP) 441A | 8,571E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 2.600E 05 | 2.400E 05 |
| AMSS (WROUGHT) PH 15-7 MO (RH) | 8,133E 05 | 2.010E 05 | 5.569E 04 | 2.770E-01 | 2.900E 07 | 2.400E 05 | 2.250E 05 |
| AMSS (WROUGHT) 17-7 PH (RH950) | 7,971E 05 | 2.014E 05 | 5.559E 04 | 2.760E-01 | 2.900E 07 | 2.350E 05 | 2.200E 05 |
| AMSS (WROUGHT) PH 15-7 MO (TH) | 7,220E 05 | 2.010E 05 | 5.569E 04 | 2.770E-01 | 2.900E 07 | 2.100E 05 | 2.000E 05 |
| MSS (WROUGHT, HARD+TEMP) 420 | 6,964E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 2.300E 05 | 1.990E 05 |
| AMSS (WROUGHT) 17-7PH (TH1050) | 6,703E 05 | 2.014E 05 | 5.559E 04 | 2.760E-01 | 2.900E 07 | 2.000E 05 | 1.850E 05 |
| CS (HARD-GR) C1141 | 6,667E 05 | 1.992E 05 | 5.619E 04 | 2.820E-01 | 2.900E 07 | 2.370E 05 | 1.800E 05 |
| AMSS (CAST) AM-355 | 6,489E 05 | 2.003E 05 | 5.648E 04 | 2.820E-01 | 2.930E 07 | 2.230E 05 | 1.830E 05 |
| AMSS (WROUGHT) STAINLESS W | 6,429E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 1.950E 05 | 1.800E 05 |
| AMSS (WROUGHT) AM-350 | 6,135E 05 | 2.006E 05 | 5.657E 04 | 2.820E-01 | 2.940E 07 | 2.060E 05 | 1.730E 05 |
| AMSS (WROUGHT) AM-355 | 6,064E 05 | 2.003E 05 | 5.648E 04 | 2.820E-01 | 2.930E 07 | 1.960E 05 | 1.710E 05 |
| ALLOY STEEL (CAST) 200,000 | 6,007E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 2.050E 05 | 1.700E 05 |
| SS (CAST, HARD+TEMP) CA-40 | 6,000E 05 | 2.018E 05 | 5.949E 04 | 2.750E-01 | 2.900E 07 | 2.200E 05 | 1.650E 05 |
| AMSS (WROUGHT) ALMER 362 | 5,694E 05 | 1.993E 05 | 5.599E 04 | 2.810E-01 | 2.890E 07 | 1.650E 05 | 1.660E 05 |
| ALLOY STEEL (CAST) 195,000 | 5,654E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.790E 05 | 1.600E 05 |
| SS (CAST, HARD+TEMP) CA-15 | 5,455E 05 | 2.018E 05 | 5.949E 04 | 2.750E-01 | 2.900E 07 | 2.000E 05 | 1.500E 05 |
| HTS (WROUGHT) GREEK ASCOLOY | 5,282E 05 | 1.985E 05 | 5.639E 04 | 2.840E-01 | 2.900E 07 | 1.700E 05 | 1.500E 05 |
| ALLOY STEEL (CAST) 150,000 | 5,018E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.500E 05 | 1.420E 05 |
| CS (HARD-GR) C1060 | 5,018E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.900E 05 | 1.420E 05 |
| AMSS (CAST) 17-4PH | 5,030E 05 | 1.982E 05 | 5.550E 04 | 2.800E-01 | 2.850E 07 | 1.700E 05 | 1.400E 05 |
| MS (WROUGHT) 135 MODIFIED | 4,982E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.590E 05 | 1.410E 05 |
| IBS (WROUGHT) D-979 | 4,949E 05 | 1.981E 05 | 5.845E 04 | 2.950E-01 | 3.000E 07 | 2.040E 05 | 1.400E 05 |
| CS (HARD-GR) C1137 | 4,894E 05 | 1.992E 05 | 5.619E 04 | 2.820E-01 | 2.900E 07 | 1.980E 05 | 1.380E 05 |
| ASS (WROUGHT, COLD WORKED) 301 | 4,823E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 1.850E 05 | 1.400E 05 |
| IBS (WROUGHT) UNITEMP 212 | 4,685E 05 | 1.978E 05 | 5.658E 04 | 2.860E-01 | 2.900E 07 | 1.870E 05 | 1.340E 05 |
| IBS (WROUGHT) W 545 | 4,667E 05 | 1.961E 05 | 5.590E 04 | 2.850E-01 | 2.840E 07 | 1.810E 05 | 1.330E 05 |
| HTS (WROUGHT) 14 MV | 4,486E 05 | 2.006E 05 | 5.677E 04 | 2.830E-01 | 2.950E 07 | 1.500E 05 | 1.270E 05 |
| AMSS (WROUGHT) 17-4 PH (H1150) | 4,448E 05 | 1.979E 05 | 5.560E 04 | 2.810E-01 | 2.850E 07 | 1.450E 05 | 1.250E 05 |
| HTS (WROUGHT) LAPELLOY | 4,448E 05 | 2.030E 05 | 5.705E 04 | 2.810E-01 | 3.000E 07 | 1.970E 05 | 1.250E 05 |
| IBS (WROUGHT) INCOLOY 901 | 4,392E 05 | 1.975E 05 | 5.845E 04 | 2.960E-01 | 2.990E 07 | 1.790E 05 | 1.300E 05 |
| CS (HARD-GR) C1095 | 4,240E 05 | 1.949E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.800E 05 | 1.200E 05 |
| MS (WROUGHT) 135 | 4,240E 05 | 1.949E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.380E 05 | 1.200E 05 |
| HTS (WROUGHT) CHROMOLOY | 4,105E 05 | 2.069E 05 | 5.896E 04 | 2.850E-01 | 3.140E 07 | 1.390E 05 | 1.170E 05 |
| MS (WROUGHT) N | 4,028E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.320E 05 | 1.140E 05 |
| ALLOY STEEL (CAST) 120,000 | 3,958E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.280E 05 | 1.120E 05 |
| CS (HARD-GR) C1040 | 3,958E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.600E 05 | 1.120E 05 |
| ASS (WROUGHT, COLD WORKED) 201 | 3,929E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 1.500E 05 | 1.100E 05 |
| IBS (WROUGHT) 16-25-6 | 3,849E 05 | 1.934E 05 | 5.426E 04 | 2.910E-01 | 2.820E 07 | 1.420E 05 | 1.120E 05 |
| CS (HARD-GR) C1050 | 3,816E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.430E 05 | 1.000E 05 |
| MSS (WROUGHT, HARD+TEMP) 414 | 3,750E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.200E 05 | 1.050E 05 |
| MOD OR DUC 120-90-02 (CAST) | 3,502E 05 | 1.818E 05 | 4.672E 04 | 2.570E-01 | 2.200E 07 | 1.200E 05 | 9.000E 04 |
| IBS (WROUGHT) A-286 | 3,497E 05 | 1.982E 05 | 5.468E 04 | 2.860E-01 | 2.910E 07 | 1.460E 05 | 1.000E 05 |
| MSS (WROUGHT, O) 431 | 3,393E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.250E 05 | 9.500E 04 |
| MSS (WROUGHT, HARD+TEMP) 431 | 3,393E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.250E 05 | 9.500E 04 |
| CS (HARD-GR) C1030 | 3,286E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.220E 05 | 9.300E 04 |
| CS (HARD-GR) C1144 | 3,227E 05 | 1.992E 05 | 5.619E 04 | 2.820E-01 | 2.900E 07 | 1.280E 05 | 9.100E 04 |
| ALLOY STEEL (CAST) 105,000 | 3,216E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.100E 05 | 9.100E 04 |
| MSS (WROUGHT, O) 414 | 3,214E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.150E 05 | 9.000E 04 |
| MS (WROUGHT) EZ | 3,180E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.240E 05 | 9.000E 04 |

| MATERIAL | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) |
|---|---|---|---|---|---|---|---|
| IBS (WROUGHT) REFRACYALOY 26 | 3.074E 05 | 1.998E 05 | 5.913E 04 | 2.960E-01 | 3.060E 07 | 1.540E 05 | 9.100E 04 |
| SS (CAST) CD-4MCU | 3.069E 05 | 2.010E 05 | 5.569E 04 | 2.778E-01 | 2.900E 07 | 1.650E 05 | 8.500E 04 |
| CS (WARD-GR) C1040 | 3.039E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.130E 05 | 8.600E 04 |
| MSS (WROUGHT, WARD+TEMP) 403 | 3.036E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.100E 05 | 8.500E 04 |
| PEARLITIC 80002 (CAST) | 3.019E 05 | 1.946E 05 | 5.157E 04 | 2.650E-01 | 2.600E 07 | 1.000E 05 | 8.000E 04 |
| NOD OR DUC 100-70-03 (CAST) | 2.918E 05 | 1.818E 05 | 4.672E 04 | 2.570E-01 | 2.200E 07 | 1.000E 05 | 7.900E 04 |
| CS (CARB-GR) C1118 | 2.721E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.130E 05 | 7.700E 04 |
| CS (CAST) 100,000 | 2.650E 05 | 2.013E 05 | 5.696E 04 | 2.830E-01 | 2.970E 07 | 1.050E 05 | 7.500E 04 |
| FSS (WROUGHT, COLD WORKED) 446 | 2.593E 05 | 2.016E 05 | 5.498E 04 | 2.700E-01 | 2.900E 07 | 8.500E 04 | 7.000E 04 |
| FSS (WROUGHT, COLD WORKED) 405 | 2.560E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 8.500E 04 | 7.000E 04 |
| IBS (WROUGHT) S-590 | 2.492E 05 | 1.997E 05 | 6.011E 04 | 3.010E-01 | 3.110E 07 | 1.420E 05 | 7.500E 04 |
| IBS (WROUGHT) 19-9DL (CR-NI) | 2.474E 05 | 1.992E 05 | 5.717E 04 | 2.870E-01 | 2.950E 07 | 1.140E 05 | 7.100E 04 |
| FCCS (WROUGHT) B1111 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 |
| FCCS (WROUGHT) B1211 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 |
| FCCS (WROUGHT) B1112 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 |
| FCCS (WROUGHT) B1212 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 |
| FCCS (WROUGHT) B1113 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 |
| FCCS (WROUGHT) B1213 | 2.473E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 |
| INGOT IRON (COLD DRAWN) | 2.464E 05 | 2.027E 05 | 5.675E 04 | 2.800E-01 | 2.960E 07 | 7.300E 04 | 6.900E 04 |
| IBS (WROUGHT) 19-9DL(CR-NI-CO) | 2.404E 05 | 1.992E 05 | 5.717E 04 | 2.870E-01 | 2.950E 07 | 1.180E 05 | 6.900E 04 |
| WRESIS ALLOY (CAST) WC | 2.390E 05 | 2.029E 05 | 5.518E 04 | 2.720E-01 | 2.900E 07 | 7.000E 04 | 6.500E 04 |
| SS (CAST, O) CC-50 | 2.390E 05 | 2.029E 05 | 5.518E 04 | 2.720E-01 | 2.900E 07 | 9.700E 04 | 6.500E 04 |
| NOD OR DUC 80-55-06 (CAST) | 2.335E 05 | 1.818E 05 | 4.672E 04 | 2.570E-01 | 2.200E 07 | 9.000E 04 | 6.000E 04 |
| WRESIS ALLOY (CAST) WA | 2.330E 05 | 2.003E 05 | 5.989E 04 | 2.790E-01 | 2.900E 07 | 9.500E 04 | 6.500E 04 |
| MSS (WROUGHT, O) 440C | 2.321E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.100E 05 | 6.500E 04 |
| SS (CAST) CE-30 | 2.274E 05 | 1.867E 05 | 5.170E 04 | 2.770E-01 | 2.500E 07 | 9.700E 04 | 6.300E 04 |
| PEARLITIC 60003 (CAST) | 2.264E 05 | 1.946E 05 | 5.157E 04 | 2.650E-01 | 2.600E 07 | 8.000E 04 | 6.000E 04 |
| ALLOY STEEL (CAST) 90,000 | 2.261E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 9.900E 04 | 6.400E 04 |
| MSS (WROUGHT, O) 440B | 2.214E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.070E 05 | 6.200E 04 |
| SS (CAST, O) CB-30 | 2.206E 05 | 2.029E 05 | 5.518E 04 | 2.720E-01 | 2.900E 07 | 9.900E 04 | 6.000E 04 |
| SS (CAST, AS CAST) CC-50 | 2.206E 05 | 2.029E 05 | 5.518E 04 | 2.720E-01 | 2.900E 07 | 7.000E 04 | 6.000E 04 |
| MSS (WROUGHT, WARD+TEMP) 416 | 2.143E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 9.000E 04 | 6.000E 04 |
| MSS (WROUGHT, WARD+TEMP) 416 | 2.143E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 9.000E 04 | 6.000E 04 |
| MSS (WROUGHT, O) 440A | 2.143E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.050E 05 | 6.000E 04 |
| CS (CARB-GR) C1117 | 2.085E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 9.700E 04 | 5.900E 04 |
| PEARLITIC 93004 (CAST) | 2.000E 05 | 1.965E 05 | 5.207E 04 | 2.650E-01 | 2.650E 07 | 8.000E 04 | 5.300E 04 |
| ASS (WROUGHT, O) 201 | 1.963E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 1.150E 05 | 5.500E 04 |
| ASS (WROUGHT, O) 202 | 1.964E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 1.050E 05 | 5.500E 04 |
| FSS (WROUGHT, O) 430F | 1.964E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 8.000E 04 | 5.500E 04 |
| FSS (WROUGHT,COLD WORKED) 430F | 1.964E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 8.000E 04 | 5.500E 04 |
| IBS (WROUGHT OR CAST) MULTIMET | 1.959E 05 | 1.938E 05 | 5.737E 04 | 2.960E-01 | 2.880E 07 | 1.180E 05 | 5.800E 04 |
| CS (CAST) 85,000 | 1.943E 05 | 2.020E 05 | 5.715E 04 | 2.830E-01 | 2.900E 07 | 9.000E 04 | 5.500E 04 |
| ALLOY STEEL (CAST) 80,000 | 1.908E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.600E 04 | 5.400E 04 |
| PEARLITIC 50007 (CAST) | 1.887E 05 | 1.945E 05 | 5.207E 04 | 2.650E-01 | 2.650E 07 | 7.500E 04 | 5.000E 04 |
| WRESIS ALLOY (CAST) WL | 1.864E 05 | 2.003E 05 | 5.989E 04 | 2.790E-01 | 2.900E 07 | 8.200E 04 | 5.200E 04 |
| FSS (WROUGHT, O) 446 | 1.852E 05 | 2.036E 05 | 5.498E 04 | 2.700E-01 | 2.900E 07 | 8.000E 04 | 5.000E 04 |
| PEARLITIC 40004 (CAST) | 1.811E 05 | 1.945E 05 | 5.207E 04 | 2.650E-01 | 2.650E 07 | 7.000E 04 | 4.800E 04 |
| NOD OR DUC WRESIS (CAST) | 1.800E 05 | 1.843E 05 | 4.608E 04 | 2.500E-01 | 2.200E 07 | 6.000E 04 | 4.500E 04 |
| WRESIS ALLOY (CAST) WH TYPE 1 | 1.792E 05 | 1.933E 05 | 5.393E 04 | 2.790E-01 | 2.700E 07 | 8.000E 04 | 5.000E 04 |
| SS (CAST) CH-20 | 1.792E 05 | 1.968E 05 | 5.492E 04 | 2.790E-01 | 2.800E 07 | 8.800E 04 | 5.000E 04 |
| ASS (WROUGHT) 314 | 1.786E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.000E 05 | 5.000E 04 |
| WRESIS ALLOY (CAST) WK | 1.786E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.500E 04 | 5.000E 04 |
| MSS (WROUGHT, O) 420 | 1.786E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 9.500E 04 | 5.000E 04 |
| WRESIS ALLOY (CAST) WD | 1.752E 05 | 1.990E 05 | 5.344E 04 | 2.740E-01 | 2.700E 07 | 8.500E 04 | 4.800E 04 |
| NOD OR DUC 60-40-18 (CAST) | 1.751E 05 | 1.818E 05 | 4.672E 04 | 2.570E-01 | 2.200E 07 | 6.000E 04 | 4.500E 04 |
| PEARLITIC 45007 (CAST) | 1.598E 05 | 1.946E 05 | 5.157E 04 | 2.650E-01 | 2.600E 07 | 6.000E 04 | 4.500E 04 |
| PEARLITIC 45010 (CAST) | 1.698E 05 | 1.946E 05 | 5.157E 04 | 2.650E-01 | 2.600E 07 | 6.500E 04 | 4.500E 04 |
| CS (CARB-GR) C1020 | 1.696E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 7.500E 04 | 4.800E 04 |

| MATERIAL | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) |
|---|---|---|---|---|---|---|---|
| CS (CAST) 80,000 | 1.696E 05 | 2.090E 05 | 5.715E 04 | 2.830E-01 | 2.900E 07 | 8.200E 04 | 4.800E 04 |
| CS (CARB-GR) C1022 | 1.661E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.200E 04 | 4.700E 04 |
| IBS (WROUGHT) AMS 5700 | 1.655E 05 | 1.998E 05 | 5.795E 04 | 2.900E-01 | 3.000E 07 | 1.100E 05 | 4.800E 04 |
| CS (CARB-GR) C1015 | 1.629E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 7.300E 04 | 4.600E 04 |
| WRESIS ALLOY (CAST) WE | 1.629E 05 | 2.067E 05 | 5.170E 04 | 2.770E-01 | 2.500E 07 | 9.500E 04 | 4.500E 04 |
| WRESIS ALLOY (CAST) WI | 1.613E 05 | 1.933E 05 | 5.393E 04 | 2.790E-01 | 2.700E 07 | 8.000E 04 | 4.500E 04 |
| FSS (WROUGHT, COLD WORKED) 430 | 1.607E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.500E 04 | 4.500E 04 |
| WRESIS ALLOY (CAST) WF | 1.607E 05 | 1.945E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 8.900E 04 | 4.500E 04 |
| ALLOY STEEL (CAST) 70,000 | 1.555E 05 | 1.939E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 7.400E 04 | 4.400E 04 |
| ASS (WROUGHT) 309 | 1.552E 05 | 1.965E 05 | 5.698E 04 | 2.900E-01 | 2.900E 07 | 9.000E 04 | 4.500E 04 |
| ASS (WROUGHT) 309S | 1.552E 05 | 1.965E 05 | 5.698E 04 | 2.900E-01 | 2.900E 07 | 9.000E 04 | 4.500E 04 |
| ASS (WROUGHT) 310 | 1.552E 05 | 1.965E 05 | 5.698E 04 | 2.900E-01 | 2.900E 07 | 9.500E 04 | 4.500E 04 |
| ASS (WROUGHT) 310S | 1.552E 05 | 1.965E 05 | 5.698E 04 | 2.900E-01 | 2.900E 07 | 9.500E 04 | 4.500E 04 |
| SS (CAST) CG-8M | 1.530E 05 | 1.941E 05 | 5.511E 04 | 2.810E-01 | 2.800E 07 | 8.200E 04 | 4.300E 04 |
| SS (CAST) CF-3M | 1.500E 05 | 1.929E 05 | 5.402E 04 | 2.800E-01 | 2.700E 07 | 8.000E 04 | 4.200E 04 |
| SS (CAST) CF-8M | 1.500E 05 | 1.945E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 8.000E 04 | 4.200E 04 |
| CS (CAST) 70,000 | 1.484E 05 | 2.093E 05 | 5.725E 04 | 2.830E-01 | 3.000E 07 | 7.500E 04 | 4.200E 04 |
| AMSS (WROUGHT) 17-14 CU MO | 1.463E 05 | 1.941E 05 | 5.570E 04 | 2.870E-01 | 2.800E 07 | 8.600E 04 | 4.200E 04 |
| ASS (WROUGHT, O) 304 | 1.448E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 8.400E 04 | 4.200E 04 |
| ASS (WROUGHT) 316 | 1.448E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 8.400E 04 | 4.200E 04 |
| WRESIS ALLOY (CAST) WH TYPE 2 | 1.434E 05 | 1.933E 05 | 5.393E 04 | 2.790E-01 | 2.700E 07 | 8.500E 04 | 4.000E 04 |
| FSS (WROUGHT, O) 430 | 1.429E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.500E 04 | 4.000E 04 |
| MSS (WROUGHT, O) 403 | 1.429E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.000E 04 | 4.000E 04 |
| MSS (WROUGHT, O) 416 | 1.429E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.500E 04 | 4.000E 04 |
| SS (CAST) CF-16F | 1.429E 05 | 1.945E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 7.700E 04 | 4.000E 04 |
| WRESIS ALLOY (CAST) WT | 1.399E 05 | 1.909E 05 | 5.460E 04 | 2.860E-01 | 2.700E 07 | 7.000E 04 | 4.000E 04 |
| ASS (WROUGHT, O) 301 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 1.100E 05 | 4.000E 04 |
| ASS (WROUGHT, O) 302 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 9.000E 04 | 4.000E 04 |
| ASS (WROUGHT, O) 302B | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 9.500E 04 | 4.000E 04 |
| ASS (WROUGHT) 317 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 9.000E 04 | 4.000E 04 |
| ASS (WROUGHT) 347-348 | 1.379E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 9.500E 04 | 4.000E 04 |
| WRESIS ALLOY (CAST) WU | 1.379E 05 | 1.896E 05 | 5.498E 04 | 2.900E-01 | 2.700E 07 | 7.000E 04 | 4.000E 04 |
| SS (CAST) CF-8C | 1.357E 05 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 7.700E 04 | 3.800E 04 |
| SS (CAST) CK-20 | 1.357E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.600E 04 | 3.800E 04 |
| FERRITIC 35C18 (CAST) | 1.351E 05 | 1.930E 05 | 5.300E 04 | 2.590E-01 | 2.500E 07 | 5.300E 04 | 3.900E 04 |
| ASS (WROUGHT, O) 304 L | 1.345E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 8.100E 04 | 3.900E 04 |
| ALLOY STEEL (CAST) 65,000 | 1.343E 05 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 6.800E 04 | 3.800E 04 |
| CS (CAST) 65,000 | 1.341E 05 | 2.096E 05 | 5.734E 04 | 2.830E-01 | 3.010E 07 | 4.800E 04 | 3.800E 04 |
| WRESIS ALLOY (CAST) WN | 1.343E 05 | 1.919E 05 | 5.431E 04 | 2.830E-01 | 2.700E 07 | 6.500E 04 | 3.800E 04 |
| SS (CAST) CF-3 | 1.321E 05 | 1.929E 05 | 5.402E 04 | 2.800E-01 | 2.700E 07 | 7.700E 04 | 3.700E 04 |
| SS (CAST) CF-8 | 1.321E 05 | 1.945E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 7.700E 04 | 3.700E 04 |
| ASS (WROUGHT, O) 303 | 1.310E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 8.500E 04 | 3.800E 04 |
| SS (CAST) CF-20 | 1.286E 05 | 1.945E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 7.700E 04 | 3.600E 04 |
| FERRITIC 32510 (CAST) | 1.255E 05 | 1.930E 05 | 5.000E 04 | 2.590E-01 | 2.500E 07 | 5.000E 04 | 3.250E 04 |
| FSS (WROUGHT, O) 405 | 1.250E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 6.500E 04 | 3.500E 04 |
| MSS (WROUGHT, O) 410 | 1.250E 05 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 6.500E 04 | 3.500E 04 |
| CS (CAST) 60,000 | 1.237E 05 | 2.096E 05 | 5.734E 04 | 2.830E-01 | 3.010E 07 | 6.300E 04 | 3.500E 04 |
| WRESIS ALLOY (CAST) WW | 1.224E 05 | 1.812E 05 | 5.327E 04 | 2.940E-01 | 2.500E 07 | 6.800E 04 | 3.400E 04 |
| WRESIS ALLOY (CAST) WX | 1.224E 05 | 1.812E 05 | 5.327E 04 | 2.940E-01 | 2.500E 07 | 6.500E 04 | 3.400E 04 |
| ASS (WROUGHT, O) 308 | 1.207E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 8.500E 04 | 3.500E 04 |
| ASS (WROUGHT) 321 | 1.207E 05 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 9.000E 04 | 3.500E 04 |
| NOD OR DUC AUSTENITIC (CAST) | 1.194E 05 | 1.832E 05 | 4.375E 04 | 2.690E-01 | 1.850E 07 | 5.800E 04 | 3.200E 04 |
| SS (CAST) CA-7M | 1.073E 05 | 1.790E 05 | 5.175E 04 | 2.890E-01 | 2.400E 07 | 6.950E 04 | 3.100E 04 |
| WROUGHT IRON LONG (HOT ROLLED) | 9.712E 04 | 2.094E 05 | 5.627E 04 | 2.790E-01 | 2.950E 07 | 4.800E 04 | 2.700E 04 |
| WROUGHT IRON TRAN (HOT ROLLED) | 9.712E 04 | 2.094E 05 | 5.627E 04 | 2.790E-01 | 2.950E 07 | 3.900E 04 | 2.700E 04 |
| INGOT IRON (HOT ROLLED) | 8.214E 04 | 2.097E 05 | 5.675E 04 | 2.830E-01 | 2.980E 07 | 4.400E 04 | 2.300E 04 |
| INGOT IRON (O) | 6.786E 04 | 2.097E 05 | 5.675E 04 | 2.830E-01 | 2.980E 07 | 4.200E 04 | 1.900E 04 |

