



# Steel Bars

## Cold Finished & Hot Rolled Bar Products

**Cold Finished Grade Descriptions** ..... 1-2

**Cold Finished Rounds** ..... 1-3 thru 1-6

**Chrome Plated Steel Bars** ..... 1-7

**Cold Finished Squares** ..... 1-8

**Cold Finished Hexagons** ..... 1-9

**Cold Finished Flats** ..... 1-10 thru 1-13

**Cold Finished Tolerances** ..... 1-14

**Hot Rolled Grade Descriptions** ..... 1-15

**Hot Rolled Rounds** ..... 1-16 thru 1-17

**Hot Rolled Flats (A-36)** ..... 1-18 thru 1-19

**Hot Rolled Strips** ..... 1-20

**Hot Rolled Flats (M1044)** ..... 1-21

**Hot Rolled Squares** ..... 1-21

**Concrete Reinforcing Bars & Mesh** ..... 1-22

**Hot Rolled Steel Bars** ..... 1-23

**Square Edge & Round Edge Flats** ..... 1-23

**Straightness Tolerances Steel Bars** ..... 1-24

## Cold Finished Carbon Bars

### Grade Descriptions

Cold Finished Bars are produced from Special Bar Quality Hot Rolled Bars by cold drawing, turning or grinding or by a combination of these methods. The cross sectional area of the hot rolled bar is cold reduced, resulting in accurate size, smooth surface, increased mechanical properties and machinability.

**1018** is a general purpose low carbon steel with good case hardening qualities. It is especially suited to cold forming and bending operations. Material is suitable for parts which require cold forming (such as crimping, swaging, or bending). For severe bends, however, stress relieving may be necessary to prevent cracking.

**1045** is a medium carbon steel used extensively in induction hardening applications. This is not normally considered a screw machine steel and is only fair for brazing and welding. However, it can be forged satisfactorily and is the most common shafting steel in the medium carbon range.

**1117** is a low carbon, high manganese steel. Machinability is improved over 1018, and case hardening is deep and uniform, supported by a tough ductile core.

**11L17** is a resulfurized steel with good machinability and surface finish. The product is made much the same way as 12L14 where the lead does not alloy with the steel. Lead is retained in its elemental state and is dispersed within the steel's structure allowing chips to break off easier during machining.

**1141** is a medium carbon, special quality, manganese steel, with improved machinability and better heat treatment response. Surface hardness is deeper and more uniform than plain carbon steels.

**1144** is a resulfurized carbon steel containing manganese and sulphur to provide a free-machining steel. It is recommended especially for high-production automatic machine products and machined parts requiring higher strength and wear resistance than is possible with lower carbon steels.

**A311 Class B, includes Stressproof®**, is a medium carbon free machining steel that has been severely cold reduced to improve its mechanical properties. Its inherent strength, without heat treatment, is comparable to heat treated steels of equal hardness. This permits direct use of many parts following the last machining operation, without the necessity of a further hardening treatment.

**12L14** is considered to be one of the fastest machining steels currently produced. This has been achieved through the addition and even dispersal of tiny lead particles throughout the bar. C12L14 gives a smooth, machined surface and because of its low friction component allows increased tool life. This grade is recommended for high-speed automatic screw machine parts.

**1215** is one of the most popular screw stocks marketed today. C1215 provides good surface finish and brazing properties.

**Fatigueproof®** is made by various combinations of mechanical working and thermal treatment which can include Niagara LaSalle's "e.t.d."® (elevated temperature drawing) process. This is a high strength steel bar that eliminates heat treating and secondary operations such as cleaning, straightening, secondary machining and inspections. All this, in combination with free machining and high strength, operates to lower end costs. Fatigueproof® induction hardens satisfactorily, but should be watched for quench cracks. Fatigueproof® is also comparator or roto tested.

## Cold Finished - Rounds

Stock Lengths: 12 foot (Other lengths are available upon request)

| Diameter (inches) | Weight (lbs./ft.) | Weight per 12 Foot Bar | 1018 | 1045* | 1117 | 11L17 | 1141 | 1144 | Stressproof® A311, Class B** | 12L14 | 1215 | Fatigueproof® |
|-------------------|-------------------|------------------------|------|-------|------|-------|------|------|------------------------------|-------|------|---------------|
| 1/8               | 0.040             | 0.48                   | ●    |       |      |       |      |      |                              | ●     |      |               |
| 5/32              | 0.070             | 0.84                   | ●    |       |      |       |      |      |                              | ●     |      |               |
| 3/16              | 0.090             | 1.08                   | ●    | ●     |      |       |      |      |                              | ●     | ●    |               |
| 13/64             | 0.110             | 1.32                   |      |       |      |       |      |      |                              | ●     |      |               |
| 7/32              | 0.130             | 1.56                   | ●    |       |      |       |      |      |                              | ●     | ●    |               |
| 15/64             | 0.147             | 1.76                   |      |       |      |       |      |      |                              | ●     |      |               |
| 1/4               | 0.167             | 2.00                   | ●    | ●     | ●    |       |      |      | ●                            | ●     | ●    | ●             |
| 17/64             | 0.190             | 2.28                   |      |       |      |       |      |      |                              | ●     |      |               |
| 9/32              | 0.210             | 2.52                   | ●    |       |      |       |      |      |                              | ●     | ●    |               |
| 19/64             | 0.240             | 2.88                   |      |       |      |       |      |      |                              | ●     |      |               |
| 5/16              | 0.260             | 3.12                   | ●    | ●     | ●    |       |      |      | ●                            | ●     | ●    | ●             |
| 21/64             | 0.290             | 3.48                   |      |       |      |       |      |      |                              | ●     |      |               |
| 11/32             | 0.320             | 3.84                   | ●    |       |      |       |      |      |                              | ●     | ●    |               |
| 23/64             | 0.350             | 4.20                   |      |       |      |       |      |      |                              | ●     |      |               |
| 3/8               | 0.380             | 4.56                   | ●    | ●     | ●    |       | ●    |      | ●                            | ●     | ●    | ●             |
| 25/64             | 0.410             | 4.92                   |      |       |      |       |      |      |                              | ●     |      |               |
| 13/32             | 0.441             | 5.29                   | ●    |       |      |       |      |      |                              | ●     | ●    |               |
| 27/64             | 0.480             | 5.76                   |      |       |      |       |      |      |                              | ●     |      |               |
| 7/16              | 0.510             | 6.12                   | ●    | ●     | ●    |       |      |      | ●                            | ●     | ●    | ●             |
| 29/64             | 0.550             | 6.60                   |      |       |      |       |      |      |                              | ●     |      |               |
| 15/32             | 0.587             | 7.04                   | ●    |       |      |       |      |      |                              | ●     | ●    |               |
| 31/64             | 0.630             | 7.56                   |      |       |      |       |      |      |                              | ●     |      |               |
| 1/2               | 0.670             | 8.04                   | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 33/64             | 0.710             | 8.52                   |      |       |      |       |      |      |                              | ●     |      |               |
| 17/32             | 0.754             | 9.04                   | ●    |       |      |       |      |      |                              | ●     | ●    |               |
| 35/64             | 0.798             | 9.57                   |      |       |      |       |      |      |                              | ●     |      |               |
| 9/16              | 0.850             | 10.20                  | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    | ●             |
| 19/32             | 0.940             | 11.28                  | ●    |       | ●    |       |      |      |                              | ●     | ●    |               |
| 39/64             | 0.990             | 11.88                  |      |       |      |       |      |      |                              | ●     |      |               |
| 5/8               | 1.040             | 12.48                  | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 41/64             | 1.100             | 13.20                  |      |       |      |       |      |      |                              | ●     |      |               |
| 21/32             | 1.150             | 13.80                  | ●    |       |      |       |      |      |                              | ●     | ●    |               |
| 11/16             | 1.260             | 15.12                  | ●    | ●     | ●    |       |      |      |                              | ●     | ●    | ●             |
| 23/32             | 1.380             | 16.56                  | ●    |       |      |       |      |      |                              | ●     | ●    |               |
| 47/64             | 1.440             | 17.28                  |      |       |      |       |      |      |                              | ●     |      |               |
| 3/4               | 1.500             | 18.00                  | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |

\* 1045 is available in turned, ground and polished condition.

\*\* Stressproof® A311 Class B is available in ground and polished condition starting at 3/8".

Continued on next page ►

## Cold Finished - Rounds

Stock Lengths: 12 and 20 foot (Other lengths are available upon request)

| Diameter (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) | 1018 | 1045* | 1117 | 11L17 | 1141 | 1144 | Stressproof® A311, Class B** | 12L14 | 1215 | Fatigueproof® |
|-------------------|-------------------|---------------------|------|-------|------|-------|------|------|------------------------------|-------|------|---------------|
| 49/64             | 1.570             | 18.84               |      |       |      |       |      |      |                              | ●     |      |               |
| 25/32             | 1.630             | 19.56               | ●    |       |      |       |      |      |                              | ●     | ●    |               |
| 13/16             | 1.760             | 21.12               | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    | ●             |
| 27/32             | 1.901             | 22.81               | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    | ●             |
| 7/8               | 2.040             | 24.48               | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 29/32             | 2.193             | 26.31               | ●    | ●     | ●    |       |      |      |                              | ●     | ●    | ●             |
| 15/16             | 2.350             | 28.20               | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    |               |
| 31/32             | 2.506             | 30.07               | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    |               |
| 1                 | 2.670             | 32.04               | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 1-1/16            | 3.014             | 36.17               | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    | ●             |
| 1-1/8             | 3.379             | 40.55               | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 1-3/16            | 3.770             | 45.24               | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    | ●             |
| 1-1/4             | 4.170             | 50.04               | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 1-5/16            | 4.600             | 55.20               | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 1-3/8             | 5.050             | 60.60               | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 1-7/16            | 5.520             | 66.24               | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    | ●             |
| 1-1/2             | 6.010             | 72.12               | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 1-9/16            | 6.510             | 78.12               | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    | ●             |
| 1-5/8             | 7.050             | 84.60               | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 1-11/16           | 7.600             | 91.20               | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    | ●             |
| 1-3/4             | 8.170             | 98.04               | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 1-13/16           | 8.770             | 105.24              | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    | ●             |
| 1-7/8             | 9.390             | 112.68              | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 1-15/16           | 10.020            | 120.24              | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    | ●             |
| 2                 | 10.680            | 128.16              | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 2-1/16            | 11.360            | 136.32              | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    | ●             |
| 2-1/8             | 12.060            | 144.72              | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 2-3/16            | 12.780            | 153.36              | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    | ●             |
| 2-1/4             | 13.520            | 162.24              | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 2-5/16            | 14.280            | 171.36              | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    | ●             |
| 2-3/8             | 15.060            | 180.72              | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 2-7/16            | 15.870            | 190.44              | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    | ●             |
| 2-1/2             | 16.690            | 200.28              | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 2-9/16            | 17.530            | 210.36              | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    | ●             |
| 2-5/8             | 18.400            | 220.80              | ●    | ●     | ●    | ●     | ●    | ●    | ●                            | ●     | ●    | ●             |
| 2-11/16           | 19.290            | 231.48              | ●    | ●     | ●    |       | ●    | ●    | ●                            | ●     | ●    | ●             |

\* 1045 is available in ground and polished condition. However, 1/2" to 7/8" diameter may be cold drawn, ground and polished or turned, ground and polished. Over 1" diameter is hot rolled, turned, ground and polished.

\*\* Stressproof® A311 Class B is available in ground and polished condition.

