

# KROMITE® 3 HOLLOW BAR

Quench & Tempered Ultra High Strength Alloy Hollow Bar



**Kromite® 3 Hollow Bar** is virtually the same clean steel product as our Kromite® #3 Round Bar. It is a modified analysis of the 4000 series of alloys, engineered to extend service life and resist fatigue related failures.

**Kromite® 3 Hollow Bar** is a hot rolled Brake Die material, compatible with common alloy grades as well as carbon and mild steels. It is "Through Hardened," with excellent uniformity, virtually free of hard and soft spots that cause machining problems and uneven wear patterns. Use this product to reduce machining time, and speed up turn around. Get it fast, and install it fast; pay only for what you need. That's it! A universal tool room product that makes life a whole lot easier.

## Available Sizes\*

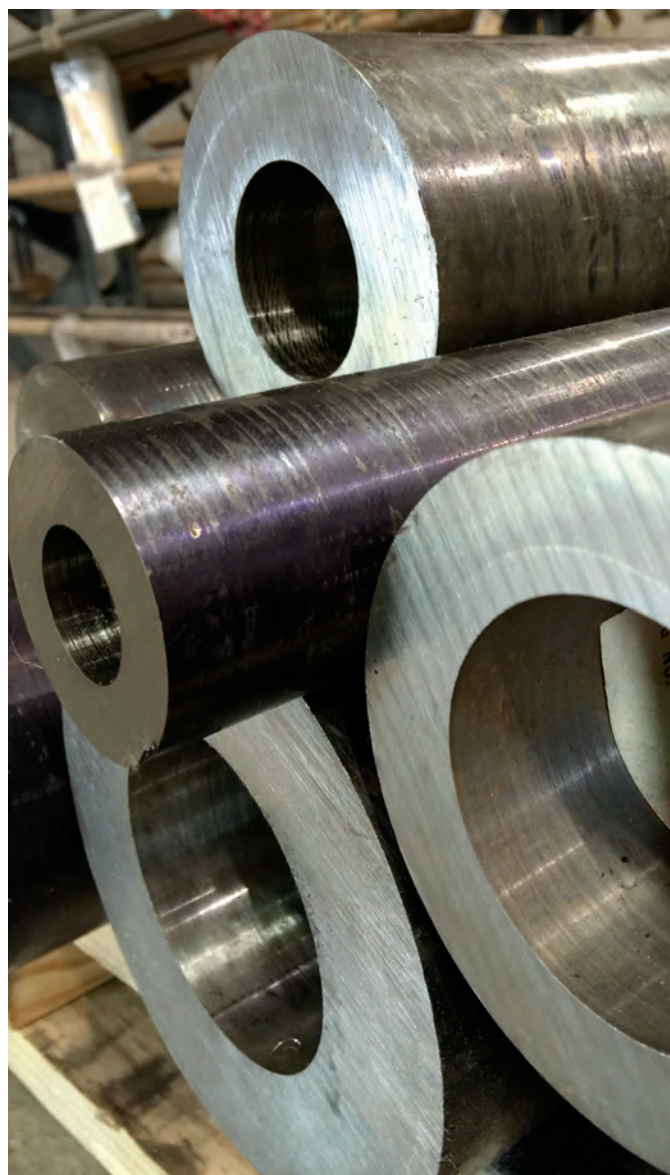
3" O.D. X 1½" I.D.
3½" O.D. X 1½" I.D.
4" O.D. X 2" I.D.
4½" O.D. X 2½" I.D.
5" O.D. X 3" I.D.
6" O.D. X 3½" I.D.

\*Supplied as a rough size (O.D. & I.D.)  
Will not finish to its nominal size.

## Applications

- Bearings
- Washers
- Bushings
- Spacers
- Collars
- Sleeves
- Couplings
- Wear Rings
- Dies
- Unions
- Flanges
- Wheels
- Hex Nuts

**Kromite® 3 Hollow Bar** is stocked in 18" lengths for rapid economical shipment and lower customer carrying costs. (Inquire on longer lengths). Our customers advise that this hollow bar is ideal for so many maintenance requirements, it doesn't remain in inventory long. We supply it to rough dimensions on O.D. and I.D. It is intended to assist in the making of maintenance parts that have an open configuration. (This is not a finished bushing). This material will accept most common surface hardening procedures. **Kromite® 3 Hollow Bar** is a perfect choice for applications requiring a high degree of wear resistance. You may surface harden I.D. or O.D. by flame hardening, induction hardening, Nitriding, or Carburizing.



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## Typical Mechanical Properties\*

- Brinell Hardness.....269/341 BHN
- Tensile Strength.....145 KSI
- Yield Strength.....110 KSI
- Elongation.....19%
- Reduction.....50%
- Charpy V Notch.....105 @ 70°F
- Machinability Rate.....50%
- Surface Finish (H.R.).....125/250 RMS

\*Based on 1/2" diameter test specimen.

## Machining Data

Kromite® 3 Hollow Bar is a hot rolled heat treated alloy material 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

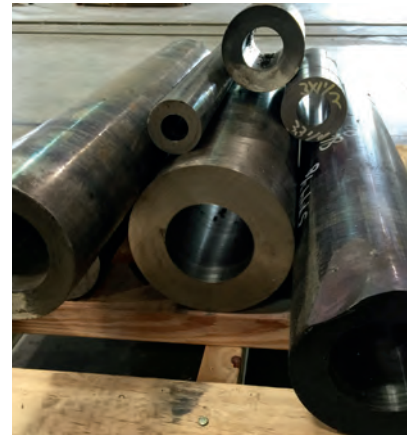
**Phone: 800.321.9300**

**Fax: 800.441.9303**

**Email: Mail@AssociatedSteel.com**

## Key Features

- Homogenized Grain
- Uniform Hardness
- Heat Treated 269/341bhn
- High Strength
- Ease of machining
- Ease of welding
- Fatigue Resistant
- Stocked in 18" lengths
- Custom lengths available



## Welding

Readily welded by means of the "Standard Low Hydrogen" method. E7018 rod, or, E8018 rod. Utilize certified welders familiar with welding hardened alloy materials. Inquire for details.

## Through Hardening

Anneal at: 1500°F – 1650°F  
Harden at: 1500°F – 1550°F Temper immediately  
Temper: 500F yields approx.. 50RC, 1000°F  
yields approx. 44RC

Follow hardening procedure for 4140/4142 pre-hardened materials.

Responds well to cryogenic treatment for enhanced properties.

## Surface Hardening (O.D. or I.D.)

Anneal at: 1500°F  
Furnace cool to 1230°F  
Follow Surface Hardening instructions  
(Flame, Induction, or Nitride)  
appropriate for (4140/4142 alloys).

Associated Steel is certified to the  
ISO 9001:2008 Quality Standards