| MATERIAL | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/CUBE) |
|---|---|---|---|---|---|---|---|
| HTS (WROUGHT) CHROMOLOY | 2.069E 05 | 5.096E 04 | 2.850E-01 | 3.160E 07 | 1.390E 05 | 1.170E 05 | 4.109E 05 |
| FSS (WROUGHT, O) 446 | 2.036E 05 | 5.498E 04 | 2.700E-01 | 2.900E 07 | 8.000E 04 | 5.000E 04 | 1.852E 05 |
| FSS (WROUGHT, COLD WORKED) 446 | 2.036E 05 | 5.498E 04 | 2.700E-01 | 2.900E 07 | 8.500E 04 | 7.000E 04 | 2.593E 05 |
| HTS (WROUGHT) LAPELLOY | 2.030E 05 | 5.745E 04 | 2.810E-01 | 3.000E 07 | 1.570E 05 | 1.250E 05 | 4.448E 05 |
| UHSS (WROUGHT) MODIFIED H-11 | 2.030E 05 | 5.745E 04 | 2.810E-01 | 3.000E 07 | 2.950E 05 | 2.410E 05 | 8.577E 05 |
| WRESIS ALLOY (CAST) WC | 2.020E 05 | 5.518E 04 | 2.720E-01 | 2.900E 07 | 7.000E 04 | 6.900E 04 | 2.390E 05 |
| SS (CAST, O) CB-30 | 2.020E 05 | 5.518E 04 | 2.720E-01 | 2.900E 07 | 9.500E 04 | 6.000E 04 | 2.206E 05 |
| SS (CAST, O) CC-50 | 2.020E 05 | 5.518E 04 | 2.720E-01 | 2.900E 07 | 9.700E 04 | 6.500E 04 | 2.390E 05 |
| SS (CAST, AS CAST) CC-50 | 2.020E 05 | 5.518E 04 | 2.720E-01 | 2.900E 07 | 7.000E 04 | 6.000E 04 | 2.206E 05 |
| UHSS (WROUGHT) HX-2 | 2.028E 05 | 5.597E 04 | 2.760E-01 | 2.940E 07 | 2.790E 05 | 2.390E 05 | 8.659E 05 |
| INGOT IRON (O) | 2.027E 05 | 5.675E 04 | 2.800E-01 | 2.980E 07 | 4.200E 04 | 1.900E 04 | 6.786E 04 |
| INGOT IRON (COLD DRAWN) | 2.027E 05 | 5.675E 04 | 2.800E-01 | 2.980E 07 | 7.300E 04 | 6.900E 04 | 2.464E 05 |
| INGOT IRON (HOT ROLLED) | 2.027E 05 | 5.675E 04 | 2.800E-01 | 2.980E 07 | 4.400E 04 | 2.300E 04 | 8.214E 04 |
| CS (CAST) 60,000 | 2.026E 05 | 5.734E 04 | 2.830E-01 | 3.010E 07 | 6.300E 04 | 3.500E 04 | 1.237E 05 |
| CS (CAST) 65,000 | 2.026E 05 | 5.734E 04 | 2.830E-01 | 3.010E 07 | 6.800E 04 | 3.800E 04 | 1.343E 05 |
| WROUGHT IRON LONG (HOT ROLLED) | 2.024E 05 | 5.697E 04 | 2.780E-01 | 2.950E 07 | 4.000E 04 | 2.700E 04 | 9.712E 04 |
| WROUGHT IRON TRAN (HOT ROLLED) | 2.024E 05 | 5.697E 04 | 2.780E-01 | 2.950E 07 | 3.900E 04 | 2.700E 04 | 9.712E 04 |
| CS (CAST) 70,000 | 2.023E 05 | 5.795E 04 | 2.830E-01 | 3.000E 07 | 7.500E 04 | 4.200E 04 | 1.484E 05 |
| UHSS (WROUGHT) D-6A | 2.023E 05 | 5.795E 04 | 2.830E-01 | 3.000E 07 | 2.840E 05 | 2.500E 05 | 8.834E 05 |
| UHSS (WROUGHT) 4340 | 2.023E 05 | 5.795E 04 | 2.830E-01 | 3.000E 07 | 2.870E 05 | 2.700E 05 | 9.541E 05 |
| CS (CAST) 80,000 | 2.020E 05 | 5.715E 04 | 2.830E-01 | 2.990E 07 | 8.200E 04 | 4.800E 04 | 1.696E 05 |
| CS (CAST) 85,000 | 2.020E 05 | 5.715E 04 | 2.830E-01 | 2.990E 07 | 9.000E 04 | 5.500E 04 | 1.943E 05 |
| SS (CAST, HARD+TEMP) CA-15 | 2.018E 05 | 5.549E 04 | 2.750E-01 | 2.930E 07 | 2.000E 05 | 1.500E 05 | 5.459E 05 |
| SS (CAST, HARD+TEMP) CA-40 | 2.018E 05 | 5.549E 04 | 2.750E-01 | 2.930E 07 | 2.200E 05 | 1.650E 05 | 6.000E 05 |
| AMSS (WROUGHT) 17-7 PH (RH950) | 2.014E 05 | 5.559E 04 | 2.760E-01 | 2.930E 07 | 2.350E 05 | 2.200E 05 | 7.971E 05 |
| AMSS (WROUGHT) 17-7PH (TH1050) | 2.014E 05 | 5.559E 04 | 2.760E-01 | 2.930E 07 | 2.000E 05 | 1.850E 05 | 6.703E 05 |
| CS (CAST) 100,000 | 2.013E 05 | 5.606E 04 | 2.830E-01 | 2.970E 07 | 1.050E 05 | 7.500E 04 | 2.650E 05 |
| AMSS (WROUGHT) PH 15-7 MO (RH) | 2.010E 05 | 5.569E 04 | 2.770E-01 | 2.930E 07 | 2.400E 05 | 2.250E 05 | 8.123E 05 |
| AMSS (WROUGHT) PH 15-7 MO (TH) | 2.010E 05 | 5.569E 04 | 2.770E-01 | 2.930E 07 | 2.100E 05 | 2.000E 05 | 7.220E 05 |
| SS (CAST) CD-4MCU | 2.010E 05 | 5.569E 04 | 2.770E-01 | 2.930E 07 | 1.050E 05 | 8.500E 04 | 3.069E 05 |
| AMSS (WROUGHT) AM-350 | 2.006E 05 | 5.657E 04 | 2.820E-01 | 2.940E 07 | 2.000E 05 | 1.730E 05 | 6.135E 05 |
| HTS (WROUGHT) 14 MV | 2.006E 05 | 5.677E 04 | 2.830E-01 | 2.950E 07 | 1.500E 05 | 1.270E 05 | 4.488E 05 |
| WRESIS ALLOY (CAST) WA | 2.003E 05 | 5.596E 04 | 2.790E-01 | 2.900E 07 | 9.500E 04 | 6.500E 04 | 2.330E 05 |
| WRESIS ALLOY (CAST) WL | 2.003E 05 | 5.596E 04 | 2.790E-01 | 2.900E 07 | 8.200E 04 | 5.200E 04 | 1.864E 05 |
| AMSS (CAST) AM-355 | 2.003E 05 | 5.648E 04 | 2.820E-01 | 2.930E 07 | 2.230E 05 | 1.830E 05 | 6.489E 05 |
| AMSS (WROUGHT) AM-355 | 2.003E 05 | 5.648E 04 | 2.820E-01 | 2.930E 07 | 1.860E 05 | 1.710E 05 | 6.064E 05 |
| ASS (WROUGHT) 304 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.000E 05 | 5.000E 04 | 1.786E 05 |
| FSS (WROUGHT, O) 405 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 6.500E 04 | 3.500E 04 | 1.250E 05 |
| FSS (WROUGHT, COLD WORKED) 405 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 8.500E 04 | 7.000E 04 | 2.500E 05 |
| FSS (WROUGHT, O) 430 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.500E 04 | 4.000E 04 | 1.429E 05 |
| FSS (WROUGHT, COLD WORKED) 430 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.500E 04 | 4.500E 04 | 1.607E 05 |
| FSS (WROUGHT, O) 430F | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 8.000E 04 | 5.500E 04 | 1.964E 05 |
| FSS (WROUGHT, COLD WORKED) 430F | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 8.000E 04 | 5.500E 04 | 1.964E 05 |
| WRESIS ALLOY (CAST) WX | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.500E 04 | 5.000E 04 | 1.786E 05 |
| MSS (WROUGHT, O) 403 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.000E 04 | 4.000E 04 | 1.429E 05 |
| MSS (WROUGHT, HARD+TEMP) 403 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.100E 05 | 8.500E 04 | 3.036E 05 |
| MSS (WROUGHT, O) 410 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 6.500E 04 | 3.500E 04 | 1.250E 05 |
| MSS (WROUGHT, HARD+TEMP) 410 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 9.000E 04 | 6.000E 04 | 2.143E 05 |
| MSS (WROUGHT, O) 414 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.150E 05 | 9.000E 04 | 3.214E 05 |
| MSS (WROUGHT, HARD+TEMP) 414 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.200E 05 | 1.050E 05 | 3.750E 05 |
| MSS (WROUGHT, O) 416 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.500E 04 | 4.000E 04 | 1.429E 05 |
| MSS (WROUGHT, HARD+TEMP) 416 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 9.000E 04 | 6.000E 04 | 2.143E 05 |
| MSS (WROUGHT, O) 420 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 9.500E 04 | 5.000E 04 | 1.786E 05 |
| MSS (WROUGHT, HARD+TEMP) 420 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 2.300E 05 | 1.950E 05 | 6.964E 05 |
| MSS (WROUGHT, O) 431 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.250E 05 | 9.500E 04 | 3.393E 05 |
| MSS (WROUGHT, HARD+TEMP) 431 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.250E 05 | 9.500E 04 | 3.393E 05 |
| MSS (WROUGHT, O) 440A | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.050E 05 | 6.000E 04 | 2.143E 05 |
| MSS (WROUGHT, HARD+TEMP) 440A | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 2.600E 05 | 2.400E 05 | 8.571E 05 |

| MATERIAL | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) |
|---|---|---|---|---|---|---|---|
| MSS (WROUGHT, O) 440B | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.070E 05 | 6.300E 04 | 2.214E 05 |
| MSS (WROUGHT, HARD+TEMP) 440B | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 2.800E 05 | 2.700E 05 | 9.643E 05 |
| MSS (WROUGHT, O) 440C | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 1.100E 05 | 6.500E 04 | 2.321E 05 |
| MSS (WROUGHT, HARD+TEMP) 440C | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 2.850E 05 | 2.750E 05 | 9.821E 05 |
| SS (CAST) CK-20 | 2.000E 05 | 5.599E 04 | 2.800E-01 | 2.900E 07 | 7.400E 04 | 3.800E 04 | 1.357E 05 |
| IBS (WROUGHT) AMS 5700 | 1.998E 05 | 5.795E 04 | 2.900E-01 | 3.000E 07 | 1.100E 05 | 4.800E 04 | 1.655E 05 |
| IBS (WROUGHT) REFRACTALOY 26 | 1.998E 05 | 5.913E 04 | 2.960E-01 | 3.940E 07 | 1.540E 05 | 9.100E 04 | 3.074E 05 |
| IBS (WROUGHT) S-590 | 1.997E 05 | 6.211E 04 | 3.010E-01 | 3.110E 07 | 1.420E 05 | 7.500E 04 | 2.492E 05 |
| AMSS (WROUGHT) ALMER 362 | 1.993E 05 | 5.599E 04 | 2.810E-01 | 2.890E 07 | 1.650E 05 | 1.600E 05 | 5.694E 05 |
| CS (HARD-GR) C1137 | 1.992E 05 | 5.619E 04 | 2.820E-01 | 2.900E 07 | 1.580E 05 | 1.380E 05 | 4.894E 05 |
| CS (HARD-GR) C1141 | 1.992E 05 | 5.619E 04 | 2.820E-01 | 2.900E 07 | 2.370E 05 | 1.880E 05 | 6.667E 05 |
| CS (HARD-GR) C1144 | 1.992E 05 | 5.619E 04 | 2.820E-01 | 2.900E 07 | 1.280E 05 | 9.100E 04 | 3.227E 05 |
| IBS (WROUGHT) 19-9DL (CR-NI) | 1.992E 05 | 5.717E 04 | 2.870E-01 | 2.950E 07 | 1.140E 05 | 7.100E 04 | 2.474E 05 |
| IBS (WROUGHT) 19-9DL(CR-NI-CO) | 1.992E 05 | 5.717E 04 | 2.870E-01 | 2.950E 07 | 1.180E 05 | 6.900E 04 | 2.404E 05 |
| ALLOY STEEL (CAST) 65,000 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 6.800E 04 | 3.800E 04 | 1.343E 05 |
| ALLOY STEEL (CAST) 70,000 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 7.400E 04 | 4.400E 04 | 1.555E 05 |
| ALLOY STEEL (CAST) 80,000 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.600E 04 | 5.400E 04 | 1.909E 05 |
| ALLOY STEEL (CAST) 90,000 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 9.500E 04 | 6.400E 04 | 2.261E 05 |
| ALLOY STEEL (CAST) 105,000 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.100E 05 | 9.100E 04 | 3.216E 05 |
| ALLOY STEEL (CAST) 120,000 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.280E 05 | 1.120E 05 | 3.958E 05 |
| ALLOY STEEL (CAST) 150,000 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.580E 05 | 1.420E 05 | 5.016E 05 |
| ALLOY STEEL (CAST) 175,000 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.790E 05 | 1.600E 05 | 5.654E 05 |
| ALLOY STEEL (CAST) 200,000 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 2.050E 05 | 1.700E 05 | 6.007E 05 |
| CS (CARB-GR) C1015 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | [illegible]00E 04 | 4.600E 04 | 1.625E 05 |
| CS (CARB-GR) C1020 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 3.300E 04 | 4.800E 04 | 1.696E 05 |
| CS (CARB-GR) C1022 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E | [illegible].200E 04 | 4.700E 04 | 1.661E 05 |
| CS (CARB-GR) C1117 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 9.700E 04 | 5.900E 04 | 2.085E 05 |
| CS (CARB-GR) C1118 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.130E 05 | 7.700E 04 | 2.721E 05 |
| CS (HARD-GR) C1030 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.220E 05 | 9.300E 04 | 3.286E 05 |
| CS (HARD-GR) C1040 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.130E 05 | 8.600E 04 | 3.039E 05 |
| CS (HARD-GR) C1050 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.450E 05 | 1.080E 05 | 3.816E 05 |
| CS (HARD-GR) C1060 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.600E 05 | 1.120E 05 | 3.958E 05 |
| CS (HARD-GR) C1080 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.900E 05 | 1.420E 05 | 5.018E 05 |
| CS (HARD-GR) C1095 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.830E 05 | 1.200E 05 | 4.240E 05 |
| FCCS (WROUGHT) B1111 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 |
| FCCS (WROUGHT) B1211 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 |
| FCCS (WROUGHT) B1112 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 |
| FCCS (WROUGHT) B1212 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 |
| FCCS (WROUGHT) B1113 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 |
| FCCS (WROUGHT) B1213 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 |
| HS (WROUGHT) EZ | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.[illegible]E 05 | 9.000E 04 | 3.180E 05 |
| HS (WROUGHT) X | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.[illegible]20E 05 | 1.140E 05 | 4.028E 05 |
| HS (WROUGHT) 135 | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.380E 05 | 1.200E 05 | 4.240E 05 |
| HS (WROUGHT) 135 MODIFIED | 1.989E 05 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.590E 05 | 1.410E 05 | 4.982E 05 |
| HTS (WROUGHT) GREEK ASCOLOY | 1.985E 05 | 5.639E 04 | 2.840E-01 | 2.900E 07 | 1.700E 05 | 1.500E 05 | 5.2[illegible]E 05 |
| AMSS (CAST) 17-4PH | 1.982E 05 | 5.550E 04 | 2.800E-01 | 2.850E 07 | 1.700E 05 | 1.400E 05 | 5.000E 05 |
| IBS (WROUGHT) A-286 | 1.982E 05 | 5.668E 04 | 2.860E-01 | 2.910E 07 | 1.460E 05 | 1.000E 05 | 3.497E 05 |
| IBS (WROUGHT) D-979 | 1.981E 05 | 5.845E 04 | 2.950E-01 | 3.000E 07 | 2.040E 05 | 1.440E 05 | 4.949E 05 |
| AMSS (WROUGHT) 17-4 PH (H1150) | 1.979E 05 | 5.560E 04 | 2.810E-01 | 2.850E 07 | 1.450E 05 | 1.250E 05 | 4.448E 05 |
| IBS (WROUGHT) UNITEMP 212 | 1.978E 05 | 5.668E 04 | 2.860E-01 | 2.900E 07 | 1.870E 05 | 1.340E 05 | 4.685E 05 |
| IBS (WROUGHT) INCOLOY 901 | 1.975E 05 | 5.845E 04 | 2.960E-01 | 2.990E 07 | 1.750E 05 | 1.300E 05 | 4.392E 05 |
| SS (CAST) CH-20 | 1.968E 05 | 5.492E 04 | 2.790E-01 | 2.800E 07 | 8.800E 04 | 5.000E 04 | 1.792E 05 |
| AMSS (WROUGHT) STAINLESS W | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 1.950E 05 | 1.800E 05 | 6.429E 05 |
| ASS (WROUGHT, O) 201 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 1.190E 05 | 5.500E 04 | 1.964E 05 |
| ASS (WROUGHT, COLD WORKED) 201 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 1.500E 05 | 1.100E 05 | 3.929E 05 |
| ASS (WROUGHT, O) 202 | 1.965E 05 | 5.501E 04 | 2.800E-01 | 2.800E 07 | 1.050E 05 | 5.500E 04 | 1.964E 05 |
| ASS (WROUGHT) 309 | 1.965E 05 | 5.698E 04 | 2.900E-01 | 2.900E 07 | 9.000E 04 | 4.900E 04 | 1.592E 05 |
| ASS (WROUGHT) 309S | 1.965E 05 | 5.698E 04 | 2.900E-01 | 2.900E 07 | 9.000E 04 | 4.500E 04 | 1.592E 05 |

| MATERIAL | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) |
|---|---|---|---|---|---|---|---|
| ASS (WROUGHT) 310 | 1.965E 05 | 5.698E 04 | 2.900E-01 | 2.900E 07 | 9.500E 04 | 4.500E 04 | 1.552E 05 |
| ASS (WROUGHT) 310S | 1.965E 05 | 5.658E 04 | 2.900E-01 | 2.900E 07 | 9.500E 04 | 4.500E 04 | 1.552E 05 |
| WRESIS ALLOY (CAST) WF | 1.965E 05 | 5.561E 04 | 2.600E-01 | 2.600E 07 | 8.500E 04 | 4.500E 04 | 1.607E 05 |
| PEARLITIC 40004 (CAST) | 1.965E 05 | 5.207E 04 | 2.650E-01 | 2.650E 07 | 7.000E 04 | 4.800E 04 | 1.811E 05 |
| PEARLITIC 50007 (CAST) | 1.965E 05 | 5.207E 04 | 2.650E-01 | 2.650E 07 | 7.500E 04 | 5.300E 04 | 1.687E 05 |
| PEARLITIC 53004 (CAST) | 1.965E 05 | 5.207E 04 | 2.650E-01 | 2.650E 07 | 8.000E 04 | 5.300E 04 | 2.000E 05 |
| SS (CAST) CF-8 | 1.965E 05 | 5.561E 04 | 2.800E-01 | 2.800E 07 | 7.700E 04 | 3.700E 04 | 1.321E 05 |
| SS (CAST) CF-8C | 1.965E 05 | 5.561E 04 | 2.800E-01 | 2.800E 07 | 7.700E 04 | 3.800E 04 | 1.357E 05 |
| SS (CAST) CF-8M | 1.965E 05 | 5.561E 04 | 2.800E-01 | 2.800E 07 | 8.000E 04 | 4.200E 04 | 1.500E 05 |
| SS (CAST) CF-16F | 1.965E 05 | 5.561E 04 | 2.800E-01 | 2.800E 07 | 7.700E 04 | 4.000E 04 | 1.429E 05 |
| SS (CAST) CF-20 | 1.965E 05 | 5.561E 04 | 2.800E-01 | 2.800E 07 | 7.700E 04 | 3.600E 04 | 1.286E 05 |
| IBS (WROUGHT) K 945 | 1.961E 05 | 5.590E 04 | 2.850E-01 | 2.840E 07 | 1.010E 05 | 1.330E 05 | 4.667E 05 |
| SS (CAST) CG-8M | 1.961E 05 | 5.511E 04 | 2.810E-01 | 2.800E 07 | 8.200E 04 | 4.300E 04 | 1.530E 05 |
| WRESIS ALLOY (CAST) WD | 1.950E 05 | 5.344E 04 | 2.740E-01 | 2.700E 07 | 8.300E 04 | 4.800E 04 | 1.752E 05 |
| PEARLITIC 45007 (CAST) | 1.946E 05 | 5.157E 04 | 2.650E-01 | 2.600E 07 | 6.800E 04 | 4.500E 04 | 1.698E 05 |
| PEARLITIC 45010 (CAST) | 1.946E 05 | 5.157E 04 | 2.650E-01 | 2.600E 07 | 6.500E 04 | 4.500E 04 | 1.698E 05 |
| PEARLITIC 60003 (CAST) | 1.946E 05 | 5.157E 04 | 2.650E-01 | 2.600E 07 | 8.000E 04 | 6.000E 04 | 2.264E 05 |
| PEARLITIC 80002 (CAST) | 1.946E 05 | 5.157E 04 | 2.650E-01 | 2.600E 07 | 1.000E 05 | 8.000E 04 | 3.019E 05 |
| AHSS (WROUGHT) 17-14 CU MO | 1.941E 05 | 5.570E 04 | 2.870E-01 | 2.800E 07 | 8.600E 04 | 4.200E 04 | 1.463E 05 |
| IBS (WROUGHT OR CAST) MULTIMET | 1.938E 05 | 5.737E 04 | 2.960E-01 | 2.880E 07 | 1.180E 05 | 5.800E 04 | 1.959E 05 |
| IBS (WROUGHT) 16-25-6 | 1.934E 05 | 5.628E 04 | 2.910E-01 | 2.820E 07 | 1.420E 05 | 1.120E 05 | 3.849E 05 |
| WRESIS ALLOY (CAST) WH TYPE 1 | 1.933E 05 | 5.303E 04 | 2.790E-01 | 2.700E 07 | 5.000E 04 | 5.000E 04 | 1.792E 05 |
| WRESIS ALLOY (CAST) WH TYPE 2 | 1.933E 05 | 5.303E 04 | 2.790E-01 | 2.700E 07 | 8.500E 04 | 4.000E 04 | 1.434E 05 |
| WRESIS ALLOY (CAST) WI | 1.933E 05 | 5.303E 04 | 2.790E-01 | 2.700E 07 | 8.000E 04 | 4.500E 04 | 1.613E 05 |
| ASS (WROUGHT, O) 301 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 1.100E 05 | 4.000E 04 | 1.379E 05 |
| ASS (WROUGHT, COLD WORKED) 301 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 1.850E 05 | 1.400E 05 | 4.828E 05 |
| ASS (WROUGHT, O) 302 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 9.000E 04 | 4.000E 04 | 1.379E 05 |
| ASS (WROUGHT, O) 302B | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 9.500E 04 | 4.000E 04 | 1.379E 05 |
| ASS (WROUGHT, O) 304 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 8.400E 04 | 4.200E 04 | 1.448E 05 |
| ASS (WROUGHT, O) 304 L | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 8.100E 04 | 3.900E 04 | 1.345E 05 |
| ASS (WROUGHT, O) 305 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 8.500E 04 | 3.800E 04 | 1.310E 05 |
| ASS (WROUGHT, O) 308 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 8.500E 04 | 3.500E 04 | 1.207E 05 |
| ASS (WROUGHT) 316 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 8.400E 04 | 4.200E 04 | 1.448E 05 |
| ASS (WROUGHT) 317 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 9.000E 04 | 4.000E 04 | 1.379E 05 |
| ASS (WROUGHT) 321 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 9.000E 04 | 3.500E 04 | 1.207E 05 |
| ASS (WROUGHT) 347-348 | 1.931E 05 | 5.599E 04 | 2.900E-01 | 2.800E 07 | 9.500E 04 | 4.000E 04 | 1.379E 05 |
| FERRITIC 32510 (CAST) | 1.930E 05 | 5.600E 04 | 2.590E-01 | 2.500E 07 | 5.000E 04 | 3.250E 04 | 1.259E 05 |
| FERRITIC 35018 (CAST) | 1.930E 05 | 5.600E 04 | 2.590E-01 | 2.500E 07 | 5.300E 04 | 3.500E 04 | 1.351E 05 |
| SS (CAST) CF-3 | 1.929E 05 | 5.402E 04 | 2.800E-01 | 2.700E 07 | 7.700E 04 | 3.700E 04 | 1.321E 05 |
| SS (CAST) CF-3M | 1.929E 05 | 5.402E 04 | 2.800E-01 | 2.700E 07 | 8.000E 04 | 4.200E 04 | 1.500E 05 |
| WRESIS ALLOY (CAST) WN | 1.919E 05 | 5.431E 04 | 2.830E-01 | 2.700E 07 | 6.800E 04 | 3.800E 04 | 1.343E 05 |
| WRESIS ALLOY (CAST) WT | 1.909E 05 | 5.460E 04 | 2.860E-01 | 2.700E 07 | 7.000E 04 | 4.000E 04 | 1.399E 05 |
| WRESIS ALLOY (CAST) WU | 1.898E 05 | 5.498E 04 | 2.900E-01 | 2.700E 07 | 7.000E 04 | 4.000E 04 | 1.379E 05 |
| UHSS (WROUGHT) 18 NI | 1.878E 05 | 5.447E 04 | 2.900E-01 | 2.650E 07 | 2.750E 05 | 2.600E 05 | 9.241E 05 |
| WRESIS ALLOY (CAST) WE | 1.867E 05 | 5.170E 04 | 2.770E-01 | 2.500E 07 | 9.500E 04 | 4.500E 04 | 1.625E 05 |
| SS (CAST) CE-30 | 1.867E 05 | 5.170E 04 | 2.770E-01 | 2.500E 07 | 9.700E 04 | 6.300E 04 | 2.274E 05 |
| NOD OR DUC WRESIS (CAST) | 1.843E 05 | 4.608E 04 | 2.500E-01 | 2.200E 07 | 6.000E 04 | 4.500E 04 | 1.800E 05 |
| NOD OR DUC 60-40-18 (CAST) | 1.818E 05 | 4.672E 04 | 2.570E-01 | 2.200E 07 | 6.000E 04 | 4.500E 04 | 1.751E 05 |
| NOD OR DUC 80-55-06 (CAST) | 1.818E 05 | 4.672E 04 | 2.570E-01 | 2.200E 07 | 9.000E 04 | 6.000E 04 | 2.335E 05 |
| NOD OR DUC 100-70-03 (CAST) | 1.818E 05 | 4.672E 04 | 2.570E-01 | 2.200E 07 | 1.000E 05 | 7.500E 04 | 2.918E 05 |
| NOD OR DUC 120-90-02 (CAST) | 1.818E 05 | 4.672E 04 | 2.570E-01 | 2.200E 07 | 1.200E 05 | 9.000E 04 | 3.502E 05 |
| WRESIS ALLOY (CAST) WW | 1.812E 05 | 5.327E 04 | 2.940E-01 | 2.500E 07 | 6.800E 04 | 3.600E 04 | 1.224E 05 |
| WRESIS ALLOY (CAST) WX | 1.812E 05 | 5.327E 04 | 2.940E-01 | 2.500E 07 | 6.500E 04 | 3.600E 04 | 1.224E 05 |
| UHSS (WROUGHT) 20 NI | 1.809E 05 | 5.336E 04 | 2.950E-01 | 2.500E 07 | 2.812E 05 | 2.700E 05 | 9.153E 05 |
| SS (CAST) CN-7M | 1.790E 05 | 5.135E 04 | 2.870E-01 | 2.400E 07 | 6.900E 04 | 3.100E 04 | 1.073E 05 |
| UHSS (WROUGHT) 25 NI | 1.789E 05 | 5.237E 04 | 2.900E-01 | 2.400E 07 | 3.190E 05 | 2.840E 05 | 9.595E 05 |
| NOD OR DUC AUSTENITIC (CAST) | 1.632E 05 | 4.335E 04 | 2.660E-01 | 1.850E 07 | 5.800E 04 | 3.200E 04 | 1.194E 05 |