Continued on next page ►

## Cold Finished - Rounds

Stock Lengths: 12 and 20 foot (Other lengths are available upon request)

| Diameter (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) | 1018 <sup>(1)(2)</sup> | 1045 <sup>(1)(2)(3)</sup> | 1117 | 11L17 | 1141 | 1144 | Stressproof <sup>®</sup> A311, Class B <sup>(4)</sup> | 12L14 <sup>(2)</sup> | 1215 | Fatigueproof <sup>®</sup> |
|-------------------|-------------------|---------------------|------------------------|---------------------------|------|-------|------|------|---|----------------------|------|---------------------------|
| 2-3/4             | 20.19             | 242.28              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 2-13/16           | 21.12             | 253.44              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 2-7/8             | 22.07             | 264.84              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 2-15/16           | 23.04             | 276.48              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 3                 | 24.03             | 288.36              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 3-1/16            | 25.05             | 300.60              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 3-1/8             | 26.08             | 312.96              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 3-3/16            | 27.13             | 325.54              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 3-1/4             | 28.21             | 338.52              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 3-3/8             | 30.42             | 365.04              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 3-7/16            | 31.55             | 378.60              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 3-1/2             | 32.71             | 392.49              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 3-5/8             | 35.09             | 421.08              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 3-3/4             | 37.55             | 450.36              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 3-7/8             | 40.10             | 481.20              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 3-15/16           | 41.40             | 496.80              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 4                 | 42.73             | 512.76              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 4-1/8             | 45.44             | 545.28              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 4-1/4             | 48.23             | 578.76              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 4-3/8             | 51.11             | 613.32              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 4-7/16            | 52.58             | 630.91              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 4-1/2             | 54.07             | 648.84              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 4-5/8             | 57.12             | 685.44              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 4-3/4             | 60.25             | 723.00              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 4-7/8             | 63.46             | 761.52              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 4-15/16           | 65.10             | 781.20              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 5                 | 66.75             | 801.12              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 5-1/8             | 70.14             | 841.68              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 5-1/4             | 73.59             | 883.20              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 5-7/16            | 78.94             | 947.28              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 5-1/2             | 80.77             | 969.24              | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 5-3/4             | 88.29             | 1059.48             | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |
| 6                 | 96.13             | 1153.56             | ●                      | ●                         | ●    | ●     | ●    | ●    | ●   | ●                    | ●    | ●                         |

(1) Sizes over 10" diameter are rough turned to +1/8 to +3/16" overside

(2) Sizes over 6" diameter are turned and polished. See tolerance chart at the end of this section.

(3) 1045 is available in ground and polished condition. However, 1/2" to 7/8" diameter may be cold drawn, ground and polished or turned, ground and polished. Over 1" diameter is hot rolled, turned, ground and polished.

(4) Stressproof<sup>®</sup> A311 Class B is available in ground and polished condition up through 4" diameter.

## Cold Finished - Rounds

Stock Lengths: 12 and 20 foot (Other lengths are available upon request)

| Diameter (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) | 1018 <sup>(1) (2)</sup> | 1045 <sup>(1) (2) (3)</sup> | 1117 | 11L17 | 1141 | 1144 | Stressproof® A311, Class B <sup>(4)</sup> | 12L14 <sup>(2)</sup> | 1215 | Fatigueproof® |
|-------------------|-------------------|---------------------|-------------------------|-----------------------------|------|-------|------|------|---|----------------------|------|---------------|
| 6-1/4             | 104.31            | 1314.99             | ●                       | ●                           |      |       |      |      |   | ●                    |      |               |
| 6-1/2             | 112.82            | 1419.63             | ●                       | ●                           |      |       |      |      |   | ●                    |      |               |
| 6-3/4             | 121.68            | 1528.28             | ●                       | ●                           |      |       |      |      |   | ●                    |      |               |
| 7                 | 130.84            | 1640.92             | ●                       | ●                           |      |       |      |      |   | ●                    |      |               |
| 7-1/4             | 140.36            | 1757.59             | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 7-1/2             | 150.21            | 1878.25             | ●                       | ●                           |      |       |      |      |   | ●                    |      |               |
| 7-3/4             | 160.37            | 2002.92             | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 8                 | 170.90            | 2131.59             | ●                       | ●                           |      |       |      |      |   | ●                    |      |               |
| 8-1/2             | 192.93            | 2400.96             | ●                       | ●                           |      |       |      |      |   | ●                    |      |               |
| 9                 | 216.30            | 2686.34             | ●                       | ●                           |      |       |      |      |   | ●                    |      |               |
| 9-1/2             | 241.00            | 2987.74             | ●                       | ●                           |      |       |      |      |   | ●                    |      |               |
| 10                | 266.87            | 3202.42             | ●                       | ●                           |      |       |      |      |   | ●                    |      |               |
| 10-1/2            | 302.84            | 3634.08             | ●                       |                             |      |       |      |      |   | ●                    |      |               |
| 11                | 332.29            | 3987.48             | ●                       | ●                           |      |       |      |      |   | ●                    |      |               |
| 11-1/2            | 362.75            | 4353.00             | ●                       |                             |      |       |      |      |   |                      |      |               |
| 12                | 394.54            | 4734.49             | ●                       | ●                           |      |       |      |      |   | ●                    |      |               |
| 12-1/2            | 427.66            | 5131.92             | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 13                | 462.12            | 5545.44             | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 13-1/2            | 497.93            | 5975.16             | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 14                | 535.05            | 6420.60             | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 14-1/2            | 573.51            | 6882.12             | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 15                | 613.31            | 7359.72             | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 15-1/2            | 654.44            | 7853.28             | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 16                | 696.91            | 8362.92             | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 16-1/2            | 740.72            | 8888.64             | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 17                | 785.85            | 9430.20             | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 18                | 880.14            | 10561.68            | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 19                | 979.76            | 11757.12            | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 20                | 1084.73           | 13016.76            | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 22                | 1310.67           | 15728.04            | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 24                | 1557.98           | 18695.76            | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 26                | 1826.64           | 21919.68            | ●                       | ●                           |      |       |      |      |   |                      |      |               |
| 28                | 2116.67           | 25400.04            | ●                       | ●                           |      |       |      |      |   |                      |      |               |

(1) Sizes over 10" diameter are rough turned to +1/8 to +3/16" overside

(2) Sizes over 6" diameter are turned and polished. See tolerance chart at the end of this section.

(3) 1045 is available in ground and polished condition. However, 1/2" to 7/8" diameter may be cold drawn, ground and polished or turned, ground and polished. Over 1" diameter is hot rolled, turned, ground and polished.

(4) Stressproof® A311 Class B is available in ground and polished condition up through 4" diameter.

## Chrome Plated Steel Bars

Produced from a commercial grade of cold finished and hot rolled steel bars. After centerless grinding the bars are polished and then hard-chrome plated (usually up to .001"). The bar may be induction hardened to core depth of .050" minimum with a surface hardness of RC50 minimum. Primary application is for shafting in the manufacture of hydraulic cylinders.

| Diameter (inches) | Weight (lbs./ft.) | 1045<br>75K min.<br>yield/.0005<br>min. plate | 1045/1050<br>100K min.<br>yield/.0005<br>min. plate | 1045/1050<br>Induction<br>Hardened 100K<br>min. yield/.001<br>min. plate |
|-------------------|-------------------|---|---|--|
| 3/8               | .375              |   | ●   |  |
| 1/2               | .668              | ●   |   |  |
| 5/8               | 1.04              | ●   |   |  |
| 3/4               | 1.50              | ●   |   |  |
| 7/8               | 2.04              | ●   |   |  |
| 1                 | 2.67              | ●   |   | ●  |
| 1-1/8             | 3.38              | ●   |   | ●  |
| 1-1/4             | 4.17              | ●   |   | ●  |
| 1-3/8             | 5.05              | ●   |   | ●  |
| 1-1/2             | 6.01              | ●   |   | ●  |
| 1-5/8             | 7.05              | ●   |   |  |
| 1-3/4             | 8.18              | ●   |   | ●  |
| 2                 | 10.68             | ●   |   | ●  |
| 2-1/4             | 13.52             | ●   |   | ●  |
| 2-1/2             | 16.69             | ●   |   | ●  |
| 2-3/4             | 20.19             | ●   |   | ●  |
| 3                 | 24.03             | ●   |   | ●  |
| 3-1/4             | 28.20             |   |   | ●  |
| 3-1/2             | 32.71             | ●   |   | ●  |
| 3-3/4             | 37.55             | ●   |   | ●  |
| 4                 | 42.72             | ●   |   | ●  |
| 4-1/4             | 48.23             |   |   |  |
| 4-1/2             | 54.07             | ●   |   |  |
| 5                 | 66.75             | ●   |   |  |

## Cold Finished - Squares

| Size (inches) | Weight (lbs./foot) | Weight (lbs./12 ft.) | Stock Lengths : 12 foot |      |       |      |
|---------------|--------------------|----------------------|-------------------------|------|-------|------|
|               |                    |                      | 1018                    | 1045 | 12L14 | 1215 |
| 1/8           | 0.05               | 0.60                 | ●                       |      |       |      |
| 3/16          | 0.12               | 1.44                 | ●                       |      | ●     |      |
| 1/4           | 0.21               | 2.52                 | ●                       | ●    | ●     | ●    |
| 5/16          | 0.33               | 3.96                 | ●                       | ●    | ●     | ●    |
| 3/8           | 0.478              | 5.73                 | ●                       | ●    | ●     | ●    |
| 7/16          | 0.65               | 7.80                 | ●                       | ●    | ●     |      |
| 1/2           | 0.85               | 10.20                | ●                       | ●    | ●     | ●    |
| 9/16          | 1.08               | 12.96                | ●                       |      | ●     |      |
| 5/8           | 1.328              | 15.93                | ●                       | ●    | ●     | ●    |
| 11/16         | 1.61               | 19.32                | ●                       |      | ●     |      |
| 3/4           | 1.91               | 22.92                | ●                       | ●    | ●     | ●    |
| 13/16         | 2.24               | 26.88                | ●                       |      | ●     |      |
| 7/8           | 2.60               | 31.20                | ●                       | ●    | ●     | ●    |
| 15/16         | 2.99               | 35.88                | ●                       |      | ●     |      |
| 1             | 3.40               | 40.80                | ●                       | ●    | ●     | ●    |
| 1-1/16        | 3.84               | 46.08                | ●                       |      | ●     |      |
| 1-1/8         | 4.30               | 51.60                | ●                       | ●    | ●     | ●    |
| 1-3/16        | 4.80               | 57.60                | ●                       |      | ●     |      |
| 1-1/4         | 5.31               | 63.72                | ●                       | ●    | ●     | ●    |
| 1-5/16        | 5.86               | 70.32                | ●                       |      | ●     |      |
| 1-3/8         | 6.43               | 77.16                | ●                       |      | ●     | ●    |
| 1-7/16        | 7.03               | 84.36                | ●                       |      | ●     |      |
| 1-1/2         | 7.65               | 91.80                | ●                       | ●    | ●     | ●    |
| 1-5/8         | 8.98               | 107.76               | ●                       |      | ●     |      |
| 1-3/4         | 10.413             | 124.95               | ●                       | ●    | ●     | ●    |
| 1-13/16       | 11.163             | 133.95               | ●                       |      | ●     |      |
| 1-7/8         | 11.95              | 143.40               | ●                       |      | ●     |      |
| 2             | 13.60              | 163.20               | ●                       | ●    | ●     | ●    |
| 2-1/8         | 15.35              | 184.20               | ●                       |      | ●     |      |
| 2-1/4         | 17.22              | 206.64               | ●                       | ●    | ●     |      |
| 2-3/8         | 19.18              | 230.16               | ●                       |      | ●     |      |
| 2-1/2         | 21.26              | 255.12               | ●                       | ●    | ●     | ●    |
| 2-5/8         | 23.43              | 281.16               | ●                       |      | ●     |      |
| 2-3/4         | 25.71              | 308.52               | ●                       |      | ●     |      |
| 3             | 30.60              | 367.20               | ●                       | ●    | ●     | ●    |
| 3-1/4         | 35.91              | 430.92               | ●                       |      | ●     |      |
| 3-1/2         | 41.65              | 499.80               | ●                       | ●    | ●     |      |
| 3-3/4         | 47.81              | 573.72               | ●                       |      | ●     |      |
| 4             | 54.40              | 652.80               | ●                       | ●    | ●     |      |
| 4-1/2         | 68.85              | 826.20               | ●                       |      | ●     |      |
| 5             | 85.04              | 1020.48              | ●                       |      | ●     |      |
| 5-1/2         | 102.80             | 1233.60              | ●                       |      | ●     |      |
| 6             | 122.40             | 1468.80              | ●                       |      | ●     |      |



