BOLTS, STUDS, NUTS & FLAT WASHERS

- ASTM A307 A GRADE A
- ASTM A307 B GRADE B
- SAE J 429 GRADE 2, GRADE 5 & GRADE 8
- ASTM A 325
- ASTM A193/ A194 GRADE B7
- HYDRANT B/O A307 A
- HYDRANT B/O A307 A SILICON FILLED
- HYDRANT B/O ASTM F593/594 T316
- HYDRANT B/O STUD A307
- COR-TEN T-BOLTS
- ASTM A193/A194 GRADE B8
- ASTM A193/A194 B8M
- ASTM A193/A194 B8M CLASS 2
- ASTM F593/F594 T304
- ASTM F593/F594 T316
- ASTM F593/F594 T316 W/ BLUE NUT
- ASTM F469/F467 SILICON BRONZE
- T-2000 COATING
- ANCHOR BOLT A307
- ANCHOR BOLT T316
- WEDGE ANCHOR

GASKETS, INSULATION KITS, LINK SEAL & CASING SPACERS

- "TRIPAC 2000" CLOTH INSERTED RUBBER
- "TRIPAC 5000" NON-ASBESTOS GASKET
- NA GASKETS (NON-ASBESTOS)
- CI RUBBER GASKETS (CLOTH INSERTED RUBBER)
- NEOPRENE RUBBER GASKETS (CHLOROPRENE RUBBER)
- RED RUBBER GASKETS
- BUNA-N GASKETS (NITRILE NBR RUBBER)
- EPDM GASKETS
- VITON GASKETS
- INSULATION KIT-NEOPRENE FACED PHENOLIC POLYETHYLENE
- INSULATION KIT-NEOPRENE FACED PHENOLIC MYLAR
- INSULATION KIT-NEOPRENE FACED PHENOLIC – PHENOLIC SLEEVES
- INSULATION KIT-NEMA G-10 (EPOXY GLASS)
- INSULATION KIT-NEOPRENE FACED PHENOLIC WITH 1PC SLEEVE
- LINK-SEAL
- CASING SPACERS
- CASING END SEALS
HEX BOLT A307 A

Low carbon steel 60,000 PSI

Chemical Requirements

- Carbon max 0.29
- Manganese max 0.90
- Phosphorous max 0.04
- Sulfur max 0.15

Mechanical Requirements

- Hardness Brinel Min 121 Max 241
- Hardness Rockwell Min 69 Max 100
- Tensile strength (KSI) Min 60 Max ---
- Elongation Min 18 IN 2in (50mm)

☐ Black Plain ☐ Zinc Plated ☐ Hot Dip Galv ☐ Tripac 2000 Blue

ASTM B633
ASTM A153

Dimensional Data


- Unless otherwise specified. Hex nuts ASTM A563 ASME B18.2.2

- The above information is the abstract of ASTM A307 Grade A

HEAVY HEX BOLT GRADE B

Low carbon steel 60,000 PSI

Chemical Requirements

• Carbon max          0.29
• Manganese max       0.90
• Phosphorous max     0.04
• Sulfur max          0.05

Mechanical Requirements

• Hardness Brinell    Min 121 Max 212
• Hardness Rockwell   Min 69 Max 95
• Tensile strength (KSI) Min 60 Max 100
• Elongation          Min 18 IN 2in (50mm)

☐ Heavy Hex Nuts ASTM A563 (ASME B18.2.2) ☐ Washers ASTM F844-90

☐ Black Plain ☐ Zinc Plated ☐ Hot Dip Galv ☐ Tripac 2000 Blue

☐ Buried ☐ Submerged ☐ Hot Dip Galv ☐ Above Ground

Dimensional Data

• Unless otherwise specified, threads shall be the coarse thread series as specified in the latest issue on ANSI/ASME B1.1, page A-26.

• Having a class 2A tolerance.

• Grade B bolts shall have heavy hex bolt dimensions as given in the latest of ANSI/ASME B 18.2.1 page C1.

• Unless otherwise specified Grade B bolts should be used with heavy hex nuts.

• Additional information can be found in ASTM A307 DTD 2001, ASTM A563, and DTD 2001.
GRADS 2, 5 & 8
Carbon Steel Grades 1 through 8

Chemical Requirements

<table>
<thead>
<tr>
<th>Grade 2</th>
<th>Grade 5</th>
<th>Grade 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon</td>
<td>Min --- Max 0.55</td>
<td>Min 0.28 Max 0.55</td>
</tr>
<tr>
<td>Phosphorous</td>
<td>Min --- Max 0.05</td>
<td>Min --- Max 0.05</td>
</tr>
<tr>
<td>Sulfur</td>
<td>Min --- Max 0.06</td>
<td>Min --- Max 0.05</td>
</tr>
</tbody>
</table>

Mechanical Requirements

<table>
<thead>
<tr>
<th>Grade 2</th>
<th>Grade 5</th>
<th>Grade 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardness Rockwell</td>
<td>Min B70 Max B100</td>
<td>Min C19 Max C34</td>
</tr>
<tr>
<td>Tensile strength (KSI)</td>
<td>Min 60 Max 74</td>
<td>Min 105 Max 120</td>
</tr>
<tr>
<td>Proof Load (KSI)</td>
<td>Min 33 Max 55</td>
<td>Min 74 Max 85</td>
</tr>
<tr>
<td>Elongation</td>
<td>18</td>
<td>14</td>
</tr>
</tbody>
</table>

Hex Nuts Grade 2 ASTM A563  Hex Nuts Grade 5 ASTM A563  Hex Nuts Grade 8 ASTM A563
Black Plain  Zinc Plated  Hot Dip Galv  Tripac 2000 Blue
Buried  Submerged  Above Grade  Below Grade  Other

Dimensional Data

- Unless otherwise specified, threads shall be the coarse thread series as specified in the latest issue of ANSI/ASME B1.1, page A-26.
- Having a class 2A tolerance.
- Bolts shall be hex bolts with dimensions as given in the latest issue of ANSI/ASME B 18.2.1, page C-1.
- Additional information can be found in SAE J429 and ASTM A563.
STRUCTURAL BOLT A325

Type 1, Medium Carbon Steel

Chemical Requirements

- Carbon min 0.30
- Manganese min 0.60
- Phosphorous max 0.040
- Sulfur max 0.050
- Silicon min 0.15

Mechanical Requirements

- Hardness Brinel Min 223 Max 286
- Hardness Rockwell Min 19 Max 30
- Tensile strength (KSI) Min 105 Max ---
- Elongation Min 14 IN 2in (50mm)

Hex Nuts ASTM A194/A194M (ASME B18.2.2) Washers F436 Hardened Steel

Black Plain Zinc Plated Hot Dip Galv Tripac 2000 Blue

Buried Submerged Hot Dip Galv Below Grade Buried

Dimensional Data

- Bolts with hex heads shall be full body bolts conforming to the dimensions for the heavy hex structural bolts specified in ANSI/ASME B18.2.1.