| MATERIAL | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) |
|---|---|---|---|---|---|---|---|
| IBS (WROUGHT) S-590 | 6.011E 04 | 3.010E-01 | 3.110E 07 | 1.420E 05 | 7.500E 04 | 2.492E 05 | 1.997E 05 |
| IBS (WROUGHT) REFRACTALOY 26 | 5.913E 04 | 2.960E-01 | 3.060E 07 | 1.540E 05 | 9.100E 04 | 3.074E 05 | 1.998E 05 |
| HTS (WROUGHT) CHROMOLOY | 5.896E 04 | 2.850E-01 | 3.160E 07 | 1.390E 05 | 1.170E 05 | 4.109E 05 | 2.069E 05 |
| IBS (WROUGHT) INCOLOY 901 | 5.845E 04 | 2.940E-01 | 2.990E 07 | 1.730E 05 | 1.300E 05 | 4.392E 05 | 1.975E 05 |
| IBS (WROUGHT) D-979 | 5.845E 04 | 2.950E-01 | 3.000E 07 | 2.040E 05 | 1.440E 05 | 4.949E 05 | 1.981E 05 |
| IBS (WROUGHT) AMS 5700 | 5.795E 04 | 2.900E-01 | 3.000E 07 | 1.100E 05 | 4.800E 04 | 1.655E 05 | 1.998E 05 |
| IBS (WROUGHT OR CAST) MULTIMET | 5.737E 04 | 2.940E-01 | 2.880E 07 | 1.180E 05 | 5.800E 04 | 1.959E 05 | 1.938E 05 |
| CS (CAST) 60,000 | 5.734E 04 | 2.830E-01 | 3.010E 07 | 6.300E 04 | 3.500E 04 | 1.237E 05 | 2.026E 05 |
| CS (CAST) 65,000 | 5.734E 04 | 2.830E-01 | 3.010E 07 | 6.800E 04 | 3.800E 04 | 1.343E 05 | 2.026E 05 |
| CS (CAST) 70,000 | 5.725E 04 | 2.830E-01 | 3.000E 07 | 7.500E 04 | 4.200E 04 | 1.484E 05 | 2.023E 05 |
| UHSS (WROUGHT) D-6A | 5.725E 04 | 2.830E-01 | 3.000E 07 | 2.840E 05 | 2.500E 05 | 8.834E 05 | 2.023E 05 |
| UHSS (WROUGHT) 4340 | 5.725E 04 | 2.830E-01 | 3.000E 07 | 2.870E 05 | 2.700E 05 | 9.541E 05 | 2.023E 05 |
| IBS (WROUGHT) 19-9DL (CR-NI) | 5.717E 04 | 2.870E-01 | 2.950E 07 | 1.140E 05 | 7.100E 04 | 2.474E 05 | 1.992E 05 |
| IBS (WROUGHT) 19-9DL(CR-NI-MO) | 5.717E 04 | 2.870E-01 | 2.950E 07 | 1.180E 05 | 6.900E 04 | 2.404E 05 | 1.992E 05 |
| CS (CAST) 80,000 | 5.715E 04 | 2.830E-01 | 2.990E 07 | 8.200E 04 | 4.800E 04 | 1.696E 05 | 2.020E 05 |
| CS (CAST) 85,000 | 5.715E 04 | 2.830E-01 | 2.990E 07 | 9.000E 04 | 5.500E 04 | 1.943E 05 | 2.020E 05 |
| HTS (WROUGHT) LAPELLOY | 5.705E 04 | 2.810E-01 | 3.000E 07 | 1.570E 05 | 1.250E 05 | 4.448E 05 | 2.030E 05 |
| UHSS (WROUGHT) MODIFIED H-11 | 5.705E 04 | 2.810E-01 | 3.000E 07 | 2.950E 05 | 2.410E 05 | 8.577E 05 | 2.030E 05 |
| ASS (WROUGHT) 309 | 5.698E 04 | 2.900E-01 | 2.900E 07 | 9.000E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 |
| ASS (WROUGHT) 309S | 5.698E 04 | 2.900E-01 | 2.900E 07 | 9.000E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 |
| ASS (WROUGHT) 310 | 5.698E 04 | 2.900E-01 | 2.900E 07 | 9.500E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 |
| ASS (WROUGHT) 310S | 5.698E 04 | 2.900E-01 | 2.900E 07 | 9.500E 04 | 4.500E 04 | 1.552E 05 | 1.965E 05 |
| CS (CAST) 100,000 | 5.696E 04 | 2.830E-01 | 2.970E 07 | 1.090E 05 | 7.500E 04 | 2.650E 05 | 2.013E 05 |
| HTS (WROUGHT) 14 MV | 5.677E 04 | 2.830E-01 | 2.950E 07 | 1.500E 05 | 1.270E 05 | 4.488E 05 | 2.006E 05 |
| INGOT IRON (O) | 5.675E 04 | 2.800E-01 | 2.980E 07 | 4.200E 04 | 1.900E 04 | 6.786E 04 | 2.027E 05 |
| INGOT IRON (COLD DRAWN) | 5.675E 04 | 2.800E-01 | 2.980E 07 | 7.300E 04 | 6.900E 04 | 2.464E 05 | 2.027E 05 |
| INGOT IRON (HOT ROLLED) | 5.675E 04 | 2.800E-01 | 2.980E 07 | 4.400E 04 | 2.300E 04 | 8.214E 04 | 2.027E 05 |
| IBS (WROUGHT) A-286 | 5.668E 04 | 2.860E-01 | 2.910E 07 | 1.460E 05 | 1.000E 05 | 3.497E 05 | 1.987E 05 |
| IBS (WROUGHT) UNITEMP 212 | 5.658E 04 | 2.860E-01 | 2.900E 07 | 1.870E 05 | 1.340E 05 | 4.685E 05 | 1.978E 05 |
| AHSS (WROUGHT) AM-350 | 5.657E 04 | 2.820E-01 | 2.940E 07 | 2.060E 05 | 1.730E 05 | 6.139E 05 | 2.088E 05 |
| AHSS (CAST) AM-355 | 5.648E 04 | 2.820E-01 | 2.930E 07 | 2.230E 05 | 1.830E 05 | 6.489E 05 | 2.083E 05 |
| AHSS (WROUGHT) AM-355 | 5.648E 04 | 2.820E-01 | 2.930E 07 | 1.860E 05 | 1.710E 05 | 6.064E 05 | 2.003E 05 |
| HTS (WROUGHT) GREEK ASCOLOY | 5.635E 04 | 2.840E-01 | 2.900E 07 | 1.700E 05 | 1.500E 05 | 5.282E 05 | 1.985E 05 |
| ALLOY STEEL (CAST) 65,000 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 6.800E 04 | 3.800E 04 | 1.343E 05 | 1.989E 05 |
| ALLOY STEEL (CAST) 70,000 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 7.400E 04 | 4.400E 04 | 1.559E 05 | 1.989E 05 |
| ALLOY STEEL (CAST) 80,000 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.600E 04 | 5.400E 04 | 1.908E 05 | 1.989E 05 |
| ALLOY STEEL (CAST) 90,000 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 9.500E 04 | 6.400E 04 | 2.261E 05 | 1.989E 05 |
| ALLOY STEEL (CAST) 105,000 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.100E 05 | 9.100E 04 | 3.216E 05 | 1.989E 05 |
| ALLOY STEEL (CAST) 120,000 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.280E 05 | 1.120E 05 | 3.958E 05 | 1.989E 05 |
| ALLOY STEEL (CAST) 150,000 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.580E 05 | 1.420E 05 | 5.018E 05 | 1.989E 05 |
| ALLOY STEEL (CAST) 175,000 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.790E 05 | 1.600E 05 | 5.654E 05 | 1.989E 05 |
| ALLOY STEEL (CAST) 200,000 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 2.050E 05 | 1.700E 05 | 6.007E 05 | 1.989E 05 |
| CS (CARB-GR) C1015 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 7.300E 04 | 4.600E 04 | 1.625E 05 | 1.989E 05 |
| CS (CARB-GR) C1020 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 7.500E 04 | 4.800E 04 | 1.696E 05 | 1.989E 05 |
| CS (CARB-GR) C1022 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.200E 04 | 4.700E 04 | 1.661E 05 | 1.989E 05 |
| CS (CARB-GR) C1117 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 9.700E 04 | 5.900E 04 | 2.085E 05 | 1.989E 05 |
| CS (CARB-GR) C1118 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.130E 05 | 7.700E 04 | 2.721E 05 | 1.989E 05 |
| CS (WARD-GR) C1030 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.220E 05 | 9.300E 04 | 3.286E 05 | 1.989E 05 |
| CS (WARD-GR) C1040 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.130E 05 | 8.600E 04 | 3.039E 05 | 1.989E 05 |
| CS (WARD-GR) C1050 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.430E 05 | 1.080E 05 | 3.816E 05 | 1.989E 05 |
| CS (WARD-GR) C1060 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.600E 05 | 1.120E 05 | 3.958E 05 | 1.989E 05 |
| CS (WARD-GR) C1080 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.900E 05 | 1.420E 05 | 5.018E 05 | 1.989E 05 |
| CS (WARD-GR) C1095 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 1.880E 05 | 1.200E 05 | 4.240E 05 | 1.989E 05 |
| FCCS (WROUGHT) R1111 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 |
| FCCS (WROUGHT) R1211 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 |
| FCCS (WROUGHT) R1112 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 |
| FCCS (WROUGHT) R1212 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 |
| FCCS (WROUGHT) R1113 | 5.629E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 |

| MATERIAL | INF. [illegible]CE (PSI/[illegible]) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) |
|---|---|---|---|---|---|---|---|
| FCCS (WROUGHT) R1213 | 5 [illegible]E 04 | 2.830E-01 | 2.900E 07 | 8.000E 04 | 7.000E 04 | 2.473E 05 | 1.989E 05 |
| NS (WROUGHT) E2 | 5,629E 04 | 2.830E-01 | 2.900E 07 | 1.260E 05 | 9.000E 04 | 3.180E 05 | 1.989E 05 |
| NS (WROUGHT) N | 5,629E 04 | 2.830E-01 | 2.900E 07 | 1.320E 05 | 1.140E 05 | 4.028E 05 | 1.989E 05 |
| NS (WROUGHT) 135 | 5,629E 04 | 2.830E-01 | 2.900E 07 | 1.380E 05 | 1.200E 05 | 4.240E 05 | 1.989E 05 |
| NS (WROUGHT) 135 MODIFIED | 5,629E 04 | 2.830E-01 | 2.900E 07 | 1.590E 05 | 1.410E 05 | 4.982E 05 | 1.989E 05 |
| IBS (WROUGHT) 16-25-6 | 5,628E 04 | 2.910E-01 | 2.820E 07 | 1.420E 05 | 1.120E 05 | 3.849E 05 | 1.934E 05 |
| WROUGHT IRON LONG (HOT ROLLED) | 5,627E 04 | 2.780E-01 | 2.950E 07 | 4.800E 04 | 2.700E 04 | 9.712E 04 | 2.024E 05 |
| WROUGHT IRON TRAN (HOT ROLLED) | 5,627E 04 | 2.780E-01 | 2.950E 07 | 3.900E 04 | 2.700E 04 | 9.712E 04 | 2.024E 05 |
| CS (HARD-GR) C1137 | 5,619E 04 | 2.830E-01 | 2.900E 07 | 1.980E 05 | 1.380E 05 | 4.894E 05 | 1.992E 05 |
| CS (HARD-GR) C1141 | 5,619E 04 | 2.820E-01 | 2.900E 07 | 2.370E 05 | 1.880E 05 | 6.667E 05 | 1.992E 05 |
| CS (HARD-GR) C1144 | 5,619E 04 | 2.820E-01 | 2.900E 07 | 1.280E 05 | 9.100E 04 | 3.227E 05 | 1.993E 05 |
| AHSS (WROUGHT) ALMER 362 | 5,599E 04 | 2.810E-01 | 2.890E 07 | 1.490E 05 | 1.600E 05 | 5.694E 05 | 1.993E 05 |
| ASS (WROUGHT, O) 304 | 5,599E 04 | 2.900E-01 | 2.800E 07 | 1.100E 05 | 4.000E 04 | 1.379E 05 | 1.931E 05 |
| ASS (WROUGHT, CO[illegible] WORKED) 301 | 5,599E 04 | 2.900E-01 | 2.800E 07 | 1.890E 05 | 1.400E 05 | 4.828E 05 | 1.931E 05 |
| ASS (WROUGHT, O) 302 | 5,599E 04 | 2.900E-01 | .800E 07 | 9.000E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 |
| ASS (WROUGHT, O) 302B | 5,599E 04 | 2.900E-01 | 800E 07 | 9.500E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 |
| ASS (WROUGHT, O) 304 | 5,599E 04 | 2.900E-01 | 2.800E 07 | 8.400E 04 | 4.200E 04 | 1.448E 05 | 1.931E 05 |
| ASS (WROUGHT, O) 304 L | 5,599E 04 | 2.900E-01 | 2.800E 07 | 8.100E 04 | 3.900E 04 | 1.345E 05 | 1[illegible]E 05 |
| ASS (WROUGHT, O) 305 | 5,599E 04 | 2.900E-01 | 2.800E 07 | 8.500E 04 | 3.800E 04 | 1.310E 05 | 1[illegible]E 05 |
| ASS (WROUGHT, O) 308 | 5,599E 04 | 2.900E-01 | 2.800E 07 | 8.500E 04 | 3.500E 04 | 1.207E 05 | 1.931E 05 |
| ASS (WROUGHT) 314 | 5,599E 04 | 2.800E-01 | 2.900E 07 | 1.000E 05 | 5.000E 04 | 1.786E 05 | 2.000E 05 |
| ASS (WROUGHT) 316 | 5,599E 04 | 2.900E-01 | 2.800E 07 | 8.400E 04 | 4.200E 04 | 1.448E 05 | 1.931E 05 |
| ASS (WROUGHT) 317 | 5,599E 04 | 2.900E-01 | 2.800E 07 | 9.000E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 |
| ASS (WROUGHT) 321 | 5,599E 04 | 2.900E-01 | 2.800E 07 | 9.000E 04 | 3.500E 04 | 1.207E 05 | 1.931E 05 |
| ASS (WROUGHT) 347-348 | 5,599E 04 | 2.900E-01 | 2.800E 07 | 9.500E 04 | 4.000E 04 | 1.379E 05 | 1.931E 05 |
| FSS (WROUGHT, O) 405 | 5,599E 04 | 2.800E-01 | 2.900E 07 | 6.500E 04 | 3.500E 04 | 1.250E 05 | 2.000E 05 |
| FSS (WROUGHT, COLD WORKED) 405 | 5,599E 04 | 2.800E-01 | 2.900E 07 | 8.500E 04 | 7.000E 04 | 2.500E 05 | 2.000E 05 |
| FSS (WROUGHT, O) 430 | 5,599E 04 | 2.800E-01 | 2.900E 07 | 7.500E 04 | 4.000E 04 | 1.429E 05 | 2.000E 05 |
| FSS (WROUGHT, COLD WORKED) 430 | 5,599E 04 | 2.800E-01 | 2.900E 07 | 7.500E 04 | 4.500E 04 | 1.607E 05 | 2.000E 05 |
| FSS (WROUGHT, O) 430F | 5,599E 04 | 2.800E-01 | 2.900E 07 | 8.000E 04 | 5.500E 04 | 1.964E 05 | 2.000E 05 |
| FSS (WROUGHT,COLD WORKED) 430F | 5,599E 04 | 2.800E-01 | 2.900E 07 | 8.000E 04 | 5.500E 04 | 1.964E 05 | 2.000E 05 |
| NRESIS ALLOY (CAST) WK | 5,599E 04 | 2.800E-01 | 2.900E 07 | 7.300E 04 | 5.000E 04 | 1.786E 05 | 2.000E 05 |
| MSS (WROUGHT, O) 403 | 5,599E 04 | 2.800E-01 | 2.900E 07 | 7.000E 04 | 4.000E 04 | 1.429E 05 | 2.000E 05 |
| MSS (WROUGHT, HARD+TEMP) 403 | 5,599E 04 | 2.800E-01 | 2.900E 07 | 1.100E 05 | 8.500E 04 | 3.036E 05 | 2.000E 05 |
| MSS (WROUGHT, O) 410 | 5,599E 04 | 2.800E-01 | 2.900E 07 | 6.500E 04 | 3.500E 04 | 1.250E 05 | 2.000E 05 |
| MSS (WROUGHT, HARD+TEMP) 41[illegible] | 5,599E 04 | 2.800E-01 | 2.900E 07 | 9.000E 04 | 6.000E 04 | 2.143E 05 | 2.000E 05 |
| MSS (WROUGHT, O) 414 | 5,599E 04 | 2.800E-01 | 2.900E 07 | 1.150E 05 | 9.000E 04 | 3.214E 05 | 2.000E 05 |
| MSS (WROUGHT, HARD+TEMP) 414 | 5,599E 04 | 2.800E-01 | 2.900E 07 | 1.200E 05 | 1.050E 05 | 3.750E 05 | 2.000E 05 |
| MSS (WROUGHT, O) 416 | 5,599E 04 | 2.800E-01 | 2.900E 07 | 7.500E 04 | 4.000E 04 | 1.429E 05 | 2.000E 05 |
| MSS (WROUGHT, HARD+TEMP) 416 | 5,599E 04 | 2.800E-01 | 2.900E 07 | 9.000E 04 | 6.000E 04 | 2.143E 05 | 2.000E 05 |
| MSS (WROUGHT, O) 420 | 5,599E 04 | 2.800E-01 | 2.900E 07 | 9.500E 04 | 5.000E 04 | 1.786E 05 | 2.000E 05 |
| MSS (WROUGHT, HARD+TEMP) 42[illegible] | 5,599E 04 | 2.800E-01 | 2.900E 07 | 2.330E 05 | 1.950E 05 | 6.964E 05 | 2.000E 05 |
| MSS (WROUGHT, O) 431 | 5,599E 04 | 2.800E-01 | 2.900E 07 | 1.250E 05 | 9.500E 04 | 3.393E 05 | 2.000E 05 |
| MSS (WROUGHT, HARD+TEMP) 431 | 5,599E 04 | 2.800E-01 | 2.900E 07 | 1.250E 05 | 9.500E 04 | 3.393E 05 | 2.000E 05 |
| MSS (WROUGHT, O) 440A | 5,599E 04 | 2.800E-01 | 2.900E 07 | 1.050E 05 | 6.000E 04 | 2.143E 05 | 2.000E 05 |
| MSS (WROUGHT, HARD+TEMP) 44[illegible] A | 5,599E 04 | 2.800E-01 | 2.900E 07 | 2.600E 05 | 2.400E 05 | 8.571E 05 | 2.000E 05 |
| MSS (WROUGHT, O) 440B | 5,599E 04 | 2.800E-01 | 2.900E 07 | 1.070E 05 | 6.200E 04 | 2.214E 05 | 2.000E 05 |
| MSS (WROUGHT, HARD+TEMP) 44 B | 5,599E 04 | 2.800E-01 | 2.900E 07 | 2.800E 05 | 2.700E 05 | 9.643E 05 | 2.000E 05 |
| MSS (WROUGHT, O) 440C | 5,599E 04 | 2.800E-01 | 2.900E 07 | 1.100E 05 | 6.500E 04 | 2.321E 05 | 2.000E 05 |
| MSS (WROUGHT, HARD+TEMP) 440C | 5,599E 04 | 2.800E-01 | 2.900E 07 | 2.850E 05 | 2.750E 05 | 9.821E 05 | 2.000E 05 |
| SS (CAST) CK-20 | 5,599E 04 | 2.800E-01 | 2.900E 07 | 7.600E 04 | 3.800E 04 | 1.357E 05 | 2.000E 05 |
| UHSS (WROUGHT) HX-2 | 5,597E 04 | 2.760E-01 | 2.940E 07 | 2.700E 05 | 2.390E 05 | 8.659E 05 | 2.028E 05 |
| IBS (WROUGHT) W 545 | 5,590E 04 | 2.850E-01 | 2.840E 07 | 1.010E 05 | 1.330E 05 | 4.667E 05 | 1.961E 05 |
| NRESIS ALLOY (CAST) WA | 5,589E 04 | 2.790E-01 | 2.900E 07 | 9.500E 04 | 6.500E 04 | 2.330E 05 | 2.003E 05 |
| NRESIS ALLOY (CAST) WL | 5,589E 04 | 2.790E-01 | 2.900E 07 | 8.200E 04 | 5.200E 04 | 1.864E 05 | 2.003E 05 |
| AHSS (WROUGHT) 17-14 CU MO | 5,570E 04 | 2.670E-01 | 2.800E 07 | 8.600E 04 | 4.200E 04 | 1.463E 05 | 1.941E 05 |
| AHSS (WROUGHT) PH 15-7 MO (RH) | 5,569E 04 | 2.770E-01 | 2.900E 07 | 2.400E 05 | 2.250E 05 | 8.123E 05 | 2.010E 05 |
| AHSS (WROUGHT) PH 15-7 MO (TH) | 5,569E 04 | 2.770E-01 | 2.900E 07 | 2.100E 05 | 2.000E 05 | 7.220E 05 | 2.010E 05 |