## Cold Finished - Hexagons

| Size (inches) | Weight (lbs./foot) | Weight (lbs./12 ft.) | Stock Lengths : 12 foot |      |      |       |      |              |               |
|---------------|--------------------|----------------------|-------------------------|------|------|-------|------|--------------|---------------|
|               |                    |                      | 1018                    | 1045 | 1117 | 12L14 | 1215 | Stressproof® | Fatigueproof® |
| 3/16          | 0.10               | 1.20                 |                         |      |      | ●     |      |              |               |
| 1/4           | 0.183              | 2.19                 | ●                       |      |      | ●     | ●    |              |               |
| 5/16          | 0.28               | 3.36                 | ●                       |      |      | ●     | ●    | ●            |               |
| 3/8           | 0.41               | 4.92                 | ●                       |      |      | ●     | ●    | ●            | ●             |
| 7/16          | 0.563              | 6.75                 | ●                       |      |      | ●     | ●    | ●            | ●             |
| 1/2           | 0.73               | 8.76                 | ●                       | ●    | ●    | ●     | ●    | ●            | ●             |
| 9/16          | 0.93               | 11.16                | ●                       |      |      | ●     | ●    | ●            |               |
| 5/8           | 1.15               | 13.80                | ●                       |      | ●    | ●     | ●    | ●            | ●             |
| 11/16         | 1.39               | 16.68                | ●                       |      |      | ●     | ●    | ●            |               |
| 3/4           | 1.66               | 19.92                | ●                       | ●    | ●    | ●     | ●    | ●            | ●             |
| 13/16         | 1.94               | 23.28                | ●                       |      |      | ●     | ●    | ●            |               |
| 7/8           | 2.25               | 27.00                | ●                       | ●    | ●    | ●     | ●    | ●            | ●             |
| 15/16         | 2.59               | 31.08                | ●                       |      |      | ●     | ●    | ●            |               |
| 1             | 2.94               | 35.28                | ●                       | ●    | ●    | ●     | ●    | ●            | ●             |
| 1-1/16        | 3.32               | 39.84                | ●                       |      |      | ●     | ●    | ●            |               |
| 1-1/8         | 3.72               | 44.65                | ●                       | ●    | ●    | ●     | ●    | ●            |               |
| 1-3/16        | 4.15               | 49.80                | ●                       |      |      | ●     | ●    | ●            |               |
| 1-1/4         | 4.60               | 55.20                | ●                       | ●    | ●    | ●     | ●    | ●            |               |
| 1-5/16        | 5.07               | 60.84                | ●                       |      |      | ●     | ●    | ●            |               |
| 1-3/8         | 5.56               | 66.72                | ●                       | ●    | ●    | ●     | ●    | ●            |               |
| 1-7/16        | 6.09               | 73.08                | ●                       |      |      | ●     | ●    | ●            |               |
| 1-1/2         | 6.63               | 79.56                | ●                       | ●    | ●    | ●     | ●    | ●            |               |
| 1-9/16        | 7.19               | 86.28                | ●                       |      |      | ●     | ●    | ●            |               |
| 1-5/8         | 7.78               | 93.36                | ●                       |      |      | ●     | ●    | ●            |               |
| 1-11/16       | 8.39               | 100.68               | ●                       |      |      | ●     | ●    | ●            |               |
| 1-3/4         | 9.00               | 108.00               | ●                       | ●    |      | ●     | ●    | ●            |               |
| 1-13/16       | 9.65               | 115.89               | ●                       |      |      | ●     | ●    | ●            |               |
| 1-7/8         | 10.35              | 124.20               | ●                       | ●    |      | ●     | ●    | ●            |               |
| 2             | 11.76              | 141.12               | ●                       | ●    |      | ●     | ●    | ●            |               |
| 2-1/8         | 13.30              | 159.60               | ●                       |      |      | ●     | ●    | ●            |               |
| 2-1/4         | 14.884             | 178.60               | ●                       |      |      | ●     | ●    | ●            |               |
| 2-3/8         | 16.58              | 198.96               | ●                       |      |      | ●     | ●    | ●            |               |
| 2-1/2         | 18.40              | 220.80               | ●                       | ●    |      | ●     | ●    | ●            |               |
| 2-5/8         | 20.29              | 243.48               | ●                       |      |      | ●     | ●    | ●            |               |
| 2-3/4         | 22.27              | 267.24               | ●                       |      |      | ●     | ●    | ●            |               |
| 2-7/8         | 24.30              | 291.60               | ●                       |      |      | ●     | ●    | ●            |               |
| 3             | 26.50              | 318.00               | ●                       |      |      | ●     | ●    | ●            |               |
| 3-1/4         | 31.10              | 373.20               | ●                       |      |      | ●     | ●    | ●            |               |
| 3-1/2         | 36.08              | 432.96               | ●                       |      |      | ●     | ●    | ●            |               |
| 3-3/4         | 41.34              | 496.08               | ●                       |      |      | ●     | ●    | ●            |               |
| 4             | 47.04              | 564.48               | ●                       |      |      | ●     | ●    | ●            |               |

# Cold Finished - Flats

Stock Lengths: 12 foot (1018 and 11L17)

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
| <b>1/8 x</b>  |                   |                     |
| 3/16          | 0.08              | 0.96                |
| 1/4           | 0.11              | 1.32                |
| 5/16          | 0.13              | 1.56                |
| 3/8           | 0.16              | 1.92                |
| 7/16          | 0.19              | 2.23                |
| 1/2           | 0.21              | 2.52                |
| 9/16          | 0.24              | 2.86                |
| 5/8           | 0.27              | 3.24                |
| 3/4           | 0.32              | 3.84                |
| 7/8           | 0.37              | 4.46                |
| 15/16         | 0.40              | 4.81                |
| 1             | 0.43              | 5.16                |
| 1-1/8         | 0.48              | 5.76                |
| 1-1/4         | 0.53              | 6.36                |
| 1-1/2         | 0.64              | 7.68                |
| 1-3/4         | 0.74              | 8.88                |
| 2             | 0.85              | 10.20               |
| 2-1/4         | 0.96              | 11.52               |
| 2-1/2         | 1.06              | 12.75               |
| 2-3/4         | 1.17              | 14.04               |
| 3             | 1.28              | 15.36               |
| 3-1/4         | 1.38              | 16.59               |
| 3-1/2         | 1.49              | 17.88               |
| 3-3/4         | 1.59              | 19.11               |
| 4             | 1.70              | 20.40               |
| 4-1/4         | 1.81              | 21.66               |
| 4-1/2         | 1.91              | 22.92               |
| 4-3/4         | 2.02              | 24.24               |
| 5             | 2.13              | 25.56               |
| 5-1/2         | 2.34              | 28.08               |
| 6             | 2.55              | 30.60               |
| 7             | 2.98              | 35.70               |
| 8             | 3.40              | 40.80               |
| 9             | 3.83              | 45.90               |
| 10            | 4.25              | 51.00               |
| 11            | 4.69              | 56.28               |
| 12            | 5.13              | 61.56               |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
| <b>3/16 x</b> |                   |                     |
| 1/4           | 0.16              | 1.92                |
| 5/16          | 0.19              | 2.28                |
| 3/8           | 0.24              | 2.88                |
| 7/16          | 0.28              | 3.36                |
| 1/2           | 0.32              | 3.84                |
| 9/16          | 0.36              | 4.30                |
| 5/8           | 0.40              | 4.80                |
| 11/16         | 0.44              | 5.28                |
| 3/4           | 0.48              | 5.76                |
| 13/16         | 0.52              | 6.24                |
| 7/8           | 0.56              | 6.72                |
| 15/16         | 0.64              | 7.68                |
| 1             | 0.68              | 8.16                |

| Size (inches)             | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------------------|-------------------|---------------------|
| <b>3/16 x</b> (Continued) |                   |                     |
| 1-1/8                     | 0.72              | 8.62                |
| 1-1/4                     | 0.80              | 9.60                |
| 1-3/8                     | 0.88              | 10.52               |
| 1-1/2                     | 0.96              | 11.52               |
| 1-5/8                     | 1.04              | 12.48               |
| 1-3/4                     | 1.12              | 13.44               |
| 1-7/8                     | 1.20              | 14.34               |
| 2                         | 1.28              | 15.36               |
| 2-1/8                     | 1.36              | 16.28               |
| 2-1/4                     | 1.44              | 17.20               |
| 2-1/2                     | 1.59              | 19.08               |
| 2-3/4                     | 1.76              | 21.03               |
| 3                         | 1.92              | 22.92               |
| 3-1/4                     | 2.07              | 24.86               |
| 3-1/2                     | 2.24              | 26.77               |
| 3-3/4                     | 2.39              | 28.68               |
| 4                         | 2.56              | 30.60               |
| 4-1/4                     | 2.71              | 32.52               |
| 4-1/2                     | 2.88              | 34.42               |
| 4-3/4                     | 3.03              | 36.34               |
| 5                         | 3.20              | 38.28               |
| 5-1/2                     | 3.51              | 42.07               |
| 6                         | 3.84              | 45.96               |
| 7                         | 4.47              | 53.55               |
| 8                         | 5.11              | 61.20               |
| 9                         | 5.74              | 68.85               |
| 10                        | 6.38              | 76.50               |
| 11                        | 7.01              | 84.15               |
| 12                        | 7.65              | 91.80               |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
| <b>1/4 x</b>  |                   |                     |
| 5/16          | 0.26              | 3.12                |
| 3/8           | 0.32              | 3.84                |
| 7/16          | 0.37              | 4.44                |
| 1/2           | 0.43              | 5.16                |
| 9/16          | 0.48              | 5.76                |
| 5/8           | 0.53              | 6.36                |
| 3/4           | 0.64              | 7.68                |
| 7/8           | 0.74              | 8.88                |
| 1             | 0.85              | 10.20               |
| 1-1/8         | 0.96              | 11.52               |
| 1-1/4         | 1.06              | 12.72               |
| 1-3/8         | 1.17              | 14.04               |
| 1-1/2         | 1.28              | 15.36               |
| 1-5/8         | 1.38              | 16.56               |
| 1-3/4         | 1.49              | 17.88               |
| 1-7/8         | 1.59              | 19.08               |
| 2             | 1.70              | 20.40               |
| 2-1/4         | 1.91              | 22.92               |
| 2-1/2         | 2.13              | 25.56               |
| 2-3/4         | 2.34              | 27.96               |
| 3             | 2.55              | 30.60               |

| Size (inches)            | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|--------------------------|-------------------|---------------------|
| <b>1/4 x</b> (Continued) |                   |                     |
| 3-1/4                    | 2.76              | 33.12               |
| 3-1/2                    | 2.98              | 35.64               |
| 3-3/4                    | 3.19              | 38.28               |
| 4                        | 3.40              | 40.80               |
| 4-1/4                    | 3.61              | 43.32               |
| 4-1/2                    | 3.83              | 45.60               |
| 4-3/4                    | 4.04              | 48.48               |
| 5                        | 4.25              | 51.00               |
| 5-1/2                    | 4.68              | 56.16               |
| 6                        | 5.10              | 61.20               |
| 6-1/2                    | 5.53              | 66.36               |
| 7                        | 5.95              | 71.40               |
| 8                        | 6.80              | 81.60               |
| 9                        | 7.65              | 91.80               |
| 10                       | 8.50              | 102.00              |
| 11                       | 9.35              | 112.20              |
| 12                       | 10.20             | 122.40              |
| 14                       | 11.90             | 142.80              |
| 16                       | 13.60             | 163.20              |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
| <b>5/16 x</b> |                   |                     |
| 3/8           | 0.40              | 4.80                |
| 7/16          | 0.47              | 5.56                |
| 1/2           | 0.53              | 6.36                |
| 5/8           | 0.66              | 7.92                |
| 3/4           | 0.80              | 9.60                |
| 7/8           | 0.93              | 11.16               |
| 1             | 1.06              | 12.72               |
| 1-1/8         | 1.20              | 14.34               |
| 1-1/4         | 1.33              | 15.96               |
| 1-3/8         | 1.46              | 17.52               |
| 1-1/2         | 1.59              | 19.08               |
| 1-3/4         | 1.86              | 22.32               |
| 2             | 2.13              | 25.56               |
| 2-1/4         | 2.39              | 28.68               |
| 2-1/2         | 2.66              | 31.92               |
| 2-3/4         | 2.92              | 35.04               |
| 3             | 3.19              | 38.28               |
| 3-1/2         | 3.72              | 44.64               |
| 4             | 4.25              | 51.00               |
| 4-1/2         | 4.78              | 57.36               |
| 5             | 5.31              | 63.72               |
| 6             | 6.38              | 76.50               |
| 7             | 7.44              | 89.28               |
| 8             | 8.50              | 102.00              |
| 10            | 10.63             | 127.56              |
| 12            | 12.75             | 153.00              |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
| <b>3/8 x</b>  |                   |                     |
| 7/16          | 0.56              | 6.72                |
| 1/2           | 0.64              | 7.68                |
| 5/8           | 0.80              | 9.60                |
| 3/4           | 0.96              | 11.52               |

