

# KROMITE® #3

## Hot Rolled, Heat Treated, High Strength Alloy

### Typical Mechanical Properties\*

|                         |                |
|-------------------------|----------------|
| Brinell Hardness .....  | 269/341 BHN    |
| Tensile Strength .....  | 156,000 P.S.I. |
| Yield Strength .....    | 123,500 P.S.I. |
| Grain Size .....        | .95% - 8       |
| Elongation .....        | 17%            |
| Reduction of Area ..... | 50%            |

\*Based on 1/2" Diameter Test Specimen

(Centrex® HR Past Protected Trade Name of Ludlow Steel Co.)

### Key Features

- **Clean Steel Technology** – a manufacturing process that delivers consistent steel through control and refinement of the melt.
- **Proprietary Chemistry** – a chemistry that offers excellent cleanliness and a well defined grain structure to provide fatigue resistance when material is in service.
- **Electric Furnace Melt** – offers greater quality control at the mill including refinement of chemistry, grain size and shape.
- **Vacuum Degassed** – eliminates many impurities found in standard commercial grade alloys. The result is a better, cleaner, and stronger product that extends service.
- **Heat Treated** – eliminates excessive cost in heat treatment. Our material is thermally treated (as delivered) to a hardness of 269/341 BHN.
- **Machine Straightened** – eliminates excessive bow and distortion. Our standard straightness is 1/8" in any 5 feet, better than twice the industry standard. (for rounds and squares only)
- **Stress Relieved** – reduces the likelihood of material "walking" or moving during machining.



If currently using 1018, 1045, 4130, 4140, 4150, 4145, or 4340, consider Kromite #3 as an upgrade to those commercial grade steels.

### Semi-Finished and Finished Products

**Kromite #3 Econo-Finish** – furnished ground top and bottom to (+.015"/+.030") oversize; sides saw cut to (+1/8"). Available up to 12 Ft lengths; see page 53 for further details.

**Kromite #3 Flat Ground** – furnished precision ground to (+.001"/-.000") on thickness and (+.005"/-.000") on all sides with lengths (+1/4") at 18" and 36" available; see page 61 for details.

### Available Lengths

10/12 Foot Random Lengths  
20/24 Foot Random Lengths  
Custom Cut-To-Lengths  
Long Lengths

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### Available Sizes\*

#### Rounds

|        |        |        |        |        |        |         |     |
|--------|--------|--------|--------|--------|--------|---------|-----|
| 1/2"   | 1-1/2" | 2-1/2" | 4"     | 6"     | 8"     | 10-1/2" | 15" |
| 5/8"   | 1-5/8" | 2-5/8" | 4-1/4" | 6-1/4" | 8-1/4" | 11"     | 16" |
| 3/4"   | 1-3/4" | 2-3/4" | 4-1/2" | 6-1/2" | 8-1/2" | 11-1/4" |     |
| 7/8"   | 1-7/8" | 2-7/8" | 4-3/4" | 6-3/4" | 8-3/4" | 11-1/2" |     |
| 1"     | 2"     | 3"     | 5"     | 7"     | 9"     | 12"     |     |
| 1-1/8" | 2-1/8" | 3-1/4" | 5-1/4" | 7-1/4" | 9-1/2" | 13"     |     |
| 1-1/4" | 2-1/4" | 3-1/2" | 5-1/2" | 7-1/2" | 9-3/4" | 13-1/2" |     |
| 1-3/8" | 2-3/8" | 3-3/4" | 5-3/4" | 7-3/4" | 10"    | 14"     |     |

#### Squares

|      |        |        |        |        |
|------|--------|--------|--------|--------|
| 1/2" | 7/8"   | 1-1/4" | 2"     | 3-1/2" |
| 5/8" | 1"     | 1-1/2" | 2-1/2" | 4"     |
| 3/4" | 1-1/8" | 1-3/4" | 3"     | 6"     |

**Hot Roll Annealed  
Bar Stock, Brake  
Die Stock and  
Custom Forgings  
are all available  
upon request.**

#### Flats

|               |               |                 |                 |
|---------------|---------------|-----------------|-----------------|
| 1/4" x 1"     | 1/2" x 3"     | 1" x 2"         | 1-1/2" x 6"     |
| 1/4" x 1-1/2" | 1/2" x 3-1/2" | 1" x 2-1/2"     | 2" x 2-1/2"     |
| 1/4" x 2"     | 1/2" x 4"     | 1" x 3"         | 2" x 3"         |
| 1/4" x 3"     | 1/2" x 5"     | 1" x 4"         | 2" x 3-1/2"     |
| 1/4" x 4"     | 1/2" x 6"     | 1" x 5"         | 2" x 4"         |
| 1/4" x 5"     | 5/8" x 2"     | 1" x 6"         | 2" x 5"         |
| 1/4" x 6"     | 5/8" x 3"     | 1-1/4" x 2"     | 2" x 6"         |
| 3/8" x 1-1/2" | 3/4" x 1-1/2" | 1-1/4" x 2-1/2" | 2-1/2" x 3-1/2" |
| 3/8" x 2"     | 3/4" x 2"     | 1-1/4" x 3"     | 2-1/2" x 4"     |
| 3/8" x 2-1/2" | 3/4" x 2-1/2" | 1-1/4" x 3-1/2" | 2-1/2" x 6"     |
| 3/8" x 3"     | 3/4" x 3"     | 1-1/4" x 4"     | 3" x 4"         |
| 3/8" x 4"     | 3/4" x 4"     | 1-1/2" x 2"     | 3" x 5"         |
| 1/2" x 1"     | 3/4" x 5"     | 1-1/2" x 2-1/2" | 3" x 6"         |
| 1/2" x 1-1/2" | 3/4" x 6"     | 1-1/2" x 3"     |                 |
| 1/2" x 2"     | 1" x 1-1/4"   | 1-1/2" x 4"     |                 |
| 1/2" x 2-1/2" | 1" x 1-1/2"   | 1-1/2" x 5"     |                 |

### Machining Data

Note: Caution should be exercised when cold working any hardened alloy material. Use equipment of sufficient capacity that is in good condition. Utilize machine operators that are experienced in working with hardened alloys and wear appropriate safety gear.

**Kromite #3 and Mirraloy TGP** are heat treated alloy materials both with an approximate hardness of Rc 30. Machinability rating is approx. 60%, depending on actual hardness.

#### High Speed

- Depth of Cut .150"
- Speed 70fpm
- Feed .015 inch/revolution
- Tooling C6

#### Carbide

- Depth of Cut .150"
- Speed 260 brazed, 330 throw-away
- Feed .015 inch/revolution
- Tooling C6

(Cutting Fluid: Soluble Oil 1:20)

#### Drilling

- Point Angle 118°, relief 12°
- Helix Angle 29° point: plan
- Feed .005 inch/revolution

*\*Typically, 10" Rounds and above are furnished as Rough Turned Oversized, to finish to the nominal size, & have an approximate 500 RMS. All squares over 4-1/2" are produced from plate; standard plate tolerances apply. Certain flats may be furnished from cut plate; standard plate tolerances apply.*

### Typical Applications

|                 |                |               |
|-----------------|----------------|---------------|
| Arbors          | Journals       | Studs         |
| Bolts           | Lead Screws    | Tool Shanks   |
| Line Shafts     | Mandrels       | Tie Rods      |
| Drive Shafts    | Mine Car Axles | Textile Parts |
| Drag Line Parts | Pins           | Wear Strips   |
| Feed Screws     | Piston Rods    | Worm Gears    |
| Gears           | Rings          | Wrist Pins    |