| MATERIAL | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | ULT STR (PSI) | YLD STR (PSI) | YLD STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) |
|---|---|---|---|---|---|---|---|
| SS (CAST) CD-4MCU | 5,560E 04 | 2.770E-01 | 2.900E 07 | 1.090E 05 | 8.500E 04 | 3.069E 05 | 2.010E 05 |
| AMSS (WROUGHT) 17-4 PH (H1150) | 5,560E 04 | 2.810E-01 | 2.850E 07 | 1 490E 05 | 1.250E 05 | 4.448E 05 | 1.970E 05 |
| AMSS (WROUGHT) 17-7 PH (RH950) | 5,550E 04 | 2.760E-01 | 2.900E 07 | 2 390E 05 | 2.200E 05 | 7.971E 05 | 2.014E 05 |
| AMSS (WROUGHT) 17-7PH (TH1050) | 5,550E 04 | 2.760E-01 | 2.900E 07 | 2.000E 05 | 1.850E 05 | 6.703E 05 | 2.014E 05 |
| AMSS (CAST) 17-4PH | 5,550E 04 | 2.800E-01 | 2.850E 07 | 1.700E 05 | 1.400E 05 | 5.000E 05 | 1.982E 05 |
| SS (CAST, HARD+TEMP) CA-15 | 5,540E 04 | 2.750E-01 | 2.900E 07 | 2.000E 05 | 1.500E 05 | 5.455E 05 | 2.018E 05 |
| SS (CAST, HARD+TEMP) CA-40 | 5,540E 04 | 2.750E-01 | 2.900E 07 | 2.200E 05 | 1.650E 05 | 6.000E 05 | 2.018E 05 |
| WRESIS ALLOY (CAST) WC | 5,510E 04 | 2.700E-01 | 2.900E 07 | 7.000E 04 | 6.500E 04 | 2.300E 05 | 2.029E 05 |
| SS (CAST, O) CB-30 | 5,510E 04 | 2.700E-01 | 2.900E 07 | 9.500E 04 | 6.000E 04 | 2.200E 05 | 2.029E 05 |
| SS (CAST, O) CC-50 | 5,510E 04 | 2.700E-01 | 2.900E 07 | 9.700E 04 | 6.500E 04 | 2.390E 05 | 2.029E 05 |
| SS (CAST, AS CAST) CF-8 | 5,511E 04 | 2.700E-01 | 2.900E 07 | 7.000E 04 | 6.000E 04 | 2.200E 05 | 2.029E 05 |
| SS (CAST) CG-8M | 5,511E 04 | 2.810E-01 | 2.800E 07 | 8.200E 04 | 4 300E 04 | 1.530E 05 | 1.961E 05 |
| AMSS (WROUGHT) STAINLESS W | 5,501E 04 | 2.600E-01 | 2.800E 07 | 1.950E 05 | 1.850E 05 | 6.429E 05 | 1.965E 05 |
| ASS (WROUGHT, O) 261 | 5,501E 04 | 2.800E-01 | 2.850E 07 | 1.190E 05 | 5.500E 04 | 1.964E 05 | 1.965E 05 |
| ASS (WROUGHT, CO D WORKED) 201 | 5,501E 04 | 2.800E-01 | 2.850E 07 | 1.500E 05 | 1.150E 05 | 3.929E 05 | 1.965E 05 |
| ASS (WROUGHT, O) 202 | 5,501E 04 | 2.800E-01 | 2.850E 07 | 1.050E 05 | 5.500E 04 | 1.964E 05 | 1.965E 05 |
| WRESIS ALLOY (CAST) WF | 5,501E 04 | 2.800E-01 | 2.800E 07 | 8.500E 04 | 4.500E 04 | 1.607E 05 | 1.965E 05 |
| SS (CAST) CF-8 | 5,501E 04 | 2.800E-01 | 2.800E 07 | 7.700E 04 | 3.700E 04 | 1.321E 05 | 1.965E 05 |
| SS (CAST) CF-8C | 5,501E 04 | 2.800E-01 | 2.800E 07 | 7.700E 04 | 3.800E 04 | 1.357E 05 | 1.965E 05 |
| SS (CAST) CF-8M | 5,501E 04 | 2.810E-01 | 2.800E 07 | 8.000E 04 | 4.200E 04 | 1.500E 05 | 1.965E 05 |
| SS (CAST) CF-10F | 5,501E 04 | 2.800E-01 | 2.800E 07 | 7.700E 04 | 4.000E 04 | 1.429E 05 | 1.965E 05 |
| SS (CAST) CF-20 | 5,501E 04 | 2.800E-01 | 2.800E 07 | 7.700E 04 | 3.400E 04 | 1.200E 05 | 1.965E 05 |
| FSS (WROUGHT, O) 446 | 5,498E 04 | 2.700E-01 | 2.900E 07 | 8.000E 04 | 5.000E 04 | 1.852E 05 | 2.036E 05 |
| FSS (WROUGHT, COLD WORKED) 446 | 5,498E 04 | 2.700E-01 | 2.900E 07 | 8.500E 04 | 7.000E 04 | 2.593E 05 | 2.036E 05 |
| WRESIS ALLOY (CAST) WU | 5,498E 04 | 2.900E-01 | 2.700E 07 | 7.000E 04 | 4.000E 04 | 1.379E 05 | 1.896E 05 |
| SS (CAST) CH-20 | 5,492E 04 | 2.700E-01 | 2.800E 07 | 8.000E 04 | 5.000E 04 | 1.792E 05 | 1.968E 05 |
| WRESIS ALLOY (CAST) W' | 5,460E 04 | 2.860E-01 | 2.700E 07 | 7.000E 04 | 4.000E 04 | 1.399E 05 | 1.909E 05 |
| UHSS (WROUGHT) 18 NI | 5,447E 04 | 2.900E-01 | 2.650E 07 | 2.750E 05 | 2.400E 05 | 9.241E 05 | 1.878E 05 |
| WRESIS ALLOY (CAST) WN | 5,431E 04 | 2.830E-01 | 2.700E 07 | 6.000E 04 | 3.000E 04 | 1.060E 05 | 1.919E 05 |
| SS (CAST) CF-3 | 5,402E 04 | 2.800E-01 | 2.700E 07 | 7.700E 04 | 3.700E 04 | 1.321E 05 | 1.929E 05 |
| SS (CAST) CF-3M | 5,402E 04 | 2.800E-01 | 2.700E 07 | 8.000E 04 | 4.200E 04 | 1.500E 05 | 1.929E 05 |
| WRESIS ALLOY (CAST) WW TYPE 1 | 5,393E 04 | 2.790E-01 | 2.700E 07 | 8.000E 04 | 5.000E 04 | 1.792E 05 | 1.933E 05 |
| WRESIS ALLOY (CAST) WW TYPE 2 | 5,393E 04 | 2.790E-01 | 2.700E 07 | 8 500E 04 | 4.000E 04 | 1.434E 05 | 1.933E 05 |
| WRESIS ALLOY (CAST) WI | 5,393E 04 | 2.790E-01 | 2.700E 07 | 8.000E 04 | 4.500E 04 | 1.613E 05 | 1.933E 05 |
| WRESIS ALLOY (CAST) WO | 5,344E 04 | 2.740E-01 | 2.700E 07 | 8.500E 04 | 4.800E 04 | 1.752E 05 | 1.950E 05 |
| UHSS (WROUGHT) 20 NI | 5,336E 04 | 2.950E-01 | 2.300E 07 | 2.810E 05 | 2.700E 05 | 9.153E 05 | 1.809E 05 |
| WRESIS ALLOY (CAST) WW | 5,327E 04 | 2.940E-01 | 2.500E 07 | 6.800E 04 | 3.600E 04 | 1.224E 05 | 1.812E 05 |
| WRESIS ALLOY (CAST) WX | 5,327E 04 | 2.940E-01 | 2.500E 07 | 6 500E 04 | 3.600E 04 | 1.224E 05 | 1.812E 05 |
| UHSS (WROUGHT; 25 NI | 5,237E 04 | 2.960E-01 | 2.400E 07 | 3 490E 05 | 2.840E 05 | 9.595E 05 | 1.749E 05 |
| PEARLITIC 40004 (CAST) | 5,237E 04 | 2.650E-01 | 2.650E 07 | 7.000E 04 | 4.800E 04 | 1.811E 05 | 1.965E 05 |
| PEARLITIC 50007 (CAST) | 5,207E 04 | 2.650E-01 | 2.650E 07 | 7.500E 04 | 5.000E 04 | 1.887E 05 | 1.965E 05 |
| PEARLITIC 93004 (CAST) | 5,207E 04 | 2.650E-01 | 2.650E 07 | 8.000E 04 | 5.300E 04 | 2.000E 05 | 1.965E 05 |
| SS (CAST) CN-7M | 5,175E 04 | 2.800E-01 | 2.400E 07 | 6.900E 04 | 3.100E 04 | 1.073E 05 | 1.793E 05 |
| WRESIS ALLOY (CAST) WE | 5,170E 04 | 2.770E-01 | 2.500E 07 | 9.500E 04 | 4.500E 04 | 1.629E 05 | 1.867E 05 |
| SS (CAST) CE-30 | 5,170E 04 | 2.770E-01 | 2.500E 07 | 9.700E 04 | 6.300E 04 | 2.274E 05 | 1.867E 05 |
| PEARLITIC 45007 (CAST) | 5,157E 04 | 2.650E-01 | 2.600E 07 | 6.800E 04 | 4.500E 04 | 1.698E 05 | 1.946E 05 |
| PEARLITIC 45010 (CAST) | 5,157E 04 | 2.650E-01 | 2.600E 07 | 6.500E 04 | 4.500E 04 | 1.698E 05 | 1.946E 05 |
| PEARLITIC 60003 (CAST) | 5,157E 04 | 2.650E-01 | 2.600E 07 | 8.000E 04 | 6.000E 04 | 2.264E 05 | 1.946E 05 |
| PEARLITIC 80002 (CAST) | 5,157E 04 | 2.650E-01 | 2.600E 07 | 1.000E 05 | 8.000E 04 | 3.019E 05 | 1.946E 05 |
| FERRITIC 32510 (CAST) | 5,000E 04 | 2.500E-01 | 2.500E 07 | 5.000E 04 | 3.250E 04 | 1.255E 05 | 1.930E 05 |
| FERRITIC 35018 (CAST) | 5,000E 04 | 2.500E-01 | 2.500E 07 | 5.300E 04 | 3.500E 04 | 1.351E 05 | 1.938E 05 |
| NOD OF DUC 60-40-18 (CAST) | 4,672E 04 | 2.570E-01 | 2.200E 07 | 6.000E 04 | 4.500E 04 | 1.751E 05 | 1.818E 05 |
| NOD OR DUC 80-55-06 (CAST) | 4,672E 04 | 2.570E-01 | 2.200E 07 | 8.000E 04 | 6.000E 04 | 2.333E 05 | 1.818E 05 |
| NOD OR DUC 100-70-03 (CAST) | 4,672E 04 | 2.570E-01 | 2.200E 07 | 1.000E 05 | 7.000E 04 | 2.918E 05 | 1.818E 05 |
| NOD OR DUC 120-90-02 (CAST) | 4,672E 04 | 2.570E-01 | 2.200E 07 | 1.200E 05 | 9.000E 04 | 3.502E 05 | 1.818E 05 |
| NOD OR DUC 150818 (CAST) | 4,608E 04 | 2.500E-01 | 2.200E 07 | 6.000E 04 | 4.500E 04 | 1.800E 05 | 1.843E 05 |
| NOD OR DUC AUSTENITIC (CAST) | 4,398E 04 | 2.600E-01 | 1.850E 07 | 5.000E 04 | 3.200E 04 | 1.194E 05 | 1.632E 05 |

## LIST OF PLASTICS MATERIALS

ABS Resin
Acetal
Acrylics
Cellulose Nitrate
Diallyl Phthalates
Ethyl Cellulose
Fluorocarbons
Melamine
Phenolic
Phenoxy
Polycarbonate
Polyester
Polypropylene
Polystyrene
Propylene
Silicone
Ureas

Abbreviations are used in the following list where space limitations require them. Chemical symbols are used where they are applicable; other abbreviations are as follows:

A-CELLULOSE - alpha cellulose
A-F - asbestos filled
ARC-RES - arc resistant
CERAMIC-RE - ceramic reinforced
CHEM - chemical
CH-FA-CO - chopped fabric or cord
CHOP-FAB - chopped fabric
D-F - dacron filled
ELEC - electrical
EX-HI-IM - extra high impact
GEN - general
GF-F - glass fiber filled
GLAS-FIB - glass fiber
GP - general purpose
HEAT+CHEM-RES - heat + chemical resistant
HI-FREQ - high frequency
HI-IM - high impact
HI-SH - high shock
INT-RES - intermediate resistance
LAM - laminate
LTISR - low to intermediate shock resistant
MECH - mechanical
MED-HI-IM - medium high impact
MIN - mineral
MIN-F-Y - mineral, flour, and yarn

MOD - modified
O-F - orlon filled
PAP-FLO-PUL - paper, flock, or pulp
RUB - rubber
SH - shock
SH+HE - shock + heat
SP-UP - spray up
TEMP - temperature
VH-SH - very high shock
WF+F - wood flour + flock

HEADINGS

COM STR - compressive strength
DEN - density
IN - inches
LBS - pounds
MOD OF ELAS - modulus of elasticity
PCI - pounds per cubic inch
PSI - pounds per square inch
SEC - second
TEN STR - tensile strength

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | COM STR (PSI) | TEN STR (PSI) | TEN STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| ABS RESIN (HEAT RESISTANT) | 3.829E-02 | 3.500E 05 | 7.000E 03 | 6.300E 03 | 2.431E 05 | 5.943E 04 | 2.273E 03 |
| ABS RESIN (LOW TEMP IMPACT) | 3.681E-02 | 2.[illegible]00E 05 | 4.000E 03 | -0. | -0. | 4.580E 04 | 1.686E 03 |
| ABS RESINS (MEDIUM IMPACT) | 3.789E-02 | 3.300E 05 | 6.300E 03 | 1.050E 04 | 2.771E 05 | 5.798E 04 | 2.197E 03 |
| ABS RESINS (HIGH IMPACT) | 3.681E-02 | 2.600E 05 | 5.000E 03 | 7.000E 03 | 1.902E 05 | 5.222E 04 | 1.922E 03 |
| ABS RESIN (VERY HIGH IMPACT) | 3.645E-02 | 2.[illegible]00E 05 | 4.500E 03 | -0. | -0. | 4.602E 04 | 1.678E 03 |
| ACETAL COPOLYMER | 5.088E-02 | 4.000E 05 | 8.800E 03 | -0. | -0. | 5.509E 04 | 2.803E 03 |
| ACETAL HOMOPOLYMER | 5.143E-02 | 4.100E 05 | 1.000E 04 | 5.200E 03 | 1.011E 05 | 5.548E 04 | 2.853E 03 |
| ACRYLICS (CAST) GP-TYPE 1 | 4.222E-02 | 3.500E 05 | 6.000E 03 | 1.200E 04 | 2.842E 05 | 5.657E 04 | 2.388E 03 |
| ACRYLICS (CAST) GP-TYPE 2 | 4.258E-02 | 4.[illegible]00E 05 | 8.000E 03 | 1.400E 04 | 3.288E 05 | 6.022E 04 | 2.564E 03 |
| ACRYLICS (MOLD) GRADES 5, 6, 8 | 4.258E-02 | 3.500E 05 | 9.500E 03 | 1.450E 04 | 3.405E 05 | 5.633E 04 | 2.399E 03 |
| ACRYLICS (MOLD) HIGH IMPACT | 4.042E-02 | 2.300E 05 | 5.500E 03 | 7.300E 03 | 1.806E 05 | 4.687E 04 | 1.894E 03 |
| CELLULOSE NITRATE SHEET | 4.872E-02 | 1.900E 05 | 7.000E 03 | 2.700E 04 | 4.516E 05 | 3.880E 04 | 1.890E 03 |
| DIALLYL PHTHALATES (MOLD) A-F | 5.413E-02 | 1.200E 06 | 4.000E 03 | 1.800E 04 | 3.325E 05 | 9.251E 04 | 5.008E 03 |
| DIALLYL PHTHALATES (MOLD) D-F | 5.052E-02 | 6.400E 05 | 4.600E 03 | 2.000E 04 | 3.959E 05 | 6.993E 04 | 3.533E 03 |
| DIALLYL PHTHALATES (MOLD) GP-F | 5.594E-02 | 1.200E 06 | 5.500E 03 | 2.500E 04 | 4.469E 05 | 9.100E 04 | 5.090E 03 |
| DIALLYL PHTHALATES (MOLD) O-F | 4.728E-02 | 6.[illegible]00E 05 | 4.500E 03 | 2.000E 04 | 4.231E 05 | 7.000E 04 | 3.309E 03 |
| ETHYL CELLULOSE (MOLD) GP | 3.970E-02 | 5.[illegible]00E 04 | 3.000E 03 | -0. | -0. | 2.205E 04 | 8.753E 02 |
| ETHYL CELLULOSE (MOLD) HI-IM A | 3.970E-02 | 1.[illegible]00E 05 | 4.000E 03 | -0. | -0. | 3.118E 04 | 1.238E 03 |
| ETHYL CELLULOSE (MOLD) HI-IM B | 3.970E-02 | 1.[illegible]00E 05 | 3.500E 03 | -0. | -0. | 3.118E 04 | 1.238E 03 |
| FLUOROCARBONS FEP | 7.723E-02 | 5.[illegible]00E 04 | 2.900E 03 | 1.600E 03 | 2.072E 04 | 1.581E 04 | 1.221E 03 |
| FLUOROCARBONS PTFCE | 7.578E-02 | 1.900E 05 | 4.600E 03 | 2.000E 03 | 2.639E 04 | 3.111E 04 | 2.358E 03 |
| FLUOROCARBONS PTFE | 7.578E-02 | 3.800E 04 | 2.500E 03 | 7.000E 02 | 9.237E 03 | 1.391E 04 | 1.054E 03 |
| FLUOROCARBONS PTFE CERAMIC-RE | 7.938E-02 | 1.500E 05 | 7.500E 02 | 1.400E 03 | 1.763E 04 | 2.701E 04 | 2.144E 03 |
| FLUOROCARBONS PVF | 6.351E-02 | 1.200E 05 | 5.000E 03 | -0. | -0. | 2.701E 04 | 1.715E 03 |
| MELAMINE (MOLD) A-CELLULOSE GP | 5.305E-02 | 1.300E 06 | 7.000E 03 | 4.000E 04 | 7.540E 05 | 9.726E 04 | 5.160E 03 |
| MELAMINE (MOLD) CELLULOSE ELEC | 5.161E-02 | 1.000E 06 | 5.000E 03 | 2.500E 04 | 4.844E 05 | 8.649E 04 | 4.463E 03 |
| MELAMINE (MOLD) FABRIC INT-RES | 5.413E-02 | 1.600E 06 | 5.700E 03 | 2.500E 04 | 4.618E 05 | 1.068E 05 | 5.782E 02 |
| MELAMINE (MOLD) FABRIC LTISR | 5.413E-02 | 1.400E 06 | 8.000E 03 | 3.000E 04 | 5.542E 05 | 9.992E 04 | 5.409E 03 |
| MELAMINE (MOLD) MINERAL ELEC | 6.135E-02 | 1.600E 06 | 5.500E 03 | 2.500E 04 | 4.075E 05 | 1.003E 05 | 6.156E 03 |
| PHENOLIC (CAST) GP DECORATIVE | 4.764E-02 | 3.000E 05 | 5.000E 03 | 1.280E 04 | 2.687E 05 | 4.931E 04 | 2.349E 03 |
| PHENOLIC (CAST) GP TRANSPARENT | 4.800E-02 | 1.000E 05 | 2.500E 03 | 4.500E 03 | 9.376E 04 | 2.836E 04 | 1.361E 03 |
| PHENOLIC (CAST) MECH + CHEM | 4.728E-02 | 4.[illegible]00E 05 | 6.000E 03 | 1.400E 04 | 2.961E 05 | 5.715E 04 | 2.702E 03 |
| PHENOLIC (MOLD) ARC-RES MIN | 5.774E-02 | 1.[illegible]00E 06 | 6.000E 03 | 2.000E 04 | 3.464E 05 | 6.177E 04 | 4.721E 03 |
| PHENOLIC (MOLD) CHEMICAL | 4.479E-02 | 7.000E 05 | 4.500E 03 | 1.800E 04 | 4.022E 05 | 7.771E 04 | 3.477E 03 |
| PHENOLIC (MOLD) GEN MF-F | 4.764E-02 | 8.000E 05 | 5.000E 03 | 2.200E 04 | 4.618E 05 | 8.052E 04 | 3.836E 03 |
| PHENOLIC (MOLD) HI-FREQ MIN | 6.315E-02 | 3.000E 06 | 5.700E 03 | 1.500E 04 | 2.375E 05 | 1.354E 05 | 8.552E 03 |
| PHENOLIC (MOLD) HI-SH CH-FA-CO | 4.908E-02 | 9.[illegible]00E 05 | 5.000E 03 | 1.500E 04 | 3.056E 05 | 8.414E 04 | 4.129E 03 |
| PHENOLIC (MOLD) HEAT MINERAL | 5.558E-02 | 1.[illegible]00E 06 | 4.000E 03 | 1.500E 04 | 2.699E 05 | 8.334E 04 | 4.632E 03 |
| PHENOLIC (MOLD) SH-WR MIN-F-V | 6.043E-02 | 1.5[illegible]0E 06 | 4.000E 03 | 1.500E 04 | 2.474E 05 | 9.773E 04 | 5.925E 03 |
| PHENOLIC (MOLD) SH PAP-FLC-PUL | 4.836E-02 | 8.[illegible]00E 05 | 5.000E 03 | 2.400E 04 | 4.963E 05 | 7.991E 04 | 3.865E 03 |
| PHENOLIC (MOLD) VH-SH GLAS-FIB | 6.315E-02 | 3.000E 06 | 9.000E 03 | 1.700E 04 | 2.692E 05 | 1.354E 05 | 8.552E 03 |
| PHENOLIC (MOLD LAM) A-F | 6.886E-02 | 5.500E 06 | 4.410E 04 | 2.080E 04 | 3.021E 05 | 1.754E 05 | 1.209E 04 |
| PHENOLIC (MOLD LAM) GLAS-FIB | 5.496E-02 | 3.400E 06 | 9.800E 04 | 4.750E 04 | 7.312E 05 | 1.421E 05 | 9.234E 03 |
| PHENOLIC RUB (MOLD) ASBESTOS | 5.774E-02 | 5.[illegible]00E 05 | 4.000E 03 | 1.000E 04 | 1.732E 05 | 5.762E 04 | 3.338E 03 |
| PHENOLIC RUB (MOLD) CHOP-FAB | 4.691E-02 | 3.500E 05 | 3.500E 03 | 1.000E 04 | 2.132E 05 | 5.367E 04 | 2.318E 03 |
| PHENOLIC RUB (MOLD) W-F | 4.475E-02 | 4.[illegible]00E 05 | 4.500E 03 | 1.200E 04 | 2.682E 05 | 5.674E 04 | 2.629E 03 |
| PHENOXY | 4.258E-02 | 3.600E 05 | 9.500E 03 | 2.700E 03 | 6.340E 04 | 5.869E 04 | 3.499E 03 |
| PHENOXY (SELF-EXTINGUISHING) | 4.764E-02 | 4.[illegible]0E 05 | 8.000E 03 | -0 | -0. | 5.693E 04 | 2.712E 03 |
| POLYCARBONATE | 4.331E-02 | 3.450E 05 | 9.500E 03 | 1.200E 04 | 2.771E 05 | 5.544E 04 | 2.402E 03 |
| POLYCARBONATE (GLASS FIBER) | 5.449E-02 | 1.700E 05 | 1.800E 04 | 1.850E 04 | 3.395E 05 | 3.470E 04 | 1.891E 03 |
| POLYESTER (CAST) RIGID STYRENE | 4.042E-02 | 1.500E 05 | 4.000E 03 | 1.200E 04 | 2.969E 05 | 3.785E 04 | 1.530E 03 |
| POLYESTER (MOLD LAM) PREFORM | 5.413E-02 | 8.[illegible]00E 05 | 1.300E 04 | 1.800E 04 | 3.325E 05 | 7.553E 04 | 4.089E 03 |
| POLYESTER (MOLD LAM) SP-UP MAT | 5.052E-02 | 8.[illegible]00E 05 | 9.000E 03 | 1.500E 04 | 2.969E 05 | 7.318E 04 | 3.950E 03 |
| POLYPROPYLENE FILLED | 4.439E-02 | 2.600E 05 | 4.700E 03 | -0 | -0. | 5.022E 04 | 2.229E 03 |
| POLYPROPYLENE GP | 3.250E-02 | 2.[illegible]00E 05 | 4.900E 03 | 5.400E 03 | 1.675E 05 | 4.967E 04 | 1.586E 03 |
| POLYPROPYLENE IMPACT | 3.273E 02 | 1.200E 05 | 3.400E 03 | 5.400E 03 | 1.648E 05 | 3.762E 04 | 1.231E 03 |
| POLYSTYRENE GLASS FIBER FILLED | 4.511E-02 | 1.100E 06 | 1.100E 04 | 1.400E 04 | 3.104E 05 | 9.702E 04 | 4.377E 03 |
| POLYSTYRENE GP | 3.753E-02 | 4.[illegible]00E 05 | 5.000E 03 | 1.150E 04 | 3.064E 05 | 8.414E 04 | 2.407E 03 |