- Threads shall be unified coarse thread series as specified in ANSI/ASME B1.1

<table>
<thead>
<tr>
<th>Bolt Diameter</th>
<th>Thread Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/8” - 11</td>
<td>1-1/4”</td>
</tr>
<tr>
<td>3/4” – 10</td>
<td>1-3/8”</td>
</tr>
<tr>
<td>7/8” – 9</td>
<td>1-1/2”</td>
</tr>
<tr>
<td>1” – 8</td>
<td>1-3/4”</td>
</tr>
</tbody>
</table>

- Additional information can be found in ASTM A325, DTD 2001 and IFI “Commentary on High Strength Structural Bolting”
HYDRANT BREAK – OFF BOLTS

Low carbon steel bolts modified to reduce the bolts strength allowing “shearing” at the flanged joint upon impact

Chemical Requirements

- Phosphorous max 0.06
- Sulfur max 0.15

Mechanical Requirements

(Before Drilling)

- Hardness Brinel Min 121 Max 241
- Hardness Rockwell Min 69 Max 100
- Tensile strength (KSI) Min 60 Max ---
- Elongation Min 18 IN 2in (50mm)

☐ Hex Nuts ASTM A563 (ASME B18.2.2) ☐ Washers ASTM F844-90
☐ Black Plain ☐ Zinc Plated ☐ Hot Dip Galv ☐ Tripac 2000 Blue
☐ Buried ☐ Submerged ☐ Above Grade ☐ Below Grade ☐ Other

Dimensional Data

- Unless otherwise specified, threads shall be the coarse thread series as specified in the latest issue of ANSI/ASME B1.1, page A-26.

- Having a class 2A tolerance.

- Grade A bolts shall be hex bolts with dimensions as given in the latest issue of ANSI/ASME B18.2.1, page C-1.

- Bolts may be filled with silicone upon request.

- Break-Off bolts have a hole drilled in the shank with dimensions of 11/32 inch (for 5/8” bolts) and 13/32 for (3/4” bolts) and 2 3/8 inch deep.

GRADE B7

Chemical Requirements

<table>
<thead>
<tr>
<th>Element</th>
<th>Range</th>
<th>Variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon</td>
<td>0.37-0.49</td>
<td>0.02</td>
</tr>
<tr>
<td>Manganese</td>
<td>0.65-1.10</td>
<td>0.04</td>
</tr>
<tr>
<td>Phosphorous max</td>
<td>0.035</td>
<td>0.005 over</td>
</tr>
<tr>
<td>Sulfur max</td>
<td>0.040</td>
<td>0.005 over</td>
</tr>
<tr>
<td>Silicon</td>
<td>0.15-0.35</td>
<td>0.02 over</td>
</tr>
<tr>
<td>Chromium</td>
<td>0.75-1.20</td>
<td>0.05</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>0.15-0.25</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Mechanical Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile strength (KSI)</td>
<td>125</td>
</tr>
<tr>
<td>Elongation (%)</td>
<td>16</td>
</tr>
<tr>
<td>Yield Strength (KSI)</td>
<td>105</td>
</tr>
<tr>
<td>Reduction of Area (%)</td>
<td>50</td>
</tr>
</tbody>
</table>

Heavy Hex Nuts Grade 2H ASTM A194

Washers ASTM F436 Hardened Steel

Black Plain

Zinc Plated

Hot Dip Galv

Buried

Submerged

Above Grade

Below Grade

Other

Dimensional Data

- All bolts and nuts should be heavy pattern and threaded in accordance with ANSI/ASME B1.1, page A-26, class 2A fit, sizes 1 inch and smaller in diameter with the coarse-thread series, and 1 1/8 inch and larger in diameter with 8-pitch thread series bolt heads shall be in accordance with the dimensions of ANSI/ASME B 18.2.1, page C-1.

- Additional information can be found in ASTM 193/A1293M, DTD 1998 (Alloy Steel and Stainless Bolting Materials for High Temperature Services) and in ASTM A194/A194M, DTD 1998 (Carbon and Alloy Steel Nuts for Bolts for High-Temperature Services).
HYDRANT BREAK – OFF BOLTS SILICONE FILLED

Abstract of ASTM A307 Grade A 100% Silicone Filled

Low carbon steel bolts modified to reduce the bolts strength allowing “shearing” at the flanged joint upon impact

Chemical Requirements

- Phosphorous max 0.06
- Sulfur max 0.15

Mechanical Requirements

(Before Drilling)

- Hardness Brinell Min 121 Max 241
- Hardness Rockwell Min 69 Max 100
- Tensile strength (KSI) Min 60 Max ---
- Elongation Min 18 IN 2in (50mm)

- Hex Nuts ASTM A563 (ASME B18.2.2)
- Washers ASTM F844-90
- Black Plain
- Zinc Plated
- Hot Dip Galv
- Tripac 2000 Blue
- Buried
- Submerged
- Above Grade
- Below Grade
- Other

Dimensional Data

- Unless otherwise specified, threads shall be the coarse thread series as specified in the latest issue of ANSI/ASME B1.1, page A-26.
- Having a class 2A tolerance.
- Grade A bolts shall be hex bolts with dimensions as given in the latest issue of ANSI/ASME B18.2.1, page C-1.
- Break-Off bolts have a hole drilled in the shank with dimensions of 11/32 inch (for 5/8” bolts) and 13/32 for (3/4” bolts) and 2 3/8 inch deep, filled with 100% silicone that meets or exceeds the requirements of ASTM C920.
HYDRANT BREAK-OFF T-316

18 Chromium, 10 Nickel, 2 Molybdenum (AISI T-316)

Chemical Requirements

- Carbon max 0.080
- Manganese max 2.00
- Phosphorous max 0.045
- Sulfur max 0.030
- Silicon max 1.00
- Chromium 16-18
- Nickel 10-14

Mechanical Requirements (Before Drilling)

- Hardness Rockwell Min B80-C32
- Tensile strength (KSI) Min 85
- Yield strength (KSI) Min 45
- Elongation 25

- Hex Nuts ASTM F594 (ASME B18.2.2)  Heavy Hex Nuts ASTM F594 (ASME B18.2.2)
- T-316 Stainless Steel Washers