\* Size available in 1018 & 11L17

\*\* Sizes are stocked in 10 foot lengths

Continued on next page ►

# Cold Finished - Flats

Stock Lengths: 12 foot (1018 and 11L17)

| Size (inches)            | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|--------------------------|-------------------|---------------------|
| <b>3/8 x</b> (Continued) |                   |                     |
| 7/8                      | 1.12              | 13.44               |
| 1                        | 1.28              | 15.36               |
| 1-1/8                    | 1.43              | 17.16               |
| 1-1/4                    | 1.59              | 19.08               |
| 1-3/8                    | 1.75              | 21.00               |
| 1-1/2                    | 1.91              | 22.95               |
| 1-5/8                    | 2.07              | 24.84               |
| 1-3/4                    | 2.23              | 26.76               |
| 1-7/8                    | 2.39              | 28.69               |
| 2                        | 2.55              | 30.60               |
| 2-1/4                    | 2.87              | 34.44               |
| 2-1/2                    | 3.18              | 38.16               |
| 2-3/4                    | 3.51              | 42.12               |
| 3                        | 3.82              | 45.84               |
| 3-1/4*                   | 4.14              | 49.68               |
| 3-1/2                    | 4.46              | 53.52               |
| 3-3/4                    | 4.78              | 57.36               |
| 4                        | 5.10              | 61.20               |
| 4-1/4                    | 5.42              | 65.01               |
| 4-1/2                    | 5.70              | 68.40               |
| 4-3/4                    | 6.06              | 72.67               |
| 5                        | 6.38              | 76.56               |
| 5-1/2                    | 7.01              | 84.12               |
| 6                        | 7.65              | 91.80               |
| 6-1/2                    | 8.29              | 99.48               |
| 7                        | 8.93              | 107.16              |
| 8                        | 10.20             | 122.40              |
| 9                        | 11.48             | 137.76              |
| 10                       | 12.75             | 153.00              |
| 11                       | 14.03             | 168.30              |
| 12                       | 15.30             | 183.60              |
| 14                       | 18.00             | 216.00              |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
| <b>7/16 x</b> |                   |                     |
| 1/2           | 0.74              | 8.88                |
| 9/16          | 0.84              | 10.08               |
| 5/8           | 0.93              | 11.16               |
| 3/4           | 1.12              | 13.44               |
| 7/8           | 1.30              | 15.60               |
| 1             | 1.49              | 17.88               |
| 1-1/4         | 1.86              | 22.32               |
| 1-1/2         | 2.23              | 26.76               |
| 1-3/4         | 2.60              | 31.20               |
| 2             | 2.98              | 35.76               |
| 2-1/4         | 3.35              | 40.20               |
| 2-1/2         | 3.72              | 44.64               |
| 3             | 4.46              | 53.52               |
| 3-1/2         | 5.21              | 62.52               |
| 4             | 5.95              | 71.40               |
| 4-1/2         | 6.70              | 80.40               |
| 5             | 7.44              | 89.25               |
| 6             | 8.93              | 107.16              |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
| <b>1/2 x</b>  |                   |                     |
| 9/16          | 0.96              | 11.52               |
| 5/8           | 1.06              | 12.72               |
| 3/4           | 1.28              | 15.36               |
| 7/8           | 1.49              | 17.88               |
| 1             | 1.70              | 20.40               |
| 1-1/8         | 1.91              | 22.92               |
| 1-1/4         | 2.13              | 25.56               |
| 1-3/8         | 2.34              | 28.08               |
| 1-1/2*        | 2.55              | 30.60               |
| 1-5/8         | 2.77              | 33.24               |
| 1-3/4         | 2.98              | 35.76               |
| 2*            | 3.40              | 40.80               |
| 2-1/8         | 3.61              | 43.34               |
| 2-1/4         | 3.83              | 45.96               |
| 2-1/2*        | 4.25              | 51.00               |
| 2-3/4         | 4.68              | 56.16               |
| 3             | 5.10              | 61.20               |
| 3-1/4         | 5.53              | 66.36               |
| 3-1/2         | 5.95              | 71.40               |
| 3-3/4         | 6.38              | 76.56               |
| 4             | 6.80              | 81.60               |
| 4-1/4         | 7.23              | 86.76               |
| 4-1/2         | 7.65              | 91.80               |
| 4-3/4         | 8.07              | 96.84               |
| 5             | 8.50              | 102.00              |
| 5-1/2         | 9.35              | 112.20              |
| 5-3/4         | 9.78              | 117.30              |
| 6             | 10.20             | 122.40              |
| 6-1/2         | 11.05             | 132.60              |
| 7             | 11.90             | 142.80              |
| 8             | 13.60             | 163.20              |
| 9             | 15.30             | 183.60              |
| 10            | 17.00             | 204.00              |
| 11            | 18.70             | 224.40              |
| 12            | 20.40             | 244.80              |
| 14            | 23.80             | 288.00              |
| 16            | 27.20             | 326.40              |
| 18            | 30.60             | 367.20              |
| 20            | 34.00             | 408.00              |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
| <b>9/16 x</b> |                   |                     |
| 5/8           | 1.20              | 14.34               |
| 3/4           | 1.44              | 17.16               |
| 1             | 1.91              | 22.92               |
| 1-1/4         | 2.39              | 28.68               |
| 1-1/2         | 2.87              | 34.44               |
| 2             | 3.83              | 45.96               |
| 2-1/2         | 4.78              | 57.38               |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
| <b>5/8 x</b>  |                   |                     |
| 3/4           | 1.59              | 19.08               |
| 7/8           | 1.86              | 22.32               |
| 1*            | 2.13              | 25.56               |
| 1-1/8         | 2.39              | 28.68               |

| Size (inches)            | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|--------------------------|-------------------|---------------------|
| <b>5/8 x</b> (Continued) |                   |                     |
| 1-1/4                    | 2.65              | 31.80               |
| 1-3/8                    | 2.92              | 35.04               |
| 1-1/2*                   | 3.19              | 38.28               |
| 1-5/8                    | 3.45              | 41.40               |
| 1-3/4                    | 3.72              | 44.52               |
| 2*                       | 4.25              | 51.00               |
| 2-1/4                    | 4.78              | 57.36               |
| 2-1/2                    | 5.31              | 63.72               |
| 2-3/4                    | 5.84              | 70.08               |
| 3*                       | 6.38              | 76.56               |
| 3-1/4                    | 6.90              | 82.80               |
| 3-1/2                    | 7.44              | 89.28               |
| 3-3/4                    | 7.96              | 95.52               |
| 4                        | 8.50              | 102.00              |
| 4-1/4                    | 9.03              | 108.37              |
| 4-1/2                    | 9.56              | 114.72              |
| 4-3/4                    | 10.09             | 121.08              |
| 5                        | 10.63             | 127.56              |
| 5-1/2                    | 11.69             | 140.16              |
| 6                        | 12.75             | 153.00              |
| 6-1/2                    | 13.81             | 165.72              |
| 7                        | 14.88             | 178.56              |
| 8                        | 17.00             | 204.00              |
| 9                        | 19.13             | 229.44              |
| 10                       | 21.25             | 255.00              |
| 11                       | 23.38             | 280.56              |
| 12                       | 25.50             | 306.00              |
| 14                       | 29.75             | 357.00              |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
| <b>3/4 x</b>  |                   |                     |
| 7/8           | 2.23              | 26.76               |
| 1             | 2.55              | 30.60               |
| 1-1/8         | 2.87              | 34.44               |
| 1-1/4*        | 3.19              | 38.16               |
| 1-3/8         | 3.51              | 42.12               |
| 1-1/2*        | 3.83              | 45.84               |
| 1-5/8         | 4.14              | 49.68               |
| 1-3/4         | 4.46              | 53.52               |
| 2*            | 5.10              | 61.20               |
| 2-1/4         | 5.70              | 68.40               |
| 2-1/2*        | 6.38              | 76.56               |
| 2-3/4         | 7.01              | 84.12               |
| 3*            | 7.65              | 91.80               |
| 3-1/4         | 8.29              | 99.48               |
| 3-1/2         | 8.93              | 107.04              |
| 3-3/4         | 9.56              | 114.72              |
| 4             | 10.20             | 122.40              |
| 4-1/4         | 10.84             | 130.05              |
| 4-1/2*        | 11.48             | 137.64              |
| 4-3/4         | 12.11             | 145.32              |
| 5*            | 12.75             | 153.00              |
| 5-1/2         | 14.03             | 168.36              |
| 6             | 15.30             | 183.60              |

\* Size available in 1018 & 11L17

\*\* Sizes are stocked in 10 foot lengths

Continued on next page ▶

# Cold Finished - Flats

Stock Lengths: 12 foot (1018 and 11L17)

| Size (inches)            | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|--------------------------|-------------------|---------------------|
| <b>3/4 x</b> (Continued) |                   |                     |
| 6-1/2                    | 16.58             | 198.96              |
| 7                        | 17.85             | 214.20              |
| 8                        | 20.40             | 244.80              |
| 9                        | 22.95             | 275.40              |
| 10                       | 25.50             | 306.00              |
| 11                       | 28.05             | 336.60              |
| 12                       | 30.60             | 367.20              |
| 14                       | 35.70             | 428.40              |
| <b>16**</b>              | <b>40.80</b>      | <b>408.00</b>       |
| <b>18**</b>              | <b>45.90</b>      | <b>459.00</b>       |
| <b>20**</b>              | <b>51.00</b>      | <b>510.00</b>       |

| <b>7/8 x</b> |       |        |
|--------------|-------|--------|
| 1            | 2.98  | 35.76  |
| 1-1/8        | 3.35  | 40.20  |
| 1-1/4        | 3.72  | 44.64  |
| 1-3/8        | 4.09  | 49.08  |
| 1-1/2*       | 4.46  | 54.24  |
| 1-3/4        | 5.21  | 62.52  |
| 2            | 5.90  | 70.80  |
| 2-1/4        | 6.69  | 80.40  |
| 2-1/2        | 7.44  | 89.28  |
| 2-3/4        | 8.18  | 98.16  |
| 3            | 8.93  | 107.16 |
| 3-1/2        | 10.41 | 124.92 |
| 4            | 11.90 | 142.80 |
| 4-1/2        | 13.39 | 160.68 |
| 5            | 14.88 | 178.44 |
| 5-1/2        | 16.36 | 196.35 |
| 6            | 17.85 | 214.20 |
| 6-1/2        | 19.34 | 232.05 |
| 7            | 20.83 | 249.96 |
| 8            | 23.80 | 285.60 |
| 9            | 26.78 | 321.36 |
| 10           | 29.75 | 357.00 |
| 12           | 35.70 | 428.40 |

| <b>1 x</b> |       |        |
|------------|-------|--------|
| 1-1/8      | 3.83  | 45.96  |
| 1-1/4*     | 4.25  | 51.00  |
| 1-3/8      | 4.68  | 56.04  |
| 1-1/2*     | 5.10  | 61.20  |
| 1-5/8*     | 5.53  | 66.36  |
| 1-3/4*     | 5.95  | 71.40  |
| 1-7/8      | 6.38  | 76.56  |
| 2*         | 6.80  | 81.60  |
| 2-1/4*     | 7.65  | 91.80  |
| 2-1/2*     | 8.50  | 102.00 |
| 2-3/4      | 9.35  | 112.20 |
| 3*         | 10.20 | 122.40 |
| 3-1/4      | 11.05 | 132.60 |
| 3-1/2      | 11.90 | 142.80 |
| 3-3/4      | 12.75 | 153.00 |
| 4*         | 13.60 | 163.20 |

| Size (inches)          | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|------------------------|-------------------|---------------------|
| <b>1 x</b> (Continued) |                   |                     |
| 4-1/4                  | 14.45             | 173.40              |
| 4-1/2                  | 15.30             | 183.60              |
| 4-3/4                  | 16.15             | 193.80              |
| 5                      | 17.00             | 204.00              |
| 5-1/2                  | 18.70             | 224.40              |
| 6                      | 20.40             | 244.80              |
| 6-1/2                  | 22.10             | 265.20              |
| 7                      | 23.80             | 285.60              |
| 7-1/2                  | 25.50             | 306.00              |
| 8                      | 27.20             | 326.40              |
| 9                      | 30.60             | 367.20              |
| 10                     | 34.00             | 408.00              |
| 11                     | 37.40             | 448.80              |
| 12                     | 40.80             | 489.60              |
| 14                     | 47.60             | 571.20              |
| <b>16**</b>            | <b>54.40</b>      | <b>544.00</b>       |
| <b>18**</b>            | <b>61.20</b>      | <b>612.00</b>       |
| <b>20**</b>            | <b>68.00</b>      | <b>680.00</b>       |