| MATERIAL | DENSITY (PCI) | MOD OF SLAB (PSI) | COM STR (PSI) | TEN STR (PSI) | TEN STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| POLYSTYRENE MODIFIED EX-HI-IM | 3.600E-02 | 2.000E 05 | 3.000E 03 | -0. | -0. | 4.625E 04 | 1.669E 03 |
| POLYSTYRENE MOD HEAT+CHEM-RES | 3.780E-02 | 4.000E 05 | 1.000E 04 | 1.200E 04 | 3.167E 05 | 6.384E 04 | 2.419E 03 |
| POLYSTYRENE MODIFIED MED-HI-IM | 3.717E-02 | 3.000E 05 | 2.900E 03 | -0. | -0. | 5.982E 04 | 2.075E 03 |
| PROPYLENE+ETHYLENE POLYALLOMER | 3.212E-02 | 1.000E 05 | 3.500E 03 | -0. | -0. | 3.467E 04 | 1.114E 03 |
| SILICONE (MOLD) GEN MINERAL | 6.496E-02 | 1.000E 06 | 3.500E 03 | 1.000E 04 | 1.539E 05 | 7.709E 04 | 5.008E 03 |
| SILICONE (MOLD) GLASS FIBER | 6.496E-02 | 9.000E 05 | 4.000E 03 | 1.200E 04 | 1.847E 05 | 7.313E 04 | 4.751E 03 |
| SILICONE (MOLD) HI-IM GLAS-FIB | 5.955E-02 | 2.000E 06 | 4.400E 03 | 1.000E 04 | 1.679E 05 | 1.139E 05 | 6.780E 03 |
| UREAS (MOLD) ASTM TYPE 1 | 5.233E-02 | 1.300E 06 | 5.000E 03 | 2.900E 04 | 4.778E 05 | 9.793E 04 | 5.125E 03 |
| UREAS (MOLD) WOODFLOUR FILLED | 5.233E-02 | 1.450E 05 | 5.500E 03 | 2.500E 04 | 4.778E 05 | 3.271E 04 | 1.711E 03 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | COM STR (PSI) | TEN STR (PSI) | TEN STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| FLUOROCARBONS PTFE CERAMIC+RE | 7.939E-02 | 1.500E 05 | 7.500E 02 | 1.400E 03 | 1.763E 04 | 2.701E 04 | 2.144E 03 |
| FLUOROCARBONS FEP | 7.723E-02 | 5.[illegible]00E 04 | 2.500E 03 | 1.630E 03 | 2.072E 04 | 1.581E 04 | 1.221E 03 |
| FLUOROCARBONS PTFCF | 7.578E-02 | 1.900E 05 | 4.600E 03 | 2.000E 03 | 2.639E 04 | 3.111E 04 | 2.358E 03 |
| FLUOROCARBONS PTFE | 7.578E-02 | 3.800E 04 | 2.500E 03 | 7 000E 02 | 9.237E 03 | 1.391E 04 | 1.054E 03 |
| PHENOLIC (MOLD LAM) A-F | 6.886E-02 | 5.500E 06 | 4.613E 04 | 2 080E 04 | 3.021E 05 | 1.756E 05 | 1.209E 04 |
| PHENOLIC (MOLD LAM) GLAS-FIB | 6.496E-02 | 3.400E 06 | 5.800E 04 | 4 750E 04 | 7.312E 05 | 1.421E 05 | 9.234E 03 |
| SILICONE (MOLD) GEN MINERAL | 6.496E-02 | 1.[illegible]00E 06 | 3.500E 03 | 1 900E 04 | 1.539E 05 | 7.709E 04 | 5.008E 03 |
| SILICONE (MOLD) GLASS FIBER | 6.496E-02 | 9.000E 05 | 4.000E 03 | 1.200E 04 | 1.847E 05 | 7.313E 04 | 4.751E 03 |
| FLUOROCARBONS PVF | 6.351E-02 | 1.200E 05 | 5 000E 03 | -0 | -0. | 2.701E 04 | 1.715E 03 |
| PHENOLIC (MOLD) HI-FREQ MIN | 6.315E-02 | 3.[illegible]00E 06 | 5.700E 03 | 1.500E 04 | 2.375E 05 | 1.354E 05 | 8.552E 03 |
| PHENOLIC (MOLD) VH-SH GLAS-FIB | 6.315E-02 | 3.[illegible]00E 06 | 5.000E 03 | 1 700E 04 | 2.692E 05 | 1.354E 05 | 8.552E 03 |
| MELAMINE (MOLD) MINERAL ELEC | 6.135E-02 | 1.600E 06 | 5.500E 03 | 2.500E 04 | 4.075E 05 | 1.003E 05 | 6.156E 03 |
| PHENOLIC (MOLD) SHOCK MIN-F-Y | 6.043E-02 | 1.500E 06 | 4.000E 03 | 1 500E 04 | 2.474E 05 | 9.773E 04 | 5.925E 03 |
| SILICONE (MOLD) HI-IM GLAS-FIB | 5.955E-02 | 2 [illegible]00E 06 | 4.400E 03 | 1.000E 04 | 1.679[illegible] 05 | 1.139E 05 | 6.780E 03 |
| PHENOLIC (MOLD) ARC-RES MIN | 5.774E-02 | 1.900E 06 | 6.000E 03 | 2 000E 04 | 3.464E 05 | 8.177E 04 | 4.721E 03 |
| PHENOLIC RUB (MOLD) ASBESTOS | 5.774E-02 | 5.[illegible]00E 05 | 4.000E 03 | 1.000E 04 | 1.732E 05 | 5.782E 04 | 3.338E 03 |
| DIALLYL PHTHALATES (MOLD) GP-F | 5.594E-02 | 1.200E 06 | 5.500E 03 | 2 500E 04 | 4.469E 05 | 9.100E 04 | 5.090E 03 |
| PHENOLIC (MOLD) HEAT MINERAL | 5.558E-02 | 1.[illegible]00E 06 | 4.000E 03 | 1 500E 04 | 2.699E 05 | 8.334E 04 | 4.632E 03 |
| POLYCARBONATE (GLASS FIBER) | 5.449E-02 | 1.700E 05 | 1.800E 04 | 1 850E 04 | 3.395E 05 | 3.470E 04 | 1.891E 03 |
| DIALLYL PHTHALATES (MOLD) A-F | 5.413E-02 | 1.200E 05 | 4.000E 03 | 1.800E 04 | 3.325E 05 | 9.251E 04 | 5.008E 03 |
| MELAMINE (MOLD) FABRIC INT-RES | 5.413E-02 | 1.600E 04 | 5.700E 03 | 2 500E 04 | 4.618E 05 | 1.048E 04 | 5.792E 02 |
| MELAMINE (MOLD) FABRIC LTISR | 5.413E-02 | 1.400E 06 | 8.000E 03 | 3.000E 04 | 5.542E 05 | 9.992E 04 | 5.409E 03 |
| POLYESTER (MOLD LAM) PREFORM | 5.413E-02 | 8.[illegible]00E 05 | 1.300E 04 | 1.800E 04 | 3.325E 05 | 7.553E 04 | 4.089E 03 |
| MELAMINE (MOLD) A-CELLULOSE GP | 5.305E-02 | 1.300E 06 | 7.000E 03 | 4 000E 04 | 7.54[illegible]E 05 | 9.726E 04 | 5.160E 03 |
| UREAS (MOLD) ASTM TYPE 1 | 5.233E-02 | 1 300E 06 | 5.000E 03 | 2.500E 04 | 4.778E 05 | 9.793E 04 | 5.125E 03 |
| UREAS (MOLD) WOODFLOUR FILLED | 5.233E-02 | 1.460E 05 | 5.500E 03 | 2.500E 04 | 4.778E 05 | 3.271E 04 | 1.711E 03 |
| MELAMINE (MOLD) CELLULOSE ELEC | 5.161E-02 | 1. 00E 06 | 5.000E 03 | 2.500E 04 | 4.844E 05 | 8.649E 04 | 4.463E 03 |
| ACETAL HOMOPOLYMER | 5.143E-02 | 4.100E 05 | 1.000E 04 | 5 200E 03 | 1.011E 05 | 5.548E 04 | 2.853E 03 |
| ACETAL COPOLYMER | 5.086E-02 | 4.[illegible]00E 05 | 8.800E 03 | -0. | -0. | 5.509E 04 | 2.803E 03 |
| DIALLYL PHTHALATES (MOLD) O-F | 5.052E-02 | 6.400E 05 | 4.400E 03 | 2.000E 04 | 3.959E 05 | 6.993E 04 | 3.533E 03 |
| POLYESTER (MOLD LAM) SP-UP MAT | 5.052E-02 | 8.[illegible]00E 05 | 9.000E 03 | 1.500E 04 | 2.969E 05 | 7.818E 04 | 3.950E 03 |
| PHENOLIC (MOLD) HI-SH CH-FA-CO | 4.908E-02 | 9.000E 05 | 5.000E 03 | 1.500E 04 | 3.056E 05 | 8.414E 04 | 4.129E 03 |
| CELLULOSE NITRATE SHEET | 4.672E-02 | 1.900E 05 | 7.000E 03 | 2 200E 04 | 4.516E 05 | 3.880E 04 | 1.890E 03 |
| PHENOLIC (MOLD) SH PAP-FLO-PUL | 4.836E-02 | 8.[illegible]00E 05 | 5.000E 03 | 2 400E 04 | 4.963E 05 | 7.991E 04 | 3.865E 03 |
| PHENOLIC (CAST) GP TRANSPARENT | 4.600E-02 | 1.[illegible]00E 05 | 2.500E 03 | 4.500E 03 | 9.376E 04 | 2.834E 04 | 1.301E 03 |
| PHENOLIC (CAST) GP DECORATIVE | 4.764E-02 | 3.[illegible]00E 05 | 5.000E 03 | 1 280E 04 | 2.687E 05 | 4.931E 04 | 2.349E 03 |
| PHENOLIC (MOLD) GEN WF-F | 4.764E-02 | 8.[illegible]00E 05 | 5.000E 03 | 2.200E 04 | 4.618E 05 | 8.052E 04 | 3.836E 03 |
| PHENOXY (SELF-EXTINGUISHING) | 4.784E-02 | 4.[illegible]00E 05 | 9.000E 03 | -0 | -0 | 5.693E 04 | 2.712E 03 |
| DIALLYL PHTHALATES (MOLD) O-F | 4.728E-02 | 6.[illegible]00E 05 | 4.500E 03 | 2.000E 04 | 4.231E 05 | 7.000E 04 | 3.309E 03 |
| PHENOLIC (CAST) MECH + CHEM | 4.728E-02 | 4 [illegible]00E 05 | 6.000E 03 | 1 400E 04 | 2.961E 05 | 5.715E 04 | 2.702E 03 |
| PHENOLIC RUB (MOLD) THERMFAR | 4.691E-02 | 3.500E 05 | 3.500E 03 | 1.000E 04 | 2.132E 05 | 5.367E 04 | 2.518E 03 |
| POLYSTYRENE GLASS FIBER FILLED | 4.511E-02 | 1.100E 06 | 1.100E 04 | 1.400E 04 | 3 104E 05 | 9.702E 04 | 4.377E 03 |
| PHENOLIC (MOLD) CHEMICAL | 4.475E-02 | 7 [illegible]00E 05 | 4.500E 03 | 1.800E 04 | 4.022E 05 | 7.771E 04 | 3.477E 03 |
| PHENOLIC RUB (MOLD) WF-F | 4.475E-02 | 4 [illegible]00E 05 | 4.500E 03 | 1 200E 04 | 2.682E 05 | 5.874E 04 | 2.629E 03 |
| POLYPROPYLENE FILLED | 4.439E-02 | 2.900E 05 | 4.700E 03 | -0 | -0. | 5.022E 04 | 2.229E 03 |
| POLYCARBONATE | 4.331E-02 | 3.450E 05 | 9.500E 03 | 1.200E 04 | 2.771E 05 | 5.546E 04 | 2.402E 03 |
| ACRYLICS (CAST) GP-TYPE 2 | 4.259E-02 | 4.[illegible]00E 05 | 8.000E 03 | 1 430E 04 | 3.288E 05 | 6.022E 04 | 2.564E 03 |
| ACRYLICS (MOLD) GRADES 5, 6, 8 | 4.258E-02 | 3 500E 05 | 9.500E 03 | 1.450E 04 | 3 405E 05 | 5.633E 04 | 2.399E 03 |
| PHENOXY | 4.258E-02 | 3.800E 05 | 9.500E 03 | 2.700E 03 | 6.340E 04 | 5.869E 04 | 2.498E 03 |
| ACRYLICS (CAST) GP-TYPE 1 | 4.222E-02 | 3 500E 05 | 6.000E 03 | 1 200E 04 | 2.842E 05 | 5.657E 04 | 2.388E 03 |
| ACRYLICS (MOLD) HIGH IMPACT | 4.042E-02 | 2 300E 05 | 5.500E 03 | 7 300E 03 | 1.806E 05 | 4.687E 04 | 1.894E 03 |
| POLYESTER (CAST) RIGID STYRENE | 4.042E-02 | 1 500E 05 | 4.000E 03 | 1.200E 04 | 2 969E 05 | 3.785E 04 | 1.530E 03 |
| ETHYL CELLULOSE (MOLD) GP | 3.970E-02 | 5 [illegible]00E 04 | 3.000E 03 | -0 | -0 | 2.205E 04 | 8.753E 02 |
| ETHYL CELLULOSE (MOLD) HI-IM A | 3.970E-02 | 1 [illegible]00E 05 | 4.000E 03 | -0. | -0. | 3.110E 04 | 1.238E 03 |
| ETHYL CELLULOSE (MOLD) HI-IM B | 3.970E-02 | 1 [illegible]00E 05 | 3.500E 03 | -0 | -0. | 3 118E 04 | 1.238E 03 |
| ABS RESIN (HEAT RESISTANT) | 3.825E-02 | 3.500E 05 | 7.000E 03 | 9.300E 03 | 2.431E 05 | 5.943E 04 | 2.273E 03 |
| ABS RESINS (MEDIUM IMPACT) | 3.789E-02 | 3 300E 05 | 6 300E 03 | 1 050E 04 | 2 771E 05 | 5.799E 04 | 2.197E 03 |
| POLYSTYRENE MOD HEAT+CHEM-RES | 3.789E-02 | 4.000E 05 | 1.000E 04 | 1 200E 04 | 3 167E 05 | 6.354E 04 | 2.419E 03 |

| MATERIAL | DENSITY (PCI) | MOD OF ELAS (PSI) | COM STR (PSI) | TEN STR (PSI) | TEN STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) |
|---|---|---|---|---|---|---|---|
| POLYSTYRENE GP | 3.753E-02 | 4.000E 05 | 5.000E 03 | 1.150E 04 | 3.064E 05 | 6.414E 04 | 2.407E 03 |
| POLYSTYRENE MODIFIED MED-HI-IM | 3.717E-02 | 3.000E 05 | 2.500E 03 | -0. | -0. | 5.582E 04 | 2.075E 03 |
| ABS RESIN (LOW TEMP IMPACT) | 3.681E-02 | 2.000E 05 | 4.000E 03 | -0. | -0. | 4.580E 04 | 1.686E 03 |
| ABS RESINS (HIGH IMPACT) | 3.681E-02 | 2.600E 05 | 5.000E 03 | 7.000E 03 | 1.912E 05 | 5.222E 04 | 1.922E 03 |
| ABS RESIN (VERY HIGH IMPACT) | 3.645E-02 | 2.000E 05 | 4.500E 03 | -0. | -0. | 4.602E 04 | 1.678E 03 |
| POLYSTYRENE MODIFIED EX-HI-IM | 3.609E-02 | 2.000E 05 | 3.000E 03 | -0 | -0. | 4.625E 04 | 1.669E 03 |
| POLYPROPYLENE IMPACT | 3.273E-02 | 1.200E 05 | 3.400E 03 | 5.460E 03 | 1.668E 05 | 3.762E 04 | 1.231E 03 |
| POLYPROPYLENE GP | 3.253E-02 | 2. 00E 05 | 4.900E 03 | 5.460E 03 | 1.675E 05 | 4.867E 04 | 1.586E 03 |
| PROPYLENE-ETHYLENE POLYALLOMER | 3.212E-02 | 1.000E 05 | 3.500E 03 | -0. | -0. | 3.467E 04 | 1.114E 03 |

| MATERIAL | MOD OF ELAS (PSI) | COM STR (PSI) | TEN STR (PSI) | TEN STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) |
|---|---|---|---|---|---|---|---|
| PHENOLIC (MOLD LAM) A-F | 5,500E 06 | 4.610E 04 | 2.080E 04 | 3.021E 05 | 1.756E 05 | 1.209E 04 | 6.886E-02 |
| PHENOLIC (MOLD LAM) GLAS-FIB | 3,400E 06 | 5.800E 04 | 4.750E 04 | 7.312E 05 | 1.421E 05 | 9.234E 03 | 6.496E-02 |
| PHENOLIC (MOLD) MI-FREQ MIN | 3,000E 06 | 5.700E 03 | 1.500E 04 | 2.379E 05 | 1.354E 05 | 8.552E 03 | 6.319E-02 |
| PHENOLIC (MOLD) VH-SH GLAS-FIB | 3,000E 06 | 5.700E 03 | 1.700E 04 | 2.692E 05 | 1.354E 05 | 8.552E 03 | 6.319E-02 |
| SILICONE (MOLD) MI-IM GLAS-FIB | 2,000E 06 | 4.400E 03 | 1.000E 04 | 1.679E 05 | 1.139E 05 | 6.780E 03 | 5.955E-02 |
| MELAMINE (MOLD) MINERAL ELEC | 1,600E 06 | 5.500E 03 | 2.500E 04 | 4.075E 05 | 1.003E 05 | 6.156E 03 | 6.135E-02 |
| PHENOLIC (MOLD) SHOCK MIN-FLY | 1,500E 06 | 4.700E 03 | 1.500E 04 | 2.474E 05 | 9.773E 04 | 5.925E 03 | 6.063E-02 |
| MELAMINE (MOLD) FABRIC LTISH | 1,400E 06 | 8.700E 03 | 3.000E 04 | 5.542E 05 | 9.992E 04 | 5.409E 03 | 5.413E-02 |
| MELAMINE (MOLD) A-CELLULOSE GP | 1,300E 06 | 7.700E 03 | 4.000E 04 | 7.940E 05 | 9.726E 04 | 5.160E 03 | 5.305E-02 |
| UREAS (MOLD) ASTM TYPE 1 | 1,300E 06 | 5.000E 03 | 2.500E 04 | 4.778E 05 | 9.793E 04 | 5.125E 03 | 5.233E-02 |
| DIALLYL PHTHALATES (MOLD) A-F | 1,200E 06 | 4.700E 03 | 1.800E 04 | 3.325E 05 | 9.251E 04 | 5.058E 03 | 5.413E-02 |
| DIALLYL PHTHALATES (MOLD) GP-F | 1,200E 06 | 5.500E 03 | 2.500E 04 | 4.469E 05 | 9.103E 04 | 5.090E 03 | 5.594E-02 |
| POLYSTYRENE GLASS FIBER FILLED | 1,100E 06 | 1.100E 04 | 1.400E 04 | 3.154E 05 | 9.702E 04 | 4.377E 03 | 4.511E-02 |
| MELAMINE (MOLD) CELLULOSE ELEC | 1,000E 06 | 5.000E 03 | 2.500E 04 | 4.844E 05 | 8.649E 04 | 4.463E 03 | 5.161E-02 |
| PHENOLIC (MOLD) ARC-RES MIN | 1,000E 06 | 6.000E 03 | 2.000E 04 | 3.464E 05 | 8.177E 04 | 4.721E 03 | 5.774E-02 |
| PHENOLIC (MOLD) HEAT MINERAL | 1,000E 06 | 4.700E 03 | 1.500E 04 | 2.699E 05 | 8.334E 04 | 4.632E 03 | 5.558E-02 |
| SILICONE (MOLD) GEN MINERAL | 1,000E 06 | 3.500E 03 | 1.000E 04 | 1.539E 05 | 7.709E 04 | 5.008E 03 | 6.496E-02 |
| PHENOLIC (MOLD) MI-SH CH-FA-CO | 9,000E 05 | 5.000E 03 | 1.900E 04 | 3.050E 05 | 8.414E 04 | 4.129E 03 | 4.908E-02 |
| SILICONE (MOLD) GLASS FIBER | 9,000E 05 | 4.700E 03 | 1.200E 04 | 1.847E 05 | 7.313E 04 | 4.751E 03 | 6.496E-02 |
| PHENOLIC (MOLD) GEN WF-F | 8,000E 05 | 5.700E 03 | 2.200E 04 | 4.618E 05 | 8.052E 04 | 3.836E 03 | 4.764E-02 |
| PHENOLIC (MOLD) SH PAP-FLO-PUL | 8,000E 05 | 5.000E 03 | 2.400E 04 | 4.963E 05 | 7.991E 04 | 3.865E 03 | 4.836E-02 |
| POLYESTER (MOLD LAM) PREFORM | 8,000E 05 | 1.200E 04 | 1.800E 04 | 3.325E 05 | 7.553E 04 | 4.089E 03 | 5.413E-02 |
| POLYESTER (MOLD LAM) SP-UP MAT | 8,000E 05 | 9.000E 03 | 1.900E 04 | 2.969E 05 | 7.818E 04 | 3.950E 03 | 5.052E-02 |
| PHENOLIC (MOLD) CHEMICAL | 7,000E 05 | 4.500E 03 | 1.800E 04 | 4.022E 05 | 7.771E 04 | 3.477E 03 | 4.475E-02 |
| DIALLYL PHTHALATES (MOLD) O-F | 6,400E 05 | 4.600E 03 | 2.000E 04 | 3.959E 05 | 6.993E 04 | 3.533E 03 | 5.052E-02 |
| DIALLYL PHTHALATES (MOLD) O-F | 6,000E 05 | 4.500E 03 | 2.000E 04 | 4.231E 05 | 7.000E 04 | 3.309E 03 | 4.728E-02 |
| PHENOLIC RUB (MOLD) ASBESTOS | 5,000E 05 | 4.700E 03 | 1.000E 04 | 1.732E 05 | 5.782E 04 | 3.338E 03 | 5.774E-02 |
| ACETAL HOMOPOLYMER | 4,100E 05 | 1.700E 04 | 5.200E 03 | 1.011E 05 | 5.548E 04 | 2.853E 03 | 5.143E-02 |
| ACETAL COPOLYMER | 4,000E 05 | 8.800E 03 | -0. | -0. | 5.509E 04 | 2.803E 03 | 5.088E-02 |
| ACRYLICS (CAST) GP-TYPE 2 | 4,000E 05 | 8.700E 03 | 1.400E 04 | 3.288E 05 | 6.022E 04 | 2.564E 03 | 4.258E-02 |
| PHENOLIC (CAST) MECH + CHEM | 4,000E 05 | 6.000E 03 | 1.400E 04 | 2.961E 05 | 5.715E 04 | 2.702E 03 | 4.728E-02 |
| PHENOLIC RUB (MOLD) WF-F | 4,000E 05 | 4.500E 03 | 1.200E 04 | 2.692E 05 | 5.874E 04 | 2.629E 03 | 4.475E-02 |
| PHENOXY (SELF-EXTINGUISHING) | 4,000E 05 | 9.700E 03 | -0. | -0. | 5.693E 04 | 2.712E 03 | 4.764E-02 |
| POLYSTYRENE GP | 4,000E 05 | 5.700E 03 | 1.150E 04 | 3.064E 05 | 6.414E 04 | 2.407E 03 | 3.753E-02 |
| POLYSTYRENE MOD HEAT-CHEM-RES | 4,000E 05 | 1.700E 04 | 1.200E 04 | 3.167E 05 | 6.384E 04 | 2.419E 03 | 3.789E-02 |
| PHENOXY | 3,800E 05 | 9.500E 03 | 2.700E 03 | 6.340E 04 | 5.869E 04 | 2.499E 03 | 4.258E-02 |
| ABS RESIN (HEAT RESISTANT) | 3,500E 05 | 7.700E 03 | 9.300E 03 | 2.431E 05 | 5.943E 04 | 2.273E 03 | 3.825E-02 |
| ACRYLICS (CAST) GP-TYPE 1 | 3,500E 05 | 6.700E 03 | 1.200E 04 | 2.842E 05 | 5.657E 04 | 2.388E 03 | 4.222E-02 |
| ACRYLICS (MOLD) GRADES 5, 6, 8 | 3,500E 05 | 9.500E 03 | 1.450E 04 | 3.409E 05 | 5.633E 04 | 2.399E 03 | 4.258E-02 |
| PHENOLIC RUB (MOLD) CHOP-FAB | 3,500E 05 | 3.500E 03 | 1.000E 04 | 2.132E 05 | 5.367E 04 | 2.518E 03 | 4.691E-02 |
| POLYCARBONATE | 3,450E 05 | 9.500E 03 | 1.200E 04 | 2.771E 05 | 5.546E 04 | 2.402E 03 | 4.331E-02 |
| ABS RESINS (MEDIUM IMPACT) | 3,300E 05 | 6.300E 03 | 1.050E 04 | 2.771E 05 | 5.798E 04 | 2.197E 03 | 3.789E-02 |
| PHENOLIC (CAST) GP DECORATIVE | 3,000E 05 | 5.700E 03 | 1.200E 04 | 2.687E 05 | 4.934E 04 | 2.349E 03 | 4.764E-02 |
| POLYSTYRENE MODIFIED MED-HI-IM | 3,000E 05 | 2.500E 03 | -0. | -0 | 5.582E 04 | 2.075E 03 | 3.717E-02 |
| POLYPROPYLENE FILLED | 2,900E 05 | 4.700E 03 | -0. | -0. | 5.022E 04 | 2.229E 03 | 4.439E-02 |
| ABS RESINS (HIGH IMPACT) | 2,600E 05 | 5.700E 03 | 7.000E 03 | 1.902E 05 | 5.222E 04 | 1.922E 03 | 3.681E-02 |
| ACRYLICS (MOLD) HIGH IMPACT | 2,300E 05 | 5.500E 03 | 7.300E 03 | 1.806E 05 | 4.687E 04 | 1.894E 03 | 4.042E-02 |
| ABS RESIN (LOW TEMP IMPACT) | 2,000E 05 | 4.700E 03 | -0. | -0. | 4.583E 04 | 1.686E 03 | 3.681E-02 |
| ABS RESIN (VERY HIGH IMPACT) | 2,000E 05 | 4.500E 03 | -0. | -0 | 4.652E 04 | 1.678E 03 | 3.645E-02 |
| POLYPROPYLENE GP | 2,000E 05 | 4.900E 03 | 5.460E 03 | 1.675E 05 | 4.867E 04 | 1.586E 03 | 3.259E-02 |
| POLYSTYRENE MODIFIED EX-HI-IM | 2,000E 05 | 3.700E 03 | -0. | -0. | 4.325E 04 | 1.669E 03 | 3.609E-02 |
| CELLULOSE NITRATE SHEET | 1,900E 05 | 7.700E 03 | 2.200E 04 | 4.916E 05 | 3.880E 04 | 1.895E 03 | 4.872E-02 |
| FLUOROCARBONS PTFCE | 1,900E 05 | 4.600E 03 | 2.000E 03 | 2.639E 04 | 3.111E 04 | 2.358E 03 | 7.578E-02 |
| POLYCARBONATE (GLASS FIBER) | 1,750E 05 | 1.800E 04 | 1.850E 04 | 3.395E 05 | 3.470E 04 | 1.891E 03 | 5.449E-02 |
| FLUOROCARBONS PTFE CERAMIC-RE | 1,500E 05 | 7.500E 02 | 1.400E 03 | 1.763E 04 | 2.701E 04 | 2.144E 03 | 7.938E-02 |
| POLYESTER (CAST) RIGID STYRENE | 1,500E 05 | 4.700E 03 | 1.200E 04 | 2.969E 05 | 3.785E 04 | 1.530E 03 | 4.042E-02 |
| UREAS (MOLD) WOODFLOUR FILLED | 1,450E 05 | 5.500E 03 | 2.900E 04 | 4.778E 05 | 3.271E 04 | 1.711E 03 | 5.233E-02 |
| FLUOROCARBONS PVF | 1,200E 05 | 5.000E 03 | -0. | -0 | 2.701E 04 | 1.719E 03 | 6.351E-02 |