- Buried  Submerged  Above Grade  Below Grade  Other

Dimensional Data

- Unless otherwise specified in the purchase order, shall be threaded in accordance with ANSI/ASME B18.2.1, page C-1, for hex cap screws (finished hex bolts).
- Additional information can be found in ASTM F593, DTD 1998 (Stainless Steel Bolts, Hex Cap Screws) and in ASTM F594, DTD 1998 (Stainless Steel Nuts).
- Break-Off Bolts have a hole drilled in the shank with the dimensions of 11/32 inch (for 5/8” bolts) and 13/32 inch (for 3/4” bolts) and 2 3/8 inches deep.
HYDRANT BREAK – OFF STUDS

Abstract of ASTM A307 A & B, ASTM A36

Low carbon steel studs modified to reduce the studs strength allowing “shearing” at the flanged joint upon impact

Chemical Requirements

- Phosphorous max 0.06
- Sulfur max 0.15

Mechanical Requirements

(Before Drilling)

- Hardness Brinell Min 121 Max 241
- Hardness Rockwell Min 69 Max 100
- Tensile strength (KSI) Min 60 Max ---
- Elongation Min 18 IN 2in (50mm)

Hex Nuts ASTM A563 (ASME B18.2.2) Washers ASTM F844-90

Black Plain Zinc Plated Hot Dip Galv Tripac 2000 Blue

Buried Submerged Above Grade Below Grade Other

Dimensional Data

- Unless otherwise specified, threads shall be the coarse thread series as specified in the latest issue of ANSI/ASME B1.1, page A-26.
- Having a class 2A tolerance.
- Break-Off studs have a machined groove in the middle with the dimensions of 3/16” wide x 5/16” deep
COR-TEN STEEL T-BOLTS

Chemical Requirements

- Carbon min 0.12
- Manganese min 0.20-0.50
- Phosphorous max 0.07-0.15
- Sulfur max 0.25
- Silicon min 0.25-0.75
- Chromium 0.50-1.25
- Nickel max 0.65
- Copper 0.25-0.55

Mechanical Requirements

- Yield Strength (KSI) Min 50
- Tensile strength (KSI) Min 70
- Elongation Min 22

- Heavy Hex Nuts Cor-Ten Steel
- F436/A325 Steel Washers
- Buried
- Submerged
- Above Grade
- Below Grade
- Other

Dimensional Data

- Unless otherwise specified, all T-Bolts and nuts shall be threaded in accordance with ANSI/ASME B1.1, page A-26, class 2A fit with coarse thread.
- Heavy Hex Nuts shall be used
- Bolt head shall be in accordance with the dimensions of ANSI/AWWA C111/A21.1195.
HEAVY HEX BOLT GRADE B8 T-304
Unstabilized 18 Chromium 8 Nickel (AISI Type 304) Carbide Solution Treated

Chemical Requirements
- Carbon max 0.08 0.01 over
- Manganese max 2.00 0.04 over
- Phosphorous max 0.045 0.010 over
- Sulfur max 0.030 0.005 over
- Silicon max 1.00 0.05 over
- Chromium 18-20 0.20
- Nickel 8.00-10.5 0.15

Mechanical Requirements
- Hardness Brinell Min 223
- Hardness Rockwell Min 96
- Tensile strength (KSI) Min 75
- Yield Strength (KSI) Min 30
- Reduction of Area (%) 50
- Elongation (%) 30

Dimensional Data
- All bolts and nuts should be heavy pattern.
- Unless otherwise specified in the purchase order, shall be threaded in accordance with ANSI/ASME B1.1, page A-26, class 2A fit.
- Bolt Heads shall be in accordance with the dimensions of ANSI/ASME B18.2.1, page C-1.
- Additional information can be found in ASTM 193/A193M, DTD 1998 (Alloy Steel and Stainless steel Bolting Materials for High Temperature Services) and in ASTM A194/A194M, DTD 1998 (Carbon and Alloy Steel Nuts for Bolts for High-Temperature Services).
HEAVY HEX BOLT GRADE B8M T-316
18 Chromium, 10 Nickel, 2 Molybdenum (AISI Type 316) Carbide Solution Treated

Chemical Requirements

<table>
<thead>
<tr>
<th>Element</th>
<th>Range</th>
<th>Variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon max</td>
<td>0.08</td>
<td>0.01 over</td>
</tr>
<tr>
<td>Manganese max</td>
<td>2.00</td>
<td>0.04 over</td>
</tr>
<tr>
<td>Phosphorous max</td>
<td>0.045</td>
<td>0.010 over</td>
</tr>
<tr>
<td>Sulfur max</td>
<td>0.030</td>
<td>0.005 over</td>
</tr>
<tr>
<td>Silicon max</td>
<td>1.00</td>
<td>0.05 over</td>
</tr>
<tr>
<td>Chromium</td>
<td>16-18</td>
<td>0.20</td>
</tr>
<tr>
<td>Nickel</td>
<td>10-14</td>
<td>0.15</td>
</tr>
<tr>
<td>Molybdenium</td>
<td>2-3</td>
<td>0.10</td>
</tr>
</tbody>
</table>

Mechanical Requirements

- Hardness Brinell Min 223
- Hardness Rockwell Min 96
- Tensile strength (KSI) Min 75
- Yield Strength (KSI) Min 30
- Reduction of Area (%) 50
- Elongation (%) 30

Dimensional Data

- All bolts and nuts should be heavy pattern.
- Unless otherwise specified in the purchase order, shall be threaded in accordance with ANSI/ASME B1.1, page A-26, class 2A fit.
- Bolt Heads shall be in accordance with the dimensions of ANSI/ASME B18.2.1, page C-1.
- Additional information can be found in ASTM 193/A193M, DTD 1998 (Alloy Steel and Stainless steel Bolting Materials for High Temperature Services) and in ASTM A194/A194M, DTD 1998 (Carbon and Alloy Steel Nuts for Bolts for High-Temperature Services).
HEAVY HEX BOLT GRADE B8M T-316 CLASS 2
18 Chromium, 10 Nickel, 2 Molybdenum (AISI Type 316) Carbide Solution Treated

Chemical Requirements

- Carbon max 0.08 0.01 over
- Manganese max 2.00 0.04 over
- Phosphorous max 0.045 0.010 over
- Sulfur max 0.030 0.005 over
- Silicon max 1.00 0.05 over
- Chromium 16-18 0.20
- Nickel 10-14 0.15
- Molybdenium 2-3 0.10