| <b>1-1/8 x</b> |       |        |
|----------------|-------|--------|
| 1-1/4          | 4.78  | 57.36  |
| 1-1/2          | 5.74  | 68.88  |
| 1-3/4          | 6.69  | 80.28  |
| 2              | 7.65  | 91.80  |
| 2-1/4          | 8.61  | 103.20 |
| 2-1/2          | 9.56  | 114.72 |
| 2-3/4          | 10.52 | 126.21 |
| 3              | 11.48 | 137.76 |
| 4              | 15.30 | 183.60 |
| 4-1/4          | 16.26 | 195.07 |
| 5              | 19.13 | 229.56 |
| 6              | 22.95 | 275.40 |
| 8              | 30.60 | 367.20 |

| <b>1-1/4 x</b> |       |        |
|----------------|-------|--------|
| 1-3/8          | 5.84  | 70.08  |
| 1-1/2*         | 6.38  | 77.88  |
| 1-5/8          | 6.91  | 82.92  |
| 1-3/4*         | 7.44  | 88.80  |
| 1-7/8          | 7.97  | 95.63  |
| 2*             | 8.50  | 102.00 |
| 2-1/4          | 9.58  | 114.99 |
| 2-1/2*         | 10.63 | 127.56 |
| 2-3/4          | 11.69 | 140.16 |
| 3              | 12.75 | 153.00 |
| 3-1/4          | 13.81 | 165.72 |
| 3-1/2*         | 14.88 | 178.56 |
| 3-3/4          | 15.94 | 191.28 |
| 4*             | 17.00 | 204.00 |
| 4-1/2          | 19.13 | 229.56 |
| 5              | 21.25 | 255.00 |
| 5-1/2          | 23.38 | 280.56 |
| 6              | 25.50 | 306.00 |
| 7              | 29.70 | 356.40 |

| Size (inches)              | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|----------------------------|-------------------|---------------------|
| <b>1-1/4 x</b> (Continued) |                   |                     |
| 8                          | 34.00             | 408.00              |
| 9                          | 38.25             | 459.00              |
| 10                         | 42.50             | 510.00              |
| 11                         | 46.75             | 561.00              |
| 12                         | 51.00             | 612.00              |
| 14                         | 59.50             | 714.00              |

| <b>1-3/8 x</b> |       |        |
|----------------|-------|--------|
| 1-1/2          | 7.01  | 84.12  |
| 2              | 9.35  | 112.20 |
| 3              | 14.03 | 168.36 |

| <b>1-1/2 x</b> |               |                |
|----------------|---------------|----------------|
| 1-5/8          | 8.29          | 99.48          |
| 1-3/4*         | 8.93          | 107.16         |
| 2*             | 10.20         | 122.40         |
| 2-1/4          | 11.48         | 137.76         |
| 2-1/2*         | 12.75         | 153.00         |
| 2-3/4          | 14.03         | 168.36         |
| 3*             | 15.30         | 183.60         |
| 3-1/4          | 16.58         | 198.96         |
| 3-1/2*         | 17.85         | 214.20         |
| 4*             | 20.40         | 244.80         |
| 4-1/2*         | 22.95         | 275.40         |
| 5*             | 25.50         | 306.00         |
| 5-1/2          | 28.05         | 336.60         |
| 6              | 30.60         | 367.20         |
| 6-1/2          | 33.15         | 397.80         |
| 7              | 35.70         | 428.40         |
| 7-1/2          | 38.25         | 459.00         |
| 8              | 40.80         | 489.60         |
| 9              | 45.90         | 550.80         |
| 10             | 51.00         | 612.00         |
| 10-1/2         | 53.55         | 642.60         |
| <b>11**</b>    | <b>56.10</b>  | <b>561.00</b>  |
| 12             | 61.20         | 734.40         |
| 14             | 71.40         | 856.80         |
| <b>16**</b>    | <b>81.60</b>  | <b>816.00</b>  |
| <b>20**</b>    | <b>102.00</b> | <b>1020.00</b> |

| <b>1-5/8 x</b> |       |        |
|----------------|-------|--------|
| 2              | 11.05 | 132.60 |
| 3              | 16.59 | 199.08 |
| 4              | 22.10 | 265.20 |
| 6              | 33.15 | 397.80 |

| <b>1-3/4 x</b> |       |        |
|----------------|-------|--------|
| 2              | 11.90 | 142.80 |
| 2-1/4          | 13.30 | 159.60 |
| 2-1/2*         | 14.88 | 178.50 |
| 2-3/4          | 16.36 | 196.80 |
| 3*             | 17.85 | 214.80 |
| 3-1/4          | 19.34 | 232.08 |
| 3-1/2          | 20.83 | 249.60 |

\* Size available in 1018 & 11L17

\*\* Sizes are stocked in 10 foot lengths

Continued on next page ►

# Cold Finished - Flats

Stock Lengths: 12 foot (1018 and 11L17)

| Size (inches)              | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|----------------------------|-------------------|---------------------|
| <b>1-3/4 x</b> (Continued) |                   |                     |
| 3-3/4                      | 22.31             | 267.72              |
| 4                          | 23.80             | 285.60              |
| 4-1/2                      | 26.78             | 321.60              |
| 5*                         | 29.75             | 357.60              |
| 5-1/2                      | 32.73             | 392.76              |
| 6                          | 35.70             | 428.40              |
| 7                          | 41.65             | 499.80              |
| 8                          | 47.60             | 571.20              |
| 10                         | 59.50             | 714.00              |
| 12                         | 71.40             | 856.80              |

|            |        |         |
|------------|--------|---------|
| <b>2 x</b> |        |         |
| 2-1/4      | 15.30  | 183.60  |
| 2-1/2*     | 17.00  | 204.00  |
| 2-3/4      | 18.70  | 224.40  |
| 3*         | 20.40  | 244.80  |
| 3-1/4      | 22.10  | 265.20  |
| 3-1/2*     | 23.80  | 285.60  |
| 3-3/4      | 25.50  | 306.00  |
| 4*         | 27.20  | 326.40  |
| 4-1/4      | 28.90  | 347.00  |
| 4-1/2      | 30.60  | 367.20  |
| 5*         | 34.00  | 408.00  |
| 5-1/2      | 37.40  | 448.80  |
| 6*         | 40.80  | 489.60  |
| 6-1/2      | 44.20  | 530.40  |
| 7          | 47.60  | 571.20  |
| 8          | 54.40  | 652.80  |
| 9          | 61.20  | 734.40  |
| 10         | 68.00  | 816.00  |
| 11**       | 74.80  | 748.00  |
| 12         | 81.60  | 979.20  |
| 14**       | 95.20  | 952.00  |
| 16**       | 108.80 | 1088.00 |
| 20**       | 136.00 | 1360.00 |

|                |       |         |
|----------------|-------|---------|
| <b>2-1/4 x</b> |       |         |
| 2-1/2          | 19.10 | 229.20  |
| 2-3/4          | 21.04 | 252.48  |
| 3              | 22.90 | 274.80  |
| 3-1/4          | 24.86 | 298.32  |
| 3-1/2          | 26.70 | 320.40  |
| 4              | 30.60 | 367.20  |
| 4-1/2          | 34.40 | 412.80  |
| 5              | 38.25 | 459.00  |
| 5-1/2          | 42.08 | 504.90  |
| 6              | 45.90 | 550.80  |
| 8              | 61.20 | 734.40  |
| 10             | 76.50 | 918.00  |
| 12             | 91.80 | 1101.60 |

|                |       |        |
|----------------|-------|--------|
| <b>2-1/2 x</b> |       |        |
| 2-3/4          | 23.38 | 280.56 |
| 3*             | 25.50 | 306.00 |

|                            |        |         |
|----------------------------|--------|---------|
| <b>2-1/2 x</b> (Continued) |        |         |
| 3-1/2                      | 29.75  | 357.00  |
| 4                          | 25.50  | 408.00  |
| 4-1/2                      | 38.25  | 459.00  |
| 5                          | 42.50  | 510.00  |
| 5-1/2                      | 46.75  | 561.00  |
| 6                          | 51.00  | 612.00  |
| 7                          | 59.50  | 714.00  |
| 8                          | 68.00  | 816.00  |
| 8-1/2                      | 72.25  | 867.00  |
| 9                          | 76.50  | 918.00  |
| 10                         | 85.00  | 1020.00 |
| 12                         | 102.00 | 1224.00 |
| 14**                       | 119.00 | 1190.00 |
| 16**                       | 136.00 | 1360.00 |
| 20**                       | 170.00 | 1700.00 |

|                |       |        |
|----------------|-------|--------|
| <b>2-3/4 x</b> |       |        |
| 3              | 28.05 | 336.60 |
| 3-1/2**        | 32.72 | 327.25 |
| 4**            | 37.40 | 374.00 |
| 6**            | 56.10 | 561.00 |

|            |        |         |
|------------|--------|---------|
| <b>3 x</b> |        |         |
| 3-1/2      | 35.70  | 428.40  |
| 4*         | 40.80  | 489.60  |
| 4-1/2      | 45.90  | 550.80  |
| 5          | 51.00  | 612.00  |
| 5-1/2**    | 56.10  | 561.00  |
| 6          | 61.20  | 734.40  |
| 7          | 71.40  | 856.80  |
| 8          | 81.60  | 979.20  |
| 9**        | 91.80  | 918.00  |
| 10         | 102.00 | 1224.00 |
| 12**       | 122.40 | 1224.00 |
| 14**       | 142.80 | 1428.00 |
| 16**       | 163.20 | 1632.00 |
| 20**       | 204.00 | 2040.00 |

|                |        |         |
|----------------|--------|---------|
| <b>3-1/2 x</b> |        |         |
| 4**            | 47.60  | 476.00  |
| 4-1/2**        | 53.50  | 535.00  |
| 5              | 59.50  | 595.00  |
| 5-1/2**        | 65.45  | 654.50  |
| 6**            | 71.40  | 714.00  |
| 7**            | 83.30  | 833.00  |
| 8**            | 95.20  | 952.00  |
| 8-1/2**        | 101.15 | 1011.50 |
| 9**            | 107.10 | 1071.00 |
| 10**           | 119.00 | 1190.00 |
| 12**           | 142.80 | 1428.00 |
| 14**           | 166.60 | 1666.00 |
| 16**           | 190.40 | 1904.00 |
| 20**           | 238.00 | 2380.00 |

|            |        |         |
|------------|--------|---------|
| <b>4 x</b> |        |         |
| 4-1/2**    | 61.20  | 612.00  |
| 5**        | 68.00  | 680.00  |
| 5-1/2**    | 74.80  | 748.00  |
| 6**        | 81.60  | 816.00  |
| 7**        | 95.20  | 952.00  |
| 8**        | 108.80 | 1088.00 |
| 9**        | 122.40 | 1224.00 |
| 10**       | 136.00 | 1360.00 |
| 12**       | 163.20 | 1632.00 |
| 14**       | 190.40 | 1904.00 |
| 16**       | 217.60 | 2176.00 |
| 20**       | 272.00 | 2720.00 |

|                |        |         |
|----------------|--------|---------|
| <b>4-1/2 x</b> |        |         |
| 5**            | 76.50  | 765.00  |
| 5-1/2**        | 84.15  | 841.50  |
| 6**            | 91.80  | 918.00  |
| 7**            | 107.10 | 1071.00 |
| 8**            | 122.40 | 1224.00 |
| 9**            | 137.70 | 1377.00 |
| 10**           | 153.00 | 1530.00 |
| 12**           | 183.60 | 1836.00 |
| 14**           | 214.20 | 2142.00 |
| 16**           | 244.80 | 2448.00 |
| 20**           | 306.00 | 3060.00 |

|            |        |         |
|------------|--------|---------|
| <b>5 x</b> |        |         |
| 5-1/2**    | 93.50  | 935.00  |
| 6**        | 102.00 | 1020.00 |
| 7**        | 119.00 | 1190.00 |
| 8**        | 136.00 | 1360.00 |
| 9**        | 153.00 | 1530.00 |
| 10**       | 170.00 | 1700.00 |
| 12**       | 204.00 | 2040.00 |
| 14**       | 238.00 | 2380.00 |
| 16**       | 272.00 | 2720.00 |
| 20**       | 340.00 | 3400.00 |

|                |        |         |
|----------------|--------|---------|
| <b>5-1/2 x</b> |        |         |
| 6**            | 112.20 | 1122.00 |

|            |        |         |
|------------|--------|---------|
| <b>6 x</b> |        |         |
| 7**        | 143.64 | 1436.40 |
| 8**        | 163.20 | 1632.00 |
| 9**        | 183.60 | 1836.00 |
| 10**       | 204.00 | 2040.00 |
| 12**       | 244.80 | 2448.00 |
| 14**       | 285.60 | 2856.00 |
| 16**       | 326.40 | 3264.00 |
| 20**       | 408.00 | 4080.00 |

