

PENETROX A, A-13 AND E

TECHNICAL INFORMATION

PENETROX A

PENETROX A consists of a natural (petroleum) base vehicle in which zinc particles are suspended. For aluminum to aluminum, aluminum to copper applications and aluminum conduit threads. It is not recommended for use with rubber and polyethylene insulated conductors. UL listed to 600 volts.

PENETROX A-13

PENETROX A-13 consists of a non-petroleum base vehicle in which zinc particles are suspended. Recommended for aluminum to aluminum, aluminum to copper applications and aluminum conduit threads. Compatible with insulating materials such as rubber, or polyethylene. UL listed and recommended for all voltages.

PENETROX E

PENETROX E consists of a non-petroleum base vehicle in which copper granules are suspended. Recommended for copper to copper applications, grounding and for use on copper conduit threads. UL listed.

Easy to apply:

1. Scratch brush the conductor surfaces until bright and clean.
2. Immediately apply PENETROX™ to the conductive surfaces.
3. For EHV applications, remove all excess PENETROX™ after installation is complete.

SHELF LIFE

When stored in its original container in cool (under 100° F) dry environment, PENETROX™ oxide inhibiting compound will remain workable and functional for (5) years from the date marked on the container provided it is mixed per instructions prior to use.



PROPERTIES OF PENETROX™

| Property | Value PENETROX™ Definition | PENETROX™ E & A13 | A |
|-----------------------------|--|----------------------|--------|
| Penetration (Unworked) | The value in accordance to ASTM D217 indicates the consistency of a grease. The higher the number, the softer the grease. | 250 | 230 |
| Dropping Point (Minimum) | The temperature at which the grease passes from the semi-solid to a liquid state under test conditions. | 500° F | 230° F |
| Pour Point (Maximum) | The lowest temperature at which the compound will flow. Pour point is the lubricant's ability to perform in cold conditions. | -10° F | -15° F |

* MSDS sheets available through customer service.

ORDERING INFORMATION

| Catalog Number | Container | | Container Type | Size |
|----------------------|------------------------|--------------------|-------------------|------------|
| PENETROX™ A | PENETROX™ A-13 | PENETROX™ E | | |
| PENA 1/2 | — | — | Tube | 1/2 oz. |
| PEN A-4 | PEN A13-4 | PEN E-4 | Squeeze Bottle | 4 oz. |
| P8A | PEN A13-8 | PEN E-8 | Squeeze Bottle | 8 oz. |
| PENACARTRIDGE | PENA13CARTRIDGE | — | Cartridge | 1 lb.* |
| PEN A-QT | PEN A13-QT | PEN E-QT | Plastic Tub | 1 Quart |
| PEN A-GAL | PEN A13-GAL | PEN E-GAL | Can | 1 Gallon |
| PEN A-5GAL | PEN A13-5GAL | PEN E-5GAL | Pail | 5 Gallons |
| PEN A-55GAL | PEN A13-55GAL | PEN E-55GAL | Drum | 55 Gallons |

* 1 lb. cartridge will fit standard caulking guns.

B38-0305-00 Wire Brush

Throughout the catalog you will notice blue highlighted items. These are the most frequently ordered BURNDY® Products.

HARDWARE DATA

RECOMMENDED TIGHTENING TORQUE

The hardware used in connectors must be compatible with the connector material, have high mechanical strength and be corrosion resistant and correspond to NEMA recommendations.

Copper alloy connectors have hardware made of DURIUM™, which is the BURNDY® trade name for silicon bronze alloy ASTMB99 type B. This material was first introduced by BURNDY® in 1927 for use in outdoor construction, and today, is the standard throughout the industry.

| DURIUM™ and Steel Hardware | | Aluminum Hardware | |
|----------------------------|----------------------------------|-------------------|----------------------------------|
| Bolt Size | Recommended Torque (Inch Pounds) | Bolt Size | Recommended Torque (Inch Pounds) |
| 1/4 - 20 | 80 | 1/2 - 13 | 300 |
| 5/16 - 18 | 180 | 5/8 - 11 | 480 |
| 3/8 - 16 | 240 | 3/4 - 10 | 650 |
| 1/2 - 13 | 480 | | |
| 5/8 - 11 | 660 | | |
| 3/4 - 10 | 1,050 | | |

Aluminum connectors generally have aluminum alloy hardware. The bolts are 2024T4 and anodized to resist corrosion. The nuts are 6061T6, which is resistant to corrosion and does not require anodizing. Both nuts and bolts are lubricated to eliminate galling and to provide consistent clamping forces.

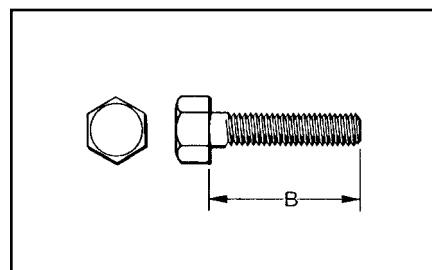
The size material for clamping hardware are selected to provide the required force when tightened to the recommended torque. To reduce or greatly exceed the recommended torque can adversely affect the performance of the connector.

DURIUM™ BOLT

SILICON BRONZE

BURNDY® introduced silicon bronze bolts, nuts, and other hardware items on outdoor connector applications in 1927. Today the DURIUM™ trademark is a standard for this use.