Mechanical Requirements

- Hardness Brinell Min 321
- Hardness Rockwell Min 35
- Tensile strength (KSI) over ¾” to 1” Min 100
- Tensile strength (KSI) over 1” to 1 ¼” Min 95
- Tensile strength (KSI) over 1 ¼” to 1 ½” Min 90
- Yield Strength (KSI) Min 96
- Reduction of Area (%) 45
- Elongation (%) 15

Hex Nuts ASTM A194 8M T-316 Stainless Steel Washers

Buried Submerged Above Grade Below Grade Other

Dimensional Data

- All bolts and nuts should be heavy pattern.
- Unless otherwise specified in the purchase order, shall be threaded in accordance with ANSI/ASME B1.1, page A-26, class 2A fit.
- Bolt Heads shall be in accordance with the dimensions of ANSI/ASME B18.2.1, page C-1.
- Additional information can be found in ASTM 193/A193M, DTD 1998 (Alloy Steel and Stainless Steel Bolting Materials for High Temperature Services) and in ASTM A194/A194M, DTD 1998 (Carbon and Alloy Steel Nuts for Bolts for High-Temperature Services).
HEX BOLT T-304

Unstabilized 18 Chromium 8 Nickel (AISI Type 304)

Chemical Requirements

- Carbon max 0.080
- Manganese max 2.00
- Phosphorous max 0.045
- Sulfur max 0.030
- Silicon max 1.00
- Chromium 18-20
- Nickel 8-10.5
- Copper 1.00

Mechanical Requirements

- Hardness Rockwell Min B80-C32
- Tensile strength (KSI) Min 85
- Yield Strength (KSI) Min 45
- Elongation 25

Hex Nuts ASTM F594 (ASME B18.2.2) Heavy Hex Nuts ASTM F594 (ASME B18.2.2)

T-304 Stainless Steel Washers

Buried Submerged Above Grade Below Grade Other

Dimensional Data

- Unless otherwise specified in the purchase order, shall be threaded in accordance with ANSI/ASME B18.2.1, page C-1, for hex cap screws (finished hex bolts).

- Additional information can be found in ASTM F593, DTD 1998 (Stainless Steel Bolts, Hex Cap Screws) and in ASTM F594, DTD 1998 (Stainless Steel Nuts).
HEX BOLT T-316 – ASTM F593

18 Chromium, 10 Nickel, 2 Molybdenum (AISI T-316)

Chemical Requirements

- Carbon max 0.080
- Manganese max 2.00
- Phosphorous max 0.045
- Sulfur max 0.030
- Silicon max 1.00
- Chromium 16-18
- Nickel 10-14
- Molybdenum 2-3

Mechanical Requirements

- Hardness Rockwell
  - Cold Worked Min B80-C32
  - Hot Forged B65-B95
- Tensile strength (KSI)
  - Cold Worked
    - (1/4” to 5/8” DIA) Min 100 Max 150
    - (3/4” to 1 1/2” DIA) Min 85 Max 140
  - Hot Forged
    - (1/4” to 1 1/2” DIA) Min 75 Max 100
- Yield Strength (KSI) Min 45 - 65
- Elongation 25

Hex Nuts ASTM F594 (ASME B18.2.2) □ Heavy Hex Nuts ASTM F594 (ASME B18.2.2)

T-316 Stainless Steel Washers

Buried □ Submerged □ Above Grade □ Below Grade □ Other

Dimensional Data

- Unless otherwise specified in the purchase order, shall be threaded in accordance with ANSI/ASME B18.2.1, page C-1, for hex cap screws (finished hex bolts).
- Additional information can be found in ASTM F593, DTD 1998 (Stainless Steel Bolts, Hex Cap Screws) and in ASTM F594, DTD 1998 (Stainless Steel Nuts).
T-316 HEX BOLT ASTM F593/594 with T-2000 BLUE NUTS

18 Chromium, 10 Nickel, 2 Molybdenum (AISI T-316)

Chemical Requirements

- Carbon max 0.080
- Manganese max 2.00
- Phosphorous max 0.045
- Sulfur max 0.030
- Silicon max 1.00
- Chromium 16-18
- Nickel 10-14
- Molybdenum 2-3

Mechanical Requirements

- Hardness Rockwell Cold Worked Hot Forged
  - Min B80-C32 B65-B95
- Tensile strength (KSI) Cold Worked Hot Forged
  - Min 100 Max 150
  - (1/4” to 5/8” DIA) Min 85 Max 140
  - (3/4” to 1 1/2” DIA)
  - Tensile strength (KSI) Cold Worked Hot Forged
  - Min 75 Max 100
  - (1/4” to 1 1/2” DIA)
- Yield Strength (KSI) Cold Worked Hot Forged
  - Min 45
  - Min 30
- Elongation Cold Worked Hot Forged
  - 25
  - 30

Hex Nuts ASTM F594 T-316 with T-2000 Blue

T-316 Stainless Steel Washers

Buried Submerged Above Grade Below Grade Other

Dimensional Data

- Unless otherwise specified in the purchase order, shall be threaded in accordance with ANSI/ASME B18.2.1, page C-1, for hex cap screws (finished hex bolts).
- Additional information can be found in ASTM F593, DTD 1998 (Stainless Steel Bolts, Hex Cap Screws) and in ASTM F594, DTD 1998 (Stainless Steel Nuts).
SILICON BRONZE

UNS Alloy Number C65100, Alloy 651, Low Silicon Bronze B

Chemical Requirements

- Copper min 96.0
- Iron max 0.80
- Manganese max 0.70
- Silicon 0.80-2.0
- Zinc max 1.5
- Lead max 0.05

Mechanical Requirements

<table>
<thead>
<tr>
<th>Hardness Brinell</th>
<th>Tensile Strength (KSI)</th>
<th>Yield Strength (KSI)</th>
<th>Elongation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4” to 3/4”</td>
<td>MIN 75 MAX 95</td>
<td>MIN 70 MAX 100</td>
<td>MIN 55</td>
</tr>
<tr>
<td>7/8” to 1 1/2”</td>
<td>70 95</td>
<td>55 90</td>
<td>40</td>
</tr>
</tbody>
</table>

☐ Hex Nuts ASTM F468   ☐ Washers Silicon Bronze

☐ Buried  ☐ Submerged   ☐ Above Grade  ☐ Below Grade  ☐ Other

Dimensional Data

- All bolts and nuts should be hex pattern. Unless otherwise specified in the purchase order shall be threaded in accordance with ANSI/AME B1.1, page A-26, class 2A fit. Bolt heads shall be in accordance with the dimensions of ANSI/ASME B 18.2.1, page C1.

- Additional information can be found in ASTM F467/468, “Nonferrous Bolts and Hex Cap Screws for General Use” and Nonferrous Nuts for General Use”.

