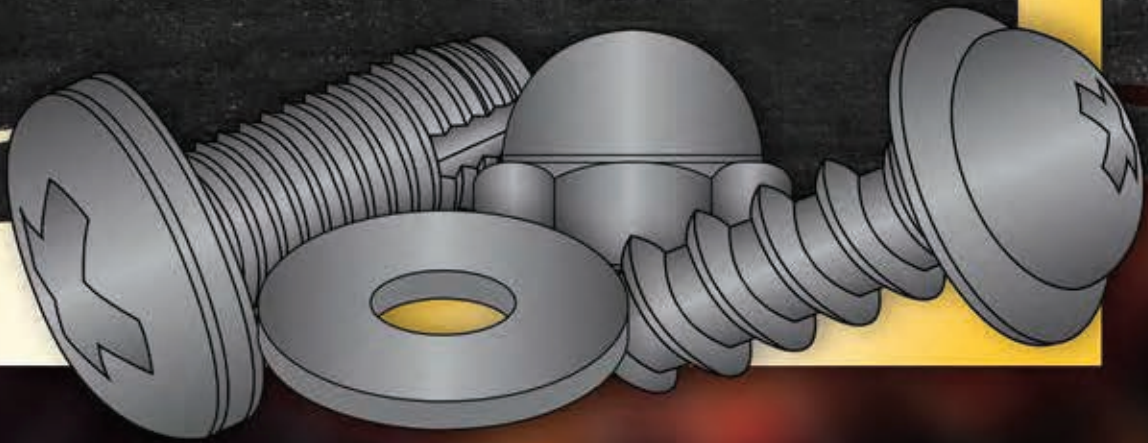


BLACK OXIDE & BLACK ZINC

— FASTENERS —



— INCLUDING —

STEEL & STAINLESS
INCH & METRIC



MACHINE SCREWS (STAINLESS)

- Phillips Flat 100°
- Phillips Flat 82°
- Phillips Flat Undercut
- Phillips Pan
- Phillips Truss
- Six-Lobe Pan

MACHINE SCREWS & SEMS (STEEL)

- Combination Pan
- Phillips Flat 100°
- Phillips Flat 82°
- Phillips Flat Undercut
- Phillips Fillister
- Phillips Hex Washer
- Phillips Oval
- Phillips Pan
- Phillips Round
- Phillips Truss
- Slotted Binding
- Slotted Fillister
- Slotted Hex
- Unslotted Hex
- Slotted Hex Washer
- Unslotted Hex Washer
- Slotted Oval
- Slotted Pan
- Slotted Round
- Slotted Truss
- Six-Lobe Flat
- Six-Lobe Flat Undercut
- Six-Lobe Pan
- Phillips Pan
 - External Tooth SEMS
 - Internal Tooth SEMS

TAPPING SCREWS—TYPE-A & AB (18-8 SS)

- Phillips Flat Type-A
- Phillips Pan Type-A
- Phillips Pan Type-AB
- Unslotted Hex Washer Type-AB
- Six-Lobe Pan

TAPPING SCREWS—TYPES A & AB (STEEL)

- Phillips Flat Type-A
- Phillips Flat Undercut Type-A
- Phillips Flat Type-AB
- Phillips Flat Undercut Type-AB
- Phillips Pan Type-A
- Phillips Pan Type-AB
- Phillips Hex Washer Type-A
- Phillips Hex Washer Type-AB
- Phillips Oval Type-AB
- Phillips Oval Type-A, #6 Head
- Phillips Oval Type-AB, #6 Head
- Phillips Round Washer Type-A
- Phillips Truss Type-A

TAPPING SCREWS—TYPE-A & AB (18-8 SS)

- Phillips Flat Type-A
- Phillips Pan Type-A
- Phillips Pan Type-AB
- Unslotted Hex Washer Type-AB
- Six-Lobe Pan
- Phillips Truss Type-AB
- Slotted Indented Hex Washer
 - Type-A
 - Type-AB
 - Serrated Type-AB
- Unslotted Indented Hex Washer
 - Type-A
 - Type-AB
 - Serrated Type-AB