DURIUM™ bolts combine high strength with corrosion resistance. **Bolts up to 2 inches long are fully threaded; longer bolts are threaded for two inches.** Heads have



American Standard dimension, and the threads are per American National Coarse Series, Class #2 fit. The silicon bronze is per ASTM B99.

| Catalog Number | Thread Size | B Length | Catalog Number | Thread Size | B Length | Catalog Number | Thread Size | B Length |
|----------------|-------------|----------|----------------|-------------|----------|----------------|-------------|----------|
| 25x50 HEB BOX | 1/4-20 | 1/2" | 38x125 HEB BOX | 3/8-16 | 1-1/4" | 50x300 HEB BOX | 1/2-13 | 3" |
| 25x62 HEB BOX | 1/4-20 | 5/8" | 38x150 HEB BOX | 3/8-16 | 1-1/2" | 50x325 HEB BOX | 1/2-13 | 3-1/4" |
| 25x75 HEB BOX | 1/4-20 | 3/4" | 38x175 HEB BOX | 3/8-16 | 1-3/4" | 50x350 HEB BOX | 1/2-13 | 3-1/2" |
| 25x100 HEB BOX | 1/4-20 | 1" | 38x200 HEB BOX | 3/8-16 | 2" | 50x375 HEB BOX | 1/2-13 | 3-3/4" |
| 25x125 HEB BOX | 1/4-20 | 1-1/4" | 38x225 HEB BOX | 3/8-16 | 2-1/4" | 50x400 HEB BOX | 1/2-13 | 4" |
| 25x150 HEB BOX | 1/4-20 | 1-1/2" | 38x250 HEB BOX | 3/8-16 | 2-1/2" | 50x450 HEB BOX | 1/2-13 | 4-1/2" |
| 25x200 HEB BOX | 1/4-20 | 2" | 38x275 HEB BOX | 3/8-16 | 2-3/4" | 50x500 HEB BOX | 1/2-13 | 5" |
| 25x250 HEB BOX | 1/4-20 | 2-1/2" | 38x300 HEB BOX | 3/8-16 | 3" | 50x550 HEB BOX | 1/2-13 | 5-1/2" |
| 25x300 HEB BOX | 1/4-20 | 3" | 38x325 HEB BOX | 3/8-16 | 3-1/4" | 50x600 HEB BOX | 1/2-13 | 6" |
| 31x50 HEB BOX | 5/16-18 | 1/2" | 38x350 HEB BOX | 3/8-16 | 3-1/2" | 62x100 HEB BOX | 5/8-11 | 1" |
| 31x62 HEB BOX | 5/16-18 | 5/8" | 38x400 HEB BOX | 3/8-16 | 4" | 62x125 HEB BOX | 5/8-11 | 1-1/4" |
| 31x75 HEB BOX | 5/16-18 | 3/4" | 38x450 HEB BOX | 3/8-16 | 4-1/2" | 62x150 HEB BOX | 5/8-11 | 1-1/2" |
| 31x100 HEB BOX | 5/16-18 | 1" | 38x500 HEB BOX | 3/8-16 | 5" | 62x175 HEB BOX | 5/8-11 | 1-3/4" |
| 31x125 HEB BOX | 5/16-18 | 1-1/4" | 44x150 HEB BOX | 7/16-14 | 1-1/2" | 62x200 HEB BOX | 5/8-11 | 2" |
| 31x150 HEB BOX | 5/16-18 | 1-1/2" | 44x200 HEB BOX | 7/16-14 | 2" | 62x225 HEB BOX | 5/8-11 | 2-1/4" |
| 31x175 HEB BOX | 5/16-18 | 1-3/4" | 50x75 HEB BOX | 1/2-13 | 3/4" | 62x250 HEB BOX | 5/8-11 | 2-1/2" |
| 31x200 HEB BOX | 5/16-18 | 2" | 50x100 HEB BOX | 1/2-13 | 1" | 62x275 HEB BOX | 5/8-11 | 2-3/4" |
| 31x250 HEB BOX | 5/16-18 | 2-1/2" | 50x125 HEB BOX | 1/2-13 | 1-1/4" | 62x300 HEB BOX | 5/8-11 | 3" |
| 31x300 HEB BOX | 5/16-18 | 3" | 50x150 HEB BOX | 1/2-13 | 1-1/2" | 62x325 HEB BOX | 5/8-11 | 3-1/4" |
| 38x50 HEB BOX | 3/8-16 | 1/2" | 50x175 HEB BOX | 1/2-13 | 1-3/4" | 62x350 HEB BOX | 5/8-11 | 3-1/2" |
| 38x62 HEB BOX | 3/8-16 | 5/8" | 50x200 HEB BOX | 1/2-13 | 2" | 62x400 HEB BOX | 5/8-11 | 4" |
| 38x75 HEB BOX | 3/8-16 | 3/4" | 50x225 HEB BOX | 1/2-13 | 2-1/4" | 62x450 HEB BOX | 5/8-11 | 4-1/2" |
| 38x88 HEB BOX | 3/8-16 | 7/8" | 50x250 HEB BOX | 1/2-13 | 2-1/2" | 62x500 HEB BOX | 5/8-11 | 5" |
| 38x100 HEB BOX | 3/8-16 | 1" | 50x275 HEB BOX | 1/2-13 | 2-3/4" | 62x600 HEB BOX | 5/8-11 | 6" |

DURIUM™ NUT

SILICON BRONZE

DURIUM™ hexagon regular nuts are non-magnetic and are made of silicon bronze. They are made to ASTM A594, Class 1, and are available in sizes 1/4" through 1 1/2". They are also available in sizes 1/8" through 3/4" for use with grounding rods. They are made of silicon bronze, which is a non-magnetic material. They are made to ASTM A594, Class 1, and are available in sizes 1/4" through 1 1/2". They are also available in sizes 1/8" through 3/4" for use with grounding rods. They are made of silicon bronze, which is a non-magnetic material.