TRIPAC

475 Klug Circle-Corona, CA. 92880 (951) 280-4488 - Fax: (951) 272-4445
TRIPAC 2000 BLUE COAT SYSTEM

General Description: Tripac 2000 Blue is a comprehensive coating system for the protection of steel bolts, studs, nuts, washers and other fasteners. This unique system includes step-by-step procedures necessary to insure that the coating meets the abrasion resistance, corrosion and chemical protection desired. This comprehensive coating system also significantly improves corrosion protection even when the surface (blue) coating is damaged in field applications. This system provides excellent lubrication therefore eliminating the need to use anti-seize.

Coating Procedures:

1. Surface Preparation:
   A. All Surfaces Chemically Cleaned
   B. Abrasive Blasting with Alum. Oxide (120 Grit)
   C. Zinc/Nickel Primer Process Applied
   D. Baked

2. Coating:
   A. Multiple Coats of Fluoropolymer Coating Applied (1 mil) 1014/1424
   B. Air Dry For Minimum of 30 minutes
   C. Baked at 425 Degrees for 1 hour

3. Quality control checked for uniform application and thickness. Appearance shall be free from any cracks, pinhole, runs, sags. Foreign matter, grit, rough particles or other surface imperfections.

Coating Properties: Tripac 2000 Blue differs from traditional Fluoropolymer coatings in one very important aspect – it is a composite material. Lubricants with the lowest known coefficient of friction are combined in a matrix with high temperature organic polymers. United, these polymers form “Plastic Alloys” Having unique and desirable properties:

1. Low friction; as low as 0.02
2. Wear resistance; even under extreme pressure
3. Corrosion and chemical resistance in most environments
4. Weather resistance against sunlight
5. Excellent lubrication to eliminate use of anti-seize

Other: 1000 Hours salt spray test (ASTM-B-117) Performed on bolts that have been torqued indicate that in some instances, some of the coating is removed from either the bolt head (by the wrench) or from the threads (by the nut). Even with this damage, the bolt shows minimum rusting and the nut is easily removed. Bolts protected by zinc plating and by hot dipped galvanizing show significant rusting and the nuts cannot be removed under the similar testing. Bolts used in this same testing are available for examination. Further information on physical and chemical properties is available upon request.

Typical Specification: “Except where otherwise shown or specified, all bolts and cap screws, shall be carbon steel conforming to the requirements of ASTM A307 Grade A. The corresponding nuts shall conform to ASTM A563 Grade A. All bolts and nuts shall be coated with Tripac 2000 Blue Coating system, or district approved equal”
A307 / A36 ANCHOR BOLTS, STUDS & U-BOLTS

Low carbon steel 60,000 PSI

Chemical Requirements

- Carbon max 0.29
- Manganese max 0.90
- Phosphorous max 0.04
- Sulfur max 0.15

Mechanical Requirements

<table>
<thead>
<tr>
<th>Anchor Bolts &amp; U-Bolts</th>
<th>Studs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardness Brinel</td>
<td>Min 121 Max 241</td>
</tr>
<tr>
<td>Hardness Rockwell</td>
<td>Min 69 Max 100</td>
</tr>
<tr>
<td>Tensile strength (KSI)</td>
<td>Min 58 Max 80</td>
</tr>
<tr>
<td>Elongation IN 2in (50mm)</td>
<td>Min 23</td>
</tr>
</tbody>
</table>

- Hex Nuts ASTM A563 (ASME B18.2.2)  Heavy Hex Nuts ASTM A563 (ASME B18.2.2)
- Washers ASTM F844-90
- Black Plain  Zinc Plated  Hot Dip Galv  Tripac 2000 Blue

Dimensional Data

- Nonheaded Anchor bolts, either bent, straight or u-shaped having properties conforming to specification A307 studs and intended for structural anchoring purposes.
- Unless otherwise specified, threads shall be the coarse thread series, as specified in the latest issue of ANSI/ASME B1.1, page A-26. Having a class 2A tolerance.
ANCHOR BOLTS, STUDS & U-BOLTS T-316 & B8M

18 Chromium, 10 Nickel, 2 Molybdenum (ASI T-316)

Chemical Requirements
Are By the “Heat Analysis” Method

- Carbon max 0.08
- Manganese max 2.00
- Phosphorous max 0.045
- Sulfur max 0.030
- Silicon max 1.00
- Chromium 16-18
- Nickel 10-14
- Molybdenum 2-3

Mechanical Requirements

- Hardness Rockwell Min B80-C32
- Tensile strength (KSI) Min 85
- Yield Strength (KSI) Min 45
- Elongation 25

- Hex Nuts ASTM F594 (ASME B18.2.2)
- Heavy Hex Nuts ASTM A194 BM (ASME B18.2.2)
- T-316 Stainless Steel Washers

Dimensional Data

- Nonheaded Anchor bolts, either bent or straight, having properties conforming to specification F593 (T-316) studs and intended for structural anchorage purposes.

- Unless otherwise specified, threads shall be the coarse thread series, as specified in the latest issue of ANSI/ASME B1.1, page A-26.

- Having a class 2A tolerance.
**“ULTRAWEDGE” WEDGE ANCHOR**

U.L. Listed, ICBO, Meets GSA Specs, FF-S-325 Ground II, Type 4, Class 1, Dot, City of Los Angeles RR 25353

### Ultimate Load Values

<table>
<thead>
<tr>
<th>Anchor &amp; Hole Size</th>
<th>Embed. Depth inches</th>
<th>2000 PSI Tension</th>
<th>2000 PSI Shear</th>
<th>4000 PSI Tension</th>
<th>4000 PSI Shear</th>
<th>6000 PSI Tension</th>
<th>6000 PSI Shear</th>
<th>Torque FT/LB</th>
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<td>1/4&quot;</td>
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<td>1170</td>
<td>1443</td>
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<td>1/4&quot;</td>
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<td>1975</td>
<td>1443</td>
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<td>25-30</td>
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<tr>
<td>1/2&quot;</td>
<td>2-1/4&quot;</td>
<td>3999</td>
<td>7419</td>
<td>6714</td>
<td>9377</td>
<td>9616</td>
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<td>8264</td>
<td>8747</td>
<td>12928</td>
<td>9760</td>
<td>16373</td>
<td>75-90</td>
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<td>17732</td>
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<td>12504</td>
<td>11314</td>
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<td>12784</td>
<td>18250</td>
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<td>25575</td>
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<tr>
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<td>5-1/2&quot;</td>
<td>17550</td>
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<td>22971</td>
<td>42660</td>
<td>32368</td>
<td>55566</td>
<td>250-300</td>
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<tr>
<td>1&quot;</td>
<td>10&quot;</td>
<td>27893</td>
<td>32275</td>
<td>34788</td>
<td>42690</td>
<td>61272</td>
<td>55566</td>
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<tr>
<td>1-1/4&quot;</td>
<td>5-1/2&quot;</td>
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<td>61272</td>
<td>55566</td>
<td>400-450</td>
</tr>
</tbody>
</table>

**Note:** Information provided only for the use of a qualified design engineer. Use of Technical data by persons not qualified could cause serious damage, injury, or even death.