TAPPING SCREWS—TYPE-A & AB (18-8 SS, CONT)

- Six-Lobe Flat Type-AB
- Six-Lobe Pan Type-AB
- Square Pan Type-A
- Square Pan Type-AB

TAPPING SCREWS—TYPE B (STEEL)

- Phillips Flat
- Phillips Flat Undercut
- Phillips Pan
- Phillips Truss
- Slotted Hex Washer
- Unslotted Hex Washer

HIGH-LOW SCREWS (STEEL)

- Phillips Flat
- Unslotted Hex Washer
- Phillips Pan
- Six-Lobe Flat
- Six-Lobe Pan

DRIVE SCREWS—TYPE-U (STEEL)

- Round Head

THREAD-CUTTING SCREWS (18-8 SS)

TYPE-F

- Phillips Flat Undercut

THREAD-CUTTING SCREWS (STEEL)

TYPE-F

- Phillips Flat
- Phillips Flat Undercut
- Phillips Pan
- Phillips Truss
- Slotted Hex Washer
- Unslotted Hex Washer

TYPE-1

- Phillips Pan
- Unslotted Hex Washer

TYPE-23

- Phillips Pan
- Slotted Hex Washer
- Unslotted Hex Washer

TYPE-25

- Phillips Flat
- Phillips Pan

THREAD-ROLLING SCREWS

GENERIC-ALTERNATIVES TO TAPTITE II* (STEEL)

- Phillips Flat
- Phillips Flat Undercut
- Phillips Pan
- Slotted Hex Washer
- Unslotted Hex Washer
- Six-Lobe Flat
- Six-Lobe Pan

GENERIC-ALTERNATIVES TO PLASTITE** (18-8 SS)

- Phillips Pan
- Six-Lobe Pan

GENERIC-ALTERNATIVES TO PLASTITE** (STEEL)

- Phillips Flat
- Phillips Flat Undercut
- Phillips Pan
- Unslotted Hex Washer
- Six-Lobe Flat
- Six-Lobe Flat Undercut
- Six-Lobe Pan

BOLTS, CAP & FLANGE SCREWS

- Hex Cap Screws
- Carriage Bolts—Round Head, Square Neck
- Serrated Hex Flange Screws

SELF-DRILLING SCREWS (410 SS)

- Unslotted Hex Washer

SELF-DRILLING SCREWS (STEEL)

- Phillips Flat
- Phillips Hex Washer
- Phillips Oval
- Phillips Pan
- Phillips Modified Truss (Black Phosphate)
- Phillips Wafer w/ Machine Screw Thread
- Slotted Hex Washer
- Unslotted Hex Washer
- Square Recess Pan

NUTS (STEEL)

- Acorn Cap
- Hex Machine Screw
 - Standard Pattern
 - Small Pattern
- Square Machine Screw
- Finished Hex, Low Carbon
- Finished Hex, Grade-5
- Heavy Hex
- Hex Jam
- Serrated Hex Flange Lock
- K-Lock
- Nylon Insert Stop
 - Light Hex, Standard Height
 - Light Hex, Thin Height
- Two-Way Reversible Stop
- Wing, Cold-Forged
- Wing, Stamped

NUTS (18-8 SS)

- Finished Hex
- Hex Machine Screw
- K-Lock
- Nylon Insert Stop

WASHERS (18-8 SS)

- External Tooth Lock
- Regular Split Lock
- Flat Machine Screw

WASHERS (STEEL)

- Tooth Lock
 - External
 - Internal
 - External-Internal Combo
- Regular Split Lock
- Flat Machine Screw
- S.A.E. Low Carbon Flat
- U.S.S. Low Carbon Flat
- Fender
- Countersunk Finishing

WOODWORKING SCREWS

DEEP THREAD STYLE

- #8 Flat Square w/ Nibs & Type-17 Point
- #8 Flat Square-Phillips w/ Nibs & Type-17 Point
- Flat Phillips No Nibs
- Flat Phillips w/ Nibs
- Flat Square-Phillips
- Flat Square
- Flat Phillips w/ Nibs & Type-17 Point