| MATERIAL | MOD OF ELAS (PSI) | COM STR (PSI) | TEN STR (PSI) | TEN STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) |
|---|---|---|---|---|---|---|---|
| POLYPROPYLENE IMPACT | 1.200E 05 | 3.400E 03 | 4.460E 03 | 1.668E 05 | 3.762E 04 | 1.231E 03 | 3.273E-02 |
| ETHYL CELLULOSE (MOLD) HI-IM A | 1.000E 05 | 4.700E 03 | -0. | -0. | 3.118E 04 | 1.238E 03 | 3.970E-02 |
| ETHYL CELLULOSE (MOLD) HI-IM B | 1.000E 05 | 3.500E 03 | -0. | -0. | 3.118E 04 | 1.238E 03 | 3.970E-02 |
| PHENOLIC (CAST) GP TRANSPARENT | 1.000E 05 | 2.500E 03 | 4.500E 03 | 9.376E 04 | 2.836E 04 | 1.361E 03 | 4.800E-02 |
| PROPYLENE-ETHYLENE POLYALLOMER | 1.030E 05 | 3.500E 03 | -0. | -0. | 3.467E 04 | 1.114E 03 | 3.212E-02 |
| ETHYL CELLULOSE (MOLD) GP | 5.000E 04 | 3.000E 03 | -0. | -0. | 2.205E 04 | 8.753E 02 | 3.970E-02 |
| FLUOROCARBONS FEP | 5.000E 04 | 2.500E 03 | 1.400E 03 | 2.072E 04 | 1.581E 04 | 1.221E 03 | 7.723E-02 |
| FLUOROCARBONS PTFE | 3.800E 04 | 2.500E 03 | 7.000E 02 | 9.237E 03 | 1.391E 04 | 1.054E 03 | 7.578E-02 |
| MELAMINE (MOLD) FABRIC INTERES | 1.600E 04 | 5.700E 03 | 2.500E 04 | 4.618E 05 | 1.068E 04 | 5.782E 02 | 5.413E-02 |

| MATERIAL | COM STR (PSI) | TEN STR (PSI) | TEN STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) |
|---|---|---|---|---|---|---|---|
| PHENOLIC (MOLD LAM) GLAS-FIB | 5.800E 04 | 4.750E 04 | 7.312E 05 | 1.421E 05 | 9.234E 03 | 6.496E-02 | 3.400E 06 |
| PHENOLIC (MOLD LAM) A-P | 4.010E 04 | 2.900E 04 | 3.021E 05 | 1.756E 05 | 1.209E 04 | 6.886E-02 | 9.530E 06 |
| POLYCARBONATE (GLASS FIBER) | 1.800E 04 | 1.850E 04 | 3.395E 05 | 3.470E 04 | 1.891E 03 | 5.449E-02 | 1.700E 05 |
| POLYSTYRENE GLASS FIBER FILLED | 1.100E 04 | 1.400E 04 | 3.104E 05 | 9.702E 04 | 4.377E 03 | 4.511E-02 | 1.100E 06 |
| ACETAL HOMOPOLYMER | 1.000E 04 | 9.200E 03 | 1.011E 05 | 5.948E 04 | 2.853E 03 | 5.143E-02 | 4.100E 05 |
| POLYESTER (MOLD LAM) PREFORM | 1.000E 04 | 1.800E 04 | 3.325E 05 | 7.593E 04 | 4.389E 03 | 5.413E-02 | 8.003E 05 |
| POLYSTYRENE MOD HEAT+CHEM-RES | 1.000E 04 | 1.200E 04 | 3.167E 05 | 6.384E 04 | 2.419E 03 | 3.789E-02 | 4.000E 05 |
| ACRYLICS (MOLD GRADES 5, 6, 8 | 9.500E 03 | 1.450E 04 | 3.405E 05 | 5.633E 04 | 2.399E 03 | 4.258E-02 | 3.500E 05 |
| PHENOXY | 9.300E 03 | 2.700E 03 | 6.340E 04 | 5.869E 04 | 2.499E 03 | 4.258E-02 | 3.800E 05 |
| POLYCARBONATE | 9.500E 03 | 1.200E 04 | 2.771E 05 | 5.546E 04 | 2.402E 03 | 4.331E-02 | 3.450E 05 |
| PHENOXY (SELF-EXTINGUISHING) | 9.000E 03 | -0. | -0. | 5.693E 04 | 2.712E 03 | 4.764E-02 | 4.000E 05 |
| POLYESTER (MOLD LAM) SP-UP MAT | 9.000E 03 | 1.500E 04 | 2.969E 05 | 7.816E 04 | 3.950E 03 | 5.052E-02 | 8.000E 05 |
| ACETAL COPOLYMER | 8.00E 03 | -0. | -0. | 5.509E 04 | 2.803E 03 | 5.088E-02 | 4.000E 05 |
| ACRYLICS (CAST) G TYPE 2 | 8.00E 03 | 1.400E 04 | 3.288E 05 | 6.022E 04 | 2.564E 03 | 4.258E-02 | 4.000E 05 |
| MELAMINE (MOLD) FABRIC | 8.00E 03 | 3.700E 04 | 5.542E 05 | 9.992E 04 | 5.409E 03 | 5.413E-02 | 1.400E 06 |
| ABS RESIN (HEAT RES | 8.00E 03 | 9.300E 03 | 2.431E 05 | 5.943E 04 | 2.273E 03 | 3.825E-02 | 3.500E 05 |
| CELLULOSE NITRATE SHEE | 8.000E 03 | 2.200E 04 | 4.516E 05 | 3.880E 04 | 1.890E 03 | 4.872E-02 | 1.900E 05 |
| MELAMINE (MOLD) A-CELLULOS | 7.000E 03 | 4.700E 04 | 7.940E 05 | 9.726E 04 | 5.140E 03 | 5.305E-02 | 1.300E 06 |
| ABS RESINS (MEDIUM IMPACT) | 6.300E 03 | 1.050E 04 | 2.771E 05 | 5.793E 04 | 2.197E 03 | 3.789E-02 | 3.300E 05 |
| ACRYLICS (CAST) GP-TYPE 1 | 6.000E 03 | 1.200E 04 | 2.842E 05 | 5.457E 04 | 2.358E 03 | 4.222E-02 | 3.530E 05 |
| PHENOLIC (CAST) MECH + CHEM | 6.000E 03 | 1.400E 04 | 2.961E 05 | 5.715E 04 | 2.732E 03 | 4.728E-02 | 4.000E 05 |
| PHENOLIC (MOLD) ARC-RES MIN | 6.000E 03 | 2.200E 04 | 3.464E 05 | 8.177E 04 | 4.721E 03 | 5.774E-02 | 1.000E 06 |
| MELAMINE (MOLD) FABRIC INT-RES | 5.700E 03 | 2.500E 04 | 4.618E 05 | 1.068E 04 | 5.782E 02 | 5.413E-02 | 1.500E 04 |
| PHENOLIC (MOLD) HI-FREQ MIN | 5.700E 03 | 1.500E 04 | 2.375E 05 | 1.354E 05 | 8.552E 03 | 6.319E-02 | 3.000E 06 |
| ACRYLICS (MOLD) HIGH IMPACT | 5.500E 03 | 7.300E 03 | 1.806E 05 | 4.687E 04 | 1.894E 03 | 4.042E-02 | 2.300E 05 |
| DIALLYL PHTHALATES (MOLD) GP-F | 5.500E 03 | 2.500E 04 | 4.469E 05 | 9.139E 04 | 5.090E 03 | 5.594E-02 | 1.200E 06 |
| MELAMINE (MOLD) MINERAL ELEC | 5.500E 03 | 2.500E 04 | 4.075E 05 | 1.003E 05 | 6.156E 03 | 6.135E-02 | 1.600E 06 |
| UREAS (MOLD) WOODFLOUR FILLED | 5.500E 03 | 2.500E 04 | 4.778E 05 | 3.271E 04 | 1.711E 03 | 5.233E-02 | 1.450E 05 |
| ABS RESINS (HIGH IMPACT) | 5.000E 03 | 7.000E 03 | 1.902E 05 | 5.222E 04 | 1.922E 03 | 3.681E-02 | 2.600E 05 |
| FLUOROCARBONS PVF | 5.000E 03 | -0 | -0. | 2.701E 04 | 1.715E 03 | 6.351E-02 | 1.200E 05 |
| MELAMINE (MOLD) CELLULOSE ELEC | 5.000E 03 | 2.500E 04 | 4.844E 05 | 8.649E 04 | 4.463E 03 | 5.161E-02 | 1.000E 06 |
| PHENOLIC (CAST) GP DECORATIVE | 5.000E 03 | 1.280E 04 | 2.887E 05 | 4.931E 04 | 2.349E 03 | 4.764E-02 | 3.000E 05 |
| PHENOLIC (MOLD) GEN MF+F | 5.000E 03 | 2.200E 04 | 4.618E 05 | 8.052E 04 | 3.836E 03 | 4.764E-02 | 8.000E 05 |
| PHENOLIC (MOLD) HI-SH CH-FA-CO | 5.000E 03 | 1.500E 04 | 3.056E 05 | 8.414E 04 | 4.129E 03 | 4.908E-02 | 9.000E 05 |
| PHENOLIC (MOLD) SH PAP-FLO-PUL | 5.000E 03 | 2.400E 04 | 4.963E 05 | 7.991E 04 | 3.865E 03 | 4.836E-02 | 8.000E 05 |
| PHENOLIC (MOLD) VH-SH GLAS-FIB | 5.000E 03 | 1.700E 04 | 2.892E 05 | 1.354E 05 | 6.552E 03 | 6.315E-02 | 3.000E 06 |
| POLYSTYRENE GP | 5.000E 03 | 1.150E 04 | 3.064E 05 | 6.414E 04 | 2.407E 03 | 3.753E-02 | 4.000E 05 |
| UREAS (MOLD) ASTM TYPE 1 | 5.000E 03 | 2.500E 04 | 4.778E 05 | 9.793E 04 | 5.125E 03 | 5.233E-02 | 1.300E 06 |
| POLYPROPYLENE GP | 4.900E 03 | 5.460E 03 | 1.875E 05 | 4.867E 04 | 1.586E 03 | 3.259E-02 | 2.000E 05 |
| POLYPROPYLENE FILLED | 4.700E 03 | -0. | -0. | 5.022E 04 | 2.229E 03 | 4.439E-02 | 2.900E 05 |
| DIALLYL PHTHALATES (MOLD) D-F | 4.600E 03 | 2.700E 04 | 3.959E 05 | 6.993E 04 | 3.533E 03 | 5.052E-02 | 6.400E 05 |
| FLUOROCARBONS PTFCE | 4.600E 03 | 2.500E 03 | 2.639E 04 | 3.111E 04 | 2.358E 03 | 7.578E-02 | 1.900E 05 |
| ABS RESIN (VERY HIGH IMPACT) | 4.500E 03 | -0. | -0. | 4.632E 04 | 1.672E 03 | 3.645E-02 | 2.500E 05 |
| DIALLYL PHTHALATES (MOLD) O-F | 4.500E 03 | 2.000E 04 | 4.231E 05 | 7.003E 04 | 3.309E 03 | 4.728E-02 | 6.000E 05 |
| PHENOLIC (MOLD) CHEMICAL | 4.500E 03 | 1.800E 04 | 4.022E 05 | 7.771E 04 | 3.477E 03 | 4.475E-02 | 7.000E 05 |
| PHENOLIC RUB (MOLD) MF+F | 4.500E 03 | 1.200E 04 | 2.692E 05 | 5.874E 04 | 2.629E 03 | 4.475E-02 | 4.000E 05 |
| SILICONE (MOLD) HI-IM GLAS-FIB | 4.400E 03 | 1.300E 04 | 1.679E 05 | 1.139E 05 | 6.780E 03 | 5.959E-02 | 2.000E 06 |
| ABS RESIN (LOW TEMP IMPACT) | 4.000E 03 | -0. | -0. | 4.580E 04 | 1.686E 03 | 3.681E-02 | 2.000E 05 |
| DIALLYL PHTHALATES (MOLD) A-F | 4.000E 03 | 1.800E 04 | 3.325E 05 | 9.251E 04 | 5.008E 03 | 5.413E-02 | 1.200E 06 |
| ETHYL CELLULOSE (MOLD) HI-IM A | 4.000E 03 | -0. | -0. | 3.118E 04 | 1.238E 03 | 3.970E-02 | 1.000E 05 |
| PHENOLIC (MOLD) HEAT MINERAL | 4.000E 03 | 1.500E 04 | 2.699E 05 | 8.334E 04 | 4.632E 03 | 5.558E-02 | 1.000E 06 |
| PHENOLIC (MOLD) SHOCK MIN-F-V | 4.000E 03 | 1.500E 04 | 2.474E 05 | 9.773E 04 | 5.925E 03 | 5.063E-02 | 1.500E 06 |
| PHENOLIC RUB (MOLD) ASBESTOS | 4.000E 03 | 1.700E 04 | 3.732E 05 | 5.782E 04 | 3.338E 03 | 5.774E-02 | 5.000E 05 |
| POLYESTER (CAST) RIGID STYRENE | 4.000E 03 | 1.200E 04 | 2.909E 05 | 3.785E 04 | 1.533E 03 | 4.042E-02 | 1.500E 05 |
| SILICONE (MOLD) GLASS FIBER | 4.000E 03 | 1.200E 04 | 1.847E 05 | 7.313E 04 | 4.751E 03 | 6.496E-02 | 9.000E 05 |
| ETHYL CELLULOSE (MOLD) HI-IM B | 3.900E 03 | -0. | -0. | 3.118E 04 | 1.238E 03 | 3.970E-02 | 1.000E 05 |
| PHENOLIC RUB (MOLD) CHOP-FAB | 3.500E 03 | 1.100E 04 | 2.132E 05 | 5.367E 04 | 2.518E 03 | 4.691E-02 | 3.500E 05 |
| PROPYLENE-ETHYLENE POLYALLOMER | 3.500E 03 | -0 | -0. | 3.467E 04 | 1.114E 03 | 3.212E-02 | 1.000E 05 |

| MATERIAL | COM STR (PSI) | TEN STR (PSI) | TEN STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) |
|---|---|---|---|---|---|---|---|
| SILICONE (MOLD) GEN MINERAL | 3,500E 03 | 1.000E 04 | 1.539E 05 | 7.739E 04 | 5.008E 03 | 6.496E-02 | 1.000E 06 |
| POLYPROPYLENE IMPACT | 3,400E 03 | 5.460E 03 | 1.668E 05 | 3.762E 04 | 1.231E 03 | 3.273E-02 | 1.200E 05 |
| ETHYL CELLULOSE (MOLD) GP | 3,030E 03 | -0. | -0. | 2.205E 04 | 8.753E 02 | 3.970E-02 | 5.000E 04 |
| POLYSTYRENE MODIFIED EX-HI-IM | 3,000E 03 | -0. | -0. | 4.625E 04 | 1.669E 03 | 3.609E-02 | 2.000E 05 |
| FLUOROCARBONS FEP | 2,500E 03 | 1.600E 03 | 2.072E 04 | 1.581E 04 | 1.221E 03 | 7.723E-02 | 5.000E 04 |
| FLUOROCARBONS PTFE | 2,500E 03 | 7.000E 02 | 9.237E 03 | 1.391E 04 | 1.054E 03 | 7.578E-02 | 3.800E 04 |
| PHENOLIC (CAST) GP TRANSPARENT | 2,500E 03 | 4.500E 03 | 9.376E 04 | 2.836E 04 | 1.361E 03 | 4.800E-02 | 1.000E 05 |
| POLYSTYRENE MODIFIED MED-HI-IM | 2,500E 03 | -0. | -0. | 5.582E 04 | 2.075E 03 | 3.717E-02 | 3.000E 05 |
| FLUOROCARBONS PTFE CERAMIC-RF | 7,500E 02 | 1.400E 03 | 1.763E 04 | 2.731E 04 | 2.144E 03 | 7.939E-02 | 1.500E 05 |

| MATERIAL | TEN STR (PSI) | TEN STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | COM STR (PSI) |
|---|---|---|---|---|---|---|---|
| PHENOLIC (MOLD LAM) GLAS-FIB | 4,790E 04 | 7.012E 05 | 1.421E 05 | 9.234E 03 | 6.490E-02 | 3.430E 06 | 5.800E 04 |
| MELAMINE (MOLD) A-CELLULOSE GP | 4,000E 04 | 7 540E 05 | 9.726E 04 | 5.160E 03 | 5.305E-02 | 1.300E 06 | 7.000E 03 |
| MELAMINE (MOLD) FABRIC LTISR | 3,000E 04 | 5.542E 05 | 9.092E 04 | 5.409E 03 | 5.413E-02 | 1.400E 06 | 8.000E 03 |
| DIALLYL PHTHALATES (MOLD) GP-F | 2,500E 04 | 4.469E 05 | 9.100E 04 | 5.090E 03 | 5.594E-02 | 1.200E 06 | 5.500E 03 |
| MELAMINE (MOLD) CELLULOSE ELEC | 2,500E 04 | 4.844E 05 | 8.649E 04 | 4.463E 03 | 5.161E-02 | 1.000E 06 | 9.000E 03 |
| MELAMINE (MOLD) FABRIC INT-RES | 2,500E 04 | 4.698E 05 | 1.068E 04 | 5 762E 02 | 5.413E-02 | 1.600E 04 | 5.700E 03 |
| MELAMINE (MOLD) MINERAL ELEC | 2,500E 04 | 4.175E 05 | 1.003E 05 | 6 156E 03 | 6.139E-02 | 1.600E 06 | 5.500E 03 |
| UREAS (MOLD) ASTM TYPE 1 | 2,500E 04 | 4.778E 05 | 9.793E 04 | 5.129E 03 | 5.233E-02 | 1.300E 06 | 5.000E 03 |
| UREAS (MOLD) WOODFLOUR FILLED | 2,500E 04 | 4.778E 05 | 3.271E 04 | 1 711E 03 | 5.233E-02 | 1.450E 05 | 5.500E 03 |
| PHENOLIC (MOLD) SH PAP-FLO-CLL | 2,400E 04 | 4.943E 05 | 7.091E 04 | 3 865E 03 | 4.836E-02 | 8.000E 05 | 5.000E 03 |
| CELLULOSE NITRATE SHEET | 2,200E 04 | 4.516E 05 | 3.880E 04 | 1.890E 03 | 4.872E-02 | 1.000E 05 | 7.050E 03 |
| PHENOLIC (MOLD) GEN WF-F | 2,200E 04 | 4 618E 05 | 8.052E 04 | 3.836E 03 | 4.764E-02 | 8.000E 05 | 5.000E 03 |
| PHENOLIC (MOLD LAM) A-F | 2,080E 04 | 3.721E 05 | 1.756E 05 | 1 209E 04 | 6.886E-02 | 5.500E 06 | 4.610E 04 |
| DIALLYL PHTHALATES (MOLD) D-F | 2,000E 04 | 3.959E 05 | 6.993E 04 | 3 533E 03 | 5.052E-02 | 6.400E 05 | 4.600E 03 |
| DIALLYL PHTHALATES (MOLD) O-F | 2,000E 04 | 4.231E 05 | 7.000E 04 | 3.339E 03 | 4.728E-02 | 6.000E 05 | 4.500E 03 |
| PHENOLIC (MOLD) ARC-RES MIN | 2,000E 04 | 3.464E 05 | 8.177E 04 | 4.721E 03 | 5.774E-02 | 1.000E 06 | 6.000E 03 |
| POLYCARBONATE (GLASS FIBER) | 1,850E 04 | 3.395E 05 | 3.470E 04 | 1 891E 03 | 5.449E-02 | 1.700E 05 | 1.800E 04 |
| DIALLYL PHTHALATES (MOLD) A-F | 1,800E 04 | 3.395E 05 | 9.251E 04 | 5.008E 03 | 5.413E-02 | 1.200E 06 | 4.000E 03 |
| PHENOLIC (MOLD) CHEMICAL | 1,800E 04 | .392E 05 | 7.771E 04 | 3.477E 03 | 4.475E-02 | 7.000E 05 | 4.500E 03 |
| POLYESTER (MOLD LAM) PREFORM | 1,800E 04 | 3.395E 05 | 7.553E 04 | 4.089E 03 | 5.413E-02 | 8.000E 05 | 1.000E 04 |
| PHENOLIC (MOLD) VH-SH GLAS-FIB | 1,700E 04 | 2.692E 05 | 1.354E 05 | 8 552E 03 | 6.315E-02 | 5.000E 06 | 5.000E 03 |
| PHENOLIC (MOLD) HI-FREQ MIN | 1,500E 04 | 2.375E 05 | 1.354E 05 | 8.552E 03 | 6.315E-02 | 3.000E 06 | 5.700E 03 |
| PHENOLIC (MOLD) HI-SH CH-FA-CO | 1,500E 04 | 3.196E 05 | 8.414E 04 | 4.129E 03 | 4.908E-02 | 9.000E 05 | 5.000E 03 |
| PHENOLIC (MOLD) HEAT MINERAL | 1,500E 04 | 2.669E 05 | 8.334E 04 | 4.632E 03 | 5.558E-02 | 1.600E 06 | 4.000E 03 |
| PHENOLIC (MOLD) SHOKE MIN-F-Y | 1,500E 04 | 2.474E 05 | 9.773E 04 | 5 929E 03 | 6.063E-02 | 1.500E 06 | 4.000E 03 |
| POLYESTER (MOLD LAM) SP-UP HAT | 1,500E 04 | 2 969E 05 | 7.818E 04 | 3.950E 03 | 5.052E-02 | 8.000E 05 | 9.000E 03 |
| ACRYLICS (MOLD) GRADES 5, 6, 8 | 1,450E 04 | 3.405E 05 | 5.633E 04 | 2.399E 03 | 4.258E-02 | 3.500E 05 | 9.500E 03 |
| ACRYLICS (CAST) GP-TYPE 2 | 1,400E 04 | 3.288E 05 | 6.022E 04 | 2.564E 03 | 4.255E-02 | 4.000E 05 | 8.000E 03 |
| PHENOLIC (CAST) MECH + CHEM | 1,430E 04 | 2.961E 05 | 5.715E 04 | 2.702E 03 | 4.728E-02 | 4.000E 05 | 6.000E 03 |
| POLYSTYRENE GLASS FIBER FILLED | 1,400E 04 | 3.104E 05 | 9.702E 04 | 4.377E 03 | 4.511E-02 | 1.100E 06 | 1.100E 04 |
| PHENOLIC (CAST) GP DECORATIVE | 1,280E 04 | 2.687E 05 | 4.931E 04 | 2 349E 03 | 4.764E-02 | 3.000E 05 | 5.000E 03 |
| ACRYLICS (CAST) GP-TYPE 1 | 1,250E 04 | 2.842E 05 | 5.657E 04 | 2 388E 03 | 4.222E-02 | 3.500E 05 | 6.000E 03 |
| PHENOLIC RUB (MOLD) WF-F | 1,250E 04 | 2.682E 05 | 5.874E 04 | 2.629E 03 | 4.475E-02 | 4.000E 05 | 4.500E 03 |
| POLYCARBONATE | 1,200E 04 | 2.771E 05 | 5.546E 04 | 2.402E 03 | 4.331E-02 | 3.450E 05 | 9.500E 03 |
| POLYESTER (CAST) RIGID STYRENE | 1,250E 04 | 2.969E 05 | 3.795E 04 | 1 530E 03 | 4.042E-02 | 1.900E 05 | 4.000E 03 |
| POLYSTYRENE MOD HEAT+CHEM-RES | 1,250E 04 | 3.147E 05 | 6.384E 04 | 2.419E 03 | 3.789E-02 | 4.000E 05 | 1.000E 04 |
| SILICONE (MOLD) GLASS FIBER | 1,200E 04 | 1.847E 05 | 7.313E 04 | 4 751E 03 | 6.496E-02 | 5.000E 05 | 4.000E 03 |
| POLYSTYRENE GP | 1,150E 04 | 3.144E 05 | 6.414E 04 | 2.407E 03 | 3.753E-02 | 4.000E 05 | 5.000E 03 |
| ABS RESINS (MEDIUM IMPACT) | 1,050E 04 | 2.771E 05 | 5.798E 04 | 2 197E 03 | 3 789E-02 | 3.300E 05 | 6.300E 03 |
| PHENOLIC RUB (MOLD) ASBESTOS | 1,000E 04 | 1 732E 05 | 5.782E 04 | 3 338E 03 | 5.774E-02 | 5.000E 05 | 4.000E 03 |
| PHENOLIC RUB (MOLD) CHOP-FAB | 1,000E 04 | 2.132E 05 | 5.367E 04 | 2.518E 03 | 4.691E-02 | 3.500E 05 | 3.500E 03 |
| SILICONE (MOLD) GEN MINERAL | 1,000E 04 | 1.539E 05 | 7.779E 04 | 5 058E 03 | 6.496E-02 | 1.000E 06 | 3.500E 03 |
| SILICONE (MOLD) HI-IM GLAS-FIB | 1,000E 04 | 1.679E 05 | 1.139E 05 | 6 780E 03 | 5.955E-02 | 2.000E 06 | 4.400E 03 |
| US RESIN (HEAT RESISTANT) | 9,300E 03 | 2.431E 05 | 5.943E 04 | 2.273E 03 | 3.825E-02 | 3.500E 05 | 7.000E 03 |
| ACRYLICS (MOLD) HIGH IMPACT | 7,300E 03 | 1.806E 05 | 4.687E 04 | 1.894E 03 | 4.042E-02 | 2.300E 05 | 5.500E 03 |
| ABS RESINS (HIGH IMPACT) | 7,000E 03 | 1.902E 05 | 5.222E 04 | 1 922E 03 | 3.681E-02 | 2.600E 05 | 5.000E 03 |
| POLYPROPYLENE GP | 5,660E 03 | 1.675E 05 | 4.867E 04 | 1 588E 03 | 3.259E-02 | 2.000E 05 | 4.900E 03 |
| POLYPROPYLENE IMPACT | 5,460E 03 | 1.608E 05 | 3.762E 04 | 1.231E 03 | 3.273E-02 | 1.200E 05 | 3.400E 03 |
| ACETAL HOMOPOLYMER | 5,200E 03 | 1.711E 05 | 5.548E 04 | 2 853E 03 | 5.143E-02 | 4.100E 05 | 1.000E 04 |
| PHENOLIC (CAST) GP TRANSPARENT | 4,500E 03 | 9.376E 04 | 2.836E 04 | 1.361E 03 | 4.803E-02 | 1.000E 05 | 2.500E 03 |
| PHENOXY | 2,700E 03 | 6.340E 04 | 5.866E 04 | 2 499E 03 | 4.258E-02 | 3.800E 05 | 9.500E 03 |
| FLUOROCARBONS PTFCE | 2,000E 03 | 2.639E 04 | 1.111E 04 | 2.358E 03 | 7.578E-02 | 1.900E 05 | 4.600E 03 |
| FLUOROCARBONS FEP | 1,600E 03 | 2.072E 04 | 1.581E 04 | 3 221E 03 | 7.723E-02 | 5.000E 04 | 2.900E 03 |
| FLUOROCARBONS PTFE CERAMIC-FE | 1,400E 03 | 1 763E 04 | 2.701E 04 | 2.144E 03 | 7.939E-02 | 1.500E 05 | 7.500E 02 |
| FLUOROCARBONS PTFE | 7,000E 02 | 9.237E 03 | 1.391E 04 | 1 054E 03 | 7.578E-02 | 3.800E 04 | 2.500E 03 |
| ABS RESIN (LOW TEMP IMPACT) | -0. | -0. | 4.580E 04 | 1 686E 03 | 3 681E-02 | 2.000E 05 | 4.000E 03 |
| ABS RESIN (VERY HIGH IMPACT) | -0. | -0. | 4.602E 04 | 1 678E 03 | 3.645E-02 | 2.000E 05 | 4.500E 03 |
| ACETAL COPOLYMER | -0. | -0. | 5.509E 04 | 2 833E 03 | 5.088E-02 | 4.000E 05 | 8.800E 03 |