Ultimate Values Shown. For Static Loads, use one-fourth of the maximum tensile and shear capacities for the recommended 4:1(25%) safety factor.

Tested to ASTM E488-90 Test Standard

More Info can be found at [www.usanchor.com](http://www.usanchor.com)

☐ T-304  ☐ T-316  ☐ Zinc Plated  ☐ Hot-Dip Galv

### General Description

- The wedge anchor is used for heavy duty fastening applications where high pullout values are required.

- The advanced design of the collar reduces the likelihood of the anchor “spinning”.

- The wedge anchor is ideally suited in a wide variety of application where machinery, handrails, structures, etc. are fastened to the concrete.
TRIPAC Style 2000
Manufacturer – Alpha & Associates

Gaskets meet the pressure ratings, drilling and dimensions of ANSI/ASME B16.2.1

Tripac 2000
Neoprene® Rubber Gasket, a tough CR compound (Black)

Media
- Hot water
- Cold water
- Air
- Saturated Steam
- Low Pressure Steam or Hydraulic services
- Moderate Resistance to Oil & Petroleum

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fabric Type</td>
<td>Cotton (Close Weave 30 oz)</td>
</tr>
<tr>
<td>Max. Temperature:</td>
<td>250 °F</td>
</tr>
<tr>
<td>Hardness Shore A</td>
<td>70 +/- 5</td>
</tr>
<tr>
<td>Tensile Strength ASTM F-152</td>
<td>1500 PSI</td>
</tr>
</tbody>
</table>

Conforms to AWWA C207 and is suitable for potable water

Availability
- Full Face
- Ring
- 1/8" Thick

Benefits
- Suited for all types of gauges, moderately resistant to oil and petroleum. Meters and valves where pressure areas are subject to movement.
- Premium gasket designed specifically for the water works industry. It has a waffle pattern finish which has been platen formed under pressure to prevent slippage and distortion during improved sealing capabilities without the common “weeping” associated with many cloth inserted rubber gaskets.
TRIPAC Style 5000
Manufacturer – Garlock Sealing Technologies®
Compressed Non-Asbestos Gasket

Garlock-Tripac 5000

Proprietary blend of synthetic fibers bound by Nitrile Rubber (NBR)

Media

- Water
- Aliphatic hydrocarbons
- Salt brine
- Sludge
- Low pressure steam
- Petroleum and mineral oils
- Animal fat
- Vegetable oil
- Most refrigerants

Specifications

Min. Temperature: -100 (° F)
Max. Temperature (Continuous): 400 (° F)
Max. Temperature: 700 (° F)
Max. Pressure: 1000 (PSI)
Maximum PxT 1/16: 350000 (° F x PSIG)
Maximum PxT 1/8: 250000 (° F x PSIG)
Tensile Strength ASTM F-152 1500 (PSI)
Compressibility ASTM F-36 7-17%
Recovery ASTM F-36 50%
Flexibility ASTM F-147 12X
Creep Relaxation ASTM F-38 25.0%

ASTM: F-712100A9B4E22K5M5

This is a general guide and should not be the sole means of selecting or rejecting this material. ASTM test results are in accordance with ASTM F104; properties based on 1/32” (0.8 mm) sheet thickness (except as noted).

\[^1\] PXT, max. = psig x °F (bar x °C)

Conforms to AWWA C207 and is suitable for potable water and waste water

Availability

- Full Face
- Ring
- 1/16” Thick
- 1/8” Thick

Cut gaskets meeting the pressure ratings, drilling and dimensions of ANSI/ASME B16.21

Benefits

- Best seal of any gasket in its class.
- Cover more applications with one type gasket.
- Consolidate your inventory, save money!
TEADIT Style NA 1001
Manufacturer – Teadit – North America, Inc.

Compressed Non-Asbestos Gasket

Style NA 1001
Compressed Sheet Packing Aramid Fibers/NBR Binder (Green or White)

Media

- Water
- Air
- Brine
- Sludge
- Waste Water
- Low pressure steam
- Organic and Weak inorganic acids
- Concentrated and diluted alkalis (PH range from 1 to 11)
- Chemicals
- Petroleum and petroleum derivatives
- Chlorinated solvents
- Refrigerants

Specifications

- Max. Temperature: 750 (° F)
- Max Operating Temperature: 460 (° F)
- Max. Pressure: (Vacuum) 1595 (PSI)
- Continuous Max (Vacuum) 725 (PSI)

ASTM: (F712120E22M5)

Availability

- □ Full Face
- □ Ring
- □ 1/16" Thick
- □ 1/8" Thick

Benefits

- Manufactured from a non-asbestos material formulated for services in most sealing applications as a universal replacement gasket.
- These gaskets have a non-stick coating.
CI RUBBER
Manufacturer – Buffalo™ Rubber Matting LLC

Gaskets meet the pressure ratings, drilling and dimensions of ANSI/ASME B16.2.1

Commercial Grade MOR Chloroprene CI

Cloth Insert 5 oz. Cotton

Media

- Air
- Hot and Cold water
- Saturated steam
- Low pressure steam or Hydraulic services

Specifications

Max. Temperature: 160°F
Hardness shore A 60
Tensile Strength ASTM F-152 800 (PSI)
Elongation 300%
Compression Set 60-80%
Surface Fabric Finish

Availability

☐ Full Face  ☐ Ring  ☐ 1/16" Thick  ☐ 1/8" Thick
NEOPRENE®
Manufacturer – Buffalo™ Rubber Matting LLC

Gaskets meet the pressure ratings, drilling and dimensions of ANSI/ASME B16.2.1

Commercial Grade MOR Chloroprene

Neoprene® Rubber Gasket, a tough CR compound (Black)

Media

- Hot water
- Cold water
- Wastewater

Specifications

Max. Temperature: 160°F
Elongation 300%
Durometer shore A 50-60
Tensile Strength ASTM F-152 800 (PSI)
Compression Test 60-80%
Surface Fabric Finish

Availability

- Full Face
- Ring
- 1/16" Thick
- 1/8" Thick
- 1/4" Thick

Benefits

Commercial Grade

- Neoprene sheet is specially compounded to provide moderate resistance to oils and gasoline in such applications as gaskets and flanges in gas permeable situations.