WOODWORKING SCREWS (CONT)

DEEP THREAD STYLE

- Flat Phillips w/ No Nibs & Type-17 Point
- Flat Square-Phillips w/ Nibs & Type-17 Point
- Flat Square w/ Nibs & Type-17 Point
- Flat Square w/ No Nibs & Type-17 Point
- Large Round Washer Phillips w/Type-17 Point
- Pan Phillips
- Pan Square
- Pan Square-Phillips w/ Type-17 Point
- Pan Phillips w/ Type-17 Point
- Round Washer Six-Lobe w/ Type-17 Point
- Round Washer Square
- Round Washr Square-Phillips w/ Type-17 Point
- Round Washer Square w/ Type-17 Point
- Truss Phillips
- #8 Truss Phillips w/#6 Head
- #8 Truss Square-Phillips w/ #6 Head
- Truss Phillips w/ Type-17 Point
- Face-Framing Screws, #7 Head w/ Type-17 Point
 - Pan Phillips, Fine Thread
 - Pan Square, Coarse Thread
 - Pan Square, Fine Thread
- Hinge Screws
 - Flat Phillips
- Full-Body Wood Screws
 - Phillips Flat, Full Body

SELF-CLINCH STUDS

- Flush Head, 12 Rib Style

THUMB SCREWS

- No Shoulder
- With Shoulder

BLACK ZINC (STEEL)

MACHINE SCREWS

- Phillips Flat 82°
- Phillips Flat 100°
- Phillips Flat Undercut
- Phillips Oval
- Phillips Pan
- Phillips Round
- Phillips Truss
- Slotted Oval
- Slotted Pan
- Slotted Truss
- Slotted Round
- Six-Lobe Pan
- Phillips Pan External SEMS
- Phillips Pan Internal SEMS
- Six-Lobe Pan External SEMS

SELF-TAPPING SCREWS

TYPES A & AB

- Phillips Flat 82° Type-A
- Phillips Flat 82° Type-AB
- Phillips Flat Undercut Type-AB
- Phillips Hex Washer Type-AB
- Phillips Pan Type-AB
- Phillips Pan Type-A
- Phillips Oval Type-AB
- Phillips Oval Undercut Type-AB
- Phillips Round Washer Type-A
- Phillips Truss Type-A
- Phillips Truss Type-AB
- Hex Washer Slotted Type-AB
- Hex Washer Unslotted Type-AB
- Six-Lobe Pan Type-AB

BLACK ZINC (STEEL)

SELF-TAPPING SCREWS (CONT)

TYPE-B

- Phillips Flat Undercut
- Phillips Pan

HIGH-LOW SCREWS

- Phillips Flat
- Phillips Pan
- Six-Lobe Flat
- Six-Lobe Pan

THREAD-CUTTING SCREWS

- Phillips Pan
 - Type-23
 - Type-25
 - Type-F
- Phillips Truss Type-F

THREAD-ROLLING SCREWS

GENERIC-ALTERNATIVES TO TAPTITE II**

- Phillips Pan

GENERIC-ALTERNATIVES TO PLASTITE**

- Phillips Pan
- Six-Lobe Pan

SELF-DRILLING SCREWS

- Phillips Flat, #2 point
- Phillips Flat Undercut
- Phillips Pan, #2 & #3 point
- Hex Washer Unslotted, #2 & #3 point
- Wafer Phillips w/ Machine Screw Threads, #3 point

NUTS

- Acorn Hex Cap Nut
- Hex Machine Screw Nut
 - Standard Pattern
 - Small Pattern
- Finished Hex Nut
- Hex Jam Nut
- K-Lock Nuts
- Serrated Flange
- Nylon Insert Stop
 - Light Hex, Standard Height
 - Light Hex, Thin Height
- Tee-Nut, 3-Prong
- Two-Way Reversible

WASHERS

- External Tooth Lock
- Internal Tooth Lock
- Regular Split Lock
- Flat S.A.E.
- Flat U.S.S.
- Flat Machine Screw
- Countersunk Finishing