| MATERIAL | TEN STR (PSI) | TEN STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | COM STR (PSI) |
|---|---|---|---|---|---|---|---|
| ETHYL CELLULOSE (MOLD) CP | -0. | -0. | 2.205E 04 | 8.753E 02 | 3.970E-02 | 5.000E 04 | 3.000E 03 |
| ETHYL CELLULOSE (MOLD) HI-IM A | -0. | -0. | 3.118E 04 | 1.238E 03 | 3.970E-02 | 1.000E 05 | 4.000E 03 |
| ETHYL CELLULOSE (MOLD) HI-IM B | -0. | -0. | 3.118E 04 | 1.238E 03 | 3.970E-02 | 1.000E 05 | 3.500E 03 |
| FLUOROCARBONS PVF | -0. | -0. | 2.701E 04 | 1.719E 03 | 6.351E-02 | 1.200E 05 | 5.000E 03 |
| PHENOXY (SELF-EXTINGUISHING) | -0. | -0. | 5.693E 04 | 2.712E 03 | 4.764E-02 | 4.000E 05 | 9.000E 03 |
| POLYPROPYLENE FILLED | -0. | -0. | 5.022E 04 | 2.229E 03 | 4.439E-02 | 2.900E 05 | 4.700E 03 |
| POLYSTYRENE MODIFIED EX-HI-IM | -0. | -0. | 4.625E 04 | 1.669E 03 | 3.609E-02 | 2.000E 05 | 3.000E 03 |
| POLYSTYRENE MODIFIED MED-HI-IM | -0. | -0. | 5.582E 04 | 2.075E 03 | 3.717E-02 | 3.000E 05 | 2.500E 03 |
| PROPYLENE-ETHYLENE POLYALLOMER | -0. | -0. | 3.467E 04 | 1.114E 03 | 3.212E-02 | 1.000E 05 | 3.500E 03 |

| MATERIAL | TEN STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | COM STR (PSI) | TEN STR (PSI) |
|---|---|---|---|---|---|---|---|
| MELAMINE (MOLD) A-CELLULOSE GP | 7,540E 05 | 9.726E 04 | 5,160E 03 | 5 305E-02 | 1.300E 06 | 7.000E 03 | 4.000E 04 |
| PHENOLIC (MOLD LAM) GLAS-FIB | 7,312E 05 | 1.421E 05 | 9.234E 03 | 6.496E-02 | 3.400E 06 | 5.800E 04 | 4.750E 04 |
| MELAMINE (MOLD) FABRIC LTISR | 5,542E 05 | 9.992E 04 | 5,409E 03 | 5.413E-02 | 1 400E 06 | 8.000E 03 | 3.000E 04 |
| PHENOLIC (MOLD) SH PAP-FLO-PUL | 4,963E 05 | 7.991E 04 | 3,865E 03 | 4.834E-02 | 8.000E 05 | 5.000E 03 | 2.400E 04 |
| MELAMINE (MOLD) CELLULOSE ELEC | 4,844E 05 | 8.649E 04 | 4,463E 03 | 5 161E-02 | 1.000E 06 | 5.000E 03 | 2.500E 04 |
| UREAS (MOLD) ASTM TYPE 1 | 4,778E 05 | 9.703E 04 | 5.125E 03 | 5.233E-02 | 1.300E 06 | 5.000E 03 | 2.500E 04 |
| UREAS (MOLD) WOODFLOUR FILLED | 4,778E 05 | 3.271E 04 | 1.711E 03 | 5.233E-02 | 1.450E 05 | 5.500E 03 | 2.500E 04 |
| MELAMINE (MOLD) FABRIC INT-RES | 4,318E 05 | 1.768E 04 | 5.782E 02 | 5.413E-02 | 1.600E 04 | 5.700E 03 | 2.500E 04 |
| PHENOLIC (MOLD) GEN WF-F | 4,618E 05 | 8.052E 04 | 3.836E 03 | 4.764E-02 | 8.000E 05 | 5.000E 03 | 2.200E 04 |
| CELLULOSE NITRATE SHEET | 4,516E 05 | 3.880E 04 | 1.890E 03 | 4.872E-02 | 1.900E 05 | 7.000E 03 | 2.200E 04 |
| DIALLYL PHTHALATES (MOLD) GP-F | 4,469E 05 | 9.100E 04 | 5.090E 03 | 5.594E-02 | 1.200E 06 | 5.500E 03 | 2.500E 04 |
| DIALLYL PHTHALATES (MOLD) D-F | 4,231E 05 | 7.000E 04 | 3.309E 03 | 4.728E-02 | 6.000E 05 | 4.500E 03 | 2.000E 04 |
| MELAMINE (MOLD) MINERAL ELEC | 4,075E 05 | 1.003E 05 | 6.156E 03 | 6.135E-02 | 1.600E 06 | 5.500E 03 | 2.500E 04 |
| PHENOLIC (MOLD) CHEMICAL | 4,022E 05 | 7.771E 04 | 3,477E 03 | 4.475E-02 | 7.000E 05 | 4,500E 03 | 1.800E 04 |
| DIALLYL PHTHALATES (MOLD) D-F | 3,950E 05 | 6.903E 04 | 3,333E 03 | 5.052E-02 | 6.400E 05 | 4.600E 03 | 2.000E 04 |
| PHENOLIC (MOLD) ARC-RES MIN | 3,464E 05 | 8.177E 04 | 4,721E 03 | 5.774E-02 | 1.000E 06 | 6.000E 03 | 2.000E 04 |
| ACRYLICS (MOLD) GRADES 5, 6, 8 | 3,405E 05 | 5.633E 04 | 2,399E 03 | 4.258E-02 | 3.500E 05 | 9.500E 03 | 1.450E 04 |
| POLYCARBONATE (GLASS FIBER) | 3,395E 05 | 3.470E 04 | 1.891E 03 | 5.449E-02 | 1.700E 05 | 1.800E 04 | 1.850E 04 |
| DIALLYL PHTHALATES (MOLD) A-F | 3,325E 05 | 9.251E 04 | 5.008E 03 | 5.413E-02 | 1.200E 06 | 4.000E 03 | 1.800E 04 |
| POLYESTER (MOLD LAM) PREFORM | 3,325E 05 | 7.553E 04 | 4,069E 03 | 5.413E-02 | 8.000E 05 | 1.000E 04 | 1.800E 04 |
| ACRYLICS (CAST) GP-TYPE 2 | 3,282E 05 | 6.092E 04 | 2,564E 03 | 4.258E-02 | 4.000E 05 | 8.000E 03 | 1.400E 04 |
| POLYSTYRENE MOD HEAT-CHEM-RES | 3,167E 05 | 6.384E 04 | 2,419E 03 | 3.789E-02 | 4.000E 05 | 1.000E 04 | 1.200E 04 |
| POLYSTYRENE GLASS FIBER FILLED | 3,100E 05 | 7.702E 04 | 4,377E 03 | 4.911E-02 | 1.100E 06 | 1.100E 04 | 1.400E 04 |
| POLYSTYRENE GP | 3,069E 05 | 6.414E 04 | 2.407E 03 | 3.753E-02 | 4.000E 05 | 5.000E 03 | 1.150E 04 |
| PHENOLIC (MOLD) MI-SH CH-FA-CO | 3,056E 05 | 8.414E 04 | 4.129E 03 | 4.908E-02 | 9.000E 05 | 5.000E 03 | 1.500E 04 |
| PHENOLIC (MOLD LAM) A-F | 3,021E 05 | 1.756E 05 | 1.209E 04 | 6.886E-02 | 5.500E 06 | 4.610E 04 | 2.080E 04 |
| POLYESTER (CAST) RIGID STYRENE | 2,969E 05 | 3.785E 04 | 1.530E 03 | 4.042E-02 | 1.500E 05 | 4.000E 03 | 1.200E 04 |
| POLYESTER (MOLD LAM) SP-UP MAT | 2,969E 05 | 7.818E 04 | 3.950E 03 | 5.992E-02 | 8.000E 05 | 9.000E 03 | 1.500E 04 |
| PHENOLIC (CAST) MECH + CHEM | 2,961E 05 | 5.715E 04 | 2.702E 03 | 4.728E-02 | 4.000E 05 | 6.000E 03 | 1.400E 04 |
| ACRYLICS (CAST) GP-TYPE 1 | 2,842E 05 | 5.657E 04 | 2.398E 03 | 4.222E-02 | 3.500E 05 | 6.000E 03 | 1.200E 04 |
| ABS RESINS (MEDIUM IMPACT) | 2,771E 05 | 5.798E 04 | 2.197E 03 | 3.789E-02 | 3.300E 05 | 6.300E 03 | 1.050E 04 |
| POLYCARBONATE | 2,771E 05 | 5.546E 04 | 2.402E 03 | 4.331E-02 | 3.450E 05 | 9.500E 03 | 1.200E 04 |
| PHENOLIC (MOLD) HEAT MINERAL | 2,699E 05 | 8.334E 04 | 4.632E 03 | 5.558E-02 | 1.000E 06 | 4.000E 03 | 1.500E 04 |
| PHENOLIC (MOLD) VH-SH GLAS-FIB | 2,692E 05 | 1.354E 05 | 8.552E 03 | 6.315E-02 | 3.000E 06 | 5.000E 03 | 1.700E 04 |
| PHENOLIC (CAST) GP DECORATIVE | 2,687E 05 | 4.931E 04 | 2.349E 03 | 4.764E-02 | 3.000E 05 | 5.000E 03 | 1.280E 04 |
| PHENOLIC RUB (MOLD) WF-F | 2,682E 05 | 5.874E 04 | 2.629E 03 | 4.475E-02 | 4.000E 05 | 4.500E 03 | 1.200E 04 |
| PHENOLIC (MOLD) SH-HE MIN-F-V | 2,474E 05 | 9.773E 04 | 5.925E 03 | 6.063E-02 | 1.500E 06 | 4.000E 03 | 1.500E 04 |
| ABS RESIN (HEAT RESISTANT) | 2,431E 05 | 5.943E 04 | 2.273E 03 | 3.829E-02 | 3.500E 05 | 7.000E 03 | 9.300E 03 |
| PHENOLIC (MOLD) MI-FREQ MIN | 2,375E 05 | 1 354E 05 | 8.552E 03 | 6.315E-02 | 3.000E 06 | 5.700E 03 | 1.500E 04 |
| PHENOLIC RUB (MOLD) CHOP-FAB | 2,132E 05 | 5.367E 04 | 2.518E 03 | 4.891E-02 | 3.500E 05 | 3.500E 03 | 1.000E 04 |
| ABS RESINS (HIGH IMPACT) | 1,902E 05 | 5 292E 04 | 1.922E 03 | 3 881E-02 | 2.600E 05 | 5.000E 03 | 7.000E 03 |
| SILICONE (MOLD) GLASS FIBER | 1,847E 05 | 7.313E 04 | 4.751E 03 | 6.496E-02 | 9.000E 05 | 4.000E 03 | 1.200E 04 |
| ACRYLICS (MOLD) HIGH IMPACT | 1,836E 05 | 4.687E 04 | 1.894E 03 | 4.042E-02 | 2.300E 05 | 5.500E 03 | 7.300E 03 |
| PHENOLIC RUB (MOLD) ASBESTOS | 1,732E 05 | 5.782E 04 | 3.338E 03 | 5.774E-02 | 5 000E 05 | 4.000E 03 | 1.000E 04 |
| SILICONE (MOLD) MI-IM GLAS-FIB | 1,670E 05 | 1.139E 05 | 6.785E 03 | 5.955E 2 | 2.000E 06 | 4.400E 03 | 1.000E 04 |
| POLYPROPYLENE GP | 1,673E 05 | 4.867E 04 | 1.586E 03 | 3.259E-02 | 2.000E 05 | 4.900E 03 | 5.460E 03 |
| POLYPROPYLENE IMPACT | 1,668E 05 | 3.762E 04 | 1.231E 03 | 3.273E-02 | 1 200E 05 | 3.400E 03 | 5.460E 03 |
| SILICONE (MOLD) GEN MINERAL | 1,539E 05 | 7.709E 04 | 5.008E 03 | 6.496E-02 | 1 000E 06 | 3.500E 03 | 1.000E 04 |
| ACETAL HOMOPOLYMER | 1,011E 05 | 5.549E 04 | 2.553E 03 | 5.143E-02 | 4.100E 05 | 1.000E 04 | 9.200E 03 |
| PHENOLIC (CAST) GP TRANSPARENT | 9,376E 04 | 2 838E 04 | 1.361E 03 | 4.800E-02 | 1.000E 05 | 2.500E 03 | 4.900E 03 |
| PHENOXY | 6,340E 04 | 5.969E 04 | 2,499E 03 | 4 258E-02 | 3 800E 05 | 9.500E 03 | 2.700E 03 |
| FLUOROCARBONS PTFCE | 2,639E 04 | 3 111E 04 | 2,358E 03 | 7.578E-02 | 1.900E 05 | 4.600E 03 | 2.000E 03 |
| FLUOROCARBONS FEP | 2,092E 04 | 1.581E 04 | 1.221E 03 | 7 723E-02 | 5.000E 04 | 2.900E 03 | 1.450E 03 |
| FLUOROCARBONS PTFE CERAMIC-AE | 1,763E 04 | 2.701E 04 | 2.144E 03 | 7 93VE-02 | 1.500E 05 | 7.500E 02 | 1.400E 03 |
| FLUOROCARBONS PTFE | 9,237E 03 | 1 301E 04 | 1.054E 03 | 7 578E-02 | 3.800E 04 | 2.500E 03 | 7.000E 02 |
| ABS RESIN (LOW TEMP IMPACT) | -0. | 4 580E 04 | 1.686E 03 | 3 681E-02 | 2 000E 05 | 4.000E 03 | -0. |
| ABS RESIN (VERY HIGH IMPACT) | -0. | 4 692E 04 | 1.678E 03 | 3.645E-02 | 2.000E 05 | 4.500E 03 | -0. |
| ACETAL COPOLYMER | -0. | 5 909E 04 | 2.803E 03 | 5 088E-02 | 4.000E 05 | 8.800E 03 | -0. |

| MATERIAL | TEN STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | COM STR (PSI) | TEN STR (PSI) |
|---|---|---|---|---|---|---|---|
| E . CELLULOSE (MOLD) GP | -0. | 2.205E 04 | 8.753E 02 | 3.970E-02 | 5.000E 04 | 3.000E 03 | -0. |
| ETHYL CELLULOSE (MOLD) HI-IM A | -0. | 3.116E 04 | 1.238E 03 | 3.970E-02 | 1.000E 05 | 4.000E 03 | -0. |
| ETHYL CELLULOSE (MOLD) HI-IM B | -0. | 3.118E 04 | 1.238E 03 | 3.970E-02 | 1.000E 05 | 3.500E 03 | -0. |
| FLUOROCARBONS PVF | -0. | 2.701E 04 | 1.715E 03 | 6.391E-02 | 1.200E 05 | 5.000E 03 | -0. |
| PHENOXY (SELF-EXTINGUISHING) | -0. | 5.693E 04 | 2.712E 03 | 4.764E-02 | 4.000E 05 | 9.000E 03 | -0. |
| POLYPROPYLENE FILLED | -0. | 5.[illegible]22E 04 | 2.229E 03 | 4.439E-02 | 2.900E 05 | 4.700E 03 | -0. |
| POLYSTYRENE MODIFIED EX-HI-IM | -0. | 4.625E 04 | 1.[illegible]69E 03 | 3.609E-02 | 2.000E 05 | 3.000E 03 | -0. |
| POLYSTYRENE MODIFIED MEDHI-IM | -0. | 5.582E 04 | 2.[illegible] | 3.717E-02 | 3.000E 05 | 2.500E 03 | -0. |
| PROPYLENE-ETHYLENE POLYALLOMER | -0. | 3.467E 04 | 1.114E 03 | 3.212E-02 | 1.000E 05 | 3.500E 03 | -0. |