\* Size available in 1018 & 11L17

\*\* Sizes are stocked in 10 foot lengths

## Cold Finished Carbon Steel Bars

### Standard Manufacturing Tolerances

#### Undersize Variation in Inches

| Shape & Size (inches)              | Carbon to .28% Max. | Max. Carbon Over .28% up to .55% | *Stressproof® | Max. Carbon Over .55% or All Carbons Heat Treated | Fatigueproof® |
|------------------------------------|---------------------|----------------------------------|---------------|---|---------------|
| <b>Rounds</b>                      |                     |                                  |               |   |               |
| (Cold Drawn or Turned & Polished)  |                     |                                  |               |   |               |
| Up thru 1-1/2                      | .002                | .003                             | .004          | .005  | .005          |
| Over 1-1/2 thru 2-1/2              | .003                | .004                             | .005          | .006  | .006          |
| Over 2-1/2 thru 4                  | .004                | .005                             | .006          | .007  | .006          |
| Over 4 thru 6                      | .005                | .006                             | ---           | .008  | ---           |
| Over 6 thru 8                      | .006                | .007                             | ---           | .009  | ---           |
| Over 8 thru 9                      | .007                | .008                             | ---           | .010  | ---           |
| Over 9                             | .008                | .009                             | ---           | ---   | ---           |
| <b>Hexagons</b>                    |                     |                                  |               |   |               |
| Up thru 3/4                        | .002                | .003                             | .004          | .006  | ---           |
| Over 3/4 thru 1-1/2                | .003                | .004                             | .005          | .007  | ---           |
| Over 1-1/2 thru 2-1/2              | .004                | .005                             | .006          | .008  | ---           |
| Over 2-1/2 thru 3-1/8              | .005                | .006                             | ---           | .009  | ---           |
| <b>Squares</b>                     |                     |                                  |               |   |               |
| Up thru 3/4                        | .002                | .004                             | ---           | .007  | ---           |
| Over 3/4 thru 1-1/2                | .003                | .005                             | ---           | .008  | ---           |
| Over 1-1/2 thru 2-1/2              | .004                | .006                             | ---           | .009  | ---           |
| Over 2-1/2 thru 3-1/8              | .005                | .008                             | ---           | .011  | ---           |
| <b>Flats (Width)<sup>(1)</sup></b> |                     |                                  |               |   |               |
| Up thru 3/4                        | .003                | .004                             | ---           | .008  | ---           |
| Over 3/4 thru 1-1/2                | .004                | .005                             | ---           | .010  | ---           |
| Over 1-1/2 thru 3                  | .005                | .006                             | ---           | .012  | ---           |
| Over 3 thru 4                      | .006                | .008                             | ---           | .016  | ---           |
| Over 4 thru 6                      | .008                | .010                             | ---           | .020  | ---           |
| Over 6                             | .013                | .015                             | ---           | ---   | ---           |

\* For Cold Drawn, Ground and Polished or Turned, Ground and Polished tolerances for Stressproof®, see below.

<sup>(1)</sup> Tolerances for Flats apply to thickness as well as width and include 16", 18" and 20" wide flats.

Note: Rough turned 1018 rounds are produced to an oversize tolerance of +1/8" to +3/16" oversize.

| Shape & Size (inches) | Cold Drawn Turned, Ground & Polished Includes Stressproof® | Bearing Shaft Quality (all undersize) |
|-----------------------|--|---------------------------------------|
| <b>Rounds</b>         |  |                                       |
| Up thru 1-1/2         | .0010  | .0005/.0015                           |
| Over 1-1/2 thru 2-1/2 | .0015  | .0005/.0020                           |
| Over 2-1/2 thru 3     | .0020  | .0005/.0025                           |
| Over 3 thru 4         | .0030  | .0005/.0035                           |
| Over 4 thru 6         | .0040*   | .0005/.0045                           |
| Over 6                | .0050*   | n/a                                   |

\* For nonresulphurized steels (steels specified to maximum sulphur limits under 0.08%) or for steels thermally treated, the tolerance is increased by .001"

## Hot Rolled Carbon Bars

### Grade Descriptions

Hot rolled carbon bars, often referred to as "SBQ" or "special bar quality", are known for their superior mechanical properties over commodity grades of merchant bar. These products are produced to specific chemistry and mechanical properties ranges and often are used in engineered applications such as gears, shafts, axles covering markets such as automotive, heavy truck and agricultural equipment.

**CQ** or Commercial Quality Steel is ordinarily produced from a low carbon steel. Specific chemistry and mechanical properties are not inherit in CQ products.

**A36** is produced to a 36 ksi min yield point. A mild carbon steel with many uses that works well for fabricating, welding, bending and cold forming.

**1018** is a general purpose low carbon steel with good case hardening qualities. It is especially suited to cold forming and bending operations and has excellent weldability.

**1044** is a medium carbon steel used when greater strength is needed. Has good heat treating properties when induction or flame hardened.

**1045** is a medium carbon steel used extensively in induction hardening applications. This is not normally considered a screw machine steel and is only fair for brazing and welding. 1045 hot rolled can be used for applications requiring more strength and wear resistance than the low carbon mild steels can provide.

**1117** is a low carbon, high manganese steel. Machinability is improved over 1018 and case hardening is deep and uniform, supported by a tough ductile core. A free machining grade with improved mechanical properties suitable for carburized parts.

**1141** is a medium carbon, special quality, manganese steel with improved machinability and better heat treatment response. Surface hardness is deeper and more uniform than plain carbon steels.

**1144** is a resulphurized carbon steel containing manganese and sulphur to provide a free-machining steel. It is recommended especially for high-production automatic machine products and machined parts requiring higher strength and wear resistance than is possible with lower carbon steels.

## Hot Rolled - Rounds

Stock Lengths: 20 foot (A36, 1018, 1045, 1117, & 1144 grades available.)

| Diameter (Inches) | Weight (lbs./foot) | CQ | A-36 | 1018 | 1045 | 1117 | 1141 | 1144 |
|-------------------|--------------------|----|------|------|------|------|------|------|
| 3/16              | 0.094              | ●  |      |      |      |      |      |      |
| 1/4               | 0.167              | ●  | ●    |      |      |      |      |      |
| 5/16              | 0.260              | ●  | ●    |      |      |      |      |      |
| 3/8               | 0.375              | ●  | ●    |      |      |      |      |      |
| 7/16              | 0.510              | ●  | ●    |      |      |      |      |      |
| 1/2               | 0.670              | ●  | ●    |      |      |      |      |      |
| 9/16              | 0.850              |    | ●    |      |      |      |      |      |
| 5/8               | 1.040              |    | ●    |      |      |      |      |      |
| 3/4               | 1.500              |    | ●    |      | ●    |      |      |      |
| 7/8               | 2.050              |    | ●    |      | ●    |      |      |      |
| 1                 | 2.670              |    | ●    |      | ●    |      |      |      |
| 1-1/8             | 3.380              |    | ●    |      | ●    |      |      |      |
| 1-1/4             | 4.170              |    | ●    |      | ●    |      |      |      |
| 1-3/8             | 5.050              |    | ●    |      | ●    |      |      |      |
| 1-1/2             | 6.010              |    | ●    |      | ●    |      |      |      |
| 1-5/8             | 7.050              |    | ●    |      | ●    |      |      |      |
| 1-3/4             | 8.180              |    | ●    |      | ●    |      |      |      |
| 1-7/8             | 9.390              |    | ●    |      | ●    |      |      |      |
| 2                 | 10.680             |    | ●    |      | ●    |      | ●    |      |
| 2-1/8             | 12.234             |    | ●    |      | ●    |      |      |      |
| 2-1/4             | 13.704             |    | ●    |      | ●    |      | ●    |      |
| 2-3/8             | 15.258             |    | ●    |      | ●    |      |      |      |
| 2-1/2             | 16.896             |    | ●    |      | ●    |      | ●    |      |
| 2-5/8             | 18.724             |    | ●    |      | ●    |      |      |      |
| 2-3/4             | 20.533             |    | ●    |      | ●    |      | ●    |      |
| 2-7/8             | 22.426             |    | ●    |      | ●    |      |      |      |
| 3                 | 24.645             |    | ●    |      | ●    | ●    | ●    | ●    |
| 3-1/8             | 26.717             |    |      | ●    | ●    |      |      |      |
| 3-1/4             | 28.872             |    |      | ●    | ●    | ●    | ●    | ●    |
| 3-3/8             | 31.111             |    |      | ●    | ●    |      |      |      |
| 3-1/2             | 33.434             |    |      | ●    | ●    | ●    | ●    | ●    |
| 3-5/8             | 36.070             |    |      | ●    | ●    |      |      |      |
| 3-3/4             | 38.568             |    |      | ●    | ●    | ●    | ●    | ●    |
| 4                 | 43.814             |    |      | ●    | ●    | ●    | ●    | ●    |



## Hot Rolled - Rounds

Stock Lengths: 20 foot (A36, 1018, 1045, 1117, & 1144 grades available.)

| Diameter (inches) | Weight (lbs./foot) | CQ | A-36 | 1018 | 1045 | 1117 | 1141 | 1144 |
|-------------------|--------------------|----|------|------|------|------|------|------|
| 4-1/8             | 46.562             |    |      | ●    | ●    |      |      |      |
| 4-1/4             | 49.394             |    |      | ●    | ●    | ●    | ●    | ●    |
| 4-3/8             | 52.310             |    |      | ●    | ●    |      |      |      |
| 4-1/2             | 55.309             |    |      | ●    | ●    | ●    | ●    | ●    |
| 4-5/8             | 58.685             |    |      |      | ●    |      |      |      |
| 4-3/4             | 61.859             |    |      | ●    | ●    | ●    | ●    | ●    |
| 5                 | 68.459             |    |      | ●    | ●    | ●    | ●    | ●    |
| 5-1/4             | 75.393             |    |      | ●    | ●    | ●    | ●    | ●    |
| 5-1/2             | 82.661             |    |      | ●    | ●    | ●    | ●    | ●    |
| 5-3/4             | 91.359             |    |      | ●    | ●    | ●    | ●    | ●    |
| 6                 | 99.343             |    |      | ●    | ●    | ●    | ●    | ●    |
| 6-1/4             | 107.662            |    |      | ●    | ●    | ●    |      | ●    |
| 6-1/2             | 116.315            |    |      | ●    | ●    | ●    | ●    | ●    |
| 6-3/4             | 126.162            |    |      | ●    | ●    | ●    |      | ●    |
| 7                 | 135.515            |    |      | ●    | ●    | ●    | ●    | ●    |
| 7-1/4             | 145.202            |    |      | ●    | ●    |      |      | ●    |
| 7-1/2             | 155.224            |    |      | ●    | ●    | ●    | ●    | ●    |
| 7-3/4             | 165.580            |    |      | ●    | ●    |      |      | ●    |
| 8                 | 176.271            |    |      | ●    | ●    | ●    | ●    | ●    |
| 8-1/4             | 187.296            |    |      | ●    | ●    | ●    |      | ●    |
| 8-1/2             | 199.737            |    |      | ●    | ●    | ●    | ●    | ●    |
| 8-3/4             | 211.463            |    |      | ●    | ●    |      |      | ●    |
| 9                 | 223.522            |    |      | ●    | ●    | ●    | ●    | ●    |
| 9-1/2             | 248.207            |    |      | ●    | ●    | ●    | ●    | ●    |
| 9-3/4             | 263.735            |    |      |      | ●    |      |      |      |
| 10                | 277.171            |    |      | ●    | ●    | ●    | ●    | ●    |
| 10-1/2            | 305.044            |    |      | ●    | ●    | ●    | ●    | ●    |
| 11                | 334.253            |    |      | ●    | ●    | ●    |      | ●    |
| 11-1/2            | 364.796            |    |      | ●    | ●    |      |      |      |
| 12                | 396.675            |    |      | ●    | ●    | ●    |      | ●    |
| 12-1/2            | 429.889            |    |      | ●    | ●    |      |      |      |
| 13                | 466.624            |    |      |      |      |      |      |      |