METRIC BLACK OXIDE

MACHINE SCREWS (STAINLESS)

- DIN 965 Phillips Flat
- DIN 7885A Phillips Pan

MACHINE SCREWS & SEMS (STEEL)

- DIN 965 Phillips Flat
- DIN 7885A Phillips Pan
- ISO 7045 Phillips Pan External-Tooth SEMs
- ISO 7045 Six-Lobe Pan

NUTS (STAINLESS)

- DIN 934, Class 50

NUTS (STEEL)

- DIN 985 Nylon Insert, Class 8

WASHERS (18-8 STAINLESS)

- DIN 125A Standard Flat
- DIN 127B Split Lock

WASHERS (STEEL)

- DIN 6787A External Tooth L/W
- DIN 6787J Internal Tooth L/W



BLACK OXIDE FINISH

Black oxide is a conversion coating (as opposed to an applied coating) because it results from a chemical reaction with the iron present in the metal fastener and forms an integral protective surface. It is a color of the base metal, which neither removes nor deposits metal; therefore it adds, at the most, 5 to 10 millionths of an inch to the fastener's dimensions. Likewise, it cannot chip, peel or rub off. Also, the item maintains 99% of its conductivity making black oxide a popular finish for electrical parts.

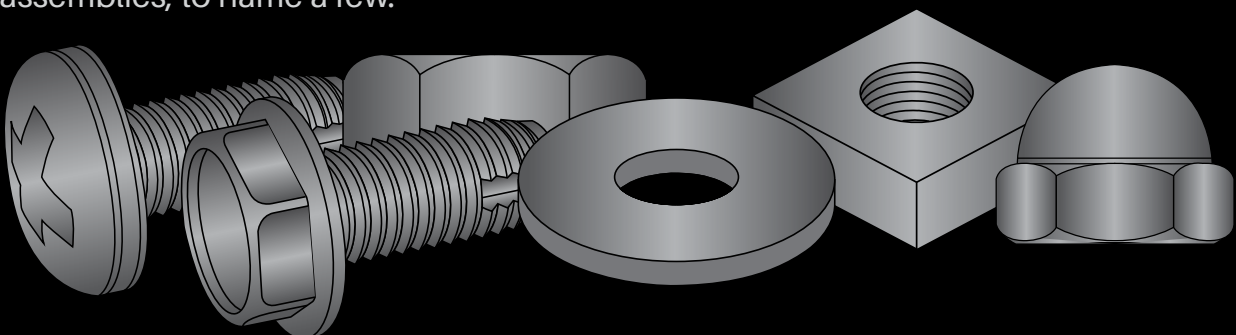
When a black oxide finish is specified, it is interpreted as "Black Oxide and Oil". Other supplementary coatings such as wax or lacquer may be ordered, but fasteners with those finishes are usually not available from a distributor's stock.

Typically, the oil after-finish is dry to the touch, which gives the part a lustrous appearance and improved lubricity without excessive residue. The color is a deep black rather than the grayish-black appearance of a black phosphate, and remains consistent at temperatures as high as 900°F. Black oxide also resists abrasions better than phosphate.

One of the most important advantages of black oxide is that there is almost no risk of hydrogen embrittlement because the process does not involve electroplating nor does it require an acid-activation. Case hardened parts need not be baked after receiving a black oxide finish.

Black oxide neither enhances nor detracts from a fastener's resistance to corrosion. The post-treatment oil application offers good indoor corrosion protection, but a zinc-plated part is more resistant to rust. However, parts with a black oxide finish will not suffer from white corrosion, which can occur over time with electro-plated parts. To avoid the risk of white corrosive particles (which can cause electrical shorts) many in the electronics industry opt for black oxide instead of zinc-plated fasteners.

The popularity of black oxide stainless fasteners is also growing. In addition to being used for decorative purposes, the finish reduces light glare and reflection, and makes the surface of the fastener smoother. The automotive aftermarket utilizes them in tail-light assemblies, luggage racks, grills and windshield wiper assemblies, to name a few.





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