| MATERIAL | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | COM STR (PSI) | TEN STR (PSI) | TEN STR/DEN (LBS-IN/LBS) |
|---|---|---|---|---|---|---|---|
| PHENOLIC (MOLD LAM) A-P | 1.756E 05 | 1.209E 04 | 6.886E-02 | 5.300E 06 | 4.610E 04 | 2.090E 04 | 3.023E 05 |
| PHENOLIC (MOLD LAM) GLASS-FIB | 1.401E 05 | 9.234E 03 | 6.196E-02 | 3.400E 06 | 5.800E 04 | 4.750E 04 | 7.312E 05 |
| PHENOLIC (MOLD) HI-FREQ MIN | 1.354E 05 | 8.592E 03 | 6.315E-02 | 3.000E 06 | 5.700E 03 | 1.500E 04 | 2.375E 05 |
| PHENOLIC (MOLD) VH-CH GLASS-FIB | 1.394E 05 | 8.593E 03 | 6.319E-02 | 3.000E 06 | 5.000E 03 | 1.700E 06 | 2.692E 05 |
| SILICONE (MOLD) HI-IM GLASS-FIB | 1.136E 05 | 6.760E 03 | 5.955E-02 | 2.000E 06 | 4.400E 03 | 1.000E 04 | 1.679E 05 |
| MELAMINE (MOLD) MINERAL ELEC | 1.003E 05 | 6.196E 03 | 6.135E-02 | 1.400E 06 | 5.300E 03 | 2.500E 04 | 4.075E 05 |
| MELAMINE (MOLD) FABRIC LTISR | 9.902E 04 | 5.409E 03 | 5.413E-02 | 1.400E 06 | 8.000E 03 | 3.000E 04 | 5.542E 05 |
| UREAS (MOLD) ASTM TYPE 1 | 9.793E 04 | 5.125E 03 | 5.233E-02 | 1.300E 06 | 5.000E 03 | 2.500E 04 | 4.778E 05 |
| PHENOLIC (MOLD) SHOLE MIN-F-V | 9.773E 04 | 5.995E 03 | 6.063E-02 | 1.900E 06 | 4.000E 03 | 1.500E 04 | 2.474E 05 |
| MELAMINE (MOLD) A-CELLULOSE GP | 9.756E 04 | 5.160E 03 | 5.305E-02 | 1.300E 06 | 7.000E 03 | 4.000E 04 | 7.540E 05 |
| POLYSTYRENE GLASS FIBER FILLED | 9.702E 04 | 4.377E 03 | 4.511E-02 | 1.100E 06 | 1.100E 04 | 1.400E 04 | 3.104E 05 |
| DIALLYL PHTHALATES (MOLD) A-P | 9.251E 04 | 5.088E 03 | 5.413E-02 | 1.200E 06 | 4.000E 03 | 1.800E 04 | 3.325E 05 |
| DIALLYL PHTHALATES (MOLD) GF-F | 9.100E 04 | 5.190E 03 | 5.594E-02 | 1.200E 06 | 5.500E 03 | 2.500E 04 | 4.469E 05 |
| MELAMINE (MOLD) CELLULOSE ELEC | 8.640E 04 | 5.443E 03 | 5.161E-02 | 1.000E 06 | 5.000E 03 | 2.500E 04 | 4.844E 05 |
| PHENOLIC (MOLD) HI-SH CH-FA-CO | 8.414E 04 | 4.129E 03 | 4.908E-02 | 9.000E 05 | 5.000E 03 | 1.500E 04 | 3.056E 05 |
| PHENOLIC (MOLD) HEAT MINERAL | 8.334E 04 | 4.632E 03 | 5.558E-02 | 1.000E 06 | 4.000E 03 | 1.500E 04 | 2.699E 05 |
| PHENOLIC (MOLD) ARC-RES MIN | 8.177E 04 | 4.721E 03 | 5.774E-02 | 1.000E 06 | 6.000E 03 | 2.000E 04 | 3.464E 05 |
| PHENOLIC (MOLD) GEN WF-F | 8.052E 04 | 3.836E 03 | 4.764E-02 | 8.000E 05 | 5.000E 03 | 2.200E 04 | 4.618E 05 |
| PHENOLIC (MOLD) SH PAP-FLO-PUL | 7.991E 04 | 3.865E 03 | 4.836E-02 | 8.000E 05 | 5.000E 03 | 2.400E 04 | 4.963E 05 |
| POLYESTER (MOLD LAM) SP-UP MAT | 7.818E 04 | 3.950E 03 | 5.052E-02 | 8.000E 05 | 9.000E 03 | 1.500E 04 | 2.969E 05 |
| PHENOLIC (MOLD) CHEMICAL | 7.771E 04 | 3.477E 03 | 4.475E-02 | 7.000E 05 | 4.500E 03 | 1.800E 04 | 4.022E 05 |
| SILICONE (MOLD) GEN MINERAL | 7.709E 04 | 5.088E 03 | 6.496E-02 | 1.000E 06 | 3.500E 03 | 1.000E 04 | 1.539E 05 |
| POLYESTER (MOLD LAM) PREFORM | 7.553E 04 | 4.089E 03 | 5.413E-02 | 8.000E 05 | 1.000E 04 | 1.800E 04 | 3.325E 05 |
| SILICONE (MOLD) GLASS FIBER | 7.313E 04 | 4.751E 03 | 6.496E-02 | 9.000E 05 | 4.000E 03 | 1.200E 04 | 1.847E 05 |
| DIALLYL PHTHALATES (MOLD) O-F | 7.000E 04 | 3.309E 03 | 4.728E-02 | 6.000E 05 | 4.500E 03 | 2.000E 04 | 4.231E 05 |
| DIALLYL PHTHALATES (MOLD) D-F | 6.993E 04 | 3.533E 03 | 5.052E-02 | 6.400E 05 | 4.600E 03 | 2.000E 04 | 3.959E 05 |
| POLYSTYRENE GP | 6.414E 04 | 2.407E 03 | 3.753E-02 | 4.000E 05 | 5.000E 03 | 1.150E 04 | 3.064E 05 |
| POLYSTYRENE MOD HEAT-CHEM-RES | 6.384E 04 | 2.419E 03 | 3.789E-02 | 4.000E 05 | 1.000E 04 | 1.200E 04 | 3.167E 05 |
| ACRYLICS (CAST) GP-TYPE 2 | 6.022E 04 | 2.564E 03 | 4.258E-02 | 4.000E 05 | 8.000E 03 | 1.400E 04 | 3.288E 05 |
| ABS RESIN (HEAT RESISTANT) | 5.943E 04 | 2.273E 03 | 3.825E-02 | 3.500E 05 | 7.000E 03 | 9.300E 03 | 2.431E 05 |
| PHENOLIC RUB (MOLD) WF-F | 5.874E 04 | 2.629E 03 | 4.475E-02 | 4.000E 05 | 4.500E 03 | 1.200E 04 | 2.682E 05 |
| PHENOXY | 5.869E 04 | 2.499E 03 | 4.258E-02 | 3.800E 05 | 9.500E 03 | 2.700E 03 | 6.340E 04 |
| ABS RESINS (MEDIUM IMPACT) | 5.798E 04 | 2.197E 03 | 3.789E-02 | 3.300E 05 | 6.300E 03 | 1.050E 04 | 2.771E 05 |
| PHENOLIC RUB (MOLD) ASBESTOS | 5.782E 04 | 3.338E 03 | 5.774E-02 | 5.000E 05 | 4.000E 03 | 1.000E 04 | 1.732E 05 |
| PHENOLIC (CAST) MECH + CHEM | 5.715E 04 | 2.702E 03 | 4.728E-02 | 4.000E 05 | 6.000E 03 | 1.400E 04 | 2.961E 05 |
| PHENOXY (SELF-EXTINGUISHING) | 5.693E 04 | 2.712E 03 | 4.764E-02 | 4.000E 05 | 9.000E 03 | -0. | -0. |
| ACRYLICS (CAST) GP-TYPE 1 | 5.657E 04 | 2.348E 03 | 4.222E-02 | 3.500E 05 | 6.000E 03 | 1.200E 04 | 2.842E 05 |
| ACRYLICS (MOLD) GRADES 5, 6, 8 | 5.633E 04 | 2.369E 03 | 4.258E-02 | 3.500E 05 | 9.500E 03 | 1.450E 04 | 3.405E 05 |
| POLYSTYRENE MODIFIED MED-HI-IM | 5.582E 04 | 2.175E 03 | 3.717E-02 | 3.000E 05 | 2.500E 03 | -0. | -0. |
| ACETAL HOMOPOLYMER | 5.48E 04 | 2.853E 03 | 5.143E-02 | 4.100E 05 | 1.000E 04 | 5.200E 03 | 1.011E 05 |
| POLYCARBONATE | 5.546E 04 | 2.402E 03 | 4.331E-02 | 3.450E 05 | 9.500E 03 | 1.200E 04 | 2.771E 05 |
| ACETAL COPOLYMER | 5.509E 04 | 2.803E 03 | 5.088E-02 | 4.000E 05 | 8.000E 03 | -0. | -0. |
| PHENOLIC RUB (MOLD) CHOP-FAB | 5.367E 04 | 2.518E 03 | 4.591E-02 | 3.500E 05 | 3.500E 03 | 1.000E 04 | 2.132E 05 |
| ABS RESINS (HIGH IMPACT) | 5.222E 04 | 1.922E 03 | 3.681E-02 | 2.400E 05 | 5.000E 03 | 7.000E 03 | 1.902E 05 |
| POLYPROPYLENE FILLED | 5.022E 04 | 2.229E 03 | 4.439E-02 | 2.900E 05 | 4.700E 03 | -0. | -0. |
| PHENOLIC (CAST) GP DECORATIVE | 4.931E 04 | 2.349E 03 | 4.764E-02 | 3.000E 05 | 5.000E 03 | 1.200E 04 | 2.467E 05 |
| POLYPROPYLENE GP | 4.867E 04 | 1.586E 03 | 3.259E-02 | 2.000E 05 | 4.900E 03 | 5.400E 03 | 1.675E 05 |
| ACRYLICS (MOLD) HIGH IMPACT | 4.587E 04 | 1.894E 03 | 4.042E-02 | 2.300E 05 | 5.500E 03 | 7.300E 03 | 1.806E 05 |
| POLYSTYRENE MODIFIED EX-HI-IM | 4.625E 04 | 1.669E 03 | 3.609E-02 | 2.000E 05 | 3.000E 03 | -0. | -0. |
| ABS RESIN (VERY HIGH IMPACT) | 4.632E 04 | 1.678E 03 | 3.645E-02 | 2.030E 05 | 4.500E 03 | -0. | -0. |
| ABS RESIN (LOW TEMP IMPACT) | 4.580E 04 | 1.686E 03 | 3.681E-02 | 2.300E 05 | 4.000E 03 | -0. | -0. |
| CELLULOSE NITRATE SHEET | 3.880E 04 | 1.890E 03 | 4.872E-02 | 1.900E 05 | 7.000E 03 | 2.200E 04 | 4.516E 05 |
| POLYESTER (CAST) RIGID STYRENE | 3.785E 04 | 1.590E 03 | 4.242E-02 | 1.500E 05 | 4.000E 03 | 1.200E 04 | 2.969E 05 |
| POLYPROPYLENE IMPACT | 3.762E 04 | 1.291E 03 | 3.273E-02 | 1.200E 05 | 3.400E 03 | 5.460E 03 | 1.668E 05 |
| POLYCARBONATE (GLASS FIBER) | 3.470E 04 | 1.891E 03 | 5.449E-02 | 1.700E 05 | 1.800E 04 | 1.850E 04 | 3.395E 05 |
| PROPYLENE-ETHYLENE POLYALLOMER | 3.467E 04 | 1.114E 03 | 3.212E-02 | 1.000E 05 | 3.500E 03 | -0. | -0. |
| UREAS (MOLD) WOODFLOUR FILLED | 3.271E 04 | 1.711E 03 | 5.233E-02 | 1.450E 05 | 5.500E 03 | 2.500E 04 | 4.778E 05 |
| ETHYL CELLULOSE (MOLD) HI-IM A | 3.118E 04 | 1.298E 03 | 3.970E-02 | 1.000E 05 | 4.000E 03 | -0. | -0. |

| MATERIAL | SOUND SPEED (IN/SEC) | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | COM STR (PSI) | TEN STR (PSI) | TEN STR/DEN (LBS-IN/LBS) |
|---|---|---|---|---|---|---|---|
| ETHYL CELLULOSE (MOLD) HI-IM B | 3.118E 04 | 1.238E 03 | 3.970E-02 | 1.000E 05 | 3.500E 03 | -0. | -0. |
| FLUOROCARBONS PTFCF | 3.111E 04 | 2.398E 03 | 7.578E-02 | 1.930E 05 | 4.400E 03 | 2.000E 03 | 2.639E 04 |
| PHENOLIC (CAST) GP TRANSPARENT | 2.836E 04 | 1.381E 03 | 4.800E-02 | 1.030E 05 | 2.500E 03 | 4.500E 03 | 9.376E 04 |
| FLUOROCARBONS PTFE CERAMIC-RF | 2.701E 04 | 2.144E 03 | 7.939E-02 | 1.500E 05 | 7.500E 02 | 1.400E 03 | 1.763E 04 |
| FLUOROCARBONS PVF | 2.701E 04 | 1.715E 03 | 6.351E-02 | 1.200E 05 | 5.000E 03 | -0. | -0. |
| ETHYL CELLULOSE (MOLD) GP | 2.205E 04 | 8.793E 02 | 3.970E-02 | 5.000E 04 | 3.000E 03 | -0. | -0. |
| FLUOROCARBONS FEP | 1.581E 04 | 1.221E 03 | 7.723E-02 | 5.000E 04 | 2.900E 03 | 1.600E 03 | 2.072E 04 |
| FLUOROCARBONS PTFE | 1.391E 04 | 1.[illegible]94E 03 | 7.578E-02 | 3.800E 04 | 2.500E 03 | 7.000E 02 | 9.237E 03 |
| MELAMINE (MOLD) FABRIC INT-RFS | 1.068E 04 | 5.782E 02 | 5.413E-02 | 1.400E 04 | 5.700E 03 | 2.500E 04 | 4.618E 05 |

| MATERIAL | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | COM STR (PSI) | TEN STR (PSI) | TEN STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) |
|---|---|---|---|---|---|---|---|
| PHENOLIC (MOLD LAM) A-F | 1.209E 04 | 6.884E-02 | 5.500E 06 | 4.610E 04 | 2.080E 04 | 3.021E 05 | 1.756E 05 |
| PHENOLIC (MOLD LAM) GLAS-FIB | 9.234E 03 | 6.466E-02 | 3.400E 06 | 5.800E 04 | 4.750E 04 | 7.312E 05 | 1.421E 05 |
| PHENOLIC (MOLD) HI-FREQ MIN | 8.552E 03 | 6.315E-02 | 3.000E 06 | 5.700E 03 | 1.500E 04 | 2.375E 05 | 1.354E 05 |
| PHENOLIC (MOLD) VH-SH GLAS-FIB | 8.552E 03 | 6.315E-02 | 3.000E 06 | 5.000E 03 | 1.700E 04 | 2.692E 05 | 1.3 4E 05 |
| SILICONE (MOLD) HI-IM GLAS-FIB | 6.780E 03 | 5.955E-02 | 2.000E 06 | 4 400E 03 | 1.000E 04 | 1.679E 05 | 1.139E 05 |
| MELAMINE (MOLD) MINERAL ELEC | 6.156E 03 | 6.195E-02 | 1.600E 06 | 5 500E 03 | 2.500E 04 | 4.075E 05 | 1.003E 05 |
| PHENOLIC (MOLD) SH-HF MIN-F-Y | 5.925E 03 | 6.763E-02 | 1.500E 06 | 4.000E 03 | 1.500E 04 | 2.474E 05 | 9.773E 04 |
| MELAMINE (MOLD) FABRIC LTISO | 5.408E 03 | 5.413E-02 | 1.400E 06 | 8 000E 03 | 3.000E 04 | 5.542E 05 | 9.992E 04 |
| MELAMINE (MOLD) A-CELLULOSE GP | 5.160E 03 | 5.305E-02 | 1.300E 06 | 7.000E 03 | 4.000E 04 | 7.540E 05 | 9.726E 04 |
| UREAS (MOLD) ASTM TYPE 1 | 5.125E 03 | 5.213E-02 | 1.300E 06 | 5 000E 03 | 2.500E 04 | 4.778E 05 | 9.793E 04 |
| DIALLYL PHTHALATES (MOLD) GP-F | 5.090E 03 | 5.594E-02 | 1.200E 06 | 5.500E 03 | 2.500E 04 | 4.469E 05 | 9.100E 04 |
| DIALLYL PHTHALATES (MOLD) A-F | 5.008E 03 | 5.413E-02 | 1.200E 06 | 4.000E 03 | 1.800E 04 | 3.325E 05 | 9.251E 04 |
| SILICONE (MOLD) GEN MINERAL | 5.078E 03 | 6.466E-02 | 1.000E 06 | 3.500E 03 | 1.000E 04 | 1.539E 05 | 7.709E 04 |
| SILICONE (MOLD) GLASS FIBER | 4.751E 03 | 6.466E-02 | 9.000E 05 | 4 000E 03 | 1.200E 04 | 1.847E 05 | 7.313E 04 |
| PHENOLIC (MOLD) ARC-RES MIN | 4.721E 03 | 5.774E-02 | 1.000E 06 | 6.000E 03 | 2.000E 04 | 3.464E 05 | 8.177E 04 |
| PHENOLIC (MOLD) HEAT MINERAL | 4.632E 03 | 5.558E-02 | 1.000E 06 | 4.000E 03 | 1.500E 04 | 2.699E 05 | 8.334E 04 |
| MELAMINE (MOLD) CELLULOSE ELEC | 4.463E 03 | 5.161E-02 | 1.000E 06 | 5.000E 03 | 2.500E 04 | 4.844E 05 | 8.649E 04 |
| POLYSTYRENE GLASS FIBER FILLED | 4.377E 03 | 4.511E-02 | 1.100E 06 | 1.100E 04 | 1.400E 04 | 3.104E 05 | 9.702E 04 |
| PHENOLIC (MOLD) HI-SH CH-FA-CO | 4.129E 03 | 4.906E-02 | 9.000E 05 | 5 000E 03 | 1.500E 04 | 3.056E 05 | 8.414E 04 |
| POLYESTER (MOLD LAM) PREFORM | 4.089E 03 | 5.413E-02 | 8.000E 05 | 1.000E 04 | 1.800E 04 | 3.325E 05 | 7.553E 04 |
| POLYESTER (MOLD LAM) SP-UP MAT | 3.950E 03 | 3.152E-02 | 8.000E 05 | 9.000E 03 | 1.500E 04 | 2.969E 05 | 7.816E 04 |
| PHENOLIC (MOLD) SH PAP-FLO-PUL | 3.865E 03 | 4.848E-02 | 8.000E 05 | 5.000E 03 | 2.400E 04 | 4.963E 05 | 7.991E 04 |
| PHENOLIC (MOLD) GEN WF-F | 3.836E 03 | 4.764E-02 | 8.000E 05 | 5.000E 03 | 2.200E 04 | 4.618E 05 | 8.052E 04 |
| DIALLYL PHTHALATES (MOLD) O-F | 3.533E 03 | 5.052E-02 | 6.400E 05 | 4 000E 03 | 2.000E 04 | 3.959E 05 | 6.993E 04 |
| PHENOLIC (MOLD) CHEMICAL | 3.477E 03 | 4.475E-02 | 7.000E 05 | 4.500E 03 | 1.800E 04 | 4.022E 05 | 7.771E 04 |
| PHENOLIC RUB (MOLD) ASBESTOS | 3.338E 03 | 5.774E-02 | 5.000E 05 | 4.000E 03 | 1.000E 04 | 1.732E 05 | 5.782E 04 |
| DIALLYL PHTHALATES (MOLD) O-F | 3.309E 03 | 4.798E-02 | 6.000E 05 | 4.500E 03 | 2.000E 04 | 4.231E 05 | 7.000E 04 |
| ACETAL HOMOPOLYMER | 2.853E 03 | 5.143E-02 | 4.300E 05 | 1.000E 04 | 5.200E 03 | 1.011E 05 | 5.548E 04 |
| ACETAL COPOLYMER | 2.803E 03 | 5.048E-02 | 4.000E 05 | 8 000E 03 | -0. | -0. | 5.509E 04 |
| PHENOXY (SELF-EXTINGUISHING) | 2.712E 03 | 4.764E-02 | 4.000E 05 | 9 000E 03 | -0. | -0. | 5.693E 04 |
| PHENOLIC (CAST) MECH + CHEM | 2.702E 03 | 4.798E-02 | 4.000E 05 | 6.000E 03 | 1.400E 04 | 2.961E 05 | 5.715E 04 |
| PHENOLIC RUB (MOLD) WF-F | 2.629E 03 | 4.473E-02 | 4.000E 05 | 4 500E 03 | 1.200E 04 | 2.682E 05 | 5.874E 04 |
| ACRYLICS (CAST) GP-TYPE 2 | 2.504E 03 | 4.258E-02 | 4.000E 05 | 8 000E 03 | 1.400E 04 | 3.288E 05 | 6.022E 04 |
| PHENOLIC RUB (MOLD) CHOP-FIB | 2.518E 03 | 4.691E-02 | 3.500E 05 | 3.500E 03 | 1.000E 04 | 2.132E 05 | 5.367E 04 |
| PHENOXY | 2.499E 03 | 4.258E-02 | 3.800E 05 | 9.500E 03 | 2.700E 03 | 6.340E 04 | 5.869E 04 |
| POLYSTYRENE MOD HEAT+CHEM-RES | 2.419E 03 | 3.789E-02 | 4.000E 05 | 1 000E 04 | 1.200E 04 | 3.167E 05 | 6.384E 04 |
| POLYSTYRENE GP | 2.407E 03 | 3.753E-02 | 4.000E 05 | 5.000E 03 | 1.150E 04 | 3.064E 05 | 6.414E 04 |
| POLYCARBONATE | 2.402E 03 | 4.331E-02 | 3.450E 05 | 9.500E 03 | 1.200E 04 | 2.771E 05 | 5.546E 04 |
| ACRYLICS (MOLD) GRADES 5, 6, 8 | 2.399E 03 | 4.258E-02 | 3.500E 05 | 9.500E 03 | 1.4[illegible] 4 | 3.405E 05 | 5.633E 04 |
| ACRYLICS (CAST) GP-TYPE 1 | 2.388E 03 | 4.222E-02 | 3.500E 05 | 6.000E 03 | 1 [illegible] 4 | 2.842E 05 | 5.657E 04 |
| FLUOROCARBONS PTFCE | 2.358E 03 | 7.578E-02 | 1.900E 05 | 4.600E 03 | 2.000E 03 | 2.639E 04 | 3.111E 04 |
| PHENOLIC (CAST) GP DECORATIVE | 2.349E 03 | 4.744 2 | 3 000E 05 | 5.000E 03 | 1.280E 04 | 2.687E 05 | 4.931E 04 |
| ABS RESIN (HEAT RESISTANT) | 2.273E 03 | 3.429E-02 | 3.500E 05 | 7.000E 03 | 9.300E 03 | 2.431E 05 | 5.943E 04 |
| POLYPROPYLENE FILLED | 2.229E 03 | 4.239E-02 | 2.900E 05 | 4.700E 03 | -0. | -0. | 5.022E 04 |
| ABS RESINS (MEDIUM IMPACT) | 2.197E 03 | 3.789E-02 | 3.300E 05 | 6.300E 03 | 1.050E 04 | 2.771E 05 | 5.798E 04 |
| FLUOROCARBONS PTFE CERAMIC-RE | 2.144E 03 | 7.939E-02 | 1.500E 05 | 7.500E 02 | 1.400E 03 | 1.763E 04 | 2.701E 04 |
| POLYSTYRENE MODIFIED MED-HI-IM | 2.075E 03 | 3.717E-02 | 3.000E 05 | 2.500E 03 | -0. | -0. | 5.562E 04 |
| ABS RESINS (HIGH IMPACT) | 1.922E 03 | 3 681E-02 | 2.600E 05 | 5.000E 03 | 7.000E 03 | 1.902E 05 | 5.222E 04 |
| ACRYLICS (MOLD) HIGH IMPACT | 1.894E 03 | 4.142E-02 | 2.300E 05 | 5 500E 03 | 7.300E 03 | 1.864E 05 | 4.687E 04 |
| POLYCARBONATE (GLASS FIBER) | 1.891E 03 | 5.449E-02 | 1.700E 05 | 1.800E 04 | 1.850E 04 | 3.395E 05 | 3.470E 04 |
| CELLULOSE NITRATE SHEET | 1.890E 03 | 4.872E-02 | 1.900E 05 | 7 000E 03 | 2.200E 04 | 4.518E 05 | 3.880E 04 |
| FLUOROCARBONS PVF | 1.719E 03 | 6.351E-02 | 1.200E 05 | 5.000E 03 | -0. | -0. | 2.701E 04 |
| UREAS (MOLD) WOODFLOUR FILLED | 1.711E 03 | 5 233E-02 | 1.450E 05 | 5.500E 03 | 2.500E 04 | 4.778E 05 | 3.271E 04 |
| ABS RESIN (LOW TEMP IMPACT) | 1.686E 03 | 3.681E-02 | 2.000E 05 | 4.000E 03 | -0. | -0. | 4.580E 04 |
| ABS RESIN (VERY HIGH IMPACT) | 1.678E 03 | 3.645E-02 | 2.000E 05 | 4.500E 03 | -0. | -0. | 4.602E 04 |
| POLYSTYRENE MODIFIED EX-HI-IM | 1.669E 03 | 3.609E-02 | 2.000E 05 | 3.000E 03 | -0. | -0. | 4.625E 04 |
| POLYPROPYLENE GP | 1.586E 03 | 3.259E-02 | 2.000E 05 | 4.900E 03 | 5.460E 03 | 1.677E 05 | 4.867E 04 |
| POLYESTER (CAST) RIGID STYRENE | 1.530E 03 | 4.042E-02 | 1.500E 05 | 4.000E 03 | 1.200E 04 | 2.969E 05 | 3.789E 04 |

| MATERIAL | IMPEDANCE (PSI/SEC) | DENSITY (PCI) | MOD OF ELAS (PSI) | COM STR (PSI) | TEN STR (PSI) | TEN STR/DEN (LBS-IN/LBS) | SOUND SPEED (IN/SEC) |
|---|---|---|---|---|---|---|---|
| PHENOLIC (CAST) GP TRANSPARENT | 1.361E 03 | 4.800E-02 | 1.000E 05 | 2.500E 03 | 4.500E 03 | 9.376E 04 | 2.836E 04 |
| ETHYL CELLULOSE (MOLD) HI-IM A | 1.238E 03 | 3.970E-02 | 1.000E 05 | 4.000E 03 | -0. | -0. | 3.118E 04 |
| ETHYL CELLULOSE (MOLD) HI-IM B | 1.238E 03 | 3.970E-02 | 1.000E 05 | 3.500E 03 | -0. | -0. | 3.118E 04 |
| POLYPROPYLENE IMPACT | 1.231E 03 | 3.275E-02 | 1.200E 05 | 3.400E 03 | 5.460E 03 | 1.668E 05 | 3.762E 04 |
| FLUOROCARBONS FEP | 1.271E 03 | 7.723E-02 | 5.000E 04 | 2.500E 03 | 1.600E 03 | 2.072E 04 | 1.581E 04 |
| PROPYLENE-ETHYLENE POLYALLOMER | 1.114E 03 | 3.212E-02 | 1.300E 05 | 3.500E 03 | -0. | -0. | 3.467E 04 |
| FLUOROCARBONS PTFE | 1.054E 03 | 7.578E-02 | 3.800E 04 | 2.500E 03 | 7.000E 02 | 9.237E 03 | 1.391E 04 |
| ETHYL CELLULOSE (MOLD) GP | 8.753E 02 | 3.970E-02 | 5.000E 04 | 3.000E 03 | -0. | -0. | 2.208E 04 |
| MELAMINE (MOLD) FABRIC INTERES | 5.782E 02 | 5.413E-02 | 1.600E 04 | 5.700E 03 | 2.500E 04 | 4.618E 05 | 1.068E 04 |

UNCLASSIFIED
Security Classification

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13. ABSTRACT
Mechanical and acoustic properties have been tabulated for 356 nonferrous, 173 ferrous, and 67 plastic materials. These properties include density, Young's modulus of elasticity, ultimate tensile strength, yield strength, strength-to-density ratio, elastic sound speed, and acoustic impedance. The tabulation was accomplished by means of a computer program. The limited number of materials and material properties presented allows the user to make an initial selection. Further information on similar materials should be obtained from other sources.

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| 14 KEY WORDS | LINK A ROLE | LINK A WT | LINK B ROLE | LINK B WT | LINK C ROLE | LINK C WT |
|---|---|---|---|---|---|---|
| Materials | | | | | | |
| Metals | | | | | | |
| Ferrous | | | | | | |
| Nonferrous | | | | | | |
| Plastics | | | | | | |
| Properties | | | | | | |
| Mechanical | | | | | | |
| Density | | | | | | |
| Yield strength | | | | | | |
| Ultimate strength | | | | | | |
| Yield strength-to-density ratio | | | | | | |
| Sound speed | | | | | | |
| Impedance | | | | | | |
| Modulus of elasticity | | | | | | |

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