# Hot Rolled - Flats (A-36)

Stock Lengths: 20 foot

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>1/4 x</b>  |                    |
| 1/2           | 0.430              |
| 5/8           | 0.530              |
| 3/4           | 0.640              |
| 7/8           | 0.750              |
| 1             | 0.850              |
| 1-1/4         | 1.060              |
| 1-3/8         | 1.170              |
| 1-1/2         | 1.280              |
| 1-5/8         | 1.380              |
| 1-3/4         | 1.490              |
| 2             | 1.700              |
| 2-1/4         | 1.910              |
| 2-1/2         | 2.130              |
| 2-3/4         | 2.330              |
| 3             | 2.550              |
| 3-1/4         | 2.760              |
| 3-1/2         | 2.980              |
| 3-3/4         | 3.190              |
| 4             | 3.400              |
| 4-1/4         | 3.610              |
| 4-1/2         | 3.830              |
| 5             | 4.250              |
| 5-1/2         | 4.680              |
| 6             | 5.100              |
| 6-1/2         | 5.530              |
| 7             | 5.950              |
| 7-1/2         | 6.375              |
| 8             | 6.800              |
| 9             | 7.650              |
| 10            | 8.500              |
| 11            | 9.350              |
| 11-1/2        | 9.870              |
| 12            | 10.200             |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>5/16 x</b> |                    |
| 1/2           | 0.530              |
| 3/4           | 0.797              |
| 1             | 1.060              |
| 1-1/4         | 1.330              |
| 1-1/2         | 1.590              |
| 1-3/4         | 1.860              |
| 2             | 2.130              |
| 2-1/4         | 2.390              |
| 2-1/2         | 2.660              |
| 2-3/4         | 2.920              |
| 3             | 3.190              |
| 3-1/2         | 3.720              |
| 4             | 4.250              |
| 4-1/2         | 4.780              |
| 5             | 5.310              |
| 5-1/2         | 5.840              |
| 6             | 6.380              |
| 7             | 7.440              |
| 8             | 8.500              |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>3/8 x</b>  |                    |
| 1/2           | 0.640              |
| 5/8           | 0.800              |
| 3/4           | 0.960              |
| 7/8           | 1.120              |
| 1             | 1.270              |
| 1-1/4         | 1.590              |
| 1-3/8         | 1.750              |
| 1-1/2         | 1.910              |
| 1-5/8         | 2.072              |
| 1-3/4         | 2.230              |
| 2             | 2.550              |
| 2-1/4         | 2.870              |
| 2-1/2         | 3.180              |
| 2-3/4         | 3.500              |
| 3             | 3.830              |
| 3-1/4         | 4.140              |
| 3-1/2         | 4.460              |
| 3-3/4         | 4.780              |
| 4             | 5.100              |
| 4-1/2         | 5.740              |
| 5             | 6.380              |
| 5-1/2         | 7.010              |
| 6             | 7.650              |
| 6-1/2         | 8.290              |
| 7             | 8.930              |
| 7-1/2         | 9.560              |
| 8             | 10.200             |
| 9             | 11.480             |
| 10            | 12.800             |
| 11            | 14.025             |
| 12            | 15.300             |
| 14            | 17.850             |

|               |       |
|---------------|-------|
| <b>7/16 x</b> |       |
| 2             | 2.970 |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>1/2 x</b>  |                    |
| 3/4           | 1.280              |
| 1             | 1.700              |
| 1-1/4         | 2.130              |
| 1-1/2         | 2.550              |
| 1-5/8         | 2.760              |
| 1-3/4         | 2.975              |
| 2             | 3.400              |
| 2-1/4         | 3.830              |
| 2-1/2         | 4.250              |
| 2-3/4         | 4.680              |
| 3             | 5.100              |
| 3-1/4         | 5.530              |
| 3-1/2         | 5.950              |
| 3-3/4         | 6.380              |
| 4             | 6.800              |
| 4-1/2         | 7.650              |
| 5             | 8.500              |
| 5-1/2         | 9.350              |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>1/2 x</b>  |                    |
| 6             | 10.200             |
| 6-1/2         | 11.060             |
| 7             | 11.900             |
| 7-1/2         | 12.750             |
| 8             | 13.600             |
| 9             | 15.300             |
| 10            | 17.000             |
| 11            | 18.700             |
| 12            | 20.400             |
| 14            | 23.800             |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>5/8 x</b>  |                    |
| 1             | 2.130              |
| 1-1/4         | 2.660              |
| 1-1/2         | 3.190              |
| 1-3/4         | 3.720              |
| 2             | 4.250              |
| 2-1/4         | 4.780              |
| 2-1/2         | 5.310              |
| 2-3/4         | 5.840              |
| 3             | 6.380              |
| 3-1/4         | 6.910              |
| 3-1/2         | 7.440              |
| 4             | 8.500              |
| 4-1/2         | 9.560              |
| 5             | 10.630             |
| 5-1/2         | 11.690             |
| 6             | 12.750             |
| 7             | 14.870             |
| 8             | 17.000             |
| 9             | 19.130             |
| 10            | 21.250             |
| 11            | 23.375             |
| 12            | 25.500             |
| 14            | 29.750             |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>3/4 x</b>  |                    |
| 1             | 2.550              |
| 1-1/8         | 2.870              |
| 1-1/4         | 3.190              |
| 1-1/2         | 3.830              |
| 1-3/4         | 4.460              |
| 2             | 5.100              |
| 2-1/4         | 5.740              |
| 2-1/2         | 6.380              |
| 2-3/4         | 7.010              |
| 3             | 7.650              |
| 3-1/4         | 8.290              |
| 3-1/2         | 8.930              |
| 4             | 10.200             |
| 4-1/2         | 11.480             |
| 5             | 12.750             |
| 5-1/2         | 14.030             |
| 6             | 15.300             |
| 6-1/2         | 16.575             |

Thicknesses 3/16" and under, see Hot Rolled Strip (pg. 1-20).

Continued on next page ►

# Hot Rolled - Flats (A-36)

Stock Lengths: 20 foot

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>3/4 x</b>  |                    |
| 7             | 17.900             |
| 8             | 20.400             |
| 9             | 22.950             |
| 10            | 25.500             |
| 11            | 28.050             |
| 12            | 30.600             |
| 14            | 35.700             |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>7/8 x</b>  |                    |
| 1-1/4         | 3.720              |
| 1-1/2         | 4.460              |
| 1-3/4         | 5.210              |
| 2             | 5.950              |
| 2-1/2         | 7.400              |
| 2-3/4         | 8.180              |
| 3             | 8.930              |
| 3-1/2         | 10.410             |
| 4             | 11.900             |
| 4-1/2         | 13.390             |
| 5             | 14.880             |
| 6             | 17.850             |
| 7             | 20.830             |
| 8             | 23.800             |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>1 x</b>    |                    |
| 1-1/4         | 4.250              |
| 1-1/2         | 5.100              |
| 1-3/4         | 5.950              |
| 2             | 6.800              |
| 2-1/4         | 7.650              |
| 2-1/2         | 8.500              |
| 2-3/4         | 9.350              |
| 3             | 10.200             |
| 3-1/4         | 11.050             |
| 3-1/2         | 11.900             |
| 4             | 13.600             |
| 4-1/2         | 15.300             |
| 5             | 17.000             |
| 5-1/2         | 18.700             |
| 6             | 20.400             |
| 7             | 23.800             |
| 8             | 27.200             |
| 9             | 30.600             |
| 10            | 34.000             |
| 12            | 40.800             |
| 14            | 47.600             |

| Size (inches)  | Weight (lbs./foot) |
|----------------|--------------------|
| <b>1-1/8 x</b> |                    |
| 2              | 7.650              |
| 3              | 11.480             |
| 4              | 15.300             |
| 5              | 19.130             |
| 6              | 22.950             |
| 8              | 30.600             |

| Size (inches)  | Weight (lbs./foot) |
|----------------|--------------------|
| <b>1-1/4 x</b> |                    |
| 1-1/2          | 6.380              |
| 1-3/4          | 7.440              |
| 2              | 8.500              |
| 2-1/4          | 9.560              |
| 2-1/2          | 10.630             |
| 2-3/4          | 11.690             |
| 3              | 12.750             |
| 3-1/4          | 13.810             |
| 3-1/2          | 14.880             |
| 4              | 17.000             |
| 4-1/2          | 19.130             |
| 5              | 21.250             |
| 5-1/2          | 23.380             |
| 6              | 25.500             |
| 7              | 29.750             |
| 8              | 34.000             |
| 10             | 42.500             |
| 12             | 51.000             |

| Size (inches)  | Weight (lbs./foot) |
|----------------|--------------------|
| <b>1-1/2 x</b> |                    |
| 1-3/4          | 8.925              |
| 2              | 10.200             |
| 2-1/4          | 11.480             |
| 2-1/2          | 12.750             |
| 2-3/4          | 14.030             |
| 3              | 15.300             |
| 3-1/4          | 16.580             |
| 3-1/2          | 17.850             |
| 4              | 20.400             |
| 4-1/2          | 22.950             |
| 5              | 25.500             |
| 5-1/2          | 28.050             |
| 6              | 30.600             |
| 7              | 35.700             |
| 8              | 40.800             |
| 10             | 51.000             |
| 12             | 61.200             |

| Size (inches)  | Weight (lbs./foot) |
|----------------|--------------------|
| <b>1-3/4 x</b> |                    |
| 2              | 11.900             |
| 2-1/2          | 14.880             |
| 3              | 17.850             |
| 3-1/2          | 20.830             |
| 4              | 23.800             |
| 4-1/2          | 26.790             |
| 5              | 29.750             |
| 5-1/2          | 32.730             |
| 6              | 35.700             |
| 7              | 41.600             |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>2 x</b>    |                    |
| 2-1/4         | 15.300             |
| 2-1/2         | 17.000             |
| 3             | 20.400             |
| 3-1/2         | 23.800             |
| 4             | 27.200             |
| 4-1/2         | 30.600             |
| 5             | 34.000             |
| 5-1/2         | 37.400             |
| 6             | 40.800             |
| 7             | 47.600             |
| 8             | 54.400             |
| 10            | 68.060             |
| 12            | 81.600             |

| Size (inches)  | Weight (lbs./foot) |
|----------------|--------------------|
| <b>2-1/4 x</b> |                    |
| 3              | 22.950             |
| 4              | 30.600             |
| 5              | 38.250             |

| Size (inches)  | Weight (lbs./foot) |
|----------------|--------------------|
| <b>2-1/2 x</b> |                    |
| 3              | 25.500             |
| 3-1/2          | 29.750             |
| 4              | 34.000             |
| 4-1/2          | 38.250             |
| 5              | 42.500             |
| 5-1/2          | 46.750             |
| 6              | 51.000             |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>3 x</b>    |                    |
| 3-1/2         | 35.700             |
| 4             | 40.800             |
| 4-1/2         | 45.900             |
| 5             | 51.000             |
| 6             | 61.200             |

| Size (inches)  | Weight (lbs./foot) |
|----------------|--------------------|
| <b>3-1/2 x</b> |                    |
| 4              | 47.600             |
| 5              | 51.000             |
| 6              | 71.400             |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>4 x</b>    |                    |
| 4-1/2         | 61.200             |
| 5             | 68.000             |
| 6             | 81.600             |

Thicknesses 3/16" and under, see Hot Rolled Strip (pg. 1-20).