- Adaptable to extreme weather conditions since it resist rotting, checking and cracking due to ozone exposure.
SUBMITTAL-Commercial Grade

RED RUBBER Style AB-619
Manufacturer – American Biltrite

Gaskets meet the pressure ratings, drilling and dimensions of ANSI/ASME B16.2.1

Style AB-619
SBR (Red)

Media
- Cold and Hot Water
- Air
- Steam
- Some weak Acids

Specifications

Max. Temperature: 200 (° F)
Hardness Shore A 75
Tensile Strength ASTM D-412 600 (PSI)
Elongation 200 %

Availability
- Full Face
- Ring
- 1/16" Thick
- 1/8" Thick

Benefits
- An economical, non-oil resistant compound that resists flow under compression.
- Offers moderate to good performance against low pressure and good aging, abrasion and tear resistance.
- Easily conforms to uneven flange surfaces.
BUNA-N Style AB-364
Manufacturer – American Biltrite

Gaskets meet the pressure ratings, drilling and dimensions of ANSI/ASME B16.2.1 (Black)

Style AB-364

Nitrile (NBR) rubber gasket also known as BUNA-N

Media

- Water
- Oils
- Solvents
- Aromatic and Aliphatic hydro carbonates
- Gasoline
- Sludge

Specifications

Max. Temperature: 250 (° F)
Hardness Shore A 60
Tensile Strength ASTM D-412 1700 (PSI)
Elongation 400 %

Availability

☐ Full Face  ☐ Ring  ☐ 1/16" Thick  ☐ 1/8" Thick

Commercial Grade

- Little resistance to strong oxidant agents, chlorate hydro carbonates, ketones and esters.
EPDM Style AB-563
Manufacturer – American Biltrite

Gaskets meet the pressure ratings, drilling and dimensions of ANSI/ASME B16.2.1

Style AB-563
EPDM (Black)

Media
- Animal and Vegetable oils
- Water
- Steam
- Oxygenated solvents

Specifications
Max. Temperature: 225 (° F)
Hardness Shore A 60
Tensile Strength ASTM D-412 1000 (PSI)
Elongation 500 %

Availability
☐ Full Face ☐ Ring ☐ 1/16” Thick ☐ 1/8” Thick ☐ 1/4” Thick

Benefits
Commercial Grade
- Excellent for applications in which involve extreme temperature and or weather conditions. It’s used extensively in high temperature installations.
- Offers ozone and chemical resistance as well as resistance to high temperatures.
- Also provides excellent electrical and dynamic properties.
VITON®
Manufacturer – West American Rubber (WARCO)

Gaskets meet the pressure ratings, drillings and dimensions of ANSI/ASME B16.2.1
ASTM D-2000/D-2240

Viton

Fluoroelastomer (FPM) rubber gasket

Media

- Most Common Chemicals
- Methane
- Chlorine Diluted Water (3%)
- Chlorinated Salt Brine

Specifications

Max. Temperature: 350 (° F)
Hardness Shore A 70 ± 5
Tensile Strength ASTM F-152 1000 (PSI)

Availability

☐ Full Face ☐ Ring ☐ 1/16" Thick ☐ 1/8" Thick ☐ 1/4" Thick

- Not recommended for use of MEK, steam and methanol.
POLYETHYLENE SLEEVES
Manufacturer – Pipeline Seal and Insulator Inc.

Neoprene Faced Phenolic gasket

Materials for flange insulating kits on pipes containing water and natural gas (up to 221°F, 105°C) shall consist of the following components.

Media

- Water
- Oil
- Gas

Specifications

<table>
<thead>
<tr>
<th></th>
<th>Neoprene Faced Phenolic Gasket</th>
<th>Poly Sleeve Material Properties</th>
<th>Phenolic 1/8” Washer Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dioelectric Volts/Mil</td>
<td>500</td>
<td>400</td>
<td>550</td>
</tr>
<tr>
<td>ASTM D149</td>
<td></td>
<td></td>
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<tr>
<td>Compressive Strength (PSI)</td>
<td>25,000</td>
<td>-----</td>
<td>50,000</td>
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<tr>
<td>ASTM D 695</td>
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<tr>
<td>Water Absorbtion</td>
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<td>0.01</td>
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<td>ASTM D 229</td>
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<tr>
<td>Hardness Rockwell “M”</td>
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<td>Tensile (PSI)</td>
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<tr>
<td>ASTM D 732</td>
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<tr>
<td>Operating Temp (MAX)</td>
<td>175°F</td>
<td>180°F</td>
<td>300°F</td>
</tr>
</tbody>
</table>

Back up washers

- (2) Steel Plated
- (2) F436 Hardened Steel
- (2) T-316 Stainless Steel

Benefits

- Soft neoprene rubber sheets are factory applied to both sides of a laminated phenolic retainer providing an effective sealing surface.
- Made of 1/32” wall thickness poly tubing. One full-length poly sleeve (extending half way into both steel washers) for each flange bolt.
- The I.D. of all washers shall fit over the insulating sleeve and both the steel and insulating washer shall have a same I.D. and O.D.
SUBMITTAL

MYLAR SLEEVES
Manufacturer – Pipeline Seal and Insulator Inc.

Neoprene Faced Phenolic gasket

Materials for flange insulating kits on pipes containing water and natural gas (up to 221° F, 105° C) shall consist of the following components.

Media
- Water
- Oil
- Gas

Specifications

<table>
<thead>
<tr>
<th></th>
<th>Neoprene Faced Phenolic Gasket</th>
<th>Mylar Sleeve Material Properties</th>
<th>Phenolic 1/8” Washer Properties</th>
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<tbody>
<tr>
<td>Dioelectric Volts/Mil</td>
<td>500</td>
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<td>550</td>
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<tr>
<td>ASTM D149</td>
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<td>Water Absorbtion</td>
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<tr>
<td>ASTM D 732</td>
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<td></td>
<td></td>
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<tr>
<td>Operating Temp (MAX)</td>
<td>175° F</td>
<td>300° F</td>
<td>250° F</td>
</tr>
</tbody>
</table>

Back up washers
- (2) Steel Plated
- (2) F436 Hardened Steel
- (2) T-316 Stainless Steel

Benefits
- Soft neoprene rubber sheets are factory applied to both sides of a laminated phenolic retainer providing an effective sealing surface.
- Made of 1/32” wall thickness mylar tubing. One full length mylar sleeve (extending half way into both steel washers) for each flange bolt. 1/16” wall thickness mylar tubing available upon request.
- The I.D. of all washers shall fit over the insulating sleeve and both the steel and insulating washer shall have a same I.D. and O.D.
PHENOLIC SLEEVES
Manufacturer – Pipeline Seal and Insulator Inc.

Neoprene Faced Phenolic gasket

Materials for flange insulating kits on pipes containing water and natural gas (up to 221° F, 105° C) shall consist of the following components.

Media

- Water
- Oil
- Gas

Specifications

<table>
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<tr>
<th></th>
<th>Neoprene Faced Phenolic Gasket</th>
<th>Phenolic Sleeve Material Properties</th>
<th>Phenolic 1/8” Washer Properties</th>
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<tbody>
<tr>
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<td>550</td>
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<tr>
<td>Operating Temp (MAX)</td>
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<td>300° F</td>
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</table>

Back up washers

- (2) Steel Plated
- (2) F436 Hardened Steel
- (2) T-316 Stainless Steel

Benefits

- Soft neoprene rubber sheets are factory applied to both sides of a laminated phenolic retainer providing an effective sealing surface.
- Made of 1/32” wall thickness phenolic tubing. One full-length phenolic sleeve (extending half way into both steel washers) for each flange bolt.
- The I.D. of all washers shall fit over the insulating sleeve and both the steel and insulating washer shall have a same I.D. and O.D.
“LINEBACKER” G10 SLEEVES
Manufacturer – Pipeline Seal and Insulator Inc.

Nema G-10 (Epoxy Glass)

Materials for flange insulating kits on pipes containing water, natural gas, and oil (up to 250° F, 138° C) shall consist of the following components.

Media
- Water
- Oil
- Gas

Specifications

<table>
<thead>
<tr>
<th></th>
<th>G-10 Common Linebacker Gasket</th>
<th>G-10 Sleeve Material Properties</th>
<th>G-10 1/8” Washer Properties</th>
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<tr>
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</table>

Seal Element Temp. Limits Nitrile (BUNA-N) 250° F

Back up washers
- (2) Steel Plated
- (2) F436 Hardened Steel
- (2) T-316 Stainless Steel

Benefits
- One full faced insulating sealing gasket, linebacker type “E”, 1/8” thick, G-10 retainer containing a precision tapered groove to accommodate the controlled compression of a nitrile (Buna-n) and or (Viton) quad-ring sealing element.
- Made of 1/32” wall thickness G10 tubing. One full length G10 sleeve (extending half way into both steel washers) for each flange bolt.
- The I.D. of all washers shall fit over the insulating sleeve and both the steel and insulating washer shall have a same I.D. and O.D.
ONE PIECE SLEEVE AND WASHER
Manufacturer – Pipeline Seal and Insulator Inc.

Materials for flange insulating kits on pipes containing water, natural gas (up to 221° F, 105° C) shall consist of the following components.

Media
- Water
- Oil
- Gas

Specifications

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<thead>
<tr>
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<th>Neoprene Faced Phenolic Gasket</th>
<th>One Piece Sleeve and Washer</th>
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<td>180° F</td>
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</table>

Back up washers
- (2) Steel Plated
- (2) F436 Hardened Steel
- (2) T-316 Stainless Steel

Benefits
- Soft neoprene rubber sheets are factory applied to both sides of a laminated phenolic retainer providing an effective sealing surface.
- Molded from acetal resin and available for bolt diameters from ½” to 1 ½”, one piece sleeves and washers are structurally tough but limited to applications where the flange temperature does not exceed 180° F and compressive loads do not exceed 18,000 PSI. They are generally used as single washer sets because they’re molded to specific lengths and, in many instances, are longer than the thickness of a single flange.
- A washer-centering ring positions the steel washer on the unit properly to avoid uneven pressures on the washers.
CASING SPACERS
Manufactured by Pipeline Seal and Insulator, Inc.

☐ A8G-1  ☐ A8G-2  ☐ A12G-1  ☐ A12G-2  ☐ C8G-2  ☐ C12G-2  ☐ S8G-2  ☐ S12G-2

A = Painted Steel Casing Isolator
A" Series Spacer are painted with a rust inhibiting Paint
C=Coated Steel Casing Isolator
“C” Series are coated 10 to 16 mil. Fusion
S = Stainless Casing Isolator
8 = 8” Wide Steel Band
12 = 12” Wide Steel Band
1 = 1” Wide Runners
2 = 2” Wide Runners

Liner
• Material Polyvinyl Chloride
• Thickness min 0.090
• Hardness Durometer “A” 85-90
• Dielectric Strength 1/8” Surge Test 60,000 V min
• Dielectric Strength Step by Step Test 58,000 V min
• Water Absorption 1% Max

Runner Specifications
• Tensile Strength KG/CM² 17,600 PSI
• Flexural Strength KG/CM² 25,300 PSI
• Compression Strength 18,000 PSI
• Deflection Temp @ 264 PSI 405 °F

Option Fusion Bonded PVC Coating
Durometer Operating Temp Aging Electrical Resistance Resistance Resistance Shore A2 Max Properties Properties Salt Spray Acids Alkalis
80 150°F Excellent 1,380 V/mil Excellent Good Good

Dimensional Data
• General Description “A” & “C” Series: 14 Gauge hot rolled and pickled mild steel. Flanges of the spacer are deep embossed and the corners are chamfered. The “And Coated and painted risers are made out of 10 gauge steel and mig welded to band. “S” Series: 14 Gauge 304 stainless steel, Flanges of the spacer are deep embossed and the corners are chamfered. Stainless Steel riser are made out of 10 gauge 304 stainless steel and mig welded to band

• Hardware: Studs 5/16”-18x 2 1/2”, Hex nuts 5/16”-18, Washers 5/16” SAE 2330. Supplied in steel plated and 304 stainless steel
CASING END SEALS

Manufactured by Pipeline Seal and Insulator, Inc.

☐ Model C  ☐ Model W  ☐ Model S

**Model “C” Custom Pull-on**
Individually designed to accommodate custom carrier/casing combinations. Made of 1/8” thick, specially compounded synthetic rubber for long life and easy installation.

**Model “W” Wrap Around**
Specifically designed for existing installations. Simply remove plastic backing from self-curing rubber and press exposed surfaces together. Available for all carrier/casing differentials.

**Model “S” Standard Pull-on**
Made of special synthetic rubber for long life and easy installation, the highly flexible “S”-shaped seal is available for ANSI steel pipe specifications. Band locating ribs are on the outside, with special sealing ribs on the inside under the band to prevent leakage.