**Hot Rolled - Strip**

Stock Lengths: 20 foot

| B.W. Gauge and Size | Weight (lbs./foot) | Stock Lengths |
|---------------------|--------------------|---------------|
| <b>1/8 x</b>        |                    |               |
| 1/2                 | .210               | 20'           |
| 5/8                 | .270               | 20'           |
| 3/4                 | .320               | 20'           |
| 7/8                 | .370               | 20'           |
| 1                   | .430               | 20'           |
| 1-1/4               | .530               | 20'           |
| 1-3/8               | .590               | 20'           |
| 1-1/2               | .640               | 20'           |
| 1-3/4               | .740               | 20'           |
| 2                   | .850               | 20'           |
| 2-1/4               | .960               | 20'           |
| 2-1/2               | 1.060              | 20'           |
| 2-3/4               | 1.170              | 20'           |
| 3                   | 1.280              | 20'           |
| 3-1/2               | 1.490              | 20'           |
| 4                   | 1.700              | 20'           |
| 4-1/2               | 1.910              | 20'           |
| 5                   | 2.130              | 20'           |
| 6                   | 2.550              | 20'           |
| 8                   | 3.400              | 20'           |
| 10                  | 4.250              | 20'           |
| 12                  | 5.130              | 20'           |

| B.W. Gauge and Size | Weight (lbs./foot) | Stock Lengths |
|---------------------|--------------------|---------------|
| <b>3/16 x</b>       |                    |               |
| 1/2                 | .320               | 20'           |
| 5/8                 | .400               | 20'           |
| 3/4                 | .480               | 20'           |
| 7/8                 | .557               | 20'           |
| 1                   | .640               | 20'           |
| 1-1/4               | .800               | 20'           |
| 1-3/8               | .880               | 20'           |
| 1-1/2               | .960               | 20'           |
| 1-3/4               | 1.120              | 20'           |
| 2                   | 1.280              | 20'           |
| 2-1/4               | 1.430              | 20'           |
| 2-1/2               | 1.590              | 20'           |
| 2-3/4               | 1.750              | 20'           |
| 3                   | 1.910              | 20'           |
| 3-1/4               | 2.070              | 20'           |
| 3-1/2               | 2.230              | 20'           |
| 4                   | 2.550              | 20'           |
| 4-1/2               | 2.870              | 20'           |
| 5                   | 3.190              | 20'           |
| 5-1/2               | 3.510              | 20'           |
| 6                   | 3.820              | 20'           |
| 8                   | 5.100              | 20'           |
| 10                  | 6.380              | 20'           |
| 12                  | 7.650              | 20'           |

Note: Material is also available in 12' lengths and in Pickled & Oiled, please inquire with Alro Sales.

## Hot Rolled - Flats (M1044)

Stock Lengths: 20 foot

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>1/4 x</b>  |                    |
| 1             | 0.850              |
| 1-1/4         | 1.060              |
| 1-1/2         | 1.275              |
| 2             | 1.700              |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>3/8 x</b>  |                    |
| 1             | 1.280              |
| 1-1/4         | 1.590              |
| 1-1/2         | 1.910              |
| 2             | 2.550              |
| 2-1/2         | 3.180              |
| 3             | 3.830              |
| 4             | 5.100              |
| 5             | 6.380              |
| 6             | 7.650              |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>1/2 x</b>  |                    |
| 1             | 1.700              |
| 1-1/2         | 2.550              |
| 2             | 3.400              |
| 2-1/2         | 4.250              |
| 3             | 5.100              |
| 4             | 6.800              |
| 5             | 8.500              |
| 6             | 10.200             |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>5/8 x</b>  |                    |
| 2             | 4.250              |
| 2-1/2         | 5.310              |
| 8             | 17.000             |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>3/4 x</b>  |                    |
| 1-1/2         | 3.830              |
| 2             | 5.100              |
| 2-1/2         | 6.380              |
| 3             | 7.650              |
| 3-1/2         | 8.930              |
| 4             | 10.200             |
| 5             | 12.750             |
| 6             | 15.300             |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>1 x</b>    |                    |
| 2             | 6.80               |
| 2-1/2         | 8.500              |
| 3             | 10.200             |
| 4             | 13.600             |
| 5             | 17.000             |
| 6             | 20.400             |

| Size (inches)  | Weight (lbs./foot) |
|----------------|--------------------|
| <b>1-1/4 x</b> |                    |
| 2              | 8.500              |
| 3-1/2          | 14.880             |
| 4              | 17.000             |
| 5              | 20.250             |
| 6              | 25.500             |
| 8              | 34.000             |

| Size (inches)  | Weight (lbs./foot) |
|----------------|--------------------|
| <b>1-1/2 x</b> |                    |
| 2              | 10.200             |
| 2-1/2          | 12.750             |
| 3              | 15.300             |
| 4              | 20.400             |
| 5              | 25.500             |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| <b>2 x</b>    |                    |
| 3             | 20.400             |
| 4             | 27.200             |
| 5             | 34.000             |
| 6             | 40.800             |

## Hot Rolled - Squares

Stock Lengths: 20 foot

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| 3/8           | 0.480              |
| 1/2           | 0.850              |
| 5/8           | 1.330              |
| 3/4           | 1.910              |
| 7/8           | 2.600              |
| 1             | 3.400              |
| 1-1/4         | 5.310              |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| 1-1/2         | 7.650              |
| 1-3/4         | 10.400             |
| 2             | 13.600             |
| 2-1/4         | 17.210             |
| 2-1/2         | 21.300             |
| 2-3/4         | 25.700             |
| 3             | 30.600             |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| 3-1/2         | 41.700             |
| 4             | 54.400             |
| 4-1/2         | 68.900             |
| 5             | 85.000             |
| 6             | 122.400            |

## Concrete Reinforcing Bars

Material Available in Grades 40 and 60

Stock Lengths: 20 foot and 40 foot

| Size (inches) | Bar Number | Weight (lbs./foot) |
|---------------|------------|--------------------|
| 3/8 Rd.       | 3          | .376               |
| 1/2 Rd.       | 4          | .668               |
| 5/8 Rd.       | 5          | 1.043              |
| 3/4 Rd.       | 6          | 1.502              |
| 7/8 Rd.       | 7          | 2.044              |
| 1 Rd.         | 8          | 2.670              |
| 1-1/8 Rd.     | 9          | 3.379              |

*Round bars equal in cross sectional area to the standard square sizes indicated*



Alro will deliver your Concrete Reinforcement order to your facility or job site

## Concrete Reinforcing Mesh

6 x 6 x 6 Gage x 6 Gage ..... 5' x 150'

6 x 6 x 10 Gage x 10 Gage ..... 5' x 150'

## Hot Rolled Steel Bars

### Permissible Variations in Cross Section for Hot-Wrought Round, Square and Round-Cornered Square Bars of Steel

| Specified Sizes (inches) | Permissible Variation From Specified Size, in. <sup>A</sup> |       | Out-of-Round or Out-of-Square <sup>B</sup> (inches) |
|--------------------------|---|-------|---|
|                          | Over  | Under |   |
| 7/16 thru 5/8            | 0.007   | 0.007 | 0.010   |
| Over 5/8 thru 7/8        | 0.008   | 0.008 | 0.012   |
| Over 7/8 thru 1          | 0.009   | 0.009 | 0.013   |
| Over 1 thru 1-1/8        | 0.010   | 0.010 | 0.015   |
| Over 1-1/8 thru 1-1/4    | 0.011   | 0.011 | 0.016   |
| Over 1-1/4 thru 1-3/8    | 0.012   | 0.012 | 0.018   |
| Over 1-3/8 thru 1-1/2    | 0.014   | 0.014 | 0.021   |
| Over 1-1/2 thru 2        | 1/64  | 1/64  | 0.023   |
| Over 2 thru 2-1/2        | 1/32  | 0     | 0.023   |
| Over 2-1/2 thru 3-1/2    | 3/64  | 0     | 0.035   |
| Over 3-1/2 thru 4-1/2    | 1/16  | 0     | 0.046   |
| Over 4-1/2 thru 5-1/2    | 5/64  | 0     | 0.058   |
| Over 5-1/2 thru 6-1/2    | 1/8   | 0     | 0.070   |
| Over 6-1/2 thru 8-1/4    | 5/32  | 0     | 0.085   |
| Over 8-1/4 thru 9-1/2    | 3/16  | 0     | 0.100   |
| Over 9-1/2 thru 10       | 1/4   | 0     | 0.120   |

<sup>A</sup> Steel bars are regularly cut to length by shearing or hot sawing, which can cause end distortion resulting in those portions of the bar being outside the applicable size tolerance. When this end condition is objectionable, a machine cut end should be considered.

<sup>B</sup> Out-of-round is the difference between the maximum and minimum diameters of the bar, measured at the same transverse cross section. Out-of-square section is the difference in perpendicular distance between opposite faces, measured at the same transverse cross section.

## Square Edge and Round Edge Flats

### Permissible Variations in Thickness and Width for Hot-Wrought Square Edge and Round Edge Flat Bar

| Specified Widths (inches) | Permissible variations in thickness, for thickness given over and under in <sup>B</sup> |                   |                 |                 |                 |                 |           | Widths |        |
|---------------------------|---|-------------------|-----------------|-----------------|-----------------|-----------------|-----------|--------|--------|
|                           | 0.203 up to 0.230   | 0.233 up to 0.250 | 0.25 up to 0.50 | 0.50 up to 1.00 | 1.00 up to 2.00 | 2.00 up to 3.00 | Over 3.00 | Over   | Under  |
| Up thru 1                 | .007  | .007              | .008            | .010            | ....            | ....            | ....      | 1/64   | 1/64   |
| Over 1 thru 2             | .007  | .007              | .012            | .015            | 1/32            | ....            | ....      | 1/32   | 1/32   |
| Over 2 thru 4             | .008  | .008              | .015            | .020            | 1/32            | 3/64            | 3/64      | 1/16   | 1/32   |
| Over 4 thru 6             | .009  | .009              | .015            | .020            | 1/32            | 3/64            | 3/64      | 3/32   | 1/16   |
| Over 6 thru 8             | *   | .015              | .018            | .025            | 1/32            | 3/64            | 1/16      | 1/8    | 3/32** |

<sup>A</sup> When a square is held against a face and an edge of a square edge flat bar, the edge shall not deviate by more than 3° or 5% of the thickness.

<sup>B</sup> Steel bars are regularly cut to length by shearing or hot sawing, which can cause end distortion resulting in those portions of the bar being outside the applicable size tolerance. When this end condition is objectionable, a machine cut end should be considered.

\* Flats over 6 to 8 in., incl, in width, are not available as hot-wrought steel bars in thickness under 0.230 in.

## Straightness \*Tolerances Steel Bars

### Hot Rolled Bars

Straightness is a perishable tolerance; therefore, reasonable care in handling and storage should be taken to avoid bending the bars. Deviation from straightness is measured by placing the bar on a level table so that the arc or deviation from straightness is horizontal, and the depth of the arc is measured with a steel scale and a straight edge. A tightly-stretched string can be used as a substitute for a steel scale.

**Hot Rolled Bars**      1/4" in any 5 ft. or  $1/4 \times \frac{\text{no. of ft. of length}}{5}$  inches

**Hot Rolled,  
Thermally Treated**      1/4" in any 5 ft. or  $1/4 \times \frac{\text{no. of ft. of length}}{5}$  inches

\* There is not a published flatness or straightness tolerance for flat bars.

## Straightness \*Tolerances Steel Bars

### Cold Finished Bars

| Form Size  | Length (in Feet) | Maximum Curvature (Depth of arc in inches)   |
|--|------------------|--|
| <b>Rounds</b>  |                  |  |
| <b>Less than .28 Carbon</b>                              |                  |  |
| Less than 5/8"   | Less than 15'    | 1/8" in any 10' portion of the total length  |
| Less than 5/8"   | 15' and over     | 1/8" in any 10' portion of the total length  |
| 5/8" and over  | Less than 15'    | 1/16" in any 10' portion of the total length |
| 5/8" and over  | 15' and over     | 1/8" in any 10' portion of the total length  |
| <b>.28 Carbon and over and all heat treated material</b> |                  |  |
| Less than 5/8"   | Less than 15'    | 3/16" in any 10' portion of the total length |
| Less than 5/8"   | 15' and over     | 5/16" in any 10' portion of the total length |
| 5/8" and over  | Less than 15'    | 1/8" in any 10' portion of the total length  |
| 5/8" and over  | 15' and over     | 3/16" in any 10' portion of the total length |
| <b>Hexagons &amp; Squares</b>                            |                  |  |
| <b>Less than .28 Carbon</b>                              |                  |  |
| Less than 5/8"   | Less than 15'    | 3/16" in any 10' portion of the total length |
| Less than 5/8"   | 15' and over     | 5/16" in any 10' portion of the total length |
| 5/8" and over  | Less than 15'    | 1/8" in any 10' portion of the total length  |
| 5/8" and over  | 15' and over     | 3/16" in any 10' portion of the total length |
| <b>.28 Carbon and over and all heat treated material</b> |                  |  |
| Less than 5/8"   | Less than 15'    | 1/4" in any 10' portion of the total length  |
| Less than 5/8"   | 15' and over     | 3/8" in any 10' portion of the total length  |
| 5/8" and over  | Less than 15'    | 3/16" in any 10' portion of the total length |
| 5/8" and over  | 15' and over     | 1/4" in any 10' portion of the total length  |

\* There is not a published flatness or straightness tolerance for flat bars.